

Table 4-1. Responses to Comments

Letter No.	Comment No.	Comment	Response
261	1	I don't think I'm in support of the current plan!	Please see Common Response 1.1, General Comments, for responses to comments that make general comments, do not raise specific environmental impacts of the project, or do not raise specific economic effects of the project.
261	2	Living on the SF Bay in Alameda, I'd expect the fish to be plentiful. Instead many of them are endangered because we aren't giving them enough water! Fish should be considered more important than agricultural profits. Entire cities should not be deprived of their fish. Allowing the State's salmon runs to continue their catastrophic downward trajectories amounts to the sanctioned theft of the people's natural resource – a resource that coastal towns, families, river ecosystems, the fishing industry, cultures, and many tens of thousands of jobs in California and Oregon depend on. Additionally, we have witnessed hazardous algal blooms making people sick and killing pets and wildlife, and the listing of six species of fish as threatened or endangered in our Delta. Commercial fishing is now closed in the Bay-Delta for the following species: Green sturgeon, White Sturgeon, Delta Smelt, Longfin Smelt, Starry Flounder, American Shad, Striped Bass, Oysters and Clams. Further, there is now extraordinarily limited commercial fishing for other Bay-Delta species, which were formerly abundant, including Bay shrimp and anchovies. Since the Board is the only agency with legal authority to set flow and temperature protections for Fall-run Chinook, it is imperative that science, not politics, drives a plan to restore salmon...a plan that saves people.	Please see Common Response 1.1, General Comments, for responses to comments that make general comments, do not raise specific environmental impacts of the project, or do not raise specific economic effects of the project. See also Common Response 4.1, Harmful Algal Blooms, for a discussion of harmful algal blooms in the Bay-Delta.
261	3	The Board must update the current failed standards that were adopted in 1995 to reverse declines of salmon so I strongly urge you to adopt an “unimpaired flow” approach. As we all know, fish need water and flows that are allowed to come down Central Valley rivers and through the Delta directly impact critical salmon issues such as water temperature, water quality and accessible and functional floodplain habitats that baby salmon	Please see Common Response 1.1, General Comments, for information on the Delta Flow Criteria Report and for responses to comments that make general comments, do not raise specific environmental impacts of the project, or do not raise specific economic effects of the project. Also see Common Response 1.2, Water Quality Control Planning Process, for information on the consideration of beneficial uses.

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		need to survive and thrive. The unimpaired flow approach would mimic the natural hydrographic, of which salmon are adapted. The Board must set a standard requiring a minimum of 65% of unimpaired flow from January to June, combined with temperature protections at major Central Valley reservoirs, if Central Valley salmon are to be restored. Moreover, the Board's 2010 Flow Criteria Report found that 75% of unimpaired flow on the Sacramento River and its tributaries and 75% of unimpaired Delta outflow are needed to protect the Bay-Delta ecosystem. It is also imperative to safeguard beneficial uses pertaining to commercial, recreational, tribal and subsistence fishing. The only way to restore and sustain Central Valley salmon runs is to require flow and temperature protections that enable them to survive.	
262	1	I am writing on behalf of the members of the California Farm Water Coalition (Coalition) to express our support for the alternative proposal, the "Agreements to Support Healthy Rivers and Landscapes," to the SWRCB staff recommendation for unimpaired flows. This alternative is a more promising avenue for achieving a balanced and sustainable water management strategy for California. First, we support the emphasis on collaboration over regulation in these agreements. Unlike the more rigid mandates proposed by the Board's staff, these agreements encourage stakeholders to work together, fostering shared responsibility. This approach promotes inclusivity and cooperation, providing a platform for finding solutions that meet both environmental needs and the requirements of the agricultural sector. Second, the focus on innovation and investment in water infrastructure is noteworthy. Active participation in decision-making encourages participants, including farmers and environmental advocates, to invest in modern and efficient water technologies. This collaborative approach stimulates the development and implementation of cutting-edge solutions, enhancing water use efficiency and minimizing environmental	Please see Common Response 1.1, General Comments, for responses to comments that make general comments, do not raise specific environmental impacts of the project, or do not raise specific economic effects of the project.

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		impact. Third, the path outlined in these agreements allows for adaptive management, acknowledging the dynamic nature of California's water needs influenced by factors such as climate uncertainties and population growth. The flexibility to adjust strategies in response to evolving conditions ensures that water management practices remain effective in the face of changing circumstances, contributing to long-term sustainability and resilience. Moreover, the recognition of local expertise in the Agreements to Support Healthy Rivers and Landscapes is commendable. Leveraging the unique insights of communities and industries across California enables the development of region-specific strategies, fostering a more nuanced and effective approach to water management.	
262	2	While the Coalition acknowledges the State Water Resources Control Board staff's recommendation for minimum flow standards aims to address significant challenges, we believe that the Agreements to Support Healthy Rivers and Landscapes present a more holistic and promising option. Through collaboration, adaptability, innovation, and local engagement, this path respects the diverse needs of California's communities and ecosystems. It is our sincere hope that the Board considers these comments in the pursuit of sustainable water management for the Golden State. The Coalition appreciates the Water Board's diligence and attention to this critical matter. It is clear that a one-size fits all strategy is not the answer to California's diverse water supply and ecosystem challenges. With many examples of successful collaborative efforts by public water agencies, farmers, State and federal agencies, and members of the conservation community, we urge the Board to adopt the Agreements to Support Healthy Rivers and Landscapes option. It is faster, smarter, and will be more effective than a flows-only alternative.	Please see Common Response 1.1, General Comments, for responses to comments that make general comments, do not raise specific environmental impacts of the project, or do not raise specific economic effects of the project.
263	1	I spent my career preventing pollutant discharges to the South San Francisco Bay; I now live in the Yuba River watershed where I work to improve conditions for salmonids. I am a native Californian and am fully vested in this watershed and	Please see Common Response 1.1, General Comments, for responses to comments that make general comments, do not raise specific environmental impacts of the project, or do not raise specific economic effects of the project.

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		proceedings. As Governor Newsome has said, "We have to respect and recognize that we designed a water delivery system for a world that no longer exists." In the spirit of collaboration, I support implementing a high flow alternative AND accepting the VA non-flow offerings.	
263	2	I also support adoption of Tribal Beneficial Uses.	Please see Common Response 11.1, Tribal Engagement and Tribal Beneficial Uses, for responses to comments related to Tribal Beneficial Uses. Please see Staff Report Chapter 13, Revised Proposed Plan Amendments, for additional information on incorporation and designation of Tribal Beneficial Uses.
263	3	The citizens of California affirmed with CEQA over a half century ago at Public Resources Code Section 21000 (f), "The interrelationship of policies and practices in the management of natural resources and waste disposal requires systematic and concerted efforts by public and private interests to enhance environmental quality and to control environmental pollution." [Footnote 1: https://leginfo.legislature.ca.gov/faces/codes_displaySection.xhtml?lawCode=PRC&sectionNum=21000]. ENHANCE environmental quality and CONTROL environmental pollution are key words to contemplate. A recent paper published in the International Journal of Environmental Research and Public Health, states, Resource and Environmental Carrying Capacity is "...the maximum amount of resources that nature can provide for human activities and sustaining social development without causing irreversible damage to the ecosystem... the carrying capacity of resources and environment will face the risk of overload, and once the carrying capacity of resources and environment is overloaded, the resource– environment–society system will collapse..."[Footnote 2: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8657030/Introduction]. 15 years ago the State of Bay-Delta Science report stated, "The capacity of the Sacramento-San Joaquin water system to deliver	Please see Common Response 1.1, General Comments, for responses to comments that make general comments, do not raise specific environmental impacts of the project, or do not raise specific economic effects of the project.

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		human, economic and environmental services is likely at its limit. To fulfill more of one water-using service we must accept less of another.” [Footnote 3: https://escholarship.org/uc/item/7jz6v535 Table 2, Perspective 5]. Something has to give and the ecology of the Headwaters - Central Valley - San Francisco Bay - Delta Watershed has no more to give. Fundamentally, the system is over allocated, extended past its Resource and Environmental Carrying Capacity and we now face the collapse of the “the resource–environment–society system” upon which we rely.	
263	4	We have a Code 3, lights and sirens ecological emergency in front of us. Emergency responders take the highest impact action first. It is often costly and inconvenient, but must be done so the emergency yields to responder control. Once control is established, incremental actions become useful again, but not before. The out of control collapse of the wild salmonid fishery and the overall demise of the Headwaters - Central Valley - San Francisco Bay - Delta Watershed is significantly driven by the exclusion of about 90% of salmonid habitat behind dams. While every effort should be made to increase habitat, the habitat lost cannot actually be mitigated. The science shows that increased flow is the single highest impact forcing factor on the fecundity of the species [Footnote 4: https://www.waterboards.ca.gov/waterrights/water_issues/programs/bay_delta/docs/sed/sac_delta_framework_070618%20.pdf Section 2.2, page 6]... and MOST IMPORTANTLY, flow is the only significant forcing factor that you, the State Water Resources Control Board can control quickly. Courageous emergency response is required. Please implement a high flow alternative AND the VA non-flow habitat enhancements; implement the TBU’s. After you have regained measurable control of the ecological emergency, we can deliberate about incremental actions and fine tuning.	Please see Common Response 1.1, General Comments, for responses to comments that make general comments, do not raise specific environmental impacts of the project, or do not raise specific economic effects of the project.

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264	1	The SWC appreciates and congratulates the staff of the Water Board for completing the Draft Staff Report, which is an important milestone and a crucial step toward completing the current update to the Bay- Delta Water Quality Control Plan (Bay-Delta Plan). As part of this letter, the SWC are providing detailed technical and legal comments on the Draft Staff Report, attached hereto [Attachment 1] and incorporated herein. These comments explain that the analysis in the Draft Staff Report supports the adoption of the Healthy Rivers and Landscapes Agreements (Agreements), Alternative 6. It is the only alternative that can be immediately implemented at the finalization of the Bay-Delta Plan update, the only alternative that can protect all beneficial uses of water, and the only alternative that complies with Porter-Cologne Water Quality Control Act ("Porter-Cologne"). The State Water Board cannot adopt the Proposed Plan Amendment, Alternatives 2-5 (Unimpaired Hydrograph Alternatives), or any of the narrative or modular alternatives, because these alternatives are too vaguely described to inform the State Water Board and public as to what is being proposed or to be the basis for informed decision-making, including making required findings under Porter-Cologne or the California Environmental Quality Act (CEQA). The incomplete description of these alternatives results an inadequate project-level impacts analysis. Similarly, the proposed mitigation for the potentially significant impacts resulting from all Unimpaired Hydrograph Alternatives would also require further analysis. The Draft Staff Report largely assumes that all impacted regions can bear any burden and effectively mitigate it without any negative repercussions. There is no basis for that assumption. The evaluation and information presented in the Draft Staff Report demonstrate the assumption is incorrect.	Please see Common Response 1.3, Revised Proposed Plan Amendments, regarding the VA process and descriptions of the State Water Board's regulatory pathway and the VA pathway. Please see Common Response 7.24, Alternatives Analysis, regarding analysis and description of the narrative and modular alternatives contained in the 2023 draft Staff Report and response to comments asserting that the State Water Board has not adequately described alternatives in the Staff Report. Please see Common Response 7.1, General CEQA and Approach to the Analysis, for a discussion of the level and scope of the project description and the analysis conducted in the Staff Report and a discussion of the State Water Board's role in analyzing and proposing mitigation measures.
264	2	Healthy Rivers and Landscapes Agreements (Alternative 6) is immediately implementable because it is fully defined and immediately enforceable. The Agreements include firm commitments to water and funding, as well as firm commitments to physical habitat restoration. The environmental water supply commitments are	Please see Common Response 1.1, General Comments, for responses to comments that make general comments, do not raise specific environmental impacts of the project, or do not raise specific economic effects of the project

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		specific, identifying the source of supply, the quantity of water, and the range of flows to be provided in each month of the year in each water year type. The Agreements identify how the water will be made available (i.e., land fallowing, export curtailments, reservoir reoperation) and by whom. There will be contractual enforcement mechanisms through a series of agreements (i.e., global, tributary, and enforcement) that will provide the Water Board enforcement authority over all Agreement participants of a similar nature and extent as under its otherwise existing authority for water right orders. The Agreements already include a clearly defined multi-party adaptive management process that includes the Water Board staff, state and federal fishery agencies, the Bureau of Reclamation, the Department of Water Resources, Agreement participants, and other interested entities. The adaptive management structure is designed to enhance learning and thus the benefits to fish while implementing immediately available and clearly defined environmental assets. Annual and triennial reporting is also included in the Agreements to provide the Water Board and public information on the Agreements' implementation and outcomes.	
264	3	Healthy Rivers and Landscapes Agreements Alternative (Alternative 6) is the only alternative that protects all beneficial uses of water. The Agreements will provide reasonable protection for all beneficial uses of water. The Agreements are layered on top of and will be implemented concurrent with the existing water quality objectives. The additional benefits of the Agreements as compared to the baseline were described in Appendix G2 and include increased abundance for estuarine species and increased suitable habitat benefits for estuarine and salmonid species. While the water supply assets are significant (500,000 to 700,000 acre-feet over baseline in dry, below normal, and above normal water year types), the Agreements avoid the negative impacts related to lower reservoir storage and elevated downstream water temperatures that result from the Unimpaired Hydrograph Alternatives, as shown in the Draft Staff Report. The Agreements were developed and designed to provide additional flow without impairing upstream storage required to maintain cold water temperatures for fish spawning	Please see Staff Report Chapter 7, Environmental Analysis, Chapter 8, Economic Analysis and Other Considerations, Chapter 9, Proposed Voluntary Agreements, and Chapter 13, Revised Proposed Plan Amendments, for analyses of the environmental and economic impacts from the regulatory and VA pathways of the revised proposed Plan amendments. Also see Common Response 1.2, Water Quality Control Planning Process, for information on the consideration of beneficial uses, Common Response 6.2, Baseline and No Project Alternative, for details on the baseline that was used to analyze the VAs, and Staff Report Chapter 13, Revised Proposed Plan Amendments, for the volumes of the flow commitments.

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		and rearing. The Agreements were formulated to avoid these negative effects, which is possible because the dedicated supply is provided within the flexibility available to the various participants and is spread across nearly every major water diverter in the Sacramento River watershed. The same cannot be said of the other alternatives. These other Unimpaired Hydrograph Alternatives would have significant, adverse impacts on salmon, water supply, hydropower, housing, groundwater, affordability, and local economies.	
264	4	The Healthy Rivers and Landscapes Agreements alternative (Alternative 6) is unique and distinguishable from all Unimpaired Hydrograph Alternatives. The Agreements are substantially different than the Unimpaired Hydrograph Alternatives. The Unimpaired Hydrograph Alternatives lack meaningful voluntary implementation, cannot be implemented as quickly as the Agreements, and were not developed with flow integrated with non- flow actions. There are elements of the Unimpaired Hydrograph Alternatives that appear similar to the Agreements. Although the appearance is there, the substance is not. While we appreciate that there is a voluntary implementation option included, the detail surrounding that implementation option is insufficient to determine how it would be implemented without significant environmental impacts and while protecting all beneficial uses of water. For example, the Draft Staff Report suggests that compliance could be through the dedication of blocks of water stored in reservoirs that are then released on schedules that “shape” flows. Such an option would necessarily require a significant reoperation of reservoirs and dedication of available storage space. However, there was no analysis to demonstrate that the reservoirs contain sufficient capacity and operational flexibility to meet existing regulatory requirements while avoiding significant impacts while also providing “shaping” flows.	Please refer to Common Response 1.3, Revised Proposed Plan Amendments, regarding the revised proposed Plan amendments, voluntary implementation (currently referred to as “local cooperative solutions”), and flow “shaping.” Also see Sections 5.4.2.4, Implementation, and 6.2.2, Unimpaired Flow Scenario Assumptions of the 2023 draft Staff Report for more information on the description and modeling, respectively, of flow shaping.
264	5	The Unimpaired Hydrograph Alternative voluntary implementation also includes flexibility to provide a lower unimpaired hydrograph percent, although not less than 45%, with one of the considerations being upstream temperature	Please see Common Response 7.6.2, Aquatic Biological Resources and Cold Water Habitat, regarding measures for implementation of the cold water habitat object and development of long-term strategies.

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		protection, but there is no analysis showing that temperature protection can be achieved at 45% of the unimpaired hydrograph. Operating to a lowered unimpaired hydrograph based on voluntary implementation is also based on “equivalent protection,” but no information was provided that explains how that would be determined. As currently described, the voluntary implementation option presented for the Unimpaired Hydrograph Alternatives is insufficient to inform the State Water Board and the public or to satisfy the requirements of Porter-Cologne and the California Environmental Quality Act.	Please note that the voluntary implementation plans described in Staff Report Chapter 5, Proposed Changes to the Bay-Delta Plan for the Sacramento/Delta, are now referred to as local cooperative solutions to avoid confusion with the voluntary agreements. Also see Common Response 1.3, Revised Proposed Plan Amendments, regarding local cooperative solutions. See Common Response 1.2, Water Quality Control Planning Process, regarding the Porter-Cologne Water Quality Control Act and the Clean Water Act. See Common Response 7.1, General CEQA and Approach to the Analysis, regarding the use of the Staff Report to meet CEQA requirements and the approach to the analysis.
264	6	The Agreements are also different because they can be immediately implemented. The Draft Staff Report admits that major aspects of the Unimpaired Hydrograph Alternatives have not been determined, thereby delaying the development of these alternatives until the implementation stage. The implication of this delay is that the Unimpaired Hydrograph Alternatives cannot be immediately implemented after the amendment to the Bay-Delta Plan is finalized. The missing information is significant and cannot be quickly and easily determined. For example, there has been no explanation of how the hydrograph would be calculated based on a 7-day average since, by its nature, the hydrograph is unknown until the corresponding hydrology has occurred and the flows have left the system. Since the unimpaired hydrograph is an artificial condition, being an after-the-fact calculation, the calculation cannot be the basis for a regulation. The modeling in the Draft Staff Report appears to be based on perfect knowledge of hydrology before it occurred, which is not possible in the real world. The Draft Staff Report also fails to describe how the bypassed unimpaired flow would be protected from subsequent downstream diversion, an action that would require that available flow be continuously calculated and that every diverter in the system be continuously informed as to how much they could divert based on real-time data on downstream diversions. Weekly management of every diverter in the system is impossible in light of the comparatively infrequent (not real-time on a 7-day average) diversion	As described in Common Response 1.3, Revised Proposed Plan Amendments, the inflow requirements would be implemented by curtailments in order of water right priority issued by the State Water Board when water is not available at a water right holder’s priority of right, after accounting for the flow requirement. Further details on the implementation will be contained in the implementation methodology. The implementation methodology will be based in part on the methodology used to issue curtailments during the last drought. The commenter provides no basis for the claim that calculations cannot be used in regulations.

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		reporting. These significant issues and others would have to be addressed before the Unimpaired Hydrograph Alternatives could be implemented. The Agreements could be implemented immediately.	
264	7	The Agreements are also different because they include a combination of flow and non-flow commitments. The SWC appreciates the acknowledgment of the importance of physical habitat restoration in the Draft Staff Report's description of Unimpaired Hydrograph Alternatives. However, there is no actual commitment to new habitat restoration associated with any alternative other than for the Health Rivers and Landscapes Agreements. While the Draft Staff Report acknowledges that voluntary implementation of the Unimpaired Hydrograph Alternatives could consider habitat restoration, the Draft Staff Report does not explain how habitat would be considered and accounted for in any future permitting decisions. The adoption of any voluntary implementation of the Unimpaired Hydrograph Alternatives would also require further permitting since there is no analysis of it in the Draft Staff Report.	Staff Report Section 7.21, Habitat Restoration and other Ecosystem Projects, evaluates the potential environmental impacts of physical habitat restoration and other complementary ecosystem projects that entities may undertake toward achieving the overall goal of improving conditions for fish and wildlife in the Sacramento/Delta. The analyses and permitting structure apply for both VA habitat restoration projects and other habitat restoration projects. Before a habitat restoration or other complementary ecosystem project can be implemented, permit approval may be required from one or more local, state, federal, or tribal agencies. Depending on the size and scale, projects may fit within a categorical exemption under CEQA. Other larger-scale activities would be subject to a more extensive project-level CEQA analysis, which would entail project-specific identification of any potentially significant environmental impacts and mitigation measures. In 2022, the State Water Board adopted the Proposed Clean Water Act section 401 and Waste Discharge Requirements General Order for Restoration Projects Statewide that will expedite the regulatory approval of large habitat restoration projects. Please see Common Response 1.3, Revised Proposed Plan Amendments, for information on the non-flow habitat restoration measures included in the revised proposed Plan amendments.
264	8	Parallel regulatory implementation path should be flexible. We understand that the Healthy Rivers and Landscapes Agreements are an implementation path that would be implemented in parallel with a regulatory alternative. However, the Draft Staff Report does not explain how two different and parallel implementation methods would be concurrently implemented, and there is no modeling, so we do not know what the Water Board staff will propose as a regulatory path. Two different and parallel implementation methods would be a significant technical challenge. Implementing a true Unimpaired Hydrograph Alternative that is managed weekly while the	Section 9.1, Introduction, of the 2023 draft Staff Report explained how the proposed Plan amendments described in Chapter 5, Proposed Changes to the Bay-Delta Plan for the Sacramento/Delta, would apply as a regulatory pathway in the absence of VAs. Please see Staff Report Chapter 13, Revised Proposed Plan Amendments, and Common Response 1.3, Revised Proposed Plan Amendments, for more information on the regulatory pathway.

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		remainder of the watershed is operating to the Agreements seems like an insurmountable challenge and a significant burden on Water Board staff that would be responsible for implementing complex calculation for only a handful of diverters. The SWC proposes that the Water Board maintain maximum flexibility when developing the parallel regulatory approach under the Agreements alternative, focusing on simple and manageable options while also monitoring all diverters throughout the system to ensure that Agreement flows are protected for their intended Delta outflow and instream uses.	
264	9	In closing, we thank you for the significant amount of effort that was put into this important document and the opportunity provided to review and comment on it. We are eager to collaborate with you to demonstrate that the Agreements is the only path available to reasonably balance all the beneficial uses.	Please see Common Response 1.1, General Comments, for responses to comments that make general comments, do not raise specific environmental impacts of the project, or do not raise specific economic effects of the project.
264	10	[ATT 1:] Introduction The Draft Staff Report evaluates multiple alternatives, including the proposed Plan amendment, four variations of the unimpaired hydrograph (35%, 45%, 55%, 65% and 75%), three narrative objectives (Cold Water Habitat, Inflow and Outflow), several modular alternatives (modulars) associated with proposed changes to SWP and CVP operations, two drought response modular alternatives (herein collectively referred to as "Alternatives"), and the Healthy Rivers and Landscapes Agreements (Agreements). There is also a modular for the Agreements that would restrict flows available to future projects. We understand the "proposed Plan action" to be the five amendments described in the 2018 Framework, which includes a range of 45%-65% of the unimpaired hydrograph with a default of 55% of the unimpaired hydrograph plus other numeric and narrative objectives. Our comments focus on the modeling results for 55% of the hydrograph as the full proposed Plan amendment was not modeled. These comments are addressing the analysis associated with all Alternatives except the Healthy Rivers and Landscapes	The impacts of all the components of the proposed Plan amendments were analyzed in Chapter 7, Environmental Analysis, of the 2023 draft Staff Report. All alternatives in the Staff Report were analyzed in Chapter 7 and Chapter 9, Proposed Voluntary Agreements, of the 2023 draft Staff Report.

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		Alternative. Our comments focus more heavily on the proposed Plan amendments and Alternatives 2-5 (Unimpaired Hydrograph Alternatives) because these Alternatives were modeled and analyzed across resource areas, which is not true for any of the other Alternatives except the Healthy Rivers and Landscapes Agreements. While we have many concerns about the Draft Staff Report, we really do appreciate the State Water Resources Control Board (Water Board) staff's efforts to put together multiple alternatives and analysis to support the Water Board's decision-making and the public's understanding of the implications of difference ways of approaching the Water Quality Control Plan Update (WQCP). We understand that analyzing the effects of multiple alternatives in a large and complex watershed is very complicated.	
264	11	[ATT 1:] We also appreciate the Water Board staffs' patience in answering the public's multiple questions in public forums throughout this process. We found the Water Board's hearings and workshops very useful. These comments are intended to support the Water Board's decision-making by explaining the nature and extent of our concerns.	Please see Common Response 1.1, General Comments, for responses to comments that make general comments, do not raise specific environmental impacts of the project, or do not raise specific economic effects of the project.
264	12	[ATT 1:] Overall, the Draft Staff Report, to support the adoption of any of the Alternatives, would need to include further detail and analyses to fully comply with the California Environmental Quality Act (CEQA). The analyses of the Alternatives are flawed because they are not fully developed and described, which means they could not be fully analyzed and the public and decision-makers have not received sufficient information to understand what is being proposed and the effects on the environment. For many resource areas, there is no modeling of their effects, rather there is a high-level discussion with an estimate of effects covering the broadest conceivable range of possible outcomes, which is not informative. In most cases, partly due to the roughly estimated range of impacts, it is impossible to determine the technical basis for conclusions and conclusions seem inconsistent within and across resource areas. And finally, the mitigation sections switch the burden of mitigating the significant impacts of Alternatives, with or without modulars, to the impacted regions, listing conceivable mitigation without determining feasibility, cost or the	The 2023 draft Staff Report described the alternatives in Section 7.2, with sufficient detail for the purposes of the analysis. These alternatives were adequately analyzed in Section 7.24 of the 2023 draft Staff Report. Please see Common Response 7.24, Alternatives Analysis, for more information on the description and analysis of alternatives. Also see Common Response 7.1, General CEQA and Approach to the Analysis, for information on the level and scope of the analysis; and Common Response 7.24, Alternatives Analysis, for more information on the description and analysis of alternatives. Also see Common Response 1.2, Water Quality Control Planning Process, regarding the Porter-Cologne Water Quality Control Act; Public Trust Doctrine; and California Constitution, Article X, section 2.

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		effectiveness of the mitigation, while absolving the Water Board from any mitigation responsibility even though the impacts would be a direct result of Water Board actions and authority. However, there is feasible mitigation that the Water Board could adopt, such as selecting an alternative with fewer significant impacts or providing funding and other sources of support to the impacted regions. While the Draft Staff Report is a CEQA document, it is also a Staff Report providing technical information to support the Water Board's decision-making. As the Water Board is required to complete the balancing of interests as part of its Porter-Cologne Water Quality Control Act (Porter- Cologne) and Public Trust responsibilities concurrent with the adoption of Water Quality Control Plan amendments, as to the Alternatives, the Draft Staff Report should have included appropriate substantial evidence to support that balancing, but it does not. The Draft Staff Report should have also provided specific enough information to show that those Alternatives would be expected to provide tangible benefits of sufficient magnitude to justify the reasonableness of the significant water cost, consistent with California Constitution Art. 10, sec. 2.	
264	13	[ATT 1:] The Draft Staff Report does not comply with the California Environmental Quality Act as it relates to the Alternatives. "CEQA does not require technical perfection in an EIR, but rather adequacy, completeness, and a good-faith effort at full disclosure. A court does not pass upon the correctness of an EIR's environmental conclusions, but only determines if the EIR is sufficient as an informational document." (14 Cal. Code Regs., § 15003, subd. (i).) The California Supreme Court laid out the purpose of CEQA and an EIR as follows: Because the EIR must be certified or rejected by public officials, it is a document of accountability. If CEQA is scrupulously followed, the public will know the basis on which its responsible officials either approve or reject environmentally significant action, and the public, being duly informed, can respond accordingly to action with which it disagrees." (Laurel Heights I,	Please see Common Response 1.1, General Comments, for responses to comments that make general comments, do not raise specific environmental impacts of the project, or do not raise specific economic effects of the project. To the extent that this comment summarizes other comments, please see the substantive responses to those comments. The 2023 draft Staff Report fully described the proposed Plan amendments in Chapter 5, Proposed Changes to the Bay-Delta Plan for the Sacramento/Delta, and the alternatives in Section 7.2, Description of Alternatives, with sufficient detail for the purposes of the CEQA analysis. Please see Common Response 7.24, Alternatives Analysis, for a discussion of the range of feasible alternatives, and the description and analysis of alternatives.

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		supra, at p. 392.) The EIR “protects not only the environment but also informed self-government. (Ibid.) (Sierra Club v. County of Fresno (2018) 6 Cal.5th 502, 511-512.) A claim that an agency failed to act in a manner required by law presents other considerations. Noncompliance with substantive requirements of CEQA or noncompliance with information disclosure provisions which precludes relevant information from being presented to the public agency may constitute prejudicial abuse of discretion within the meaning of Sections 21168 and 21168.5, regardless of whether a different outcome would have resulted if the public agency had complied with those provisions. (Pub. Resources Code § 21005(a).) The Draft Staff Report, as to the Alternatives, fails the basic informational purpose of CEQA, and its non-compliance precludes relevant information from being presented to the decision-maker and the public. As detailed below, as to the Alternatives, the Draft Staff Report is vague, inconsistent, confusing, and difficult to understand, all of which frustrates its effectiveness as an informational document.	
264	14	[ATT 1:] Project description and descriptions of alternatives are vague and inconsistent. A stable and consistent project description is essential to achieving CEQA’s mandate. “An accurate, stable and finite project description is the sine qua non of an informative and legally sufficient [CEQA document].” (County of Inyo v. City of Los Angeles (1977) 71 Cal.App.3d. 185, 193.) The description of Alternatives is incomplete and overlooks parts of the whole of the action. For example: - Proposed Plan Amendments: The Executive Summary states that the proposed Plan amendments are the five amendments described in the 2018 Framework. (DSR, p. 1-1.) This explanation is unclear, particularly as it relates to State Water Project (SWP) and Central Valley Project (CVP) “export constraints.” For example, the I:E ratio is an “export constraint” but it is also modular alternative 4(c), [Footnote 1: Since the I:E	The project is revised as described in Common Response 1.3, Revised Proposed Plan Amendments, and Chapter 1, Executive Summary has been revised to describe the revised proposed Plan amendments. All of the alternatives were analyzed. Alternative 4c was analyzed in Section 7.24, Alternatives Analysis, of the 2023 draft Staff Report. Please see Common Response 7.24, Alternatives Analysis, for more information on the analysis of alternatives. The commenter is confusing several provisions and alternatives in the Staff Report that relate to interior Delta flows: the proposed export limits described in Section 5.4.6.2, Export Limits, of the 2023 draft Staff Report, the extended export constraint alternative in modular Alternative 4c described in Section 7.2.3.5, Modular Alternatives for Interior Delta Flows/Fall Delta Outflow (Alternatives 4a, 4b, and 4c), of the 2023 draft Staff Report that would extend the export constraints to cover the full period of February through June, and the proposed Old and Middle River (OMR) reverse flows provision

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		Ratio is being proposed as a modular alternative, if not part of the proposed Plan Amendments, it is important to note that it has not been modeled and analyzed and therefore cannot be adopted. The description at Draft Report, p. 5-39, is not the same as that contained in the 2020 state Incidental Take Permit, as it has a different wet year flow and volume off-ramp.] which we understand to be a “stand- alone” alternative and the description states that the stand-alone modulars are not part of the proposed Plan amendments. Therefore, we cannot determine what export constraint exists in addition to the Old and Middle River flow (OMR) criteria, which is separately listed in the 2018 Framework. We cannot determine what OMR is being proposed. Based on the description it could be an OMR range between - 1,250 cfs to -5,000 cfs or OMR consistent with the 2019 Biological Opinion and 2020 state Incidental Take Permit. (DSR, pp. 5-39-5-40.) These two possible descriptions of OMR criteria are not the same. Additionally, it is unclear how these criteria relate to the proposed OMR criteria in the Biological Assessment (BA) recently submitted to National Marine Fisheries Service (NMFS) and U.S. Fish and Wildlife Service (USFWS) and the State’s Incidental Take Permit Application (ITP Application) recently submitted to California Department of Fish and Wildlife (CDFW).	described in Section 5.4.6.3, Old and Middle River Reverse Flows, of the 2023 draft Staff Report. Each of these provisions and alternatives are described in the sections cited in the preceding sentence. The proposed modification to the export limits objective in Section 5.4.6.2, Export Limits, of the 2023 draft Staff Report differs from the 2020 Incidental Take Permit (ITP) because the volume offramp is adjusted to include CVP in addition to the SWP, based on the Coordinated Operations Agreement. The flow offramp includes both the Vernalis offramp described in Section 5.4.6.2 as well as the Delta outflow offramp of 44,500 cfs in the 2020 ITP. The modeling in the 2023 draft Staff Report included the 44,500 cfs Delta outflow offramp and this offramp has now been added to Section 5.4.6.2. Because the modeling already included this offramp, this revision does not change any impact conclusions. The proposed OMR objective in Section 5.4.6.3, Old and Middle River Reverse Flows, of the 2023 draft Staff Report is not intended to be different from the description in the 2019 Biological Opinions and the 2020 ITP and the commenter has not described how they believe them to differ. The Staff Report appropriately considered reasonable assumptions about State Water Project and Central Valley Project operations for the analysis.
264	15	[ATT 1:] Narrative Cold Water Habitat Objective: The description of the proposed Cold Water Habitat narrative objective is too vague to be informative and implementable. For example, the proposed narrative Cold Water Habitat objective would require maintaining stream flows and storage conditions to “protect cold water habitat for sensitive native fishes.” (DSR, p. 5-22.) The term “protect” is subjective, making it impossible to know when such a standard would be achieved, and implementation of the proposed standard cannot be evaluated to determine potential unintended negative consequences of compliance. Since the default operation requires that the Water Board approve an operations plan to comply with this narrative standard (DSR, p. 5-24), the lack of description for this alternative is problematic,	Chapter 5 of the Staff Report includes a sufficiently detailed description of the cold water habitat objective to inform analyses and implementation measures. Please see Common Response 1.3, Revised Proposed Plan Amendments, for responses to comments on the cold water habitat objective. The Staff Report appropriately considered reasonable assumptions about State Water Project and Central Valley Project operations for the analysis.

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		being too vague for reservoir operators to understand when the standard would be met. Additionally, it is unclear how this objective relates to the proposed Shasta Cold Water Pool management criteria in the BA recently submitted to NMFS and USFWS.	
264	16	[ATT 1:] Narrative Outflow Objective: The description of the proposed Narrative Outflow objective is too vague to be informative and implementable. For example, the proposed outflow standard requires, “outflows sufficient to support and maintain the natural production of viable native [fish]” (DSR, p. 5-28) The term “sufficient” is vague and subjective. The explanation of the narrative standard includes very specific quantified objectives, and it is unclear whether those quantified standards are required for an outflow to be “sufficient.”	The term “sufficient” is neither vague nor subjective. If the Delta outflows support and maintain the natural production of viable native anadromous fish, estuarine fish, and aquatic species populations rearing in or migrating through the Bay-Delta estuary, then they are sufficient. Thus, the definition of the conditions necessary to achieve sufficiency are described in the text of the objective itself. The measures to implement this objective are described in Section 5.4.4, Delta Outflows, of the 2023 draft Staff Report. In addition, the project has been revised. For updated information on the narrative Delta outflow objective, please see final Staff Report Chapter 13 and Common Response 1.3, Revised Proposed Plan Amendments.
264	17	[ATT 1:] The Draft Staff Report also proposes changes to the existing winter-spring X2 (Existing Delta Outflow Objectives) standard but no information is provided that explains the basis for any changes other than a conclusory statement that the existing flows “may not be protective.” (DSR, p. 5-30.) This alternative was not analyzed, modeled, or fully described and therefore there is no basis for its consideration. The Draft Staff Report also has a Base Delta Outflow proposed amendment (DSR, p. 5-33.) It is unclear how this alternative differs from the Existing Delta Outflow Objectives alternative, other than a reference to modifying the NDOI. However, no information is provided regarding how the NDOI would be changed. This alternative was not analyzed, modeled, or fully described and therefore there is no basis for its consideration.	Page 5-30 of the 2023 draft Staff Report does not include the phrase “may not be protective” so it is unclear what the commenter is referring to. All alternatives were fully described and analyzed in the Staff Report. As described in Section 5.4.4.4, Modifications to Existing Delta Outflow Objectives, of the 2023 draft Staff Report, the current Delta outflow objectives included in the Bay-Delta Plan are proposed to be retained to ensure that minimum quantities of Delta outflow are provided to the estuary in all months and in all years. Current Delta outflow objectives would be referred to as “base Delta outflows.” While those objectives would be retained, the program of implementation would include provisions for improving implementation of those objectives. Specifically, the methods for complying with the objective for February through June Delta outflows of 7,100 cfs are proposed to be reevaluated to ensure that intended protections are provided, including compliance with the narrative objective. In addition, the State Water Board would develop improvements to the methods for calculating the Net Delta Outflow Index (NDOI). The evaluation of the NDOI would go through another public review process and

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			any updates to the calculation must be approved by the Executive Director of the State Water Board. Consistent with the State Water Board's periodic review requirements, the implementation methods may be reviewed or revised accordingly.
264	18	[ATT 1:] Narrative Inflow Objective: The description of the proposed Narrative Inflow objective is too vague to be informative and implementable. The proposed objective is described as having required inflows be the required outflows, but it is not clear what that means. (DSR, p. 5-31.) This narrative also provides for flow shaping, which would require reservoir reoperation, resulting in more than simply protecting inflows as outflows. (Id.) The description does not define what flows are "required inflows," and specifically whether this concept is limited to flows originating from this amendment or is the Draft Staff Report proposing reallocating responsibility for shaping D-1641 flows or biological opinion requirements as well. The nature (i.e., timing quantity, biological purpose) of flow shaping was not described or analyzed.	The description of the new proposed Delta outflow objectives was sufficiently detailed in Chapter 5, Proposed Changes to the Bay-Delta Plan for the Sacramento/Delta, for analysis. Page 5-31 of the 2023 draft Staff Report defines the required inflows as inflows from the Sacramento/Delta tributaries and the San Joaquin River and its tributaries that are required by the Bay-Delta Plan. Only flows provided or bypassed pursuant to the new inflow-based Delta outflow objective may be shaped with this provision; flows provided pursuant to State Water Board Water Right Decision 1641 or other requirements must be provided consistent with those requirements, including any adaptive implementation measures included in those provisions. Because flows may be tailored to the needs of each tributary, every exact permutation of flow shaping is not known; however, for the purpose of the environmental analysis, it was assumed that each tributary provides its proportional share of the numeric inflow requirement so that the range of flow scenarios is sufficient to illustrate the potential changes that may result from the proposed Plan amendments. Please see Sections 5.4.2.4, Implementation, and 6.2.2, Unimpaired Flow Scenario Assumptions, of the 2023 draft Staff Report for more information on the description and modeling, respectively, of flow sculpting/shaping. In addition, the project has been revised. Please see Common Response 1.3, Revised Proposed Plan Amendments. Please also see Chapter 13, Revised Proposed Plan Amendments, for information on implementation of the new inflow, Delta outflow, and inflow-based Delta outflow objective. The adaptive management flow shaping provisions allow for the numeric inflow requirement to be managed as a total volume of water on a water year basis and released on an adaptive schedule. This shaping must be for the benefit of native fish and wildlife. The inflow-based delta outflow objective is further described in

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			Chapter 13. Required inflow from the Sacramento Valley Floor and Delta along with required inflows from the Lower San Joaquin River must be provided as Delta outflows with adjustments for downstream natural depletions and accretions.
264	19	[ATT 1:] Narrative Interior Delta Flow Objective: The Draft Staff Report proposes an Interior Delta Flows narrative objective, which is described as adding the existing biological opinion and state ITP requirements to the Water Quality Control Plan. (DSR, p. 5-37 to 5-39.) The description of the Interior Delta Flows narrative objective includes Delta Cross Channel Gate closures, OMR, [Footnote 3: The specific OMR that is described is not the OMR requirements from the 2019 Biological Opinions and 2020 state incidental take permit, despite the background description that suggests otherwise. (DSR, p. 5-40.) The project description is internally inconsistent.] and I:E ratio [Footnote 4: The description of the I:E ratio is not the same as the 2020 ITP. (DSR, p. 5-39.) The project description is internally inconsistent.] consistent with the 2019 Biological Opinions and 2020 state incidental take permit. (DSR, p. 5-36.) However, the Interior Delta Flows narrative does not actually include the Delta Cross Channel Gate in the proposed narrative language, being included rather in the background material for the narrative objective. (DSR, p. 5-36 to 5-37.) Therefore, it is unclear if Delta Cross Channel Gate operations are being proposed for modification. The modular Alternatives 4b and 4c are apparently implementing the Interior Flows objective, include the Head of Old River Barrier (HORB) and the I:E ratio, but these actions are not included in the description of the narrative objective. It is unclear what would actually be required in the Interior Flows narrative objective. Additionally, it is unclear how this objective relates to the proposed criteria in the BA recently submitted to NMFS and USFWS, and the State's ITP Application recently submitted to CDFW.	The commenter has not described how they believe the project description to be internally inconsistent or which specific provisions differ from the 2019 Biological Opinions and 2020 state Incidental Take Permit. Section 5.4.6.1, Delta Cross Channel Gates, of the 2023 draft Staff Report describes the proposed modifications to the Delta Cross Channel Gate objective. Alternatives 4b and 4c are modular alternatives that could be included in combination with other alternatives, including the proposed Plan amendments. The narrative Interior Delta Flows objective would be implemented through the other interior Delta flow objectives. It is not required to specifically mention every action that may implement the objective. Instead, it describes the interior Delta flow conditions that protect native fish and aquatic species populations and the conditions the other interior Delta flow objectives are intended to produce, along with other measures in the watershed. Please also see Common Response 1.3, Revised Proposed Plan Amendments, for information on the proposed interior Delta flows objectives. The Staff Report appropriately considered reasonable assumptions about State Water Project and Central Valley Project operations for the analysis.
264	20	[ATT 1:] Unimpaired Hydrograph Alternatives: Unimpaired Hydrograph Alternatives are described as year-round objectives on a 7-day average. (DSR, p. 5-18.) The description of each of these alternatives are vague for the following reasons: The 2017 Scientific Basis Report evaluated January-June flows, so it is unclear what the scientific basis is for the year-round	The 2017 Scientific Basis Report evaluated more than just January through June flows. For example, Table 3.13-3 of the 2017 Scientific Basis Report presents functional flows needed for estuarine-dependent species, and these functional flows span every month of the year. Section 5.4.2.2, Basis for New Inflow Objective, of the 2023 draft Staff Report provides the basis for the proposed new inflow objective, including a description of

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		standard. (DSR, Appendix G2.) The 2018 amendments to the WQCP include an unimpaired flow objective for January-June, and there is no explanation providing a rationale for the difference in approach between the two WQCP amendments. If this Draft Staff Report proposal is in fact a January-June objective, then the text is overly vague on this point, particularly since the modeling is of a year-round objective. [Footnote 5: The description of alternatives is also inconsistent. For example, as the description of the alternatives does not mention January-June but then the description of the voluntary option does mention January-June. ["Seasonal outflows during the January-June period would be required to be at least 45%" (DSR, p. 5-20.)]	how anadromous fish species like salmonids inhabit the Delta and its tributaries year-round and thus need year-round inflows to provide suitable habitat conditions. The proposed inflow objective is year-round, not limited to January through June. The description of voluntary implementation plans (now referred to as local cooperative solutions) mentions January through June because they include the adaptive implementation measure to shape flows seasonally for the protection of fish and wildlife. That provision would have required that such seasonal shaping of the required flows maintain at least 45 percent of unimpaired flows in the January through June period. In addition, the project is revised as described in Common Response 1.3, Revised Proposed Plan Amendments.
264	21	The Draft Staff Report does not describe how each diverter would be curtailed since the hydrograph is unknown until after the hydrology has been experienced. Even if a flow prediction were the basis of the determination, there is no explanation of how each diverter would know what percent of their right they could divert as the predictions change on a daily or weekly basis. Similarly, since the curtailments as modeled would be based on water right priority, how would diversers know when they are to curtail based on relative priority as flows can change rapidly? [Footnote 6: The assumptions used to determine water right priority in the modeling were not disclosed, and we question those assumptions since the results for the Delta show no change in in-Delta water diversions. (Staff Presentation, Oct. 19, 2023, Table titled "Total Sacramento/Delta Change from Baseline Annual Volume" [0% change 35-55% scenarios].)]	This calculation would be conducted within the implementation methodology and the process to develop the implementation methodology will also develop protocols for informing water right holders when their water right is curtailed. Please see Common Response 1.3, Revised Proposed Plan Amendments, for information on the implementation methodology. Please see Section A1.1.6, Model Limitations, of the 2023 draft Staff Report and Common Response 6.1, Sacramento Water Allocation Model and Changes in Hydrology and Water Supply, for information on the representation of water right priorities in the SacWAM modeling. Also see Section 6.2.2, Unimpaired Flow Scenario Assumptions, and Section 6.4.5, Sacramento/Delta Supply to the Delta, of the 2023 draft Staff Report for a discussion of SacWAM modeling of impacts to in-Delta water diversions.
264	22	The Draft Staff Report indicates that these unimpaired flows would be protected but provides no information regarding method. The protection of these flows would also mean that the curtailment determinations throughout the watershed would have to account for unimpaired flow, and previously bypassed flow, in real-time as well as account for accretions and depletions. There is no explanation as to how this determination would be made and how the diversers would know how much they could divert. It is similarly unknown how the Water Board would enforce the protection of flows, particularly when the	Please see Common Response 1.3, Revised Proposed Plan Amendments, for information on the implementation methodology.

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		calculation of water availability is constantly changing, and the Water Board does not currently require real-time reporting.	
264	23	The Draft Staff Report is similarly unclear on how the Unimpaired Hydrograph Alternatives would account for the groundwater recharge diversions authorized by the SB 122, which allows diversions for groundwater recharge without water rights. How would these diversions be accounted for when calculating each diverter's share of the unimpaired hydrograph responsibility and how would the Water Board prevent these diversions from diverting the unimpaired flow?	Please see Common Response 7.12.2, Groundwater and Sustainable Groundwater Management Act, for more information on groundwater overdraft, recharge and the State Water Board's role in supporting groundwater recharge from flood waters. In addition, please see Common Response 1.3, Revised Proposed Plan Amendments, for information on the regulatory pathway inflow requirements.
264	24	[ATT 1:] Voluntary Implementation of Unimpaired Hydrograph Alternatives: The alternative voluntary implementation (not the Healthy Rivers and Landscapes Agreements) plans have limited flexibility and have not been evaluated in the Draft Staff Report. We understand that no potentially regulated party has proposed a plan under these alternatives. However, we think that the voluntary implementation is too vaguely described to be implemented or analyzed. The voluntary implementation allows moving the flow standard to 45% of the hydrograph, provided habitat restoration and other actions are "equivalent" to the benefits of 55% of the hydrograph. (DSR, p. 5-19.) As we show later in this document, the species benefits for 55% of the hydrograph are unsupported or uncertain. For this reason, and because of the subjective nature of the term "equivalent," it is unclear when 45% of the hydrograph would be allowed through voluntary action. The voluntary implementation further states that if the flow in a tributary is already higher than 55% of the hydrograph, "plans would be required to provide for protective flows needed for the reasonable protection of fish and wildlife above 55%." (DSR, 5-20.) This is perplexing because the same tributary could take no voluntary action and be permitted a lower minimum unimpaired flow.	The voluntary implementation plans (currently referred to as local cooperative solutions) were sufficiently described in Chapter 5, Proposed Changes to the Bay-Delta Plan for the Sacramento/Delta, and analyzed in the 2023 draft Staff Report. The benefits of the 55 scenario are detailed extensively in the 2023 draft Staff Report in Chapter 3, Scientific Knowledge to Inform Fish and Wildlife Flow Recommendations, and Chapter 4, Other Aquatic Ecosystem Stressors, and in the peer reviewed 2017 Scientific Basis Report. A number of benefit analyses were used in Chapters 3 and 4, the 2017 Scientific Basis Report, and the Scientific Basis Report Supplement that could be the basis for an analysis of equivalent benefits to support a proposal for a local cooperative solution. If a tributary takes no voluntary action (i.e., does not submit a local cooperative solution), then they would be subject to the default requirements. As described in Section 5.4.2.3, Proposed Inflow Objective, of the 2023 draft Staff Report, flows may be higher in the range on tributaries where flows under current conditions are already higher than 55 percent and where those higher flows are needed to protect fish and wildlife and meet the narrative objective. The 2023 draft Staff Report fully analyzed the range of flow, habitat, and other actions that could be taken under local cooperative solutions. Please see Chapter 13, Revised Proposed Plan Amendments, and Common Response 1.3, Revised Proposed Plan Amendments, for additional information on implementation of the local cooperative solutions (referred to as voluntary implementation plans in Chapter 5 of the Staff Report). Please also see Common Response 3.1, Fish Protection, and Chapter 3 of the Staff Report

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			for additional information on the scientific basis supporting the species benefits attained by the 55 flow scenario.
264	25	[ATT 1:] Unimpaired Hydrograph Alternatives “Flexibility” to Avoid Negative Impacts: The Draft Staff Report does not provide any details about how the proposed Plan amendment will be implemented or what “flexibility” would be available for the water users. While there is an acknowledgement that this detail is forthcoming, the report relies on the “flexibility” in the proposed Plan amendment to achieve the narrative Cold-Water Fish objective without any analysis to support whether it is effective mitigation, or if this mitigation changes the nature of the proposed amendment. For example, the average Jan-Jun 55% unimpaired inflow component for Sacramento River is about two million acre-feet (Figure A7-22). It is unclear how such a large block of water is expected to be flexibly managed to meet the Delta outflow requirements as well as the narrative Cold Water Habitat objective while being constrained for flood control and ramping requirements. It is also unclear if the flexibility in inflow requirements would be applied to the outflow requirements. If it does not apply, then SWP-CVP exports would be subject to a significantly higher burden when meeting Delta outflow requirements.	Chapter 5, Proposed Changes to the Bay-Delta Plan for the Sacramento/Delta, of the 2023 draft Staff Report includes detailed sections on implementation, including the flexibility provided by adaptive implementation measures, that provide the information necessary for the Staff Report impact analyses. As described in Section 6.2.2, Unimpaired Flow Scenario Assumptions, of the 2023 draft Staff Report, implementation of the inflow and cold water habitat requirements was modeled by incorporating end-of-September carryover storage requirements in addition to the numeric inflow requirements. Because flows may be tailored to the needs of each tributary, every exact permutation of flow is not known; however, for the purpose of the environmental analysis, it was assumed that each tributary provides its proportional share of the numeric inflow requirement so that the range of flow scenarios is sufficient to illustrate the potential changes that may result from the proposed Plan amendments. The inflow-based Delta outflow objective requires that required inflows be provided as outflows, so any flexibility in implementation of the inflow requirement would be translated to the outflow requirement and would not result in any increased burden on SWP or CVP exports. Please see Common Response 1.3, Revised Proposed Plan Amendments, for a response to comments on the inflow, cold water habitat, and inflow-based Delta outflow implementation measures under the regulatory pathway.
264	26	[ATT 1:] Continued Need for Existing WQCP Requirements: The Draft Staff Report does not explain the need for redundant Delta operational requirements. For example, it is unclear why the existing D-1641 criteria, such as E-I ratio or the Vernalis 1:1 export constraint, would be needed under the Unimpaired Flow Alternatives. It is also unclear how the proposed Plan amendment will be integrated with the existing D-1641 criteria. For example, will the Port Chicago X2 requirement be triggered based on meeting the unimpaired flow requirement in the preceding month? Similarly, it is unclear why it should be the SWP-CVP’s responsibility to continue to fully meet the D-1641 Delta WQCP requirements in the summer and fall months, particularly when stored water supplies will be significantly	The need for existing requirements from the current Bay-Delta Plan and State Water Board Water Right Decision 1641 (D-1641) remains and has not been replaced by the new proposed objectives. The rationale for those existing requirements is documented in the documentation for the Bay-Delta Plan update and implementation processes that resulted in those requirements. The SWP and CVP remain responsible for all requirements placed on their water rights, including those from D-1641. However, the SWP and CVP would only be responsible for meeting those requirements if they are not incidentally met by flows provided pursuant to the regulatory pathway of the revised proposed Plan amendments. Thus, the requirements are not redundant. See Common Response 1.3, Revised Proposed

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		depleted, further exacerbating the impacts of Unimpaired Hydrograph Alternatives on cold water pool, water supply and hydroelectric power generation. The Draft Staff Report should include a holistic review and a clear articulation of the purpose and continued need of the existing Delta water quality requirements for protecting the beneficial uses under the Unimpaired Flow Alternatives and to minimize the redundancy.	Plan Amendments. The existing legal requirements have been analyzed as part of the baseline. There is no legal requirement to reevaluate the baseline. Moreover, the State Water Board has identified in the 2017 Scientific Basis Report that the best available science indicates that existing requirements are insufficient to protect fish and wildlife. The Port Chicago X2 requirement would be triggered based on meeting the numeric inflow requirement. However, in the SacWAM record, this would only result in an increased flow requirement in less than 1 percent of months during the February through June period. Please see Common Response 1.3, Revised Proposed Plan Amendments, for more information on the Delta outflow requirements.
264	27	[ATT 1:] The detail that is lacking in the description of the Alternatives is relevant to Water Board decision-making and CEQA's fundamental purpose of informing the public about the potential effects of government decisions. The detail that is lacking in the description of the Alternatives impacts the analysis of those Alternatives. Since the Alternatives are not fully described, the Water Board cannot know the true extent and nature of potential effects.	The 2023 draft Staff Report fully describes the proposed Plan amendments in Chapter 5, Proposed Changes to the Bay-Delta Plan for the Sacramento/Delta, and the alternatives in Section 7.2, Description of Alternatives, with sufficient detail for the purposes of the analysis. The proposed Plan amendments and alternatives were fully analyzed in Chapter 7, Environmental Analysis, and Chapter 9, Proposed Voluntary Agreements, of the 2023 draft Staff Report. Please see Common Response 7.24, Alternatives Analysis, for a discussion of the description and analysis of alternatives.
264	28	[ATT 1:] As to the Alternatives [proposed Plan amendments, four variations of unimpaired hydrograph, three narrative objectives, modular alternatives associated with SWP and CVP operations, and two drought response modular alternatives], CEQA conclusions are not based on substantial evidence. As explained in Public Resources Code §21080(e), substantial evidence is not argument, speculation, unsubstantiated opinion or narrative, and evidence that is clearly inaccurate or erroneous. Substantial evidence includes facts and reasonable assumptions based on those facts. The Draft Staff Report misses relevant facts, makes conclusions not supported by facts, and fails to use commonly used and well supported analytical tools and models in its analysis.	Please see Common Response 1.1, General Comments, for responses to comments that make general comments, do not raise specific environmental impacts of the project, or do not raise specific economic effects of the project. Please see Common Response 7.24, Alternatives Analysis, for a discussion of the range of feasible alternatives, and the description and analysis of alternatives.

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264	29	[ATT 1:] The literature underlying the unimpaired hydrograph approach suggests highly uncertain environmental outcomes. Despite many years of discussion and multiple detailed comments by the SWC and others, the Draft Staff Report continues with the unsupported assumption that the unimpaired hydrograph approach will result in a predictable and measurable benefit. (See e.g., DSR, p. 3-2.) However, as reflected in the scientific literature, the approach is only scientifically justified in largely unaltered river systems. (Poff et al. 1997 [Footnote 7: Poff, N.L., Allen, D., Bain, M.B., Karr, J.R., Prestegard, K.L., Richter, B.D., Spaerks, R.E., Stromberg, J.C. (1997) The Natural Flow Regime: A Paradigm for River Conservation and Restoration. <i>BioScience</i>, 47:11.]; Hart and Finelli 1999 [Footnote 8: Hart, D.D. and Finelli, C.M. (1999) Physical-biological coupling in streams: The pervasive effects of flow on benthic organisms. <i>Annual Review of Ecology and Systematics</i>, 30, 363-395. doi:10.1146/annurev.ecolsys.30.1.363]; Bunn and Arthington 2002 [Footnote 9: Bunn, S.S., and A.H. Arthington. (2002) Basic Principles and Ecological Consequences of Altered Flow Regimes and Aquatic Biodiversity. <i>Environmental Management</i> 30: 492-507.]; Poff and Zimmerman 2010 [Footnote 10: Poff, N.L., and J.K.H. Zimmerman. 2010. Ecological Responses to Altered Flow regimes: A Literature Review to Inform the Science and Management of Environmental Flows. <i>Freshwater Biology</i> 55: 194: 205.].) The importance of maintaining natural hydrographic conditions, however, is reduced significantly in altered river systems. Poff et al. 1997 explains: Most rivers are highly modified, of course, and so the greatest challenges lie in managing and restoring rivers that are also used to satisfy human needs. Can reestablishing the natural flow regime serve as a useful management and restoration goal? We believe that it can, although to varying degrees, depending on the present extent of human intervention and flow alteration affecting a particular river. Accordingly, when Poff et al. discuss restoration projects, it is in the context of providing some component(s) of natural flow regimes for specific ecological benefits. The proposed updates and Draft Staff Report fail to analyze (identify and quantify) the	Please see Common Response 3.1, Fish Protection, for an explanation of use of best available science and the flow-benefit analyses. As described in Chapters 3, Scientific Knowledge to Inform Fish and Wildlife Flow Recommendations, and 4, Other Aquatic Ecosystem Stressors, of the Staff Report, the Sacramento/Delta and its tributaries have been altered by anthropogenic activities and no longer represent historical conditions, and this has had lasting impacts on aquatic resources. Despite a highly modified ecological setting, the scientific evidence presented in Chapter 3 indicates that native fish populations would see benefits from increased flows. Chapter 3 and Chapter 13, Revised Proposed Plan Amendments, includes analyses that demonstrate the expected benefits of unimpaired flows for achieving ecological flow thresholds, abundance indices of native estuarine fish species, rearing and spawning habitat area, and floodplain inundation. Regarding existing river channel configurations and the extent to which additional flow will produce additional shallow water habitat, as stated in Staff Report Chapter 5, Proposed Changes to the Bay-Delta Plan for the Sacramento/Delta, Section 5.5, Habitat Restoration and Other Complementary Ecosystem Measures, the State Water Board acknowledges that ecosystem recovery in the Delta depends on more than adequate flows. It also requires implementation of comprehensive complementary measures, including physical habitat restoration, and the proposed program of implementation identifies recommendations to other agencies and parties for actions they should take to protect fish and wildlife beneficial uses. Cited references (including ^Poff et al. 1997; Hart and Finelli 1999; ^Bunn and Arthington 2002; Poff and Zimmerman 2010) address the importance of flows and flow-related hydraulic parameters on ecosystem processes and biological communities. Further, these scientific studies suggest the use of flow measures resembling more natural flow regimes in addition to habitat restoration. These references did not specify that flow management for ecosystem benefits and restoration be limited

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		specific ecological benefits – “functions” – proposed unimpaired flows will serve in the Delta and Sacramento River watershed. For example, there is no analysis of the extent to which additional flow will produce additional shallow water habitat, given existing river channel configurations.	to “largely unaltered” systems. ^Poff et al. (1997) suggested that reestablishing the natural flow regime could be a useful management and restoration goal. Following the cited explanation from ^Poff et al. (1997) it is stated that, “recognizing the natural variability of river flow and explicitly incorporating the five components of the natural flow regime (i.e., magnitude, frequency, duration, timing, and rate of change) into a broader framework for ecosystem management would constitute a major advance over most present management, which focuses on minimum flows and on just a few species.”
264	30	[ATT 1:] The scientific literature shows that the water project operation modular alternatives (Alternatives 4a-4c), [Footnote 11: The inclusion of Alternative 4a in the Draft Staff Report is perplexing. It is an alternative that would not add the actions from the Endangered Species Act permits to the WQCP. However, since Alternative 4a was not modeled, its inclusion in the Draft Staff Report has no real effect, and should be regarded as no change from baseline, since the Endangered Species Act permits are already legal obligations of the water projects.] Interior Delta Flows narrative objective, and Fall Delta Outflow Objective alternative would not increase species abundance or otherwise benefit species. The modular and narrative alternatives were not modeled and are vague. Even if modular alternatives had been modeled, the modulars should not be added to any of the Alternatives without modeling the combined alternative, as there could be significant effects related to the combining of Alternatives. For example, it is well known that there are biological trade-offs between outflow actions like Fall X2 and cold-water management at Shasta Reservoir for Chinook salmon. The combined effect of any modular and any of the other alternatives could have a significant impact on the environment. [Footnote 12: This argument also applies to modular alternative 6(a).] Regardless, the best available science does not support the adoption of any of these alternatives.	Please see Chapter 3, Scientific Knowledge to Inform Fish and Wildlife Flow Recommendations, of the Staff Report for information on the benefits of increased flows, including interior Delta flow requirements and fall Delta outflows. The 2023 draft Staff Report described the modular alternatives in Section 7.2, Description of Alternatives, with sufficient detail for the purposes of the analysis. These alternatives were adequately analyzed in Section 7.24.6, Modular Drought Alternatives (Alternative 5a and 5b), and Section 9.9, Modular Alternatives for Proposed VAs, including specific modeling for Alternative 4a in Section 7.24.5.1, Exclusion of Interior Delta Flow and Fall Delta Outflow Related Amendments Alternative (Alternative 4a). In addition, fall X2 was modeled as part of the baseline, as described in Section 6.2.1, Baseline Assumptions, and as part of the proposed Plan amendments since a proposed fall Delta outflow objective was included in the proposed Plan amendments as described in Chapter 5, Proposed Changes to the Bay-Delta Plan for the Sacramento/Delta. and analyzed in Chapter 6, Changes in Hydrology and Water Supply, through Chapter 8, Economic Analysis and Other Considerations. Modular Alternative 6a, Protection of Voluntary Agreement Flows, protects the base upon which the VA flows are intended to be added from new or expanded water diversions, consistent with the VA Term Sheet and MOU, which states “The Parties propose to, and anticipate that, the State Water Board will use its legal authorities to protect all flows generated by actions identified in Appendix 1 against diversions for other purposes for the term of the VAs.” As discussed in Section 7.24.1, Introduction, the modular alternatives could be layered onto the stand-alone alternatives, and the environmental impacts of each

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			of the modular alternatives are evaluated in isolation compared with existing conditions to properly characterize the changes that could occur from each modular alternative, as distinguished from impacts of the stand-alone alternatives. Please see Common Response 7.24, Alternatives Analysis, for more information on the description and analysis of the alternatives and Common Response 3.1, Fish Protection, on the use of best available science.
264	31	[ATT 1:] Fall Delta Outflow Objective The Draft Staff Report does not contain substantial evidence to support the adoption of the Fall Delta Outflow objective to protect Delta Smelt which is defined as the Fall X2 action that was included in the 2008 Biological Opinion for Delta Smelt. (DSR, p. 5-29.) [Footnote 13: The Draft Staff Report also contains a proposed requirement to add the Fall X2 Action that is in the 2019 Biological Opinion to the WQCP. (DSR, p. 5-32.) For the same reasons stated herein there is little scientific support for the action. Further, the Draft Staff Report provides no explanation of what added benefit would be provided by including this action in the WQCP in addition to the Biological Opinions and the state ITP. The state and federal fishery agencies already have oversight over the implementation of the Biological Opinions and state Incidental take permit, and therefore the management of Fall X2.] The Draft Staff Report describes the 2008 Biological Opinion action as being an adaptive management action to be tested and refined. (Id.) However, the Draft Staff Report fails to recognize that there was study and monitoring of the 2008 Fall X2 Action and the changes to the action are the result of that further study. There have been several syntheses of results reflecting upon implementation of the Fall X2 Action in wet recent years. As the 2022 Float-MAST explained: ...a direct connection between freshwater outflow and increased abundance of Delta Smelt has been difficult to establish [cite omit]. The most recent increase in Delta Smelt population was coincidental with the wet year 2011 [cite omit]. But the wet year of 2017 was not coincidental with a population increase, likely because of high water temperatures [cite omit]. Overall recent	Please see Section 3.8.4.3, Fall Outflow, of the Staff Report for a discussion of the benefits of fall Delta outflow for Delta smelt. The fact that other variables could also improve conditions for Delta smelt does not preclude the benefits of increased fall Delta outflow. As described in Bashevkin and Mahardja (2022), there is a correlation between Delta water temperatures and hydrology (Delta inflow). During the fall months, there is a predominantly negative relationship such that higher inflows are associated with cooler water temperatures, although causality was not evaluated. It is difficult to determine whether actions have effects with a small sample size, such as the two events in 2017 and 2019 referred to by the commenter, especially when the species being measured have already declined significantly. Thus, not detecting an effect does not mean the action has no effect. See Common Response 3.1, Fish Protection, for information on flow benefits. The revised proposed Plan amendments include provisions for annual and periodic review for amending the Plan as needed in response to evolving science. In addition, the project has been revised. Please see Common Response 1.3, Revised Proposed Plan Amendments, for more information on the proposed fall Delta outflow objective.

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		reports have stressed the need to assess the importance of multiple environmental stressor variables over the entire Delta Smelt life cycle to better understand the combination of factors affecting Delta Smelt distribution and abundance. [Footnote 14: FLOAT-MAST (Flow Alteration - Management Analysis and Synthesis Team), 2022. White papers providing a synthesis of knowledge relating to Delta Smelt biology in the San Francisco Estuary, emphasizing effects of flow. Interagency Ecological Program, Sacramento, CA. IEP Technical Report #98. 191 p. 5.] And the Bureau of Reclamation's Directed Outflow Project concluded that in: Wet years and outflow-related actions can produce a variety of conditions beneficial to Delta Smelt during the rearing and other life-cycle periods, however other habitat variables such as water temperature and competition from other species may offset any potential benefit of increased outflow for Delta Smelt. [Footnote 15: Shultz AA, Grimaldo L, Hassrick J, Kalmbach A, Smith A, Burgess O, Barnard D, Brandon J (2019) Effect of Isohaline (X2) and Region on Delta Smelt Habitat, Prey and Distribution During the Summer and Fall: Insights into Managed Flow Actions in a Highly Modified Estuary. Pages 323-402 in A. A. Schultz, editor. Directed Outflow Project Technical Report 1. U. S. Bureau of Reclamation, Bay-Delta Office, Mid-Pacific Region, Sacramento, CA. June 2019, 402 pp.249.] See also, Murphy and Weiland (2019) [Footnote 16: Murphy, D.D, Weiland, P.S. (2019) The low-salinity zone in the San Francisco Estuary as a proxy for delta smelt habitat: A case study in the misuse of surrogates in conservation planning. Ecological Indicators 105:29-35.] [Salinity is not a reliable surrogate for Delta Smelt habitat.] It should be further understood that water temperatures in the Delta in the summer and fall are not coincident with water year type, rather being driven by air temperature. As explained in the (2021) FLOAT-MAST, "...there were no clear patterns among years. Wet years could be warm (July 2006 and July and August 2017) or cool (2011) compared to other water years. [Footnote 17: FLOAT-MAST (Flow Alteration - Management, Analysis, and Synthesis Team). 2020. Synthesis of data and studies relating to Delta Smelt biology in	

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		the San Francisco Estuary, emphasizing water year 2017. IEP Technical Report 95. Interagency Ecological Program, Sacramento, CA, p. 62.] Further, even though Fall X2 action was undertaken in 2017 and 2019, with some modification yet mostly incidentally met, there was no corresponding increase in species abundance. These results are consistent with the predictions in the Feyrer et al 2007 draft paper relied on in the 2008 biological opinion. In Reclamation (2017), it used the Feyrer et al. 2007 [Footnote 18: As observed in Reclamation (2017), p. 37, the Feyrer et al. 2007 model is simplistic and violates certain fundamental assumptions, including independence of response and predictor variable, ignoring uncertainty in the stock and recruit indices, and does not address whether juvenile recruitment is the life stage transition limiting Delta Smelt productivity.] approach predictively, and it showed that an increase in recruitment is not reliably predicted by changes in X2. See Reclamation (2017), [Footnote 19: ICF. 2017. Public Water Agency 2017 Fall X2 Adaptive Management Plan Proposal. Submitted to United States Bureau of Reclamation and Department of Water Resources. Draft. August 30. (ICF 00508.17.) Sacramento, CA. 20 Thomson, J. R., W.J. Kimmerer, L.R. Brown, K.B. Newman, R. Mac Nally, W. A. Bennett, F. Feyrer, and E. Fleishman. 2010. Bayesian change point analysis of abundance trends for pelagic fishes in the upper San Francisco Estuary. Ecological Applications 20(5):1431-1448.] Figure 18 [ATT 1: Exhibit 1], p. 38, below. This conclusion is consistent with more sophisticated models. For example, studies using Bayesian change point analysis (Thomson et al. 2010)20 and multivariate autoregressive modeling (MacNally et al. 2010) [Footnote 21: Mac Nally, R., J.R. Thomson, W.J. Kimmerer, F. Feyrer, K.B. Newman, A. Sih, W. A. Bennett, L. Brown, E. Fleishman, S. D. Culberson, and G. Castillo. 2010. Analysis of pelagic species decline in the upper San Francisco Estuary using multivariate autoregressive modeling (MAR). Ecological Applications 20:1417-1430] both failed to identify Fall X2 as an environmental covariate contributing to the declining abundance trends in Delta Smelt. (Reclamation (2017), p. 37.) These results are also consistent with the more recently developed Delta Smelt life cycle model by Polansky that found a Fall X2 to subsequent spring abundance relationship, but the subsequent Smith et al.	

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		(2021) [Footnote 22: Smith, W.E, Polansky L, Nobriga M.L. 2021. Disentangling risks to an endangered fish: using a state-space life cycle model to separate natural mortality from anthropogenic losses. Can J Fish Aquat Sci. [accessed 2021 Mar 2]; https://doi.org/10.1139/cjfas-2020-0251 [Fall X2 not included in the updated model.]] paper did not. Smith et al (2021) updated the model to better disentangle the risks of anthropogenic loss to natural mortality. The updated model did not find support for including Fall X2 as a driver of species abundance compared to other factors such as OMR, turbidity, and temperature among other factors. These results illustrate why the WQCP should not lock in actions contained in the old and expired biological opinions that reflect the science at the time of issuance, which is something that evolves over time on a shorter time-step than the periodic reviews of the WQCP. Additionally, this criterion is inconsistent with the current ESA and CESA permits and the proposed criteria in the BA recently submitted to NMFS and USFWS, and the State's ITP Application recently submitted to CDFW.	
264	32	[ATT 1: Exhibit 1: Graph titled Figure 18. Posterior Density Distributions from 10,000 Simulations of the Change in Delta Smelt Fall to Summer Survival when Mean September-October X2 is Moved from 77.557 km to 74 km]	This exhibit was included in the comment letter. The exhibit does not raise a specific environmental impact or economic effect of the project. Refer to Common Response 1.1, General Comments, for the approach to addressing exhibits.
264	33	[ATT 1:] Head of Old River Barrier (HORB) and I:E Ratio The questions of whether the HORB and I:E Ratio (inflow from San Joaquin River to export pumping ratio) should be required are informed by the same studies of out-migrating San Joaquin River salmon and steelhead survival. Buchanan et al. 2021 [Footnote 23: Buchanan, R.A. Buttermore, E., Israel, J. 2021. Outmigration survival of a threatened steelhead population through a tidal estuary. Can. J. Fish. Aquat. Sci. 78:1869-1886, p. 1883.] reported the results of the multiple- year study of out-migrating San Joaquin River salmonid survival, which concluded that, "survival was not notably higher in the SJR route compared to the OR [Old River] route or for lower export rates," and, "The lack of consistent route-specific survival difference between the SJR and OR routes was surprising, considering that both export facilities are located on the OR route." Since survival is not	Buchanan et al. (2021) found that the through-Delta survival (head of Old River to Chipps Island) of juvenile steelhead was affected by year, barrier (Head of Old River Barrier [HORB]), and fork length at tagging. They found that survival from head of Old River to Chipps Island would be higher with higher San Joaquin River (SRJ) inflows, when the HORB was installed, and for larger fish. Further, survival was positively related to the SJR inflow, negatively related to temperature, positively related to I:E ratio, and negatively related to X2 when the effects of year, barrier, and fork length were accounted for. In addition, the project has been revised. Please see Common Response 1.3, Revised Proposed Plan Amendments, for the information on the interior Delta flows objectives.

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		statistically different between the routes, and lower export rates would not show improved survival, then export reductions would not improve survival. This same conclusion indicates that the HORB does not improve survival, since blocking passage down OR would not significantly improve survival. Buchanan et al. is consistent with prior studies that found similarly or were inconclusive. (See e.g., Newman 2008 [Footnote 24: Newman, K. B. (200) An evaluation of four Sacramento- San Joaquin River Delta juvenile salmon survival studies. Prepared by United States Fish and Wildlife Service. [Synthesis of results of VAMP studies.]] [review of results from VAMP studies.] The best available science does not support either the HORB or the I:E Ratio actions. Note that opinions, criteria and HORB proposal is inconsistent with the BA recently submitted to NMFS and USFWS, and the State's ITP Application recently submitted to CDFW. HORB is not in the current Biological Opinions or the state ITP, nor it is currently proposed in the ongoing consultation.	
264	34	[ATT 1:] Old and Middle River (OMR) Export Management As mentioned above, it is unclear what OMR action is being proposed in the Draft Staff Report as it discusses OMR in the context of the 2019 Biological Opinions and 2020 state ITP but then identifies an objective that is consistent with the 2008-2009 Biological Opinions, being an OMR range of -1,250 cfs. to -5000 cfs. (DSR, pp. 39-40.) Regardless, as acknowledged by the Draft Staff Report, the OMR in the 2008-2009 Biological Opinions and the OMR in the 2019 Biological Opinions are similar. (DSR, p. 5-39.) The Draft Staff Report's alternative would lock in the same range that is already contained in the existing state and federal Endangered Species Act permits, except without the storm flexibility action that allows exceeding -5,000 OMR in very limited circumstances during wet conditions. However, the Draft Staff Report does not acknowledge that the storm flexibility action has always been heavily conditioned, nor that the SWP-CVP already had the ability to operate more negative than -5,000 OMR based on the 14-day averaging period in the 2008-2009 Biological Opinions, without having any negative impact on the fishery. The Draft Staff Report acknowledges that a regulatory regime is	The State Water Board has an independent regulatory authority to reasonably protect fish and wildlife beneficial uses. The inclusion of an Old and Middle Rivers (OMR) objective in the Bay-Delta Plan would not remove the decision-making ability of the state and federal fish agencies to take actions to increase protections for fish species; however, it would backstop the OMR protections so that protections would remain in place if they are removed from the Biological Opinions or 2020 Incidental Take Permit. The comment does not include any substantiating evidence for the claim that operating more negative than -5,000 OMR did not have any negative impact on the fishery. See Staff Report Chapter 3, Scientific Knowledge to Inform Fish and Wildlife Flow Recommendations, and Common Response 3.1, Fish Protection, for information on the effects of negative OMR flows on fish. In addition, the project has been revised. Please see final Staff Report Chapter 13 and Common Response 1.3, Revised Proposed Plan Amendments, for further information on the interior Delta flow requirements in the revised proposed Plan amendments. The Staff Report appropriately considered reasonable

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		already in place but provides no reason for the Water Board needing to manage OMR, which is already extensively managed by NMFS, the USFWS and CDFW. The Draft Staff Report explains that the Water Board is implementing a different regulatory scheme but does not explain what incremental benefit would be gained by taking the decision-making away from the state and federal fishery agencies, which is the practical outcome of the alternative. Additionally, it is unclear how this objective relates to the proposed criteria in the BA recently submitted to NMFS and USFWS, and the State's ITP Application recently submitted to CDFW.	assumptions about State Water Project and Central Valley Project operations for the analysis.
264	35	[ATT 1:] The DSR fails to analyze climate change. CEQA requires consideration of the effects of the project with climate change. The Draft Staff Report includes a general discussion of climate change in Section 4.6, but does not model the Alternatives with climate change. (DSR [Draft Staff Report], p. 6-7.) The Draft Staff Report indicates that this lack of analysis is appropriate because the WQCP is reviewed on a regular basis. (Id.) However, these reviews of the WQCP do not include a new balancing of beneficial use protection; there is no new CEQA document prior to the decision to continue the plan; nor do these reviews necessarily include any modeling of the system with the then current climate change. These regular reviews do not excuse the lack of modeling analysis. To find otherwise would allow the Alternatives and climate change related temperature impacts to never be analyzed to understand the potential impact on the fishery, and to determine if mitigation is possible. This is important as the negative upstream temperature effects associated with the Alternatives could be greater in the future with climate change. There are modeling tools and assumptions that are regularly applied by the Department of Water Resources and the Bureau of Reclamation in their water planning activities that the Water Board could utilize.	Please refer to Common Response 4.2, Drought and Climate Change, regarding the inclusion of climate change within Staff Report modeling and consistency with regulatory requirements and other policies.
264	36	[ATT 1:] The baseline is flawed and inconsistent with CEQA. The description of the physical environmental conditions and associated modeling of the baseline condition should represent the physical conditions at the time the notice of preparation was	Please refer to Common Response 6.2, Baseline and No Project Alternative, for a response to comments related to the project baseline.

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		published. (Cal. Code of Regs., tit. 14, § 15125.) In this case, we understand that there have been changes in the permitted operations of the SWP and CVP; however the current condition baseline does not represent the current operation of the SWP-CVP, because it assumes that the CVP has been operating the same as the SWP, particularly in regard to April-May outflow, which is untrue. This assumed operation appears to be based on the existence of an Interim Operations Plan (IOP) that modified the LTO. In 2020 when the new SWP incidental take permit was approved, there was no IOP but a two-week injunction in May. In 2021 and 2022 there was a drought, so even though there was an IOP, it was not controlling CVP operations on a monthly basis. In 2023, there was an IOP, but it was a wet year, and the IOP does not require additional April-May outflow from the CVP in that water-year type. As explained in the CEQA Guidelines, section 15125(a)(3), “An existing condition baseline shall not include hypothetical conditions, such as those that might be allowed, but have never actually occurred, under existing permits or plans as the baseline.” The IOP was allowed but a hypothetical condition and therefore should not have been included in the baseline modeling. This application of an incorrect baseline impacted the results because it underestimates the April-May outflow for all Alternatives including the Healthy Rivers and Landscapes Alternative.	
264	37	[ATT 1:] CEQA conclusions regarding changes in surface water supplies are not based on substantial evidence. As to the Alternatives, water supply impact analysis is overly simplistic and makes unreasonable and erroneous assumptions. Modeling is flawed. Assumptions in various models and analyses presented in the Draft Staff Report are not appropriate for analysis of the Unimpaired Flow Alternatives. There is also a problem related to transparency as even our engineers that are well versed in hydrologic modeling in this watershed cannot determine all of the assumptions and results contained in the underlying modeling.	SacWAM results present a range of potential operations that are generalized but sufficient in detail to evaluate water supply and other effects of the project and its alternatives. Please see Common Response 6.1, Sacramento Water Allocation Model and Changes in Hydrology and Water Supply, regarding the scope, scale, and application of SacWAM, and for information concerning the SacWAM flow scenario assumptions. Further information about modeling assumptions and inputs can be found in the SacWAM Documentation (available on the State Water Board’s Bay-Delta webpage). Methods and results for flow scenarios in SacWAM can be found in Appendix A1, Sacramento Water Allocation Model Methods and Results. Methods and results for the proposed Voluntary Agreements in SacWAM can be found in Appendix G3a, Sacramento Water Allocation Model Methods and Results for the Proposed Voluntary Agreements.

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		The SacWAM model relies on the historic hydrologic conditions from 1922 to 2015 and does not account for the most recent years (2016 to 2023). It does not recognize the climate change impacts already occurring. For example, the recent drier spring hydrologic conditions even in wet years, increased losses of snowmelt, changes to valley floor accretions and depletions have not been recognized. These changes in hydrologic conditions have a significant effect on the upstream reservoir storage levels and should have been part of the baseline modeling. Not including these would underestimate the impact of the Unimpaired Hydrograph Alternatives. SWP Table A allocations under the baseline using SacWAM are overestimated and misrepresenting the most recent estimate of the delivery capability of SWP [Footnote 25: The State Water Project Final Delivery Capability Report 2021 (https://water.ca.gov/Library/Modeling-and-Analysis/Central-Valley-models-and-tools/CalSim-3/DCR2021) Table 5-2 shows 2321 TAF, which is approximately 56% allocation compared to 2579 TAF in the SacWAM (DSR Table A1-522), which is approximately 62% allocation.], this likely resulted in underestimated water supply impacts in the DSR under the Alternatives.	Please see Common Response 4.2, Drought and Climate Change, for a discussion of the Staff Report's analysis of climate change.
264	38	[ATT 1:] It is unclear if the SacWAM model is fully compliant with the 2018 addendum of the CVP and SWP Coordinated Operations Agreement (COA). There is no description of the assumptions used to ensure compliance with the COA under the Unimpaired Hydrograph Alternatives. The modeling results show questionable results. For example, the annual SWP south-of-Delta deliveries are reduced by 711 TAF (Table A1-526) on average compared to a reduction of 218 TAF (Table A1- 510) for the CVP south of Delta deliveries. This disparity seems inconsistent with COA. It should be further noted that the values included in Table A1-512 appear to be wrong (identical to the values in Table A1-510). It is also unclear why there is an increase in Article 21 deliveries (Tables A1-527 and A1-528) and end-of-April storage in the SWP share of San Luis Reservoir (Tables A1-331 and A1-332), when the overall SWP exports (Table A1-105) are reduced significantly under the Unimpaired Hydrograph Alternatives.	Chapter 8.6 of the SacWAM Documentation (available on the State Water Board's Bay-Delta webpage) explains how the Coordinated Operations Agreement (COA) was represented in SacWAM. Please refer to Common Response 6.1, Sacramento Water Allocation Model and Changes in Hydrology and Water Supply, for details on the modeling of the CVP and operations. Disparate reductions in exports by the SWP and CVP (collectively Projects) are due to the ability of each project to export water under the COA, how impaired each project tributary is, and how the reservoir carryover targets affect the ability of each project to utilize north of Delta reservoir storage. SacWAM results represent one way that the Projects could operate, but as described in Chapter 6, Changes in Hydrology and Water Supply, and in Common Response 6.1, the unimpaired flow scenarios represent regulatory conditions that at times are very different than what we have experienced, therefore if one of the unimpaired flow scenarios is adopted, the Projects may choose to operate the reservoirs and allocate the water to the

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			contractors differently. It appears that an error in the document production of Appendix A1, Sacramento Water Allocation Model Methods and Results, resulted in equivalent results being printed in Tables A1-510 and A1-512. This error has been corrected in the equivalent tables contained in the final Staff Report. Article 21 water represents only a small fraction of water available to the SWP and thus has a negligible effect on total SWP exports. Meanwhile, as can be seen in Table A1-522, total SWP Table A deliveries show an average decrease across all water year types in the unimpaired flow scenarios relative to baseline. While modeling shows increases in end-of-April storage in the SWP portion of the San Luis Reservoir, overall flow at Banks Pumping Plant is shown to decrease on average relative to baseline in the flow scenarios in Table A1-104.
264	39	[ATT 1:] The assumptions in each model, including SacWAM and SWAP, where the availability of groundwater pumping is assumed at existing levels is inappropriate and unreasonable because there will be changes in allowable groundwater pumping resulting from compliance with Sustainable Groundwater Management Act (SGMA) Groundwater Sustainability Plans (GSPs). In all likelihood, there would be a reduction in the allowed groundwater pumping relative to the existing levels, especially in the critically over-drafted basins in the San Joaquin Valley. The SWAP analysis in the Draft Staff Report purports to bookend the impacts to the groundwater resources because of reduced Sacramento/Delta surface water supplies using two scenarios– “maximum replacement groundwater pumping” and “no replacement groundwater pumping” scenarios. (DSR at p. 7.12.2-40.) The Report implies that the analysis captures the breadth of likely responses to reduction in surface water supplies, which would be somewhere in between – meaning that water users likely would increase groundwater pumping to replace some amount of the reduced surface water supplies. This is a flawed presumption and not supported by substantial evidence that any additional groundwater pumping is likely compared to the	Please see Common Response 7.12.2, Groundwater and Sustainable Groundwater Management Act, for a response to comments about the Sustainable Groundwater Management Act, SWAP model, and the agricultural analysis.

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		existing levels in the critically overdrafted groundwater basins in the San Joaquin Valley.	
264	40	[ATT 1:] It is also unclear how the potential changes to local water supplies were modeled in SacWAM and SWAP. The Draft Staff Report should have included the comparison of assumed water supplies available by source for the SWAP modeling. There are many confounding results in the information that was provided. For example, it is unclear why there is only about 400 TAF reduction in average San Joaquin Valley Region total surface water supply when the total SWP and CVP deliveries are reduced by about 930 TAF (DSR § A1.12.8.51 and A1.12.8.56).	As described in Appendix A3, Agricultural Economic Analysis: SWAP Methodology and Modeling Results, estimating effects on agricultural production and crop revenue within the Central Valley involves using the output from SacWAM as input to SWAP. Within the Sacramento/Delta watershed, the surface water deliveries estimated by SacWAM were used directly in the agricultural analysis. In contrast, the quantity of Sacramento/Delta water supply that is exported to the San Joaquin Valley, San Francisco Bay Area, Central Coast, and Southern California regions was estimated within SacWAM, but the output is in aggregate form that requires additional data processing before it can be used in the agricultural analyses. The volume of export deliveries is estimated by SacWAM based on SWP and CVP contracts, but the mapping of deliveries to the individual regions and smaller subareas within each of the receiving regions relies on a separate process based on a more detailed evaluation of SWP and CVP contracts. This more detailed mapping of water supply to subregions includes further refinement in assigning water to agriculture, which allows changes in agricultural water deliveries and their effects on crop acreage and crop mix to be fully considered. Please see Appendix A3, Agricultural Economic Analysis: SWAP Methodology and Modeling Results, for additional details. In particular, Table A3-2 provides a summary of the SWAP production regions and the corresponding SacWAM Water Budget Areas. Section A1.12.8.51, CVP South of Delta, in Appendix A1, Sacramento Water Allocation Model Methods and Results, presents SacWAM results for CVP South of Delta water supplies. Section A1.12.8.56, Total SWP Deliveries, in Appendix A1 presents SacWAM results for total SWP deliveries. The values presented in Sections A1.12.8.51 and A1.12.8.56 do not align with the values presented in Staff Report Section 6.4.8, Sacramento/Delta Supply to the San Joaquin Valley, for changes in water supply to the San Joaquin Valley because the water supply values presented in Section A1.12.8.51 and A1.12.8.56 are not specific to the San Joaquin Valley region and also include water supplied by the SWP and CVP to other regions. See Staff

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			Report Section 6.4.8 for a summary of changes in water supply to the San Joaquin Valley region.
264	41	[ATT 1:] The cost assumptions used in SWAP are outdated and do not reflect recent drought and inflation. The cost of replacement supplies is a factor in SWAP optimization, so the model can underestimate the agricultural economic impacts if appropriate costs are not considered, and we think the cost for replacement supplies were underestimated. Similar concerns exist with the assumptions used in the CASRAA model. In addition, the SWAP and CASRAA models used long-term average and dry-year average water supply conditions. The models were not used to simulate the effect of likely increased water supply impacts under drought conditions. The models also are lumping various supplies available in the region on an annual basis without considering any regional or temporal constraints on those supplies. These simplified assumptions can lead to misleading outputs or underestimate the economic impacts. The Draft Staff Report should have included an integrated review of available water transfer replacement supplies both north and south of Delta before concluding that the surface water supply effects under the Unimpaired Hydrograph Alternatives could be mitigated. Using historic estimates of water transfers as a basis for future availability of replacement supplies or prices under unimpaired flow requirements is erroneous since the historical transfers do not reflect the increased fallowing and loss of groundwater substitution opportunities under the Unimpaired Hydrograph Alternatives.	The Staff Report uses a reasonable and conservative approach to evaluating the potential agricultural impacts and agricultural economic effects of the flow scenarios. The analysis of potential changes in crop acreage and crop revenues presented in Section 7.4, Agriculture and Forest Resources, and Chapter 8, Economic Analysis and Other Considerations, include estimates obtained from the SWAP and California Sub-Regional Agricultural Analysis (CASRAA) models. SWAP is currently the best available tool for modeling agricultural economic responses to water supply shortage. It has been peer-reviewed and applied to numerous policy analyses and impact assessments over the last two decades. Changes in crop acreage in other parts of the study area that are not modeled in SWAP (i.e., areas outside of the Central Valley) are estimated using an analytical approach, the CASRAA model, that emulates the same optimization process that is used in the SWAP model. The SWAP model allows for some efficiency improvements and deficit irrigation. However, it does not capture the full set of other water management actions that agricultural producers may pursue in response to reduced water supplies, such as groundwater storage and recovery, use of recycled water, and water transfers. The SWAP model does not consider the cost of replacement water supplies other than the costs of pumping additional groundwater to replace reduced surface water supplies under the maximum groundwater condition. SWAP does not include surface water purchases. Similarly, the CASRAA model does not consider the use of or purchase of replacement water to offset reductions in agricultural water deliveries resulting from changes in water supply. This is a very conservative approach to the analysis, and as a result, the actual impacts from reduced surface water deliveries and resulting economic effects may be less than presented in the Staff Report. Given the inherent uncertainties involved in modeling agricultural impacts, the Staff Report uses a reasonable and conservative approach to evaluating potential agricultural impacts of the flow scenarios. Both the SWAP and CASRAA

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			analyses in the Staff Report include modeling results for average year conditions and dry year conditions. The dry year model runs represent short-term responses to drought conditions, and deficit irrigation is allowed to occur. In addition, the Staff Report notes that impacts on agriculture and agricultural economic effects in any particular year may be greater or less than the SWAP model results for the “Dry Year” condition. However, to respond to comments received on the SWAP analysis presented in the Staff Report, supplemental SWAP model runs were conducted for: (1) critically dry water years; and (2) the driest water year (1977) intended to represent the last year of a multi-year drought. The supplemental SWAP model results for critically dry water years and for the driest water year (1977) intended to represent the last year of a multi-year drought are presented in Common Response 7.4, Agricultural Resources, for changes in crop acreage, and in Common Response 8.1, Economic Analysis and Other Considerations, for the corresponding changes in crop revenue. Overall, these supplemental SWAP results provide additional information requested by commenters, but are consistent with the analyses already presented. The 2023 draft Staff Report already identifies potentially significant impacts on agricultural production and identifies adverse agricultural economic effects, and these additional analyses do not change the conclusions of the environmental and economic analyses presented in the Staff Report. As discussed in Section 6.6.1.2, Water Transfers, it is difficult to predict with certainty how reduced Sacramento/Delta surface water supplies will affect water transfers. With new instream flow and cold water habitat requirements, overall supplies of water from the Sacramento/Delta will be reduced. This may result in less water available for transfer. At the same time, it could incentivize transfers as the value of transfer water increases, leading to transfers from lower value temporary crops to higher value municipal uses and permanent crops. Please see Common Response 8.1, Economic Analysis and Other Considerations, for a discussion on the feasibility of water transfers as an alternate supply source under the flow scenarios.

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264	42	[ATT 1:] The Supplemental Municipal Supply Analysis is flawed for several reasons. The Draft Staff Report does not explain how the volume of the replacement water supply needed was computed for each of the Unimpaired Hydrograph Alternatives. For example, it is not clear whether the expected reduction in Delta exports in a fifth dry year under the Unimpaired Hydrograph Alternatives was used to compute the needed replacement supplies. The analysis also uses inappropriate unit costs for the replacement supplies. It appears that the costs did not consider the most recent drought.	The Staff Report uses a reasonable and conservative approach to evaluating the environmental impacts of changes in supply on municipalities and the municipal water supply economic effects of the flow scenarios. Section 7.20, Utilities and Services Systems, evaluates impacts on municipal water suppliers. As discussed in Section 7.20, Utilities and Service Systems, water service reliability data from 2020 UWMPs provide information about current and projected future supplies and water demand of wholesale and municipal water suppliers. This information is used to place the modeled changes in Sacramento/Delta supplies in context for the analysis of municipal use. Additional information regarding the reliability of supply and response to various levels of water supply shortage are incorporated into the impact evaluation to provide information about the relative magnitude of the Sacramento/Delta supply effect and potential responses by providers in export regions. DWR's webpage provides aggregated data in spreadsheet form compiled from supplier's 2020 UWMPs. The analysis in the Staff Report relies upon DWR's aggregation of the suppliers' information for UWMP Table 7-4, Multiple Dry Years Supply and Demand Comparison. In all geographic regions in the study area, the projected water supply is compared to the projected future demand as reported for the water supply reliability for 5 consecutive dry years (Appendix D, Supplemental Municipal Supply Analysis Information). The 2020 UWMPs represent the best available information on current and projected future supplies and water demand for municipal water suppliers. As discussed in Section 8.5, Municipal Water Supply Economic Effects, the analysis estimates the potential costs to affected municipal service providers of securing reliable water supplies, with the focus on (1) increased cost of meeting the same demand through development of other water supplies; (2) the opportunity cost of lost supply if no other supply sources are available; or (3) costs of meeting the same demand using other water supplies already being used by municipalities within existing water portfolios. The costs are estimated as a range representing the extent to which municipal providers may rely on demand management measures and use reserve supplies, if available, versus the cost of acquiring additional water supplies to fully replace the reduction in the Sacramento/Delta water

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			supply. A water provider's actual cost most likely would fall between the lower and upper bound. Additional details on the municipal supply analysis is provided in Appendix D, Supplemental Municipal Supply Analysis Information. The commenter appears to be making a general statement about unit costs for replacement supplies without providing specificity. The Staff Report's assumptions about the costs for replacement water supplies are appropriate and are detailed in Appendix D, Supplemental Municipal Supply Analysis Information. As described in the Appendix D Section D.3, Municipal Supply Economic Effects Analysis, the amount of estimated replacement supply was obtained for each node of SacWAM based on the results for existing conditions and the modeled flow scenarios.
264	43	[ATT 1:] There seems to be disparity in how frequently the Unimpaired Hydrograph Alternatives comply with the flow requirements at various tributaries and as Delta outflow. It appears that this disparity is resulting in a significantly outsized impact on the CVP and SWP exports from the Delta. For example, on average, the Delta inflow increased by about 543 TAF (Table 6.3-1) while the Delta outflow increased by 1466 TAF (Table 6.3-2) under the 55% UIF scenario. The reason for the nearly one million acre-feet difference in Delta inflow and the Delta outflow is not explained. This is inconsistent with statement in Appendix 7: "Nearly all of the unimpaired Delta outflow originates from its tributary inflows, and a relatively small amount comes from Delta accretions and is lost to depletions." (DSR p. A7-28) Based on this comparison it appears that there is no consistency in the frequency of compliance with the 55% unimpaired flow requirement across the watershed, yet the CVP and SWP are required to fully meet the 55% unimpaired Delta outflow requirement. This lack of consistency should be addressed given the significant impacts on the SWP and CVP exports. It is unclear how the unimpaired flow requirements will be determined during the actual operations, and which forecasted hydrologic conditions would be used. It is unclear whether the assumptions used for determining modeled unimpaired flow requirements will be the same for determining the outflow requirements in the actual operations. The project description and the impact analysis are incomplete without these disclosures.	Table A1-554 in Appendix A1 lists the frequency of unmet instream flow requirements in SacWAM simulations. There are no unimpaired flow requirements at Delta inflow locations listed in Table A1-554, this indicates that these requirements are always met in all scenarios. The reason that there is a larger increase in Delta outflow than Delta inflow in the 55 scenario is that Delta inflow is less impaired than Delta outflow in the baseline condition because the large amount of water that is exported from the Delta as described in Chapter 2, Hydrology and Water Supply. The difference between the increases in Delta inflow and outflow are not inconsistent with information in Appendix A7 as the commenter asserts because Appendix A7 describes the development of the unimpaired hydrology which should not be confused with the baseline conditions or the hydrologic conditions under the UF scenarios. Chapter 2 Section 2.1.1, Natural and Unimpaired Flow, describes what unimpaired flow means and what it represents. The percent unimpaired flow requirements would be implemented based on water rights priority which will be further developed in a public process for the Water Right Implementation Methodology.

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264	44	[ATT 1:] Groundwater Analysis is Insufficient As noted above the presumption about groundwater available for mitigation is unsubstantiated with the analysis presented in the Draft Staff Report. There is no groundwater modeling to show the likely impacts of assumed increased groundwater pumping as a result of the significant reduction in the surface water supplies. The reliance on SacWAM for projecting groundwater impacts is flawed because the allowed groundwater pumping is artificially constrained to existing levels in SacWAM. Additionally, there is no analysis to understand likely indirect impacts resulting from the increased groundwater pumping. Historically, areas with increased groundwater pumping are often associated with a range of undesirable results, such as land subsidence, reduced groundwater quality, reduced groundwater availability to shallow (often domestic) wells, chronic lowering of water tables, and increased greenhouse gas emissions and pumping costs associated with operating deeper wells.	The Staff Report recognizes that the availability of groundwater replacement supplies may be limited. The impact conclusions made in the draft Staff Report do not rely on increased groundwater pumping as mitigation to reduce water supply impacts from reduced Sacramento/Delta supply. The Staff Report acknowledges potentially significant impacts to groundwater levels (Impact GW-b) and groundwater quality (Impacts GW-a,f), resulting from changes in hydrology or Sacramento/Delta water supplies (see Section 7.12.2.3, Impact Analysis) if water users increase groundwater pumping. The impact analysis for groundwater is presented qualitatively, with numerical modeling results from SacWAM alternatives and SWAP model outputs included to inform the qualitative conclusions. Please see Section 7.12.2, Groundwater, for discussion of the qualitative impact analysis for groundwater and the associated indirect impacts, such as reduced incidental groundwater recharge (from less surface irrigation), caused by reduced surface water supplies. Please see Section 7.23.1.1 Approach to Cumulative Analysis, for a discussion on changes in water supply and increased groundwater pumping, as well as other water management actions that could result in potentially significant impacts in greenhouse gas emissions and groundwater levels. Also see Common Response 7.12.2, Groundwater and Sustainable Groundwater Management Act, for discussion on the qualitative groundwater impact analysis and the overlap between implementation of the Sacramento/Bay-Delta Plan update and the requirements of the Sustainable Groundwater Management Act.
264	45	[ATT 1:] Additionally, under the Unimpaired Hydrograph Alternatives higher flow requirements would result in less applied water for irrigation of agricultural lands (DSR p. 6-81), which would cause reductions in incidental groundwater recharge in areas reliant on Sacramento/Delta surface water supplies. As a result, the Unimpaired Hydrograph Alternatives could further exacerbate significant adverse groundwater impacts compared to baseline conditions in critically overdrafted groundwater basins within the San Joaquin Valley region.	Please see the response to comment 264-44.
264	46	[ATT 1:] The Draft Staff Report's reliance on compliance with SGMA would mitigate impacts to groundwater resources contradicts with the need for additional groundwater pumping	Please see the response to comment 264-44.

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		to mitigate surface water supply impacts due to the Unimpaired Hydrograph Alternatives. As a general policy many of the GSPs that are currently approved or being approved by the State rely on the availability of surface water under wetter Delta flow conditions as a resource to comply with SGMA. The Unimpaired Hydrograph Alternatives directly contradicts this policy.	
264	47	[ATT 1:] Presentation of data hinders understanding of impacts. The analysis is performed on a long-term average and does not consider the increased direness in the latter years of drought sequences. The analysis is lumped regionally and temporally and does not consider the fact that some of the supply sources are only available during certain times of the year or certain years and does not consider if an agency can store their supplies for later use. For example, availability of Article 21 SWP supplies will only be limited to some winter and spring months of wet years. The analysis is also performed regionally without any consideration of constraints at individual water supplier level. The analysis used long-term average reductions which mask the larger impacts in individual water years. This methodology significantly underestimates the likely water supply impacts under the Unimpaired Hydrograph Alternatives and resultant environmental impacts.	The analysis of the effects of the proposed project in the draft Staff Report includes long term averages grouped regionally as the commenter points out. However, the analysis in Chapter 6, Changes in Hydrology and Water Supply, also provides averages by year type including critical year types which do in fact show large reductions in water supply. In addition to the regional results, the analysis in Chapter 6 does include a qualitative discussion on localized impacts with examples of the greatest impacts such as those to users that rely solely on Sacramento/Delta supplies. SacWAM modeling does include the limited availability of Article 21 supplies in some years based on hydrologic conditions. Additional quantitative analysis is provided in Section 7.4, Agriculture and Forest Resources, and Section 7.20, Utilities and Service Systems, for agricultural and municipal water uses.
264	48	[ATT 1:] Reliance on urban water management plans is misplaced. Reliance on the UWMPs to determine whether a region can cope with average reduction in water supply is flawed, as the UWMPs represent single year “snapshots” under average conditions. Under the Unimpaired Hydrograph Alternatives, the Delta water supplies are expected to reduce every year resulting in compounding impacts that are not accounted for in the UWMPs. Relying on the UWMPs to estimate the potential shortages, demand management capabilities and availability of other supplies is incorrect since the assumptions under which the UWMPs were developed do not consider the significant reductions in the available supplies from the Delta in every single year. For example, the groundwater production and recycled water supplies included in the UWMPs assume availability of Delta supplies under the current regulatory regime	Methods described in Appendix A1a, Methods for Estimating Regional Sacramento/Delta Surface Water Supply for Agricultural and Municipal Use, were applied to estimate changes in Sacramento/Delta supply for agricultural and municipal uses to each region in the study area. An overview of the annual average water supplied to each region as well as the percent impacts. Section 6.6.1.4, Water Conservation, of the draft Staff Report discusses forecasted changes in urban water use between the present and 2035. “As shown in Figure 6.6-5, between 2000 and 2013, average statewide per capita water use decreased from 199 to 164 GPCD. Between 2013 and 2015, emergency conservation regulations and tremendous drought responses by local agencies and their customers resulted in average statewide water use dropping from 164 to 129 GPCD, a 21-percent savings in 2 years (SWRCB 2023a). Since then, California has

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		and hence is likely an overestimate of how much “other supplies” an agency may have under proposed Plan amendment. This flawed methodology significantly underestimates water supply impacts and resultant environmental impacts.	experienced some rebound, peaking at 137 GPCD in 2020 (the beginning of the hot, dry conditions associated with the current drought) and again dropping by the end of 2022, averaging 130 GPCD (SWRCB 2023a). Absent additional regulation, average statewide total urban water use is forecasted to decline from an average of 130 GPCD in 2022 to 117 GPCD in 2035 (Figure 6.6-5).” For more information on projected changes in Municipal demands, please see Appendix A1a “Methods for Estimating Regional Sacramento/Delta Surface Water Supply for Agricultural and Municipal Use” and Appendix D “Supplemental Municipal Supply Analysis Information.” Section 7.20, Utilities and Service Systems, acknowledges that municipal supply effects during extended dry years or drought conditions could greatly exacerbate municipal shortages for some of the municipal uses. Please see Common Response 7.20, Utilities and Service Systems, for responses to comments related to municipal water use and UWMPs.
264	49	[ATT 1:] Failure to mitigate. The analysis also makes incorrect assumptions about the potential availability of replacement water supplies lost under the Unimpaired Hydrograph Alternatives. For example, replacing 446 TAF annual average impact to southern California would likely require eight additional Carlsbad sized desalination plants or 80 small desalination plants, or nearly 390 MGD recycling projects, assuming there would be sufficient SWP supply available to recycle. All these options, if feasible, would cost billions of dollars, which would create affordability issues in the service areas, thereby disproportionally affecting the disadvantaged communities. Some of the inland regions in Kern County and others served by SWP water do not have the ability to take advantage of these mitigation options. Demand management and new local supply development are already assumed in the UWMPs, and additional efforts may not be feasible. Several of the SWC members are providing comment letters on the Draft Staff Report to explain the regionally specific potential impacts to their service areas due to the proposed Plan	The impact conclusions made in the draft Staff Report do not rely on the implementation of other water management actions. The Staff Report recognizes that the availability of replacement supplies may be limited. As discussed in Section 6.6.1.2, Water Transfers, it is difficult to predict with certainty how reduced Sacramento/Delta surface water supplies will affect water transfers. With new instream flow and cold water habitat requirements, overall supplies of water from the Sacramento/Delta will be reduced. This may result in less water available for transfer. At the same time, it could incentivize transfers as the value of transfer water increases, leading to transfers from lower value temporary crops to higher value municipal uses and permanent crops. Please see Common Response 6.3, Water Supply and Other Water Management Actions, for more discussion on water supply impacts. Please see Common Response 7.20, Utilities and Service Systems, for discussion of how the Staff Report relied on water service reliability data from 2020 UWMPs to assess service

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		amendment. The assumed availability of the water transfers and the prices are erroneous and do not reflect the water supply conditions that would exist under the Unimpaired Hydrograph Alternatives or the market conditions. Relying on the available transfer supplies and prices from 2022 may be more appropriate to reflect the water supply conditions under the Unimpaired Hydrograph Alternatives.	providers' ability to use existing alternative supplies, develop alternative water supplies, or manage demand. See also Common Response 8.1, Economic Analysis and Other Considerations, for more discussion on the availability and cost of water transfers. Common Response 8.1 also discusses various financial and technical assistance programs available to assist public water systems serving disadvantaged communities.
264	50	[ATT 1:] CEQA conclusions regarding effects to aquatic species are not based on substantial evidence. The Draft Staff Report evaluates Unimpaired Hydrograph Alternatives based on the relative frequency of exceeding certain flow thresholds that were originally defined in the Scientific Basis Report and are discussed further in Chapter 3, Scientific Knowledge to Inform Fish and Wildlife Recommendations. Due to the structure of the document, the purported benefit of the flow thresholds to aquatic species would necessarily be the targeted benefit of the Unimpaired Hydrograph Alternatives. Our review of the Draft Staff Report discusses whether the flow thresholds are meaningful measures of the purported benefits, which the Draft Staff Report defines as increased species abundance and/or survival, and flow-based attributes of species habitat. The Draft Staff Report's analytical approach to evaluating the effects of Unimpaired Flow Alternatives on aquatic species, primarily being the flow threshold analysis, fails to utilize widely used and well-accepted analytical methods, including but not limited to various life cycle models, species survival models, entrainment models, and egg mortality models. The analysis of aquatic species in the Draft Staff Report is also based on outdated scientific literature, and therefore we are providing a list of current scientific literature that should have been considered during the development of alternatives and in the analysis. See Attachment A [ATT 1: ATT 1:]. The uncertainties of the analyses relied on in the Draft Staff Report are significant, and largely ignored.	Chapter 3, Scientific Knowledge to Inform Fish and Wildlife Flow Recommendations, of the final Staff Report has been updated to reflect more recent scientific literature. The scientific evidence presented in Chapter 3 indicates that native fish populations would benefit from increased flows. See Common Response 3.1, Fish Protection, for a discussion of updates to the literature in Chapter 3, the flow-benefit analysis, life-cycle models, and use of best available science. Please also see Common Response 7.6.2, Aquatic Biological Resources and Cold Water Habitat, for a discussion regarding implementation of the cold water habitat objective.

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		We conclude that the analyses of the Unimpaired Hydrograph Alternatives do not support conclusions that under these alternatives species abundance or survival will increase, or that species will benefit from flow-based changes in habitat. At the same time, the analysis shows significant temperature impacts that cannot be avoided through implementation of any of the narrative alternatives.	
264	51	[ATT 1:] The analysis of beneficial effects to salmon is flawed. The Draft Staff Report states that the Unimpaired Hydrograph Alternatives would provide the following benefits to salmon: increased abundance (DSR, p. 3-43); increased survival (DSR, p. 3-14.); and, improved ecological conditions (DSR, p. 3-43.). These conclusions are not supported by substantial evidence. Salmon Abundance and Survival The analyses in the Draft Staff Report do not support the assumed increases in species abundance or survival. The cited studies do not link flow to an increase in abundance of Chinook salmon. The cited studies, and the available body of scientific literature, have looked at flow/exports in relation to through-Delta survival. No study has shown that differences in through-Delta survival are directly linked to a change in abundance of the overall population. If there is a relationship, we do not know the shape of the relationship, so there is no basis for making predictions. The analysis in the Draft Staff Report does not use a life cycle model, which would have been the appropriate tool for determining whether a change in flow was related to an increase in species population. At best, the analysis in the Draft Staff Report is evaluating out-migrant salmon survival, citing some of the earlier studies that are the foundation of the current best available analytical tools. The Draft Staff Report does not use best available tools to determine changes in survival on the Sacramento River, biological models that include egg and early life-stage mortality models, Delta Passage Model, STARS, IOS, OBAN, winter-run Chinook salmon life cycle model. The analysis in the Draft Staff Report is not substantial evidence to support conclusions related to changes in abundance because	Implementation of the regulatory pathway is expected to result in increased flows in the Sacramento River and the Delta, particularly during the biologically important January–June period, as described in Chapter 3, Scientific Knowledge to Inform Fish and Wildlife Flow Recommendations of the Staff Report. Multiple scientific studies have shown that higher river flows are associated with increased survival of outmigrating juvenile salmonids, improved ecological conditions in the Sacramento River and the Delta, and increased adult salmonid abundance (Perry et al. 2018; Michel 2019; Hassrick et al. 2022). ^Perry et al. (2018) and Hassrick et al. (2022) found strong positive correlations between Sacramento River flows and juvenile Chinook salmon survival through the Sacramento River and the Delta. Michel (2019) evaluated the relative importance of survival during freshwater juvenile migration and ocean life stages on population-level success of Central Valley Chinook salmon. That study found a strong positive correlation between the smolt-to-adult ratios and river flows and concluded that flows during juvenile outmigration are a strong predictor of population-level success in Central Valley Chinook salmon populations. Michel (2019) further concluded that other factors, such as ocean conditions, had relatively little influence on Chinook salmon smolt-to-adult ratios. See Common Response 3.1, Fish Protection, for a discussion of the flow-benefit analysis, life-cycle models, and use of best available science.

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		it is not evaluating species abundance. The assessment of species survival is crude, and the interpretation of the results are speculative. The Draft Staff Report should have used the best available tools noted above.	
264	52	[ATT 1:] Ecological Conditions The analysis also does not support a conclusion of improved ecological conditions associated with unimpaired flows, which the Draft Staff Report defines as a lower proportion of flow diverted into the central Delta, presumably to avoid entrainment in the SWP-CVP; lower water temperatures; and reduced entrainment in the SWP and CVP. (DSR, p. 3-43.) There are two ways that the report considers entrainment: 1.) frequency of changes in reverse flows at the Georgiana Slough; and 2.) frequency of changes in different levels of negative OMR. The Draft Staff Report says, “salmon that enter the San Joaquin River through the DCC or Georgiana Slough from the Sacramento River may be vulnerable to export effects...,” and “Analysis indicate that tagged fish may be more likely to choose to migrate south toward the export facilities during periods of elevated diversions than when exports are reduced...” (DSR, 3-50.) This is an outdated conceptual model because the rate of SWP-CVP exports has no or little effect on route selection at key locations. As explained in the CAMT Salmon Synthesis Team Report (SST): Based on hydrodynamic simulation modeling, the effect of State Water Project (SWP) and Central Valley Project (CVP) exports on flow and velocity varies with distance from the export facilities, export level, inflow, and tides. Exports have almost no effect on distributary flow at junctions such as Georgiana Slough leading off the Sacramento River toward the San Joaquin River, and a very small effect on distributary flow at junctions leading off the San Joaquin River, with the exception of the head of Old River.” (SST (2017), Volume 2, p. ES-1, emphasis add.) [Footnote 26: Salmon Scoping Team, Collaborative Adaptive Management Team (2017), Migration and Survival in the South Delta, Volume 1: Findings and Recommendations.] The current scientific evidence supports a conclusion contrary to the Draft Staff Report, as the	As described in Chapter 6, Changes in Hydrology and Water Supply, and Section 13.4, Changes in Hydrology and Water Supply of the Staff Report, implementation of the inflow objective would in most months and water year types increase the Sacramento River inflows to the Delta and flows through the Delta. As described in Chapter 3, Scientific Knowledge to Inform Fish and Wildlife Flow Recommendations, of the Staff Report, increased flows in the Sacramento River (e.g., at Freeport) would increase the through-Delta survival of migrating juvenile salmonids by enhancing their migration through the mainstem Sacramento River and reducing their routing into the interior Delta via the Delta Cross Channel and/or Georgiana Slough where their migration survival is low due to the longer migration time and exposure to multiple stressors. Please see Common Response 3.1, Fish Protection, for a discussion of updated flow thresholds, flow effects on entrainment, and entrainment effects on survival. Regarding the commenter’s statement that p. 3-43 of the 2023 draft Staff Report defines improved ecological conditions associated with unimpaired flows, p. 3-43 only presents current scientific literature associated with juvenile through-Delta emigration and makes no conclusions regarding improved ecological conditions associated with unimpaired flows. Section 3.4.5.3, Juvenile Through-Delta Emigration, of the Staff Report describes entrainment and routing of juvenile salmon from the mainstem Sacramento River into the interior Delta through the Georgiana Slough and Delta Cross Channel, as well as the factors affecting routing, and subsequent survival of juvenile salmon in two sections about distinct geographic locations. The first involves the routing of water and juvenile salmon at the Sacramento River distributary junctions, including the DCC gates

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		current science does not support the conclusion that SWP and CVP exports are pulling salmon from the mainstem of the Sacramento River and into the central Delta toward the water export pumps. The second entrainment analysis is a flow threshold analysis of how often certain OMR negative flow rates are exceeded. This is not a meaningful analysis because it assumes that species are present every time OMR is changed, thereby causing a species impact, which is unrealistic. More importantly, however, this analysis fails to consider the fact that there are operable Biological Opinions and a state ITP that are managing actual take during these modeled changes. There is a real-time multiple agency decision-making process managing take at the SWP-CVP, as well as several real-time export restraints that are not included in the generalized modeling that are also not accounted for in the analysis. Further, entrainment of Chinook salmon into the SWP and CVP export facilities has been very low for more than a decade. (See e.g., 2019 NMFS Biological Opinion, p. 489 [Since 2008, Winter-run Chinook salmon average proportional loss has been 0.52% of the clipped juvenile population and 0.36% of the unclipped juvenile population.]) The Draft Staff Report provides no evidence that further reductions in entrainment would provide any population benefit beyond what is included in the most recent Biological Opinions, ITP, and the current BA and ITP Application.	and Georgiana Slough. Routing at these junctions is influenced primarily by the hydrodynamic conditions, which are a function of Sacramento River flows, tidal conditions, DCC gate operations, and potentially, south Delta water exports (Section 3.4.5.3, Delta Cross Channel Gate Operations and Georgiana Slough). The second involves juvenile salmon that have already entered the interior Delta channels. Their movement and survival are influenced by the hydrodynamic conditions within the interior Delta channels, which are tidally dominated and affected by south Delta water exports. As explained in the Staff Report (Section 3.4.5.3, Juvenile Through-Delta Emigration), the hydrodynamic influence of the export facilities on fish movement and survival increases as juvenile salmon migrate closer to the export facilities. The commenter combines two sentences from the draft Staff Report that appear in different paragraphs and address these separate phases of juvenile salmon migration in the Delta. The first quoted sentence, "...salmon that enter the San Joaquin River through the DCC or Georgiana Slough from the Sacramento River may be vulnerable to export effects," appears in a paragraph describing the effects of south Delta water exports on juvenile salmon that have already been routed from the Sacramento River into the interior Delta. The second quoted sentence, "Analyses indicate that tagged fish may be more likely to migrate south toward the export facilities during periods of elevated diversions than when exports are reduced," appears in the preceding paragraph and describes juvenile salmon originating from the Calaveras and Mokelumne River basins after they have entered the interior Delta. Thus, both sentences address the effects of south Delta exports on juvenile salmon that are already within the interior Delta, rather than the effects of exports on routing fish into the interior Delta. The Staff Report does not state that routing of flow and juvenile salmon at Sacramento River tributary junctions is strongly controlled by SWP and CVP export rates. However, the Salmon Scoping Team (SST 2017a, Volume 2) reports that increased south Delta exports increase the proportion of flow directed toward the interior Delta at key channel junctions,

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			including Georgiana Slough. Further, the SST report (SST 2017b Volume 2, Appendix E) reiterated the uncertainty related to the issue by stating, "Incomplete multi-year analysis of existing Chinook salmon and steelhead AT data (analysis is ongoing); however, conclusions will remain uncertain due to limited observations at high export levels and correlation between exports and inflow, and possibly other variables (e.g., water temperature)."
264	53	[ATT 1:] Negative Impacts to Water Temperature The analysis of upstream temperature effects on Chinook salmon shows negative unmitigated impacts. The Draft Staff Report concludes that: Potentially significant impacts on aquatic species could occur below certain reservoirs with limited capacity to maintain storage conditions needed to provide suitable downstream temperatures for native fish. (DSR, p. 7.6.2-1.) We agree with this conclusion to the extent it acknowledges the negative temperature impacts from all Unimpaired Hydrograph Alternatives. The analysis shows increased upstream temperatures under Unimpaired Hydrograph Alternatives even after mitigation. The negative effect is likely even greater than shown because the full extent of the temperature impact was never disclosed since the modeling includes assumed reservoir re-operation designed to mitigate the temperature impacts, thereby obfuscating the full impact of each alternative. Since the best available analytical tools were not applied, including any of the egg mortality models and the Winter-run Chinook salmon Life Cycle Model that are consistently used for similar analyses of SWP and CVP operations, it is impossible to understand the biological effects of those increased upstream water temperatures. For this reason, conclusions regarding the extent and nature of potential effects are speculative. Conclusions regarding the imposition of the Cold Water Habitat narrative objectives and whether those objectives could be met and would mitigate the negative effects of the alternatives on upstream water temperatures are speculative and not based on fact.	The cold water habitat objective is part of the project; please see the response to comment 264-63. Because implementation of the cold water habitat objective is complex, methodology for individual tributary implementation will take time. Please see Common Response 7.6.2, Aquatic Biological Resources and Cold Water Habitat, regarding implementation of the cold water habitat objective and flexibility included in the revised proposed Plan amendments related to long-term temperature management strategy and refinement of the carryover storage target ranges. Water temperature effects on fish were assessed using a suite of water temperature indices as described in Appendix A6, Water Temperature Modeling and Fish Assessment for the Sacramento, Feather, and American Rivers, and Section 7.6.2, Aquatic Biological Resources. The indices included values for egg survival and all life stages of winter-run Chinook salmon. The 56°F for winter-run egg survival used in the NMFS Winter-run Chinook salmon Life Cycle Model and IOS winter-run lifecycle model was also used in this analysis. Anderson and Martin water temperature value for winter-run Chinook salmon of 53.5°F was also used. This evaluation approach is sufficient for evaluating temperature impacts. Please also see Common Response 3.1, Fish Protection, regarding life cycle models.

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264	54	[ATT 1:] The analysis of beneficial effects to Delta Smelt is flawed. The Draft Staff Report states that the Unimpaired Hydrograph Alternatives would result in increased abundance (DSR, p. 3-76) and decreased entrainment. (DSR, p. 3-80.) These conclusions are not supported by substantial evidence. Abundance The cited evidence does not support a spring X2 to Delta Smelt abundance relationship. The DSR at p. 3-79 cited Baxter et al. 2015 (MAST) for the proposition that Delta Smelt had a spring abundance relationship with X2. [Footnote 27: It should also be acknowledged that the Water Board's expert panel in 2014 cautioned them that the referenced analysis had untested assumptions, like that a change in abundance in the spring would actually result in an increase in the adult population. (Delta Stewardship Council, Delta Science Program (2014) Delta Outflows and Related Stressors Panel Summary Report p. 30.) The Draft Staff Report appears to rely on that untested assumption.] The Draft Staff Report should have acknowledged the limited nature of the cited analysis as the MAST at p. 152 specifically states that the spring abundance to X2 analysis was for illustrative purposes only stating, "results are preliminary and included for illustrative purposes only, peer reviewed publications of these analyses need to be completed before they can be used to draw any conclusions." The cited MAST analysis has never been peer reviewed. In fact, the cited correlation begins to degrade with more recent population indices, post 2-013. The published and peer-reviewed scientific literature has repeatedly failed to find a spring abundance relationship. Kimmerer et al. have repeatedly concluded that there is no winter-spring X2 to Delta Smelt abundance relationship. (See, Jassby et al. 1995 [Footnote 28: Jassby AD, Kimmerer WJ, Monismith SG, Armor C, Cloern JE, Powell TM, Schubel JR, Vendlinski TJ. 1995. Isohaline position as a habitat indicator for estuarine populations. Ecol Appl 5:272-289.], Kimmerer 2002 [Footnote 29: Kimmerer, W. 2002. Effects of freshwater flow on abundance of estuarine organisms: physical effects or trophic linkages. Mar. Prog. Ser., Vol. 243.], and Kimmerer et al. 2009	Please see Common Response 3.1, Fish Protection, on use of best available science. Chapter 3, Scientific Knowledge to Inform Fish and Wildlife Flow Recommendations, is based on the 2017 Scientific Basis Report which includes peer-reviewed studies and underwent external scientific peer review. Chapter 3 of the Staff Report discusses the statistically significant relationship between spring X2, X2 during the previous fall, and the abundance of larval Delta smelt in the following spring measured by the 20-mm index (Figure 3.8-4, citing ^Baxter et al. 2015 also referred to as IEP-MAST Report Figure 79). ^Baxter et al. (2015) describes that there were significant univariate relationships between the 20-mm index (larval to early juvenile abundance) and spring X2, prior fall X2, and prior FMWT abundance index. The prior fall X2 was the strongest predictor of the 20-mm index survey in the spring (^Baxter et al. 2015). Although fall X2 was the strongest predictor of the 20-mm index values in univariate models, when models included additional covariates of either the prior year's FMWT index or a step change to account for the effects of the pelagic organism decline, spring X2 was the stronger predictor of 20-mm index values. The IEP-MAST report is a product of collaborative and comprehensive efforts among researchers from many resources and regulatory agencies that have gone through rigorous peer reviews (both public and academic) and revisions (IEP-MAST 2015 Appendix A). Contrary to the commenter's assertion, the ^Smith et al. (2021) paper did not conclude that lower spring or fall X2 (corresponding to higher outflow) has no beneficial effects on Delta smelt but found that reduced summer outflow is associated with increased late postlarval mortality. In addition, Polansky et al. (2021) concluded that X2 during the previous fall is one of the most important influences on Delta smelt recruitment in the spring. Moreover, Polansky et al. (2024) found that summer outflow is the strongest predictor of population growth rates among the habitat factors considered. For more discussion of the findings of recent papers related to flow effects on Delta smelt, see Common Response 3.1, Fish Protection. The summer flow threshold or X2 location (from

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		[Footnote 30: Kimmerer, W., Gross, E.S., MacWilliams, M.L. 2009. Is the response of estuarine nekton to freshwater flow in the San Francisco Estuary explained by variation in habitat volume? <i>Estuaries and Coasts</i>, 32:375-389.].) The Delta Smelt life cycle model by Polansky et al. reached the same conclusion regarding no Delta Smelt abundance to spring X2 relationship. (Smith et al 2021.) [Footnote 31: Smith, W. E., Polansky, L., & Nobriga, M. L. 2021. Disentangling risks to an endangered fish: using a state-space life cycle model to separate natural mortality from anthropogenic losses. <i>Canadian Journal of Fisheries and Aquatic Sciences</i>, 78(8), 1008-1029. [Fall X2 not included in model.]] The cited evidence does not support a fall flow-X2 to Delta Smelt abundance relationship. Please see discussion of the Fall X2 Action in Section II(B)(2), Fall X2 modular discussion, above, explaining the lack of support for a Fall X2 to Delta Smelt abundance relationship. The Polansky life cycle model, which is the more recent scientific literature, found Fall X2 to subsequent spring abundance relationship, but the subsequent Smith et al. (2021) paper did not. Smith et al (2021) updated the model to better disentangle the risks of anthropogenic loss to natural mortality. The updated model did not find support for including Fall X2 compared to other factors such as OMR, turbidity, and temperature among other factors. Evidence cited by the Water Board staff does not support a summer flow relationship as the referenced material is not published or peer reviewed. (DSR, p. 3-77 and 3-78) The Polansky life cycle model does show a potential benefit from average summer outflow June-August, but the potential benefit is very limited. (Polansky et al (2019).) [Footnote 32: Polansky, L., Mitchell, L. and Newman, K.B. 2019. Using multistage design-based methods to 1014 construct abundance indices and uncertainty measures for delta smelt. <i>Trans. Am. Fish. Soc.</i> 1015 148(4): 710–724.] The Healthy Rivers alternative would allow for targeted testing of this relationship.	2023 draft Staff Report pp. 3-77- 3-78) has been supplemented by the addition of a new summer outflow threshold for Delta smelt as identified in Polansky et al. (2024).
264	55	[ATT 1:] Entrainment The Draft Staff Report analysis does not show a population benefit from entrainment reductions that are in addition to	Please see Common Response 3.1, Fish Protection, for a discussion of the effect of flow on entrainment and the effects of entrainment on survival.

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		current or anticipated permit requirements, rather it shows changes in OMR flow under the various alternatives, which is not meaningful as other factors like species presence and turbidity are also important to entrainment. (See e.g., Grimaldo et al 2021 [importance of turbidity].) [Footnote 33: Grimaldo, L. F., Smith, W. E., & Nobriga, M. L. 2021. Re-Examining Factors That Affect Delta Smelt (<i>Hypomesus transpacificus</i>) Entrainment at the State Water Project and Central Valley Project in the Sacramento– San Joaquin Delta. San Francisco Estuary and Watershed Science, 19(1).] The Draft Staff Report should have considered if entrainment were already being effectively managed, and whether further reductions in entrainment would have a population level effect. Two recent papers speak to these issues. Tillotson et al. 2023 [Footnote 34: Tillotson, M., Brandon, J. 2023. Evaluating the influence of proportional entrainment loss on subadult Delta Smelt survival using the Maunder and Deriso in R (MDR) Model. Prepared for Metropolitan Water District.] used an updated and generalized version of the Maunder and Deriso (2022) life cycle model to clarify the effect of entrainment on Delta smelt. After running multiple scenarios, Tillotsen et al. pp. 30-31 concluded that: In scenarios in which the population did not markedly decline, PEL [proportional entrainment loss] never rose above 4%. Since 2009, estimated PEL has remained in this range, suggesting that entrainment of subadults is unlikely to be limiting population growth at present...However, consistent with observations in the real world in spite of persistently low entrainment loss none of the projections show a notable increase in abundance during this low entrainment period. This conclusion is consistent with Smith et al 2021 at p. 30, who concluded: Given average environmental conditions, no level of predicted delta smelt entrainment mortality, including that associated with zero net OMR, led to a high probability of population growth. These studies explain why there is no benefit to be achieved by the Water Board adopting additional export constraints. The	Tillotson and Brandon (2023) evaluated the impacts of entrainment based on proportional entrainment loss (PEL) of subadult Delta smelt on population dynamics during the years from 1995 to 2015 using the Maunder and Deriso model (2011). Tillotson and Brandon (2023) reported that survival of subadult Delta smelt had a significant negative correlation with proportional entrainment loss while OMR and turbidity were also important, which is consistent with findings of other studies cited in Chapter 3, Scientific Knowledge to Inform Fish and Wildlife Flow Recommendations, and Common Response 3.1, Fish Protection.

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		state and federal fishery agencies are already managing entrainment.	
264	56	[ATT 1:] The analysis of beneficial effects to Longfin Smelt is flawed. The Draft Staff Report states that the Unimpaired Hydrograph Alternatives would result in increased abundance (DSR, p. 3-56), increased volume of low salinity habitat (DSR, p. 7.6.2-39) and decreased entrainment. (DSR, p. 3-58.) These conclusions are not supported by substantial evidence, primarily because the analysis does not consider the entire population as it focuses only on those in the Delta. Abundance The Draft Staff Report relies on an analysis that is not the best available science and is not generally relied on in decision-making and permitting. (DSR, p. 3-58, Fig. 3.5-3, see below [ATT 1: Exhibit 2].) As the figure shows and the analysis states, this analysis generally predicts a 50% chance of an increase in species abundance at the identified threshold. (SED p. 3-57.) A 50-50 chance of a positive or a negative outcome shows that this model is not highly predictive at a such high Delta outflow (about 42,000 cfs). The relationship is also highly uncertain as shown by the grey shading. The Draft Staff Report evaluates alternatives by how often the flow threshold is exceeded; and even if the analysis was highly predictive, the results show basically no difference between alternatives. (DSR, p. 7.6.2-38, Table 7.6.2-5, 1-4% change in the 35-65% Unimpaired Flow Alternatives.) The Draft Staff Report should have also acknowledged, but did not, that this analysis only considers Longfin Smelt that are in the Delta. Since Longfin Smelt can move into the survey area from other areas of the Delta, this analysis does not necessarily mean that the population increased in potentially 50% of years as there may have just been a shift in species distribution. As a second line of evidence, the Draft Staff Report shows results from the January-June X2 to abundance relationship. What the analysis does not acknowledge is that this statistical relationship	See Common Response 3.1, Fish Protection, on use of best available science. It is unclear why the commenter believes that the choice of a 50% chance of an increase in species abundance results in a model that “is not highly predictive.” The model used to predict the threshold encompasses a wide range of probabilities of population growth and the choice of the 50% threshold has no effect on the underlying model since the 50% threshold is simply used to extract a prediction from the model. As acknowledged by the commenter, model uncertainty is disclosed in Figure 3.5-3 in Section 3.5, Longfin Smelt (<i>Spirinchus thaleichthys</i>) and it is not abnormally high considering the complexities of the system and population being modeled. Despite the uncertainty, the flow effect differed significantly from zero ($P < 0.01$, two-sided Wald test). Regarding the comment that the analysis does not consider the entire longfin smelt population as it focuses “only on those in the Delta”, Staff Report analyses address impacts and benefits to fish species native to the San Francisco Bay-Delta and its tributaries (Plan Area), including the distinct population segment of longfin smelt. Currently no long-term monitoring data exists that encompasses all geographic regions of longfin smelt. See Common Response 3.1, Fish Protection, for more discussion of the data sources. The commenter raised a question on the use of January-June Delta outflow (or X2) to longfin smelt abundance. As described in Chapter 3, Scientific Knowledge to Inform Fish and Wildlife Flow Recommendations, there is a significant relationship between Delta outflow (or X2) during the spring months and the following FMWT longfin smelt index (e.g., Figure 3.5-2); in addition, there is a clear trend of decreasing population size of longfin smelt (e.g., Figure 3.5-1). The continued decline of longfin smelt during recent years and the correlation between spring (January-June) X2 and fall abundance of longfin smelt has been recently reiterated by Kimmerer and Gross (2022) that included

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		is very uncertain; and in fact, over the last 10 years the relationship has flattened significantly. (See, CDFW, 2022 Summary of FMWT Survey, p. 33, Figure 21 [ATT 1: Exhibit 3].) The Healthy Rivers alternative would allow for targeted testing of the causal mechanisms resulting in this relationship. (See also, Tamburello et al. (2019).) [Footnote 35: Tamburello, N., Connors, B. M., Fullerton, D., & Phillis, C. C. (2019). Durability of environment–recruitment relationships in aquatic ecosystems: insights from long-term monitoring in a highly modified estuary and implications for management. <i>Limnology and Oceanography</i>, 64(S1), S223-S239.] As further evidence of the flattening relationship is the abundance in the dry years 2021 and 2022, which was significantly increased over prior years. (CDFW FMWT Index Table, https://apps.wildlife.ca.gov/FMWT.) Again, there needs to be consideration of the entire population, not just those in the Delta. (See e.g. Kimmerer and Gross (2022), [Footnote 36: Kimmerer, W., & Gross, E. (2022). Population abundance and diversion losses in a threatened estuarine pelagic fish. <i>Estuaries and Coasts</i>, 45(8), 2728-2745.] at p. 2742 [“Longfin Smelt, no respecter of boundaries, show why the management focus on the Delta is misguided.”], see also, Sağlam et al. (2021) [Footnote 37: Sağlam, İ. K., Hobbs, J., Baxter, R., Lewis, L. S., Benjamin, A., & Finger, A. J. 2021. Genome-wide analysis reveals regional patterns of drift, structure, and gene flow in longfin smelt (<i>Spirinchus thaleichthys</i>) in the northeastern Pacific. <i>Canadian Journal of Fisheries and Aquatic Sciences</i>, 78(12), 1793-1804.] [Longfin Smelt located in multiple downstream locations and in other estuaries, all locations where in-Delta actions would have no impact.]) The drier year results showing increased abundance could actually be showing a change in species distribution rather than a change in abundance, which may also be the explanation for the wetter year results. Multiple published papers explain that the interpretation of correlative analysis must include consideration of the underlying causal mechanisms, particularly when used in decision-making. (See, e.g., Kimmerer 2002.) It cannot be said that additional flow is reliably resulting in higher species abundance regardless of causal mechanism, which is a position we have heard at various Water Board hearings over the years. That is too simplistic of a	fall abundance data until the year 2020. See Section 3.2.2, Freshwater Flow and Estuarine Resources, of the Staff Report for a discussion of the mechanisms behind the flow-abundance relationships. The commenter raised an issue of the “flattened” correlation between the FMWT longfin smelt index and spring Delta outflow (December-June) since the year 2013. As described in Common Response 3.1, recent literature suggests that the correlation between longfin smelt abundance indices and Delta outflow remains positive.

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		view of the Bay- Delta system and is not inclusive of the best available science.	
264	57	[ATT 1: Exhibit 2: Figure 3.5-3, Probability of Positive Longfin Smelt Population Growth and 95-Percent Confidence Limits as a Function of January–June Average Daily Delta Outflow, 1967–2016, from the 2023 Draft Staff Report]	This exhibit was included in the comment letter. The exhibit does not raise a specific environmental impact or economic effect of the project. Refer to Common Response 1.1, General Comments, for the approach to addressing exhibits. Please see the response to comment 264-56.
264	58	[ATT 1: Exhibit 3: Graph titled Figure 21. Relationship between log10 transformed Longfin Smelt FMWT abundance index and the log10 transformed monthly average of daily December-May Delta outflow]	This exhibit was included in the comment letter. The exhibit does not raise a specific environmental impact or economic effect of the project. Refer to Common Response 1.1, General Comments, for the approach to addressing exhibits. Please see the response to comment 264-56.
264	59	[ATT 1:] Low Salinity Habitat In addition to the abundance relationship, the Draft Staff Report also assumes that the volume of low salinity habitat, which is related to the location of X2, is important to Longfin Smelt and an accurate definition of habitat. (DSR, p. 7.6.2-36) The published literature does not support this conclusion. For example, Kimmerer et al. (2013) [Footnote 38: Kimmerer, W.J, MacWilliams, M., Gross, E.S. 2013. Variation of Fish Habitat and Extent of the Low Salinity Zone with Freshwater Flow in the San Francisco Estuary. San Francisco Estuary and Watershed Science, 11(4).], pp.12-13 concludes that as it relates to Longfin Smelt, “the observed X2-abundance relationships are inconsistent with a mechanism that involves the extent of low salinity habitat,” and as it relates to all estuarine species, “that variation in the volume (or area, not shown) of physical habitat as defined by salinity is not a strong influence on abundance of many of these fish.” This is contrary to the assumptions contained in the Draft Staff Report. There is no substantial evidence that supports using the volume of the low salinity zone to define Longfin Smelt habitat.	It is important to note that the concluding paragraph of Kimmerer et al. (2013) states: “Despite the complexities, salinity is the most important variable for determining the locations of pelagic estuarine organisms and therefore their physical habitat (Mouny and Dauvin 2002; Jung and Houde 2003; ^Dege and Brown 2004; ^Kimmerer 2004).” The Staff Report includes supporting evidence regarding the importance of suitable flow, water temperature, and salinity conditions for native fish. For example, the importance of flows and X2 position for native fishes, including native estuarine fishes, is explained in Chapter 3, Scientific Knowledge to Inform Fish and Wildlife Flow Recommendations (including Section 3.2.2, Freshwater Flow and Estuarine Resources). Section 7.6.2, Aquatic Biological Resources, discusses these findings for Impacts AQUA-a and AQUA-d: “Generally, the further X2 is located downstream of the confluence of the confined deep channels of the Sacramento and San Joaquin Rivers (and the effects of the SWP and CVP export facilities) and downstream into the broad, shallow, cool channels of Suisun Marsh and Suisun Bay, the better fish and other species respond.” Also see Section 3.5, Longfin Smelt (<i>Spirinchus thaleichthys</i>) (including Section 3.5.4, Flow Effects on Longfin Smelt) regarding longfin smelt populations and the importance of Delta outflow. Additionally, please see Common Response 3.1, Fish Protection,

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			regarding the adequacy of modeling to support the benefit analyses.
264	60	[ATT 1:] Entrainment The best available scientific evidence also does not support a conclusion that further decreases in Longfin Smelt entrainment in the SWP-CVP would provide population level benefits. As acknowledged in the Draft Staff Report at p. 3-58, there is no statistical evidence of current entrainment levels having a population level effect, citing Maunder et al. 2015 [Footnote 39: Maunder, M.N., Deriso, R. B, Hanson, C.H. 2015. Use of state-space population dynamics models in hypothesis testing: advantages over simple log-linear regressions for modeling survival, illustrated with application to longfin smelt (<i>Spirinchus thaleichthys</i>). Fisheries Research 164: 102-111.] and Mac Nally et al. 2010. The Draft Staff Report should also consider Kimmerer and Gross (2022) [Footnote 40: Kimmerer, W., Gross, E. 2022. Population Abundance and Diversion Losses in a Threatened Estuarine Pelagic Fish, Estuaries and Coasts, 45:2728-2745.] at p. 2738, which states, “losses of larvae to diversions appear far too low to contribute measurably to the population response to flow.” This evidence supports a conclusion that no further export cuts are necessary for Longfin Smelt, which is an expected conclusion since the SWP is already subject to state and federal Endangered Species Act permits with specific criteria intended to reduce entrainment effects of Longfin Smelt. Longfin Smelt entrainment in the SWP has already been found to not cause jeopardy and the effect of take has been fully mitigated. The Water Board should be taking this into account when it makes its decision.	The Staff Report reviewed and incorporated the most recent and comprehensive analyses that showed ongoing entrainment risks for Delta smelt, longfin smelt, and juvenile salmonids. The contention that entrainment is “effectively managed” or that further reduction of fish entrainment cannot provide population-level benefits is not supported by the best available science. USFWS (2024) explicitly concludes that current entrainment losses remain significant and that reducing entrainment mortality is necessary to improve population growth rates, especially for Delta smelt. The final Staff Report reflects these findings and describes updated flow-related protections consistent with federal biological opinions and current scientific understanding. Please see Common Response 3.1, Fish Protection, for a discussion of flow effects on entrainment and entrainment effects on survival of longfin smelt.
264	61	[ATT 1:] CEQA conclusions regarding changes in surface water quality are not based on substantial evidence. As to the Unimpaired Hydrograph Alternatives, the Draft Staff Report fails to rely on substantial evidence, relying instead on conclusory statements without citation to sources of facts and evidence like published and peer review literature or even fundamental concepts of water quality science. Contaminants	The analysis of potential changes in surface water quality does rely on substantial evidence, best available science including multiple peer-reviewed scientific articles, and the professional judgement of recognized subject matter experts. Please refer to Common Response 3.1, Fish Protection, regarding the use of best available science in the Staff Report analysis. The 2023 draft Staff Report Section 7.12.1.3, Impact Analysis, presents an impact analysis that focuses on the water quality processes that are expected to occur as a result of changes in

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		The conclusions in the Draft Staff Report are not supported by references to scientific literature and would not constitute reasonable professional opinion as basic concepts of water quality science were not respected. For example, the Draft Staff Report states at p. 7.12-1-59 that: The longterm water quality impacts on movement and deposition of sediment and adhered contaminants would generally be minimal because contaminants are likely already present in areas where sediment deposition occurs. A temporary increase in sediment-bound contaminants in the water column is unlikely to affect beneficial uses because of its temporary nature and because contaminants generally remain bound to the sediment. Once the sediment settles, it would likely bury contaminants bound to sediment that was already present. There are multiple issues with this statement. Contaminants do not stay bound to the sediment, see e.g., Sparling, D. W. (2016) [Footnote 41: Sparling, D.W. 2016. Ecotoxicology Essentials, Environmental Contaminants and Their Biological Effects on Animals and Plants.]. Contaminants can “leech” from the sediment and enter the aqueous stage which would increase exposure probabilities to organisms in the water. (Burgess et al. 2012.) [Footnote 42: U.S. EPA. 2012. Equilibrium Partitioning Sediment Benchmarks (ESBs) for the Protection of Benthic Organisms: Procedures for the Determination of the Freely Dissolved Interstitial Water Concentrations of Nonionic Organics. EPA-600-R-02-012. Office of Research and Development, Washington, DC 20460] Further, temporary pulses in contaminants can have significant impacts on vulnerable life-stages such as spawning fish or larvae, when higher storm run-off occurs. (See e.g., Sørensen et al. (2016).) [Footnote 43: Sørensen, N., Lützhøft, H, H., Rasmussen, R., Baun. A. 2016. Acute and chronic effects from pulse exposure of D. magna to silver and copper oxide particles, DOI: 10.1016/j.aquatox.2016.10.004] As an example of the speed in which a toxin can result in mortality causing toxicity after even a small increase in concentration, refer to the example in Washington state where the toxics from tire dust was deadly to coho salmon. [Footnote 44: https://ecology.wa.gov/blog/january-2023/saving-washington-	hydrology and changes in water supply due to implementation of the flow scenarios (as modeled with SacWAM and described in Chapter 6, Changes in Hydrology and Water Supply). Changes in hydrology are evaluated for water quality impacts, including those associated with contaminants, mobilization and methylation of mercury, water temperature, and HABs. Water quality in the Delta is assessed quantitatively with results from the Delta Simulation Model II (DSM2). When feasible and appropriate, the water quality analysis is quantitative in nature, as is the case for instance for temperature and electrical conductivity, relying on model outputs from HEC-5Q and DSM2, respectively. For other constituents such as contaminants, the analysis is structured around a sound description of the environmental settings and current conditions, and discussion of known mechanisms through which changes in hydrology and water supply could potentially lead to changes in contaminant concentrations or bioavailability. The contaminants section of Impacts SW-a (Violate any water quality standards or waste discharge requirements) and SW-f (Otherwise substantially degrade water quality) and Section 7.12.1.2, Environmental Setting, have been revised to add additional discussion of contaminant desorption from resuspended sediment particles. These revisions do not change the impact conclusions. While it is possible that local sediment disturbance as a result of higher flow could lead to desorption of some contaminants previously bound to sediments, thus altering the partitioning of these contaminants between the particulate and dissolved phases and their potential bioavailability and ecotoxicity, it would also highly depend on the nature of the sediments involved (e.g., quantity of different fractions of organic matter, more or less refractory), the specific contaminants, the contamination pathways (direct or trophic) and the biology/ecology of the organisms considered. Conversely, increases in suspended sediment concentrations as a result of higher flows and resuspension also have the potential to substantially decrease the concentration of freely dissolved hydrophobic compounds and hence their bioavailability to aquatic organisms (see for instance Yang et al. 2006). Moreover, as explained in the Total Suspended Solids and Turbidity section of 7.12.1.3, Impact Analysis, 90 percent of the sediment is

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		s-salmon-from-toxic-tire-dust] Further, settled sediment does not stay buried. It can be remobilized, as acknowledged elsewhere in the Draft Staff Report, and would therefore re-expose those contaminants to the organisms. This is one of the reasons why PCBs and other legacy pesticides are still a hazard and is a basis for the 303d listing and TMDLs in the watershed. Another example is the conclusory statement, “Increases in flow would help dilute local sources of dissolved contaminants, thus improving water quality.” (DSR, p. 7.12.1-59.) This is a misleading and unsupported conclusion as dilution requires context and cannot be easily generalized. Whether this statement is ever true depends on the pollutant and concentration of the pollutant in the source water and the concentration in the receiving water. The conclusions in the contaminants section should be tempered with caution as no consideration of the actual physical properties and partitioning, loading, transformation, or fate was evaluated.	transported in less than 10 percent of the time, during large rainfall and flood events. Changes in hydrology under the proposed Plan amendments would generally cause minimal changes or a reduction in the highest 10 percent of flows. The increases in reservoir releases, mostly in the spring, would represent flows well within the typical range of conditions observed throughout the year under current conditions and lower than during those most extreme events responsible for the majority of increases in suspended solids concentrations. In addition, while it is true that temporary pulses in contaminants can have significant impacts on aquatic organisms, they are more likely when higher storm runoff occurs, as expressed by the commenter. Storm runoff is not likely to be affected by the proposed Plan amendments. The proposed Plan amendments would not alter the amount of storm runoff from the watershed landscape; they would instead alter how much of the storm runoff is allowed to flow downstream. Note that the primary goal of the research article cited in the comment (Sørensen et al. 2016) was to evaluate the applicability of pulse exposure to test the toxicity of silver and copper oxide nanoparticles for which longer exposure times are complicated by their highly dynamic behavior. Despite some sub-lethal acute effects of pulse exposure on mobility of <i>Daphnia magna</i>, at doses much higher than typically encountered in the area of interest (several orders of magnitude higher in that experiment than the TMDL for dissolved copper, for instance), delayed mortality and chronic effects on molting, body length and reproduction were unlikely for silver, and otherwise less than what is usually reported for continuous exposures. Moreover, the second example proposed by the commenter (tire dust in Washington state, likely referring to 6PDD-quinone) further illustrates the potential impacts of contaminants associated with stormwater runoff, something the proposed Plan amendments would not substantially affect, rather than potential effects related to seasonally higher reservoir releases and other actions considered as part of the Staff Report. In the flow scenarios discussed in the 2023 draft Staff Report, including the proposed Plan amendments referenced in the comment,

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			higher flows come mostly from releases from reservoirs, not from changes in rainfall patterns and changes in agricultural, urban, or industrial runoff, which are the primary sources of pesticides or constituents of emerging concern but are mostly unaffected. Local and temporary sediment resuspension, if any, would happen in the mainstems of the rivers. Such contaminants originating from unaffected overland flow (runoff from the valley floor) could thus be potentially diluted by increased releases from the large reservoirs as stated in the 2023 draft Staff Report. The related statement in the 2023 draft Staff Report applies, as explained, to “dilutable” contaminants, which are further described in the following paragraphs of the 2023 draft Staff Report. Nevertheless, text has been revised and tempered in the final Staff Report, as suggested. This revision does not change the impact conclusion.
264	62a	[ATT 1:] Turbidity and TSS The turbidity discussion is conclusory and unsupported by evidence. The Draft Staff Report provides no information about the potential magnitude of changes in turbidity, although it acknowledges that turbidity will increase. All potential impacts from elevated turbidity are summarily rejected. The Draft Staff Report states that increased turbidity and TSS are not a concern for drinking water treatment processes and plants. (DSR, p. 7.12.1-57 to 1-59.) The Draft Staff Report ignores the fact that increased treatment could result in additional costs [Footnote 45: Potential changes in Dissolved Organic Carbon and Bromide could result in unwanted disinfection byproducts like cancer causing Trihalomethanes, and the likely changes under the proposed plan amendment was not quantified or discussed.]. Regardless, the Draft Staff Report summarily rejects this notion without evidence that plan related flows would not exceed drinking water treatment plant design parameters, harm treatment plants, or impact the safety or quality of drinking water. (Id.) The Draft Staff Report improperly relies on drinking water treatment plants to mitigate any undisclosed impacts.	As described in the 2023 draft Staff Report, Section 7.12.1.3, Impact Analysis, any increased turbidity is expected to fall within the range of concentrations that occur under existing conditions and not exceed drinking water treatment plant design parameters. Clear Creek is the only stream expected to have substantial increases in high flows, but these would not increase above historical conditions prior to use of the Spring Creek Tunnel and any potential increases in total suspended solids and turbidity would not be of the magnitude to adversely affect beneficial uses for the reasons indicated in the evaluation of total suspended solids and turbidity. Dissolved organic carbon is considered in the Section 7.12.1, Surface Water, impact analysis section titled “Nutrients, Organic Material, Harmful Algal Blooms, Invasive Aquatic Plants, and Dissolved Oxygen” and bromide is considered in the section titled “Chloride and Bromide.” With respect to the comment that increased drinking water treatment could result in additional costs, the 2023 draft Staff Report explicitly recognizes this fact. Section 7.20, Utilities and Service Systems, contains a subsection on the potential need for new or expanded drinking water treatment facilities (pp. 7.20-22 to 7.20-23). 2023 draft Staff Report Section 8.8.2.1, New or Modified Drinking Water Treatment Plants, (Section 8.9.2.1, New

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			or Modified Drinking Water Treatment Plants in the Final Staff Report), presents information on costs associated with new or modified drinking water treatment plants. Please also see the response to comment 264-62b regarding quantification of water quality effects.
264	62b	Also, without evidence, the Draft Staff Report concludes, “Changes to hydrology are expected to increase the number of days with moderately elevated turbidity but also are expected to cause a general reduction in the occurrence of the highest turbidity levels.” (DSR, p. 7.12.1-59.) There is no discussion of what level of turbidity is “moderate”, nor is there a discussion of the basis for predictions of turbidity magnitude absent any modeling or analysis, nor does the Draft Staff Report disclose the basis for the conclusion that there would be a reduction in the highest turbidity levels.	Effects on turbidity and many other water quality parameters are not quantified because effects depend on many factors, vary by tributary, and models for estimating effects specific to the Sacramento/Delta region are unavailable. Please refer to Common Response 3.1, Fish Protection, regarding use of best available science. Although turbidity effects are not quantified, the magnitude of potential project-related changes to physical processes that are known to affect turbidity can be used to qualitatively evaluate effects. Because turbidity effects cannot readily be accurately quantified, there is no numeric definition of “moderate” turbidity as discussed in the Staff Report. Moderate turbidity is greater than what occurs under summer base flow conditions, but less than what occurs during the highest flows. As described in the total suspended solids and turbidity section of impacts SW-a and SW-f, turbidity increases with flow and the highest flows are generally associated with the highest levels of turbidity. This turbidity evaluation refers to the flood-risk evaluation and describes how the proposed Plan amendments may affect the highest 10 percent of flows. Generally, there would be minimal change or reductions in the highest 10 percent of flows, with the exception of Clear Creek, which is discussed separately. The piece of summary text that describes a general reduction in occurrence of the highest turbidity levels has been modified in the final Staff Report to better match the preceding text. This revision does not change the impact conclusion.
264	63	[ATT 1:] Water Temperature The water temperatures [Footnote 46: The temperature section appears to assume that higher flows would result in cooler water in the Delta in the Spring and warmer water in the summer/fall. (DSR, p. 7.12.1-89.) This is counter to other acknowledgements that air temperature is the biggest driver of water temperatures in the Delta located elsewhere in the document, which is a	Atmospheric influences are acknowledged as the biggest driver of water temperatures in the Delta. However, fish and other aquatic organisms are not solely affected by the biggest driver of water temperature; they are affected by the resulting water temperature. The resulting water temperature is a product of all causal drivers, including those with larger and smaller degrees of influence. If a driver with a small influence on water temperature changes enough to alter water temperatures to a degree that

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		conclusion that is well established.] analysis in the Draft Staff Report incorporates mitigation into the project description but does not show the effects of the unimpaired flow alternatives without the assumed implementation of the Cold Water Habitat narrative objective mitigation measure, which itself is only vaguely defined. [Footnote 47: The Cold Water Habitat narrative objective is mitigation and not just another alternative. See description of alternatives, p. 7.6.2-103, section 7.6.2.5.] The relevant caselaw holds that the Draft Staff Report must report the temperature impacts of the Unimpaired Hydrograph Alternatives before adopting mitigation. <i>Lotus v. Department of Transportation</i> (2014) 223 Cal. App. 4th 645, 657 [“The failure of the EIR to separately identify and analyze the significance of the impacts to the root zones of old growth redwood trees before proposing mitigation measures is not merely a harmless procedural failing.”] The Lotus Court held that without first considering the impacts of the action, it is not possible to fully evaluate the effectiveness of the mitigation. (Id.) The Draft Staff Report suffers from the same error as the Lotus case because the public and decision-makers cannot determine the effect of Unimpaired Hydrograph Alternatives, as the effect of Unimpaired Hydrograph Alternatives are hidden by the assumed implementation of the Cold Water Habitat narrative objective in the modeling. It is similarly impossible to determine whether the Cold-Water Fish narrative objective can fully mitigate negative effects. The modeling results show a temperature impact; so even after mitigation, the impact is not zero. As explained above, because the Cold Water Habitat narrative objective is so vaguely worded, decision-makers and the public cannot look at the temperature results and determine if the Cold Water Habitat narrative objective was met. Further, the Draft Staff Report does not state whether the assumed implementation of the Cold Water Habitat narrative objective resulted in a less than significant effect. If the Cold Water Habitat narrative objective is not met by its assumed implementation, then the Draft Staff Report has not shown that the Cold Water Habitat narrative objective can be achieved and the potential effects fully mitigated. The description of mitigation for temperature impacts is unclear.	affects fish condition or survival, then that driver has the potential to cause water temperature benefits or impacts. As discussed in pages 7.6.2-90 through 7.6.2-92 of the 2023 draft Staff Report, the changes in Delta inflow resulting from the flow scenarios may induce some small changes in Delta water temperatures. Overall, it is important to note that water temperature-related effects on aquatic species associated with changes in Delta inflow are expected to be very minor because water from upstream reservoirs approaches equilibrium with atmospheric conditions by the time it reaches the Delta. Please see Common Response 7.6.2, Aquatic Biological Resources and Cold Water Habitat, regarding implementation of the cold water habitat objective. The cold water habitat objective is part of the proposed Plan amendments described in Chapter 7, Environmental Analysis, and the regulatory pathway described in Chapter 13, Revised Proposed Plan Amendments. The cold water habitat objective is no longer listed as a mitigation measure for water temperature, and the description of mitigation measures has been modified accordingly in the partially recirculated draft Staff Report. See Common Response 7.6.2, Aquatic Biological Resources and Cold Water Habitat, for information on the modeling of the cold water habitat objective. As described in Section 7.6.2, Aquatic Biological Resources, and in Chapter 13, water temperature impacts are considered potentially significant. The mitigation measures for water temperature combined with the cold water habitat objective of the project might not fully mitigate water temperature effects, particularly in the short-term before the necessary measures for protection of cold water can be fully evaluated and developed for each tributary. “Voluntary implementation plans,” which are described as one possible component of the mitigation measures listed in Chapter 7, are now referred to in the final Staff Report as “local cooperative solutions.” Water users are encouraged to develop local cooperative solutions but the same flexibilities available to local cooperative solutions could also be applied by the Board

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		The mitigation in the Draft Staff Report also relies heavily on voluntary implementation of the Unimpaired Hydrograph Alternatives, which is inappropriate and probably unlikely within such a restrictive regulatory context.	through the adaptive implementation measures. See Common Response 1.3, Revised Proposed Plan Amendments, for more information on adaptive implementation of the regulatory pathway inflow requirements and local cooperative solutions.
264	64	[ATT 1:] Delta inflow, specifically reservoir releases, cannot be used to cool water temperatures in the Delta. The published literature does not suggest otherwise. The DSR implies that the Delta inflow has limited effect on in-Delta water temperatures (DSR p. 7.6.2-90) relying on several published literature. While some of the process-based analysis suggested that a constant inflow that is 2 degrees Celsius cooler than the Delta could cool the boundary areas of the Delta but not the Delta itself (Vroom et al. 2017, p. 9915, Figure 12). As reported by others, in-Delta water temperatures are actually controlled by air temperatures (Id., see also Wagner et al. 2011). Vroom et al. did not investigate whether it is possible to provide additional Delta inflows that are 2 degrees Celsius cooler than the Delta throughout the spring and/or summer. Another published citation referenced in the DSR relied on Bashevkin and Mahardja 2022 [Footnote 48: Seasonally variable relationships between surface water temperature and inflow in the upper San Francisco Estuary - Bashevkin - 2022 - Limnology and Oceanography - Wiley Online Library (https://aslopubs.onlinelibrary.wiley.com/doi/pdf/10.1002/lno.12027)] compared continuous monthly Delta inflow measurements to discrete boat-based grab sample measurements of water temperatures. This comparison fundamentally ignores the basic physics driving the instantaneous water temperatures in an estuary, which vary based on the time of the day, solar radiation, tidal mixing etc., and averaging the discrete instantaneous measurements by month would not provide reliable water temperature values for the month. The DSR inappropriately relies on this paper to do a qualitative effects analysis on the impacts to Delta water temperatures under the Alternatives. We appreciate the DSR acknowledging the uncertainty around the causal influence (DSR p. 7.6.2-92), but request that extensive analysis based on this paper be removed.	The Bashevkin and Mahardja (2022) paper referenced by the commenter did not average temperature values by month and did include a model term for time of day to account for those influences. The paper also includes descriptions of the limitations of the analysis including the potential influence of tides and the large influence of atmospheric influence on water temperature in the Delta. As described in pages 7.6.2-90 through 7.6.2-92 of the 2023 draft Staff Report and acknowledged by the commentor, there is uncertainty in the degree of causal influence of inflow on water temperatures in the Delta, although results from Vroom et al. 2017 indicate there is some degree of causal influence. In addition to the river temperature results from Vroom et al. (2017) referenced by the commenter, Vroom et al. (2017) also found that reducing river discharge by 33% would result in temperature increases up to 2°C throughout most of the Delta, with the exception of the region surrounding Franks Tract. Given the concurrence of these results and the acknowledgements of uncertainty in the Staff Report, this analysis is retained in the final Staff Report.
264	65	[ATT 1:] Harmful Algal Blooms	Please refer to Common Response 3.1, Fish Protection, regarding use of best available science.

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		The Draft Staff Report needs to reference the best available science on the HABs in the Delta. In at least one place in the report, it is incorrectly stated that the low streamflow is the most important factor in the Delta that affects HABs, when the more recent publications indicate that water temperatures are the most important factor. In fact, as noted in Lehman et al. 2020 [Footnote 49: Lehman, P. W., Kurobe, T., The, S.J. 2020. Impact of extreme wet and dry years on the persistence of <i>Microcystis</i> harmful algal blooms in San Francisco Estuary. Quarterly International, https://doi.org/10.1016/j.quaint.2019.12.003.] at p. 7 “<i>Microcystis</i> subsurface abundance was linearly correlated with the X2 index ($r = 0.79$, $p < 0.01$) for both years combined, but the correlation was not significant within either 2014 ($r = 0.211$, $p > 0.05$) or 2017 ($r = 0.01$, $p > 0.05$) separately. In contrast, <i>Microcystis</i> subsurface abundance consistently increased with water temperature for both years combined ($r = 0.45$, $p < 0.01$), as well as for 2014 ($r = 0.80$, $p < 0.01$) and 2017 ($r = 0.38$, $p < 0.01$) separately.” A more recent paper (Preece et al. 2024) [Footnote 50: Preece, E.P., Cooke, J., Plaas, H., Sabo, A., Nelson, L., Paerl, H. W. 2024. Managing a cyanobacteria harmful algae bloom “hotspot” in the Sacramento – San Joaquin Delta, California. <i>Journal of Environmental Management</i>, 351: 119606.] concluded that physical/mechanical mitigation measures appear to be the most promising option in the near-term for managing blooms at Stockton Waterfront, a HAB “hotspot” in the Delta, while reducing the nutrients would be necessary in the long-term.	Refer also to Common Response 4.1, Harmful Algal Blooms, regarding the influence of instream flow and other environmental variables on cyanobacterial harmful algal blooms (HABs) in the Delta, and regarding nutrient discharge and Delta HABs. The science on HABs in the Delta is evolving. It is an active area of research with new findings published regularly. Accordingly, updated information drawing from recent research on Delta HABs has been added to Section 7.12.1.2, Environmental Setting, of the final Staff Report. This revision does not change the impact conclusions in Section 7.12.1, Surface Water.
264	66	[ATT 1:] CEQA conclusions regarding changes in groundwater are not based on substantial evidence. As to the Unimpaired Hydrograph Alternatives, groundwater analysis included in the Draft Staff Report is inadequate. There is no modeling of any of the alternatives potential impact to groundwater. While the overall conclusion indicates potentially significant impacts, the document states that the impacts may be reduced or avoided if the identified mitigation measures are fully implemented. There is no analysis to show that proposed mitigation measures are feasible or adequate to reduce or avoid the groundwater impacts. It is also unclear whether the Water Board has any authority to require implementation of the	The Staff Report does not conclude that impacts on agriculture and groundwater resources will be less than significant with the proposed mitigation measures. The Staff Report acknowledges that the groundwater impact mitigation measures listed in Section 7.12.2.4, Mitigation Measures, are primarily the responsibility of and under jurisdiction of agencies other than the State Water Board (Board). While the Board can ensure that mitigation is implemented for actions within its authority, it cannot guarantee that measures taken by other agencies will be adequate, adopted or applied in a manner that fully mitigates the impact. Evaluation of mitigation measures, if needed, will largely occur locally through groundwater sustainability processes under the Sustainable Groundwater Management Act (SGMA).

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		mitigation measures or who would bear the cost of mitigation measures. The argument that there cannot be maximum potential impacts on groundwater resources from replacement pumping and maximum potential impacts on agricultural resources may be right, but there is no analysis to show that impacts due to the Unimpaired Hydrograph Alternatives on agriculture and groundwater resources can be less than significant even with the proposed mitigation measures.	Therefore, the Staff Report states, unless and until the mitigations are fully and successfully implemented by other agencies, the potential impact to groundwater levels (Impact GW-b) remains significant. Please see Section 7.23, Cumulative Impacts, Growth-Inducing Impacts, and Significant Irreversible Environmental Changes, for impacts identified for agriculture and groundwater resources that can be less than significant. Please see Common Response 7.1, General CEQA and Approach to the Analysis, for more information on how the Staff Report meets CEQA requirements and Common Response 7.12.2, Groundwater and Sustainable Groundwater Management Act, for discussion of the groundwater impact analysis, mitigation measures, and how the Sacramento/Delta update to the Bay Delta plan aligns with the implementation of SGMA.
264	67	[ATT 1:] CEQA conclusions regarding changes in population and housing are not based on substantial evidence. Water supply impacts from the Unimpaired Hydrograph Alternatives could result in impacts to housing and a displacement of people if existing and new water supplies are insufficient to comply with state affordable housing laws, including our Regional Housing Needs Allocation. The Draft Staff Report dismisses impacts to the regional housing supply, including to affordable housing, without any analysis, simply assuming that replacement water can be found because our region is already involved in the development of water supplies. This assumption is flawed, as we have explained above. Our member agencies are developing water supplies to address current needs and have not been planning on an additional loss of 711,000 acre-feet on an average annual basis.	Section 7.20, Utilities and Service Systems, considers municipal supply, including whether and how communities that rely in whole or in part on Sacramento/Delta supply would be able to meet municipal demand using other water management actions in response to changes in supply. Chapter 8, Economic Analysis and Other Considerations, includes details on population projections, socioeconomic profiles, and municipal water supply costs. Most municipalities have or are developing alternate water supplies to supplement reduced Sacramento/Delta supplies and ensure adequate water for their communities. Changes in water supply include replacement groundwater pumping, as well as use of other water management actions such as groundwater storage and recovery, water transfers, increased use of recycled water, and water conservation. The 2023 Staff Report acknowledges that in some locations, replacement supply may be difficult. Section 7.20.4, Mitigation Measures, of the 2023 draft Staff Report, provides a range of options that various entities can adopt or utilize to mitigate the potential negative effects of reduced Sacramento/Delta supply, including conservation and

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			efficiencies. The mitigation measures may not be applicable to every location or for every action within the State Water Board's authority. Some mitigation measures are largely within the jurisdiction and control of other agencies; accordingly, the State Water Board cannot guarantee that measures will always be adopted or applied to fully mitigate all potential impacts. In addition, the project has been revised. Please see Staff Report Chapter 13 and Common Response 1.3, Revised Proposed Plan Amendments, for a description of the revised proposed Plan amendments. As discussed in Chapter 13 and Common Response 1.3, the regulatory pathway under the revised proposed Plan amendments includes new water supply adjustments that reduce water supply impacts and allow more water to be stored in reservoirs at the outset of Plan implementation. In addition, plan provisions will allow the State Water Board to develop and implement qualified exceptions to curtailments associated with Bay-Delta Plan implementation for human health and safety needs. Please see Common Response 1.2, Water Quality Control Planning Process, for a discussion on the factors to be considered in establishing water quality objectives, including the need for developing housing.
264	68	[ATT 1:] CEQA conclusions regarding changes in energy production are not based on substantial evidence. The Unimpaired Hydrograph Alternative will exacerbate California's energy shortfall issues. According to the California Energy Commission (CEC) California will be short of energy needed to meet peak demand anywhere between 400 MW and 4,000 MW [Footnote 51: California Energy Commission - Joint Agency Reliability Planning Assessment SB 846 Third Quarterly Report]. This is a priority of the Governor and legislature as billions of dollars has been committed to create a Strategic Reliability Reserve, enhance demand response programs, and extend the retirement dates for Diablo Canyon Nuclear Power Plant and Once Through Cooling (OTC) powerplants. The Water Board also voted to extend the OTC plants in August of 2023 because of reliability issues. The Western Electrical Coordinating	Please see Common Response 7.8, Energy and Hydropower, regarding concerns about rolling blackouts, the effect of the proposed Plan amendments on future energy supplies and the California electric grid, and the effect of the proposed Plan amendments on the flexible response to grid emergencies through emergency peaking.

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		Council (WECC), which exists to assure a reliable Bulk Electric System in the Western Interconnection, forecasts peak demand to grow to 65 GW (an increase of 14.5%) and annual energy demand to reach 313 TWh (17.1% growth) up to 2033. Growth is being driven by increases in data centers and electrification of homes, businesses, and our transportation sector. [Footnote 52: WECC Western Assessment of Resource Adequacy November 2023] This growth coupled with climate change and large amounts of new non-dispatchable resources will result in more hours of risk. In short, we need every resource available to meet the demands of the future. As noted in the Draft Staff Report, lost generation from hydropower will be replaced with natural gas. The DSR , section 7.8.17 [“Decreases in hydropower generation may necessitate increased production from other power facilities, likely natural gas fired facilities.”]. This assumes there is enough capacity to replace those lost hydroelectric megawatts. This is an incorrect assumption based on the rolling blackouts of 2020 and the near blackouts of September 2022. Without hydropower, more Californians would be impacted more frequently and for longer durations. Also, when a significant heatwave occurs, natural gas power plants perform worse, which means Californians would further shift their reliance on less reliable resources [Footnote 53: Ke, Xinda, Wu, Di, Rice, Jennie S., Kintner-Meyer, Michael CW, and Lu, Ning. 2016. Quantifying impacts of heat waves on power grid operation. United States. https://doi.org/10.1016/j.apenergy.2016.08.188]. The DSR incorrectly states that reduction in hydropower generation is only a fraction of California’s overall generation, which is true overall; however, hydropower is a resource that can flexibly respond to grid conditions unlike other resources. A reduction in the ability of hydropower to generate when power is needed most will have an acute impact on the grid.,	
264	69	[ATT 1:] For hydropower operators, the Unimpaired Hydrograph Alternatives will put a significant dent in revenues from hydropower resources. Additionally, these alternatives will require utilities to procure additional resources during summer months to meet regulatory obligations. Reduced revenues will increase costs in other areas, such as water costs for SWC	Section 7.8, Energy, acknowledges that changes in hydrology would result in a decrease in hydropower generation in the summer which could be significant for an individual project or community. Section 8.6.5, Energy, in the 2023 draft Staff Report and in the final Staff Report appropriately discloses that changes in the timing of hydropower generation, including an increase of

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		members and energy costs for other consumers. Ultimately this will impact affordability for both water and energy rates. The proposed mitigation measures do not solve the problem created by the proposed Unimpaired Flow Alternatives and cannot make megawatts available when the grid needs it.	hydropower generation in the spring and a decrease in summer, which could affect hydropower generation revenues. In response to comments received on the 2023 draft Staff Report, changes in hydropower generation revenues were estimated using a representative monthly price series. Please see Common Response 8.1, Economic Analysis and Other Considerations, for the results of this analysis and additional discussion related to changes in hydropower generation revenues. The comment does not provide information to explain why they assert that utilities will be required to procure additional resources as a result of the project, nor what is meant by regulatory obligations. Regardless, it would be highly speculative to estimate how a reduction in hydropower generation and associated revenue translates into any particular change in rates. Section 7.8, Energy, identifies mitigation measures that could reduce or avoid impacts on energy and hydropower generation. As discussed in Staff Report Section 7.1, Introduction, Project Description, and Approach to Environmental Analysis, some potentially significant impacts can be mitigated to less-than-significant levels. Many other identified potentially significant environmental impacts could be reduced to less-than-significant levels with mitigation incorporated; however, due to the large scope of the project and wide range of possible response actions, sufficient information is not available to conclude with certainty that the mitigation measures will reduce all impacts to less-than-significant levels in all circumstances. Some mitigation activities are within the State Water Board's jurisdiction. However, other mitigation measures are largely within the jurisdiction and control of other agencies or depend on how water users respond to the project. Accordingly, the State Water Board cannot guarantee that measures will always be adopted or applied fully to mitigate potentially significant impacts. Therefore, unless and until the mitigation is fully implemented, the impacts remain potentially significant. See Common Response 7.1, General CEQA and Approach to the Analysis, for additional discussion of mitigation measures.

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264	70	[ATT 1:] Modular Alternative 6(a) as presented in the Draft Staff Report cannot be adopted. The Draft Staff Report proposes modular Alternative 6(a), which states: Under this modular alternative, any new point of diversion of water or expanded point of diversion of water would not be authorized to divert water during the January-through-June period unless Delta outflows were at levels determined in the State Water Board's 2017 Scientific Basis Report, or future equivalent analyses, to provide conditions expected to result in the recovery of a wide array of native fish and wildlife species. The Delta above Collinsville is already included in the State Water Board's list of Fully Appropriated Streams [FAS] from June 15 through August 31. This FAS listing also would be proposed to be expanded to include September through December except during high-flows events defined as the wettest 5 percent of historical hydrologic conditions. This alternative also could include an exception for de minimus diversions. (DSR, pp. 9-198 to 9-199.) For numerous reasons, the Water Board cannot adopt this alternative. It is unclear what flow thresholds are being proposed since the Scientific Basis Report contains many thresholds, reliance on Scientific Basis Report is not explained or justified, and there is no discussion of its potential impacts. Also, the conclusion that the flows in the 2017 Scientific Basis Report would lead to "recovery" or that these flows are "protective" (DSR, p. 9-200) is not supported by the report itself for all of the reasons stated in this letter and in our prior comments on the 2017 Scientific Basis Report. Prior comments attached as "Attachment B. [ATT 1: ATT 2]" These deficiencies result in a lack of information to support compliance with Porter-Cologne or to be the basis for a Public Trust balancing, or a conclusion that the alternative is consistent with California Constitution, Art. X, §2. As a result, there is no reasonable basis for the Draft Staff Report conclude that, "the alternative could also limit future water development which may not be reasonable from a policy perspective" and "[t]his would not result in changes from	The CEQA and economic analysis of Alternative 6a can be found in Section 9.9, Modular Alternatives for Proposed VAs, of the 2023 draft Staff Report. As explained in that section, the environmental and economic impacts and effects are not evaluated further because there would not be a change from baseline, but it could constrain future surface water development and limit future economic growth to some extent. It is unclear how the "conclusory statements" are unsupported and potentially untrue since they reach the same conclusion articulated by the commenter, that Alternative 6a could constrain future surface water development and limit future economic growth. The commenter has not provided any support for the statement that the environmental and economic impact analysis is unsupported or untrue or any evidence that Alternative 6a would have economic impacts. California Public Health and Safety Code section 57004 requires that the scientific basis of any statewide plan, basin plan, plan amendment, guideline, policy, or regulation undergo external scientific peer review before adoption. Since the Scientific Basis Reports are the peer-reviewed scientific basis for the Bay-Delta Plan amendments, it is justified to rely on them for all aspects of the amendments to the Bay-Delta Plan. All prior comments on the Scientific Basis Reports have been addressed as appropriate, and those reports have undergone the required external scientific peer review. Please see Common Response 1.3, Revised Proposed Plan Amendments, for information on the provision to protect the VA flow base from new water supply projects and Common Response 3.1, Fish Protection, for information on the Scientific Basis Reports and the use of best available science.

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		baseline and therefore no economic effects are identified. It is possible that implementation of this alternative could limit growth to some extent.” (DSR, pp. 9-199 to 9-200.) It cannot reasonably be concluded that there will be no economic impacts; and to the extent that further growth requires additional water supplies, there certainly would be impacts to growth. Therefore, these conclusory statements are both unsupported by substantial evidence and potentially untrue.	
264	71	[ATT 1:] The Draft Staff Report is also incorrect in its statement that Alternative 6(a) should be adopted because the Agreement flows are additive to the 2019 Biological Opinion and D-1641 and must be protected. First, Alternative 6(a) is not merely protecting baseline flows resulting from operating to the 2019 Biological Opinions and D-1641. It protects flows significantly higher than the so-called baseline. Second, the Agreements are shorter term actions as compared to the much longer time frames related to construction and operation of future projects, such that major diversion projects will not be operating at the same time as the Agreements. There is no potential for future water supply projects to divert the Agreements flows. Future Water Quality Control Plan updates should be addressing any protections that are necessary to protect fish and wildlife beneficial under future conditions. Third, we disagree with the statement that D-1641 flows are “very minimal,” thereby suggesting that more flow is required. (DSR, p. 9-198 to 9-200.) The term “minimal” is subjective. Regardless, we would not characterize the X2 outflow requirement in D- 1641 as “minimal.” And finally, Alternative 6(a) seems to be based on assumptions regarding the Delta being fully appropriated. The Draft Staff Report indicates that the Delta is fully appropriated in the summer and that there could be a determination regarding fully appropriated in the fall (DSR, pp. 9-198- 9-200); but Alternative 6(a) is a January through June action, so there is a disconnect in the reasoning. Regardless, a finding regarding the Delta being fully appropriated would have to be based on evidence and an administrative record that is not before the Water Board in these proceedings.	Alternative 6a would not protect flows higher than the 2019 Biological Opinions and D-1641 from all diversions, it would only protect the base flows from new water supply projects, specifically new water right applications and water right change petitions that result in increased diversions and reduced VA base flows. There are a number of proposed new diversion projects with less than 8-year timelines to implementation, such as groundwater recharge efforts. In addition, the VA pathway could be extended beyond the initial 8 years so it is possible that new water supply projects with a greater than 8-year timeline could start operating while the VAs are still in effect. The commenter suggests minor text revisions that are not significant to the Staff Report analyses, nor would the revisions change the Staff Report conclusions. The suggested revisions to the 2023 draft Staff Report are not warranted. Alternative 6a is not dependent on any assumption that the Delta is fully appropriated. As described in Section 7.2.3.7, Proposed Voluntary Agreements (Alternative 6), of the 2023 draft Staff Report, Alternative 6a was developed in response to the terms of the VA MOU requesting that the State Water Board use its legal authorities to protect VA flows against diversion for other purposes for the term of the VAs. This section further describes how Alternative 6a could be implemented in part through an expansion of the State Water Board’s list of Fully Appropriated Streams, but any such expansion would proceed through the appropriate process. Please see Common Response 1.3, Revised Proposed Plan Amendments, for more information on the provision to protect the flow base.
264	72	[ATT 1:] Mitigation of potentially significant effects violates CEQA.	Please see Common Response 7.1, General CEQA and Approach to the Analysis, regarding the feasibility of the mitigation measures. The mitigation measures identified in Section 7.20.4,

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		The Draft Staff Report must describe feasible mitigation measures which could minimize significant adverse impacts. (Cal. Code Regs., tit. 14, §15126.4(a)(1).) “‘Feasible’ means capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, legal, social, and technological factors.” (Cal. Code Regs., tit. 14, §15364.) The discussion of mitigation measures should distinguish between the measures which are proposed by the Water Board and measures which other persons could adopt that would be reasonably expected to reduce adverse impacts. (Cal. Code Regs., tit. 14, §15126.4(a)(1)(A).) The Draft Staff Report does not identify feasible mitigation that could be adopted by the Water Board, thereby leaving the many significant impacts unmitigated. The entire responsibility for mitigation is pushed into local communities that would be experiencing the negative impact. The Draft Staff Report maintains that the Water Board has no authority over local water use decisions so it cannot mitigate. However, the Draft Staff Report fails to acknowledge that there is feasible mitigation that it could adopt, like selecting an alternative that meets its regulatory purpose, but does so with fewer impacts. Even the discussion of what mitigation could be adopted by the impacted communities is insufficient because the proposed mitigation is not feasible, and in many circumstances not even possible. For example, the Draft Staff Report states that reductions in SWP supplies to Metropolitan Water District of Southern California’s (Metropolitan) service area can be mitigated by increased water recycling, through groundwater storage, and increased water transfers. However, the production, distribution and use of recycled water is limited by salinity standards contained in the Water Board’s Uniform Statewide Recycling Criteria and National Pollution Discharge Elimination System. Metropolitan’s only source of export supply that meets these salinity standards and therefore can be used for water recycling is SWP water. Metropolitan has the same issue as it relates to recommended increased groundwater and surface storage. The only export supply that is currently used to fill Metropolitan’s reservoirs is SWP water because Colorado River supplies are impacted by quagga muscles, and state law prohibits knowingly infesting a body of water with quagga muscles. The only export supply that	Mitigation Measures, apply broadly to utilities and service systems affected by the proposed project. The commenter identifies narrow circumstances (e.g., current quagga mussel outbreak) that might make a specific mitigation measure infeasible at a specific location or time, but that does not make the mitigation per se infeasible; not every measure is required to be feasible under every circumstance for every service provider. For example, the discussion of mitigation measures identifies several measures that do not require the use of Colorado River water or desalination, including measures related to water conservation, increased water use efficiency, and municipal water shortage policies. Moreover, the commenter itself demonstrates that increased water recycling is feasible. Metropolitan claims that since “the early 1960’s, the Los Angeles County Sanitation Districts have operated water recycling plants that clean and reuse wastewater to safely replenish groundwater basins, our natural underground reservoirs.” In February 2026, Metropolitan voted to certify an Environmental Impact Report for PureWater Southern California, which it states, “could be one of the world’s largest water recycling programs.” (MWD 2026a). Metropolitan asserts that “the concept of water recycling is not new and has been widely recognized as proven technology” and adds that water quality tests at its Innovation Center for the PureWater project “demonstrate an effective purification process that could set a new standard for water reuse.” The project is identified as providing potential “groundwater replenishment and industrial use.” (MWD 2026b). The PureWater project would recycle wastewater that includes Colorado River water, State Water Project water, and water supplies from other areas like the Owens Valley and Mono Basin. (City of Los Angeles 2025.) As explained in Common Response 7.1, certain mitigation measures identified in the Staff Report are largely within the jurisdiction and control of other agencies; accordingly, the State Water Board cannot guarantee that measures will always be adopted or applied to fully mitigate all potential impacts. For this reason, the impacts to municipal water supply remain potentially significant.

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		Metropolitan can use in groundwater projects is also SWP water, due to poor water quality on the Colorado River. Metropolitan and the other SWC members cannot mitigate the loss of SWP supplies by taking actions that rely on SWP supplies. The mitigation identified in the Draft Staff Report is infeasible.	
264	73	[ATT 1:] The Draft Staff Report did a limited review of economic feasibility, but that analysis grossly underestimates the costs of local projects. For example, the Draft Staff Report estimates that the cost of recycled water in Metropolitan's service area is \$1,600 to \$2,000 per acre foot. (Draft Staff Report, p. 8-95.) By comparison, Metropolitan's Pure Water Southern California Project, if developed, is projected to cost \$8.1 billion in escalated dollars, with an average yield of 118,000 acre feet at full buildout, with a per acre foot cost of \$2,820 - \$3,624. [Footnote 54: November 2023 Pure Water Southern California Program Cost Update available at https://www.mwdh2o.com/media/jupblcl5/pwsrcr-3b-presentation.pdf.] These costs would be even higher without the significant state and federal funding that Metropolitan has received. Regardless, it would take approximately five of these projects to mitigate Metropolitan's lost water supply under the proposed Plan amendment alternative. In other examples, the proposed mitigation is likely both infeasible, and likely to have significant redirected impacts. The Draft Staff Report proposes using the flexibility within the unimpaired hydrograph range (i.e., 45%-65%) to change operation and avoid negative environmental impacts, like those to upstream water temperatures. The Draft Staff Report did no analysis to show that this was possible to reoperate within the proposed range to avoid impacts without impacting compliance with other laws and without causing redirected impacts to other resource areas. It is also unclear under what rules would a shifting within the unimpaired range be permitted because the project description states that there must be a showing of equivalency. There is no analysis that shows the mitigation measures proposed for different resources areas are not contradicting with	Please see Common Response 8.1, Economic Analysis and Other Considerations, regarding the analysis of municipal water supply economic effects. Please also see the response to comment 264-72 regarding mitigation measures. The Staff Report provides a review of costs from peer-reviewed literature of various forms and sizes of recycled water from California projects. This is provided on page 8-35 of the 2023 draft Staff Report (the commenter erroneously cites p. 8-95). The Staff Report further identifies a particular study in Los Angeles County (Porse et al. 2018), using some data from Metropolitan Water District of Southern California (Metropolitan), which estimated the total cost of a full indirect potable reuse system to range from \$1,551 to \$2,641 per AF in 2017 dollars. If adjusted to 2023 dollars in order to compare to the commenter's estimates, the cost from the Porse et al. (2018) study would be \$1,928 to \$3,283 per AF, which largely overlaps with the commenter's range estimate. Metropolitan's own projections of cost include contingencies that account for future, unanticipated costs and projected escalation reflective of a budgeting process for a planned project as opposed to quantifying the cost of an actual built project. (For example, the \$8.1 billion cited by the commenter includes future Phase 2 project elements that they admit are not fully defined (MWD 2023)). The commenter's cited report also notes that more favorable future financing could change the cost range to \$2,433 to \$3,126 per AF (MWD 2023), which is within the range stated in the Staff Report. Detailed discussion on replacement water supply costs can be found in Common Response 8.1. Furthermore, the Staff Report economic analysis assumes that Metropolitan would employ a portfolio of options to mitigate for reduced surface water supply, consistent with its current and proposed future water supply planning. This includes use of

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		each other or contradicting with the proposed Plan amendment and achieving its objectives.	water transfer agreements, groundwater storage and recovery projects, surface water storage enhancement, as well as recycled water. It would not be necessary to build five recycled water projects to replace surface water reductions unless Metropolitan itself chose to do so. The Staff Report includes analyses of flow scenarios ranging from 35 to 75 percent of unimpaired flow and thus directly analyses the unimpaired flow range of 45 to 65 percent. See Chapter 7, Environmental Analysis, of the Staff Report for analyses of environmental impacts for the 45, 55, and 65 flow scenarios. Chapter 5, Proposed Changes to the Bay-Delta Plan for the Sacramento/Delta, of the Staff Report included a detailed description of default implementation and voluntary implementation plans (now referred to as local cooperative solutions). See Common Response 1.3, Revised Proposed Plan Amendments, for more information about local cooperative solutions.
264	74	[ATT 1:] As to the Alternatives, the Draft Staff Report fails to inform compliance with the Porter-Cologne Water Quality Control Act. The Water Board has a duty to provide for the reasonable protection of both fish and wildlife beneficial uses and other beneficial uses of water for domestic and irrigation uses in developing flow objectives, and it must set water quality objectives through the control of all factors which affect water quality and beneficial uses, not just flows. Regarding the Unimpaired Flow Alternatives, the Draft Staff Report fails to balance the reasonable protection of competing beneficial uses of water, instead prioritizing fish and wildlife beneficial uses over all others as the exclusive goal of the update, even as the analysis shows significant impacts to critical cold water pool storage for salmonid species. Under Porter-Cologne Water Quality Control Act (Wat. Code, § 13000, et seq., “Porter-Cologne”), the State Water Board must consider and balance all competing demands for water in determining what is a reasonable level of water quality protection. (Water Code, § 13000.) As explained in the State	Please see Common Response 1.2, Water Quality Control Planning Process, regarding the Porter-Cologne Water Quality Control Act and consideration and balancing of beneficial uses and requirements. Please also see Common Response 7.24, Alternatives Analysis, regarding the evaluation of alternatives.

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		Water Resources Control Bd. Cases: In formulating the 1995 Bay-Delta Plan, the Board set out “to attain the highest water quality which is reasonable, considering all demands being made on the water of the [Bay- Delta].” (1995 Bay-Delta Plan, p. 14, italics added.) While the Board had a duty to adopt objectives to protect fish and wildlife uses and a program of implementation for achieving those objectives, in doing so the Board also had a duty to consider and protect all of the other beneficial uses to be made of water in the Bay- Delta, including municipal, industrial, and agricultural uses. It was for the Board in its discretion and judgment to balance all of these competing interests in adopting water quality objectives and formulating a program of implementation to achieve those objectives. (State Water Resources Control Bd. Cases (2006) 136 Cal.App.4th 674, 778, second italics added.) The water quality objectives must provide “reasonable protection for beneficial uses and the prevention of nuisance.” (Water Code, § 13241.) Water Code section 13241(c) requires the State Water Board to consider “[w]ater quality conditions that could reasonably be achieved through the coordinated control of all factors which affect water quality in the area.” (Emphasis added.)	
264	75	[ATT 1:] The Draft Staff Report accurately recognizes that flows are not the only factors affecting water quality (including fish and wildlife beneficial uses) in the Bay-Delta watershed: “Many scientific studies have identified the involvement of other aquatic ecosystem stressors, such as reduced habitat, pollutants, nonnative invasive and predatory species, and abiotic factors, as contributing factors in species declines (^Sommer et al. 2007; Moyle et al. 2012; ^Mount et al. 2012).” (DSR, p. 4.1.) Yet the Draft Staff Report improperly assumes that more flows are needed and considers other actions to address the multiple stressors affecting fish and wildlife beneficial uses as mere potential add on actions that could enhance the effectiveness of the Unimpaired Flow Alternatives. (Ibid. [“The State Water Board recognizes that addressing these stressors will amplify the ecological benefit of new and existing flows beyond what the	The scientific basis of flow impacts on the Bay-Delta system and the benefits of increased flow can be found in Section 3.2, Flow and the Ecosystem, and in the species-specific analyses found in Chapter 3, Scientific Knowledge to Inform Fish and Wildlife Flow Recommendations. As stated in the 2023 draft Staff Report, flow measures should be implemented in conjunction with non-flow measures, such as habitat restoration and management of non-native species. For additional information on the scientific basis for fish protections in the Staff Report and the use of best available science, please refer to Common Response 3.1, Fish Protection. The 2023 draft Staff Report acknowledges the benefits of non-flow actions, and this discussion can be found in Chapter 4, Other Aquatic Ecosystem Stressors. A description of complementary, non-flow actions that may help address the stressors described

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		State Water Board can require through flow and water project operations alone”].)	in Chapter 4 can be found in Section 5.5, Habitat Restoration and Other Complementary Ecosystem Measures. Please see Common Response 1.2, Water Quality Control Planning Process, for a discussion of non-flow measures and the State Water Board’s authority to impose non-flow measures.
264	76	[ATT 1:] The Water Board must also consider public interest type factors when implementing Porter- Cologne Water Quality Control Act. Water Code section 13241 includes criteria that must be considered when establishing water quality objectives that include economics, housing and the need to recycle water. However, the record before the Water Board as contained in the Draft Staff Report is insufficient for this purpose. As explained above, the Draft Staff Report’s economic analysis, and assumptions related to the effect that a significant reduction in water supply would have on housing are insufficient. The Draft Staff Report assumes that local agencies will mitigate the effect of all water reductions so there will be no impact on housing; this assumption is not based on substantial evidence. The information in the Staff Report is also insufficient as it relates to recycled water because the water supply impacts, specifically reductions in SWP supplies, negatively impacts many agencies’ ability to recycle water. For many agencies, SWP supplies are the primary supply for water recycling because of its relatively high quality. The Draft Staff Report is insufficient as a basis to inform implementation of the Porter-Cologne Water Quality Control Act.	Please see Common Response 1.2, Water Quality Control Planning Process, regarding State Water Board authorities and compliance with the Porter-Cologne Water Quality Control Act. Please see Common Response 8.1, Economic Analysis and Other Considerations, regarding regional and local agricultural economic effects.
264	77	[ATT 1:] As to the Alternatives, the Draft Staff Report fails to inform compliance with the required Public Trust balancing. The Water Board must also complete a balancing of Public Trust interests as part of the adoption of amendments to the Water Quality Control Plan. The Public Trust Doctrine imposes on the Water Board an ongoing affirmative duty to take the public trust into account in the planning and allocation of water resources, and to protect public trust uses wherever feasible. (National Audubon Society v. Superior Court (1983) 33 Cal.3d. 419, 446.) The Court explained further: As a matter of practical necessity the state may have to approve	At the time the 2023 draft Staff Report was released for public comment, an explicit public trust analysis was not included, as the rulemaking process for the Sacramento/Delta update to the Bay-Delta Plan was still at a preliminary stage with numerous options being evaluated for potential inclusion in the plan update. Now that the State Water Board has identified a precise set of revised proposed Plan amendments as the proposed project, as part of the process to revise the 2023 draft Staff Report in response to input from the public, the State Water Board has added a section summarizing the State Water Board’s public trust evaluation for the proposed amendments to the Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Watershed. Please refer to

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		appropriations despite foreseeable harm to public trust uses. In so doing however, the State must bear in mind its duty as trustee to consider the effect of the taking on the Public Trust [], and to preserve, so far as consistent with the public interest the uses protected by the trust. (National Audubon, supra. 33 Cal.3d at 446-447, emphasis add.) And: [I]n determining whether it is ‘feasible’ to protect public trust values like fish and wildlife in a particular instance, the Board must determine whether protection of those values is ‘consistent with the public interest. (State Water Res. Control Bd. Cases (2006) 136 Cal. App. 4th 674-778.) The “public interest” includes appropriation of water for the “population and economy of this state,” which may be “unrelated to in-stream trust issues.” (National Audubon, supra. 33 Cal.3d at 446.) As explained above in detail, the Draft Staff Report is insufficient as a basis for the Public Trust balancing because it significantly underestimates the impacts of the lost water supplies by assuming that local regions can find alternative supplies, and it underestimates the economic impacts associated with the lost supplies and the costs related to efforts to replace those supplies.	final Staff Report Section 13.6.1, Public Trust Analysis, for the State Water Board’s public trust analysis of the revised proposed Plan amendments. See also final Staff Report Section 13.6.2, Water Code Section 13241 Analysis, for additional discussion of the State Water Board’s evaluation of other factors in setting water quality objectives. Please also see Common Response 1.2, Water Quality Control Planning Process, regarding the Board’s consideration of public trust interests when formulating or amending water quality control plans. In addition to the proposed Plan amendments, which remain part of the project as the regulatory pathway, the project has also been revised in response to comments received expressing concerns over potential water supply impacts. The inflow requirements contained in the revised proposed Plan amendments include water supply adjustments for existing water right holders at the outset of plan implementation to reduce water supply impacts. Please see Common Response 1.3, Revised Proposed Plan Amendments, for a discussion of the revised proposed Plan amendments’ inflow objective and its associated water supply adjustments. The program of implementation also contains numerous flexible provisions allowing for adaptive management to minimize water supply impacts (e.g., the ability to manage numeric flow requirements as a total volume of water to shape flows) and also contains provisions allowing the State Water Board to develop and implement curtailment exceptions for human health and safety needs and other appropriate purposes. These features of the regulatory pathway, in combination with the VA pathway also included in the revised proposed Plan amendments, would lessen both the impacts to water supply and the economic effects associated with those water supply reductions. Potential shifts in municipal water supply sources are discussed in Section 7.20, Utilities and Service Systems, as well as Sections 8.2.3, Municipal Water Use, and 8.5, Municipal Water Supply Economic Effects, of the 2023 draft Staff Report, and in Section 13.7.20, Utilities and Service Systems, of the final Staff Report. Please note that municipal supply portfolios contain sources

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			aside from Sacramento/Delta supply. As a result, any reduction to the Sacramento/Delta supply available to municipal users will have a smaller overall effect on the total municipal supply. See Tables 6.4-1 and 7.20-8 in the 2023 draft Staff Report for an explanation of the estimated water supply impacts associated with each of the flow scenarios as they relate to total municipal supply.
264	78	[ATT 1:] As to the Alternatives, the Draft Staff Report fails to inform compliance with the California Constitution Art. 10, §2, Waste and Unreasonable Use Doctrine. The Water Board's actions are subject to Article X, § 2 of the California Constitution. (City and County of San Francisco v. Regents of University of California (2019) 7 Cal.5th 536, 558 ["the California Constitution is the paramount authority to which even sovereignty of the state and its agencies must yield."].) The purported benefits of Unimpaired Hydrograph Alternatives, the modular alternatives and narrative alternatives do not support the conclusion that dedicating more than 1.5 million acre-feet [Footnote 55: Approximate value based on reviewing the SacWAM modeling results for the baseline and the 55% unimpaired flow scenario.] to outflow is a reasonable use of water. As far as we can determine based on the analyses and conclusions in the Draft Staff Report, there is an expectation of some benefit to species abundance; but as described above, the relied upon analyses do not actually evaluate whether species abundance would increase over time, the analyses only show a small and highly uncertain increase in abundance, or the analyses merely indicate a potential improvement in some components of species habitat with uncertain species benefits. The dedication of large quantities of flow to produce such uncertain, undefined, and small benefits is unreasonable.	Please see Common Response 1.2, Water Quality Control Planning Process, for a discussion of the State Water Board's authority to prevent waste and unreasonable use under Article X, Section 2 of the California Constitution. Please see Common Response 7.24, Alternatives Analysis, for a discussion of the range of alternatives presented in the 2023 draft Staff Report. Please see Common Response 3.1, Fish Protection, for a discussion of the State Water Board's use of best available science and the Board's approach to analyzing the effects of flow on species abundance and life cycle models.
264	79	[ATT 1: ATT 1: Document titled Attachment A More Recent Published Literature]	This attachment was included with the comment letter. The attachment does not raise a specific environmental impact or economic effect of the project. Refer to Common Response 1.1, General Comments, for the approach to addressing attachments to comments.
264	80	[ATT 1: ATT 1:] The Draft Staff Report should rely on the citation list provided below including published and peer reviewed literature that is more current than those cited in the Draft Staff	Please see Common Response 3.1, Fish Protection, for a discussion on use of best available science in the Staff Report.

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		Report. The failure to incorporate these studies, and others, in the Draft Staff Report results in analyses of Alternatives that rely on unsupported assumptions, which impacts conclusions.	
264	81	[ATT 1: ATT 2: Document titled Attachment B SWC Comments Previously Submitted to SWRCB]	This attachment was included with the comment letter. The attachment does not raise a specific environmental impact or economic effect of the project. Refer to Common Response 1.1, General Comments, for the approach to addressing attachments to comments.
265	1	Based on the Project's avoidance of significant impacts on biological resources with implementation of mitigation measures, CDFW concludes the Substitute Environmental Document is appropriate for the Project. CDFW supports the findings in the draft Staff Report and associated documents regarding the ecological status of the San Francisco Bay-Delta and its tributaries with many native fish species populations at historic low abundances and still declining. In recent years, the poor water quality conditions in the Sacramento River watershed and Bay-Delta, exacerbated by drought, have brought fish species listed under the protection of state and federal Endangered Species Acts to levels near extinction or extirpation. Given the impaired condition of the ecosystem, CDFW supports the State Water Board in its update of the Bay-Delta Plan and encourages the State Water Board to move forward expeditiously.	Please see Common Response 1.1, General Comments, for responses to comments that make general comments, do not raise specific environmental impacts of the project, or do not raise specific economic effects of the project.
265	2	General Comments Alternatives Comparison CDFW recognizes the enormous amount of work that went into putting the draft Staff Report together. It is an information rich report that does a good job of describing the individual alternatives being considered, laying out the supporting science, and the need for the update of the Bay-Delta Plan. CDFW also acknowledges that the State Water Board received the VA package after much of the draft Staff Report had been written. However, CDFW supports comments made during the public hearings from members of the public as well as from State Water Board members in regard to providing a more direct comparison of alternatives in the Staff Report. While there is abundant	The commenter suggests revisions that would not alter the Staff Report's analysis or conclusions. The suggested revisions to the draft Staff Report are not warranted. In addition, see the alternatives impacts discussion in Section 13.7.1, Approach, and the tabulated comparison of impacts in Appendix H4, Impact Summary Table for Alternatives, of the final Staff Report.

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		information provided for each alternative as well as an analyses of impacts, it is difficult to assess how the alternatives compare to one another, particularly how VA flow contributions compare to the unimpaired flow alternatives. A table displaying key metrics for each alternative would allow for greater public transparency and understanding. For example, the draft Staff Report could provide Sacramento River watershed, Delta inflow and outflow numbers for each alternative per water year type.	
265	3	Other Water Infrastructure Projects As displayed in Table 7.24-1, the implementation of water infrastructure projects currently being planned could reduce Delta outflow in a system that is already suffering from impaired flow magnitudes. CDFW encourages the State Water Board to consider the potential implementation of these water infrastructure projects when evaluating alternatives for the Bay-Delta Plan Update, and to ensure that Bay-Delta Plan flows are protected, thereby ensuring their ecosystem benefits. Such protection could for example be implemented as described in Alternative 6a of the draft Staff Report or through other potential approaches to analyzing the Bay-Delta Plan Update alongside new infrastructure or storage projects.	Implementation of other water infrastructure projects is considered in Staff Report Section 7.23, Cumulative Impact Analysis, Growth-Inducing Impacts, and Significant Irreversible Environmental Changes.
265	4	Cold Water Management The Scientific Basis Report (SWRCB 2017) and the Draft Supplemental Scientific Basis Report (SWRCB et al. 2023) outline the significant temperature issues that exist in both the tributaries, the Sacramento River mainstem and in the Delta. High water temperatures are oftentimes a key aquatic ecosystem stressor in the project area, resulting in unsuitable habitat. CDFW therefore encourages the State Water Board to consider the importance of cold-water management when deciding on updates to the Bay-Delta Plan.	The 2023 draft Staff Report considers temperature management for cold water habitat within the context of the Plan update in Section 5.4.3, Cold Water Habitat. Please see Common Response 1.1, General Comments, for responses to comments that make general comments, do not raise specific environmental impacts of the project, or do not raise specific economic effects of the project.
265	5	Voluntary Agreements CDFW supports a voluntary approach that achieves the objectives of the Bay-Delta Plan, especially if such an approach also expedites implementation of beneficial actions. CDFW acknowledges the need for habitat restoration in combination with increased instream flow, Delta inflow, and Delta outflow.	Please see Common Response 1.1, General Comments, for responses to comments that make general comments, do not raise specific environmental impacts of the project, or do not raise specific economic effects of the project.

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265	6	When designing, planning and implementing habitat restoration actions, CDFW provides the following recommendations: - Consider and prioritize projects that restore natural ecosystem processes and support the Bay-Delta ecosystem's ability to maintain and create habitat, acknowledging that habitat is not static in space and time. This could include projects that increase both longitudinal and lateral connectivity, or projects that allow natural processes of erosion, deposition and seasonal flooding that continually change and enrich riparian areas, create and sustain habitat or allow river channel migration and meandering.	The program of implementation identifies actions that other entities should take to address other ecosystem stressors and provides a framework to incorporate both flow and complementary ecosystem projects such as physical habitat restoration into local cooperative solutions. In addition, some complementary ecosystem projects may also serve as an implementation mechanism for the proposed cold water habitat objective. In addition, the VA pathway includes implementation of non-flow habitat restoration actions targeted at improving spawning and rearing capacity for juvenile salmonids, estuarine species, and other native fish and wildlife on a portion of the Sacramento/Delta tributaries for an initial 8 years (with the possibility to extend the term). Finally, the designation of new CUL beneficial use could result in habitat restoration as a result of enforcement actions, voluntary permit actions, and non-regulatory actions. Habitat restoration and other ecosystem projects are evaluated in Section 7.21, Habitat Restoration and Other Ecosystem Projects. To help guide restoration efforts in the Delta, the San Francisco Estuary Institute and the Aquatic Science Center through the Delta Landscapes Project have produced an instructive report titled A Delta Renewed: A Guide to Science-Based Ecological Restoration in the Sacramento-San Joaquin Delta (A Delta Renewed) (^SFEI-ASC 2016). The report emphasizes process-based recovery of landscape functions that integrate natural and cultural processes and maximize resilience to climate change, invasive species, and other challenges. A Delta Renewed includes regional recommendations and on-the-ground strategies and discusses the potential for establishing smaller, modified landscapes that are resilient, productive, sustainable, and supportive of people and native wildlife. Project proponents should follow relevant guidance and recommendations in A Delta Renewed to the extent possible. Habitat restoration projects should be designed, planned, and implemented consistent with the techniques and minimization measures in various CDFW and NMFS guidance documents. When determining whether to approve local cooperative solutions that include physical habitat restoration or other ecosystem projects, the State Water Board will evaluate the local cooperative solutions with consideration of the guidance and recommendations in these reports. Please refer to Common

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			Response 1.3, Revised Proposed Plan Amendments, for information on VA habitat requirements.
265	7	- Consider and prioritize projects that reduce the need for long term operation, maintenance, and active management to the extent feasible. CDFW acknowledges that such active management cannot be entirely avoided (e.g., weir notches or fish passage structures to alleviate existing fish passage issues) but careful consideration should be given before implementing projects that add new infrastructure to an already heavily altered landscape.	Habitat restoration and other ecosystem projects are evaluated in Section 7.21, Habitat Restoration and Other Ecosystem Projects. Environmental impacts from habitat restoration projects are primarily associated with construction activities—that is, grading and excavation of riverbanks and channels, construction of temporary roads, and placing and anchoring structures and operating heavy equipment in and near the river channel, which could be mitigated, in part, through the implementation of construction mitigation measures, as discussed in Common Construction of Section 7.21. Operational impacts may also occur depending on the project, and mitigation measures are proposed that would avoid or reduce operational impacts, including minimizing new infrastructure and active management where feasible. Please refer to Common Response 1.3, Revised Proposed Plan Amendments, for information on VA habitat requirements.
265	8	- Consider and prioritize projects that address the aquatic ecosystem stressors described in SWRCB (2017) and SWRCB et al. (2023). This is particularly important as habitat modeling in SWRCB et al. 2023 shows that spawning and/or rearing habitat in some tributaries already meet the acreage to support 25% of the salmon doubling goal. Hence, stressors other than physical spawning and rearing habitat merit consideration and prioritization as limits to salmon population growth.	Please refer to Common Response 1.3, Revised Proposed Plan Amendments, for information on VA habitat requirements.
265	9	The non-flow measures proposed under the VAs are comprised of a broad suite of actions with varying levels of scientific certainty and feasibility. CDFW is ready to engage in the planning and permitting of non-flow measures and recommends project proponents to engage CDFW staff early in the planning process. Furthermore, CDFW encourages project proponents to consider principles provided in Flosi et al. (2010) and NMFS (2022) when planning and designing projects. Project proponents are also encouraged to carefully consider the aquatic ecosystem stressors described in the Scientific Basis Report for the specific tributary or action area.	Please see Common Response 1.1, General Comments, for responses to comments that make general comments, do not raise specific environmental impacts of the project, or do not raise specific economic effects of the project.
266	1	TID is a firm supporter of Agreements to Support Healthy Rivers and Landscapes (“Agreements”) and asks the State Board to	Please see Common Response 1.1, General Comments, for responses to comments that make general comments, do not

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		identify the Agreements as the preferred alternative in the final Staff Report and forthcoming program of implementation for the Bay-Delta Plan. Last year's workshops for the Stanislaus Tuolumne Merced (STM) Working Group only served to highlight that a regulatory, "flows-only" approach cannot and will not achieve the biological goals of the Bay Delta Plan. A holistic, large-scale and integrated approach is the only effective means by which we can improve conditions for native fish. The Agreements offer such a path forward.	raise specific environmental impacts of the project, or do not raise specific economic effects of the project.
266	2	In November 2022, TID and its partners on the Tuolumne, Modesto Irrigation District (MID) and the San Francisco Public Utilities Commission (SFPUC) became signatories to the Memorandum of Understanding that form the basis of the current Agreements. As the SED clearly indicates, the flows provided by the Tuolumne Agreement will have a positive impact on achieving the goals and objectives of the Bay-Delta Plan. While we have truly appreciated the open and comprehensive dialogue provided by the State Board during the recent public hearings, we offer the following comments on the Tuolumne Agreement specifically for the purpose of clarification. 1. More Water in All Water Year Types The Tuolumne Agreement will increase flows in the Tuolumne in all water year types, particularly in critically dry and dry years. 2. More Water During Multi-Year Droughts The Tuolumne Agreement will increase flows in the Tuolumne, even during successive critically-dry and dry years, i.e. a multi-year drought. 3. Improved Delta Outflow The Tuolumne agreement dovetails into the Phase 2 Bay-Delta Plan by our commitment in the MOU to support the State Board in its proceedings to protect the Tuolumne flow commitments as Delta outflow. Increased Delta outflow will not occur under the Phase 1 Bay-Delta Plan.	The Tuolumne VA is being considered in a separate process. Please see Common Response 1.1, General Comments, for responses to comments that make general comments, do not raise specific environmental impacts of the project, or do not raise specific economic effects of the project. Please see Common Response 1.3, Revised Proposed Plan Amendments, for information on the VA Pathway.

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		4. More Native Fish The Phase 1 Bay-Delta Plan Update is focused ostensibly in improving the native fishery, particularly fall run Chinook. The modeling conducted by the State of California and TID/MID clearly indicate that a combination of increased flow, increased habitat, and adaptive management will increase the number of salmonids in the Lower Tuolumne at a much higher rate than the proposed Unimpaired Flow (“UIF”) regime. 5. More Habitat The Tuolumne Agreement contains a commitment to \$81 million in non-flow improvements, including 77 acres of floodplain / juvenile rearing habitat, 100,000 tons of gravel to improve spawning and rearing, and a range of measures to facilitate spawning, rearing and outmigration. Improved habitat conditions do not occur under an UIF regime due to the incised nature of the Tuolumne’s river channel and the after effects of extensive, historic gold mining. 6. Self-funded The governing agencies of TID, MID and SFPUC have committed local funding to fully implement the non-flow commitments in the Tuolumne Agreement. Put another way, the Tuolumne Agreement does not rely on a single dollar of state or federal funding. This means that the program will be implemented immediately. Indeed, an early implementation project near Old La Grange Bridge is planned for this summer with tribal monitoring provided by the Northern Valley Yokut Tribe. By choosing to self-fund the Agreement, TID and its partners have overcome the shortcomings of CalFed, the San Joaquin River Restoration Program, and the 1995 Tuolumne Settlement Agreement where State of California was unable to deliver on its funding commitments for habitat restoration due to changing budget conditions. 7. Ready to Implement	

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		Recently, River Partners was hired to act as program manager to implement the habitat commitments contained in the Tuolumne Agreement. River Partners is uniquely qualified for this assignment with a proven track record of rapid implementation. 8. A Legally Enforceable Commitment Some commenters during the hearing process seemed to imply that the Agreements are not enforceable because they are “voluntary.” While “voluntary” might indicate the nature by which the Public Water Agencies chose to participate in the process, the Agreements are anything but “voluntary” in their implementation. Legal counsel from participating parties are developing “Implementation Agreements” and “Enforcement Agreements” that will be legally binding commitments to implement the flow and non-flow measures in the Agreements. The Tuolumne Agreements act as both a “Plan” and a “Program of Implementation” which can go into immediate effect. Further, the terms and conditions of the Tuolumne Agreement will be incorporated into the Districts’ FERC license for Don Pedro which also acts as a regulatory backstop. 9. Extensive Public Participation The Tuolumne Agreement is unique in that it was developed in 2018 by and through the Federal Energy Regulatory Commission (FERC) Integrated Licensing Process (ILP) for the Don Pedro Project. The Tuolumne Agreement was initially presented to the State Board by the Department of Water Resources and California Department of Fish and Wildlife in March of 2019. Indeed, the Tuolumne Agreement is the preferred alternative in FERC’s July 2020 Final Environmental Impact Statement (FEIS) for the Don Pedro Project. FERC’s ILP requires a comprehensive public participation process that includes tribal representative, conservation groups, and all affected state and federal resource agencies. Since its review by the State Board in 2019, the Tuolumne Agreement has been changed to increase spring flows by 10,000 acre feet; this is the only modification to the Agreement that has not been part of an extensive public participation process.	

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		10. Avoids Drinking Water Impacts to Disadvantaged Communities (DACs) In its 2018 SED, the State Board noted that groundwater impacts were “significant and unavoidable.” The Turlock Groundwater Sustainability Plan (GSP) notes that 74 percent of the subbasin’s population lives in a Disadvantaged Community, some which are Severely Disadvantaged, and that these disadvantaged communities, such as Keyes, Ballico and Delhi, are entirely dependent upon groundwater for their drinking water supply. While SGMA implementation will assist with drinking water mitigation, there will be a significant time-lag in implementing the projects and programs to do so. Furthermore, as of December 2023, TID provides surface water to the Stanislaus Regional Water Authority which treats the water to drinking water standards and conveys it to the Cities of Turlock and Ceres which serve disadvantaged communities within their services areas. The availability of this safe surface water supply will be diminished under the State’s UIF regime. The Tuolumne Agreement would result in an increased supply of safe and reliable drinking water to the region.	
266	3	The ecological challenges facing the San Francisco Bay Delta are myriad and years in the making. This complex problem can only be solved with a comprehensive solution, such as that developed in the Agreements to Support Healthy Rivers and Landscapes. TID urges the State Board to recognize the benefits of the Agreements in its Final Staff Report.	Please see Common Response 1.1, General Comments, for responses to comments that make general comments, do not raise specific environmental impacts of the project, or do not raise specific economic effects of the project.
267	1	The assumption in the DSR that water transfers would be available and utilized to mitigate for the adverse impacts of water supply reductions under the PPA is neither supported, nor realistic, nor reasonable; and is not consistent with historical water transfers based on supply and demand, considering the requirements to implement water transfers. • Groundwater substitution transfer approvals will be more difficult, if not impossible to obtain, under the PPA due to the adverse impacts to groundwater conditions resulting from significant quantities of groundwater pumping to address water supply deficits and considering the relevant requirements for agencies to approve such transfers and the requirements under	The impact conclusions made in the draft Staff Report do not rely on increased groundwater pumping or the implementation of other water management actions, including water transfers, to mitigate for surface water supply reductions. The Staff Report recognizes that the availability of replacement supplies may be limited. The Staff Report acknowledges that the potential changes in water supply may reduce supply availability in the water transfer market. Page 6-89 of the 2023 draft Staff Report states “...water transfers from north to south potentially would be more limited as a result of the proposed Plan amendments...”. However, water transfers are an important water resource management tool in

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		the Sustainable Groundwater Management Act (SGMA). • Crop idling/shifting transfer approvals will be more difficult, if not impossible to obtain, under the PPA due to the adverse impacts to wildlife and the economy resulting from extensive land fallowing to address water supply deficits and considering the relevant requirements for agencies to approve such transfers. • Due to adverse impacts under the PPA, it is reasonable to conclude there will be entities that elect to not pursue transfers in order to assist in maintaining groundwater supplies within the basin and to support crop production that will assist to minimize adverse effects to the economy and retain market share for crops.	California and occur under all water supply conditions, including extremely dry years. As shown in Figure 6.6-1 of the 2023 draft Staff Report, the volume of water moved through the temporary transfers market from 2007 to 2016 varied from approximately 0.6 MAF in 2016 to more than 1.3 MAF in 2009, which was a dry year. From this historical data, it is evident that water transfers persist, and even increase during dry periods. Therefore, it is likely that water transfers will continue at some level, even with changes in water supply. Please see Section 7.4, Agriculture and Forest Resources, for discussion on the potentially significant impacts identified for agriculture, such as farmland conversion (Impacts AG-a and AG-e). Please also see Chapter 8, Economic Analysis and Other Considerations, for discussion on the economics of water transfers and agricultural water supply effects. Please see Common Response 7.12.2, Groundwater and Sustainable Groundwater Management Act, for more discussion on how SGMA aligns with the Sacramento/Delta Bay Delta plan update and how changes in water supply may affect groundwater substitution water transfers. Please also Common Response 6.3, Water Supply and Other Water Management Actions, for more discussion on water supply impacts and water transfers.
267	2	The DSR does not reasonably identify and evaluate potential transfer quantities, frequency of transfers, and associated effects. • The DSR should adequately identify and evaluate transfer quantities and frequency from key watersheds and any potential adverse impacts resulting from remaining unmet water demands under the PPA. • The DSR should include the latest, detailed information on transfers during recent drought periods (i.e., multiple, consecutive drier hydrologic conditions), as well as an evaluation of the effects of the PPA on those water transfers. The data for those transfers and associated effects should not be averaged in the DSR.	The draft Staff Report includes a thorough discussion on transfers in Section 6.6.1.2, Water Transfers, which includes information on transfer quantities from one region to another and a discussion of how transfers change with hydrologic conditions and trends over time. Section 6.6.1.2 concludes with "It is difficult to predict with certainty how reduced Sacramento/Delta surface water supplies will affect water transfers. With new instream flow and cold water habitat requirements, overall supplies of water from the Sacramento/Delta will decline. This may result in less water available for transfer. At the same time, it could incentivize transfers as the value of transfer water increases, leading to transfers from lower value temporary crops to higher value municipal uses and permanent crops. In addition, groundwater substitution and pumping transfers could be less feasible due to

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			SGMA.” Please also see Common Response 8.1, Economic Analysis and Other Considerations, for further discussion of transfers in the draft Staff Report.
267	3	The DSR likely underestimates the magnitude and extent of the PPA economic impacts associated with transfers. • As a result of the reduced surface water supplies and increased demand for water due to the PPA, it is reasonable to conclude that, to the extent smaller volume and lesser frequency transfers occur, the market prices for transfer water will continue its increasing trend beyond the recent historically high market prices. • The purchase price for a temporary water transfer from the Sacramento Valley to entities downstream of the Bay-Delta in 2022 was \$833 per acre-foot (AF). The expense to transferees is significantly greater; at least \$1,140 per AF after subtracting conveyance and carriage losses and prior to including other expenses. The DSR should include additional supporting analysis for prices that may occur under implementation of the PPA, including the net economic impacts to transferees after considering losses and other expenses. • The DSR minimizes the severity of the adverse economic impacts due to the PPA by incorrectly assuming that transfer water would be generally available, and by underestimating the likely price of transfer water, which will exacerbate those impacts to Disadvantaged Communities and Severely Disadvantaged Communities.	As discussed in Section 6.6.1.2, Water Transfers, it is difficult to predict with certainty how reduced Sacramento/Delta surface water supplies will affect water transfers. With new instream flow and cold water habitat requirements, overall supplies of water from the Sacramento/Delta will be reduced. This may result in less water available for transfer. At the same time, it could incentivize transfers as the value of transfer water increases, leading to transfers from lower value temporary crops to higher value municipal uses and permanent crops. Forecasting future water prices is complex, requiring knowledge and information regarding supply alternatives, future demand and market conditions, and behavior of willing sellers and buyers in response to market conditions. There is no economic model available that estimates how the water transfer market will respond to long-term to the change in water supply. The analysis in Chapter 8, Economic Analysis and Other Considerations, assumes that there could be greater demand pressure in the water transfer market such that future prices may be higher than recent historical trends. For the purposes of the municipal water supply economic effects analysis presented in Section 8.5, Municipal Water Supply Economic Effects, future transfer prices are assumed to be \$500 per AF for transfers to the Bay Area, \$500 per AF for transfers to the Central Coast, \$500 per AF for transactions to and within the San Joaquin Valley region, and \$750 per AF for transfers to the Southern California region. These assumed water transfer prices used in the Staff Report were higher than historical averages for all water year types, which is an appropriate and conservative assumption for the analysis. The analysis provided in the Staff Report is appropriately detailed for the scope of the project. The information provided by the commenter does not necessitate changes to the municipal water supply economic analysis. Please see Common Response 8.1, Economic Analysis and Other

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			Considerations, for additional discussion on the feasibility of water transfers as an alternate supply source under the flow scenarios.
267	4	Background Water transfers from the Sacramento Valley have occurred for many years, with some of the first water transfers occurring during 1977. Since that time, water transfers have been an effective tool to assist in balancing water supplies during drier periods through voluntary purchases by transferees from transferors that make water available by methods such as groundwater substitution, crop idling/shifting, and/or reservoir release. Water transfers are largely dependent upon hydrology and regulatory requirements. Generally, during drier hydrologic periods, water transfers are pursued to minimize unmet water demands for municipal, industrial, agricultural, environmental, and other beneficial uses. Transfers have been successful when transferors have a reliable surface water supply during periods when a transferee does not have a reliable water supply. Water transfers are subject to public processes and significant review and evaluation by local, state, and federal agencies, as applicable. In general, the transfer process is designed to ensure that there are no significant adverse impacts to other legal water users or the environment. Water transfers, such as those that may be reviewed and potentially approved by the State Water Board, are subject to other regulatory requirements and constraints [footnote 2: As identified on page 6-89 of the DSR, the “volume of water that can be transferred through a conveyance facility is affected by several factors, including hydrologic conditions, regulatory requirements regarding conveyance facility operations such those included in biological opinions and other state or federal permits and licenses, and the availability of space in the conveyance facility.”] that limit water transfers. The approval processes for transfers generally require significant time and expense in order to develop the information required by agencies with regulatory authority, including to define	The Staff Report’s analysis of the impacts of other water management actions, including water transfers, is appropriately detailed for the scope of the project. The impact conclusions made in the Staff Report do not rely on the implementation of other water management actions. Even if more detailed information on water transfers could be known and added to the discussion in the Staff Report, the additional information would not change these impact conclusions. The DWR and Reclamation (2019a) Water Transfer White Paper referenced by the commenter has been added as a reference in Section 7.1, Introduction, Project Description, and Approach to Environmental Analysis. As discussed in Section 6.6.1.2, Water Transfers, it is difficult to predict with certainty how reduced Sacramento/Delta surface water supplies will affect water transfers. With new instream flow and cold water habitat requirements, overall supplies of water from the Sacramento/Delta will decline. This may result in less water available for transfer. At the same time, it could incentivize transfers as the value of transfer water increases, leading to transfers from lower value temporary crops to higher value municipal uses and permanent crops. Please see Common Response 8.1, Economic Analysis and Other Considerations, for additional discussion on the feasibility of water transfers as an alternate supply source under the flow scenarios. In addition, the potential effects of water transfers on groundwater and the interaction with SGMA is discussed in Section 7.12.2, Groundwater. SGMA is identified and discussed more broadly as a further constraint on water supplies in the overall impact analyses for changes in hydrology and water supply (Section 7.3, Aesthetics through Section 7.20, Utilities and Service Systems) and the cumulative impact analyses in Section 7.23, Cumulative Impact Analysis, Growth-Inducing Impacts, and Significant Irreversible Environmental Changes.

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		conditions under which a water transfer may occur. For examples of the process and conditions, see the requirements identified in the Draft Technical Information for Preparing Water Transfer Proposals [Footnote 3: Available at: https://water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/State-Water-Project/Management/Water-Transfers/Files/Draft_2019WTWhitePaper-011124.pdf], prepared by the California Department of Water Resources (DWR) and U.S. Bureau of Reclamation (Reclamation), dated December 2019; and also, refer to the Long-Term Water Transfers Environmental Impact Statement/Environmental Impact Report [Footnote 4: Available at: https://www.usbr.gov/mp/nepa/nepa_project_details.php?Project_ID=18361] prepared by Reclamation and the San Luis & Delta-Mendota Water Authority, dated September 2019 [footnote 5: Interestingly, neither of these examples are referenced in the DSR (only the prior, 2015 version, of the Long-Term Water Transfers Environmental Impact Statement/Environmental Impact Report is referenced in the DSR). However, these are the key governing documents associated with water transfer review/approval involving DWR and Reclamation. The DSR should refer to these documents.]. Our office has assisted water transfer participants with water transfers for decades. Examples of our assistance during significant water transfer periods include the Drought Water Banks administered by DWR in 1991, 1992, and 2009, as well as water transfers during periods of drought such as 2013 through 2015 and 2020 through 2022. We have assisted to facilitate the processing of numerous water transfers in close coordination with transferors, transferees, legal counsels, and agencies with regulatory authority over the transfers. Those efforts have also included assistance to transferors and transferees relative to completion of required environmental documentation, and developing and executing purchase agreements, and storage/conveyance agreements with DWR and/or forbearance agreements with Reclamation. Transfer efforts have involved intra- and inter-basin transfers and assignments within and outside of the Sacramento Valley. In addition, the completed transfers have included short-term and	

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		long-term transfers using the methods described above, as well as other methods to make water available such as through water conservation and water recycling. Our assistance with transfers has provided water supplies for multiple different beneficial uses including consumptive uses for cities, agriculture, and the environment. Our transfer facilitation efforts have also included instream flow dedications for reaches of streams to assist in achieving fishery benefits. Personally, I collaborate regularly with staff at the State Water Board, DWR, and Reclamation in an effort collectively address challenging water transfer issues and develop approaches to improve the water transfer process. As a registered professional engineer in California, I am the primary lead in our office to assist in processing water transfers. Transferors in the Sacramento Valley that we have aided include entities within the Sacramento River watershed such as those with Sacramento River Settlement Contracts, entities within the Feather River watershed such as those with Feather River Diversion Agreements, and entities with individual water rights and claims within those watersheds. In addition, we have assisted entities in transferring surface water within the Bear River watershed, Butte Creek watershed, and within the Delta. We also assist transferors in other watersheds, such as the Merced River, Mokelumne River, Walker River, and Klamath River. Transferees receiving water from transferors in the Sacramento Valley primarily include the San Luis & Delta-Mendota Water Authority, State Water Contractors and individual participating member agencies, Tehama-Colusa Canal Authority, East Bay Municipal Utility District, and others. Water transfers from the Sacramento Valley have substantially assisted to meet water supply needs in other portions of the State. Across the Sacramento Valley, the water transfers that occurred in 2015 were at or near the highest total quantities of surface water made available from the valley historically. The majority of the transfer water made available in 2015 was from participating Sacramento River Settlement Contractors. This included water made available by groundwater substitution and crop idling/shifting, which were over 68,000 AF [footnote 6:	

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		Quantity is after subtracting baseline groundwater pumping and before subtracting streamflow depletion losses.] and over 134,000 AF, respectively, or a total of approximately 202,000 AF. After subtracting streamflow depletion losses for water made available by groundwater substitution, and after subtracting Delta carriage water losses and other river losses assessed by DWR and Reclamation for the quantity transferred to entities downstream of the Delta, the net water made available to those transferees in 2015 was approximately 137,000 AF. Similarly, the next highest quantity of transfer water made available from Sacramento River Settlement Contractors occurred during 2021, for a total of approximately 197,000 AF (over 96,000 AF from groundwater substitution and over 101,000 AF by crop idling/shifting). Relative to the information contained in the DSR that is pertinent to water transfers under the State Water Board's PPA, Section 6.6.1.2 of the DSR provides a high-level overview of water transfers. That overview includes data in Table 6.6-1, Table 6.6-2, Table 6.6-3, and Figure 6.6-1 that are primarily up to the year 2012 [footnote 7: Figure 6.6-1 includes some limited data through 2016 for a combination of three sources: Southern California/Colorado River, Sacramento River watershed, and the San Joaquin River watershed.]. This information pre-dates the two most recent drought periods when water transfers have occurred at significant quantities, specifically transfers during 2013 through 2015, and during 2020 through 2022. In addition, those transfers cited in the DSR pre-date preparation of Groundwater Sustainability Plans to address requirements of SGMA. Those requirements have already changed the water transfer process through oversight by Groundwater Sustainability Agencies, and consideration of potential impacts to monitoring thresholds, domestic wells, groundwater dependent ecosystems, and other considerations that may result from groundwater substitution transfers. The DSR should include the latest, detailed information on transfers during those recent drought periods, as well as an accurate and complete evaluation of the effects of the PPA on those water transfers. In addition, the data summarized in Section 6.6.1.2 of the DSR is identified on an average annual basis. As indicated in this letter, water transfers from the Sacramento Valley predominantly occur	

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		in drier years; and thus, the data for those transfers should not be averaged in the DSR.	
267	5	Unimpaired Flow and Significant Adverse Impacts The following two sub-sections of this letter address potential water transfers under the State Water Board's PPA identified in the DSR, principally short-term, temporary water transfers. In general, long-term water transfers involve additional review and scrutiny as compared with temporary water transfers. The first section discusses groundwater substitution water transfers and the second section discusses crop idling/shifting water transfers, including impacts to those transfers and related factors as a result of the PPA. As an initial matter, Page 6-89 of the DSR acknowledges it "is difficult to predict with certainty how reduced Sacramento/Delta surface water supplies will affect water transfers. With new instream flow and cold water habitat requirements, overall supplies of water from the Sacramento/Delta will decline. This may result in less water available for transfer." The DSR includes a summary of the impacts and mitigation measures relative to the PPA; in regard to water transfers, Table 7.1-2 identifies potentially significant impacts to the following resource categories: Agriculture and Forest Resources, Biological Resources – Terrestrial, Biological Resources – Aquatic, Greenhouse Gas Emissions, Hydrology and Water Quality – Surface Water, Hydrology and Water Quality – Groundwater, Noise, and Utilities and Service Systems. The proposed mitigation measures for those water transfer related impacts largely identify "oversight and approval of water transfers". (DSR, Table 7.1-2.) Unfortunately, the DSR does not provide detail or analyze estimated quantities of transfer water that may be made available from the Sacramento Valley, for example, that would assist in providing water supplies to offset reductions under the PPA. The DSR should identify and evaluate potential transfer quantities and frequency that may be available from watersheds in order to adequately assess those transfers and any potential	Please see the response to comment 267-2. The impact conclusions made in the draft Staff Report do not rely on the implementation of other water management actions. Even if more detailed information on water transfers could be known, the additional information would not change these impact conclusions.

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		adverse impacts resulting from remaining unmet water demands under the PPA.	
267	6	Groundwater Substitution Under the State Water Board's PPA identified in the DSR, the reduced surface water diversions under the unimpaired flow approach will result in additional groundwater pumping by agricultural users, cities, and others. Those reduced diversions could delay or jeopardize efforts within the Sacramento Valley to maintain sustainability of the groundwater system under SGMA, create economic impacts (groundwater pumping expense), cause adverse environmental impacts (groundwater dependent ecosystem impacts), exacerbate regional or State electrical power supply constraints (increase electricity use to pump groundwater), and other potential impacts and consequences.	The Staff Report acknowledges that depletion of groundwater may occur if the local response to reduction in surface water supplies is to increase groundwater pumping. Please see identified impacts to groundwater and their mitigation measures in Section 7.12.2, Groundwater. The 2023 draft Staff Report also recognizes that groundwater pumping may have economic and power supply impacts, as noted in Chapter 8, Economic Analysis and Other Considerations and Section 7.8, Energy. The draft Staff Report proposes ways to mitigate energy use in Section 7.8.4, Mitigation Measures. As discussed in Section 7.6.1, Terrestrial Biological Resources, reduced groundwater levels may locally impact groundwater-dependent ecosystems, but inversely, increased instream flows for fish and wildlife can enhance surface and shallow groundwater supplies that support these ecosystems. Please also see Common Response 7.12.2, Groundwater and Sustainable Groundwater Management Act, for a discussion on the Sacramento/Delta Bay Delta Plan update overlap with the implementation of the Sustainable Groundwater Management Act (SGMA). Please also see Common Response 8.1, Economic Analysis and Other Considerations, for discussions on municipal water supply economic effects.
267	7	Relative to additional groundwater pumping and associated effects analysis under the PPA, the DSR includes results from the Statewide Agricultural Production (SWAP) model. The SWAP model evaluates effects by region; those that cover the majority of entities that have participated in prior groundwater substitution transfers within the Sacramento Valley include regions 3A, 3B, 4, 5, 6, and 7. Estimated additional groundwater pumping, expressed in the DSR as "maximum replacement groundwater pumping" within those six regions is over 334,000 AF [footnote 9: Pages A3-18 and A3-19 of the DSR identify that in "the Sacramento/Delta, groundwater pumping lifts range from approximately 54 to 143 feet, and pumping costs range from \$46/AF to \$98/AF." Thus, the expense for 334,000 AF of additional groundwater pumping as a result of the PPA in the six regions would range from approximately \$15.3 million to	See the response to comment 267-4. The SWAP modeling presented in the Staff Report includes two bookends related to reduced Sacramento/Delta surface water supplies: maximum replacement groundwater pumping, and no replacement groundwater pumping. Under maximum replacement groundwater pumping, it was assumed that growers could use groundwater in addition to local water supplies to offset some or all Sacramento/Delta supply reductions. Importantly, this is not a directive that farmers and ranchers should or would replace Sacramento/Delta reductions with groundwater pumping, especially in light of requirements to achieve sustainability in basins subject to SGMA, but a good faith attempt to capture the potential maximum impacts on the groundwater basin from replacement pumping. For no

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		approximately \$33.7 million for an average year or a dry year.] for an average year (DSR Appendix A3, Table A3-15) and the same quantity for a dry year (DSR Appendix A3, Table A3-16). Similar to other findings in the DSR, the “maximum replacement groundwater pumping” is expressed as an average; and thus, the impacts will be greater in some years, presumably drier years, resulting in potential detrimental effects to the groundwater aquifers as a result of the PPA. Moreover, as discussed in NCWA’s comments, the “dry” year used to identify “maximum replacement groundwater pumping” in the DSR is only an average of dry and critical years, so it does not capture the high levels of groundwater pumping that would occur consecutively in multi-year droughts under the PPA. The estimated additional groundwater pumping within the six regions identified above is significant. As further indicated above, during 2021, water transfers from the Sacramento Valley were at or near the highest quantities made available historically. The quantity of surface water made available by groundwater substitution from the Sacramento Valley in that year was over 110,000 AF. This occurred at a time when surface water supplies for the Sacramento River Settlement Contractors were limited to 75% of the contract quantities, water supplies for entities with Feather River Diversion Agreements were limited to 50% of the agreement quantities, and water supplies to refuges were reduced. In addition, the water supply available under the Tehama-Colusa Canal Authority water service contract with Reclamation was limited to approximately 3.5%; and other water supplies within the Sacramento Valley were reduced due to water supplies under contracts, and/or reduced by the State Water Board through water right curtailments. Similar reduced surface water supplies existed during 2015.	replacement groundwater pumping, it was assumed that groundwater would not be available to replace reductions in surface water availability beyond current use under the baseline condition. Similarly, this is not an assumption about groundwater demand management in any particular basin, for example under SGMA, but a good faith attempt to model the potential lower limit of groundwater pumping. In this way, the analysis captures the breadth of likely responses, which would be somewhere in between—meaning that water users likely would increase groundwater pumping to replace some amount of the reduced surface water supplies, but not at volumes sufficient to replace all of the reduced surface water supplies. Modeling lower groundwater replacement pumping by farmers and ranchers in response to decreased surface water supplies will result in lower impact conclusions for groundwater resources but will increase the severity of impact conclusions for agricultural resources (e.g., levels of potential permanent conversion of Important Farmland). Conversely, modeling higher groundwater replacement pumping by farmers and ranchers increases the severity of impact conclusions for groundwater resources but assumes that more water is available for agriculture, which reduces the severity of impact conclusions for agricultural resources. Importantly, the analysis cannot assume both “worst-case” scenarios simultaneously: there cannot be both maximum potential impacts on groundwater resources from replacement pumping and maximum potential impacts on agricultural resources. The Staff Report notes that impacts on agriculture and agricultural economic effects in any particular year may be greater or less than the SWAP model results suggest. Similarly, impacts on groundwater in any particular year may be greater or less than average conditions. The Staff Report uses a reasonable and conservative approach to evaluating the potential effects of the flow scenarios on groundwater levels and groundwater quality. As discussed in Section 6.6.1.2, Water Transfers, it is difficult to predict with certainty how reduced Sacramento/Delta surface water supplies will affect water transfers. With new instream

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			flow and cold water habitat requirements, overall supplies of water from the Sacramento/Delta will be reduced. This may result in less water available for transfer. At the same time, it could incentivize transfers as the value of transfer water increases, leading to transfers from lower value temporary crops to higher value municipal uses and permanent crops. Please see Common Response 8.1, Economic Analysis and Other Considerations, for a discussion on the feasibility of water transfers as an alternate supply source under the flow scenarios.
267	8	In addition to water transfers involving groundwater substitution and crop idling/shifting, water transfers involving reservoir release, such as from South Sutter Water District (District), will be significantly limited or precluded from occurring under the PPA due to the associated water supply impacts. This is based on a review of the water supply impacts to the District as a result of the PPA.	As stated in Chapter 6, Changes in Hydrology and Water Supply, of the 2023 draft Staff Report, “It is difficult to predict with certainty how reduced Sacramento/Delta water supplies will affect water transfers” (2023 draft Staff Report Chapter 6, p. 6-89). However, it is likely that water transfers will continue due to its importance in California’s water resources management. For discussion of water transfers from an economic perspective, please see Common Response 8.1, Economic Analysis and Other Considerations.
267	9	The PPA identified in the DSR will reduce surface water supplies for deliveries during the irrigation season, which would otherwise be used to minimize groundwater pumping by agricultural users, and will also result in reduced incidental groundwater recharge through unlined canals, unlined ditches, and fields that would otherwise occur with surface water deliveries. The PPA will cause groundwater levels within the subbasins to decline and will result in adverse impacts and other undesirable results under SGMA, such as land subsidence [footnote 11: Table 1-1 of the DSR identifies potentially significant impacts to Geology and Soils as follows: “Lower groundwater levels could exacerbate existing problems associated with ground subsidence”.]. For example, in the recent 2020 through 2022 drought, groundwater levels declined at many areas of the Sacramento Valley which resulted in some land subsidence [Footnote 12: See groundwater level data and subsidence data contained in DWR’s SGMA Data Viewer: https://sgma.water.ca.gov/webgis/?appid=SGMADataViewer#landsub .], predominantly west of the Sacramento River. Additional groundwater pumping under the PPA could exacerbate land subsidence, which would further limit groundwater substitution water transfers. The approval process by DWR and Reclamation	An impact assessment of whether groundwater pumping (including groundwater substitution pumping) may become more limited in certain locations is beyond the scope of the plan update since such an assessment would be highly reliant on speculative assumptions. However, the Staff Report acknowledges that the water user response to changes in water supply resulting from updates to the Sacramento/Bay Delta plan, may cause potentially significant impacts such as impacts to agriculture (Impact AG-a and Impact AG-e), groundwater (Impact GW-b and Impact GW-a,f) and Geology and Soils (Impact Geo-c). Please see Common Response 7.12.2, Groundwater and Sustainable Groundwater Management Act, for more information on the overlap with updates to Sacramento/Delta Bay Delta Plan and SGMA. SGMA requires Groundwater Sustainability Agencies (GSAs) to manage groundwater locally and sustainably and the Groundwater Sustainability Plan (GSP) for a subbasin should consider any adopted and applicable regulatory requirements on water resource-related plan(s) within the basin as well as assess how the GSP may affect the plan (Wat. Code section 10727.2(g)). GSAs are required to periodically evaluate their GSPs and make

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		does not allow for groundwater substitution transfers to continue when groundwater levels reach or exceed the historical low for each production well and associated suitable monitoring well as a means to avoid causing or exacerbating land subsidence (as well as other potential adverse impacts). The DSR should analyze and quantify the estimated groundwater substitution pumping that may be possible under the combination of PPA and SGMA requirements [Footnote 13: Page 6-90 of the DSR recognizes that under the PPA, “groundwater substitution and pumping transfers could be less feasible due to SGMA.” The DSR should be more specific in the analysis to quantify potential transfers.].	any necessary modifications to account for changed conditions in the basin to reach the plan’s objectives and sustainability goals (Wat. Code section 10728.2). A GSP must include a water budget and sustainable management objectives that are consistent with changes to hydrology and surface water supplies due to Bay-Delta Plan updates. Please also see Common Response 6.3, Water Supply and Other Water Management Actions, for a discussion on water supply impacts and water transfers; and Common Response 7.4, Agricultural Resources, for discussion on the impact analysis for agriculture.
267	10	Page 7.10-14 of the DSR identifies that “water supplied from groundwater requires approximately 400 to 1,200 kilowatt hours of energy per acre-foot (AF)”. Thus, the electrical energy needs for 334,000 AF of additional groundwater pumping in the six regions would range from approximately 133 gigawatt hours (GWh) to approximately 400 GWh. Presumably, the majority of that pumping would occur during the irrigation season and partially during peak demand periods for electrical use. Note that not all of the groundwater pumping would be supplied by electrical power. Section A5.3.3.1 on page A5-49 of the DSR identifies that energy needed for groundwater pumping and water transfers “were not included in the power flow assessment because of the difficulty in predicting the actions people would take in response to reductions in water supply.” The DSR should evaluate the effects resulting from energy consumption, despite the difficulty.	See Common Response 7.8, Energy and Hydropower, for a discussion of possible energy expenditure to replace surface water supplies, including increased groundwater pumping.
267	11	Groundwater substitution transfers involve obtaining approvals from agencies in order to ensure there are no significant adverse impacts to other legal users of water or the environment [Footnote 14: For example, see Mitigation Measure GW-1 in Section 3.3.4 on page 3.3-25 of the Long-Term Water Transfers Environmental Impact Statement/Environmental Impact Report prepared by Reclamation and the San Luis & Delta-Mendota Water Authority, dated September 2019.]. The approval process considers current groundwater conditions, anticipated groundwater conditions during the transfer period, and other factors. With the estimated additional groundwater pumping that is identified in the DSR under the PPA and the associated	The impact conclusions made in the draft Staff Report do not rely on increased groundwater pumping or the implementation of other water management actions, including water transfers. The Staff Report recognizes that the availability of replacement supplies may be limited. Water users can and should diversify their water supply portfolios to the extent possible, in an environmentally responsible manner and in accordance with the law. Please see Common Response 6.3, Water Supply and Other Water Management Actions, for discussion on water supply impacts and the use of other water management actions by water users who may experience reductions in Sacramento/Delta supplies under the proposed Plan

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		impacts to groundwater levels, together with the requirement to avoid undesirable results under SGMA, I expect approvals for groundwater substitution transfers to be difficult, if not impossible, to obtain for the vast majority of those that have occurred historically within the Sacramento Valley. This is due to the requirements under the applicable approval processes identified in this letter, as well as concerns that have been raised by agencies and through comments to the State Water Board relative to prior groundwater substitution transfers and associated potential impacts to third party water users and the environment. In addition, some entities within the Sacramento Valley have supported retaining sufficient groundwater volumes of an adequate quality to be available for overlying landowners prior to conducting groundwater substitution transfers. For that reason, and as an example, in 2022 the Sacramento River Settlement Contractors elected to not pursue groundwater substitution water transfers in that year when surface water supplies were reduced by approximately 82%. It is likely that water supply reductions due to the PPA would similarly preclude or limit groundwater substitution transfers. Based on the foregoing, it is my opinion that groundwater substitution transfer approvals will be more difficult, if not impossible to obtain, under the PPA due to the adverse impacts to groundwater conditions resulting from significant quantities of groundwater pumping estimated in the DSR to address water supply deficits. In my opinion, groundwater substitution transfers would either not occur under the PPA, or would occur with significantly reduced volumes at a significantly lesser frequency as compared to historical groundwater substitution transfers.	amendments. Please see Common Response 7.12.2, Groundwater and Sustainable Groundwater Management Act, for a discussion of the groundwater impact analysis including groundwater substitution transfers. Also see Common Response 8.1, Economic Analysis and Other Considerations, for a discussion of analysis related to pricing and viability of water transfers.
267	12	Page 8-94 of the DSR identifies "this analysis assumes that some water users could choose to increase groundwater pumping to offset reduced Sacramento/Delta supplies; however, the analysis does not consider that groundwater may be unavailable or locally restricted in some locations." Whether groundwater pumping may be limited is an important consideration relative to potential availability to conduct groundwater substitution pumping for transfer under the PPA. The DSR should include a detailed analysis of limitations to pump groundwater.	CEQA does not require the State Water Board to provide an individualized environmental impact analyses for its plan updates partly due to the size and complexity of the Sacramento/Delta water supply system and myriad of uses. The distribution of groundwater impacts across the study area would vary depending on several factors, such as local groundwater basin characteristics, local land use and irrigation practices, proximity to rivers and streams where stream-aquifer interactions would be affected, reservoirs and conveyance

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			infrastructure, and locations of groundwater wells. Nevertheless, the Staff Report acknowledges that changes to groundwater management may be necessary to meet requirements for the Sustainable Groundwater Management Act (SGMA) and the Sacramento/Delta Bay Delta plan update. The impact conclusions made in the draft Staff Report do not rely on increased groundwater pumping to reduce water supply impacts from reduced Sacramento/Delta supply. The Staff Report recognizes that the availability of groundwater replacement supplies may be limited. Water users can and should diversify their water supply portfolios to the extent possible, in an environmentally responsible manner and in accordance with the law. Please see Common Response 7.12.2, Groundwater and Sustainable Groundwater Management Act, for a discussion of the groundwater impact analysis including groundwater substitution transfers.
267	13	Crop Idling/Shifting Water Transfers In addition to adverse impacts to groundwater conditions identified above, reduced surface water supplies as a result of the PPA may result in uncompensated land fallowing that creates adverse environmental impacts (e.g., increased dust emissions from dry fields; reduced habitat for terrestrial species such as the Giant Garter Snake and the Tri-Colored Blackbird), and adverse economic impacts to entities and their customers, individual growers, the Sacramento Valley region, and the State (reduced agricultural economy and associated effects to businesses and people servicing the agricultural economy). There will also be resulting economic impacts to individual entities, such as reduced water sales from water districts/companies to customers. As a result of these impacts, the State Water Board's PPA will create adverse economic impacts in areas associated with the reduced surface water deliveries, intensifying impacts to large land areas within the Sacramento Valley, including many that are currently identified as Disadvantaged Communities and Severely Disadvantaged Communities.	Environmental impacts associated with land fallowing are appropriately evaluated and disclosed in Chapter 7, Environmental Analysis. For example, Section 7.5, Air Quality, acknowledges that reduced Sacramento/Delta supply to agriculture could result in agricultural land fallowing, which could result in increased fugitive dust if crop or vegetation stubble cover does not remain or vegetative regrowth does not occur. Section 7.10, Greenhouse Gas Emissions, discusses that reduced Sacramento/Delta water supply for agriculture could result in fallowing of agricultural land and a subsequent reduction in emissions from conveying irrigation water to those lands. Section 7.9, Geology and Soils, acknowledges that changes in water supply could lead to changes in agricultural land use or the fallowing of agricultural land resulting in agricultural fields with unvegetated (bare) soils, and that lack of vegetation allows surface water or wind to increase soil erosion. Section 7.21, Habitat Restoration and Other Ecosystem Projects, evaluates the potential environmental impacts of physical habitat restoration and other complementary ecosystem projects that entities may undertake toward achieving the overall goal of improving conditions for fish and wildlife in the Sacramento/Delta. The Staff Report provides extensive analysis and sufficient

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			consideration of the economic effects that could occur as a result of the proposed Plan amendments. For example, Section 8.4, Agricultural Water Supply Economic Effects, of the Staff Report appropriately analyzes the potential economic effects on California's agricultural economy from changes in water supply under the proposed Plan amendments. In addition, as discussed in Section 8.4.3, Regional Economic Effects, a regional economic analysis was conducted to estimate how changes in water supply and resulting changes at the local agricultural economy would affect regional economic activity in the Sacramento/Delta watershed and the state as a whole. In addition, Section 8.4.4, Agricultural Economic Effects on Economically Disadvantaged Communities, discusses potential agricultural economic effects of the flow scenarios on DACs.
267	14	Relative to effects upon crop acreage from the PPA, the DSR includes results from the SWAP model. Comparing results from Table A3-29 and Table A3-32 of the DSR for the six regions identified above, the total reduction in crop acreage is estimated to be over 139,000 acres during a dry year without groundwater replacement pumping under a 55% UIF scenario. Similar to other findings in the DSR, the reduction in crop acreage is expressed as an average; and thus, the impacts will be greater in some years, resulting in adverse impacts due to the PPA. As indicated in Figure 8 of the MBK Engineers report included in comments from NCWA titled Technical Review of the Draft Staff Report/Substitute Environmental Document in Support of Potential Updates to the Water Quality Control Plan and Associated Modeling (Technical Report), dated January 2024, under a 55% UIF scenario, rice acreage alone "will be reduced by 150,000 to 200,000 acres or more in multiple periods of consecutive years and may reach more than 250,000 acres, similar to the reductions that occurred in 2022 on the westside of the Sacramento River." Reductions in other crop acreages would also occur under the PPA. In addition, water supplies to refuges would be reduced under the PPA. (Technical Report, Figure 9) For reference, the acreage associated with crop idling/shifting water transfers by the Sacramento River Settlement Contractors during 2015 and 2021 was approximately 40,600 acres and 33,600 acres [footnote 17: The acreages are calculated based on the total quantities of surface	Given the inherent uncertainties involved in modeling agricultural impacts, the Staff Report uses a reasonable and conservative approach to evaluating potential agricultural impacts of the flow scenarios. The analysis of potential changes in crop acreage presented in Section 7.4, Agriculture and Forest Resources, includes estimates obtained from the SWAP model. SWAP is currently the best available tool for modeling agricultural economic responses to water supply shortage in the Central Valley. It has been peer-reviewed and applied to numerous policy analyses and impact assessments over the past two decades. In addition, the Staff Report notes that impacts on agriculture and agricultural economic effects in any particular year may be greater or less than the SWAP model results for the "Dry Year" condition. Please see Common Response 7.4, Agricultural Resources, and Common Response 8.1, Economic Analysis and Other Considerations, for additional information on the SWAP model, agricultural impacts, and agricultural economic effects. Table 7.4-18 in the 2023 draft Staff Report shows the SWAP estimated changes in irrigated crop acreage in the Sacramento/Delta for a dry year if groundwater is not used to offset surface water supply reductions. As shown in Table 7.4-18, approximately 144,000 acres total within the Sacramento/Delta watershed are estimated by the SWAP model to be fallowed under the 55 scenario. Of this amount, approximately 74,400

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		water transferred by crop idling/shifting divided by the applicable duty for rice (assumes all rice fallowing). Portions of the quantities of surface water transferred in these years may have also included other crops that were idled or shifted; however, the majority of the lands idled/shifted involved decreased rice acreage.], respectively. The DSR also shows results for a dry year with maximum replacement groundwater pumping of over 334,000 AF [Footnote 18: Section 5.6.2.4 of the DSR identifies that “voluntary implementation plans would be required to include measures to coordinate implementation of the Bay-Delta Plan with groundwater management activities, including with implementation of SGMA to ensure that implementation activities do not contribute to groundwater overdraft, dewatering of groundwater-dependent ecosystems, and surface/groundwater interaction.” Thus, the estimated quantity of additional groundwater pumping to offset reduced surface water supplies under the PPA may be limited, resulting in uncompensated land following of well over an average of 52,000 acres under a 55% UIF scenario.] which results in reduced crop acreage of over 52,000 acres under a 55% UIF scenario. The DSR identifies that dry years are estimated as the average of Dry and Critical water year types. (DSR, A3-8.) Thus, the reduced crop acreage will be greater in some years. Further, maximum replacement groundwater pumping may have adverse impacts, as noted above, or some areas may not have useable groundwater; and thus, additional fallowing may be unavoidable in order to maintain sustainability of the groundwater subbasins pursuant to SGMA. Crop idling/shifting water transfers involve obtaining approvals from agencies in order to ensure that there are no significant adverse impacts to other legal users of water or the environment [Footnote 19: For example, see Mitigation Measure VEG and WILD-1 in Section 3.8.4 on page 3.8-38 of the Long-Term Water Transfers Environmental Impact Statement/Environmental Impact Report prepared by Reclamation and the San Luis & Delta-Mendota Water Authority, dated September 2019.]. The approval process considers recent historical irrigated acreage, anticipated surface water availability during the transfer period,	acres consists of fallowed rice acres. The MBK Engineers Report referenced by the commenter estimates a much larger reduction in rice crop acreage of 139,000 acres under the 55 scenario that is not reasonable for several reasons. First, the MBK Engineers Report appears to assume that all Sacramento/Delta surface water supply reductions to agriculture in the Sacramento/Delta watershed would affect only rice growers, and that these changes would not affect any other crop types. It is not reasonable to assume that all changes in Sacramento/Delta water supply to agriculture would affect only rice crop growers. Nearly all of California’s rice acreage is located within a few counties in the Sacramento River watershed, and the actual Sacramento/Delta surface water supply reductions as estimated by SacWAM and presented by demand node in Appendix A1, Sacramento Water Allocation Model Methods and Results, would be expected to be distributed among a much larger geographic area and group of water users than the MBK Engineers Report analysis appears to assume. Actual crop acreage changes would depend on a number of different economic and other factors, including the priority of individual water right diversions, availability of local supplies, and other factors. In addition, the MBK Engineers Report analysis appears to assume that any reduction in agricultural water supply would result in fallowed lands. It is not reasonable to assume that all growers would respond to reduced Sacramento/Delta supplies by fallowing land. In actuality, in response to reductions in Sacramento/Delta supply, individual water users may choose to increase groundwater pumping, where available and not locally restricted, substitute with lower-water-use crops, engage in deficit irrigation, or fallow land. Finally, the MBK Engineers Report analysis appears to have estimated all rice crop acreage reductions by comparing rice crop acreage under the flow scenarios for each individual year to the baseline maximum amount of rice crop acreage under full water supply conditions across all years, which does not consider that Sacramento/Delta surface water supplies to agriculture are less for drier years than wetter years under existing conditions, and therefore, baseline rice crop acreage is less during drier years than wetter years under existing years. As a result, the rice crop acreage reductions estimated in the MBK

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		and other factors. With the estimated fallowing that is identified in the DSR under the PPA and the associated adverse impacts to wildlife, together with the requirements to avoid additional adverse impacts to the environment as a result of a water transfer, I expect approvals for crop idling/shifting transfers under the PPA to be difficult, if not impossible, to obtain for the vast majority of those that have occurred historically within the Sacramento Valley. This is due to the requirements under the applicable approval processes identified in this letter, as well as concerns that have been raised by agencies and through comments to the State Water Board relative to crop idling/shifting water transfers and associated potential impacts to the environment. In addition, some entities within the Sacramento Valley have supported maintaining crop production to retain California's share of the world market for crops such as rice, as well as to minimize adverse effects to the regional economy and ancillary supporting businesses, prior to conducting crop idling/shifting water transfers. For that reason, and as an example, in 2022 the Sacramento River Settlement Contractors elected to not pursue crop idling/shifting water transfers in that year when surface water supplies were reduced by approximately 82%. Similarly, entities with Feather River Diversions Agreements did not participate in crop idling/shifting water transfers in 2015, 2021, and 2022 when surface water supplies were reduced. It is likely that reductions below those contract/agreement quantities due to the PPA would similarly preclude or limit crop idling/shifting transfers. Based on the foregoing, it is my opinion that crop idling/shifting transfer approvals will be more difficult, if not impossible to obtain, under the PPA due to the adverse impacts to wildlife and the economy resulting from extensive land fallowing to address water supply deficits. In my opinion, crop idling/shifting transfers would either not occur under the PPA, or would occur with significantly reduced volumes at a significantly lesser frequency as compared to historical crop idling/shifting transfers.	Engineers Report are artificially high for drier years. In addition, to respond to comments received on the SWAP analysis presented in the Staff Report, supplemental SWAP model runs were conducted for the driest water year (1977) intended to represent the last year of a multi-year drought. The supplemental SWAP model results for the driest water year (1977) intended to represent the last year of a multi-year drought are presented in Common Response 7.4, Agricultural Resources, for changes in crop acreage, and in Common Response 8.1, Economic Analysis and Other Considerations, for the corresponding changes in crop revenue. These supplemental results show that although Sacramento/Delta surface water supplies would be reduced under the flow scenarios, water users already experience extremely limited agricultural water supplies during drought conditions that are not attributed to the flow scenarios. Overall, these supplemental SWAP results provide additional information requested by commenters, but are consistent with the analyses already presented. The 2023 draft Staff Report already identifies potentially significant impacts on agricultural production and identifies adverse agricultural economic effects, and these additional analyses do not change the conclusions of the environmental and economic analyses presented in the Staff Report. To contrast, the Staff Report's analysis of impacts on agriculture is informed by the SWAP model, which estimates the cropping pattern that maximizes the net returns to agricultural production subject to resource constraints, technical production relationships, and market conditions. SWAP incorporates information on the availability of water supplies within a SWAP modeled region, such as SWP and CVP deliveries, local surface water supplies, and groundwater in its analysis. As conditions change within a SWAP modeled region (e.g., the quantity of available SWP and CVP water supply decreases or the cost of groundwater pumping increases), the model optimizes production by adjusting the crop mix, water sources and quantities used, and other inputs. SWAP estimates that land will be fallowed when that is the most cost-effective response to changes in resource conditions.

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			The Staff Report acknowledges that changes in Sacramento/Delta surface water supply will result in potentially significant impacts on agriculture. Changes in crop acreage in the Sacramento/Delta and San Joaquin Valley are estimated using the SWAP model, for average and dry hydrologic conditions. Because of the uncertainties about groundwater availability and water users' response to Sacramento/Delta supply regarding groundwater pumping, two bookends or bounds were evaluated using SWAP: maximum replacement groundwater pumping and no replacement groundwater pumping. Actual conditions would likely fall between these extremes, with water users increasing groundwater pumping to offset some surface water reductions, but not enough to fully replace lost supplies. Please see Common Response 7.12.2, Groundwater and Sustainable Groundwater Management Act, for further discussion of consideration of SGMA in the analysis. As discussed in Section 6.6.1.2, Water Transfers, it is difficult to predict with certainty how reduced Sacramento/Delta surface water supplies will affect water transfers. With new instream flow and cold water habitat requirements, overall supplies of water from the Sacramento/Delta will be reduced. This may result in less water available for transfer. At the same time, it could incentivize transfers as the value of transfer water increases, leading to transfers from lower value temporary crops to higher value municipal uses and permanent crops. Please see Common Response 8.1, Economic Analysis and Other Considerations, for a discussion on the feasibility of water transfers as an alternate supply source under the flow scenarios.
267	15	The potential limited ability to transfer water is recognized in the DSR: "While water transfers from north to south potentially would be more limited as a result of the proposed Plan amendments, transfers between water users within a region could be an effective strategy for meeting local demands or responding to shortages associated with longer droughts or disruptions in deliveries." (DSR, 6-89) However, the analysis of the frequency and quantities of transfer water to assist in meeting water supply needs is unclear and should be analyzed in	Please see the response to comment 267-4.

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		the DSR together with limitations on the transfer quantities due to SGMA requirements and other factors identified in this letter.	
267	16	Water Transfer Market Prices As indicated in Section 8.3.3 of the DSR, the “market price for transferred water can vary widely and is affected by available seller supply and buyer need, supply reliability, transaction volume, duration of lease, location of both seller and buyer, and available transport infrastructure.” The DSR also acknowledges that “[f]orecasting future water prices is complex, requiring knowledge and information regarding supply alternatives, future demand and market conditions, and behavior of willing sellers and buyers in response to market prices.” (DSR, 8-34.) The DSR concludes that the “analyses in this chapter assume that there could be greater demand pressure in the water transfer market such that future prices may be higher than recent historical trends. For the purposes of the municipal water supply economic effects analysis presented in Section 8.5, future transfer prices are assumed to be \$500 per AF for transfers to the Bay Area, \$500 per AF for transfers to the Central Coast, \$500 per AF for transactions to and within the San Joaquin Valley region, and \$750 per AF for transfers to the Southern California region.” (DSR, 8-34 and 8-35; DSR, Table D-9). As background, water transfer market prices for temporary water transfers originating from the Sacramento Valley, such as those involving the Sacramento River Settlement Contractors, were generally less than \$125 per AF prior to 2009. Those transfers provided needed water supplies for beneficial uses primarily within municipal and agricultural areas downstream of the Bay-Delta; this section the letter addresses transfers under those key circumstances. Although transfers did not always occur for those purposes in the same year, during years when transfers to municipal entities coincided with transfers to agricultural entities, the market price for temporary transfers was approximately \$10 per AF more for municipal entities. Since 2009, the market prices for water transfers from the Sacramento Valley, as well as the frequency of water transfers, have increased. The reason for the increases is primarily due to a	Please see response to comment 267-3 for information about the feasibility and costs of water transfers resulting from the proposed Plan amendments. The analysis in Chapter 8, Economic Analysis and Other Considerations, assumes that there could be greater demand pressure in the water transfer market such that future prices may be higher than recent historical trends. For the purposes of the municipal water supply economic effects analysis presented in Section 8.5, Municipal Water Supply Economic Effects, future transfer prices are assumed to be \$500 per AF for transfers to the Bay Area, \$500 per AF for transfers to the Central Coast, \$500 per AF for transactions to and within the San Joaquin Valley region, and \$750 per AF for transfers to the Southern California region. These assumed water transfer prices used in the Staff Report were higher than historical averages for all water year types, which is an appropriate and conservative assumption for the analysis. In addition, historical water transfer market prices and assumed future prices already include consideration of analyses and associated costs for completing transactions.

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		changed regulatory condition due to limitations under the biological opinions [footnote 21: See National Oceanic and Atmospheric Association Fisheries Service Biological Opinion and Conference Opinion on the Long-Term Operations of the Central Valley Project and State Water Project, June 4, 2009; and the U.S. Fish and Wildlife Service Formal Endangered Species Act Consultation on the Proposed Coordinated Operations of the Central Valley Project and State Water Project, December 15, 2008.] on the Coordinated Operations of the Central Valley Project and State Water Project. In 2009, DWR's Drought Water Bank purchased temporary transfer water at \$275 per AF. Due to improved hydrologic conditions, there were fewer water transfers during 2010 at a market price of \$225 per AF. Following the wetter years of 2011 and 2012, water transfers occurred in 2013 at a price of \$190 per AF. In the continued drought period thereafter, temporary transfer market prices increased to \$500 per AF in 2014 and up \$700 per AF in 2015. These two transfer years coincided with reduced water supplies under contracts/agreements with the Central Valley Project (CVP)/State Water Project (SWP), including operational changes for temperature management in Shasta Reservoir in coordination with the fishery agencies, as well as additional regulatory restrictions imposed by the State Water Board through water right curtailment and notices of unavailability in the Bay-Delta watershed. Following the wetter years of 2016 and 2017, water transfers occurred in 2018, although there was less demand for temporary water transfers in that year. The market price for temporary transfers in 2018 was largely \$400 per AF; and one entity in the Sacramento Valley negotiated a price of \$569 per AF. Following the wetter year of 2019, the temporary water transfer market price was \$350 per AF in 2020. The market price for temporary transfers increased to \$575 per AF in 2021 due to the continued drought; and by 2022, the market price was \$833 per AF. Transfers during 2021 and 2022 coincided with reduced water supplies under contracts/agreements with the CVP/SWP, including operational changes for temperature management in Shasta Reservoir due to regulatory requirements imposed by the State Water Board, as well as additional regulatory restrictions imposed by the State Water Board through water right	

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		curtailment and notices of unavailability in the Bay-Delta watershed. As a result of those conditions, and as indicated above, Sacramento River Settlement Contractors elected to not pursue transfers to entities located downstream of the Bay-Delta during 2022 in order to assist in maintaining groundwater supplies for entities within the basin and to support crop production to minimize adverse effects to the economy and retain market share for crops. Similarly, entities with Feather River Diversions Agreements did not participate in crop idling/shifting water transfers in 2022 due to reduced surface water supplies. The expense of transfer water to transferees is significantly greater than the purchase price alone. This is due to factors such as, but not limited to, administrative expenses incurred by transferors and reimbursed by transferees, administrative expenses incurred directly by transferors, preparation of required environmental documentation, loss of transfer water due to Bay-Delta carriage water losses, conveyance losses through canals (e.g., Delta-Mendota Canal and California Aqueduct), and any applicable pumping, conveyance, and water treatment expenses incurred by a transferee. For example, in 2022 when the purchase price for a temporary water transfer was \$833 per AF, the Bay-Delta carriage water loss was 25% and the conveyance water loss through the California Aqueduct was approximately an additional 2.6%. After subtracting these losses, the expense of the transfer water at the turnout to agricultural entities in the western San Joaquin Valley was approximately \$1,140 per AF ($\\$833 / \{1 - 0.25\} / \{1 - 0.026\} = \\$1,140$), prior to including other expenses above such as administrative and pumping expenses. Similarly, the expense for transfer water at the turnout during 2015 approached \$1,100 per AF due to higher losses assessed by DWR and Reclamation in that year. Relative to transferors, historical water transfers have provided funding for projects such as infrastructure improvements, water use efficiency enhancements, efforts related to regulatory compliance, and other items. The DSR does not evaluate the reduction in water transfer opportunities, resulting from the PPA, and the associated adverse economic impact to transferors. Overall, these types of considerations should be evaluated in the economic impacts section of the DSR, including to assess the	

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		estimated market price for transfer water. As indicated above, reduced water supplies and additional regulatory requirements have resulted in increased market prices for temporary water transfers from the Sacramento Valley. Under the State Water Board's PPA, the resulting adverse effects of reduced crop acreage and increased groundwater pumping will result in less water available for transfer. As indicated above, transfers have been successful when a transferor has a reliable surface water supply during periods when a transferee does not have a reliable water supply. The PPA will likely reduce the supply relied on by a transferor and thus, reduce the likelihood and opportunity for transfers. At the same time, the reduced supplies from the Bay-Delta watershed to entities located downstream of the Bay-Delta will increase demand for transfer water. Thus, as a result of the reduced surface water supplies and increased demand for water due to the PPA, it is reasonable to conclude that the inclining trend in the market price for transfer water will continue and likely increase. The DSR should be updated to include additional supporting analyses for temporary water transfer potential (volumes, frequency, timing, etc.) and prices that may occur under implementation of the PPA, including the net economic impacts to transferees after considering losses, such as carriage water losses through the Bay-Delta and other conveyance losses. Where applicable, those economic impacts should include costs associated with monitoring, fees, pumping, treatment, and related expenses.	
267	17	The potential limited ability to transfer water is recognized in the DSR: "While water transfers from north to south potentially would be more limited as a result of the proposed Plan amendments, transfers between water users within a region could be an effective strategy for meeting local demands or responding to shortages associated with longer droughts or disruptions in deliveries." (DSR, 6-89) However, the analysis of the frequency and quantities of transfer water to assist in meeting water supply needs is unclear and should be analyzed in the DSR together with limitations on the transfer quantities due to regulatory requirements and other factors identified in this letter.	Please see the response to comment 267-4.

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267	18	Page 8-34 of the DSR identifies that “in 2014, prices rose to an average of \$779/AF. In the Southern California region, average prices generally ranged between \$200/AF and \$300/AF, with fluctuations in years with single-year transfers.” In addition, the DSR also identified that “during the severe drought in 2014–2015, agricultural buyers paid a premium above municipal buyers to prevent the loss of established tree crops.” (DSR, 8-34) It is unclear as to the circumstances or basis for those cited transfer prices; and those are inconsistent with transactions that occurred in those years from Sacramento River Settlement Contractors and others in the Sacramento Valley, to our knowledge.	Please see response to comment 267-3 for information about the feasibility and costs of water transfers under the flow scenarios.
268	1	In the Draft Staff Report, the State Water Board describes proposed amendments to the Bay-Delta Plan that include a 55% numeric unimpaired flow objective [Footnote 2: The proposed Plan amendments include five "objectives and implementation measures" that are described in detail on pages 7.1-1 and 7.2-1 - 7.2-2.] (the "proposed Plan amendments"). The Water Authority and Member Agencies have significant concerns about the efficacy of those measures for the protection of native fish and wildlife, and the potentially devastating impact of those measures on California's water supply and associated socioeconomic health.	Please see Common Response 1.1, General Comments, for responses to comments that make general comments, do not raise specific environmental impacts of the project, or do not raise specific economic effects of the project. The 2023 draft Staff Report identified and disclosed potentially significant impacts on native fish and wildlife under the proposed Plan Amendments in Sections 7.6.1, Terrestrial Biological Resources (Section 7.6.1.4, Impact Analysis), and 7.6.2, Aquatic Biological Resources (Section 7.6.2.4, Impact Analysis). For further information on reasonable protection of fish and wildlife, please see Common Response 1.2, Water Quality Control Planning Process. For information on the benefits of the proposed Plan amendments, please see Staff Report Chapter 3, Scientific Knowledge to Inform Fish and Wildlife Flow Recommendations, and Common Response 3.1, Fish Protection. In addition, the project is revised as described in Common Response 1.3, Revised Proposed Plan Amendments. In addition to the proposed Plan amendments, which remain part of the project as the regulatory pathway, the revised proposed Plan amendments include water supply adjustments and relaxations to carryover storage requirements for existing water right holders at the outset of Plan implementation to reduce water supply impacts and allow more water to be stored in reservoirs. Please see the response to comment 268-2 regarding economic effects of the proposed Plan amendments. Associated economic effects related to changes in water supply under the proposed Plan amendments was analyzed in Section 8.5, Municipal Water

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			Supply Economic Effects. For further information on this topic, refer to Common Response 8.1, Economic Analysis and Other Considerations.
268	2	The financial and public health impacts of the proposed Plan amendments cannot be overstated - if adopted, they would have significant impacts to local government revenues and would increase the need for public support for those impacted by the reductions in water supply, particularly in already economically underdeveloped regions of California like the San Joaquin Valley, further straining an already volatile state budget structure.	The commenter appears to be making a general statement without providing specificity. However, the Staff Report provides extensive analysis and sufficient consideration of the economic effects that could occur as a result of the proposed Plan amendments. For example, Section 8.4, Agricultural Water Supply Economic Effects, of 2023 draft Staff Report and final Staff Report appropriately analyzes the potential economic effects on California's agricultural economy from changes in water supply under the proposed Plan amendments. In addition, as discussed in Section 8.4.3, Regional Economic Effects, a regional economic analysis was conducted to estimate how changes in water supply and resulting changes at the local agricultural economy would affect regional economic activity in the Sacramento/Delta watershed and the state as a whole. In addition, Section 8.4.4, Agricultural Economic Effects on Economically Disadvantaged Communities, discusses potential agricultural economic effects of the flow scenarios on DACs. Staff Report Chapter 10, Economically Disadvantaged Communities, discusses various financial and technical assistance programs available to assist public water systems serving DACs. These programs are designed to ensure access to safe, clean, and affordable water supplies and maintain compliance with all applicable water laws and regulations. The State Water Board is at the forefront of assisting DACs with obtaining clean, safe, and reliable water supplies. In doing so, the State Water Board is making its commitment to the human right to water through financial assistance, technical assistance, consolidations, SGMA oversight, and other means.
268	3	The Draft Staff Report also describes alternatives to the proposed Plan amendments, including the mandatory measures embodied in "Voluntary Agreements." For the reasons discussed herein, the Voluntary Agreements approach ("VA alternative") is the superior choice for California, and these commenting agencies urge the State Water Board to adopt it. The proposed Plan amendments, in contrast, would cause severe disruption of California's water supplies with more limited prospects for	Please see Common Response 1.1, General Comments, for responses to comments that make general comments, do not raise specific environmental impacts of the project, or do not raise specific economic effects of the project. Also see Common Response 1.2, Water Quality Control Planning Process, for information on the consideration of beneficial uses, the Porter-Cologne Act, and Article X, Section 2 of the California Constitution. Additionally, see Common Response 7.1, General

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		efficiently achieving desired benefits for native fish and wildlife. In addition to failing to strike the appropriate balance among beneficial uses of water, adoption of the proposed Plan amendments in their current form would be contrary to requirements of the California Environmental Quality Act ("CEQA"), the Porter-Cologne Act, and Article X, section 2 of the California Constitution.	CEQA and Approach to the Analysis, for information on CEQA requirements.
268	4	The Voluntary Agreements Alternative Offers the Best Approach to Reasonable Protection of Beneficial Uses Chapter 9 of the Draft Staff Report describes what have been termed the "Voluntary Agreements" or "VAs." [Footnote 3: The VAs are also referred to as "Agreements to Support Healthy Rivers and Landscapes."] The VAs are a set of measures proposed by a group of state and federal agencies, local water agencies, private companies, and a non-profit mutual benefit corporation as an alternative to the proposed Plan amendments. As described in the Draft Staff Report these measures include "a combination of proposed flow and non-flow habitat restoration measures on a portion of the Sacramento/Delta tributaries over 8 years (with the intent to extend the term), including varying amounts of increased flows, depending on water year type, and non-flow habitat restoration actions targeted at improving spawning and rearing capacity for juvenile salmonids, estuarine species, and other native fish and wildlife." (Draft Staff Report at p. 9-1.) Additional details regarding the VAs are included in Chapter 9 and Appendix G, including the final draft Scientific Basis Report in support of the VAs that is being submitted for independent peer review. Additional draft components of the VAs are expected to be presented to the State Water Board in early 2024. The VAs offer a superior pathway for achieving protection of fish and wildlife that is consistent with the State Water Board's legal obligations when adopting water quality objectives and that will provide for reasonable protection of all beneficial uses, while maintaining consistency with other statewide policy objectives, including the human right to water, the coequal goals of the Delta Reform Act, and the Water Resilience Portfolio and Water Supply Strategy.	Please see Common Response 1.1, General Comments, regarding consistency with other laws, policies, and agreements; Common Response 1.2, Water Quality Control Planning Process, for a discussion on the reasonable protection of fish and wildlife and the consideration of other beneficial uses; and Common Response 1.3, Revised Proposed Plan Amendments, for information on the regulatory and VA pathways.

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268	5	First, unlike the proposed Plan amendments, the VA alternative would not include numeric unimpaired flow objectives. Rather, the VA alternative would include a new narrative objective to achieve the viability of native fish populations. It would include both flow and non-flow measures as implementation measures for the new narrative water quality objective and the existing Narrative Salmon Protection Objective in the Bay-Delta Plan. The agreements would provide the participating parties' share of flow and other contributions, during implementation of the VAs, to contribute to achieving the existing Narrative Salmon Protection Objective by 2050. Notwithstanding the term "voluntary," the measures included will be implementable and enforceable. (Draft Staff Report at p. 9-16 ("the Bay-Delta Plan program of implementation would be amended to require that either the proposed VA flow and non-flow habitat restoration actions are achieved in any region covered by a VA"); id., at p. 5-2 ("[t]he proposed VAs identify a regulatory implementation pathway that would exist in parallel with the VA implementation pathway").) This difference from the proposed Plan amendments - i.e., a narrative objective rather than a numeric unimpaired flow objective - has significant implications for the scope of analysis required in the Draft Staff Report. A narrative objective, unlike a numeric objective, does not represent a commitment of a specific volume of water to a specific use at the time an objective is adopted. A narrative objective leaves room for further analysis and adaptation during implementation, to make use of the science-based adaptive management included as part of the VAs. In contrast, adoption of a numeric unimpaired flow objective requires that much more analysis and information be ready at the time of adoption because it represents a commitment of a specific volume of water to one use at the expense of other beneficial uses. As is discussed below, the Draft Staff Report impermissibly seeks to defer analysis and information needed at the time of adoption of a numeric unimpaired flow objective.	The Staff Report fully and adequately describes and analyzes the proposed project and all alternatives. See Common Response 1.3, Revised Proposed Plan Amendments, for further information. Also see Common Response 1.2, Water Quality Control Planning Process, for information on narrative vs. numeric water quality objectives.
268	6	Second, the VA alternative offers a much quicker path to achieving benefits for fish and wildlife. For example, projects to restore habitat have been identified and are ready to implement. The VAs include early implementation of dozens of projects. The	Please see Common Response 1.1, General Comments, for responses to comments that make general comments, do not raise specific environmental impacts of the project, or do not raise specific economic effects of the project.

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		state agencies participating in the VAs have committed hundreds of millions of dollars to purchasing additional water for environmental purposes. The VAs offer flows with function, with attention to how more flow interacts with an improved landscape to support biological function.	
268	7	Third, the VA alternative includes measures the State Water Board could not mandate through exercise of its regulatory authority alone. The agencies participating in the VAs are bringing their authorities and financial resources to bear to improve both habitat and scientific monitoring and study. As an example, the water agencies are imposing fees on their users to fund VA measures. While the State Water Board has extensive authority over flow, all stakeholders acknowledge that fish are negatively affected by factors other than flow and that recovery will require measures more than flow. The VA alternative provides a direct means to address some of those other factors with non-flow measures. The proposed Plan amendments and other unimpaired flow alternatives, in contrast, do not include non-flow measures.	Please see Common Response 1.2, Water Quality Control Planning Process, for the State Water Board's authority to require non-flow measures. Please also see Chapter 5, Proposed Changes to the Bay-Delta Plan for the Sacramento/Delta, and Chapter 13, Revised Proposed Plan Amendments, of the Staff Report and Common Response 1.3, Revised Proposed Plan Amendments, for information on the non-flow measures included in the regulatory pathway.
268	8	Fourth, and especially important, the VA alternative offers more benefits with fewer adverse impacts. While the VA alternative will result in water supply impacts for water users, they are much less significant than the substantial impacts of the proposed Plan amendments. According to the Draft Staff Report, the proposed Plan amendments would reduce south of Delta water exports by an average of 912,000 acre-feet. (Draft Staff Report at p. 6-57.) Other regions will suffer substantial loss of water supply as well. For the reasons described below, the potential adverse impacts of the proposed Plan amendments are even more significant than the Draft Staff Report acknowledges. For these reasons, the Water Authority and Member Agencies urge the State Water Board to adopt the VA alternative rather than the proposed Plan amendments.	Please see Common Response 1.1, General Comments, for responses to comments that make general comments, do not raise specific environmental impacts of the project, or do not raise specific economic effects of the project.
268	9	The Proposed Unimpaired Flow Approach Would Effect a Dramatic Shift in California Water Policy, the Consequences of Which Have Not Been Adequately Addressed in the Draft Staff Report	Please see Common Response 1.2, Water Quality Control Planning Process, for a discussion of reasonable protection of beneficial uses and the State Water Board's consideration of

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		The most salient aspect of the State Water Board's proposed Plan amendments is a requirement that a percentage of "unimpaired flow" be left instream. Delta inflow from the Sacramento River, its tributaries, and Delta Eastside tributaries would be required to be "55 percent [of] unimpaired flow, with an adaptive range from 45 percent to 65 percent unimpaired flow." (Draft Staff Report at p. 1-2.) Unimpaired flow is "the flow that would occur without water diversions with existing channel configurations." (Ibid.) The essential premise for requiring that a percentage of unimpaired flow be left instream is that "[i]n general, naturally variable flow conditions provide the conditions needed to support the biological and ecosystem processes imperative to protect fish and wildlife beneficial uses. Conversely, altered flow regimes have been shown to be a major source of degradation to aquatic ecosystems worldwide (Petts 2009)." (Id. At p. 3-2.) The stated purpose of the Bay-Delta Plan Update is to establish water quality objectives that provide "for the reasonable protection of [native] fish and wildlife." (Draft Staff Report at p. 7.1-5.) Reasonable protection of fish and wildlife and the environment is a valid and necessary component of water quality planning. However, improving such protection cannot be the only goal of the Bay-Delta Plan Update. Any amendments to the Bay-Delta Plan must be consistent with reasonable protection for all beneficial uses, and must account for efficient use of the state's water resources in pursuit of reasonable protection.	different beneficial uses during the water quality control planning process.
268	10	This proposed approach of requiring that water be left instream to create a more variable flow regime represents a radical shift in California water policy. California's climate provides most of the available water supply in the winter and spring, but little or none in the summer or early fall. There is a mismatch in timing between the availability of supply and need. California's citizens, the Legislature, and state agencies including the State Water Board, long ago recognized this reality. Article X, section 2 of the California Constitution, among other laws, was adopted to support and enable storage of water to support California's development. Congress too has recognized this need in authorizing and funding federal water projects, including the	Please see Common Response 1.2, Water Quality Control Planning Process, for a discussion of the State Water Board's consideration of beneficial uses during the water quality control planning process. See also Common Response 6.3, Water Supply and Other Water Management Actions. The State Water Board has adequately analyzed impacts to water supply storage in the 2023 draft Staff Report. Section 6.3.2, Reservoir Storage and Elevation, of the 2023 draft Staff Report presents a summary of findings related to modeling results for reservoir storage based on different flow scenarios. Section 9.5.3, Changes in Hydrology of the 2023 draft Staff Report describes

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		Central Valley Project ("CVP"). Over the last 100 years, billions of dollars have been invested in building, maintaining and operating California's water supply storage infrastructure to alter the timing of flow of water so it can be put to use at the times and places needed. That infrastructure has enabled California's growth, and some 40 million people, diverse industries, and millions of acres of highly productive farmland and managed habitat now depend on the ability to alter the natural flow regime. The proposed Plan amendments would precipitously and materially diminish and impair the ability of California's water infrastructure to meet the needs of its citizens and environment, contradict the assumptions on which massive investments have been made, and harm the beneficial uses that have come to depend on California's water supply infrastructure, at tremendous cost to the State.	modeled changes in flows and reservoir storage levels under the proposed VAs. In addition to the proposed Plan amendments, which remain part of the project as the regulatory pathway, the project has also been revised in response to comments received expressing concerns over potential water supply and carryover storage impacts. The inflow requirements contained in the revised proposed Plan amendments were modified to include water supply adjustments for existing water right holders at the outset of plan implementation to reduce water supply impacts and allow more water to be stored in reservoirs. A summary of changes in reservoir storage resulting from the revised proposed Plan amendments is presented in final Staff Report Section 13.4.3.2, Reservoir Storage and Elevation. The revised proposed Plan amendments also include a VA pathway for an initial eight-year term that reduces the required flow contributions for VA water rights.
268	11	Another complication for the proposed Plan amendments, which aim to protect native fish and wildlife with a numeric unimpaired flow objective, is that many factors in addition to the flow regime have changed. One is the presence of major dams on many of California's rivers, dams that are essential to meeting California's water supply needs. The proposed percentage-of-unimpaired flow approach would also pose significant challenges for operation of California's reservoirs. The timing and volume of flows can be unpredictable. How reservoir operators will be able to adapt operations to new numeric criteria based on unimpaired flow is uncertain and untested [Footnote 4: The Draft Staff Report states that there is currently not any method to "determine required streamflows under the proposed Plan amendments." (Draft Staff Report at p. 5-56.) Historically, estimates of unimpaired flow have been very difficult to quantify and were only intended to provide a rough comparison to historical observed flows. Computing unimpaired flows in real time (e.g., on a daily basis) is unproven for the purpose of regulatory compliance. Difficulties in quantifying unimpaired flows include: limited number of gaging locations, uncertainty regarding snowmelt runoff dynamics, uncertainty	Please see Common Response 7.6.2, Aquatic Biological Resources and Cold Water Habitat, for a discussion on implementation of the cold water habitat objective and how the revised proposed Plan amendments could be implemented. Please also see Common Response 1.3, Revised Proposed Plan Amendments, for information on the regulatory pathway and the implementation methodology.

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		about total number of small and medium diversions and return flows in the system, and uncertainty about stream-groundwater interaction. (Ibid.) The Draft Staff Report does not suggest that it will be feasible to resolve these uncertainties in the timeframe required for implementation.]. How operators will maintain cold water in storage to provide suitable habitat conditions below dams is uncertain as well. This uncertainty would further undermine the ability of California's water supply infrastructure to meet California's needs. The Draft Staff Report offers no answers to these important questions, and instead proposes that the State Water Board adopt the proposed Plan amendments before seeking answers.	
268	12	Among other things, before adopting the proposed Plan amendments, the State Water Board must fully understand and consider the consequences for all beneficial uses of declaring that a majority of the water in the Sacramento River, its tributaries, and the eastside Delta tributaries (the Consumnes and Mokelumne Rivers) is unavailable for other uses. As the first sentence of the Draft Staff Report explains, the State Water Board's mission "is to preserve, enhance, and restore the quality of California's water resources and drinking water for the protection of the environment, public health, and all beneficial uses, and to ensure proper water resource allocation and efficient use for the benefit of present and future generations." (Draft Staff Report at p. 1-1.) A fundamental policy underlying the Porter-Cologne Act, which governs water quality planning, is to regulate factors affecting water quality "to attain the highest water quality which is reasonable, considering all demands being made and to be made on those waters and the total values involved, beneficial and detrimental, economic and social, tangible and intangible." (Wat. Code, § 13000.) Water quality control plans must conform to this policy. (Id. at § 13240.) The policy in Water Code section 13000 is reinforced by California's Constitution, which commands that "the water resources of the State be put to beneficial use to the fullest extent of which they are capable" and "with a view to the reasonable and beneficial use thereof in the interest of the people and for the public welfare." (Cal. Const., art. X, § 2.) CEQA likewise requires the State Water Board to fully understand the environmental consequences of its proposed action, and alternatives and	Please see Common Response 1.2, Water Quality Control Planning Process, regarding the State Water Board's consideration of beneficial uses during the water quality control planning process, as well as the State Water Board's authority to prevent waste and unreasonable use under Article X, Section 2 of the California Constitution. Water Code section 13241 states the substantive requirements for establishing water quality objectives. Water Code section 13000 contains a general statement of legislative intent but does not independently create a substantive duty in addition to those imposed by section 13241. (City of Arcadia v. State Water Res. Control Bd. (2010) 191 Cal.App.4th 156, 176.) Nevertheless, in updating this Water Quality Control Plan, the State Water Board strives to "attain the highest water quality which is reasonable, considering all demands being made and to be made on those waters and the total values involved, beneficial and detrimental, economic and social, tangible and intangible." (Wat. Code § 13000.) See also Common Response 7.24, Alternatives Analysis, for a discussion of the adequacy of the range of alternatives analyzed by the State Water Board, and Common Response 7.1, General CEQA and Approach to the Analysis, for a discussion of mitigation measures.

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		mitigation that may avoid or reduce those impacts, before taking action. Whatever disagreements fair-minded people may have over the correct policy choices, such as what represents reasonable protection for all beneficial uses, California law requires the choices to be made to be well-informed.	
268	13	The radical change to California water policy proposed via the proposed Plan amendments would have sweeping and damaging consequences for many beneficial uses. Because of those sweeping consequences, the full implications and operation of the proposed Plan amendments must be carefully analyzed and described in order for the State Water Board to make an informed decision consistent with its responsibilities. As described below, the Draft Staff Report's analysis of the proposed Plan amendments is not up to this task and falls significantly short in many respects. Among other things, it defers much of the information and analysis essential to an informed decision on whether to adopt the proposed numeric unimpaired flow objective until after its adoption. It is, in essence, a proposal to first declare a majority of the flow unavailable for diversion, and then to figure out later during implementation (or require others to figure out later) the consequences and feasibility of the objective. This approach is fraught with uncertainty and is likely to lead to unanticipated negative impacts to many beneficial users of water. The approach based on the Voluntary Agreements is a better approach. The Water Authority and Member Agencies welcome an opportunity to work with the State Water Board to address the comments raised in this letter and the attached detailed comment letter [Attachment 2] ("Detailed Comment Letter"). The State Water Board's attention to these comments will result in an improved Bay-Delta Plan, a plan that is consistent with the best available science, addresses the multiple sources of impacts to water quality in the Sacramento River watershed, Delta eastside tributaries, interior Delta, and Delta, and ultimately strikes a balance between competing demands for the water involved.	Please see Common Response 1.1, General Comments, for responses to comments that make general comments, do not raise specific environmental impacts of the project, or do not raise specific economic effects of the project. Also see Common Response 1.3, Revised Proposed Plan Amendments, for information on the inflow requirements included in the revised proposed Plan amendments. While the specific details of a curtailment methodology will be developed in a subsequent process, the Staff Report contains a sufficiently detailed analysis of the changes in supply that would occur as a result of implementation.

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268	14	[Attachment 1: Document titled Attachment 1 Description of Water Authority and Member Agencies]	This attachment was included with the comment letter. The attachment does not raise a specific environmental impact or economic effect of the project. Refer to Common Response 1.1, General Comments, for the approach to addressing attachments to comments.
268	15	[ATT 2] The VA Alternative Must Be Selected, Whereas the Proposed Plan Amendments Cannot Lawfully Be Adopted To Comply with CEQA, the State Water Board Must Select the VA Alternative CEQA The California Environmental Quality Act ("CEQA") (Pub. Resources Code, § 21000 et seq.) requires the State Water Board to adopt the VA alternative because it is the only alternative that achieves the purpose of the proposed Sacramento/Delta update to the Bay-Delta Plan ("Project") [Footnote 5: The "Project" is more particularly described as proposed "updates to the Bay-Delta Plan focused on the reasonable protection of fish and wildlife in the Sacramento River and its tributaries, Delta eastside tributaries (including the Calaveras, Cosumnes, and Mokelumne Rivers), and Delta (referred to as the Sacramento/Delta watershed). This effort is referred to as the Sacramento/Delta update to the Bay-Delta Plan." (Draft Staff Report at p. 1-2.)], is feasible, and will avoid significant adverse environmental impacts associated with the proposed Plan amendments. [Footnote 6: The "proposed Plan Amendments" have the same meaning as defined as in the Draft Staff Report and, among other things, would require 55 percent unimpaired flow, with an adaptive range of 45 to 65 percent and would include a new cold water habitat objective for the Sacramento/Delta tributaries. (Draft Staff Report at pp. 1-2 - 1-3, 5-1, 5-9, 5-22.)] In contrast, the proposed Plan amendments fail to meet the purpose of the Project, are not feasible, and the Draft Staff Report's analysis of the proposed Plan Amendments fails to comply with CEQA's substantive provisions.	Please see Common Response 1.3, Revised Proposed Plan Amendments, regarding the VA pathway. Also see Common Response 7.24, Alternatives Analysis, regarding the range of feasible alternatives.

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268	16	[ATT 2] The State Water Board's certified regulatory program is exempt from certain provisions of CEQA under Public Resources Code section 21080.5(c), but this is not a blanket CEQA exemption. (Pesticide Action Network North America v. Department of Pesticide Regulation (2017) 16 Cal.App.5th 224, 239, 241-242 ("Pesticide Action Network").) An agency operating under a certified regulatory program remains subject to most of CEQA's provisions, including CEQA's broad policy goals and substantive standards. (Ibid.; POET, LLC v. California Air Resources Board (2013) 218 Cal.App.4th 681, 710 ("POET").) Because CEQA's broad policy goals apply, the State Water Board's Draft Staff Report must include the same types of essential environmental information as an environmental impact report ("EIR"). (Pesticide Action Network, supra, 16 Cal.App.5th at p. 247.) Essential information includes an accurate and complete project description, analysis of the project's reasonably foreseeable direct and indirect environmental consequences, mitigation measures and alternatives to avoid or substantially lessen significant environmental impacts, and evaluation of cumulative impacts. (Ibid.) In short, the Draft Staff Report must provide agencies and the public with the functional equivalent of the information required in an EIR. (Pub. Resources Code, §§ 21002, 21080.5; CEQA Guidelines, §§ 15250, 15251(g).) The Draft Staff Report's analysis regarding the proposed Plan amendments runs afoul of CEQA's substantive provisions, and the proposed Plan amendments cannot be adopted due to this failure to satisfy all applicable CEQA requirements. (John R. Lawson Rock & Oil, Inc. v. California Air Resources Board (2018) 20 Cal.App.5th 77, 100.)	Please see Common Response 1.1, General Comments, for responses to comments that make general comments, do not raise specific environmental impacts of the project, or do not raise specific economic effects of the project. To the extent that this comment summarizes other comments, please see the substantive responses to those comments. Please see Common Response 7.1, General CEQA and Approach to the Analysis.
268	17	[ATT 2] Additionally, a fundamental purpose of CEQA is to "prevent significant avoidable damage to the environment by requiring changes in projects through the use of alternatives or mitigation measures when the government agency finds the changes to be feasible." (CEQA Guidelines, § 15002(a)(3) (emphasis added); Pub. Resources Code, § 21080.5(d)(2)(A) [same regarding certified regulatory programs]; POET, supra, 218 Cal.App.4th at p. 735.) The proposed Plan amendments would result in	Please see Common Response 7.1, General CEQA and Approach to the Analysis. CEQA impact conclusions must be understood in the context of the nature of the proposed project, which is a remedial or restoration action under the state Porter-Cologne Water Quality Control Act and federal Clean Water Act. The primary purpose of the federal Clean Water Act is to restore and maintain the chemical, physical, and biological integrity of the Nation's waters (Clean Water Act § 101(a).) The revised proposed Plan amendments were developed to improve flow and water quality conditions over a large geographic area, and

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		significant damage to the environment that cannot be mitigated. By rejecting the proposed Plan amendments and instead selecting the VA alternative, which better satisfies the Project purpose, the State Water Board will avoid these significant environmental impacts.	particularly for fish and wildlife beneficial uses in the Sacramento/Delta. The impacts that could potentially result from implementation occur in a system that has been highly altered, and the project would be expected to improve conditions for native fish and wildlife in the Sacramento/Delta watershed over time. While changes in hydrology and supply could result in some environmental impacts at certain times and locations that must be analyzed under CEQA, these potential environmental impacts are viewed in light of the overall purpose and goals of the Sacramento/Delta update to the Bay-Delta Plan. See also Common Response 7.24, Alternatives Analysis, regarding the adequacy of the range of alternatives.
268	18	[ATT 2] The VA Alternative Meets the Project Objectives and Is the Only Alternative Reasonably Calculated to Achieve the Salmon Doubling Objective The signatories to the “Memorandum of Understanding Advancing a Term Sheet for the Voluntary Agreements to Update and Implement the Bay-Delta Water Quality Control Plan, and Other Related Actions” (“MOU”) (“VA Parties”) “submitted the VAs as a proposed alternative for updating the Bay-Delta Plan to achieve reasonable protection of fish and wildlife beneficial uses in the tributaries covered by the VAs (VA tributaries).” (Draft Staff Report at p. 1-3.) Fundamentally, the VA alternative is designed “to contribute to achieving the existing Narrative Salmon Protection Objective by 2050,” also referred to as the “Salmon Doubling Objective.” The Salmon Doubling Objective is “the doubled (average) natural production from the population size” of chinook salmon “calculated for 1967 to 1991. Natural production is defined as the portion of production that is not produced in hatcheries.” (Draft Staff Report, Appendix G2 at p. 5-4 [the “Draft Supplement Report”] [Footnote 7: Consistent with the Draft Staff Report, Appendix G2 of the Draft Staff Report, the “Final Draft Scientific Basis Report Supplement in Support of Proposed Voluntary Agreements for the Sacramento River, Delta, and Tributaries Update to the San Francisco Bay/Sacramento-San Joaquin Delta Water Quality Control Plan” is defined as the “Draft Supplement Report.” (Draft Staff Report, Appendix G2 at p.	Both the regulatory and VA pathways, as well as other actions in the revised proposed Plan amendments, would contribute to the salmon protection objective.

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		ES-1.)); Draft Staff Report at p. 9-7.][Footnote 8: “The existing Narrative Salmon Protection Objective (also referred to as the salmon doubling objective) states: ‘Water quality conditions shall be maintained, together with other measures in the watershed, sufficient to achieve a doubling of natural production of chinook salmon from the average production of 1967- 1991, consistent with the provisions of State and federal law.’” (Draft Staff Report at p. 9-7.))]	
268	19	[ATT 2] The VAs will coordinate flow and non-flow actions, over an initial eight-year term, to provide the participating parties’ share to achieve the Salmon Doubling Objective by 2050. (Draft Staff Report at p. 9-7; id. at p. 9-190 [“[T]he VAs propose flow assets and habitat restoration measures in the Sacramento/Delta for an 8-year period that are intended to provide for reasonable protection of fish and wildlife beneficial uses in the Sacramento/Delta”].) The VA Parties intend to extend the initial eight-year term. (Draft Staff Report at p. 1-3.) If the VAs are substantially achieving the Bay/Delta Plan objectives, the VA Parties propose that the VAs “would continue without any substantial modification in terms or, if the VAs are expected to achieve the stated objectives with some modifications, the VAs could continue implementation with substantive modifications in terms.” (Draft Staff Report at p. 9-6.) The VA alternative’s success in achieving the Project objectives would be determined based upon the best available, objective data from the VA Science Program and recommendations from the VA Governance Committee and the Delta Independent Science Board. (Ibid.; see also id. at pp. 9-190 [“The proposed VAs include a monitoring and evaluation program to inform adaptive management of flows and future changes to the Plan” to ensure Project goals are met.], 9-198 [Over \$120 million devoted to the VA alternative’s science and adaptive management programs].) In sum, the VA alternative contains a robust science program, guided by principles of adaptive management, which will enable the VA alternative to achieve Project goals over the initial term and beyond.	Please see Common Response 1.1, General Comments, for responses to comments that make general comments, do not raise specific environmental impacts of the project, or do not raise specific economic effects of the project.
268	20	[ATT 2] The VA alternative also will achieve reasonable protection of	Please see Common Response 1.2, Water Quality Control Planning Process, for information on the reasonable protection of fish and wildlife beneficial uses.

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		native species through its “proposed Narrative Viability Objective,” (the “New Narrative Objective”) which states: Maintain water quality conditions, including flow conditions in and from tributaries and into the Delta, together with other measures in the watershed, sufficient to support and maintain the natural production of viable native fish populations. Conditions and measures that reasonably contribute toward maintaining viable native fish populations include, but may not be limited to, (1) flows that support native fish species, including the relative magnitude, duration, timing, temperature, and spatial extent of flows, and (2) conditions within water bodies that enhance spawning, rearing, growth, and migration in order to contribute to improved viability. Indicators of viability include population abundance, spatial extent, distribution, structure, genetic and life history diversity, and productivity. Flows provided to meet this objective shall be managed in a manner to avoid causing significant adverse impacts to fish and wildlife beneficial uses at other times of the year. (Draft Staff Report at p. 9-7.) Qualitatively, this proposed objective provides reasonable protection through (1) specific “flows that support native fish species”; (2) “conditions within water bodies that enhance spawning, rearing, growth, and migration in order to contribute to improved viability. Indicators of viability include population abundance, spatial extent, distribution, structure, genetic and life history diversity, and productivity”; and (3) the need to manage flows to “avoid causing significant adverse impacts to fish and wildlife beneficial uses at other times of the year,” such as adverse temperature impacts associated with reservoir operations. (Draft Staff Report at p. 9-7; see also id. at p. 9-190 [“Overall, the proposed VAs are intended to provide improved tributary and in-Delta habitat conditions, improved migratory conditions, and increased floodplain inundation, which would promote habitat conditions that favor native fishes over nonnative fishes”].)	
268	21	[ATT 2]	Please refer to Section 9.3.6, Points of Comparison for VA Flow Assets in the Staff Report. Additionally, see Common Response

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		Quantitatively, the VAs will provide reasonable protection of native fish species through the “specific flow and non-flow habitat restoration actions in the tributaries, flood bypasses, and Delta outlined in the VAs.” (Draft Staff Report at p. 9-190.) The VA alternative defines the “flow and non-flow habitat restoration measures,” designed to provide improved habitat conditions as “VA assets.” (Draft Staff Report at p. 9-6.) Table 9.3.1 of the Draft Staff Report lists the proposed VA assets as modeled in the Draft Staff Report, which illustrates the additive flows the VAs would contribute [Footnote 9: The VA flows assets would be “additive to the 2019 BiOps condition.” (Draft Staff Report at p. 9-13.)] and the number of acres of habitat restoration for spawning, instream rearing, and floodplain habitat. (Draft Staff Report at pp. 9-4 & 9-5; see also id. at p. 9-8 [Table 9.3-2. Summary of VA Tributary Habitat Restoration Commitments by Habitat Type and Watershed].) As extensively documented in the Draft Supplement Report, the VA alternative’s flow and non-flow assets target recovery and are carefully designed to achieve reasonable protection of native fish species.	1.2, Water Quality Control Planning Process, for information about the reasonable protection of fish and wildlife beneficial uses.
268	22	[ATT 2] The VA alternative also has the advantage of transparency: The VA flow assets and nonflow activities are clearly disclosed to the public and will be evaluated using the best available science. These core features of accountability and rigorous, continuous study will ensure that VA flow and non-flow assets continue to provide reasonable protection and maximize beneficial uses of the Sacramento-Delta’s scarce water resources, thereby promoting recovery of native fish species while minimizing environmental impacts to the greatest degree feasible. As such, the VA alternative is the environmentally superior alternative under CEQA. (Pub. Resources Code, §§ 21002-21002.1, 21004; CEQA Guidelines, §§ 15002(a), (h), 15021, 15126.6(d), (e)(2).)	Please see Common Response 7.24, Alternatives Analysis, for information on the selection of the preferred CEQA alternative. See also Chapter 13, Revised Proposed Plan Amendments, for a description of the VA pathway included in the Bay-Delta Plan update.
268	23	[ATT 2] The Draft Staff Report’s Description of the Proposed Plan Amendments Violates CEQA Because the Description Is Incomplete In contrast to the VA alternative, the Draft Staff Report’s	Please see Common Response 7.1, General CEQA and Approach to the Analysis, regarding the adequacy of the project description. Also see Common Response 1.3, Revised Proposed Plan Amendments, regarding the regulatory pathway and biological goals.

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		discussion of the proposed Plan amendments fails to disclose integral components unique to the proposed Plan amendments. Under CEQA, a regulatory plan designed to improve environmental conditions must include objective performance criteria by which to measure success. [Footnote 10: Unlike the proposed Plan amendments, the VA Science Program contains objective performance criteria/standards to both measure and ensure the VA alternative's success in providing reasonable protection to native fish species. (Detailed Comment Letter at pp. 36-37.)] (POET, supra, 218 Cal.App.4th at pp. 739- 740.) The Draft Staff Report's analysis of the proposed Plan amendments violates CEQA because it omits essential information necessary to evaluate whether implementation of the proposed Plan amendments can achieve fish and wildlife benefits. These omitted components, which are only essential to the proposed Plan amendments and are not part of the VA Alternative, include: (1) an adequate description of proposed temperature control and reservoir management provisions and performance standards and (2) flow shifting / shaping criteria and performance standards. These protocols and principles governing flow patterns are key considerations in deciding whether and how to implement the proposed Plan amendments, not mere design or engineering details or flexible operational components that are suited for ad hoc formulation.	
268	24	[ATT 2] The proposed Plan amendments' omitted essential project components are all premised on adaptive implementation. Under CEQA, however, an adaptive plan designed to change in response to future events or studies must identify the type of actions that may be taken and criteria for their implementation. (Preserve Wild Santee v. City of Santee (2012) 210 Cal.App.4th 260, 281 [post-approval formulation of active habitat management plan invalid because EIR did not describe expected management actions or include management standards].) To properly frame the proposed Plan amendments' omitted project components for adaptive implementation, the State Water Board must develop a detailed management plan and associated experimental design for monitoring their ability to achieve the stated objectives for the Bay-Delta Plan Updates. (See POET, supra, 218 Cal.App.4th at	The Plan amendments are broad but not unbounded. Flexibility in the form of adaptive implementation is provided in part to mitigate water supply impacts if tailored solutions are available that are comparable or more protective for fish. CEQA impact determinations are the most conservative but in many instances can be reduced or avoided with tailored operations. The State Water Board provides these flexibilities with the intent that water diverters and reservoir owner/operators utilize these provisions because they often have a good understanding of their unique circumstances on a specific tributary. The authority for the Executive Director to utilize the flexibilities is provided for if water users are not engaged in proposing and implementing adaptive implementation and sensible adjustments can and should be made. The Executive Director authority is also provided to make clear that the State Water Board may require adjustments when approving adaptive

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		p. 740 [agency implementing a certified regulatory program must specify “what tests will be performed and what measurements will be taken” to demonstrate progress toward achieving stated objectives].) Such actions cannot be deferred, as the State Water Board has impermissibly done for the proposed Plan amendments.	implementation proposals are generally good but need additional clarity to ensure fish protection. The default standards are provided and any discretion would occur within the bounds of the default standards. Please see also Common Response 1.3, Revised Proposed Plan Amendments, regarding the revised proposed Plan amendments. Also see Common Response 7.1, General CEQA and Approach to the Analysis, regarding the adequacy of the project description.
268	25	[ATT 2] Temperature Control/Reservoir Management Criteria The Draft Staff Report’s description of the proposed Plan amendments’ Cold Water Habitat Objective violates CEQA because it omits a fundamental component – temperature control / reservoir management criteria necessary to evaluate and determine the objective’s success. The Draft Staff Report proposes to allow implementation of the Cold Water Habitat Objective without any specific temperature control and reservoir management provisions or performance standards. “The narrative cold water habitat objective is proposed to apply throughout the watershed, including upstream tributaries and distributaries, on all the Sacramento/Delta tributaries that support or contribute to the protection of native cold water fish species.” (Draft Staff Report at p. 5-23.) The stated purpose of the Cold Water Habitat Objective is “to ensure that there are no redirected impacts on cold water habitat from the new inflow and Delta outflow objectives and to address other existing and potential future temperature management concerns on the tributaries for salmonids and other native species.” (Draft Staff Report at pp. 7.1-8, 5-22.) The proposed Plan amendments’ description calls for “[c]old water habitat provisions that would require reservoirs to be operated in a manner that provides needed cold water habitat for salmonids or other measures to provide cold water habitat.” (Id. at p. 7.1-1.) The proposed measures include “management of	Please see Common Response 7.1, General CEQA and Approach to the Analysis, regarding the adequacy of the project description and the level and scope of the analysis. See Common Response 1.3, Revised Proposed Plan Amendments, regarding the revised proposed Plan amendments and cold water habitat. See Common Response 7.6.2, Aquatic Biological Resources and Cold Water Habitat, regarding impacts associated with implementation of the cold water habitat objective.

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		cold water storage and releases or alternate protective measures (including measures to install and operate temperature control devices, measures to provide for passage above dams, and other measures [Footnote 11: “[A]nd other measures” highlights the Cold Water Habitat Objective’s ambiguity and lack of specificity. The objective’s project description fails to adequately disclose the full range of temperature control and reservoir management operations the State Water Board may decide to take.]).” (Id. at 7.1-8.) The project description cautions, however, that the appropriateness of temperature requirements depends “on the species of salmonid, the life stage, and other factors” that affect “the specific circumstances of each tributary.” (Id. at 7.1-8.) The Draft Staff Report therefore recognizes that for temperature requirements to work, they must be carefully tailored in response to highly specific biological and physical factors. This high degree of specificity underscores the essential nature of detailed temperature control and reservoir management criteria — which the Draft Staff Report failed to provide. For each tributary subject to the Cold Water Habitat Objective, the State Water Board must develop criteria based on the species of salmonid, the life stage, and all other material factors relevant to the proposed temperature requirements.	
268	26	[ATT 2] The Draft Staff Report provides that “[a]s described further in the program of implementation, the owners and operators of rim reservoirs would be responsible for undertaking actions to comply with the [Cold Water Habitat Objective] through voluntary or default processes.” (Id. at p. 5-22.) The Draft Staff Report also fails to describe any management criteria or performance standards that would guide implementation activities under the Cold Water Habitat Objective. Instead, the description envisions an ad hoc implementation process.	Chapter 5, Proposed Changes to the Bay-Delta Plan for the Sacramento/Delta, of the Staff Report includes a sufficiently detailed description of the cold water habitat objective to inform analyses and implementation measures. In addition, as described in Sections 6.2.2, Unimpaired Flow Scenario Assumptions, and 6.3.2.1, Sacramento River Watershed and Delta Eastside Tributaries Rim Reservoirs, of the 2023 draft Staff Report, specific end-of-September carryover storage targets were modeled for the cold water habitat objective. Please see Common Response 1.3, Revised Proposed Plan Amendments, for responses to comments on the cold water habitat objective.
268	27	[ATT 2] In the first step in the implementation process, “all rim reservoir owners/operators on the Sacramento/Delta tributaries, in coordination with the State Water Board and fisheries agencies, would be required to conduct an assessment of the effectiveness of cold water habitat protection measures on their tributaries	The performance standards are included in the text of the narrative cold water habitat objective. The proposed cold water habitat protection measures would be required to result in compliance with the cold water habitat objective. Please also see the response to comment 268-26.

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		and needed improvements to those measures for the purpose of complying with the cold water habitat objective. Based on that assessment, reservoir owners/operators would be required to develop a long-term strategy for implementing feasible measures to improve the protection of cold water habitat, in coordination with State Water Board and fisheries agency staff and other appropriate entities as necessary.” (Id. at p. 5-23.) The problem with this process, however, is that without objective performance standards, it is impossible to effectively and meaningfully evaluate the effectiveness of proposed cold water habitat protection measures. If those performance standards are not disclosed as part of the Plan amendments’ description, then agencies and members of the public are deprived of essential information necessary to evaluating the Cold Water Habitat Objective and its environmental impacts.	
268	28	[ATT 2] The annual strategies intended to implement the Cold Water Habitat Objective “would be required to evaluate measures that can be taken to improve temperature management in both the short term and long term and to identify the feasibility and suitability of those measures.” (Id. At p. 5-24.) “Temperature control measures that should be evaluated include installation and improvements in TCDs [temperature control devices], cold water bypasses, passage, riparian reforestation, operational changes” and other relevant improvements identified by staff. (Ibid.) But once again, the Draft Staff Report fails to provide any performance standards necessary to evaluate these temperature control management measures. Additionally, the Draft Staff Report’s references to undefined “operational changes” and additional improvements identified by staff are ambiguous and must be expanded upon to adequately inform the public pursuant to CEQA. If the proposed Plan amendments are the proposed alternative, then the State Water Board must revise the Draft Staff Report to include performance criteria to evaluate each of the temperature control management measures identified above.	Please see Common Response 7.1, General CEQA and Approach to the Analysis, regarding the level and scope of the analysis. Also see Common Response 1.3, Revised Proposed Plan Amendments, regarding the revised proposed Plan amendments.
268	29	[ATT 2] Finally, the lack of performance criteria infects the proposed Plan	Please see Common Response 7.6.2, Aquatic Biological Resources and Cold Water Habitat, on water-temperature related impacts. Please also see the responses to comments 268-26 and

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		amendments' description regarding annual operations plans under the Cold Water Habitat Objective. The proposed Plan amendments' description states, "Required elements of the annual operations plans would include provisions for reservoir carryover storage levels; minimum and maximum flow releases and ramping rates to provide appropriate temperature protection, preserve cold water supplies, and avoid stranding and dewatering concerns; reservoir TCD operations; adaptive management; and other relevant provisions, as well as the technical basis for those provisions." (Id. at p. 5-24.) But once again, these components of the proposed Plan amendments are ambiguous in terms of how they are defined, how they would be implemented and evaluated, and what their environmental impacts would be. Here, the Draft Staff Report's failure to disclose this essential information about the proposed Plan amendments stems in crucial part from the lack of performance standards / criteria regarding (1) carryover storage levels; (2) reservoir refill requirements and operations [Footnote 12: If the State Water Board does not develop reservoir refill criteria as part of its temperature control and reservoir management components of the proposed Plan amendments, then it must separately develop and disclose reservoir refill criteria.]; (3) minimum and maximum flow releases and ramping rates; (4) temperature control operations; (5) adaptive management criteria and their respective abilities to achieve (a) "appropriate temperature protection;" (b) preserve cold water supplies; and (c) avoid stranding and dewatering concerns. If the proposed Plan amendments are the proposed alternative, then the State Water Board must revise the Draft Staff Report to include specific performance criteria to evaluate each of these annual operations elements and their goals.	268-27. Please see Common Response 1.3, Revised Proposed Plan Amendments, for responses to comments on the cold water habitat objective.
268	30	[ATT 2] The Draft Staff Report assumes that the proposed Plan amendments' Cold Water Habitat Objective will result in long-term environmental benefits without identifying any protocols or principles to govern possible temperature control and reservoir management activities, or any standards or criteria by which to measure whether and to what degree any environmental benefits occur on the various tributaries.	Please see Common Response 1.3, Revised Proposed Plan Amendments, for responses to comments on the cold water habitat objective. As described in Section 7.6.2, Aquatic Biological Resources, of the 2023 draft Staff Report, overall, in the Sacramento/Delta, implementation of the narrative cold water habitat objective and the flexibility provided in the inflow requirements would be expected to improve water temperature conditions for native cold water fish.

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268	31	[ATT 2] Flow Shifting/Shaping Criteria The Draft Staff Report discloses that in implementing the proposed Plan amendments, the State Water Board would utilize “the flexibility provided in the flow objectives,” including the “shaping and shifting of flows.” (Draft Staff Report at p. 7.6.2-104; see also id. at p. 3-101 [“Adaptive management provisions, including any necessary sculpting of that flow, would provide specific functional flows to improve fish and wildlife protection”]; id., Appendix B at p. 1-11 [“Sculpting and shaping of flows is provided in recognition that rainfall and snowmelt patterns have changed and will continue to change, as has the physical environment, and that consideration of and adaptation to these changes are needed to protect native fish and wildlife”].) The 2017 Scientific Basis Report, Appendix B of the Draft Staff Report, further provides that “[w]ith increasing climate change, it is expected that further sculpting and shaping of flows would be needed. New and existing tools could be used for shaping the flows based on the availability of information for a watershed (e.g., specific instream flow studies, presence of reservoirs).” (Id., Appendix B, at p. 1-16.) Consistent with the 2017 Scientific Basis Report, the Draft Staff Report provides: [A]s discussed further in Chapters 1, Executive Summary, and 5, Proposed Changes to the Bay-Delta Plan for the Sacramento/Delta, regulatory requirements based on unimpaired flows acknowledge that native species now inhabit an altered landscape and that adaptive management is needed to allow for sculpting and shaping of those flows to address the realities of that modified landscape. Adaptive management of unimpaired flows can also address changes to the landscape over time due to climate change, habitat restoration, and other factors. (Id. at p. 2-4 (emphasis added).) Accordingly, the Draft Staff Report portrays flow shaping, shifting, and sculpting as a key component of the proposed Plan amendments designed in response to the Sacramento/Delta’s	Please refer to the response to comment 268-24. Also see Common Response 1.3, Revised Proposed Plan Amendments, regarding the revised proposed Plan amendments and inflow. See also Common Response 7.24, Alternatives Analysis, regarding the analysis of alternatives and the selection of an environmentally superior alternative. Also see Sections 5.4.2.4, Unimpaired Flow Scenario Assumptions, and 6.2.2, Implementation, of the 2023 draft Staff Report for more information on the description and modeling, respectively, of flow shaping.

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		highly altered landscape and the effects of climate change. The Draft Staff Report fails to disclose the proposed Plan amendments' proposed flow shifting/shaping provisions, however, and omits any shaping/shifting criteria in its description. As demonstrated, under CEQA, an adaptive plan designed to change in response to future events or studies must identify the type of actions that may be taken and criteria for their implementation. (Preserve Wild Santee v. City of Santee (2012) 210 Cal.App.4th 260, 281; POET, supra, 218 Cal.App.4th at p. 740.) If the proposed Plan amendments are the State Water Board's proposed alternative, then the State Water Board must revise the Draft Staff Report to disclose the type of actions it would take to shift and shape flows in an attempt to provide reasonable protection to fish species, and identify objective performance criteria for their implementation and evaluation. In contrast, the VA Alternative already has objective performance criteria/standards to both measure and ensure the VA alternative's success in providing reasonable protection to native fish species. (Detailed Comment Letter at pp. 36-37.) As with the other reasons discussed throughout this letter, this makes the VA Alternative superior to the proposed Plan amendments and further shows how the VA Alternative is CEQA compliant.	
268	32	[ATT 2] The Proposed Plan Amendments Fail to Meet the Project Purpose Non-Flow Measures Are Essential The Sacramento/Delta is a highly altered ecosystem. (Draft Staff Report at p. 2-4.) "For over 150 years, humans have altered the Sacramento River and its tributaries to reclaim wetlands, and provide irrigation during the dry months," among other uses. (Ibid.) While the "Delta is about 738,000 acres," all but 48,000 of those acres are now "agricultural or urban, reflecting an almost complete loss of wetland habitats since California became a state." (Id. at p. 1-8.) "Dams and other physical modifications . . . block access to habitats and alter temperatures and other	The 2023 draft Staff Report acknowledges the benefits of non-flow actions, and this discussion can be found in Chapter 4, Other Aquatic Ecosystem Stressors. A description of complementary, non-flow actions that may help address the stressors described in Chapter 4 can be found in Section 5.5, Habitat Restoration and Other Complementary Ecosystem Measures. The State Water Board's Bay-Delta planning and implementation efforts are part of a multi-faceted approach needed to address the systemic ecological concerns in the Bay-Delta watershed. The State Water Board has responsibility and authority for addressing flow and other water quality impairments, but ecosystem recovery in the Delta depends on more than adequate flows. It also requires implementation of comprehensive complementary measures, including physical habitat restoration, fisheries management, control of waste discharges and invasive species, and other efforts by other agencies and parties in the watershed that are

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		conditions important to aquatic species." (Id. at pp. 2-1 - 2.2.) The Draft Staff Report recognizes the adverse effects of physical habitat loss and modification on native fish species. For example, the Sacramento perch and thicktail chub have been extirpated "primarily due to a loss of suitable habitat." (Draft Staff Report at p. 1-9.) The Draft Staff Report further acknowledges that habitat restoration is likely to play a crucial role in shifting the abundance and distributions of native species throughout the Bay-Delta estuary. (Ibid.) In such a highly altered ecosystem that does not resemble historic conditions, flow alone is insufficient to provide reasonable protection to fish species. Indeed, the Draft Staff Report even admits so: "[P]opulations of native aquatic species in the Bay-Delta watershed have shown significant signs of decline due to a combination of factors, including hydrologic modifications, non-flow physical habitat degradation, water quality impairments, and climate change. Scientific information indicates that restorations of flows and the functions that flow provides in an integrated fashion with physical habitat improvements is needed to address the declines." (Ibid. (emphasis added).) Flow-based requirements alone are insufficient to provide reasonable protection of native fish species. An approach that mandates integrated flow and non-flow measures - like the VA alternative - must be adopted.	responsible for these actions. Please see Common Response 1.2, Water Quality Control Planning Process, for a discussion on the reasonable protection of fish and wildlife beneficial uses and a discussion of non-flow measures and the State Water Board's authority to impose non-flow measures; and Common Response 1.3, Revised Proposed Plan Amendments, for information on the regulatory and VA pathways.
268	33	[ATT 2] The Proposed Plan Amendments Cannot Be Adopted Because They Fail to Incorporate Integral Scientific Findings Regarding Necessary Non-Flow Actions The State Water Board's proposed Plan amendments are predominately a flow-based approach. (e.g., Draft Staff Report at p. 5-3 ["The proposed objectives include new inflow and cold water habitat objectives [Footnote 13: The purpose of the cold water habitat objective is to require "carryover storage in rim reservoirs . . . needed for cold water habitat." (Draft Staff Report at p. 7.2-8; id. at p. 1-3.) It therefore regulates reservoir operators' release of flows for beneficial uses and is inextricably tied to flows. (e.g., Draft Staff Report at p. 7.12.1-66 ["To meet the instream flow and cold water habitat (storage) requirements,	Please see the responses to comments 268-34 and 268-36.

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		diversions would need to be reduced from both storage and streams, allowing retention of more water in storage for cold water habitat protection, which could reduce flows on some tributaries at times. In particular, summer and early-fall flows would be reduced to some extent for CVP/SWP tributaries such as the Sacramento, Feather, and American Rivers, where, under baseline conditions, substantial storage releases to downstream diversions create artificially high summer and early fall flows.”].) for the Sacramento/Delta tributaries, new and modified Delta outflow objectives, modified Suisun Marsh objectives, and new and modified interior Delta flow objectives.”].) All of the “modular” alternatives also are entirely flow-based, with the exception of the “Head of Old River Barrier Alternative,” which would involve installing a physical barrier to prevent entrainment. (Id. At pp. 7.2-9 – 7.2-13.) The Draft Staff Report claims the proposed Plan amendments are “based on the science discussed” in the Draft Staff Report and the Scientific Basis Report. But as extensively documented in Chapters 3, 4, and 5 of the Draft Staff Report, “[t]he State Water Board recognizes that ecosystem recovery in the Delta depends on more than just adequate flows.” (Draft Staff Report at p. 4-1; id. At pp. 3-1, 3-134, 5-7, 5-41.) The Draft Staff Report accepts that “[m]any stressors other than flow can affect ecosystem processes.” (Draft Staff Report at p. 3-1.) It further acknowledges that the “Proposed Changes to the Bay-Delta Plan for the Sacramento/Delta, fish and wildlife protection cannot be achieved solely through flow—habitat restoration and stressor reduction also are needed. The dynamic nature of flow interacts with the physical environment to produce aquatic habitats suitable for native fish and wildlife. The function and ability of ecosystems to support these species can be reduced by stressors. One cannot substitute one for another; flow improvements, stressor reduction, and habitat restoration are all essential for protecting fish and wildlife resources. Suitable flows are a critical element of protection and restoration and are the subject of this chapter.” (Draft Staff Report at p. 3-1 (emphasis added).) “Recovery of native species would require both habitat restoration and increased flow in Central Valley tributaries and the Delta. Successful recovery of native species is not possible without parallel investment in both efforts.” (Id. At p. 3-134	

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		(emphasis added).) The Draft Staff Report’s analysis regarding the essential nature of habitat restoration and other non-flow measures raises three crucial points.	
268	34	[ATT 2] First, the purpose of the proposed Bay-Delta Plan Update “cannot be achieved solely through flow.” (Draft Staff Report at p. 3-1; id. at p. 4-1 [“The State Water Board recognizes that ecosystem recovery in the Delta depends on more than just adequate flows. Many scientific studies have identified the involvement of other aquatic ecosystem stressors, such as reduced habitat, pollutants, nonnative invasive and predatory species, and abiotic factors, as contributing factors in species declines”].) Habitat restoration and stressor reduction, in combination with flow, are also needed. (Id. at pp. 3-1, 5-3 “Protection of the Bay-Delta ecosystem and its native aquatic species requires an integrated approach” that links flows with “habitat restoration and other complementary ecosystem measures”].) A flow-only approach is demonstrated to be insufficient and is virtually certain to fail.	Non-flow related actions and other ecosystem stressors are discussed in Chapter 4, Other Aquatic Ecosystem Stressors. The revised proposed Plan amendments contain both flow and non-flow actions, under both the regulatory and VA pathways, as described in Chapter 13, Revised Proposed Plan Amendments, of the final Staff Report and Common Response 1.3, Revised Proposed Plan Amendments. Thus, neither the regulatory nor VA pathway of the revised proposed Plan amendments is a flow-only approach, and the commenter has not provided substantiating evidence for the claim that the revised proposed Plan amendments are insufficient or certain to fail. Please see Common Response 1.2, Water Quality Control Planning Process, for information on non-flow measures and the State Water Board’s authority to impose non-flow measures.
268	35	[ATT 2] Second, neither the proposed Plan amendments nor the other unimpaired flow alternatives require habitat restoration and stressor reduction to the necessary degree. Habitat includes all the physical, chemical, and biological attributes that affect or sustain the organisms within an ecosystem. There is no dispute that flow is “a major determinant of physical habitat” in aquatic ecosystems like the Sacramento/Delta. (Draft Staff Report at p. 3-2.) In a highly altered ecosystem like the Sacramento/Delta, however, more than flow alone is required to maintain and establish suitable habitat for native fish species. (e.g., Id. At p.4-1 [“The benefits of flows are enhanced when implemented in concert with habitat restoration, control of waste discharges, control of invasive species, fisheries management, and other efforts. A multifaceted approach is needed to address Delta concerns and reconcile an altered ecosystem”].) While the proposed Plan amendments aspire to an integrated multi-dimensional approach, they only mandate flows.	Please see the response to comment 268-34.

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268	36	[ATT 2] Chapters 4 (Other Aquatic Ecosystem Stressors), 5 (Proposed Changes to the Bay-Delta Plan), and 7.21 (Impacts analysis of Habitat Restoration and Other Ecosystem Projects) document the non-flow actions that must be taken in combination with increased flows to protect native fish species. But the State Water Board submits that these non-flow actions are “beyond what the State Water Board can require,” and that “[m]any of those actions are within the purview of other agencies and entities.” (Draft Staff Report at pp. 4-1 - 4.2.) The State Water Board only recommends other entities take such actions and offers to “help to facilitate those efforts in a coordinated fashion.” (Ibid; see also Draft Staff Report at pp. 5-41, 5-9 [The proposed Plan amendments only provide “recommendations to other agencies and parties” to undertake habitat restoration and other complementary ecosystem measures]; see id. 7.21-1 [“The proposed program of implementation identifies actions that other entities should take to address other ecosystem stressors and provides a framework to incorporate both flow and complementary ecosystem projects such as physical habitat restoration into voluntary implementation plans.” (emphasis added)].) The legal and practical differences between mere recommendations and binding requirements cannot be understated, yet the Draft Staff Report glosses over this crucial distinction when it comes to the proposed Plan amendments. (E.g., Draft Staff Report at p. 5-3 [Non-flow measures under the proposed Plan amendments “may be implemented,” a manifestly inadequate assurance (emphasis added)].) The proposed Plan amendments are plagued by a material enforcement gap, which results in no guarantees that necessary non-flow measures actually will be implemented. Contrary to the Draft Staff Report’s assertion, the proposed Plan amendments do not succeed in “linking and integrating tributary inflow, cold water habitat, Delta outflow, and interior Delta flow measures with physical habitat restoration and other complementary ecosystem measures.” (Id. at p. 5-3.) Neither the proposed Plan amendments nor its variations (i.e., the “Low Flow Alternative” and the “High Flow Alternative”) can realize the State Water	Please see Common Response 1.2, Water Quality Control Planning Process, for information on non-flow measures, the State Water Board’s authority to impose non-flow measures, and reasonable protection of beneficial uses. The full quote on page 5-3 of the 2023 draft Staff Report referring to the linking of flow and habitat measures is “Accordingly, changes to the Bay-Delta Plan are being considered to provide for a flow regime that supports a connected and functioning ecosystem linking and integrating tributary inflow, cold water habitat, Delta outflow, and interior Delta flow measures with physical habitat restoration and other complementary ecosystem measures.” This quote makes it clear that the intent is to provide a flow regime that supports integration with habitat, although the revised proposed Plan amendments also include complimentary habitat restoration measures. Please see Common Response 1.3, Revised Proposed Plan Amendments, for more information.

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		Board's fundamental goal of reasonable protection of native fish species.	
268	37	[ATT 2] Third, "[s]uccessful recovery of native species is not possible without parallel investment in both" flow and non-flow efforts. (Draft Staff Report at p. 3-134.) The VA alternative represents an unprecedented "parallel investment" in essential flow and non-flow measures. Indeed, "Appendix 3 of the VA Term Sheet identifies that the total cost for implementing the proposed VAs is \$2,589 million" (i.e., \$2.589 billion). (Draft Staff Report at p. 9-198.) This sum is only for the VA Agreements' first eight-year term and represents a fraction of the total funding that would be available to achieve the VA's New Narrative Objective by 2050. The categories of these costs include habitat construction, voluntary fallowing, water purchases, and water development costs, and a science and adaptive management program. (Ibid.) This is a watershed-scale approach and the best opportunity for substantial investment that will provide reasonable protection for native fish species. The primary funding sources are all well-funded public entities, such as the State of California, the United States, and public water agencies, which creates stability and reliability. (Ibid.) The VA alternative therefore best satisfies the scientific recommendations the State Water Board seeks to follow and best satisfies its fundamental goals.	Please see Common Response 1.1, General Comments, for responses to comments that make general comments, do not raise specific environmental impacts of the project, or do not raise specific economic effects of the project.
268	38	[ATT 2] The Draft Staff Report acknowledges that reasonable protection of native fish species in the Sacramento/Delta requires "both habitat restoration and increased flow. Successful recovery of native species is not possible without parallel investment in both efforts." (Draft Staff Report at p. 3-134; id. at p. 3-1 ["One cannot substitute one for another; flow improvements, stressor reduction, and habitat restoration are all essential for protecting fish and wildlife resources"].) The Draft Staff Report even declares that the "Proposed Changes to the Bay-Delta Plan for the Sacramento/Delta, fish and wildlife protection cannot be achieved solely through flow-habitat restoration and stressor reduction also are needed." (Id. at p. 3-1 (emphasis added).)	CEQA requires a discussion of the environmentally superior alternative. If that alternative is the no project alternative, the environmental document shall also identify an environmentally superior alternative among the other alternatives. (Cal. Code Regs., tit. 14, § 15126.6(e).) As described in Section 7.24.7, Environmentally Superior Alternative, although the primary purpose of the project is to improve and protect fish and wildlife beneficial uses, CEQA requires the identification of impacts compared to baseline existing conditions, which in this case is an impaired aquatic habitat condition. When determining the environmentally superior alternative the benefits of the alternatives must be weighed against the impacts. While higher flows would provide potentially greater ecosystem benefits, the benefits may be limited due to significant challenges in maintaining suitable water temperatures for cold water aquatic

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		Despite the Draft Staff Report's clear calls for non-flow measures, the narrative submits that these non-flow actions are "beyond what the State Water Board can require," and that "[m]any of those actions are within the purview of other agencies and entities." (Draft Staff Report at pp. 4-1 - 4.2.) In the Draft Staff Report, the limits of the State Water Board's authority are greatly exaggerated and the Board's obligations to pursue coordinated control of all factors affecting water quality are largely ignored in order to favor a flow-only regulatory approach. In contrast, the VA alternative provides the essential non-flow measures the proposed Plan amendments lack. As demonstrated above, the VA alternative would provide reasonable protection to native fish species through integrated flow improvements, stressor reduction, and habitat restoration. [Footnote 14: The VA alternative is a comprehensive and integrated approach to achieving reasonable protection of native fish species by targeting recovery and eliminating obstacles to implementation of non-flow measures, which the California Natural Resources Agency describes as follows: The approach -- sometimes referred to as the "Voluntary Agreements" because parties came together to propose it, is a comprehensive, multi-year solution that brings together dozens of water agencies with the state and federal governments to pool resources and take concrete actions to provide targeted river flows and expand habitat in the Sacramento and San Joaquin Rivers and Bay Delta. These environmental improvements are guided by scientific monitoring and collaborative decision making. This new approach will also allow water managers to adapt operations based on real-time conditions and enable broad coordination across watersheds to manage flows for maximal benefits. This more flexible, adaptive management is critical as climate change increases uncertainty and drives extreme conditions. The agreements, if approved by the State Water Board as an implementation pathway for an updated Bay-Delta Plan, could help state agencies meet requirements to protect beneficial uses in the Sacramento and San Joaquin watersheds. Through this	species and carryover storage for environmental and water supply purposes. The draft Staff Report also acknowledged that under the proposed VAs, impacts from changes in hydrology and supply would be smaller in magnitude and geographic scope than the changes that would occur under the proposed Plan amendments. In many instances, the VAs would have no impact or less-than-significant impacts where the proposed Plan amendments would have potentially significant impacts. Focusing on potential environmental impacts related to hydrology and water supply, the proposed VAs therefore could be viewed as the environmentally superior alternative, although the improvements in flows would be more limited than under the proposed Plan amendments. The proposed VAs also include physical habitat restoration that is expected to contribute toward the goal of improving conditions for native fish and wildlife. Please see Common Response 1.2, Water Quality Control Planning Process, for a discussion of non-flow measures and the State Water Board's authority to impose non-flow measures.

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		approach, California would dedicate a large quantity of water to the environment and restore 45,000 acres of aquatic habitat for fish and other animals. The agreements provide a promising pathway to protect and restore our environment, enable California's economy to thrive, and provide a foundation for a more resilient future. (https://resources.ca.gov/Initiatives/Voluntary-Agreements-Page.) The VA alternative bridges the enforcement gap left by the proposed Plan amendments by requiring a combination of flow and non-flow measures based on the best available science. The VA alternative is feasible because the State Water Board has the authority to enter into binding, enforceable agreements with the VA Parties that will achieve the State Water Board's fundamental purpose, provide greater benefits to native fish species, and avoid or substantially reduce the proposed Plan amendments' impacts. The State Water Board must therefore select the environmentally superior VA alternative. (CEQA Guidelines, §§ 15002(a), (h), 15021, 15126.6(d), (e)(2).)	
268	39	[ATT 2] Although Underestimated in the Draft Staff Report, the Proposed Plan Amendments' Adverse Environmental Impacts Greatly Exceed Those Associated with the VA Alternative A fundamental purpose of CEQA is to "prevent significant avoidable damage to the environment by requiring changes in projects through the use of alternatives or mitigation measures when the government agency finds the changes to be feasible." (CEQA Guidelines, § 15002(a)(3); Draft Staff Report at pp. 1-13. 7.1-3 (emphasis added).) The Draft Staff Report provides that the VA regulatory pathway is largely consistent with the proposed Plan amendments in terms of core project features: The VAs propose flow assets and habitat restoration measures in the Sacramento/Delta for an 8-year term. The proposed VAs identify that there will be a regulatory implementation pathway that would exist in parallel with the VA implementation pathway. The staff-proposed regulatory pathway under the VA alternative	The Staff Report does not conclude that the "VAs provide greater fish benefits than the proposed Plan amendments." See Staff Report Chapter 3, Scientific Knowledge to Inform Fish and Wildlife Flow Recommendations, and Section 13.5, Beneficial Environmental Effects, for analysis of the benefits of the regulatory and VA pathways. Please refer to Common Response 7.1, General CEQA and Approach to the Analysis, for more information on how the Staff Report meets CEQA requirements. Also see Common Response 7.24, Alternatives Analysis, for a discussion of the environmentally superior alternative.

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		would apply to non-VA parties and could apply to VA parties in the event the VAs are discontinued. The proposed [VA] regulatory pathway is largely consistent with the proposed Plan amendments, except that instead of being amended into the water quality objectives, the inflow, inflow-based Delta outflow, and cold water habitat provisions of the proposed Plan amendments would be included in the program of implementation and could become applicable in the future if the VAs are not continued. (Draft Staff Report at p. 7.1-2.) Additionally, as documented in the Draft Supplement Report, the VA alternative's integrated flow and non-flow measures are reasonably expected to increase native fish species' population abundance consistent with achieving the Salmon Doubling Objective by 2050. (Draft Staff Report, Appendix G2 at p. 7-1.) Indeed, the VAs provide greater fish benefits than the proposed Plan amendments' one-dimensional, flow-based approach, and the severe, unmitigable impacts associated with the proposed Plan amendments require the State Water Board to select and implement the feasible, environmentally superior VA alternative. (Pub. Resources Code, §§ 21002-21002.1, 21004; CEQA Guidelines, §§ 15002(a), (h), 15021, 15126.6(d), (e)(2).)	
268	40	[ATT 2] An unimpaired flow-only approach will lead to significant damage to the environment; to biological resources; surface water resources; groundwater resources; conversion of prime agricultural farmland; cumulative impacts; and impacts attributed to proposed mitigation measures, among other impacts. These significant environmental impacts are avoidable by adopting the proposed VA alternative, which integrates flow and non-flow measures and thereby adequately coordinates control of all factors necessary to provide reasonable protection to fish and wildlife beneficial uses. Based upon the evidence contained in the Draft Staff Report, the best available science, and reasonably foreseeable water supply and other environmental impacts, CEQA requires the State Water Board to select the feasible and environmentally superior VA alternative.	Please see Common Response 1.1, General Comments, for responses to comments that make general comments, do not raise specific environmental impacts of the project, or do not raise specific economic effects of the project. Also see Common Response 7.24, Alternatives Analysis, for information on the environmentally superior alternative.

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268	41	Implementing the Proposed Plan Amendments' Flow-Only Approach Would Have Significant Adverse Impacts on Aquatic and Terrestrial Biological Resources The Draft Staff Report's Analysis of the Proposed Plan Amendments Violates CEQA by Failing to Analyze and Disclose Their Significant Adverse Impacts on Aquatic Biological Resources CEQA requires a lead agency to first provide a detailed statement setting forth all of the proposed project's significant effects on the environment before analyzing mitigation measures proposed to avoid or substantially lessen those significant effects. (CEQA Guidelines, §§ 21061, 21100(b)(1) & (3), 21002.1(a) ["The purpose of an environmental impact report is to identify the significant effects on the environment of a project, to identify alternatives to the project, and to indicate the manner in which those significant effects can be mitigated or avoided."]; Friends of Sierra Madre v. City of Sierra Madre (2001) 25 Cal.4th 163, 183.) The Draft Staff Report's analysis of the proposed Plan amendments violates CEQA because their temperature control and reservoir management provisions are mitigation measures rather than design features. (Draft Staff Report at p. 7.1-8.) Incorporating proposed mitigation measures as elements of the proposed action, as the State Water Board has done here with the proposed Plan Amendments, precludes meaningful evaluation of the proposed activity's impacts and violates CEQA. (Lotus v. Department of Transportation (2014) 223 Cal.App.4th 645, 656-58 ("Lotus").) The Draft Staff Report violates CEQA by analyzing environmental impacts attributed to the proposed Plan amendments while applying its Temperature Control and Reservoir Management Mitigation Measure.	The proposed cold water habitat objective and its implementation are consistent with the fundamental purpose and goals of the project, which include providing flows and improving both habitat and temperature conditions for native fishes. Thus, the proposed cold water habitat objective and its implementation are essential project components necessary to achieve the project's fundamental purpose and goals. A necessary consideration of the project is how best to balance the benefits to fish and wildlife by providing more inflow against the potential associated effects on temperature management of the reservoirs. The 2023 draft Staff Report, Section 7.6.2, Aquatic Biological Resources, identifies and discloses that in some instances on some streams, temperatures could increase and thus have a potentially significant impact, both with and without the implementation of the cold water habitat objective. To clarify inclusion of the cold water habitat objective as part of the project, it is no longer portrayed as a mitigation measure for water temperature, and the description of mitigation measures has been modified accordingly in the final Staff Report. Please see Common Response 7.6.2, Aquatic Biological Resources and Cold Water Habitat, regarding implementation of the cold water habitat objective. The cold water habitat objective is part of the proposed Plan amendments described in Chapter 7, Environmental Analysis, and the revised proposed Plan amendments described in Chapter 13, Revised Proposed Plan Amendments. Also see Common Response 7.1, General CEQA and Approach to the Analysis, for a discussion of the level and scope of the analysis, and mitigation measures.
268	42	[ATT 2] The Draft Staff Report expressly provides that the proposed Plan amendments' Cold Water Habitat Objective is both a Project Component and a mitigation measure. (Draft Staff Report at pp. 5-9 [project component], 7.6.2-103 [mitigation measure].) Indeed, the first component of Mitigation Measure MM-AQUA-a,d	In response to comments on the 2023 draft Staff Report that cited Lotus v. Dept. of Transportation (2014) 223 Cal.App.4th 645, 657-658, the State Water Board has removed cold water habitat objective implementation from the list of mitigation measures in Appendix H3, Mitigation Measures for the Revised Proposed Plan Amendments, as it is properly part of the proposed project. Cold water habitat implementation is no

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		to “[m]itigate impacts on aquatic special-status species and wildlife movement or wildlife nurseries” instructs the State Water Board to “Implement Cold Water Habitat Objective.” (Id. at p. 7.6.2-103; id. at p. 7.6.2-95 [“Implementation of Mitigation Measures MM-AQUA-a,d: 1 through 3 will avoid or reduce temperature impacts from the proposed Plan amendments. Specifically, implementation of the proposed cold water habitat objective would reduce or avoid temperature impacts on special-status species in the Sacramento/Delta.”].) It is immaterial, however, whether the Draft Staff Report labels mitigation of the proposed Plan amendments’ impacts through the Cold Water Habitat Objective as a “mitigation measure” and/or a “project component.” “In the case of the adoption of a plan, policy, regulation, or other public project, mitigation measures can be incorporated into the plan, policy, regulation, or project design.” (CEQA Guidelines, § 15126.4 (a)(2).) But such incorporation does not change CEQA’s substantive requirements that govern an agency’s description and analysis of actions intended to avoid or substantially lessen the adverse impacts of its plans. [Footnote 15: If mitigation measures are incorporated into a project to mitigate its significant effects, a “public agency shall adopt a reporting or monitoring program for the changes made to the project . . . to mitigate or avoid significant effects on the environment” and ensure compliance during implementation. (Sierra Club v. County of San Diego (2014) 231 Cal.App.4th 1152, 1165, quoting Pub. Resources Code, § 21081.6(a)(1); see also Federation of Hillside & Canyon Associations v. City of Los Angeles (2000) 83 Cal.App.4th 1252, 1261 n.4 [“to incorporate mitigation measures into a project means to amend the project so that the mitigation measures necessarily will be implemented”].)] Even if mitigation measures are incorporated into a plan or project’s design, the criteria, performance standards and effectiveness of such actions cannot be merely assumed, and the environmental impacts of implementing mitigating actions must be disclosed. (Lotus, supra, 223 Cal.App.4th at pp. 651-652 [incorporating mitigation measures into a plan or project does not provide a “shortcut” to CEQA compliance]; CEQA Guidelines, 15126.4(a).) Whether the Cold Water Habitat Objective is a project component or a mitigation measure, the State Water Board must disclose the	longer identified as mitigation for potential temperature impacts on aquatic biological resources. See Common Response 7.6.2, Aquatic Biological Resources and Cold Water Habitat, regarding implementation of the cold water habitat objective. Please see also the response to comment 268-41.

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		significance of impacts attributed to this feature and show that the mitigation measures are feasible, effective, and enforceable. (CEQA Guidelines, § 15126.4(a)(2); see also CEQA Guidelines, § 15126.4(a)(1)(D) [requirement to analyze significant environmental impacts caused by mitigation measures].) To comply with the informational purposes and disclosure requirements of CEQA, this analysis regarding mitigation measures must occur after the full extent of the proposed Plan amendments' impacts are described in detail.	
268	43	[ATT 2] Mitigation Measure MM-AQUA-a,d (1)(i) requires long-term strategy and operations plans that include, among other things, provisions for carryover storage levels and flow releases from rim reservoirs to “avoid or reduce temperature impacts” to native fish species. (Id. at p. 7.6.2- 103.) The stated purpose of the Cold Water Habitat Objective is “to ensure that there are no redirected impacts on cold water habitat from the new inflow and Delta outflow objectives and to address other existing and potential future temperature management concerns on the tributaries for salmonids and other native species.” (See, e.g., Draft Staff Report at p. 5-22.) In sum, the objective is plainly intended to mitigate the adverse temperature impacts associated with satisfying the proposed Plan amendments' higher flow requirements and its implementation is MM-AQUA-a,d (1)(i). (Id. at pp. 7.6.2-95, 7.6.2-103.) Yet, the Draft Staff Report fails to evaluate the effects of the various unimpaired flow scenarios on aquatic biological resources without the Temperature Control and Reservoir Management Mitigation Measure. Instead, the Draft Staff Report's aquatic biological resources impact analysis for the proposed Plan amendments included “end-of-September carryover storage targets” in the SacWAM flow scenarios. (Draft Staff Report at pp. 7.6.2-57 – 7.6.2-88.) Consequently, the State Water Board applied Mitigation Measure MM-AQUA-a,d (1)(i) during its evaluation of whether the proposed Plan amendments will result in significant environmental impacts. In so doing, the State Water Board violated the CEQA principle that a project's environmental impacts first must be described before the lead	Please see the response to comment 268-42. Water rights subject to the VA pathway would not be required to meet the numeric inflow and cold water habitat requirements. The revised proposed Plan amendments include a provision requiring that the VA pathway be implemented in a manner to improve temperatures to the extent possible and avoid redirected impacts to water temperatures. As part of the annual and periodic review processes, the HRL participants will be required to report on measures they have undertaken to address temperature impairments in their stream systems in coordination with HRL implementation measures.

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		agency can apply mitigation measures. (Lotus, supra, 223 Cal.App.4th at pp. 656-58.) As the Court of Appeal held in Lotus, blurring the lines between an agency's determination of environmental impacts and mitigation "precludes both identification of potential environmental consequences arising from the project and also thoughtful analysis of the sufficiency of measures to mitigate those consequences." (Lotus, supra, 223 Cal.App.4th at p. 658.) In the present matter, it also prejudices the VA alternative, as the Draft Staff Report's discussion of its impacts on end-of-September carryover storage were not mitigated. On the one hand, the State Water Board masked the proposed Plan amendments' adverse temperature impacts upon special-status species in the Sacramento/Delta – the species the Project is designed to protect. On the other hand, the Draft Staff Report fully disclosed the VA alternative's impacts without mitigation, which created an uneven playing field and misleading discussion of potential impacts, in violation of CEQA.	
268	44	[ATT 2] The Draft Staff Report's Analysis of the Proposed Plan Amendments Fails to Adequately Apprise the Public and the Decision Makers of Their Significant Adverse Impacts on Special-Status Fish Species, Including the Fully Protected Desert Pupfish The Draft Staff Report acknowledges the proposed Plan amendments would reduce the Sacramento/Delta water supply for irrigation use, and that "[t]hese conditions could adversely affect special-status fish species" such as the desert pupfish. (Draft Staff Report at p. 7.6.2-96.) The Draft Staff Report notes that the desert pupfish is listed as endangered under both the federal Endangered Species Act and California Endangered Species Act, that it is fully protected, and that its habitat includes the Coachella Valley agricultural drains and the Salton Sea. (Id. at pp. 7.6.2-6; 7.6.2-96.) The Draft Staff Report indicates that "in addition to pupfish, there may be other aquatic species that rely on Sacramento/Delta water supplies that could be affected by	The 2023 draft Staff Report discusses the impacts of the Plan amendments on special status fish species in Section 7.6.2, Aquatic Biological Resources. Within Section 7.6.2 there is a discussion of potential impacts from changes in Sacramento/Delta water supply that could lead to changes in irrigation supply and runoff in agricultural drainages that may support aquatic habitat. Potential impacts on desert pupfish habitat are provided as one example of an indirect impact that could occur depending on the actions of the Coachella Valley Water District and the Metropolitan Water District in response to the Plan amendments, based on review of the Coachella Valley Multiple Species Habitat Conservation Plan. Section 7.6.2 states it is speculative and unknown what actions individual water districts would take in response to reduced Sacramento/Delta water supply, and the potential for these actions to result in substantial modifications to aquatic habitat may be remote or attenuated. The 2023 draft Staff Report presents a conservative evaluation based on the information available to the State Water Board and concludes that impacts on aquatic species could be potentially significant.

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		reductions in this supply,” but asserts it was “speculative and unknown” what actions individual water districts will take in response to reduced supply. (Ibid.) No analysis of the proposed Plan amendments is provided as to the potential nature or magnitude of likely impacts to desert pupfish. The Draft Staff Report indicates that potential impacts of the proposed Plan amendments may be avoided by implementation of MM-AQUA-a,d:3, 4, but these measures are unenforceable, and Mitigation Measure MM-AQUA-a,d:3 in particular depends on voluntary habitat protection and restoration actions – actions that are required under the VA alternative. (Id. at p. 7.6.2-96.)	The mitigation measures presented in the 2023 draft Staff Report provide a range of options that various entities can adopt or utilize to mitigate the potential effects of the proposed Plan amendments. The mitigation measures may not be applicable to every location or for every action within the State Water Board’s authority. Some mitigation measures are largely within the jurisdiction and control of other agencies; accordingly, the State Water Board cannot guarantee that measures will always be adopted or applied to fully mitigate all potential impacts. For this reason, impacts on aquatic biological resources remain potentially significant. In the final Staff Report, Mitigation Measure MM-AQUA-2, Habitat Protection and Restoration Actions, (formerly Mitigation Measure MM-AQUA-3) is not specific to the VA pathway. As discussed in Chapter 13, Section 13.3, Revised Proposed Plan Amendments, recovery of the Bay-Delta ecosystem depends on more than adequate flows and the program of implementation for the Bay-Delta Plan encourages water rights holders to implement complementary ecosystem protection measures, including habitat restoration. These measures are separate from the HRL habitat restoration commitments. Mitigation Measure MM-AQUA-3, Special-Status Species Management Measures, (formerly Mitigation Measure MM-AQUA-4) was developed based on actions typically included in habitat conservation plans, including the Coachella Valley Multiple Species Habitat Conservation Plan. Please also see Common Response 7.1, General CEQA and Approach to the Analysis, for a discussion of mitigation measures.
268	45	[ATT 2] Unlike the VA Alternative, the Proposed Plan Amendments’ Significant Adverse Impacts on Terrestrial Biological Resources Would be Exacerbated by the Lack of Binding Habitat Restoration Activities Under the proposed Plan amendments, “[o]verall, the effects on giant garter snakes resulting from changes in Sacramento/Delta	Please see Common Response 1.1, General Comments, for responses to comments that make general comments, do not raise specific environmental impacts of the project, or do not raise specific economic effects of the project. Please see: Common Response 7.1, General CEQA and Approach to the Analysis, regarding the approach and scope of the analysis presented in the 2023 draft Staff Report. Also see Common Response 7.24, Alternatives Analysis, regarding discussion of an environmentally superior alternative.

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		water supplies would range from less than significant (if maximum replacement groundwater pumping is used) to potentially significant (if no replacement groundwater pumping is used to supply rice lands and wetlands at wildlife refuges affected by changes in surface water supply).” (Draft Staff Report at p. 7.6.1-64.) The Draft Staff Report engaged in substantially the same analysis regarding the proposed Plan amendments’ impacts to the Swainson’s hawk, greater sandhill crane, and the tri-colored blackbird populations. (Id. at pp. 7.6.1-65, 7.6.1-66, 7.6.1-68.) [Footnote 16: As to each of these species, the VA alternative consistently outperforms the proposed Plan amendments. (Draft Staff Report at pp. 7.6.1-65-68, 9-102-104.) As to the California Black Rail, it appears that the Draft Staff Report has no actual analysis as to the impact of the Project on its habitat, other than to conclude that the Project’s impact is “potentially significant.” (Id. at pp. 7.6.1-69; 9-104.) Here again, the VA alternative avoids much of this uncertainty.] The maximum replacement groundwater scenario is not supported by the facts. (Infra at p. 25-26.) The proposed Plan amendments and their variations [Footnote 17: The “Low Flow” and “High Flow” Alternatives are identical to the proposed Plan amendments, but would require between 35-45 percent and 65-75 percent unimpaired flow, respectively. (Draft Staff Report at pp. 7.2-6 - 7.2-7.)] will reduce Sacramento/Delta surface water supplies under all unimpaired flow scenarios. In contrast, the VA alternative will prevent significant damage to groundwater resources in terms of both quantity and quality, which are interconnected. The VA alternative also increases flow in a manner that benefits special status species, with fewer detrimental effects. (Draft Staff Report at p. 9-100.) [Footnote 18: Under the proposed Plan amendments with no replacement groundwater pumping, the reduction in giant gartersnake habitat in the Sacramento/Delta and San Joaquin Valley region was 6% in an average year, compared to baseline conditions. (Draft Staff Report at p. 7.6.1-63.) Under the VA alternative the reduction is only 1.2%. (Id. at p. 9-102.)]	The 2023 draft Staff Report identified and disclosed potential impacts to special-status wildlife species that rely on Sacramento/Delta water supplied to wildlife refuges and certain agricultural lands in Section 7.6.1, Terrestrial Biological Resources. The species with the greatest potential to be adversely affected by changes in water supply, based on their rarity and dependence on wetland habitat at wildlife refuges and specific crops, are giant gartersnake, Swainson’s hawk, greater sandhill crane, tricolored blackbird, and California black rail. Therefore, the Statewide Agricultural Production (SWAP) model was utilized to determine the percentage change in acreage of crops most important to these species compared to baseline conditions. For planning purposes and transparency for decision-making purposes for agricultural users, SWAP evaluates a range of effects depending on groundwater conditions from no replacement and maximum replacement groundwater pumping. Impacts to these species are evaluated and disclosed based on SWAP results in the section mentioned above. The 2023 draft Staff Report concluded that impacts to the northern San Francisco Bay estuary population of the California black rail would be either minimal or beneficial, however, impacts to the Sierra Nevada foothill populations were potentially significant. The draft Staff Report explains that modeling was not specific enough to determine crop acreage changes in these foothill areas. Therefore, the impact conclusion for California black rail relies on the inference that, because agricultural water supplies to pasture and alfalfa fields served by open irrigation ditches could be reduced, this may decrease California black rail habitat which depends on similar natural water sources such as springs and streams. Even though reductions in surface water supplies to these ecosystems will be small, the impact on the California black rail was conservatively determined to be potentially significant because of the rarity of the species. Additionally, the proposed Plan amendments would include measures to reduce or minimize the unintended consequences to terrestrial species and refuges that rely on supplies from the Sacramento/Delta. For more information see Section 5.6.2.6,

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			Refuge Water Supplies and Other Wildlife Protection Measures, in the 2023 draft Staff Report. The project is revised as described in Common Response 1.3, Revised Proposed Plan Amendments. The proposed Plan amendments remain part of the project as the regulatory pathway; however, the regulatory pathway under the revised proposed Plan amendments includes new water supply adjustments at the outset of Plan implementation that lower flow requirements under certain conditions to reduce water supply impacts and allow more water to be stored in reservoirs. The revised proposed Plan amendments also provide for a VA pathway for an eight-year term with the possibility of extension that reduces the required flow contributions for HRL water rights. Section 13.7.6.1, Terrestrial Biological Resources, of the final Staff Report evaluates the impacts on terrestrial special status species under both the regulatory and VA pathways.
268	46	[ATT 2] Though the Draft Staff Report notes that “[r]estoration of wetland habitat would benefit the giant garter snake and could offset habitat loss associated with decreased Sacramento/Delta water supplies to wildlife refuges and decreased rice production,” it fails to acknowledge that, under the proposed Plan amendments, habitat restoration is a primarily voluntary measure. (Draft Staff Report at pp. 7.6.1-64, 7.6.1-88 [Mitigation Measure MM-TER-a: 3, Voluntary Implementation Plans, which include habitat restoration].) The VA alternative explicitly provides for defined and enforceable habitat restoration measures. (Id., Appendix G2 at pp. 1-9; id. at ES- 5; id. at pp. 9-77.)	Please see Common Response 7.1, General CEQA and Approach to the Analysis, for a discussion about the scope of the analysis presented in the 2023 draft Staff Report, as well as a discussion of mitigation measures. The 2023 draft Staff Report acknowledges that some restoration efforts to reduce impacts to wetland habitat could occur voluntarily, as indicated in the title Mitigation Measure MM-TER-a: 3, Voluntary Implementation Plans. While these implementation plans are no longer part of the final Staff Report mitigation measures, Mitigation Measure MM-TER-a: 2 Habitat Protection and Restoration Actions, discusses restoration actions other entities should take to mitigate impacts on special status species. The State Water Board’s authority to require non-flow actions is somewhat limited; however, the program of implementation provides a framework to incorporate both flow and complementary ecosystem projects such as physical habitat restoration (including those actions proposed in suggested mitigation measures throughout the final Staff Report) into local cooperative solutions (see Bay-Delta Plan, Chapter 4.4.2.4). To approve a local cooperative solution, the State Water Board must make a finding that the solution is enforceable, which would provide a mechanism for enforcing habitat restoration in those

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			cases. In addition, some complementary ecosystem projects may also serve as an implementation mechanism for the proposed cold water habitat objective. The VA pathway also includes implementation of non-flow habitat restoration actions targeted at improving spawning and rearing capacity for juvenile salmonids, estuarine species, and other native fish and wildlife on a portion of the Sacramento/Delta tributaries for an initial 8 years (with the possibility to extend the term). See Common Response 1.2, Water Quality Control Planning Process, for information on the consideration of non-flow measures and State Water Board's authority to impose non-flow measures.
268	47	[ATT 2] Furthermore, under the proposed Plan amendments, Mitigation Measure MM-TER-a: 4(i) recommends the “conversion of rice fields to other uses near areas likely to support giant gartersnake populations.” (Draft Staff Report at p. 7.6.1-88.) This conversion from “rice fields to other uses” would be voluntary, however. (Ibid.) State Water Board therefore cannot accurately predict (1) the amount of land voluntarily converted from rice fields to protect giant gartersnake (cf. fallowing rice fields), if any; and (2) the precise locations of such voluntary habitat restoration measures. Without this crucial information, the efficacy of MM-TER-a: 4(i) would be highly uncertain if voluntarily implemented. The VA alternative reduces much of this uncertainty through its firm habitat restoration commitments and is the environmentally superior alternative under CEQA. (Pub. Resources Code, §§ 21002-21002.1, 21004; CEQA Guidelines, §§ 15002(a), (h), 15021, 15126.6(d), (e)(2).)	Please see Common Response 7.1, General CEQA and Approach to the Analysis, for a discussion about the scope of the analysis presented in the 2023 draft Staff Report, as well as a discussion of mitigation measures; and Common Response 1.2, Water Quality Control Planning Process, for information on the consideration of non-flow measures and State Water Board's authority to impose non-flow measures. The referenced statement from Mitigation Measure MM TER-a is inaccurate and omits important information, leading to the incorrect assertion that the Board is recommending conversion of rice fields to protect the giant gartersnake. The above referenced mitigation measure states “To protect giant gartersnake, agricultural water users and suppliers and land managers should develop and implement appropriate management measures such as the following. Avoiding or minimizing [emphasis added] crop idling or conversion of rice fields to other uses near areas likely to support giant gartersnake populations” For this mitigation measure, the action of avoiding or minimizing applies to both crop idling and conversion of rice fields.
268	48	[ATT 2] The Proposed Plan Amendments' Water Supply Impact Analysis is Inadequate, and Implementing a Flow-Only Approach Would Have Devastating Surface Water Supply Impacts	Please see Common Response 1.1, General Comments, for responses to comments that make general comments, do not raise specific environmental impacts of the project, or do not raise specific economic effects of the project.

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		The proposed Plan amendments, developed prior to the VA proposal in 2022, included options for voluntary implementation pathways to incorporate essential non-flow measures like habitat restoration. (Draft Staff Report at pp. 7.1-6, 7.1-2 [The Draft Staff Report “was nearing completion” when the State Water Board received the VA MOU in 2022], 7.1-21 [regarding voluntary “complementary ecosystem projects”].) Indeed, the Draft Staff Report concludes that those “voluntary implementation pathways . . . can provide for better outcomes with lower water supply costs” than flow objectives could provide alone. (Id. at p. 7.1-6 (emphasis added).) The Draft Staff Report further explains that such lower water supply costs would occur when flows are in the lower adaptive range due to “successful voluntary implementation plans that demonstrate they can achieve the narrative objective using a combination of flow and other measures,” as achieved by the VA alternative. (Id. at p. 7.1-7.) Accordingly, these water supply “costs” are attributed to the physical levels of inflows required under the proposed Plan amendments to support fish and wildlife beneficial uses. While these “costs” have an economic dimension, they are physical in nature due to their water supply effects and related physical impacts (e.g., on agricultural resources). These findings, as evidenced by the Draft Supplement Report, demonstrate that better fish and wildlife protection can reasonably be achieved using the VA alternative’s holistic approach, which combines flow and non-flow measures, than can be achieved through the proposed Plan amendments’ flow-only approach – while greatly reducing interrelated surface water, groundwater, greenhouse gas emissions (from reduced groundwater pumping), and agricultural resources impacts. (Draft Staff Report at p. 9-83 [As the VA alternative would cause less significant water supply impacts, “the magnitude of changes from other water management actions that would occur as a result of changes in water supply would be less under the proposed VAs than the proposed Plan amendments”]; id. at pp. 7.12.2-29, 7.12.2-40 [groundwater use and impacts tend to be higher when surface water is generally less available]; id. at pp. 7.4-1, 7.4.4 [proposed Plan amendments’ agricultural impacts result from changes in hydrology or changes in water supply]; id. at pp. 7.8-16 [energy required for groundwater pumping increases as the depth of groundwater decreases], 6-80	

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		[proposed Plan amendments will result in lower groundwater levels due to diminished groundwater recharge following reduced surface water supplies];7.10-14 [increased groundwater pumping from diesel pumps in response to the proposed Plan amendments would increase GHG emissions].)	
268	49	[ATT 2] The Draft Staff Report’s Analysis of the Proposed Plan Amendments’ Surface Water Supply Impacts Fails to Satisfy CEQA’s Informational Requirements by Failing to Consider Any Adaptive Scenarios The fundamental purpose of an EIR is to “provide public agencies and the public in general with detailed information about the effect which a proposed project is likely to have on the environment.” (CEQA Guidelines, § 21061.) The proposed Plan amendments propose a 55 percent unimpaired flow “starting point,” with an adaptive range “between 45 percent and 65 percent unimpaired flow.” (Draft Staff Report at pp. 7.1-1, 7.1-7.) The purpose of the adaptive range is to “provide flexibility to address the unique circumstances of different tributaries,” based on the Project’s monitoring and evaluation program. (Id. at pp. 7.1-6 - 7.1-7.) The Draft Staff Report fails to disclose how adaptive implementation would occur. The Draft Staff Report states that the State Water Board opposes “rigid regimes,” like “a fixed flow schedule.” (Id. at p. 7.2-16.) Thus, as in the Phase 1 Plan Amendments, the proposed Plan amendments, if implemented, will allow for and likely would result in detailed monthly adaptive adjustments. But, the Draft Staff Report fails to consider impacts associated with adjustments within the 45 percent to 65 percent flow range during a single water year. Instead, the Draft Staff Report merely presents annual scenarios that assume – contrary to the State Water Board’s own preferences – rigid regimes of fixed unimpaired flow levels. Indeed, the Draft Staff Report admits the State Water Board selected a 55 percent starting point because it “is the flow level at which more significant improvements to fish and wildlife beneficial uses are expected and cold water supplies can still be maintained.” (Id. at p. 7-1-7.) This rationale evidences the	Please refer to the response to comment 268-24. Also see Common Response 1.3, Revised Proposed Plan Amendments, regarding the revised proposed Plan amendments, inflow, and cold water habitat. Please see Common Response 7.1, General CEQA and Approach to the Analysis, regarding the level and scope of the analysis.

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		proposed Plan amendments' intent to maximize flows provided to fish while still maintaining cold water storage. An alternative method for evaluating how to maximize unimpaired flow while maintaining cold water storage would be to create a matrix of monthly scenarios tailored to particular hydrologic conditions. The Draft Staff Report thus fails to provide the public with adequate information regarding the proposed Plan amendments' likely impacts because it presents only static pictures of annual flow levels during various water years. A more complete analysis is necessary to reflect the complexity of the proposed Plan amendments' likely implementation scenarios and resulting environmental impacts.	
268	50	[ATT 2] Failing to Disclose that it Is Not Feasible to Achieve Carryover Storage Targets as Modeled Under the Proposed Plan Amendments Violates CEQA's Informational Purposes CEQA provides that "an agency must use its best efforts to find out and disclose all that it reasonably can" when forecasting environmental impacts and the feasibility of alternatives. (CEQA Guidelines, § 15144; see also id. at § 15151 ["[T]he sufficiency of an EIR is to be reviewed in light of what is reasonably feasible"].) "'Feasible' means capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, social, and technological factors." (Id. at § 21061.1.) Accordingly, if the proposed Plan amendments are the proposed alternative, then the State Water Board must disclose all that it reasonably can regarding the infeasibility of its carryover storage targets. As the Draft Staff Report itself observes: Chapter 6, Changes in Hydrology and Water Supply, evaluates changes in end-of- September carryover storage for the 35 to 75 scenarios in 10-percent increments compared with baseline conditions for rim reservoirs, upstream reservoirs, and total storage in each tributary. These analyses generally indicate that carryover storage can be maintained (with less than a 10-percent change) in the tributaries under the 35, 45, and 55 scenarios, except for Stony and Putah Creeks (Black Butte	The Staff Report fully satisfies the basic purposes of CEQA, which are to: (1) inform governmental decision makers and the public about the potential significant environmental effects of proposed activities; (2) identify ways that environmental damage can be avoided or significantly reduced; (3) prevent significant, avoidable damage to the environment by requiring changes in projects through the use of alternatives or mitigation measures when the governmental agency finds the changes to be feasible; and (4) disclose to the public why a governmental agency approved the project in the manner the agency chose if significant environmental effects are involved. (Cal. Code Regs., tit. 14, § 15002, subd. (a).) To fulfill these functions, an evaluation of the environmental effects need not be exhaustive, but the sufficiency of an environmental analysis is to be reviewed in light of what is reasonably feasible and CEQA documents need not be perfect. CEQA documents should be adequate, complete, and represent a good faith effort at full disclosure. (Id., § 15151.) The trade-offs between instream flow requirements, carryover storage, and water supply are addressed extensively throughout the Staff Report. Chapter 6, Changes in Hydrology and Water Supply, moreover discusses the ways in which modeled results may, in specific instances, differ from observations and future actions. The Staff Report discloses that modeling represents general projections and does purport or aim to predict specific results at particular systems or points in time, as further discussed in Common Response 6.1, Sacramento Water

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		Reservoir and Lake Berryessa, respectively) and the Calaveras and Mokelumne Rivers (Comanche and Pardee Reservoirs, respectively) (see Tables 6.3-8 and 6.3-9 in Chapter 6, Changes in Hydrology and Water Supply). These tributaries are highly impaired, creating challenges for carryover storage and temperature control. In the 65 scenario, carryover storage becomes more challenging for these tributaries as well as for the Yuba River. In the 75 scenario, it is not possible to maintain carryover storage as modeled. Although modeling assumptions could be modified to further reduce diversions in an attempt to better achieve carryover storage levels, it would not be possible to significantly improve carryover storage levels without dramatic water supply reductions. (Draft Staff Report at p. 3-134.) [Footnote 19: The carryover storage targets were “general assumptions” made by the State Water Board. (Draft Staff Report at pp. 3-132–3-133.) New protections to mitigate cold water habitat impacts of the proposed Plan amendments will be identified in later proceedings. (Ibid.) The Draft Staff Report fails to adequately define the proposed Plan amendments’ cold water habitat protections, and further fails to provide sufficient information to understand the water supply tradeoffs between the proposed Plan amendments’ unimpaired flow requirement, cold water habitat provisions, and existing beneficial uses. (Id. at p. 7.6.2-94 [satisfying the unimpaired flow requirement and cold water habitat provision could require “dramatic water supply reductions”].) Accordingly, the Draft Staff Report’s analysis of the proposed Plan amendments does not provide enough information to meaningfully consider how these tradeoffs will be managed. (Cleveland National Forest, supra, 17 Cal.App.5th at p. 426.)] The Draft Staff Report’s analysis of the proposed Plan amendments thus concedes that the modeling results presented in Tables 6.3-8 and 6.3-9 are not possible to achieve in practice in various cases. (Draft Staff Report at p. 6-41.) But these tables do not disclose these discrepancies between the Draft Staff Report’s theoretical modeling results and the State Water Board’s real-life predictions. Indeed, the purpose of modeling is to represent reasonably likely conditions so that the lead agency	Allocation Model and Changes in Hydrology and Water Supply. In addition, the project is revised as described in Common Response 1.3, Revised Proposed Plan Amendments. The proposed Plan amendments remain part of the project as the regulatory pathway, which includes new water supply adjustments at the outset of Plan implementation that lower flow requirements under certain conditions to reduce water supply impacts and allow more water to be stored in reservoirs.

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		can make informed decisions. Therefore, if the State Water Board adopts the proposed Plan amendments without informing the public of the discrepancies regarding the modeled carryover storage results and expected conditions in Tables 6.3-8 and 6.3-9, it would improperly lead the public to believe the information presented in those tables is accurate, when in reality the carryover storage modeling results presented in Table 6.3-9 are likely overstated on the tributaries listed above. To serve its purpose as an informational document, the Draft Staff Report must clearly reflect its conclusion that “it is not possible to maintain carryover storage as modeled” for the proposed Plan amendments and that it becomes “more challenging” to maintain certain modeled values in practice.	
268	51	[ATT 2] The VA Alternative Will Prevent Significant Adverse Impacts Related to Surface Water Resources The VA alternative is “estimated to result in an average annual reduction of Sacramento/Delta surface water supply of approximately 123 [thousand acre-feet (“TAF”)] per year for the entire study area,” which includes the Sacramento/Delta watershed, the San Joaquin Valley, the San Francisco Bay Area, Central Coast, and Southern California. (Draft Staff Report at p. 9-59 (emphasis added).) 123 TAF equates to approximately one percent (1%) loss of total annual Sacramento/Delta water supply under baseline conditions. (Id. at p. 9-60 [Table 9.5-45].) Under the VA alternative, surface water supplies would decrease by 81 TAF in Critical years; 306 TAF in Dry years; 132 TAF in Below Normal years; and 184 in Above Normal years. (Ibid.) During Wet years, surface water supplies will increase under the VA alternative by 22 TAF relative to baseline conditions. (Ibid.) An average annual reduction of Sacramento/Delta surface water supplies of 123 TAF therefore reflects impacts experienced in Below Normal water years. (Ibid.) In contrast, under the proposed Plan amendments, on average, Sacramento/Delta water supply is reduced by “over 1,682 TAF/yr [Footnote 20: As illustrated in Table 6.4-2, an average annual reduction of 1,682 TAF is close to the average reduction during below normal (-	Reduction in water supply is not itself an environmental impact under CEQA. Changes in water supply are evaluated extensively throughout the Staff Report for consideration of factors under Water Code section 13241 and to inform the environmental and economic analyses. Reductions of Sacramento/Delta supply to agricultural use is considered a potentially significant impact if the changes result in conversion of important farmland. The Staff Report uses threshold UT-d in Section 7.20, Utilities and Service Systems, to assess impact of changes in supply for municipal use although it is not a direct impact on the environment. Water agencies’ response to reduced municipal supply can lead to other actions, including the construction or expansion of new water treatment facilities or water supply infrastructure, which could have environmental impacts under CEQA. See Common Response 6.3, Water Supply and Other Water Management Actions, for more discussion on water supply impacts. Please refer to Common Response 7.24, Alternatives Analysis, for a discussion of the environmentally superior alternative.

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		1,937 TAF) and above normal (-1,278) years. (Draft Staff Report at p. 6-57.)) [14 percent of Sacramento/Delta supply).” (Draft Staff Report at p. 6-57.) Therefore, compared to the VA alternative, the proposed Plan amendments would result in an additional 1,559 TAF of water supply impacts. The proposed Plan amendments would result in 13.67 times more impacts than the VA alternative. The VA alternative would result in only 7.3 percent (7.3%) of the water supply impacts attributed to the proposed Plan amendments, meaning that 92.7 percent (92.7%) of the proposed Plan amendments’ water supply impacts can be avoided by selecting the VA alternative. Across all sectors and regions, the VA alternative will avoid significant water supply impacts associated with the proposed Plan amendments, while better satisfying the Project objectives. CEQA therefore requires the State Water Board to adopt the feasible and environmentally superior VA alternative. (Pub. Resources Code, §§ 21002-21002.1, 21004; CEQA Guidelines, §§ 15002(a), (h), 15021, 15126.6(d), (e)(2).)	
268	52	[ATT 2] The VA alternative would result in a total average annual water supply loss of 123 TAF across the entire study area. Under the proposed Plan amendments, Sacramento/Delta water supply available to agriculture in the San Joaquin Valley alone would, on average, decrease by 353 TAF. (Draft Staff Report at pp. 6-54 – 6-55 [Table 6.4-1, reduction in supply from 2,422 TAF to 2,069 TAF for agricultural uses in San Joaquin Valley].) Water supply impacts related to San Joaquin Valley agriculture under the proposed Plan amendments(353 TAF) greatly exceed all water supply impacts under the VA alternative (123 TAF). The proposed Plan amendments would burden the San Joaquin Valley agricultural sector with over 20 percent of total (1,682 TAF) water supply reduction, with an average annual reduction of 353 TAF compared to baseline supply. (Draft Staff Report at pp. 6-54 – 6-55 [Table 6.4-1, reduction in supply from 2,422 TAF to 2,069 TAF for agricultural uses in San Joaquin Valley].) Reduced supply of 353 TAF would constitute a 14.5 percent loss in surface water supply of Sacramento/Delta water for agricultural uses in the San Joaquin Valley. (Ibid.)	Comments regarding supply reductions under the VAs being less than reductions to the San Joaquin Valley under the proposed Plan amendments is consistent with the environmental analysis. Table 6.4-1 details total annual average water supply to each region in the study area by type of use (agriculture, urban, and refuge). Reductions in Sacramento/Delta supply should be viewed in context of overall supply to a region. Sacramento/Delta water does not supply all water uses in the San Joaquin Valley Region. As shown in Table 6.4-1, total average water supply to the San Joaquin Valley region is over 18 MAF, with 2.8 MAF provided from the Sac/Delta. Average reductions to this region under the proposed Plan amendments would be 13 percent of Sacramento/Delta supply and 2 percent of overall supply.

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268	53	[ATT 2] Under baseline conditions, “Sacramento/Delta [State Water Project (“SWP”)] and CVP deliveries to the San Joaquin Valley region have high variability based on available supply.” (Id. at p. 6-72.) Reductions in supplies exported by the CVP and SWP, predominately to the San Joaquin and Southern California Study Areas, “are estimated to account for roughly 50 to 60 percent of overall Sacramento/Delta supply reductions, with larger proportional reductions in the higher flow scenarios.” (Ibid.) Accordingly, given the volatility of annual Sacramento/Delta water supply, Sacramento/Delta reductions frequently will be greater than “average,” especially as “below normal,” “dry,” and “critical” water years are expected to occur more frequently due to climate change. (Id. at pp. 6-56 – 6-57.) During these three water year types, total annual average reductions from the Sacramento/Delta are estimated to be 1,927 TAF (below normal), 2,630 TAF (dry) [Footnote 21: For context as to the significance of this impact, baseline Sacramento/Delta water use to supply all water uses in the San Joaquin Valley region during dry years is also 2,630 TAF. (Draft Staff Report at p. 6-74 [Table 6.4-20].)], and 2,232 (critical) under the 55 percent unimpaired flow scenario – all significantly greater impacts than the “average” 1,682 TAF. (Id. at p. 6-57 [Table 6.4-2].) Under a 55 percent unimpaired flow regime, Sacramento/Delta supply to agriculture in the San Joaquin Valley region would be reduced by 476 TAF and 658 TAF during “below normal” and “dry” years, respectively. (Id. at p. 6-75.) Likewise, impacts of 476 TAF and 658 TAF greatly exceed the “average” impact to San Joaquin Valley agriculture of 353 TAF.	Sacramento/Delta water does not supply all water uses in the San Joaquin Valley Region. As shown in Table 6.4-1, total average water supply to the San Joaquin Valley region is over 18 MAF, with 2.8 MAF provided from the Sacramento/Delta. Average reductions to this region under the proposed Plan amendments would be 13 percent of Sacramento/Delta supply and 2 percent of overall supply. Reductions in below normal and dry years should also be viewed in this context. Please see Common Response 1.1, General Comments, for responses to comments that either make a general comment or do not raise significant environmental issues.
268	54	[ATT 2] In contrast, while achieving better fish benefits, the VA alternative would result in “changes in Sacramento/Delta supplies to the San Joaquin Valley region” ranging from an average annual increase of up to 46 TAF/yr to an average annual decrease of up to 68 TAF/yr. (Id. at pp. 9-65 – 9-66 [Table 9.5-50].) The range of these water supply changes depends on the source(s) of the VA alternative’s “unspecified water purchases.” (Id. at p. 9-65.) To account for uncertainties regarding the	Please see the response to comment 268-51 regarding CEQA impacts from reduced Sacramento/Delta water supply. HRL commitments are in addition to base flows, including flows required by State Water Board Water Right Decision 1641, other regulatory requirements, and other non-regulatory flows that would be present absent HRL flow commitments. Additionally, please see Common Response 6.2, Baseline and No Project Alternative, for comments that raise concerns about the baseline.

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		sources of these VA water purchases, the Draft Staff Report analyzes two potential water supply scenarios, the “VA” scenario and the “VA High Export Cuts” scenario. (Id. at p. 9- 65.) The “VA” scenario assumes all unspecified VA water purchases would be from willing sellers in the Sacramento/Delta watershed. (Ibid. Under the VA High Export Cuts scenario, all unspecified water purchases would be provided “through reductions in Delta exports to agricultural users in the San Joaquin Valley.” (Ibid.) As the unspecified water purchases are more likely to be “provided through a combination of inflow sources within the Sacramento/Delta watershed and reductions in exports,” water supply impacts will likely fall within the “VA” and “VA High Export Cuts” scenarios. (Ibid.) Regarding potential increases in Sacramento/Delta supplies under the VA alternative, the Draft Staff Report provides such increases would not be a direct result of the VAs “but the possible result of changes in BiOp and ITP related constraints.” (Ibid.) Overall, under all possible scenarios, surface water supply impacts under the VA alternative will be far less than those resulting from the proposed Plan amendments.	
268	55	[ATT 2] The proposed Plan amendments’ severe water supply impacts would have deleterious effects on water transfers and threaten their viability. As illustrated by Table 6.6-1, from 2007 to 2016, annual water transfers to/within the San Joaquin Valley averaged 498 TAF. (Draft Staff Report at pp. 6-85 - 6-86.) Most of these transfers (332.1 TAF/yr) occurred within the San Joaquin Valley. (Id. at p. 6-86.) The Sacramento/Delta is the only significant source of water transfers to the San Joaquin Valley. (Id. at p. 6-85 [“[E]ntities located within the Sacramento River watershed region have temporarily transferred approximately 157 TAF on average to the San Joaquin Valley over the 10-year period.”].) Under the proposed Plan amendments’ 55 percent unimpaired flow scenario, however, reductions in Sacramento/Delta water supply to agriculture in the Sacramento River watershed “frequently exceed 500 TAF/yr.” (Id. at pp. 6-58, 6-60 [average reduction of 511 TAF in annual Sacramento/Delta supply to agriculture].) During dry and critical years, Sacramento/Delta water supply to agriculture in the Sacramento River watershed would decrease by 778 TAF and 1,208 TAF,	Please see Common Response 6.3, Water Supply and Other Water Management Actions, for more discussion on water supply impacts and Common Response 8.1, Economics and Other Considerations, for more discussion on water transfers.

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		respectively. (Id. at p. 6-60.) Consequently, under the proposed Plan amendments, water transfers from the Sacramento River watershed to the San Joaquin Valley would no longer be viable—especially during dry and critical years when transfers are most needed.	
268	56	[ATT 2] In addition to avoiding the proposed Plan amendments’ significant impacts to agricultural uses, the VA alternative avoids impacts to municipal and wildlife refuge beneficial uses. Under the VA alternative, supply reductions would “be largely or entirely from agricultural supplies, reservoir reoperations, or based on groundwater substitution.” (Id. at p. 9-66.) As such, the VA alternative would not result in any significant changes in Sacramento/Delta supplies for municipal or wildlife refuge uses in the San Joaquin Valley. (Ibid.) In contrast, under the proposed Plan amendments, average Sacramento/Delta supply to municipal uses in the San Joaquin Valley would, on average, decrease by 22 TAF (over 22 percent of baseline supply), while average annual supply to wildlife refuges in the region would decrease by 4 TAF at 55 percent unimpaired flow. (Id. At p. 6-76 – 6-77.) Thus, in addition to preventing significant impacts to agricultural resources in the San Joaquin Valley, the VA alternative will also prevent significant impacts related to water supplies for municipal and wildlife refuge purposes.	SWAP results indicate that the agricultural impacts would be potentially significant for both the proposed Plan amendments and the proposed VAs. SWAP results for the proposed Plan amendments and proposed VAs are available in Sections 7.4, Agriculture and Forest Resources, and 9.7.4.1, Impact Analysis, of the Staff Report, respectively.
268	57	[ATT 2] Groundwater Supply In its analysis of the proposed Plan amendments’ groundwater supply impacts, the Draft Staff Report provides that such impacts could be reduced by employing coordinated flow and nonflow measures: The proposed Bay-Delta Plan program of implementation encourages and allows for voluntary implementation plans. Those voluntary implementation plans would be required to include measures to coordinate implementation of the proposed Plan amendments with groundwater management activities, including with implementation of [the Sustainable Groundwater	The State Water Board has consistently acknowledged and incorporated flow and non-flow measures to comprehensively address Delta aquatic ecosystem and tributary ecosystem needs in all watersheds. The State Water Board’s authority to require non-flow actions is somewhat limited; however, the program of implementation identifies actions that other entities should take to address other ecosystem stressors and provides a framework to incorporate both flow and complementary ecosystem projects such as physical habitat restoration into local cooperative solutions (see Bay-Delta Plan, Chapter 4.4.2.4). In addition, some complementary ecosystem projects may also serve as an implementation mechanism for the proposed cold water habitat objective. In addition, the VA pathway includes implementation of non-flow habitat restoration actions targeted at improving spawning and rearing capacity for juvenile salmonids, estuarine

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		Management Act ("SGMA"). Voluntary implementation plans also may allow flow requirements lower in the range if complementary measures (ecosystem projects) are implemented that provide for equivalent protection of fish and wildlife beneficial uses. Such projects could reduce the potential impacts associated with decreased consumptive water uses, including impacts on groundwater. (Draft Staff Report at p. 7.12.2-48.) But the Draft Staff Report concluded these other measures "are largely within the jurisdiction and control of other agencies," and therefore did not integrate non-flow measures into the proposed Plan amendments. (Ibid.) The VA alternative, in contrast, provides crucial tools to implement other non-flow actions and mitigation measures that will provide at least equivalent protection of fish and wildlife beneficial uses. Because the State Water Board has the authority to enter into binding, enforceable agreements with the VA Parties that will achieve the State Water Board's fundamental purpose, provide greater benefits to native fish species, and avoid or substantially reduce impacts to groundwater resources, the State Water Board must select the VA alternative. (Pub. Resources Code, §§ 21002-21002.1, 21004; CEQA Guidelines, §§ 15002(a), (h), 15021, 15126.6(d), (e)(2).)	species, and other native fish and wildlife on a portion of the Sacramento/Delta tributaries for an initial 8 years (with the possibility to extend the term). For discussion of the VA alternative please see Common Response 1.3, Revised Proposed Plan Amendments. For discussion on the overlap of the Sacramento/Delta Bay Delta Plan update with the implementation of the Sustainable Groundwater Management Act (SGMA), please see Common Response 7.12.2, Groundwater and Sustainable Groundwater Management Act.
268	58	[ATT 2] The VA Alternative Will Avoid Significant Impacts to Groundwater Resources Compared to the proposed Plan amendments, the VA alternative will avoid significant impacts to groundwater resources in terms of both quantity and quality. The Draft Staff Report provides: "Historically, in areas with adequate groundwater, the local response to decreased surface water availability has been to use more groundwater." (Draft Staff Report at p. 6-80.) More precisely, areas with accessible groundwater historically increased groundwater pumping in response to reduced surface water supply. As California's long history of groundwater overdraft culminating in SGMA shows, however, groundwater supplies are frequently accessible but inadequate to prevent a	The Staff Report recognizes that potential impacts to groundwater resources will depend on how water users respond to changes in hydrology or water supply. The Staff Report's analyses cover a broad range of impacts, actions and potential responses from changes in hydrology (flows and reservoir levels) and water supply due to plan implementation. The Staff Report concludes that changes in water supply could substantially deplete groundwater supplies or interfere substantially with groundwater recharge, such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table, and that this level of impact is potentially significant. Impact GW-b applies to both VA and non-VA alternatives. Because the VA alternative represents less of a change from baseline conditions, it also logically represents less of a significant impact to groundwater resources.

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		range of undesirable results, such as land subsidence, reduced groundwater quality, reduced groundwater availability to shallow (often domestic) wells, chronic lowering of water tables, and increased greenhouse gas (“GHG”) emissions and pumping costs associated with operating deeper wells. The proposed Plan amendments’ unimpaired flow approach will reduce Sacramento/Delta surface water supplies under all scenarios within the 45 to 65 percent adaptive range. As a result, the proposed Plan amendments would result in reasonably foreseeable indirect environmental impacts related to increased groundwater pumping, which must be analyzed under CEQA. (CEQA Guidelines, § 15064(d); Draft Staff Report at p. 6-80 [“The proposed Plan amendments have the potential to affect groundwater levels due to potential changes in groundwater pumping and changes in managed and incidental recharge.”].) The degree of the proposed Plan amendments’ groundwater impacts therefore is primarily determined by the level of increased groundwater pumping following reduced Sacramento/Delta surface water supplies.	
268	59	[ATT 2] Changes in Sacramento/Delta water supply from baseline would be smaller in magnitude under the proposed VAs than the changes that would occur under the proposed Plan amendments.” (Draft Staff Report at p. 9-83.) Therefore, in an attempt to compensate for reduced Sacramento/Delta surface water supplies, groundwater replacement pumping and impacts would be significantly higher under the proposed Plan amendments. Regardless of whether full replacement pumping occurs, there will be a greater tendency to maximize allowable groundwater pumping when faced with a 1,682 TAF reduction (proposed Plan amendments) versus a 123 TAF reduction (VA alternative). (Id. at pp. 6-57, 9-59.) Given the current state of overdraft in several Study Areas, groundwater pumping above baseline would cause significant environmental impacts. For example, regarding groundwater quality impacts in the San Joaquin Valley, the Draft Staff Report provides: “Because of the high level of impairment and overdraft	See the response to comment 268-58. The Staff Report acknowledges the potentially significant environmental impacts to groundwater levels (Impact GW-b) and groundwater quality (Impact GW-a,f) from potential responses to changes in Sacramento/Delta surface water supplies. The mitigation measures for impacts to groundwater (MM-GW-b and MM-GW-a,f) are discussed in Section 7.12.2, Groundwater. As noted in the comment, the 2023 draft Staff Report acknowledges that, overall, the reductions in Sacramento/Delta supply under the proposed VAs would be less than those under the proposed Plan amendments, which would, in turn, reduce groundwater-related environmental impacts. However, The State Water Board cannot guarantee that measures will always be adopted or applied in a manner that would fully mitigate impacts. Therefore, unless and until the mitigation is fully implemented, the impacts of reduced groundwater levels on groundwater quality and drinking water from both VA and non-VA alternatives remain potentially significant.

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		conditions in this region, potentially significant impacts on groundwater quality could result from even a limited amount of substitute groundwater pumping[.]” (Draft Staff Report at p. 7.12.2-60.) Thus, the more groundwater pumping, the greater the impacts on groundwater quality – likely even at small levels of increased pumping.	
268	60	[ATT 2] Additionally, under the proposed Plan amendments’ “higher flow requirements, there would be less applied water for irrigation of agricultural lands,” which would cause reductions in incidental groundwater recharge in areas reliant on Sacramento/Delta surface water supplies. (Id. at p. 6-81.) Simply put, groundwater recharge declines as unimpaired flow increases. As a result, under the proposed Plan amendments, groundwater recharge would decrease compared to baseline conditions in critically overdrafted groundwater basins within the San Joaquin Valley region, further exacerbating significant adverse groundwater impacts.	Potentially significant impacts to groundwater and to agriculture as discussed in Section 7.12.2, Groundwater, and Section 7.4, Agriculture and Forest Resources. As explained in Section 7.4, because of the uncertainties about groundwater availability and water users’ response to reduced Sacramento/Delta supply regarding groundwater pumping, a range between two bookends or bounds are evaluated: maximum replacement groundwater pumping and no replacement groundwater pumping. Under maximum replacement groundwater pumping, it was assumed that growers could use groundwater in addition to local water supplies to offset some or all Sacramento/Delta supply reductions. Importantly, this is not a directive that farmers and ranchers should or would replace Sacramento/Delta reductions with groundwater pumping, especially in light of requirements to achieve sustainability in basins subject to SGMA, but a good faith attempt to capture the potential maximum impacts on the groundwater basin from replacement pumping. For no replacement groundwater pumping, it was assumed that groundwater would not be available to replace reductions in surface water availability beyond current use under the baseline condition. Similarly, this is not an assumption about groundwater demand management in any particular basin, for example under SGMA, but a good faith attempt to model the potential lower limit of groundwater pumping. In this way, the analysis captures the breadth of likely responses, which would be somewhere in between meaning that water users likely would increase groundwater pumping to replace some amount of the reduced surface water supplies, but not at volumes sufficient to replace all of the reduced surface water supplies. The potential reduction in incidental groundwater recharge is acknowledged in the Staff Report and recognized as a potentially significant impact on groundwater. As explained in Section 7.12.2.3, Impact Analysis, if a farmer or rancher responded to

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			reduced Sac/Delta supply by fully substituting groundwater, there likely would be little or no change to the amount of water applied to irrigated fields, and the volume of incidental recharge from irrigation water application would remain relatively constant. However, the increased groundwater pumping would result in lower groundwater levels. Since only a portion of the applied water results in recharge (with a considerable amount of the total volume of pumped groundwater lost through evapotranspiration), there would be a larger reduction in groundwater levels if substitute groundwater pumping is assumed. The effects of reduced groundwater recharge from conveyance losses and deep percolation of applied irrigation water would vary for each region (2023 draft Staff Report Section 7.12.2, Groundwater, p. 7.12.2-48). Mitigation measures to reduce the impacts to groundwater (MM-GW-b and MM-GW-a,f) are discussed in Section 7.12.2, Groundwater.
268	61	[ATT 2] The Draft Staff Report Underestimates Impacts to Groundwater Resources Attributed to the Proposed Plan Amendments The Draft Staff Report purports to describe the proposed Plan amendments' impacts on groundwater resources in relation to two "bookends" of reduced Sacramento/Delta surface water supplies – "maximum replacement groundwater pumping" and "no replacement groundwater pumping" scenarios. (Draft Staff Report at p. 7.12.2-40.) Under the "maximum replacement" scenario, water users could use groundwater to offset all Sacramento/Delta supply reductions. (Ibid.) Under the "no replacement" scenario, described as the "potential lower limit of groundwater pumping," "groundwater would not be available to replace reductions in surface water availability beyond current use under the baseline condition." (Ibid.) After introducing these scenarios, the Draft Staff Report, without any supporting evidence, concludes: "the analysis captures the breadth of likely responses, which would be somewhere in between – meaning that water users likely would increase groundwater pumping to replace some amount of the reduced surface water supplies, but not at volumes sufficient to replace all of the reduced surface water supplies." (Ibid.)	The 2023 draft Staff Report acknowledges that increased groundwater pumping may occur to offset reduced surface water supply, where groundwater is available and not locally restricted (discussed in Section 7.12.2, Groundwater, Impact GW-b). There is no common and agreed-upon understanding regarding groundwater pumping, recharge rates, and stream-aquifer interactions in many parts of the study area. Additionally, how these physical processes may change—and how water users may respond to reduced Sacramento/Delta surface water supplies—is uncertain. In some areas, groundwater pumping may be limited by regulatory requirements (e.g., SGMA implementation); however, SGMA is not a moratorium on groundwater pumping. In other areas, groundwater pumping may be locally unrestricted. For these reasons, the impact analysis is presented qualitatively, with modeling results provided for context (Staff Report Tables 7.12.2-9 and 7.12.2-10; Appendix 3 Agricultural Economic Analysis: SWAP Methodology and Modeling Results, Tables A3-15 and A3-16). To reflect uncertainty, the analysis reasonably evaluates two bookend scenarios: maximum replacement groundwater pumping and no replacement groundwater pumping. For the no replacement scenario, it was assumed that groundwater would not be available to replace reductions in surface water

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		Here, the analysis is severely flawed. The “no replacement scenario” erroneously and without any evidentiary support assumes that, under the proposed Plan amendments, all baseline pumping (i.e., pumping levels from 2005 to 2015) can continue. This assumption is undermined by the Draft Staff Report’s discussion of chronic groundwater overdraft in the Study Area, such as the San Joaquin Valley. The Draft Staff Report’s analysis of the proposed Plan amendments ignores that increased pumping during the 2005-2015 baseline period prompted the Legislature to enact SGMA, which requires water uses to “halt” overdraft. (Draft Staff Report at pp. 7.12.2-9, 6- 81.) The Draft Staff Report’s analysis of the proposed Plan amendments provides no factual or evidentiary basis that baseline groundwater pumping in critically overdrafted areas can be sustained, much less increase above baseline conditions, in light of SGMA. Indeed, the discussion regarding the proposed Plan amendments’ impacts to groundwater resources ignores SGMA. (Draft Staff Report at p. 7.12.2-42 [“SWAP model results indicate that agricultural users in the valley floor of the Sacramento River watershed and Delta eastside tributaries regions could replace much or all of the reduced Sacramento/Delta surface water supply with groundwater, excluding consideration of SGMA that may place limits on groundwater pumping in some locations (Tables 7.12.2-9 and 7.12.2-10)” (emphasis added)].) The Draft Staff Report goes on to concede, however, that “[t]he maximum replacement groundwater pumping limits used in the SWAP analysis would likely overstate the actual amount of substitute groundwater pumping that would occur as a result of the proposed Plan amendments. . . . In localized areas with existing groundwater quantity (e.g., overdraft, low well yields) or quality issues, including in the high- and medium-priority basins identified by the SGMA 2019 Basin Prioritization, substitute groundwater pumping would be less likely to increase substantially above the baseline condition.” (Draft Staff Report at p. 7.12.2-43.) The Draft Staff Report’s analysis of the proposed Plan amendments’ groundwater impacts further provides: In the San Joaquin Valley and other regions, many groundwater basins are critically overdrafted (California Statewide	availability beyond current use under the baseline condition. This is not an assumption about groundwater demand management in any particular basin (e.g., under SGMA), but a reasonable representation of the potential lower limit of groundwater pumping. In this way, the analysis captures the breadth of likely responses, which would be somewhere in between—meaning that water users likely would increase groundwater pumping to replace some amount of the reduced surface water supplies, but not at volumes sufficient to replace all of the reduced surface water supply. The draft Staff Report also explicitly states that the maximum replacement scenario likely overstates actual pumping due to SGMA constraints (2023 draft Staff Report Section 7.12.2, Groundwater, p. 7.12.2-43), and that in overdrafted or SGMA-regulated basins, groundwater use is unlikely to increase substantially above baseline. This would mean impacts to groundwater resources would be lower but impacts to agricultural resources (i.e., conversion of agricultural land) would be higher. Please see Section 7.4, Agriculture and Forest Resources, for discussion on the potentially significant impacts identified for agriculture, such as farmland conversion (Impacts AG-a and AG-e). Please see Common Response 7.12.2, Groundwater and Sustainable Groundwater Management Act, for more information regarding the groundwater impact analysis and for a discussion on the implementation of SGMA and the overlap of Sacramento/Delta update to the Bay Delta Plan.

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		Groundwater Elevation Monitoring [CASGEM] and subsequent Sustainable Groundwater Management Act [SGMA] 2019 Basin Prioritization determinations [see Section 7.12.2, Groundwater]] and as such are not likely to serve as an additional source of supply in place of reduced Sacramento/Delta supplies. . . . SGMA requires local public agencies, in alluvial groundwater basins designated as high and medium priority and subject to the Act, to halt overdraft and balance levels of pumping and recharge. (Draft Staff Report at p. 6-81 (emphasis added).)	
268	62	[ATT 2] Under the proposed Plan amendments, groundwater pumping is not likely to replace reduced Sacramento/Delta surface water supplies or persist at pre-SGMA levels in most critically overdrafted basins. The “no replacement” scenario, which is more accurately a “status quo pumping scenario,” is clearly not the “potential lower limit of groundwater pumping” and may even exceed the upper limits of allowable pumping in the Study Area’s numerous critically overdrafted basins. As a result, the State Water Board cannot adopt the proposed Plan amendments due to the Draft Staff Report’s contradictory accounts of SGMA and its flawed groundwater impacts analysis.	Please see the response to comment 268-61.
268	63	[ATT 2] Conversion of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance Fallowing and potential permanent loss of agricultural resources add to the significant adverse impacts of the proposed Plan amendments, including cumulative impacts that will occur over time. (CEQA Guidelines, App. G, §§ II(a), (e); III(a)-(c); VII(b) [fallowing of agricultural lands and potential permanent loss of agricultural resources would have obvious attendant environmental impacts such as soil erosion and loss of topsoil, as well as additional dust and particulate emissions].) The Draft Staff Report superficially acknowledges these impacts, indicating that the proposed Plan amendments would both: (1) convert prime farmland, unique farmland, or farmland of	The Staff Report appropriately evaluates agricultural impacts that would occur under the flow scenarios, and provides estimates of the changes in crop acreage using the best available information. As discussed in Section 7.4, Agriculture and Forest Resources, the SWAP model is used to evaluate the agricultural impacts of the change in water supply. The SWAP model is a regional agricultural and economic optimization model that estimates growers’ responses to changes in water supply by determining the cropping pattern that maximizes the net returns to agricultural production for 27 production regions. SWAP is currently the best available tool for modeling agricultural economic response to water supply shortage. It has been peer reviewed and applied to numerous policy analyses and impact assessments over the last two decades. It is uncertain how all water users may respond to reduced Sacramento/Delta water supply regarding groundwater pumping. For this reason, two bookends related to reduced Sacramento/Delta surface water

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		statewide importance, and (2) involve other changes in the existing environment that could result in conversion of farmland to non-agricultural use. (Draft Staff Report at p. 7.4-2.) These impacts are potentially significant impacts. (Ibid.; Draft Staff Report at p. 7.4-36.) The analysis fails to provide any meaningful evaluation as to the anticipated magnitude of these significant impacts, which in itself violates CEQA. [Footnote 22: Under CEQA, the Draft Staff Report is required to describe the nature and magnitude of impacts it finds significant when it is reasonably feasible to do so. (Sierra Club v. County of Fresno (2018) 6 Cal.5th 502, 519; City of Long Beach v City of Los Angeles (2018) 19 Cal.App.5th 465, 486.]] Moreover, the failure to evaluate the magnitude of these impacts makes it impossible to determine if the identified mitigation measures would be effective.	supplies are evaluated in the analysis: maximum replacement groundwater pumping and no replacement groundwater pumping. In this way, the analysis captures the breadth of likely responses, which would be somewhere in between—meaning that water users likely would increase groundwater pumping to replace some amount of the reduced surface water supplies, but not at volumes sufficient to replace all of the reduced surface water supplies. Please see Section 7.4, Agriculture and Forest Resources, and Appendix A3, Agricultural Economic Effects: SWAP Methodology and Modeling Results, of the Staff Report for a more detailed description of the SWAP model and methods used to estimate agricultural economic effects. Also see Common Response 7.4, Agricultural Resources, for additional information about groundwater pumping assumptions in SWAP. The Staff Report discloses that impacts on agriculture could be potentially significant with implementation of the project. The State Water Board provided a good faith effort to disclose the potential impacts including cumulative impacts on agriculture as a result of the project. The Staff Report identifies mitigation measures that could avoid or reduce impacts on agriculture. As discussed in Staff Report Section 7.1, Introduction, Project Description, and Approach to Environmental Analysis, some potentially significant impacts can be mitigated to less-than-significant levels. Many other identified potentially significant environmental impacts could be reduced to less-than-significant levels with mitigation incorporated; however, due to the large scope of the project and wide range of possible response actions, sufficient information is not available to conclude with certainty that the mitigation measures will reduce all impacts to less-than-significant levels in all circumstances. Some mitigation activities are within the State Water Board's jurisdiction. However, other mitigation measures are largely within the jurisdiction and control of other agencies or depend on how water users respond to the project. Accordingly, the State Water Board cannot guarantee that measures will always be adopted or applied fully to mitigate potentially significant impacts. Therefore, unless and until the mitigation is fully implemented, the impacts remain potentially significant. Please refer to Common Response 7.1, General CEQA

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			and Approach to the Analysis, for further discussion of mitigation measures.
268	64	[ATT 2] The Proposed Plan Amendments Would Result in Significant Fallowing of Farmland and Related Environmental Impacts in the San Joaquin Valley The Draft Staff Report’s analysis of the Plan Amendments’ impacts related to agricultural resources “focuses on the potential conversion of irrigated farmland to nonagricultural uses as a result of changes in hydrology and changes in water supply.” (Id. at p. 7.4-34.) Indeed, “[c]hange in water supply is the primary impact mechanism” that causes conversion of agricultural lands and fallowing. (Ibid.) [Footnote 23: “Fallowing involves growing no crop on a piece of land for a season or more.” (Draft Staff Report at p. 7.4-13.) “Conversion is the permanent change in land use from agriculture to another use,” and “may be the result of extended idling.” (Ibid.) Land idling, a form of conversion, is “a long-term change in land use” that “results when conditions become unfavorable for productive farming,” such as lack of adequate water supply due to drought or water supply availability changes. (Ibid.) If agricultural land is unirrigated for more than four (4) consecutive years, it no longer qualifies as prime farmland, farmland of statewide importance, or unique farmland under the California Department of Conservation’s Farmland Mapping and Monitoring Program (“FMMP”). (Ibid.; id. at p. 7.4-3.)] As demonstrated above, under the proposed Plan amendments, on average, Sacramento/Delta water supply would be reduced by over 1,682 TAF/yr, with an average annual reduction of 353 TAF to the San Joaquin Valley agricultural sector alone – over 20 percent of the total water supply impacts attributed to the proposed Plan amendments. (Id. at pp. 6-54 – 6-55, 6- 57, 7.4-55.) In contrast, the VA Alternative would result in an average annual reduction of Sacramento/Delta surface water supply of approximately 123 TAF across the entire study area, a fraction of the proposed Plan amendments to the San Joaquin Valley alone. (Id. at p. 9-59.) Implementation of the proposed Plan amendments would also cause significant reductions in Sacramento/Delta water supply	Please refer to the response to comment 268-63. Providing balanced protection of all beneficial uses of water is incredibly important and requires careful consideration. For this reason, water supply, including supplies from the Sacramento/Delta watershed is evaluated extensively throughout the Staff Report. For example, Table 6.4-1 details total annual average water supply to each region in the study area by type of use (agriculture, urban, and refuge). The following sections in Chapter 6, Changes in Hydrology and Water Supply, provide further detail on each of the regions and uses. It is important that reductions in Sacramento/Delta supply be viewed in the context of total supply in the region. Table 6.4-1 shows that on average, total water supply to the San Joaquin region is over 18 MAF, with the majority of water for agricultural use. Average Sacramento/Delta supply provides 2.8 MAF of that total amount, and reductions under a 55 scenario represent a decrease of 13 percent of Sacramento/Delta supply and only 2 percent of the total supply in the region. Section 7.4, Agriculture and Forest Resources, acknowledges that agricultural supply effects during extended dry years or drought conditions would exacerbate shortages for some agricultural uses.

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		to agriculture in the Sacramento River watershed, which, in turn, would reduce water transfers from the Sacramento River watershed to the San Joaquin Valley. (Detailed Comment Letter at p. 22.) For the reasons stated above, the Draft Staff Report's analysis of the proposed Plan amendments' agricultural resource impacts using "no replacement" and "maximum" groundwater replacement scenarios is flawed and fails to accurately disclose the proposed Plan amendments' impacts on irrigated crop acreage.	
268	65	[ATT 2] As demonstrated, the "no replacement" scenario is not the low end of "a continuum" because it erroneously assumes status quo pumping can be maintained in the overdrafted San Joaquin Valley region. (Draft Staff Report at p. 7.4-61.) Indeed, the Draft Staff Report's analysis of the proposed Plan amendments' agricultural resource impacts concedes that "reduced irrigated acres in western San Joaquin Valley are likely to be closer to those modeled for no replacement groundwater pumping. Conversion would likely be toward the higher end of the modeled range." (Id. at p. 7.4-63.) The Draft Staff Report disclosed that the maximum groundwater replacement scenario is not feasible in the Westside subbasin, which underlies Westlands Water District, due to overdraft and poor groundwater quality: Agriculture in parts of the western portion of the San Joaquin Valley region, notably the Westlands Water District area, is potentially more sensitive to reductions in Sacramento/Delta surface water supplies because of its relatively poor groundwater quality in the shallow aquifer and the high cost of developing supplies from the deep aquifer. Additionally, most of the groundwater subbasins underlying this area are in overdraft. (Id. at p. 7.4-62; see id. at p. 7.4-63 [maximum replacement groundwater is not feasible within Westlands Water District because the underlying Westside subbasin "is ranked as high priority and identified as critically overdrafted. . . . These	See the response to comment 268-63 for information on the SWAP model. The SWAP analysis provided in the Staff Report appropriately describes the potential range of outcomes using reasonable assumptions related to future groundwater pumping conditions. For no replacement groundwater pumping, it was assumed that groundwater would not be available to replace reductions in surface water availability beyond current use under the baseline condition. It would be highly speculative to use a different groundwater baseline for the no replacement bookend, as methods for implementation of SGMA and regional decisions or actions are highly variable and subject to change. Importantly, this is not a directive that farmers and ranchers should or would continue to maintain existing groundwater pumping amounts in the future, especially in light of requirements to achieve sustainability in basins subject to SGMA, but a good faith attempt to capture agricultural impacts under a no replacement groundwater pumping scenario. See Common Response 7.4, Agricultural Resources, for additional discussion on assumptions about groundwater pumping in SWAP. For the Westlands Water District service area specifically, the SWAP analysis uses appropriate assumptions regarding the availability of groundwater under no replacement groundwater pumping, based on information contained in the Westside Subbasin Groundwater Sustainability Agency (GSA)

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		conditions could indicate that current levels of groundwater pumping are not sustainable.” (emphasis added)].) Given similar conditions of overdraft throughout the San Joaquin Valley region, the State Water Board cannot reasonably assume that current levels of groundwater pumping can be maintained. (Id. at pp. 7.4-25, 7.4-28, 7.4-61 [overdraft throughout the San Joaquin Valley region], 7.4-30 [“Several groundwater basins in the Friant Division service area are critically overdrafted and are ranked as high priority by SGMA”].) Accordingly, if implemented, the proposed Plan amendments’ impacts to agricultural resources in the San Joaquin Valley would likely be similar to or greater than the “no replacement” scenario in most cases. As confirmation, the Draft Staff Report’s analysis of the proposed Plan amendments’ impacts on irrigated crop acreage does not even present tabular data regarding impacts under the “maximum replacement” scenario. (Cf. id. at p. 7.4-60 [Table 7.4-22 regarding impacts to irrigated crop acreage in the San Joaquin Valley region under the no replacement groundwater scenario].)	Groundwater Sustainability Plan (GSP) dated July 2022. Westlands Water District is represented as production region 14A in SWAP. Under the no replacement groundwater pumping bookend, annual groundwater pumping in SWAP production region 14A is limited to approximately 246,000 acre-feet. In comparison, the July 2022 Westside Subbasin GSA Groundwater Sustainability Plan (GSP) (Westlands Water District GSA and County of Fresno GSA-Westside 2022) reports a sustainable yield of 270,000 to 305,000 acre-feet depending upon the future hydrology for the basin. This information indicates that the SWAP estimated groundwater pumping limit for SWAP production region 14A under the no replacement groundwater pumping bookend is appropriate and aligns with the information currently available on groundwater availability within the Westlands Water District Service area. Please see Common Response 7.12.2, Groundwater and Sustainable Groundwater Management Act, for further discussion on consideration of SGMA in the analysis. The Staff Report appropriately provides SWAP results for both the no replacement groundwater pumping and maximum replacement groundwater pumping conditions. Section 7.4, Agriculture and Forest Resources, presents tabular SWAP results for no replacement groundwater scenario because the SWAP estimated changes in crop acreage are greater under no replacement groundwater pumping and represents the outcome based on the most conservative assumptions, and provide a conservative basis for the conclusions of the analysis of impacts to groundwater. However, SWAP results for maximum replacement groundwater are also provided in Section 7.4 in multiple figures (See Figures 7.4-10 and 7.4-13). In addition, Appendix A3, Agricultural Economic Analysis: SWAP Methodology and Modeling Results, presents detailed SWAP results for changes in crop acreage by SWAP production region, with maximum groundwater replacement.
268	66	[ATT 2] Under the “no replacement scenario,” implementation of the proposed Plan amendments’ 55 percent unimpaired flow requirement would reduce the irrigated crop acreage in the San	The Staff Report appropriately evaluates agricultural impacts that would occur under the flow scenarios, and provides estimates of the changes in crop acreage using the best available information. The Staff Report acknowledges that changes in crop acreage could result in agricultural economic effects that are

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		Joaquin Valley by 107,000 acres relative to baseline in an average water year. (Draft Staff Report at p. 7.4- 58 [Table 7.4-21].) The proposed Plan amendments' perennial reductions in available water supply would invariably cause land idling, other forms of conversion, and the permanent loss of the important farmland types identified above. Fallowing would result in lost jobs and appreciable declines in regional economic activity, with impacts disproportionately large in the Valley's lowest-income communities. (See David Sunding & David Roland-Holst, UC Berkeley, Blueprint Economic Impact Analysis: Phase One Results (2020) at pp. 1-17.) In contrast, the VA alternative will achieve greater fish benefits while causing far fewer water supply-related environmental impacts, and the State Water Board must avoid the proposed Plan amendments' significant impacts on agricultural resources by selecting the VA alternative.	disclosed in Chapter 8, Economic Analysis and Other Considerations. See Common Response 8.1, Economic Analysis and Other Considerations, for a response to comment concerning Sunding and Roland-Holst (2020). Also see Common Response 7.24, Alternatives Analysis, for a discussion of the environmentally superior alternative.
268	67	[ATT 2] The Draft Staff Report Fails to Adequately Analyze and Mitigate Agricultural Impacts of the Proposed Plan Amendments While the Draft Staff Report makes some estimates as to the amount of agricultural land that may be converted as a result of implementing the proposed Plan amendments, its overarching conclusion is that the impact is unknowable: Given the uncertainty and individual decisions involved, any attempt to precisely predict conversion within the stated flow scenarios would require inappropriate speculation... A series of intermediate decisions lie between imposition of the proposed Plan amendments unimpaired flow requirements and the conversion of farmland to nonagricultural uses. [Lists series of intermediate decisions .] The State Water Board does not control any of these decisions and does not have authority to place conditions on local agencies to implement measures that would reduce or avoid the potentially significant impacts in this analysis. (Draft Staff Report at pp. 7.4-54, 7.4-74, 7.4-89.) If groundwater is not used as an offset, under the proposed Plan	Please refer to the response to comment 268-63 for discussion on the analysis contained in Section 7.4, Agriculture and Forest Resources, including mitigation measures. Overall, as discussed in Section 7.4, changes in water supply could lead to removing important farmland from irrigation. The analysis conservatively assumes that all such lands would be converted to nonagricultural uses. This impact would be potentially significant. The Staff Report identifies mitigation measures that could avoid or reduce impacts on agriculture. However, unless and until the mitigation is fully implemented, the impacts remain potentially significant. Environmental impacts associated with land fallowing are appropriately evaluated and disclosed in Chapter 7, Environmental Analysis. For example, Section 7.5, Air Quality, acknowledges that reduced Sacramento/Delta supply to agriculture could result in agricultural land fallowing, which could result in increased fugitive dust if crop or vegetation stubble cover does not remain or vegetative regrowth does not occur. Section 7.10, Greenhouse Gas Emissions, discusses that reduced Sacramento/Delta water supply for agriculture could result in fallowing of agricultural land and a subsequent reduction in emissions from conveying irrigation water to those lands. Section 7.9, Geology and Soils, acknowledges that changes in water supply could lead to changes in agricultural land use or

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		amendments in the Sacramento/Delta, the Draft Staff Report concludes that a 3.9 percent decline in irrigated crop acres would occur, and a decrease in alfalfa, pasture, and rice would have the most significant declines. (Draft Staff Report at pp. 7.4-45-46.) Even with substitution of crops with lower applied water requirements, “it is likely that fallowing would occur.” (Id. At pp. 7.4-46.) The Draft Staff Report estimates that in the 55% unimpaired flow scenario, this would result in up to 88,900 irrigated crop acres fallowed in an average year, and 144,000 in a dry year. (Id. At 7.4-45, 7.4-48.) The analysis stops there and does not assess how much permanent conversion of prime farmland may be expected or what the reasonably foreseeable environmental impacts associated with such conversion (e.g., air quality, greenhouse gas emissions, geology and soils, loss of habitat, etc.) are anticipated to be. In addition, the Draft Staff Report fails to adequately evaluate cumulative impacts on agricultural resources due to the proposed Plan amendments’ impacts in combination with anticipated water supply reductions under the Phase 1 Plan Amendments.	the fallowing of agricultural land resulting in agricultural fields with unvegetated (bare) soils, and that lack of vegetation allows surface water or wind to increase soil erosion. Section 7.21, Habitat Restoration and Other Ecosystem Projects, evaluates the potential environmental impacts of physical habitat restoration and other complementary ecosystem projects that entities may undertake toward achieving the overall goal of improving conditions for fish and wildlife in the Sacramento/Delta. Because California water resource management involves a myriad of individual and collective decisions, the study area represents a large portion of the state. The range of foreseeable compliance actions and potential responses to the project is already wide reaching and inherently cumulative in many regards. In addition, Section 7.23, Cumulative Impact Analysis, Growth-Inducing Impacts, and Significant Irreversible Environmental Changes, appropriately describes the cumulative impacts associated with the flow scenarios together with other projects and programs that could cause related impacts. The analysis presented in Section 7.23 considers the cumulative impacts of the 2018 Lower San Joaquin River/Southern Delta (LSJR/SD) Update to the Bay-Delta Plan, and the LSJR/SD update to the Bay-Delta Plan is included in the list of projects considered in the cumulative impact analysis (Table 7.23-1). As discussed in Section 7.23, implementation of the LSJR/SD update could be a further constraint on supplies for water users that receive water from both the Lower San Joaquin River tributaries and the Delta. Therefore, the impacts of implementing the LSJR/SD updates are potentially cumulatively considerable to the Sacramento/Delta Plan amendments in multiple resource areas including agricultural and forest resources. Please see Common Response 7.23, Cumulative Impact Analysis, for further discussion on the consideration and analysis of the 2018 LSJR/SD Plan Update. Also see Common Response 1.2, Water Quality Control Planning Process, for additional information on the project’s relationship to the 2018 LSJR/SD Plan Update.
268	68	[ATT 2] Similarly, SGMA implementation is acknowledged in the Staff Report as a cumulative impact (see Staff Report, p. 7.23-16), but	The 2023 draft Staff Report acknowledges SGMA implementation as a cumulative condition that may limit groundwater availability in some areas (see Section 7.23.1, Cumulative Effects). While GSPs include projects, programs and

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		the analysis does not quantify the impact of reduced water supply attributable to the cumulative impacts of the proposed Plan amendments plus SGMA implementation, even for basins with approved Groundwater Sustainability Plans (“GSPs”) that have adopted demand management measures. These impacts are capable of being analyzed and are not speculative for basins with approved GSPs that include demand management measures. Therefore, the State Water Board cannot adopt the proposed Plan amendments due to this failure to adequately account for and quantify the cumulative impacts of SGMA implementation (i.e., in decreasing the availability of groundwater) for basins with approved GSPs that include demand management measures.	management actions-which may include demand management measures-the timing, scope, and effectiveness of these actions will vary widely across basins and are subject to local implementation decisions-and varying hydrology and how water users may respond to those implementation changes is uncertain. Quantifying the cumulative impact of SGMA implementation in combination with the proposed Plan amendments would require speculative assumptions about local basin management actions, including implementation of projects and programs. Therefore, the 2023 draft Staff Report includes a qualitative discussion of cumulative impacts and acknowledges that SGMA may constrain both baseline and future pumping in some areas, however, setting precise numbers for the amount of reduced water supply that may be attributable to SGMA is speculative. Please also see response to comment 268-61 for additional discussion on groundwater modeling assumptions and the use of bookend scenarios. Please see Common Response 7.23, Cumulative Impact Analysis, regarding the scope and adequacy of the cumulative impact analysis. Please see Common Response 7.12.2, Groundwater and Sustainable Groundwater Management Act, for a discussion on the implementation of SGMA and the overlap of Sacramento/Delta update to the Bay Delta Plan.
268	69	[ATT 2] The Draft Staff Report also fails to adequately analyze agricultural impacts to the western San Joaquin Valley because the modeling data aggregates water supply impacts on a regional level, as opposed to analyzing the specific impacts to agricultural uses in areas with junior water rights that are more vulnerable to water supply reductions. The Draft Staff Report evaluation of agricultural impacts in Section 7.4 aggregates available supplies throughout the entire San Joaquin Region to support the conclusion that a proposed Plan amendment. would only result in a 2% reduction in total water supply. (Draft Staff Report at pp. 5-9 – 5-10; 7.4-55 – 7.4-56.) This approach masks the significance of water supply impacts to junior water rights	The Staff Report discloses that impacts on agriculture could be potentially significant with implementation of the project. The State Water Board provided a good faith effort to disclose the potential impacts on agriculture as a result of the project. Please see the response to comment 268-63 for information on the SWAP model and analysis of impacts on agriculture. In addition, Section 7.4, Agriculture and Forest Resources, includes analysis specific to the western portion of the San Joaquin Valley (see pages 7.4-62 and 7.4-63). The Staff Report acknowledges that agriculture in parts of the western portion of the San Joaquin Valley region, notably the Westlands Water District area, is potentially more sensitive to reductions in Sacramento/Delta surface water supplies because of its

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		holders, such as CVP agricultural water service contractors, who experience greater cuts to water supplies in times of shortage and have less reliable access to replacement supplies. The Draft Staff Report acknowledges that the western San Joaquin Valley is “more sensitive to reductions in Sacramento/Delta surface water supplies,” but “does not account for the possibility that groundwater pumping at the historical rates under the maximum replacement groundwater pumping assumption could yield only poor-quality water with limited ability to replace Sacramento/Delta surface supplies.” (Id. at pp. 7.4-63 – 7.4-64.) As a result, the Draft Staff Report fails to adequately analyze agricultural impacts to the western San Joaquin Valley because it underestimates the total water supply impacts through aggregation of available supplies and unrealistically assumes that replacement water supplies will be available in certain areas.	relatively poor groundwater quality in the shallow aquifer and the high cost of developing supplies from the deep aquifer. Additionally, most of the groundwater subbasins underlying this area are in overdraft. Figures 7.4-16 and 7.4-17 in Section 7.4 provide summaries of the modeled changes in crop acreages from the baseline condition for growers in the region, including CVP water users in the Westlands Water District, for average and dry years, respectively. Results indicate that, with maximum replacement groundwater pumping, there would be no or very little change in irrigated acreage. However, the Westside subbasin, which underlies the Westlands Water District, is ranked as high priority and identified as critically overdrafted. The SWAP model does not account for the possibility that groundwater pumping at the historical rates under the maximum replacement groundwater pumping assumption could yield only poor-quality water with limited ability to replace Sacramento/Delta surface supplies. It may be more likely that actual outcomes would be closer to the no replacement groundwater pumping assumption. Accordingly, reduced irrigated acres in western San Joaquin Valley are likely to be closer to those modeled for no replacement groundwater pumping. Conversion would likely be toward the higher end of the modeled range. However, some of the acres converted could have been removed from irrigation under the land retirement program discussed in Section 7.4.2.10, San Joaquin Valley, even without the flow scenarios.
268	70	[ATT 2] Despite Underestimating its Benefits, the Draft Staff Report Shows that the VA Alternative is Environmentally Superior The Draft Staff Report’s analysis of agricultural resources impermissibly obscures one of the primary benefits of the VA alternative – that the decisions regarding which land is fallowed or converted will not be made in chaotic response to ever-changing economic and water supply conditions (as in the proposed Plan amendments), but, rather, in many cases will be made in advance. The VA alternative provides that (1) landowners will dedicate certain agricultural land to habitat restoration; and (2) other land will be converted in a conscious,	Please see Common Response 1.1, General Comments, for responses to comments that make general comments, do not raise specific environmental impacts of the project, or do not raise specific economic effects of the project. See also Common Response 7.24, Alternatives Analysis, for a discussion of the environmentally superior alternative.

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		logical and predetermined manner that allows for planning and deliberation that is simply unavailable under an unimpaired flow regime. The VA alternative also bridges the enforcement gap left by the proposed Plan amendments by requiring a combination of flow and non-flow measures based on the best available science. (Draft Staff Report at p. 9-198.) The VA alternative provides crucial tools to implement other nonflow actions and mitigation measures that will provide at least equivalent protection of fish and wildlife beneficial uses. By selecting the VA alternative, which in many ways better satisfies the Project's purpose, the State Water Board can avoid and substantially reduce many of the proposed Plan amendments' significant adverse environmental impacts. Because the State Water Board has the authority to enter into binding, enforceable agreements with the VA Parties that will achieve the State Water Board's fundamental purpose, provide greater benefits to native fish species, and will avoid or substantially reduce impacts to agricultural resources, the State Water Board must select the VA alternative. (Pub. Resources Code, §§ 21002-21002.1, 21004; CEQA Guidelines, §§ 15002(a), (h), 15021, 15126.6(d), (e)(2).)	
268	71	[ATT 2] The Draft Staff Report Fails to Adequately Analyze and Mitigate the Significant Cumulative Impacts of the Phase 1 and Phase 2 Plan Amendments The State Water Board decided to consider updates to the Bay-Delta Plan in two steps, each one proposing Plan amendments in a different watershed, sometimes referred to as Phases 1 and 2 of the Bay-Delta Plan Update. While these related proceedings may be construed to have "independent utility" for purposes of environmental review, approaching these proceedings as independent actions does not excuse the State Water Board from good faith evaluation and full disclosure of the Plan amendments' impacts. (CEQA Guidelines, §§ 15130(a)1), 15355.) The Draft Staff Report's analysis of the proposed Plan amendments concludes that "the impacts of implementing the LSJR/southern Delta update are potentially cumulatively	The 2018 LSJR/SD Plan Update to the Bay-Delta Plan is discussed in Section 7.23.1.2, Cumulative Project List, of the 2023 draft Staff Report and potentially significant cumulative impacts are identified in the cumulative impact analysis that follows. Please refer to Common Response 7.23, Cumulative Impact Analysis, for responses to comments related to the consideration, analysis, and mitigation of cumulative impacts associated with the 2018 LSJR/SD Plan Update. Please also see Common Response 1.2, Water Quality Control Planning Process, for a discussion of the Board's consideration of the proposed Plan amendments in relation to the 2018 LSJR/SD Plan Update to the Bay-Delta Plan.

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		considerable to the Sacramento/Delta Plan amendments in the resource areas of agricultural and forest resources, air quality, biological resources, cultural resources, energy and GHG emissions, hydrology and water quality, recreation, and utilities and service systems.” (Draft Staff Report at p. 7.23-14.) The Draft Staff Report offers only a cursory qualitative analysis of the proposed Plan amendments’ significant cumulative impacts that fails to comply with CEQA’s substantive provisions. (CEQA Guidelines, § 15130.)	
268	72	[ATT 2] Section 7.23.1.2 of the Draft Staff Report contains a “Cumulative Project List” regarding the significant cumulative impacts associated with the proposed Plan amendments. (Draft Staff Report at p. 7.23.8.) The Draft Staff Report includes the Phase 1 Plan amendments in this list. (Id. at pp. 7.23-13 -7.23-14.) But the information contained in this list and the Draft Staff Report’s cumulative impact analysis as a whole [Footnote 24: The remainder of the Draft Staff Report’s cumulative impact analysis regarding Phase 1 and 2 fails to analyze any of the significant adverse cumulative impacts of the proposed Plan amendments and concludes “Implementation of the LSJR/southern Delta Plan amendments would result in flows at Vernalis that contribute to Delta outflow, resulting in a cumulative beneficial effect on native anadromous, estuarine, and resident fish species and winter spring increases in low-salinity habitat.” (Draft Staff Report at pp. 7.23-29 – 7.23-30.)] fail to: (1) provide a reasonable analysis of the cumulative impacts of Phases 1 and 2; (2) disclose an adequate summary of the expected environmental effects that would result from implementation of Phases 1 and 2; and (3) define the geographic scope of the area(s) affected by cumulative impacts. (CEQA Guidelines, § 15130(b)(3)-(5).) The cumulative environmental impacts of the proposed Plan amendments are predictable, readily susceptible to analysis and quantification, and are certain to be severe. For example, the Phase 1 Final SED and the Phase 2 Draft Staff Report both quantify water supply impacts associated with the respective Plan Amendments. (Draft Staff Report at Ch. 6; id. at pp. 7.23-13 – 7.23-14 [The Substitute Environmental Document in support	The geographic scope of the cumulative impact analysis is described in Section 7.23.1, Cumulative Impact Analysis, of the 2023 draft Staff Report. The geographic scope of the plan area includes the Sacramento River, the Delta, and the three eastside tributaries to the Delta, the Cosumnes, Mokelumne, and Calaveras Rivers. Water from the Sacramento/Delta is delivered to and used in portions of the San Francisco Bay Area, San Joaquin Valley, Central Coast, and Southern California regions. See Figure 2.8-1a for a map of the plan area. As discussed in Section 7.23, Cumulative Impact Analysis, Growth-Inducing Impacts, and Significant Irreversible Environmental Changes, due to the size and complexity of Sacramento/Delta water supply and use, the environmental analyses are necessarily broad to cover the wide range of foreseeable compliance measures and responses that may result from the proposed Plan amendments. A wide range of responses and associated environmental effects could occur as a result of the project due to the degree of flexibility included in the proposed Plan amendments and the scope and complexity of Sacramento/Delta water use. Because California water resource management involves a myriad of individual and collective decisions, the plan area represents a large portion of the state. The range of foreseeable compliance actions and potential responses to the project is already wide reaching and inherently cumulative in many regards. The 2018 LSJR/SD Plan Update to the Bay-Delta Plan is discussed in Section 7.23.1.2, Cumulative Project List, of the 2023 draft Staff Report and potentially significant cumulative impacts are identified in the cumulative impact analysis that

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		of the LSJR/Southern Delta Plan amendments indicates that the lower San Joaquin River flow objectives could reduce water supply annually between 149 TAF and 465 TAF on average at 30 percent unimpaired flow and 50 percent unimpaired flow, respectively. This corresponds to a 7-percent to 23-percent reduction in water supply (SWRCB 2018)].) The State Water Board therefore must quantify cumulative water supply impacts attributed to Phase 1 and the proposed Plan amendments. But instead of utilizing the quantitative data – derived through the same modeling techniques – to disclose the proposed Plan amendments’ cumulative impacts, the Draft Staff Report contains a general blanket statement that potentially significant cumulative impacts associated with the proposed Plan amendments would likely impact “agricultural and forest resources, air quality, biological resources, cultural resources, energy and GHG emissions, hydrology and water quality, recreation, and utilities and service systems.” (Id. at p. 7.23-14.)	follows. Please refer to Common Response 7.23, Cumulative Impact Analysis, for responses to comments related to the consideration and analysis of cumulative impacts associated with the 2018 LSJR/SD Plan Update. As the comment notes, Section 7.23, Cumulative Impact Analysis, Growth-Inducing Impacts, and Significant Irreversible Environmental Changes, discloses that the LSJR/SD Plan Updates could reduce water supply annually between 149 thousand acre-feet and 465 thousand acre-feet on average at 30 percent unimpaired flow and 50 percent unimpaired flow, respectively. This corresponds to a 7-percent to 23-percent reduction in water supply (SWRCB 2018a). This would affect water users that rely on supplies from the Lower San Joaquin River tributaries, such as agricultural lands on the east side of the San Joaquin Valley and municipal supplies to Stockton East Water District (SEWD) and the City and County of San Francisco. Cumulative impacts from changes in water supply are adequately disclosed in Section 7.23 under Agriculture and Forest Resources and Utilities. Additional quantification is not required as the LSJR tributaries are outside of the SacWAM domain and the supply reductions occur independent of the Sac/Delta update with the exception of SEWD and the City and County of San Francisco. SEWD and City and County of San Francisco water supply are also discussed in the main environmental analyses in Section 7.3, Aesthetics, through Section 7.20, Utilities and Service Systems, as appropriate. Contributions to Delta outflow from the LSJR/SD Plan Updates have been evaluated in Chapter 9, Proposed Voluntary Agreements, and Chapter 13, Revised Proposed Plan Amendments. In addition, the project is revised as described in Common Response 1.3, Revised Proposed Plan Amendments. In addition to the proposed Plan amendments, which remain part of the project as the regulatory pathway, the revised proposed Plan amendments include water supply adjustments to carryover storage requirements for existing water right holders to reduce water supply impacts and allow more water to be stored in reservoirs at the outset of plan implementation.

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268	73	[ATT 2] An adequate analysis of cumulative impacts is particularly important when another related action can be expected to significantly worsen the project's adverse environmental impacts. (Friends of the Eel River v. Sonoma County Water Agency (2003) 108 Cal.App.4th 859, 868-69.) The types of adverse environmental impacts resulting from implementation of the proposed Plan amendments would be similar to the types of impacts associated with the Phase 1 Plan amendments. Yet here, the State Water Board declined to observe CEQA's mandate to find out and disclose all it reasonably can regarding the extent and severity of these cumulative impacts, and to identify ways to avoid or substantially lessen them. (CEQA Guidelines, §§ 15144, 15151; Vineyard Area Citizens for Responsible Growth v. City of Rancho Cordova (2007) 40 Cal.4th 412, 428.) The Draft Staff Report's analysis of the proposed Plan amendments violates CEQA because its superficial qualitative treatment of significant environmental impacts fails to comply with these standards. If the proposed Plan amendments are the State Water Board's proposed alternative, then it must thoroughly evaluate and disclose the cumulative impacts of Phases 1 and Phase 2 as described above.	Please refer to response to comment 268-72. The Plan amendments were developed to improve flow and water quality conditions over a large geographic area, and particularly for fish and wildlife beneficial uses in the Sacramento River watershed, Delta eastside tributaries, and Delta regions (Sacramento/Delta). The State Water Board recognizes that providing instream flows for the environment necessarily results in less water available for other uses. Providing balanced protection of all beneficial uses of water is incredibly important and requires careful consideration. For this reason, water supply, including supplies from the Sacramento/Delta watershed, is evaluated extensively throughout the Staff Report. For example, Table 6.4-1 details total annual average water supply to each region in the study area by type of use (agriculture, urban, and refuge). The following sections in Chapter 6, Changes in Hydrology and Water Supply, provide further detail on each of the regions and uses. It is important that reductions in Sacramento/Delta supply be viewed in the context of total supply in the region. Table 6.4-1 shows that on average, total water supply to the San Joaquin region is over 18 MAF, with the majority of water for agricultural use. Average Sacramento/Delta supply provides 2.8 MAF of that total amount, and reductions under a 55 scenario represent a decrease of 13 percent of Sacramento/Delta Supply and only 2 percent of the total supply in the region. While that reduction is small overall, the Staff Report acknowledges that reduction may impact users differently depending on the priority of water right at issue. In accordance with CEQA, the analysis presents a qualitative assessment of cumulative impacts that considers the incremental impacts associated with the 2018 LSJR/SD Plan Update while not being as detailed or quantitative as the impact analyses conducted for the project alone (Section 7.3, Aesthetics, through Section 7.20, Utilities and Public Service Systems) (Cal. Code Regs., tit. 14, § 15130 subd., (b)). Given the nature of the plan amendments under evaluation, and the broad geographic area under consideration, Section 7.23, Cumulative Impact Analysis, Growth-Inducing Impacts, and Significant Irreversible Environmental Changes, presents sufficient information to

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			inform decision-makers and the public about potential cumulative impacts, guided by standards of practicality and reasonableness.
268	74	[ATT 2] Additionally, having failed to disclose the cumulative impacts associated with the proposed Plan amendments, agencies and members of the public are unable to evaluate whether the Draft Staff Report's proposed mitigation measures are feasible, effective, and enforceable, or determine whether the Draft Staff Report's various analyses of the proposed Plan amendments' impacts are supported by substantial evidence. For example, proper evaluation of cumulative water supply impacts resulting from the proposed Plan amendments may further undermine the Draft Staff Report's assumptions concerning the ability of other beneficial users of water to diversify their water portfolios. The undisclosed cumulative groundwater supply impacts of Phases 1 and 2 also may further undermine the Draft Staff Report's assumption that increased groundwater pumping could serve as a short-term form of mitigation of the proposed Plan amendments' significant impacts.	Please refer to response to comment 268-73. The Staff Report adequately discloses cumulative impacts associated with changes in water supply, including groundwater. Please see Common Response 7.1, General CEQA and Approach to the Analysis, for the Staff Report approach to CEQA requirements. The impact conclusions in the Staff Report do not rely on the implementation of other water management actions, including groundwater, that could reduce supply impacts at certain times and locations. The Staff Report recognizes that the availability of replacement supplies may be limited in some cases.
268	75	[ATT 2] The Draft Staff Report Fails to Disclose Impacts of the Proposed Plan Amendments' Temperature Control and Reservoir Management Mitigation Measure "If a mitigation measure would cause one or more significant effects in addition to those that would be caused by the project as proposed, the effects of the mitigation measure shall be discussed but in less detail than the significant effects of the project as proposed." (CEQA Guidelines, § 15126.4(a)(1)(D).) As further demonstrated below, Mitigation Measure MMAQUA- a,d (1) sets forth a "Temperature Control and Reservoir Management" mitigation measure. (Draft Staff Report at p. 7.6.2-103.) Mitigation Measure MM-AQUA-a,d (1)(i) would instruct the State Water Board to "Implement Cold Water Habitat Objective" to mitigate temperature impacts to aquatic special-status species. (Ibid.) Among other provisions, Mitigation Measure MM-AQUA- a,d (1)(i) would require carryover storage targets and	The commenter is incorrect that the Staff Report fails to adequately identify impacts of cold water habitat implementation. The 2023 draft Staff Report clearly identifies increases in temperature as a potentially significant impact. Elevated water temperatures are an existing concern in California, particularly in rivers where rim reservoirs prevent access to upper watershed habitat for native cold water anadromous fish. A full range of flow scenarios with cold water storage targets are analyzed in Sections 7.3, Aesthetics, to 7.20, Utilities and Service Systems, as well as physical habitat restoration and other ecosystem projects that may be pursued in Section 7.21, Habitat Restoration and Other Ecosystem Projects. CEQA impact determinations are the most conservative, but in many instances can be reduced or avoided with tailored operations. Provisions for adaptive implementation of the numeric inflow requirements are provided to optimize flows to benefit native fish and wildlife while also minimizing water supply impacts, and for the numeric inflow requirements to be implemented in a coordinated fashion with the cold water

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		provisions that establish minimum and maximum flow releases. (Id. at pp. 7.6.2-103 – 7.6.2-104.) But the Draft Staff Report’s impact analysis of the proposed Plan amendments does not engage in a separate analysis regarding the significant effects that would be caused by implementation of Mitigation Measure MM-AQUAa,d 1(i) as required by CEQA. Instead, the Draft Staff Report aggregates the impacts caused by compliance with the various unimpaired flow scenarios and the impacts caused by the carryover storage targets that would be developed pursuant to Mitigation Measure MM-AQUA-a,d 1(i). (Draft Staff Report at p. 6-6 [“The general approach to using SacWAM to assess the effects of Plan amendments is to simulate new flow requirements as a percentage of unimpaired flow (UF) throughout the model domain and adjust carryover (end-of-September) storage targets to maintain cold water pools for downstream fisheries.”].) In addition to combining impact analysis and mitigation as discussed above, the Draft Staff Report’s impact analysis of the proposed Plan amendments fails to differentiate between the specific impacts attributed to the various unimpaired flow scenarios and those attributed to Mitigation Measure MM-AQUA-a,d 1(i) and implementation of the carryover storage targets. Failing to disclose this crucial information prejudices the environmental review process because it prevents full disclosure of the nature of the proposed Plan amendments’ impacts and therefore prejudices the evaluation of alternatives.	habitat and inflow-based Delta outflow requirements. The environmental analyses address a complete range of impacts in the event that water users do not utilize adaptive implementation, as well as the potential impacts from implementation of adaptive implementation.
268	76	[ATT 2] The Draft Staff Report provides that implementation of the proposed Plan amendments’ carryover storage targets (i.e., Mitigation Measure MM-AQUA-a,d 1(i)) would cause significant reductions to Sacramento/Delta water supplies. The Draft Staff Report acknowledges that “[a] large part of the demand during the irrigation season is met through delivery of water stored in reservoirs.” (Draft Staff Report at p. 6-7.) It further provides “[s]urface water availability also tends to be lowest during the irrigation season,” which increases the need to release water stored in reservoirs for beneficial uses. (Id. at p. 6-22.) The end-of-April represents “the end of the wet season going into the	Chapter 6, Changes in Hydrology and Water Supply, of the Staff Report describes the changes in water supply that may occur under the proposed project. In general, the proposed project would increase spring streamflows, and increase carryover storage volumes in reservoirs, which would result in reduced water supply for diversion and use. The 2023 draft Staff Report analyzes and discloses potentially significant environmental impacts in Chapter 7, Environmental Analysis, including Section 7.6.2, Aquatic Biological Resources. Please see Common Response 7.1, General CEQA and Approach to the Analysis, regarding impacts from mitigation. Also see the response to comment 268-44. In addition, the project is revised as described in Common Response 1.3, Revised Proposed Plan Amendments.

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		irrigation season,” whereas end-of-September represents the end of both the dry season and the irrigation season. (Id. at p. 6-37.) The end-of-September carryover storage target, which follows the end-of-April target, therefore exclusively affects the availability of Sacramento/Delta water stored in reservoirs during the irrigation season. As the carryover storage targets – alongside other reservoir management mitigation measures [Footnote 25: The proposed Plan amendments’ temperature control and reservoir management mitigation measure would require annual operations plans with provisions for carryover storage, minimum and maximum flow releases, and ramping rates. SDU-0268] – would fundamentally alter water supply availability from key sources during peak demand, the proposed Plan amendments invariably would result in significant environmental impacts.	In addition to the proposed Plan amendments, which remain part of the project as the regulatory pathway, the revised proposed Plan amendments include water supply adjustments and relaxations to carryover storage requirements for existing water right holders at the outset of Plan implementation to reduce water supply impacts and allow more water to be stored in reservoirs.
268	77	[ATT 2] The Draft Staff Report’s analysis of changes in surface water supply attributed to the proposed Plan amendments fails to separately quantify the impacts caused by the unimpaired flow requirements, as opposed to those caused by implementation of the Cold Water Habitat Objective. The Draft Staff Report claims to provide estimates of the annual reductions in Sacramento/Delta supplies that would be caused by the various levels of unimpaired flow during various water year types. (Draft Staff Report at p. 6-56 [Table 6.4-2, “Overall, as expected, Sacramento/Delta water supply decreases with increasing flow requirements. Reductions are the least in wet years and generally the greatest in critical, dry, and below normal years.”].) This is only partially true, as the proposed Plan amendments’ water supply impacts presented in the Draft Staff Report are based on both the unimpaired flow requirements and carryover storage. (Ibid. [“In the higher flow scenarios, the system is operated more conservatively at times to maintain storage for cold water pool, which results in larger reductions in below normal and dry years than in critical years.”]; id. at p. 5-16 [“Because 55 percent of unimpaired flow is the flow level at which more significant improvements to fish and wildlife beneficial uses are expected and cold water supplies can still be maintained, the proposed starting point for the flow level is 55	The draft Staff Report did not quantify the impacts of the Cold Water Habitat Objectives separately because they are part of the proposed plan and are not considered to be a separate project or alternative. For results related to reservoir water supply and changes in average end-of-April storage for rim reservoirs in all years and in critical years, please refer to Tables 6.3-8 and 6.3-9 respectively. Note that these results include the increased frequency of years in which the reservoirs spill due to higher carryover targets. Please also see Common Response 7.6.2, Aquatic Biological Resources and Cold Water Habitat, for responses to comments regarding temperature management and objectives in the draft Staff Report.

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		percent.”] (emphasis added).) But the quantities of water required to satisfy the carryover storage targets under the proposed Plan amendments’ various flow scenarios are not provided. By the same token, the Draft Staff Report also leaves agencies and members of the public in the dark regarding the water supply costs purely associated with meeting the unimpaired flow requirements of the proposed Plan amendments – before mitigation through temperature control and reservoir management.	
268	78	[ATT 2] The Draft Staff Report Fails to Analyze Impacts of the Proposed Plan Amendments on Public Water Agencies, Including Their Ability to Provide Consistent, Reliable, and Affordable Water Service to Their Customers The Draft Staff Report’s analysis of the proposed Plan amendments fails to adequately analyze and discuss the multiple significant impacts to Public Water Agencies (“PWAs”), in violation of CEQA. CEQA requires analysis and discussion of significant impacts related to “relevant specifics of the area, the resources involved, physical changes,... the human use of the land (including commercial and residential development), health and safety problems caused by the physical changes, and other aspects of the resource base such as water, historical resources, scenic quality, and public services.” (CEQA Guidelines § 15126.2(a); id. at Appendix G “XV. Public Services”; see also id. at § 15144 [an environmental document must “disclose all that it reasonably can.”].) The proposed Plan amendments are unworkable and will cause significant negative impacts on PWAs, their customers, and the environment. First, the proposed Plan amendments threaten the ability of PWAs to ensure a reliable water supply and to provide consistent, reliable and affordable water service to customers, which include disadvantaged communities and other customers that provide essential public services. Westlands, for example, serves water to the Lemoore Naval Air Station and the communities of Huron, Avenal and Coalinga. The proposed Plan amendments threaten to impact the ability to provide consistent,	The Staff Report fully satisfies the basic purposes of CEQA, which are to: (1) inform governmental decision-makers and the public about the potential significant environmental effects of proposed activities; (2) identify ways that environmental damage can be avoided or significantly reduced; (3) prevent significant, avoidable damage to the environment by requiring changes in projects through the use of alternatives or mitigation measures when the governmental agency finds the changes to be feasible; and (4) disclose to the public why a governmental agency approved the project in the manner the agency chose if significant environmental effects are involved. (Cal. Code Regs., tit. 14, § 15002, subd. (a).) To fulfill these functions, an evaluation of the environmental effects need not be exhaustive, but the sufficiency of an environmental analysis is to be reviewed in light of what is reasonably feasible and CEQA documents need not be perfect. CEQA documents should be adequate, complete, and represent a good faith effort at full disclosure. (Id., § 15151.) Please see Common Response 7.1, General CEQA and Approach to the Analysis, for a discussion of the level and scope of analysis, and approach to CEQA requirements. Recognizing the importance of municipal water supplies, the Staff Report uses threshold UT-d in Section 7.20, Utilities and Service Systems, to assess impacts of changes in supply for municipal use although it is not a direct impact on the environment. Water agencies’ response to reduced municipal supply can lead to other actions, including the construction or expansion of new water treatment facilities or water supply infrastructure, which could have environmental impacts. As discussed in Section 8.3, Costs Associated with Other Water

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		reliable and affordable water service to these end users and raise concerns ranging from threats to national security to impacts on incarcerated populations in Coalinga and Avenal. The Draft Staff Report should specifically acknowledge and evaluate these impacts.	Management Actions, there is a suite of reasonably foreseeable actions that affected entities may undertake to address possible Sacramento/Delta water supply reductions. However, the State Water Board recognizes the unique water supply portfolios and circumstances of each PWA. It would be speculative to make assumptions regarding how PWAs will respond to implementation of the proposed Plan amendments because it will depend on many individual and collective decisions including, but not limited to, the discrete actions of other local water users in response to reductions in surface water and alternative sources of water supply. The Staff Report concludes that impacts on PWAs could be significant even if proposed mitigation was applied. Chapter 10, Economically Disadvantaged Communities, describes various financial and technical assistance programs available to assist public water systems serving economically disadvantaged communities. Please also see Common Response 10.1, Economically Disadvantaged Communities, for information about how the Staff Report discusses impacts on disadvantaged communities. See also Common Response 8.1, Economic Analysis and Other Considerations, regarding regional economic analysis, potential agricultural effects, and funding opportunities.
268	79	[ATT 2] Furthermore, and as discussed throughout this comment letter, the proposed Plan amendments will have numerous significant impacts including: • Precluding PWAs from meeting beneficial uses essential to California's economy including for agriculture, industrial uses, and to serve California's massive unmet demand for housing; • Impacting hydropower operations and threatening the stability of California's grid; and • Threatening to undermine existing restoration successes by PWAs (e.g., restoring floodplain habitat, fisheries, and promoting watershed health).	Please refer to the response to comment 268-78 regarding how the Staff Report analyzes and discusses impacts on PWAs. To the extent that this comment summarizes or introduces other comments, please see the substantive responses to those comments. Impacts on hydropower are adequately evaluated in Section 7.8, Energy. Impacts on biological resources are adequately evaluated in Section 7.6.1, Terrestrial Biological Resources and Section 7.6.2, Aquatic Biological Resources.

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		The State Water Board cannot adopt the proposed Plan amendments due to these failures to disclose and fully evaluate the proposed Plan amendments' significant impacts to PWAs, their customers, and the environment.	
268	80	[ATT 2] The Draft Staff Report's Analysis of the Proposed Plan Amendments Is Inadequate and Misleading Because It Relies on Inadequate or Invalid Mitigation Measures To comply with CEQA's substantive provisions, the Draft Staff Report "shall describe feasible measures which could minimize significant adverse impacts." (CEQA Guidelines, § 15126.4(a)(1). The Draft Staff Report must "identify mitigation measures for each significant environmental effect identified." (Id. at § 15126.4(a)(1)(A).) "Mitigation measures must be fully enforceable through permit conditions, agreements, or other legally binding instruments. In the case of the adoption of a plan, policy, regulation, or other public project, mitigation measures can be incorporated into the plan, policy, regulation, or project design." (Id. at § 15126.4(a)(2) (emphasis added).) Subject to a narrow exception, "[f]ormulation of mitigation measures shall not be deferred until some future time." (Id. at § 15126.4(a)(1)(B) (emphasis added); POET, supra, 218 Cal.App.4th at p. 735; San Joaquin Raptor Rescue Center v. County of Merced (2007) 149 Cal.App.4th 645, 670-71 [EIR's deferral to a "future management plan (or plans)" to mitigate special-status species impacts violated CEQA].) As set forth in CEQA Guidelines section 15126.4(a)(1)(B), the "specific details of a mitigation measure" may only be deferred "when it is impractical or infeasible to include those during the project's environmental review" and the agency: "(1) commits itself to the mitigation, (2) adopts specific performance standards the mitigation will achieve, and (3) identifies the type(s) of potential action(s) that can feasibly achieve that performance standard and that will considered, analyzed, and potentially incorporated in the mitigation measure." The Draft Staff Report's analysis of the proposed Plan amendments improperly defers key mitigation measures and	The claim that the draft Staff Report "relies on" mitigation measures is incorrect. The State Water Board acknowledges in Chapter 7, Environmental Analysis, that it cannot guarantee that the identified measures will be adopted or applied to fully mitigate potential impacts, and therefore such impacts remain potentially significant. Please see Common Response 7.1, General CEQA and Approach to the Analysis, regarding the adequacy of the mitigation measures.

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		relies on non-binding, unenforceable measures to mitigate the proposed Plan amendments' impacts. This deferred mitigation violates CEQA for two reasons. First, it is both feasible and practicable for the State Water Board to develop the specific details of the proposed Plan amendments' mitigation measures during the environmental review process. (CEQA Guidelines, § 15126.4(a)(1)(B).) Second, even if it were "impracticable and infeasible" to develop certain measures to mitigate the impacts of the proposed Plan amendments, the Draft Staff Report failed to identify and adopt specific performance criteria or standards the mitigation will achieve, and to identify the types of potential actions that can and will be used to feasibly achieve them. (CEQA Guidelines, § 15126.4(a)(1)(B).)	
268	81	[ATT 2] The Draft Staff Report's Analysis of the Proposed Plan Amendments Improperly Relies on SGMA Implementation as a Mitigation Measure The Draft Staff Report's analysis of the proposed Plan amendments improperly included SGMA implementation as Mitigation Measure MM-GW-b (1), which purports to mitigate groundwater impacts. (See, e.g., Draft Staff Report, at p. 1-37.) Mitigation Measure MM-GW-b (1)-(6) is, in turn, incorporated into several other mitigation measures, including Mitigation Measure MM-AG-a,e (5), regarding impacts to agriculture resources; and Mitigation Measure MM-AQUA-a,d (2), regarding impacts to aquatic biological resources. (Id. at pp. 1-47, 1-51.) SGMA implementation is not a proper mitigation measure for several reasons. First, with respect to Mitigation Measure MM-AG-a,e, it is inappropriate to include SGMA implementation as a measure to mitigate impacts on agricultural resources because with implementation of SGMA, groundwater is increasingly a less reliable substitute supply for reduced surface water deliveries. In fact, groundwater sustainability agencies and other public water agencies that rely on groundwater are now searching for flood flow recharge opportunities and alternative sources of supply to mitigate against SGMA cutbacks and to achieve subbasin balance	The Staff Report properly analyzes groundwater and SGMA in at least three distinct ways. First, there are the potentially significant impacts to agricultural resources if less groundwater is available, for example, due to Sustainable Groundwater Management Act (SGMA) implementation (see Section 7.4, Agriculture and Forest Resources); second, there are the potentially significant impacts to groundwater, as a resource, if more groundwater is used, for example, as a substitute supply for surface water for agricultural irrigation (see Section 7.12.2, Groundwater); and, third, the Staff Report acknowledges SGMA implementation as a potentially cumulative impact as it could restrict the amount of groundwater available for agricultural and municipal beneficial use (see Section 7.23, Cumulative Impact Analysis, Growth-Inducing Impacts, and Significant Irreversible Environmental Changes, Section 7.23.1.2, Cumulative Project List). Moreover, the comment incorrectly states that SGMA pre-dates the Bay-Delta Plan Update. On January 12, 2012 the State Water Board issued the Supplemental Notice of Preparation (NOP) for the Sacramento/Delta Bay-Delta Plan Update and on April 25, 2012, the commenter sent a letter commenting on the NOP. SGMA took effect January 1, 2015. SGMA is part of the groundwater impact mitigation measures (MM-GW-b and MM-GW-a,f). For certain resource sections, the degree of the impacts identified would be dependent on groundwater conditions. Thus, the groundwater mitigation measures (MM-GW-b and/or MM-GW-a,f) were listed as part of

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		and sustainability. More broadly, the Draft Staff Report acknowledges SGMA implementation as a cumulative impact (Draft Staff Report, at. p. 7.23-16) If, as the Draft Staff Report acknowledges, SGMA contributes to cumulative impacts on agricultural resources, then it cannot also be a measure to mitigate significant impacts on agricultural resources. Second, SGMA, enacted in 2014, predates the proposed update to the Bay-Delta Plan and is therefore an existing legal requirement. (Id. at p. 7.12.2-9.) Third, as demonstrated above, the Draft Staff Report recognizes implementation of SGMA will require local agencies to “halt overdraft and balance levels of pumping and recharge to avoid undesirable results.” (Id. at p. 7.12.2-9.) Consequently, SGMA implementation likely will reduce (and will not increase) groundwater supply in overdrafted basins, and the Draft Staff Report’s assumptions regarding groundwater as a viable substitute supply are unreasonable for these regions.	the multiple mitigation measures identified for Aquatic Biological Resources (MM-AQUA-a,d), Terrestrial Biological Resources (MM-TER-b,c), Agriculture and Forest Resources (MM-Ag-a,e), Geology and Soils (MM-GEO-c), Surface Water (MM-SW-a, f), and Utilities (MM-UT-d). Therefore, it is not unreasonable to include the mitigation measures identified for groundwater impacts as part of the mitigation measures for other resource sections. The Sacramento/Delta Bay Delta Plan update does not conflict with SGMA; together they allow for true integrated planning of scarce water resources that does not trade impacts between surface and groundwater. Depending on the subbasin, it will be up to the local Groundwater Sustainability Agencies (GSAs) to take the appropriate actions for groundwater sustainability. As stated in Section 7.4, Agriculture and Forest Resources, lower groundwater levels could lead to less flexibility for water management due to inability to retrieve groundwater supply when or where it is needed, and the Sacramento/Delta update may result in additional converted acreage. Part of reaching sustainability includes diversifying water portfolios and search for alternative solutions, such as flood flow recharge opportunities. As mentioned in Section 7.12.2, Groundwater, the State Water Board will continue efforts to encourage and promote environmentally sound groundwater storage and recovery (recharge) projects that use surplus surface water. The State Water Board can also ensure that mitigation measures are implemented for actions within its authority, other mitigation measures are largely within the jurisdiction and control of other agencies or depend on how water users respond to changes in water supply or hydrology. The State Water Board cannot guarantee that measures always will be adopted or applied in a manner that fully mitigates the impact. Therefore, unless and until the mitigation is fully implemented, the impacts remain potentially significant for AG-a,e. Please see Common Response 7.12.2, Groundwater and Sustainable Groundwater Management Act, for a discussion on the implementation of SGMA and the overlap of Sacramento/Delta update to the Bay Delta Plan.

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268	82	[ATT 2] Adaptive Implementation/Flexible Mitigation of the Proposed Plan Amendments Requires Performance Standards and Criteria To comply with CEQA, adaptive management and/or flexible mitigation requires performance standards. (CEQA Guidelines, § 15126.4, subdivision (a)(1)(B).) An adaptive plan designed to change in response to future events or studies must identify the type of actions that may be taken and criteria for their implementation. (Preserve Wild Santee v. City of Santee (2012) 210 Cal.App.4th 260, 281 [post-approval formulation of active habitat management plan invalid because EIR did not describe expected management actions or include management standards]; POET, supra, 218 Cal.App.4th at 739-740 [under CEQA a regulatory plan designed to improve environmental conditions must include objective performance criteria by which to measure success].) Accordingly, to properly frame the proposed Plan amendments for adaptive management/implementation, the State Water Board must select an alternative with a detailed management plan that identifies the types of adaptive actions that may be taken and their criteria for implementation, alongside an associated experimental design for monitoring the performance of its adaptive strategies in meeting the Project objectives. As discussed in further detail below, the VA alternative meets these rigorous CEQA requirements, whereas the proposed Plan amendments fall short and are not an appropriate vehicle for adaptive management. The proposed Plan amendments' mitigation measures heavily rely on adaptive management and flexible mitigation without any accompanying performance standards. The Draft Staff Report recognizes performance standards governing adaptive management are necessary. For example, the seventh Project objective (goal) is to: "Provide for the development and implementation of a monitoring and evaluation program to inform adaptive management of flows and future changes to the Plan." (Draft Staff Report at p. 7.1-6.) But instead of developing necessary performance standards and monitoring programs in the Draft Staff Report as required by CEQA, the Draft Staff Report	Please refer to the response to comment 268-24. In addition, the revised proposed Plan amendments specify that any decision to approve or direct adaptive implementation must be informed by best available scientific information, including monitoring and evaluation of the effectiveness of the measures in meeting the narrative objectives, and biological goals when available. Please see Common Response 7.1, General CEQA and Approach to the Analysis, regarding the adequacy of the project description.

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		proposes to outsource “adaptive management provisions” to the forthcoming program of implementation. (E.g., id. at pp. 5-30, 5-39.) Thus, to comply with CEQA, the performance standards accompanying the adaptive management mitigation measures / project components must be disclosed and evaluated in the Draft Staff Report. Otherwise, members of the public and agencies cannot evaluate both the feasibility of these adaptive components of the proposed Plan amendments as mitigation measures and their environmental impacts. The State Water Board cannot use a program of implementation to evade its duties under CEQA.	
268	83	[ATT 2] The proposed Plan amendments are premised on three key adaptive components: (1) an adaptive flow range from 45 to 65 unimpaired flow to support salmonids and other native fish species; (2) flow shifting and flow shaping provisions; and (3) temperature control and reservoir management mitigation measures. Mitigation Measure MM-AQUA-a,d (1)(i) illustrates the proposed Plan amendments’ reliance on these adaptive components. It provides that the “[t]emperature effects” upon aquatic special-status species attributed to the proposed Plan amendments “can be reduced due to the flexibility provided in the flow objectives (range of flow levels, shaping and shifting of flows [Footnote 26: Despite being included as an essential component of/mitigation measure for the proposed Plan amendments, the Draft Staff Report does not provide any specific information regarding flow shaping and flow shifting provisions.], groups of tributaries working together) and other proposed provisions of the program of implementation.” (Draft Staff Report at p. 7.6.2-104.) The Draft Staff Report’s analysis of the proposed Plan amendments violates CEQA because it does not identify (1) any specific performance standards to ensure the adaptive mitigation measures will provide reasonable protection to native fish species; (2) the types of potential actions that can feasibly achieve the performance standards; or (3) a monitoring program designed to evaluate performance. (CEQA Guidelines, § 15126.4(a)(B); Preserve Wild Santee v. City of Santee, supra, 210 Cal.App.4th 281.)	Please refer to the responses to comments 268-24 and 268-82. The proposed Plan amendments and the environmental impact conclusions do not rely on adaptive implementation. Provisions for adaptive implementation of the numeric inflow requirements are provided to optimize flows to benefit native fish and wildlife while also minimizing water supply impacts, and for the numeric inflow requirements to be implemented in a coordinated fashion with the cold water habitat and inflow-based Delta outflow requirements. The environmental analyses evaluate a complete range of impacts in the event that water users do not utilize adaptive implementation, as well as the potential impacts from implementation of adaptive implementation. A full range of flow scenarios with cold water storage targets are analyzed in Section 7.3, Aesthetics, through Section 7.20, Utilities and Service Systems, as well as physical habitat restoration and other ecosystem projects that may be pursued in Section 7.21, Habitat Restoration and Other Ecosystem Projects. Chapter 5, Proposed Changes to the Bay-Delta Plan for the Sacramento/Delta, provides a detailed description of the cold water habitat objective implementation. Also see Common Response 1.3, Revised Proposed Plan Amendments, regarding the description of the regulatory pathway.

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268	84	[ATT 2] The proposed Plan amendments cannot be lawfully adopted without management plans and monitoring criteria for the adaptive flow range in addition to flow shifting and shaping criteria. The Draft Staff Report does not identify the specific scenarios that would justify upward or downward adjustments of the unimpaired flow requirement. The Draft Staff Report also does not disclose the type of actions it would take to shift and shape flows in an attempt to provide reasonable protection to fish species. The State Water Board is required to analyze the environmental impacts associated with the adaptive management scenarios likely to occur under the proposed Plan amendments.	Refer to the response to comment 268-83.
268	85	[ATT 2] The VA alternative, on the other hand, contains an adaptive management framework that complies with CEQA. The VA alternative contains a robust Governance Program and a Science Program, which provide detailed performance standards and identify the actions that will be taken under the VAs to meet the Project objectives. (Draft Staff Report, Appendix G1, Appendix B [Draft Governance Program], Appendix C [Draft Science Plan].) “Adaptive management in the VA Science Program describes an approach to testing priority hypotheses related to the effects of the suite of VA measures and applying the resulting information to improve future management and regulatory decisions.” (Id. at Appendix G1, VA Draft Science Plan at p. 2.) The VA Draft Science Plan articulates “specific hypotheses about the expected changes in key metrics relative to relevant pre-action baselines or reference sites. Observed or modeled changes relative to these metrics . . . will be the primary means through which the VA Science Committee assesses progress relative to the core objectives of the VA Program and informs decisions both within and at the end of the term of the VA about whether and how to modify implementation.” (Id. at p. 3.) The VA Science Plan’s hypotheses are organized into three tiers: the “Local Tier,” the “Full Tributary and Delta Tier,” and the “Population Level Tier.” (Id. at pp. 4-5.) The Local Tier hypotheses concern the effects of non-flow habitat improvement actions and “organized by the	Please see Common Response 1.1, General Comments, for responses to comments that make general comments, do not raise specific environmental impacts of the project, or do not raise specific economic effects of the project.

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		specific type of habitat project undertaken” and are evaluated on an annual or sub-annual scale. (Id. at p. 5.) The Local Tier hypotheses provide metrics for numerous non-flow actions, such as chinook spawning habitat enhancement on tributaries; chinook salmon in-channel rearing habitat; tributary floodplain restoration; fish passage improvements; and tidal wetland restoration, among other actions. (Id. At § 2.2.) Each of these hypotheses is detailed, discloses the applicable metrics, baseline, covariates (other relevant variables), which creates specific performance standards.	
268	86	[ATT 2] The Full Tributary and Delta Tier hypotheses “are developed to test predictions of how flow actions in the tributaries and the Delta will benefit native species,” with flow-specific hypotheses evaluated annually while “trends in the productivity of tributaries for juvenile salmon must be evaluated over several years.” (Id. at p. 5.) Like the Local Tier hypotheses, these hypotheses disclose the applicable metrics, baseline, and covariates that create specific performance standards. (Id. at § 2.3.) Finally, the Population Level Tier hypotheses “prompt evaluation of general population trends at both the tributary and system-wide (Sacramento and San Joaquin Valleys, and full Central Valley) spatial scales.” (Id. at p. 5.) “Because these hypotheses and metrics involve the full life span of native species, trends in these metrics will be reviewed on a temporal scale of 3 or more years.” (Ibid.) Overall, these three tiers of metrics for determining success of the VA actions and informing adaptive management will ensure the VA alternative maximizes fish benefits and create objective performance standards.	Please see Common Response 1.1, General Comments, for responses to comments that make general comments, do not raise specific environmental impacts of the project, or do not raise specific economic effects of the project.
268	87	[ATT 2] The VA Science Program also contains detailed monitoring network provisions, would impose reporting requirements, and would establish a VA Science Committee to evaluate performance (i.e., a monitoring program). Therefore, the VA Science Program contains both specific performance standards and an experimental design for monitoring the VAs’ success in achieving the Project objectives in accordance with CEQA’s requirements. In conclusion, even in their draft form, the VA materials	The proposed Plan amendments were described in Chapter 5, Proposed Changes to the Bay-Delta Plan for the Sacramento/Delta, of the 2023 draft Staff Report in sufficient detail for the purposes of the analysis. Please see Common Response 1.3, Revised Proposed Plan Amendments, for more information on the regulatory and VA pathways.

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		contained in Appendix G1 of the Draft Staff Report are sufficient to establish a valid adaptive management program under CEQA. The VA materials, unlike the proposed Plan amendments, fully define essential project components under the VA alternative, contain rigorous performance standards, and clearly disclose the actions the VA Parties intend to take and how those actions will be monitored and assessed. When the VA Parties release the final appendices to the VA alternative, the VA alternative will provide an unprecedented adaptive management program as part of an environmentally superior alternative that meets CEQA's requirements and achieves the fundamental Project purpose.	
268	88	[ATT 2] Temperature Control and Reservoir Management To mitigate the proposed Plan amendments' impacts on aquatic special-status species (e.g., native salmonids), the Draft Staff Report contains Mitigation Measure "MM-AQUA-a,d." (Draft Staff Report at p. 7.6.2-103.) Mitigation Measure MM-AQUA-a,d consists of ten (10) separate measures. Mitigation Measure MM-AQUA-a,d 1(i), entitled "Temperature Control and Reservoir Management," proposes to "Implement Cold Water Habitat Objective." (Ibid.) But the Draft Staff Report's analysis of the proposed Plan amendments defers development of the "Temperature Control and Reservoir Management" mitigation measure's specific details in violation of CEQA. (Ibid.; id. at p. 7.6.2-95.) Mitigation Measure MM-AQUA-a,d 1(i), provides: Long-term strategy and annual operation plans for rim reservoirs are required to be designed and implemented to avoid or reduce temperature impacts. The long-term strategy and operation plans will also consider and include measures to avoid or reduce any potential impacts on the following resources: aesthetic, terrestrial biological species, cultural, energy, recreation, and water quality (including applicable provisions of State Water Board's Statewide Mercury Control Program for Reservoirs).	Please see Common Response 1.1, General Comments, for responses to comments that make general comments, do not raise specific environmental impacts of the project, or do not raise specific economic effects of the project.

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		*** Long-Term Temperature Management Strategies: The strategies would be required to evaluate measures that can be taken to improve temperature management in both the short term and long term and to identify the feasibility and suitability of those measures. The strategies also would be required to include processes for implementing feasible temperature control measures in a timely and effective manner. Temperature control measures that should be evaluated include installation and improvements in TCDs, cold water bypasses, passage, riparian reforestation, operational changes, and other relevant improvements identified by the State Water Board and fisheries agency staff. The strategies would be required to include provisions for developing the annual plans, including time schedules that provide for planning and coordination with the State Water Board and fisheries agencies and other appropriate stakeholders, decision-making processes for temperature operations, modeling and monitoring to support development and implementation of the annual plans, adaptive management, and other measures. Operation Plans: Annual operations plans would be required to be developed each year in coordination with the State Water Board and fisheries agencies identifying how temperature protection and related operations for the protection of salmonids and other native species will be achieved each year, including provisions for reservoir carryover storage levels; minimum and maximum flow releases and ramping rates to provide appropriate temperature protection, preserve cold water supplies, and avoid stranding and dewatering concerns; reservoir TCD operations; adaptive management; and other relevant provisions, as well as the technical basis for those provisions. The annual plans would be subject to approval and potential modification by the Executive Director. (Id. at pp. 7.6.2-103 – 7.6.2-104 (emphasis added).) Mitigation Measure MM-AQUA-a,d 1(i) therefore depends on long-term strategy and annual operations plans that are “required to be designed.” (Id. at p. 7.6.2-103.) In other words, the Draft Staff Report defers the development of these plans.	

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		This deferral violates CEQA because the State Water Board failed to (a) adopt specific criteria or performance standards the mitigation will achieve; and (b) identify the type(s) of potential action(s) that can and will feasibly achieve those criteria or performance standards. (CEQA Guidelines, § 15126.4(a)(1)(B).)	
268	89	[ATT 2] Mitigation Measure MM-AQUA-a,d 1(i) does not contain any specific performance standards designed to avoid or reduce temperature impacts. Rather, it merely sketches a list of provisions or issues for which to create performance standards. For example, the “[l]ong-term strategy and annual operations plans” will “include measures to avoid or reduce any potential impacts on the following resources: aesthetic, terrestrial biological species, cultural, energy, recreation, and water quality.” (Id. at p. 7.6.2-103.) But the mitigation measure does not contain specific performance standards regarding how these impact concerns will be measured or evaluated. Additionally, the long-term temperature management strategies “would be required to include processes for implementing feasible temperature control measures in a timely and effective manner. Temperature control measures that should be evaluated include installation and improvements in TCDs [temperature control devices], cold water bypasses, passage, riparian reforestation, operational changes, and other relevant improvements identified by the State Water Board and fisheries agency staff.” (Ibid.) But once again, the Draft Staff Report’s analysis of the proposed Plan amendments lacks any criteria or performance standards necessary to evaluate the effectiveness of such measures to mitigate the proposed Plan amendments’ impacts. Indeed, particular performance standards regarding (a) TCDs; (b) cold water bypasses; (c) fish passage projects; (d) riparian reforestation; and (d) operational changes would be necessary to ensure the unique benefits associated with each of these distinct activities could adequately be measured and compared objectively. Indeed, without such specific performance criteria, meaningful “modeling and monitoring” could not occur to inform the development of annual plans. (Id. at p. 7.6.2-103.)	As explained in the response to comment 268-41, Mitigation Measure MM-AQUA-a,d 1(i), Implement Cold Water Habitat, is no longer included as a mitigation measure; however, the cold water habitat objective remains a project component. Additional specificity is provided in the revised Plan and discussed in Common Response 1.3, Revised Proposed Plan Amendments. Please see also Common Response 7.6.2, Aquatic Biological Resources and Cold Water Habitat, regarding implementation of the cold water habitat objective.

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268	90	[ATT 2] Mitigation Measure MM-AQUA-a,d 1(i) measure also lacks specific performance standards to guide development and implementation of the proposed Plan amendments' contemplated annual operations plans. (Id. at pp. 7.6.2-103 – 7.6.2-104.) The purpose of such annual plans as part of the proposed Plan amendments is to identify “how temperature protection and related operations for the protection of salmonids and other native species will be achieved each year.” (Id. at p. 7.6.2-103.) But no performance standards designed to guide these determinations are provided. Rather, the mitigation measure only provides a list of concepts that require performance standards, namely: (a) reservoir carryover storage levels; (b) minimum and maximum flow releases and ramping rates; (c) performance standards regarding stranding and dewatering concerns; (d) reservoir temperature control device operations; and (e) adaptive management. These provisions are ambiguous and uncertain. For example, it is uncertain when the “minimum and maximum flow releases and ramping rates” would apply. It is also uncertain whether the annual operations plans would include reservoir refill requirements/provisions. The proposed Plan amendments cannot be the State Water Board’s proposed alternative without the development of specific performance criteria and standards and adequate definition and description of the Long-Term Temperature Management Strategies and Operations Plan components relied upon in Mitigation Measure MM-AQUA-a,d 1(i).	Please refer to the response to comment 268-89. Managing for temperature depends on the unique circumstances of each tributary. Because of this, the temperature objective is a narrative objective which allows for some degree of flexibility by allowing reservoir operators to develop their own temperature management plans for approval by the State Water Board. See also Common Response 7.6.2, Aquatic Biological Resources and Cold Water Habitat, regarding implementation of the cold water habitat objective.
268	91	[ATT 2] The VA Alternative Provides Greater Fish Benefits and Is the Environmentally Superior Alternative A direct link exists between the quality of habitat and the abundance of native fish species. (E.g., Draft Staff Report, Appendix, G2 at pp. 6-1 - 6-2 [numerous studies have found increases in spawners and adult salmon populations following habitat improvement efforts]; id. at p. 6-6 [improved rearing habitat leads “to an increased capacity to produce more juveniles].) Recent studies demonstrate that “Sacramento River	Please see Chapter 3, Scientific Knowledge to Inform Fish and Wildlife Flow Recommendations; Chapter 9, Proposed Voluntary Agreements, and Appendix B, Scientific Basis Report in Support of New and Modified Requirements for Inflows from the Sacramento River and its Tributaries and Eastside Tributaries to the Delta, Delta Inflows, Cold Water Habitat, and Interior Delta Flows (2017), and Appendix G2, Final Draft Scientific Basis Report Supplement in Support of Proposed Voluntary Agreements for the Sacramento River, Delta, and Tributaries Update to the San Francisco Bay/Sacramento-San Joaquin Delta Water Quality Control Plan, of the 2023 draft Staff Report for a full description of the benefits expected from the flow scenarios

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		winter-run Chinook salmon rely on a more diverse suite of rearing habitats than previously thought, thereby motivating the need to restore instream rearing habitat in the Sacramento River and its contributing tributaries.” (Draft Staff Report, Appendix G2 at p. 6-1.) Additionally, “56 percent of the variability” in the juvenile salmon catch at Chipps Island [Footnote 27: All juvenile salmonids outmigrating from the Sacramento (and San Joaquin) River must pass Chipps Island, which marks the confluence between the Sacramento-San Joaquin watershed and San Francisco Bay. Chipps Island therefore is the key measuring point for determining outmigration (i.e., escapement) rates and abundance.] is explained by factors other than flow, likely including biological factors such as the amount of suitable habitat and food supply. (Id. at p. 6-25.) By integrating flow and nonflow physical restoration actions, the VA alternative provides a holistic and more effective approach to habitat improvements than the State Water Board’s proposed Plan amendments. The goal of the VA alternative’s habitat restoration activities is “to restore spawning and rearing habitats sufficient to support approximately 25 percent of the offspring of the salmon doubling goal populations for each tributary.” (Draft Staff Report, Appendix G2 at p. 1-9; id. At ES-5; Draft Staff Report at p. 9-77.) Table 5-1 [Exhibit 1 of ATT 2] of the Draft Supplement Report illustrates the amount of rearing and spawning habitat on the Sacramento River (Spring Run and Fall Run), Feather River, Yuba River, American River, and the Mokelumne River (the “VA Tributaries”) required to support 100 percent of the Salmon Doubling Objective.	or proposed VAs. Please also see Common Response 3.1, Fish Protection, for instructions on interpreting the results of the habitat analyses.
268	92	[ATT 2: Exhibit 1: Table 5-1, Summary of the Doubled Escapement of Fall Run (all tributaries) and Spring Run (Sacramento River), Number of Juveniles, and Rearing and Spawning Habitat Needed to Support the Doubled Escapement, from the 2023 Draft Staff Report]	This exhibit was included in the comment letter. The exhibit does not raise a specific environmental impact or economic effect of the project. Refer to Common Response 1.1, General Comments, for the approach to addressing exhibits.
268	93	[ATT 2] The VA alternative is expected to meet or exceed its spawning and rearing habitat restoration goals on almost all of the VA Tributaries. (E.g., Draft Staff Report, Appendix G2 at p. 6-3 [Figure 6-1 illustrating increases in spawning habitat under the	Please see Common Response 1.1, General Comments, for responses to comments that make general comments, do not raise specific environmental impacts of the project, or do not raise specific economic effects of the project. The draft Staff Report acknowledged that the proposed VAs could be viewed as the environmentally superior alternative, although the

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		VA alternative]; id. at p. 6-15 [Figure 6-10 illustrating increases in rearing habitat under the VA alternative].) “The results of the habitat analysis indicate that VA non-flow assets produce more suitable habitat for fall-run Chinook salmon and spring-run Sacramento River Chinook salmon during spawning and rearing as compared to the reference condition scenario.” (Id. at p. 6-1.) “Expanding habitat availability, both spatially and temporally, for juvenile salmon is expected to improve abundance, productivity, diversity, and spatial structure of Central Valley salmon populations, and it may also lead to incidental benefits for other native fish species (State Water Board and California Environmental Protection Agency 2018).” (Ibid.) The results also show that the VA alternative is environmentally superior to the proposed Plan amendments in terms of benefiting native fish species quantitatively and qualitatively. (Pub. Resources Code, §§ 21002-21002.1, 21004; CEQA Guidelines, §§ 15002(a), (h), 15021, 15126.6(d), (e)(2).)	improvements in flows would be more limited. Section 7.24.7, Environmentally Superior Alternative, specifically points out that the proposed VAs also include physical habitat restoration that is expected to contribute toward the goal of improving conditions for native fish and wildlife. Please see Common Response 3.1, Fish Protection, for information on the benefit analyses and Common Response 7.24, Alternatives Analysis, for information on the environmentally superior alternative.
268	94	[ATT 2] Quantitative Benefits to Native Fish Species: Spawning Habitat VA Alternative “The proposed habitat restoration commitments identified in the VA Term Sheet include spawning habitat for the Sacramento River (113.5 acres), Feather River (15 acres), American River (25 acres), and Putah Creek (1.4 acres). (Draft Staff Report, Appendix G2, p. 6-4.) “Across all water year types, the VAs offer more spawning habitat (October through December) than the reference condition in the American, Feather, and Sacramento Rivers. Across Critical to Wet water year types, the VAs offer 49 to 122 percent more spawning habitat (0–5 total acres) in the American River; 27 to 31 percent more spawning habitat in the Feather River (10–14 acres); 144 to 205 percent more spawning habitat in the Sacramento River for fall run (71–113 acres); and 158 to 233 percent more spawning habitat in the Sacramento River for spring run (41–108 acres).” (Ibid.) Table 6-1 [Exhibit 2 of ATT 2] of the Draft Supplement Report illustrates these increases in suitable spawning habitat in terms of median percent change between the reference condition and the VA	Please see Common Response 1.1, General Comments, for responses to comments that make general comments, do not raise specific environmental impacts of the project, or do not raise specific economic effects of the project.

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		alternative across various water year types. Commentators or the State Water Board may emphasize that, with the exception of the American River, both reference condition and VA habitat “exceed the VA target of 25 percent of the doubling goal for spawning habitat in all water year types.” (Draft Staff Report, Appendix G2 at p. 6-2.) In the Sacramento (for spring run) and Yuba Rivers, habitat under the reference condition exceeds 100 percent of the habitat required to achieve the Salmon Doubling Goal. (Ibid.; id. at pp. 6-3.) While spawning habitat currently may be adequate, however, the VA habitat projects remain necessary to achieve long-term objectives for several reasons. First, the Draft Staff Report calls for habitat restoration activities to provide reasonable fish protection, and spawning habitat is among the most critical to ensure species abundance. Because dams “disrupt the natural transport of sediment (e.g., spawning gravel) and other materials (e.g., large woody material that maintain spawning and rearing grounds,” routine gravel augmentation projects are necessary to maintain spawning habitats. (Draft Staff Report at pp. 3-35 – 3-36; id. at p. 5-41 [recommended physical habitat restoration actions]; id. at p. 4-3 [in 2019, the federal budget for the Central Valley Project Improvement Act (“CVPIA”) Restoration Fund for “projects such as American River spawning and rearing habitat” and “Clear Creek spawning gravels and channel restoration” was \$62 million].)	
268	95	[ATT 2: Exhibit 2: Table 6-1, Median Percent Change between the Reference Condition and VA Scenarios for Suitable Spawning Habitat by Water Year Type and Watershed, from the 2023 Draft Staff Report]	This exhibit was included in the comment letter. The exhibit does not raise a specific environmental impact or economic effect of the project. Refer to Common Response 1.1, General Comments, for the approach to addressing exhibits.
268	96	[ATT 2] Second, the VA alternative’s habitat improvements must be viewed holistically. As illustrated in the Draft Early Implementation Project List, most VA projects address multiple habitat conditions. (Draft Staff Report, Appendix G1 at Appendix D [starting at p. 238].) Many projects enhance instream rearing; maintain spawning habitat; create new spawning habitat; create	Please see Common Response 1.1, General Comments, for responses to comments that make general comments, do not raise specific environmental impacts of the project, or do not raise specific economic effects of the project.

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		floodplain habitat; and take other coordinated actions such as adding large wood clusters or removing predation hotspots to provide refuge from predators. (Ibid.) Therefore, while spawning and rearing habitat improvements are quantified separately in the scientific analyses, these benefits are realized through integrated projects at the implementation level.	
268	97	[ATT 2] Third, there are distinct advantages to exceeding the VA alternative's goal of providing 25 percent of the habitat required to support the Salmon Doubling Goal. Increasing the spatial distribution of spawning habitat will increase life history diversity because rearing begins at spawning grounds. (Draft Staff Report at pp. 3-25, 3-27, 3-29 [After emerging from spawning gravel, various species of juveniles may hold in the river for a few months to over a year]; id. at p. 3-3 [Improved temporal and spatial variability would increase genetic and life-cycle diversity].) Increased habitat with greater spatial distribution – alongside VA activities such as adding large wooden clusters and removing predation hotspots – will reduce the effects of stressors like predation and water quality impairments. (Draft Staff Report at p. 3-41 [Large wooden clusters provide spatial complexity and refuge from predators].) With the development of additional spawning habitat, there will be more opportunities for spawning, and consequently an increase in the number of juveniles. (Draft Staff Report, Appendix G2 at p. 6-1.) Additionally, VA restoration activities will be coordinated with VA flow assets to ensure that the spawning habitat created by the VAs will be viable in all water year types.	Please see Common Response 1.1, General Comments, for responses to comments that make general comments, do not raise specific environmental impacts of the project, or do not raise specific economic effects of the project.
268	98	[ATT 2] Fourth, the VA habitat improvements on the Sacramento River benefit both fall-run and spring-run Chinook salmon. Sufficient spawning habitat exists under the reference condition for spring-run Chinook salmon on the Sacramento River. (Id. at p. 6-4.) Reference condition habitat for fall-run on the Sacramento River is well below 100 percent of the habitat required to meet the Doubling Goal, however. (Ibid.) Additionally, in terms of total acreage, the Sacramento River provides the greatest amount of potential spawning habitat out of all the tributaries. This high	Please see Common Response 1.1, General Comments, for responses to comments that make general comments, do not raise specific environmental impacts of the project, or do not raise specific economic effects of the project.

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		potential for spawning habitat makes habitat restoration on the Sacramento River a priority activity. In short, the VA alternative will lead to robust quantitative improvements in spawning habitat relative to the reference scenario. For the most part, these improvements surpass the amount of spawning habitat to support 25 percent of the Salmon Doubling Objective in all water year types.	
268	99	[ATT 2] Proposed Plan Amendments In contrast to the substantial quantitative improvements that would result from implementation of the VA alternative, estimated increases in spawning habitat under the proposed Plan amendments' Unimpaired Flow Scenarios are zero (0) in most cases, as illustrated in Table 3.14-8 [Exhibit 3 of ATT 2] of the Draft Staff Report. (Draft Staff Report at pp. 3-127 – 3-128.)	Please see Common Response 1.1, General Comments, for responses to comments that make general comments, do not raise specific environmental impacts of the project, or do not raise specific economic effects of the project. Also see Common Response 3.1, Fish Protection, for information on interpreting the results of the tributary habitat analyses.
268	100	[ATT 2: Exhibit 3: Table 3.14-8, Change in Median (across All Years Modeled) Spawning Habitat from Baseline for Each Flow Scenario, from the 2023 Draft Staff Report]	This exhibit was included in the comment letter. The exhibit does not raise a specific environmental impact or economic effect of the project. Refer to Common Response 1.1, General Comments, for the approach to addressing exhibits.
268	101	[ATT 2] At the proposed Plan amendments' starting point of 55 percent unimpaired flow, implementation of the Plan amendments would not lead to any increases in spawning habitat on nearly every tributary including (1) the American River; (2) the Sacramento River (Fall Run); and (3) on the Yuba River. (Ibid.) Indeed, with this flow level alone, existing spawning habitat would decrease on the Sacramento River (Spring Run) and on the Feather River, two critical reaches of the Sacramento-Delta home to a substantial number of native salmonid populations and with capacity to support greater populations through habitat restoration activities. (Ibid; id. at Appendix B, pp. 3-25 [spring-run], 3-27 [following the construction of Shasta and Keswick Dams, late-fall-run salmon depend upon upper mainstem of Sacramento River for habitat], 3-30 [regarding fall-run Chinook, "historic levels of genetic and phenotypic diversity of Central Valley stocks have likely been substantially reduced by	Please see Common Response 3.1, Fish Protection, for information on interpreting the results of the habitat benefit analyses and Common Response 7.24, Alternatives Analysis, for information on the environmentally superior alternative.

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		the cumulative effects of habitat loss and degradation,” which reduces resilience and increases susceptibility to population collapse], 3-30 [“Existing native steelhead populations now occur in the Sacramento, Yuba, Feather, Bear, and American Rivers”]; State of California, Department of Fish and Wildlife (2006), Annual Report Chinook Salmon Spawner Stocks in California’s Central Valley, 2004 at p. 41 [Sacramento River Mainstem supported a total of 60,691 chinook salmon, consisting of 43,604 fall-, 8,824 late-fall-, 7,869 winter- and 394 spring-run fish]; National Marine Fisheries Service (“NMFS”) (2014) Recovery Plan for Central Valley Chinook Salmon and Steelhead (2014) at pp. 31 [current distribution of Central Valley spring-run Chinook salmon], 41 [a “major reason why spring-run Chinook salmon are in need of ESA [Endangered Species Act] protection is because the remaining spawning and rearing habitat for this species is severely degraded”].) The VA alternative, in contrast, will result in substantial spawning habitat increases that overall meet or exceed fish protection goals. In terms of quantitative spawning benefits, which are expected to improve abundance, productivity, diversity, and spatial structure of Central Valley salmonids, the VA alternative is environmentally superior to the proposed Plan amendments. (Pub. Resources Code, §§ 21002-21002.1, 21004; CEQA Guidelines, §§ 15002(a), (h), 15021, 15126.6(d), (e)(2).)	
268	102	[ATT 2] Quantitative Benefits to Native Fish Species: Instream and Floodplain Rearing Habitat Native Sacramento-Delta species, such as salmonids, require integrated networks of high-quality in-channel and floodplain habitat to ensure their long-term abundance. Increases in suitable instream rearing habitat through habitat improvement efforts leads to an increased capacity to produce more juveniles. (Draft Staff Report, Appendix G2 at p. 6-6.) Floodplain habitat is crucial to the survival of juvenile Chinook salmon because it “creates access to foraging habitat and provides refuge from high velocities during high-flow events;” enhances life history diversity in salmonids; improves fish growth due to high prey abundance, lower water velocities, and higher temperatures	Please see Common Response 3.1, Fish Protection, for instructions on interpreting the results of the habitat analyses; Common Response 1.2, Water Quality Control Planning Process, for a discussion on the reasonable protection of fish and wildlife beneficial uses; and Common Response 1.3, Revised Proposed Plan Amendments, for information on the regulatory and VA pathways.

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		compared to the adjacent river channel; and because “[a]ccess to floodplain habitat also provides increased space required for growth, development, and survival.” (Draft Staff Report, Appendix G2 at p. 6-9.) Floodplain inundation and “[d]ynamic connectivity between rivers and their floodplains” are critical components of floodplain habitat that provide fish access. (Ibid.) The Draft Staff Report’s quantitative analyses show the proposed Plan amendments fail to create any meaningful benefits to rearing habitat. On the other hand, the quantitative benefits attributed to the VA alternative will contribute to the New Narrative Objective and the Salmon Doubling Objective. Therefore, the VA alternative is the only alternative that satisfies the State Water Board’s fundamental purpose of achieving reasonable fish protection and must be selected.	
268	103	[ATT 2] VA Alternative In-Channel The VA alternative’s instream rearing habitat goal is to meet the “25-percent-of-doubling goal threshold.” (Draft Staff Report, Appendix G2 at p. 6-6.) “The proposed habitat restoration commitments identified in the VA Term Sheet include in-channel habitat for the Sacramento River (137.5 acres), Feather River (5.25 acres), Yuba River (50 acres), American River (75 acres), and Mokelumne River (1 acre).” (Draft Staff Report, Appendix G2 at p. 6-6.) These increases are insufficient to meet the 25 percent of the Doubling Goal target on the American, Feather, and Sacramento (Fall Run) Rivers. (Ibid.) When VA floodplain and instream rearing habitat are viewed holistically, however, which is required given their interconnected nature, the VAs substantially achieve or exceed the 25 percent habitat goal across all VA Tributaries. (Id. at p. 6-15.) “The VAs offer 45 to 128 percent more in-channel rearing habitat (21–51 acres) in the American River; 1 percent less to 4 percent more in the Feather River (-2–4 acres); 3 to 0 percent less in the Mokelumne River (-3–0 acres); 15–83 percent more in the	Please see Common Response 1.1, General Comments, for responses to comments that make general comments, do not raise specific environmental impacts of the project, or do not raise specific economic effects of the project.

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		Sacramento River for fall run (14–50 acres); 13 to 69 percent more in the Sacramento River for spring run (23–64 acres); and 3 to 11 percent more in the Yuba River (7–25 acres) (Table 6-2, Figure 6-4). These analyses show reductions in in-channel rearing habitat in some wetter year types in the Sacramento, American, Mokelumne, and Yuba Rivers, which may seem counterintuitive. In wetter years, however, velocities and depths become less suitable in the channels, particularly when the flows are confined by levees. These results highlight the importance of restoring floodplain and off-channel habitat to provide lower-velocity refugia during high flow years,” which the VA alternative provides. (Draft Staff Report, Appendix G2 at p. 6-7; see also id. at p. 6-9 [Table 6-2].)	
268	104	[ATT 2] Floodplain Access to adequate floodplain habitat “improves juvenile fish survival by improving food availability in addition to providing refuges from predators during the critical spawning, rearing, and migration period of several Central Valley fish species, especially Sacramento splittail and salmonids.” (Draft Staff Report, Appendix B at p. 3-5.) [Footnote 28: This demonstrates that the Splittail, one of the 4 estuarine indicator species, will benefit from more than just flow, and further shows that the benefits to fish abundance associated with VA alternative flows are underestimated in the Draft Staff Report.] “Restoring floodplain habitat and connectivity to the main river channels . . . [is] a key objective of current ecosystem restoration and recovery efforts for Chinook salmon and other native fishes in the Central Valley.” (Draft Staff Report at p. 3-41.) Floodplain habitat has ecological importance to Chinook salmon and steelhead during multiple life stages as it provides a suite of benefits for fish.” (Draft Staff Report, Appendix G2 at p. 6-17.) Compared to instream habitat, floodplains typically provide increased food resources, which leads to faster growth rates and increased resilience. (Ibid.; id. at p. 6-9 [“Juveniles in shallow, low-velocity habitats supported by floodplain inundation have been found to grow more rapidly than juveniles in deeper, faster	The commenter alleges the benefits to fish abundance associated with the proposed VA flows are underestimated in the 2023 draft Staff Report but provides no supporting evidence or alternative quantitative analytical methods to support the statement. As described in Section 3.7, Sacramento Splittail (<i>Pogonichthys macrolepidotus</i>), of the 2023 draft Staff Report, Sacramento splittail are a floodplain-dependent species, but years of high abundance have been associated with Yolo Bypass inundation durations greater than 30 days, which is flow dependent, and Delta outflows between 30,000 and 47,000 cfs from February through May. Thus, evidence presented in the 2023 draft Staff Report supports the flow-based analyses of the benefits of the flow scenarios and proposed VAs on Sacramento splittail. Please see Common Response 3.1, Fish Protection, for instructions on interpreting the results of the habitat analyses.

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		habitat” due to improved access to food resources and refuge from high velocities during flow events]; Draft Staff Report at p. 3-107 [Faster growth and higher survival rates associated with floodplain rearing]; id. at p. 3-5 [Inundation of suitable floodplain habitat “improves juvenile fish survival by improving food availability, in addition to providing refuges from predators during the critical spawning, rearing, and migration period of several native Central Valley fish species – especially Sacramento splittail and salmonids.”]; id., Appendix G2 at p. 5-20 [“fish are expected to tolerate higher temperatures in floodplain habitats due to greater food availability”].) “The proposed floodplain and flood basin actions identified in the VA Term Sheet include floodplain habitat and/or fish food production for the Sutter Bypass, Butte Sink, and Colusa basin (20,000 acres of fish food and 20,000 acres of flood habitat); Feather River (1,655 acres); Yuba River (100 acres); and Mokelumne River (25 acres),” which will be accompanied by inundation and connectivity for fish access. (Draft Staff Report, Appendix G2 at p. 6-9.)	
268	105	[ATT 2] The Draft Supplement Report evaluates floodplain benefits in terms of the frequency of meaningful floodplain events (“MFE”). (Draft Staff Report, Appendix G2 at p. 6-10.) “An MFE is defined as a floodplain event of a certain acreage that occurs at least 2 months of a rearing season and at least 2 out of 3 years.” (Ibid.) The goal of the VA alternative is to provide MFE occurrences to support 25 percent of the Salmon Doubling Goal for the Sacramento River and each of the subject tributaries. (Ibid.) As illustrated in Figures 6-5, 6-6, and 6-7 of the Draft Supplement Report, the “VAs will likely offer a greater proportion of MFE occurrence” for the Feather, Mokelumne, and Yuba rivers compared to the reference condition. (Draft Staff Report, Appendix G2 at pp. 6-10 -6-12.) These floodplain improvements are material. For example, on the Feather River, the VA scenario meets 50 percent Salmon Doubling Goal in 49 percent of years, whereas this result would only occur in about 5 percent of years under the reference condition. (Id. at pp. 6-9 –	Please see Common Response 1.1, General Comments, for responses to comments that make general comments, do not raise specific environmental impacts of the project, or do not raise specific economic effects of the project.

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		6-10.) "On the Yuba River, the reference condition MFEs meet 25 percent of the doubling goal in 11 percent of the years, while the VAs meet 25 percent of the doubling goal in 72 percent of the years." (Id. at pp. 6-9 – 6-12.)	
268	106	[ATT 2] Regarding the Sutter Bypass, the VAs will generate twenty thousand (20,000) acres of floodplain habitat within the three flood basins (Sutter Bypass, Butte Sink, and Colusa basin) via the Tisdale Weir and other modifications. (Draft Staff Report, Appendix G2 at p. 6-12.) "This change in hydrologic operations of the Tisdale Weir does not create new physical habitat; rather, it improves the inundation frequency and duration of reference condition and VA proposed floodplain habitat in the Sutter Bypass." (Ibid.) If this increased inundation is "accompanied by additional topographic modifications, land management changes, and habitat enhancements in these flood basins," the Draft Supplement Report concludes this "additional floodplain habitat would exceed the rearing doubling goal habitat need for the Sacramento River (1,961 acres) during times when the floodplain is inundated, and fish have access." (Id. at pp. 6-12 – 6-13.) As illustrated in Figure 6-9, the maximum acreage subject to a MFE in the Sutter Bypass is approximately 5,000 acres. (Id. at p. 6-14.) In contrast, under the VA scenario, MFEs will occur at 15,000 acres in almost all years and in over twenty-five percent (25%) of years at 20,000 acres. (Ibid.) This dramatic increase demonstrates the effectiveness of non-flow measures under the VA scenario, which cannot be matched by a flow-only approach.	Please see Common Response 3.1, Fish Protection, for instructions on interpreting the results of the habitat analyses. Please also see Common Response 1.1, General Comments, for responses to comments that make general comments, do not raise specific environmental impacts of the project, or do not raise specific economic effects of the project.
268	107	[ATT 2] Combined Instream and Floodplain Habitat Compared to the reference scenario, "[t]he VAs offer 46 to 52 percent more rearing habitat (23–51 total acres) in the American River; 5 to 72 percent more in the Feather River (6–344 acres); 1 percent less to 14 percent more in the Mokelumne River (-1 to 8523 acres); 11–42 percent more in the Sacramento River for fall run (14– 51 acres); 10 to 28 percent more in the Sacramento River for spring run (24–65 acres); and 3 to 51 percent more in the Yuba River (7–122 acres)." (Draft Staff Report, Appendix G2	Please see Common Response 1.1, General Comments, for responses to comments that make general comments, do not raise specific environmental impacts of the project, or do not raise specific economic effects of the project.

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		at p. 6-17.) Table 6-3 [Exhibit 4 of ATT 2] of the Draft Supplement Report illustrates these increases in suitable rearing habitat in terms of median percent change between the reference condition and the VA alternative across various water year types.	
268	108	[ATT 2: Exhibit 4: Table 6-3, Median Percent Change between the Reference Condition and VA Scenarios for Suitable Rearing Habitat (Including Both Instream and Floodplain) by Water Year Type and Watershed, from the 2023 Draft Staff Report]	This exhibit was included in the comment letter. The exhibit does not raise a specific environmental impact or economic effect of the project. Refer to Common Response 1.1, General Comments, for the approach to addressing exhibits.
268	109	[ATT 2] The combined VA rearing habitat also substantially achieves the goal of providing enough rearing habitat to support 25 percent of the Salmon Doubling Goal. (Draft Staff Report, Appendix G2 at pp. 6-14 – 6-15.) On the Yuba River, the increased habitat under the VA alternative will exceed 100 percent of the habitat required to support the Doubling Goal. (Id. at p. 6-15.) The improvements on the Sacramento (Fall Run) River come close to providing 100% of the Doubling Goal rearing habitat requirement. (Ibid.) In all but Critical dry years, the VA alternative will meet the 25 percent goal on the Feather River. (Id. at p. 6-14.) While not illustrated in Table 6-3, the addition of only 9,000 acres of the 20,000 acres of floodplain restoration “would surpass the 25 percent goal in the Sacramento River (fall run) during times when this floodplain is inundated and fish have access.” (Id. at p. 6-15.) As the VA Parties will restore these 20,000 acres with the sole purpose of providing fish access during meaningful floodplain events, implementation of the Vas will exceed the 25 percent goal on the Sacramento River (Fall Run). Overall, “[t]he quantitative analyses indicate expected increases in suitable spawning and rearing habitat for salmonids and increases in suitable habitat and population abundance indices for estuarine species. Chinook salmon fall-run and spring-run (only analyzed for the Sacramento River) spawning (Figure ES-1), instream rearing (Figure ES-2), and floodplain (Table ES-2) habitats are expected to contribute toward the narrative objectives described above.” (Ibid. [referring to the VA alternative’s proposed new Narrative Viability Objective].)	Please see Common Response 1.1, General Comments, for responses to comments that make general comments, do not raise specific environmental impacts of the project, or do not raise specific economic effects of the project.

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268	110	[ATT 2] Proposed Plan Amendments The same defects of a flow-only approach apply equally to the proposed Plan amendments' creation (or lack thereof) of instream and floodplain rearing habitat for native fish species. As illustrated in Table 3.14-9 [Exhibit 5 of ATT 2] of the Draft Staff Report, the flow resources associated with the proposed Plan amendments and its variations also fail to create meaningful improvements in rearing habitat (instream and floodplain) compared to baseline conditions. (Draft Staff Report at pp. 3-129 – 3-130.) Unimpaired flows of 55 percent would create a 33 percent increase in median rearing habitat on the Feather River; a 25 percent increase on the Mokelumne River; and a 3 percent increase on the American River. (Ibid.) But net decreases would still occur on the Sacramento River (Fall Run and Spring Run) (-1% for Fall Run and Spring Run) and on the Yuba River (-4%). (Id. at p. 3-130.) Recall that the "VAs offer 46 to 52 percent more rearing habitat (23–51 total acres) in the American River; 5 to 72 percent more in the Feather River (6–344 acres); 1 percent less to 14 percent more in the Mokelumne River (-1 to 8523 acres); 11–42 percent more in the Sacramento River for fall run (14– 51 acres); 10 to 28 percent more in the Sacramento River for spring run (24–65 acres); and 3 to 51 percent more in the Yuba River (7–122 acres)." (Draft Staff Report, Appendix G2 at p. 6-17.) Across the board, the VA alternative yields significantly better quantitative rearing habitat benefits, which will lead to greater increases in abundance.	Please see Common Response 3.1, Fish Protection, for information on interpreting the results of the habitat benefit analyses.
268	111	[ATT 2: Exhibit 5: Table 3.14-9, Change in Median (across All Years Modeled) Rearing (Instream and Floodplain) Habitat from Baseline for Each Flow Scenario, from the 2023 Draft Staff Report]	This exhibit was included in the comment letter. The exhibit does not raise a specific environmental impact or economic effect of the project. Refer to Common Response 1.1, General Comments, for the approach to addressing exhibits.
268	112	[ATT 2] Meaningful Floodplain Events Analysis & Creation of Rearing	Please see Common Response 3.1, Fish Protection, for information on interpreting the results of the tributary habitat analyses.

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		Habitat Despite requiring greater flows than the VA alternative, the proposed Plan amendments do not create better MFE results than the VA alternative. (Compare Draft Staff Report at pp. 3-130 – 3-132 and Draft Staff Report, Appendix G2 at pp. 6-9 – 6-12.) On the Mokelumne River, the proposed Plan amendments achieve MFEs at 25 percent of the Doubling Goal in 98 percent of years, whereas MFE occurrence under the VA alternative is 51 percent. (Id. At p. 3-131; id., Appendix G2 at p. 6-10.) Yet, based on the best available science, VA Flow assets are not concentrated on the Mokelumne River; no spawning habitat improvements are proposed; and a relatively small amount of instream rearing (1 acre) and floodplain (25 acres) of habitat are proposed on the Mokelumne. (Draft Staff Report, Appendix G2 at pp. ES-3, 6-3 – 6-4.) Put simply, increasing MFEs on the Mokelumne is not an efficient or an effective solution to maximize fish benefits using California's scarce water resources.	
268	113	[ATT 2] On the Feather River, the proposed Plan amendments satisfy the 25 percent goal in 76 percent of years, while the VA alternative satisfies the same goal in 66 percent of years. (Draft Staff Report at p. 3-131; id., Appendix G2 at p., 6-10.) In terms of MFEs, these outcomes are comparable and fall within the same general range. In terms of quantitative fish benefits, however, the VA MFEs will result in far greater benefits. Based on the median water year modeled (i.e., "Below Normal"), the 55% Flow Alternative will result in 78 acres of floodplain and instream rearing habitat, a 33 percent increase from the baseline. (Draft Staff Report at pp. 3-129 – 3-130.) In contrast, under the VA alternative, in a "Below Normal" water year, median rearing habitat on the Feather River will increase by 114 acres, a 67 percent increase from the reference condition. (Draft Staff Report, Appendix G2 at p. 6-17.) The VA alternative's multi-dimensional approach explains the increased efficiency of VA Flow Assets and the VA alternative's greater net benefits. The proposed Plan amendments would achieve a slightly higher rate of MFEs. But the synergies between the VA Flow Assets – 60 TAF in Dry, Below Normal, and Above	Please see Common Response 3.1, Fish Protection, for instructions on interpreting the results of the habitat analyses. Please also see Common Response 1.1, General Comments, for responses to comments that make general comments, do not raise specific environmental impacts of the project, or do not raise specific economic effects of the project.

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		Normal years – and restoration of 50 acres of instream rearing habitat and 1,655 acres of floodplain habitat underscore that creating suitable habitat requires more than just flows or inundation. (Id. At p. 6-18 [synergy between flow and non-flow habitat].)	
268	114	[ATT 2] On the Yuba River, the proposed Plan amendments only create MFEs in 11 percent of years – the same as the baseline/reference condition. [Footnote 29: It should be noted that the “baseline” and “reference” conditions are not the same on the other tributaries but happened to be the same on the Yuba River. We understand this difference to be explained by the fact that VA alternative habitat is additive to existing conditions as of December 2018. (Draft Staff Report at p. 9-5.)) (Id. At p. 3-131.) In contrast, under the VA alternative, MFEs occur in 72 percent of years, a huge increase from the reference condition / baseline of 11 percent. (Id., Appendix G2 at pp. 6-10, 6-12.) The best available science shows that investing in coordinated flow and habitat actions on the Yuba River provides a feasible pathway to maximize fish benefits. (Id. At pp. 2-7 – 2-9 “[T]he disconnection and destruction of rearing habitat are considered ecosystem stressors for salmonids on the Yuba River,” and are addressed by the VA alternative].) As such, the VA alternative would provide 50 TAF (50,000 AFY) of flow assets in Dry, Below Normal, and Above Normal water years, coupled with restoration of 50 acres of instream rearing and 100 acres of floodplain habitat. (Id., Appendix G2 at pp. ES-3, 3-3.) The Draft Supplement Report documents the quantitative benefits of integrated VA flow and non-flow assets on the Yuba River. In a “Below Normal” water year, the VA alternative will result in a median increase in rearing habitat on the Yuba River of 101 acres, a 41 percent increase from the reference condition. (Draft Staff Report, Appendix G2 at p. 6-17.) In contrast, under the proposed Plan amendments, rearing habitat on the Yuba River would decrease by 10 acres (-10 acres) in the median year, a 4 percent reduction (-4%) from baseline conditions. (Draft Staff Report at pp. 3-129 – 3-130.)	Please see Common Response 3.1, Fish Protection, for instructions on interpreting the results of the habitat analyses. Please also see Common Response 1.1, General Comments, for responses to comments that make general comments, do not raise specific environmental impacts of the project, or do not raise specific economic effects of the project.

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268	115	[ATT 2] Regarding the Sacramento River (Fall Run and Spring Run), the Draft Staff Report fails to quantify whether the VA alternative is expected to offer a greater proportion of MFE occurrence. Section 6.1.2.2 should include this analysis – especially as the Draft Staff Report provides a quantitative evaluation of MFE occurrence on the Sacramento River under the proposed Plan amendments. (Draft Staff Report at pp. 3-130 – 3-131 [Table 3.14-10].) As provided in Table 3.14-10, MFEs on the Sacramento River (Fall Run and Spring Run) are expected to remain at baseline levels under the proposed Plan amendments. (Ibid.) Despite maintaining the status quo, however, total instream and floodplain rearing habitat under the proposed Plan amendments would decrease on the Sacramento River for both salmon runs. (Draft Staff Report at pp. 3-129 – 3-130 [Table 3.14-9].) In contrast, under the VA alternative, in a Below Normal water year, total rearing habitat on the Sacramento River would increase by a median of 42 and 28 percent for fall and spring run Chinook salmon, respectively. (Id. At Appendix G2 at p. 6-17.)	The floodplain analysis was performed according to the proposed floodplain and flood basin actions identified in the VA Term Sheet. MFE analysis was therefore performed for the VAs only for tributaries with floodplain restoration commitments. A more detailed analysis of the benefits of the VAs is provided in the Scientific Basis Report Supplement (Appendix G2 to the Staff Report). Also see Common Response 7.24, Alternatives Analysis, regarding the environmentally superior alternative.
268	116	[ATT 2] Overall, the Draft Staff Report’s MFE analysis demonstrates the VA alternative’s ability to create more fish benefits using lower but more strategic flows. A material distinction exists between actively restoring habitat and merely inundating a highly altered ecosystem. The scientific data proves that physical restoration plus inundation will yield better results in terms of fish protection than taking a one-dimensional inundation approach, as prescribed by the proposed Plan amendments. (Draft Staff Report at pp. 3-125 – 126 [“Increased flows, along with restoration of floodplain habitat, would help restore the important functions provided by floodplain inundation. All these benefits [of increased floodplain inundation] would be enhanced ever further with physical habitat restoration actions that maximize the effectiveness of additional flow”]; id. at p. 4-1 [“The benefits of flows are enhanced when implemented in concert with habitat restoration, control of waste discharges, control of	Please see Common Response 3.1, Fish Protection, for instructions on interpreting the results of the habitat analyses. The 2023 draft Staff Report acknowledges the benefits of non-flow actions, and this discussion can be found in Chapter 4, Other Aquatic Ecosystem Stressors. A description of complementary, non-flow actions that may help address the stressors described in Chapter 4 can be found in Section 5.5, Habitat Restoration and Other Complementary Ecosystem Measures. Please see Common Response 1.2, Water Quality Control Planning Process, for a discussion of non-flow measures and the State Water Board’s authority to impose non-flow measures; Common Response 1.1, General Comments, for responses to comments that make general comments, do not raise specific environmental impacts of the project, or do not raise specific economic effects of the project; and Common Response 7.24, Alternatives Analysis, for information on the environmentally superior alternative.

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		invasive species, fisheries management, and other efforts. A multifaceted approach is needed to address Delta concerns and reconcile an altered ecosystem”]; id. At pp. 3.) While the proposed Plan amendments aspire to a multi-dimensional approach, they fall far short by only mandating flows. In contrast, the VA alternative will restore 20,000 acres of floodplain habitat and maximize the effectiveness of additional flow, making it environmentally superior to the proposed Plan amendments. (Pub. Resources Code, §§ 21002- 21002.1, 21004; CEQA Guidelines, §§ 15002(a), (h), 15021, 15126.6(d), (e)(2).)	
268	117	[ATT 2] The VA Alternative Will Restore 5,227 Acres of Tidal Wetlands, Which Will Increase Survival Rates and Ameliorate Predation The VA alternative is the only alternative that will result in tidal wetlands habitat restoration, which is crucial to native fish species’ survival. “The Delta is currently composed mostly of deep, open-water habitats with low productivity due to lack of light penetration.” (Id. At p. 6-26.) [Footnote 30: While the Draft Staff Report states that agricultural diversions are partially responsible for this existing condition (see Draft Staff Report at Appendix B, p. 2-66), it fails to account for a crucial distinction among alternatives – the VA alternative will address this existing condition in furtherance of the State Water Board’s fundamental purpose, but the proposed Plan amendments will not.] This low productivity limits available food sources, while deep open-water habitats limit opportunities for refuge from predators. (Id. at p. 6-27 [juvenile salmon growth rates are higher in floodplain habitats compared to main-channel habitats and salmonids that rear in West Coast estuaries have higher survival than those that rear in other habitats]; Draft Staff Report at p. 3-40 [lack of large woody instream debris limits spatial complexity and refuge from predators]; Draft Staff Report, Appendix B at pp. 3-4 – 3-5 [lack of “habitat connectivity in riverine and deltaic systems” results in more “hostile conditions” with less protection from predators compared to connected river, floodplain, and estuary habitats].) In response to these adverse conditions that threaten fish survival, “[t]he VAs propose restoration of 5,227 acres of tidal	The regulatory pathway of the revised proposed Plan amendments includes adaptive management and local cooperative solutions provisions that enable tailoring implementation of the flow requirements to individual tributaries, including managing flow requirements and habitat restoration in concert to maximize benefits. The revised proposed Plan amendments also include complimentary habitat restoration actions to be completed by other agencies and entities. Please see Common Response 1.3, Revised Proposed Plan Amendments, for more information on these provisions. As described in Appendix G2, Final Draft Scientific Basis Report Supplement in Support of Proposed Voluntary Agreements for the Sacramento River, Delta, and Tributaries Update to the San Francisco Bay/Sacramento-San Joaquin Delta Water Quality Control Plan, of the 2023 draft Staff Report, the evidence is unclear that tidal wetland restoration increases food supply for native fishes. Please see Common Response 3.1, Fish Protection, for instructions on interpreting the results of the habitat analyses. Please also see Common Response 1.1, General Comments, for responses to comments that make general comments, do not raise specific environmental impacts of the project, or do not raise specific economic effects of the project.

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		wetlands within the Delta and Suisun Marsh.” (Draft Staff Report, Appendix G2 at p. 6-26.) This restoration will result in interrelated benefits to native fish species of increased food, diminished predation, increased resilience, greater life history diversity, and ultimately improved survival and abundance.	
268	118	[ATT 2] The Draft Staff Report concludes restoration of such tidal wetlands likely will “increase ecosystem productivity and provide increased food supply.” (Id. at p. 6-25.) Indeed, based on the best available science, the Draft Supplement Report concluded that these 5,227 acres of restored habitat “could result in additional algal production of 0.9 to 1.95 kilotons per year and additional vascular plant production of over 12 kilotons per year, or an increase in aquatic primary production of up to 15 percent over current levels of productivity.” (Draft Staff Report, Appendix G2 at p. 6- 26.) These increases in production will result in cascading benefits up the trophic levels of the food chain, with increased organic carbon and phytoplankton supporting greater populations of zooplankton and other invertebrates that fish eat, such as terrestrial arthropods, which are “particularly important for juvenile salmon rearing.” (Id. at pp. 6-26 – 6-27 [e.g., “Carbon from vegetation forms the base of the food-web in wetlands in the Delta” and is a crucial part “of the open-water food-web historically”].) The VA alternative’s tidal wetland habitat improvements will create “[b]enefits of increased food supply” that “directly translate to increased fish foraging efficiency, growth, and survival.” (Id. at p. 6-27.)	The text on page 6-25 of Appendix G2, Final Draft Scientific Basis Report Supplement in Support of Proposed Voluntary Agreements for the Sacramento River, Delta, and Tributaries Update to the San Francisco Bay/Sacramento-San Joaquin Delta Water Quality Control Plan, of the 2023 draft Staff Report is misquoted to state that tidal wetlands “likely will” provide increased food supply. The actual quote presents this as a hypothesis as follows: “Restoration of tidal wetlands within the Delta is hypothesized to increase ecosystem productivity and provide increased food supply.” Although there is a hypothesis that tidal wetland restoration will increase estuarine food supply, the discussion in Appendix G2 further clarifies that available evidence has not supported this hypothesis, citing Yelton et al. (2022). Please see Common Response 3.1, Fish Protection, for instructions on interpreting the results of the habitat analyses. Please also see Common Response 1.1, General Comments, for responses to comments that make general comments, do not raise specific environmental impacts of the project, or do not raise specific economic effects of the project.
268	119	[ATT 2] In addition to promoting fish growth and survival, increased food resources associated with VA alternative’s tidal estuary habitat improvements will reduce predation. For example, silversides, whose “distribution overlaps that of native species like Delta smelt, juvenile salmonids, and Sacramento splittail . . . may outcompete other small planktivorous fish for limited resources.” (Draft Staff Report at p. 4-22.) With substantial increases in phytoplankton (algae) and zooplankton created by the VA habitat improvements, there will be less competition between these native species and silversides. Additionally, with	Please see the responses to comments 268-117 and 268-118 for clarification on the scientific evidence regarding benefits of tidal wetlands for estuarine food supply. In addition, there is no evidence that habitat restoration would produce improvements to food supply that would then reduce competition with and predation on native fishes. Please also see Common Response 1.1, General Comments, for responses to comments that make general comments, do not raise specific environmental impacts of the project, or do not raise specific economic effects of the project.

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		increased access to abundant and high-quality food sources like zooplankton and other invertebrates, invasive species will be less reliant on preying upon native larval fish and eggs. (See <i>ibid.</i>)	
268	120	[ATT 2] Wetlands restoration will also improve water quality factors, such as temperature and contamination levels. (Draft Staff Report, Appendix G2 at p. 6-28.) “[T]emperatures in wetlands may be reduced at some times when compared to nearby channels due to cooling of water at night on the marsh plain during summertime spring tides,” which provides cold water refugia during critical rearing and outmigration periods. (<i>Ibid.</i>) Regarding water quality constituents, tidal wetlands effectively filter pollutants like pesticides and have been found to “reduce mercury methylation,” and “issues with low dissolved oxygen,” major fish stressors. (<i>Ibid.</i>) Compared to the proposed Plan amendments’ one-dimensional approach, the VA alternative will create greater quantitative fish benefits due to its combination of flow and nonflow assets and must be selected as the environmentally superior alternative. (Pub. Resources Code, §§ 21002-21002.1, 21004; CEQA Guidelines, §§ 15002(a), (h), 15021, 15126.6(d), (e)(2).)	The draft Staff Report acknowledged that the proposed VAs could be viewed as the environmentally superior alternative, although the improvements in flows would be more limited. Section 7.24.7, Environmentally Superior Alternative, specifically points out that the proposed VAs also include physical habitat restoration that is expected to contribute toward the goal of improving conditions for native fish and wildlife.
268	121	[ATT 2] The Draft Staff Report Does Not Provide the Information and Analysis Necessary Under the Porter-Cologne Act to Support Adoption of the Proposed Plan Amendments as Water Quality Objectives The Porter-Cologne Act Requires the State Water Board to Consider a Broad Range of Factors When Adopting Water Quality Objectives, and to Balance Protection of All Beneficial Uses to Decide What is Reasonable The Porter-Cologne Act requires that the State Water Board set water quality objectives that will provide “reasonable protection” of all beneficial uses. (Wat. Code §§ 13000, 13240, 13241.) Water Code section 13240 requires the State Water	Please see Common Response 1.2, Water Quality Control Planning Process, regarding the State Water Board’s consideration of different beneficial uses, the State Water Board’s consideration of the factors listed in Water Code section 13241, and the State Water Board’s duty to ensure the reasonable protection of beneficial uses through the water quality control planning process. The State Water Board has evaluated the factors listed in Water Code section 13241 throughout the Staff Report. For a discussion of this analysis, please see final Staff Report Section 13.6.2, Water Code Section 13241 Analysis.

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		Board to “formulate and adopt water quality control plans . . . [in conformity with] the policies set forth in Chapter 1 (commencing with Section 13000) of this division and any state policy for water quality control.” In turn, section 13000 provides: The Legislature further finds and declares that activities and factors which may affect the quality of the waters of the state shall be regulated to attain the highest water quality which is reasonable, considering all demands being made and to be made on those waters and the total values involved, beneficial and detrimental, economic and social, tangible and intangible. Finally, section 13241 mandates the “[f]actors to be considered by a regional board in establishing water quality objectives.” (Wat. Code, § 13241.) Sections 13000, 13240 and 13241 impose both broad powers and broad responsibilities on the State Water Board when it adopts a water quality control plan. (United States v. State Water Resources Control Board (1982) 182 Cal.App.3d 82, 110, 116, 117, 118, 122 (hereinafter “Racanelli”).) In Racanelli, the Court of Appeal explained: In formulating a water quality control plan, the Board is invested with wide authority “to attain the highest water quality which is reasonable, considering all demands being made and to be made on those waters and the total values involved, beneficial and detrimental, economic and social, tangible and intangible.” (§13000.) In fulfilling its statutory imperative, the Board is required to “establish such water quality objectives ... as in its judgment will ensure the reasonable protection of beneficial uses ...” (§ 13241), a conceptual classification far-reaching in scope. “‘Beneficial uses’ of the waters of the state that may be protected against quality degradation include, but are not necessarily limited to, domestic, municipal, agricultural and industrial supply; power generation; recreation; aesthetic enjoyment; navigation; and preservation and enhancement of fish, wildlife, and other aquatic resources or preserves.” (§ 13050, subd. (f).) Thus, in carrying out its water quality planning function, the Board possesses broad powers and responsibilities in setting water quality standards.	

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		(Id. at 109–110.) As explained below, the information in the Draft Staff Report supporting the proposed Plan amendments is insufficient for the State Water Board to meet the “statutory imperative” under Porter-Cologne to “consider all demands” and “ensure the reasonable protection of beneficial uses.” (Ibid.)	
268	122	[ATT 2:] The Draft Staff Report Does Not Provide Sufficient Description of the Unimpaired Flow Alternatives, or Analysis and Information of the Benefits and Costs Thereof, For the State Water Board to Make an Informed Decision Regarding Whether Objectives Based on Unimpaired Flow Would Provide Reasonable Protection of Beneficial Uses The Draft Staff Report does not provide sufficient information for the State Water Board to determine that the proposed Plan amendments provide “reasonable protection” for beneficial uses, as required by the Porter-Cologne Act. Because the Draft Staff Report defers formulation of biological goals until implementation, it does not contain meaningful projections on the degree to which the proposed Plan amendments will improve conditions for fish and wildlife. Additionally, because the Draft Staff Report does not describe specific cold water habitat provisions, the State Water Board does not have the information necessary to determine whether the proposed Plan amendments will provide reasonable protection to beneficial uses. Lastly, the timing and amount of the unimpaired flow requirement can vary widely depending on implementation, and the impacts to other beneficial uses across that range are not sufficiently described in the Draft Staff Report. Collectively, these information gaps in the Draft Staff Report demonstrate that the State Water Board does not have sufficient information to support the determination that the proposed Plan amendments provide “reasonable protection” for beneficial uses. (Wat. Code, § 13241; Racanelli, supra, at 109–110.) In contrast, the portions of the Draft Staff Report that evaluate the VA alternative identify biological goals and specific flow and non-flow measures that, when coupled with requisite analysis, can support the determination that the VA alternative provides “reasonable protection” for beneficial uses.	Please see Common Response 1.2, Water Quality Control Planning Process, regarding State Water Board authorities and compliance with the Porter-Cologne Water Quality Control Act and reasonable protection of fish and wildlife beneficial uses. Please see Common Response 1.3, Revised Proposed Plan Amendments, regarding the program of implementation, including the cold water habitat objectives and development of biological goals. Please see Common Response 7.24, Alternatives Analysis, regarding the VA providing a preferred alternative.

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268	123	[ATT 2] Without Identifying Biological Goals, the State Water Board Does Not Have Sufficient Information to Determine that the Proposed Plan Amendments Provide Reasonable Protection for Fish and Wildlife Because the State Water Board deferred development of biological goals, the State Water Board does not have information to support the conclusion that the proposed Plan amendments provide “reasonable protection” for beneficial uses, as required by the Porter-Cologne Act. The Draft Staff Report states that biological goals “are quantitative metrics that are intended to be used to inform adaptive management and future changes to the Bay-Delta Plan, including assessment of both the proposed voluntary and default implementation provisions at achieving narrative objectives and reasonably protecting fish and wildlife.” (Draft Staff Report at p. 5-64.) Instead of identifying biological goals, the Draft Staff Report states that the “proposed program of implementation calls for State Water Board staff, in consultation with other appropriate entities, to further develop biological goals for approval by the State Water Board.” (Ibid.) Because the Draft Staff Report defers discussion of biological goals that would serve as a metric for whether the proposed Plan amendments will provide reasonable protection for fish and wildlife, the State Water Board does not have information to determine that the proposed Plan amendments provide “reasonable protection” for beneficial uses, as required by the Porter-Cologne Act.	Please see Common Response 1.2, Water Quality Control Planning Process, on reasonable protection of fish and wildlife and Common Response 1.3, Revised Proposed Plan Amendments, on biological goals.
268	124	[ATT 2] The Draft Staff Report explicitly defers formulation of biological goals designed to measure the benefits that the proposed Plan amendments will provide to fish and wildlife, even though the State Water Board determined that the proposed Plan amendments are anticipated to provide greater protections for fish and wildlife than other unimpaired flow alternatives. Out of three unimpaired flow alternatives with identical narrative provisions for fish and wildlife, the State Water Board selected the proposed Plan amendments because “55 percent unimpaired	Before a policy is implemented, the benefits must be estimated to inform a decision on that policy, as was conducted in the scientific basis reports. After a policy is implemented, the benefits can be measured and assessed to inform adaptive management or changes to the policy, as would occur through biological goals and annual and periodic reviews. Please see Common Response 1.3, Revised Proposed Plan Amendments, for information on the biological goals.

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		flow is the flow level at which more significant improvements to fish and wildlife beneficial uses are expected and cold water supplies can still be maintained.” (Draft Staff Report at p. 7.1-7.) The proposed Plan amendments include a “range” of instream flow requirements – between 45% and 65% of unimpaired flow – with the specific timing and amount of instream flows to be determined by adaptive management. (Id. At pp. 3-100 – 3-101.) Adaptive management, in turn, will be informed by biological goals that will be developed while the Project is being implemented to inform adaptive management measures and evaluate success. (Id. At p. 5-64.)	
268	125	[ATT 2] The Draft Staff Report’s current proposal for identifying biological goals that will determine whether the proposed Plan amendments provide “reasonable protection” for fish and wildlife is mired in circular reasoning. The Draft Staff Report begins with the conclusion that “mimicking natural hydrographic conditions” will “protect a wide variety of ecosystem processes,” but defers any projection of the specific improvements to fish and wildlife that can be expected until implementation. (Draft Staff Report at p. 7.2-16.) Without information regarding the outcomes that will be achieved as instream flow requirements are increased by specific amounts, the Draft Staff Report does not provide information to support the conclusion that the proposed Plan amendments provide “more significant improvements to fish and wildlife,” as compared to other alternatives. (Id. At p. 7.1-7.) Furthermore, there is no attempt to quantify the level of protection that the proposed Plan amendments will provide for fish and wildlife. Because the State Water Board defers development of metrics that will determine whether the proposed Plan amendments provide “reasonable protection” for fish and wildlife, it does not have the information to make findings regarding “reasonable protection” of fish and wildlife at this stage. (Id. At p. 5-64.)	Projected benefits of the proposed Plan amendments, including quantified benefits, are described in Chapter 3, Scientific Knowledge to Inform Fish and Wildlife Flow Recommendations, and Chapter 4, Other Aquatic Ecosystem Stressors, of the 2023 draft Staff Report. Please see Common Response 1.2, Water Quality Control Planning Process, on reasonable protection of fish and wildlife and see Common Response 1.3, Revised Proposed Plan Amendments, on the biological goals.
268	126	[ATT 2] Because the State Water Board Does Not Provide Information on Specific Cold Water Habitat Protections, It Cannot Make an Informed Decision on Whether They Protect Beneficial Uses	Please see the responses to comments 268-26 and 268-27. Please also see Common Response 1.2, Water Quality Control Planning Process, for a discussion on reasonable protection of fish and wildlife beneficial uses and Common Response 1.3, Revised Proposed Plan Amendments, for responses to comments

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		The State Water Board does not have sufficient information to determine that the proposed Plan amendments will protect beneficial uses because it did not propose specific cold water habitat provisions, which is a critical component of the scientific conclusions regarding correlations between higher flow and improved conditions for fish and wildlife. One major caveat in the scientific conclusions regarding unimpaired flow is that higher flow and lower X2 during the winter and spring will only result in improved outcomes if “adequate supplies are maintained for cold water flow at other times.” (Draft Staff Report, Appendix B at p. 3-13.) However, the Draft Staff Report defers formulation of specific cold water habitat provisions and therefore avoids meaningful evaluation of the full range of impacts to other beneficial uses that would result from implementation of project components that are at odds. [Footnote 31: Under existing conditions, flows stored during the winter and spring are released during the summer and fall to provide cold water habitat for salmon in low elevation reaches of Sacramento River and its tributaries because access to high-elevation spawning habitat is restricted by dams. The modeling results in the Draft Staff Report show that the proposed Plan amendments will deteriorate cold water habitat (as compared to existing conditions) even with hypothetical parameters for reservoir operations that are designed to protect cold water habitat. (Draft Staff Report at pp. 7.6.2-56 – 7.6.2-88.) The Draft Staff Report acknowledges that meeting unimpaired flow requirements will impact cold water habitat impacts without additional mitigation, such as reduced diversions or implementation of Voluntary Improvements Projects (“VIPs”). (Id. at p. 7.6.2-94; p. 3-101.) As a result, the Draft Staff Report concludes that implementation of unimpaired flow requirements will interfere with narrative cold water habitat objectives and that further mitigation measures are required.] (Draft Staff Report at pp. 3-132 – 3-133 [“there are tradeoffs between providing instream flows and carryover storage that are considerations in determining the required flow and cold water habitat measures, including the flow levels, carryover storage requirements, and flexibility and adaptive management provisions”].) To address this omission, the model results in the	on the cold water habitat objective. The commenter selectively quotes and misquotes sections of the 2023 draft Staff Report. For example, the included quote from page 3-13 of Appendix B, Scientific Basis Report in Support of New and Modified Requirements for Inflows from the Sacramento River and its Tributaries and Eastside Tributaries to the Delta, Delta Inflows, Cold Water Habitat, and Interior Delta Flows, in full states that “Generally, higher flows and lower X2 values in winter and spring confer the greatest benefits for native species and the ecosystem, provided adequate supplies are maintained for cold water and flows at other times.” While adequate supplies for cold water flows are important for species such as salmonids, Appendix B provides evidence for benefits to other estuarine species that would occur regardless of cold water storage conditions. In addition, the quote on page 3-134 referring to “dramatic water supply reductions” is only referring to the 75 scenario, it is not a general statement about implementing the cold water habitat objective. The full range of impacts on water supply and cold water storage are fully analyzed in Chapter 7, Environmental Analysis, of the 2023 draft Staff Report, which also includes mitigation measures. Overall, in the Sacramento/Delta, implementation of the narrative cold water habitat objective and the flexibility provided in the inflow requirements would be expected to improve water temperature conditions for native cold water fish. However, it is possible that there would be some instances on some streams where temperatures could increase. Please see Common Response 7.6.2, Aquatic Biological Resources and Cold Water Habitat, and the impact analysis in Section 7.6.2., Aquatic Biological Resources, of the 2023 draft Staff Report for more information on cold water impacts. Implementation of the cold water habitat objective will include carryover storage requirements as further described in Common Response 1.3, Revised Proposed Plan Amendments.

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		Draft Staff Report include hypothetical carryover storage targets that are designed to provide cold water habitat protection, [Footnote 32: The carryover storage targets were “general assumptions” created by SWRCB. (Draft Staff Report at pp. 3-132 – 3-133.) New protections to mitigate cold water habitat impacts will be identified in later proceedings. (Ibid.)) however, the model results still indicate that the proposed Plan amendments will provide less protection for cold water habitat than the status quo. (Id. At p. 7.6.2-56 – 7.6.2-88.) As a result, the Draft Staff Report concludes that “dramatic water supply reductions” will be needed to maintain carryover storage levels necessary implement the narrative cold water habitat provisions. (Id. At p. 3-134.)	
268	127	[ATT 2] Because the Draft Staff Report does not disclose specific cold water habitat provisions, or evaluate the “dramatic water supply reductions” that will be needed to implement them, the State Water Board does not have information necessary to determine that the proposed Plan amendments provide “reasonable protection” for beneficial uses. A fundamental component of the scientific conclusions regarding the fish and wildlife benefits from the proposed Plan amendments is the continued preservation of cold water habitat; however, the proposed Plan amendments provide less protection for cold water habitat even with “hypothetical” protections in place. (Draft Staff Report at pp. 7.6.2-56 – 7.6.2-88.) It is not clear whether the “hypothetical” cold water habitat protections are even feasible [Footnote 33: This parameter could not be achieved in certain tributaries under several different unimpaired flow scenarios. (Draft Staff Report at p. 3-134.)), let alone whether they can be improved upon, meaning that the State Water Board cannot reasonably conclude that the proposed Plan amendments will improve conditions for fish and wildlife. To address this logical gap, the Draft Staff Report concludes that “dramatic water supply reductions” will be needed but does not evaluate how those reductions will impact other beneficial uses. (Id. At p. 3-134.) The major information gaps described above demonstrate that the State Water Board does not have the information necessary	Please see the responses to comments 268-26 and 268-27 and 268-126. As described in those responses, the Staff Report does include specific cold water habitat provisions and the full range of impacts, including to water supply, from the cold water habitat provisions are evaluated in the Staff Report. Please see Common Response 1.2, Water Quality Control Planning Process, for more information on reasonable protection of beneficial uses. As described in the impact analysis in Section 7.6.2, Aquatic Biological Resources, of the 2023 draft Staff Report, overall, in the Sacramento/Delta, implementation of the narrative cold water habitat objective and the flexibility provided in the inflow requirements would be expected to improve water temperature conditions for native cold water fish. However, it is possible that there would be some instances on some streams where temperatures could increase. The quote included by the commenter on page 3-134 referring to “dramatic water supply reductions” is only referring to the 75 scenario, it is not a general statement about implementing the cold water habitat objective. Section 7.6.2, Aquatic Biological Resources, does not use the word “hypothetical” in reference to cold water habitat protections. Not achieving a carryover storage target under some circumstances in some conditions does not mean that the proposed Plan amendments would result in no improvement to conditions for fish and wildlife. The cold water habitat

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		to determine that the proposed Plan amendments will “ensure the reasonable protection of beneficial uses.”	provisions would result in a general improvement in water temperature conditions for cold water fish and the revised proposed Plan amendments include more protective measures than just cold water habitat provisions. The Staff Report includes all of the necessary information to evaluate the proposed Plan amendments and the revised proposed Plan amendments. Please see Common Response 1.2, Water Quality Control Planning Process, for information on reasonable protection of beneficial uses.
268	128	[ATT 2] The State Water Board Cannot Lawfully Adopt the Proposed Plan Amendments While Deferring Analysis That Is Necessary to Determine the Reasonable Protection of Beneficial Uses for the Implementation Phase The State Water Board does not provide information on how the proposed Plan amendments will operate in practice because it defers formulation of specific flow and flow timing requirements to the implementation phase. (Draft Staff Report at pp. 3-100 – 3-101.) The Draft Staff Report states that the proposed Plan amendments will lead to “more significant improvements to fish and wildlife” but will also cause more significant impacts to other beneficial uses, as compared to the Low Flow alternative. (Compare Draft Staff Report at p. 7.1-7 to Draft Staff Report, Appendix F at pp. F-18 – F-38.) Indeed, the analysis throughout the Draft Staff Report concludes that increasing instream flow causes increased environmental impacts through significant declines in water availability to other beneficial uses. (See, e.g., Draft Staff Report, Figure 7.4-16.) Despite the clear correlation between increased unimpaired flows and increased impacts to other beneficial uses, the proposed Plan amendments include a “range” of instream flow requirements with undefined release schedules that will be developed during implementation. Given the wide range of impacts that could occur to beneficial uses from the proposed Plan amendments, the Draft Staff Report does not include information necessary to support the conclusion that	The Staff Report includes the necessary information for the required analyses. The adaptive implementation measures referred to by the commenter are intended for the benefit of fish and wildlife and the State Water Board would have oversight over the exercise of those adaptive implementation flexibilities to ensure they would benefit fish and wildlife. Please see Common Response 1.2, Water Quality Control Planning Process, for information on the reasonable protection of fish and wildlife beneficial uses and consideration of beneficial uses. Also see Common Response 1.3, Revised Proposed Plan Amendments, for a response to comments on the implementation of the regulatory pathway.

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		all potential permutations of flow and flow-timing provide “reasonable protection” for beneficial uses. In short, the State Water Board does not have sufficient information to determine that the wide range of instream flow scenarios authorized by the proposed Plan amendments provide reasonable protection to beneficial uses. The approach described above precludes the State Water Board from “consider[ing] all demands” and “ensur[ing] the reasonable protection of beneficial uses.” (Racanelli, supra, at 109– 110.) Without information on the specific instream flow requirement and the timing of that instream flow requirement, the State Water Board necessarily lacks information to determine the degree to which other beneficial uses will be impacted by the proposed Plan amendments. The lack of analysis regarding the severity of impacts that would result from the full range of flows included in the proposed Plan amendments, or variations in timing (e.g., when the water will be released), means that the State Water Board does not have information to support the finding that other beneficial uses are protected.	
268	129	[ATT 2] The State Water Board Lacks Information Necessary to Determine that the Proposed Plan Amendments Provide Reasonable Protection for Beneficial Uses Because the Draft Staff Report Understates Impacts to Beneficial Uses The Draft Staff Report understates the impacts from the proposed Plan amendments on other beneficial uses, including aquatic biological species, terrestrial species (particularly waterfowl), and agricultural water uses. For brevity, these points are incorporated here by reference. Because the Draft Staff Report understates the impacts that will occur to the beneficial uses, such as aquatic biological species and agricultural uses, the State Water Board lacks sufficient information to conclude that the proposed Plan amendments will provide reasonable protection for those beneficial uses. Without a clear understanding of impacts to beneficial uses that is supported by competent evidence, the State Water Board	The Staff Report includes detailed evaluations of potential impacts on beneficial uses—such as aquatic species, terrestrial species, and agricultural water uses—in Section 7.4, Agriculture and Forest Resources, Section 7.6.2, Aquatic Biological Resources, and 7.6.1, (Terrestrial Biological Resources. Please see Common Response 1.2, Water Quality Control Planning Process, for a discussion on the consideration of beneficial uses.

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		cannot make an informed finding that the proposed Plan amendments provide reasonable protections for beneficial uses. As a result, because the Draft Staff Report understates impacts to beneficial uses it does not provide sufficient information to support required findings under the Porter-Cologne Act.	
268	130	[ATT 2] The VA Alternative Provides the State Water Board with Sufficient Information to Determine that the Enumerated Flow and Non-Flow Measures Provide Reasonable Protection for Beneficial Uses The specific enumerated details regarding implementation of the VA alternative provide the State Water Board with sufficient information to determine that the VA alternative will achieve reasonable protection of beneficial uses. Section 9.3 of the Draft Staff Report includes a discussion of the specific flow and non-flow assets that would be implemented to achieve the narrative goals identified in the VA alternative. Section 9.3.2 identifies narrative viability objectives for native fish and wildlife species. Lastly, the VA alternative includes a well-defined and fully funded program of scientific monitoring and evaluation to inform adaptive management of flow and future changes. Because the Draft Staff Report relies on these specific details when evaluating the fish and wildlife benefits and water supply impacts from the VA alternative, the State Water Board has sufficient information to determine that the VA alternative will achieve reasonable protection of beneficial uses.	Please see Common Response 1.2, Water Quality Control Planning Process, for information about the reasonable protection of fish and wildlife beneficial uses.
268	131	[ATT 2] The Draft Staff Report Does Not Analyze What Water Quality Conditions Could Reasonably Be Achieved by the Proposed Plan Amendments Through the Coordinated Control of All Factors Affecting Water Quality for Fish Water Code section 13241(c) requires the State Water Board to consider “[w]ater quality conditions that could reasonably be achieved through the coordinated control of all factors which affect water quality in the area.” (Emphasis added.)	Please see Common Response 1.2, Water Quality Control Planning Process, for information on the consideration of factors under Water Code section 13241. Please also see the responses to comments 268-34 and 268-36.

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		The Draft Staff Report acknowledges that the reasonable protection of fish and wildlife will require both flow and non-flow actions but abdicates its responsibility to outline how those conditions could be achieved through the coordinated control of all factors. Chapters 3, 4, and 5 of the Draft Staff Report state that “ecosystem recovery in the Delta depends on more than just adequate flows [Footnote 34: The Draft Staff Report also provides that “[m]any stressors other than flow can affect ecosystem processes.” (Draft Staff Report at p. 3-1.) It further acknowledges that the “Proposed Changes to the Bay-Delta Plan for the Sacramento/Delta, fish and wildlife protection cannot be achieved solely through flow— habitat restoration and stressor reduction also are needed. The dynamic nature of flow interacts with the physical environment to produce aquatic habitats suitable for native fish and wildlife. The function and ability of ecosystems to support these species can be reduced by stressors. One cannot substitute one for another; flow improvements, stressor reduction, and habitat restoration are all essential for protecting fish and wildlife resources.” (Ibid.)].” (Draft Staff Report at p. 4-1; id. at pp. 3-1, 3-134, 5-7, 5-41.) Despite the Draft Staff Report’s clear calls for non-flow measures, it also states that these non-flow actions are “beyond what the State Water Board can require,” and that “[m]any of those actions are within the purview of other agencies and entities [Footnote 35: The Draft Staff Report separately states that non-flow measures “may be implemented” under the proposed Plan amendments. (Draft Staff Report at p. 5-3.) This non-committal statement further demonstrates the Draft Staff Report did not consider how to “control” other factors that affect the reasonable protection of fish and wildlife.].” (Id. at pp. 4-1 – 4.2.) Contrary to this assertion, the Porter-Cologne Act requires that the State Water Board evaluate how it can pursue coordinated control of all factors affecting water quality, even when those actions are within the purview of other agencies. (Wat. Code, § 13242(a); Racanelli, 182 Cal.App.3d at 116.) Because the Draft Staff Report does not evaluate any specific non-flow measures, the State Water Board has ignored its obligation to evaluate “coordinated control of all factors” in pursuit of a flow-only approach to the Bay-Delta Plan Update. (Draft Staff Report at p. 5-3.)	

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268	132	[ATT 2] Water quality objectives are the limits or levels of water quality constituents or characteristics necessary to provide reasonable protection of beneficial uses within a specific area. (Wat. Code, § 13050(h).) Those limits or levels may not be achievable through exercise of the State Water Board's authority alone. Accordingly, the proposed Plan amendments must include "recommendations for appropriate action by any entity, public or private." (Wat. Code, § 13242(a).) In turn, Water Code section 13247 requires that state offices, departments and boards comply with water quality control plans approved or adopted by the State Water Board. (Wat. Code, § 13247; State Water Resources Control Board Cases (2006) 136 Cal.App.4th 674, 730.) If actions by entities not subject to section 13247 are necessary to achieve a water quality objective, identification of those actions in the program of implementation is crucial to inform implementation efforts, including for example the need for additional funding or legislative action. Those purposes of water quality planning are not served if, instead of basing an objective on what is needed for reasonable protection, the State Water Board bases an objective on only the actions it can require of itself. [Footnote 36: The Draft Staff Report acknowledges that non-flow actions are required for the reasonable protection of fish and wildlife but has explicitly deferred its obligation to identify those actions under the premise that these actions are "beyond what the State Water Board can require." (Draft Staff Report at pp. 4-1 - 4.2.)] The State Water Board made a similar error when it adopted the water quality control plan at issue in <i>Racanelli</i>; basing an objective on what can be required using only the State Water Board's regulatory authority. In <i>Racanelli</i>, the State Water Board improperly limited water quality objectives to conditions that could be achieved through regulation of the water rights of the CVP and SWP only. (<i>Racanelli</i>, 182 Cal.App.3d at 116.) The court explained the State Water Board erred in assuming "that upstream users retained unlimited access to upstream waters," which prevented it from fulfilling the statutory directive "to consider . . . all competing demands for water in determining	Please see Common Response 1.2, Water Quality Control Planning Process, for information on the consideration of flow and non-flow measures. Please also see responses to comments 268-34 and 268-36.

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		what is a reasonable level of water quality protection (§ 13000) . . . as well as ‘[w]ater quality conditions that could reasonably be achieved through the coordinated control of all factors which affect water quality in the area.’” (Id. at 118.) In other words, “in order to fulfill adequately its water quality planning obligations, we believe the Board cannot ignore other actions which could be taken to achieve Delta water quality, such as remedial actions to curtail excess diversions and pollution by other water users.” (Id. at 120.) As a result, the effect of the Draft Staff Report’s failure to address non-flow measures in favor of a flow-only approach is similar to the State Water Board’s self-imposed limitation in Racanelli – its approach to water quality control planning is rendered defective from the start. (Id. at 116.)	
268	133	[ATT 2] The VA Alternative Provides Analysis Regarding the Protections that Could be Achieved Through Coordinated Control of All Factors Affecting Fish and Wildlife The VA alternative includes flow and non-flow measures that are implemented by a group of state and federal agencies, local water agencies, private companies, and a non-profit mutual benefit corporation as an alternative to the proposed Plan amendments. These actions address a wide array of factors that affect water quality for fish and wildlife and other beneficial uses, and represent a significantly more-diverse approach than the proposed Plan amendments. As a result, the Draft Staff Report’s evaluation of the benefits of the VA alternative includes analysis regarding the protections that could be achieved through coordinated control of all factors.	Please see Common Response 1.1, General Comments, for responses to comments that make general comments, do not raise specific environmental impacts of the project, or do not raise specific economic effects of the project.
268	134	[ATT 2] Flow Is Not a Lawful Parameter for a Water Quality Objective The proposed Plan amendments that include water quality objectives based on flow, such as the proposed new inflow requirements defined using a percentage of instream flow, suffer from another fatal inconsistency with the Porter-Cologne Act. Flow is not a lawful parameter for a water quality objective.	Please see Common Response 1.2, Water Quality Control Planning Process, for information on parameters for water quality objectives. Please also see Common Response 3.1, Fish Protection, for a discussion of the State Water Board’s approach to analyzing the effects of flow on species abundance and life cycle models.

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		As used in the Porter-Cologne Act, the term “water quality objective” means: “the limits or levels of water quality constituents or characteristics which are established for the reasonable protection of beneficial uses of water or the prevention of nuisance within a specific area.” (Wat. Code, § 13050(h).) Flow is not a measure of water quality; flow is a measure of water volume. (Merriam-Webster Dict., at https://www.merriamwebster.com/dictionary/flow [defining flow as “the quantity that flows in a certain time”]; Dictionary.com at https://www.dictionary.com/browse/flow [defining flow as “the volume of fluid that flows through a passage of any given section during a unit of time”]; Donald W. Meals and Steven A. Dressing, Surface Water Flow Measurement for Water Quality Monitoring Projects, Tech Notes 3 (March 2008) Developed for U.S. Environmental Protection Agency by Tetra Tech, Inc. at https://www.epa.gov/nps/nonpoint-source-monitoring-technotes, p. 2 [defining surface water flow as “the volume of water that passes through a channel cross section in a specific period of time”].) Water volume is not a measure of water quality. That is, a description of the quantity of water does not describe the quality of the water. To illustrate, a gallon of water may be pure or contaminated, fresh or saline, clear or turbid, hot or cold. That it is a gallon of water says nothing about the quality of the water. Like volume measured by the gallon, volume measured by a percentage of unimpaired flow is not a proper parameter for a water quality objective because it is not a water quality constituent or characteristic. Subdivision (g) of Water Code section 13050 defines the term “quality of the water” as the “chemical, physical, biological, bacteriological, radiological, and other properties and characteristics of water which affect its use.” In the 1995 Bay-Delta Plan the State Water Board relied on this definition to justify its adoption of flow-based water quality objectives, on the theory that flow is a physical property or characteristic of water. (1995 Bay-Delta Plan at 9.) That reliance is unfounded. The definition of “quality of the water” in subdivision (g) refers to the properties and characteristics of “water.” (Wat. Code § 13050(g).) Examples of the “physical” properties or characteristics of “water” which affect its use include color, odor, taste, and temperature. For example, cloudy water may be	

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		unsuitable for use as drinking water due to appearance or taste. Water that is too high in temperature may be unsuitable to sustain use by some species of fish, or its warmth may encourage the growth of algae or vegetation renders the water unsuitable for recreational uses such as swimming or boating. These are examples of physical properties or characteristics of water that affect use of the water. In contrast, whether there is a large volume or a small volume of cloudy water does not alter what uses can be made of the water.	
268	135	[ATT 2] In the 1995 Bay-Delta Plan the State Water Board relied on the definition “quality of the water” in subdivision (g) to justify use of flow as a water quality objective. (1995 Bay-Delta Plan at 9.) It explained that flow is one of the physical properties or characteristics of the relevant water body, “the Bay-Delta Estuary.” Indeed, flow can be a physical property or characteristic of a water body such as a river, stream or estuary. However, the State Water Board’s view that flow can be a water quality objective, and its reliance upon subdivision (g) to support that view, depends upon impermissibly adding the words “or a water body” to the definition in subdivision (g). When construing a statute, a court’s task is to “ascertain and declare what is in terms or in substance contained therein, not to insert what has been omitted, or to omit what has been inserted.” (Wilson v. Safeway Stores, Inc. (1997) 52 Cal.App.4th 267, 271.) The definitions in subdivisions (h) and (g) of Water Code section 13050 refer only to water, not a water body. The State Water Board’s interpretation depends upon doing what courts have explained it cannot. In addition to being contrary to the statutory text, the State Water Board’s use of flow as a parameter for a water quality objective undermines the process and standards set out in the Porter- Cologne Act. The State Water Board is in essence taking a regulatory short cut, one that skips the valuable, broad-based analysis required by the Porter-Cologne Act when adopting water quality objectives. Under section 13241, the State Water Board is directed to determine the water quality constituents or characteristics that are needed to ensure the reasonable	Please see Common Response 1.2, Water Quality Control Planning Process, for information on parameters for water quality objectives. Contrary to this commenter’s assertion, the State Water Board’s flow objectives are informed by a “rigorous, science-based approach.” Chapter 3, Scientific Knowledge to Inform Fish and Wildlife Flow Recommendations, provides a discussion and summary of the science on flow needs for the protection of fish and wildlife beneficial uses. See also Common Response 3.1, Fish Protection, for a full discussion the State Water Board’s use of best available science and the relationship between increased flow and fish abundance.

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		protection of beneficial uses. That is, it must define the limits or levels of water quality characteristics such as temperature, clarity, bacteria, salinity or other measures that are consistent with reasonable protection of beneficial uses. Doing so requires a rigorous, science-based approach that informs sound decision making. Instead of defining the water quality characteristics needed for reasonable protection, the State Water Board is proposing to use flow as a proxy or substitute for the desired water quality characteristics.	
268	136	[ATT 2] Under the Porter-Cologne Act, when setting water quality objectives, the State Water Board is required to decide what level of water quality protection is reasonable, and to describe the means of achieving that level of water quality in a program of implementation. Regulation of diversions to affect flow is one means of implementing water quality objectives. By using flow as a parameter, the State Water Board has substituted a means of implementation for what section 13241 requires it to do when adopting a water quality objective—defining the water quality constituents or characteristics necessary to achieve reasonable protection of beneficial uses. Using flow as a parameter for water quality objectives suggests that requiring more instream flow is an end in itself. That is, whether the objectives require more flow and at what level, rather than whether such flows provide reasonable protection of beneficial uses, has become the State Water Board’s apparent benchmark. That approach is contrary to and a misuse of its authority pursuant to the Porter-Cologne Act. Even if the statutory definitions were ambiguous, and the State Water Board’s interpretation that flow may be a parameter for a water quality objective were a permissible interpretation given such ambiguity, the State Water Board still could not lawfully rely on that interpretation for the proposed Plan amendments. The State Water Board has not complied with the requirements of the Administrative Procedure Act (“APA”) for its interpretation. A “regulation” subject to the APA includes “every rule, regulation, order, or standard of general application” adopted by a state agency to “implement, interpret, or make specific the law	Please see Common Response 1.2, Water Quality Control Planning Process, for information on parameters for water quality objectives. The adoption or revision of water quality control plans is exempt from the general rulemaking requirements of the Administrative Procedure Act (APA). (Gov. Code, § 11353, subd. (a).) However, the State Water Board must still comply with the more limited APA procedural requirements listed in subdivision (b) of Government Code section 11353 for any adoption or revision of a water quality control plan after June 1, 1992. Upon State Water Board adoption of the amendments to the Bay-Delta Plan that are currently under consideration, the regulatory provisions of the water quality control plan will be submitted to the Office of Administrative Law for approval before the amendments become effective, as required under Government Code section 11353.

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		enforced or administered by it.” (Gov. Code, § 11342.600.) The State Water Board has not followed the requirements of the APA for its regulation interpreting the Porter-Cologne Act to allow use of flow as a parameter of water quality. Government Code section 11340.5 prohibits a state agency from relying upon any regulation not “adopted as a regulation and filed with the Secretary of State pursuant to this chapter.” (Id. at § 11340.5(a), emphasis added.) Even if, as the State Water Board has contended regarding the 2018 amendments, its interpretation is a part of water quality planning and therefore subject to Government Code section 11353, it still must comply with the requirements in subdivision (b) of Government Code section 11353. To date, the State Water Board has not satisfied even those more limited APA requirements for its interpretive regulation.	
268	137	[ATT 2] In summary, the State Water Board must exercise its authority to adopt water quality objectives consistently with section 13241 and the definitions in subdivisions (g) and (h) of section 13050. Under the Porter-Cologne Act, when setting water quality objectives, the State Water Board must define the water quality constituents and characteristics necessary to ensure reasonable protection of beneficial uses. Flow is not a water quality constituent or characteristic within the meaning of the Porter-Cologne Act, and the State Water Board therefore cannot lawfully use flow as a parameter for a water quality objective in the proposed Plan amendments.	Please see Common Response 1.2, Water Quality Control Planning Process, for information on parameters for water quality objectives, and consideration of factors under Water Code section 13241.
268	138	[ATT 2] Adoption of the Proposed Plan Amendments Based on the Draft Staff Report Would Be Contrary to Article X, Section 2 of California’s Constitution As we have explained above, the Draft Staff Report provides only flawed and incomplete information and analysis with respect to the proposed Plan amendments. To adopt the numeric and flow-based objectives in the proposed Plan amendments when critical information regarding whether expected benefits and potential costs of that use would be an unreasonable use of water, and	As identified by this commenter, the State Water Board has the authority to prevent waste and unreasonable use under Article X, Section 2 of the California Constitution, and various provisions of the Water Code. (Wat. Code §§ 100, 275.) However, there is no set definition of what constitutes an unreasonable use. (Light v. State Water Resources Control Bd. (2014) 226 Cal.App.4th 1463, 1479.) In determining what is reasonable, the State Water Board considers the important public interests at stake in evaluating the proper balance between water supply and water quality. (United States v. State Water Resources Control Bd., (1986) 182 Cal.App.3d 82, 130.) “The decision is essentially a policy judgment requiring a balancing of the competing public

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		violates Article X section 2 of the California Constitution. Article X, section 2 provides: It is hereby declared that because of the conditions prevailing in this State the general welfare requires that the water resources of the State be put to beneficial use to the fullest extent of which they are capable, and that the waste or unreasonable use or unreasonable method of use of water be prevented, and that the conservation of such waters is to be exercised with a view to the reasonable and beneficial use thereof in the interest of the people and for the public welfare. (Cal. Const., art. X, § 2.) Water Code section 100 imposes the same prohibition against waste and unreasonable use. Water Code section 275 directs the State Water Board to “take all appropriate proceedings or actions before executive, legislative, or judicial agencies to prevent waste, unreasonable use, unreasonable method of use, or unreasonable method of diversion of water in this state.”	interests, one the [State Water] Board is uniquely qualified to make in view of its special knowledge and expertise and its combined statewide responsibility to allocate the rights to, and to control the quality of, state water resources.” (Ibid. (citing Wat. Code § 174).) As discussed throughout the Staff Report, the State Water Board identified the need to protect fish and wildlife beneficial uses and developed a set of water quality objectives to be achieved through a program of implementation that includes both a regulatory pathway and a VA pathway. The Staff Report contains extensive analysis of the benefits associated with a range of analyzed alternatives (see Chapter 3, Scientific Knowledge to Inform Fish and Wildlife Flow Recommendations, Section 9.6, Beneficial Environmental Effects of Proposed VAs; Section 13.5, Beneficial Environmental Effects) and their potential impacts on various resources, including water supply (see Chapter 6, Section 9.5, and Section 13.4, each titled Changes in Hydrology and Water Supply; Chapter 10, Economically Disadvantaged Communities), groundwater resources (see Section 7.12.2, Section 9.7.12.2, and Section 13.7.12.2, each titled Groundwater), aquatic resources (see Section 7.6.2, Section 9.7.6.2, and Section 13.7.6.2, each titled Aquatic Biological Resources), and economic resources (see Chapter 8, Section 9.8, and Section 13.8, each titled, Economic Analysis and Other Considerations). Additional discussion of the benefits and impacts associated with different alternatives is also contained in Section 7.24, Alternatives Analysis; Section 9.9, Modular Alternatives for Proposed VAs; and Section 13.7.22, Impact Summary and 13.7.23, Ability to Achieve Project Purpose and Goals. It is also worth noting that relevant caselaw has found that neither a precise quantification of potential water uses and impacts on those uses, nor an explicit cost-benefit analysis are required to meet the State Water Board’s water quality planning obligations. (United States v. State Water Resources Control Bd., supra, 182 Cal.App.3d, at pp. 118-19.) Final Staff Report Section 13.6, Public Trust and Water Code Section 13241 Analyses, also contains discussions of the State Water Board’s evaluation of benefits and impacts and the balancing of competing public interests. Establishing flow requirements to support aquatic ecosystem conditions and prevent deterioration of water quality for the protection of fish

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			and wildlife beneficial uses does not constitute a waste or unreasonable use of water. Please also see Common Response 1.2, Water Quality Control Planning Process, for a discussion of the State Water Board's authority to prevent waste and unreasonable use under Article X, Section 2 of the California Constitution.
268	139	[ATT 2] The State Water Board's adoption of the proposed Plan amendments would be subject to Article X, section 2. (City and County of San Francisco v. Regents of University of California (2019) 7 Cal.5th 536, 558 ["the California Constitution is the paramount authority to which even sovereignty of the state and its agencies must yield"].) "[G]overnment actors are bound by the selfexecuting proscriptions of article X, section 2, and therefore can be held accountable in court or before the proper administrative agencies if they use water in a wasteful and unreasonable manner." (Los Angeles Waterkeeper v. State Water Resources Control Board (2023) 92 Cal.App.5th 230, 272.) "As the Supreme Court recognized soon after Article X, Section 2 was added, the rule limiting water use to that reasonably necessary 'appl[ies] to the use of all water, under whatever right the use may be enjoyed.' The rule of reasonableness is now 'the overriding principle governing the use of water in California.'" (Light v. State Water Resources Control Board (2014) 226 Cal.App.4th 1463, 1479 [quoting (Peabody v. City of Vallejo (1935) 2 Cal.2d 351, 367–368 and People ex rel. State Water Resources Control Bd. v. Forni (1976) 54 Cal.App.3d 743, 750.].) "All uses of water, including public trust uses, must [] conform to the standard of reasonable use." (National Audubon Society v. Superior Court (1983) 33 Cal.3d 419, 443.) How much benefit a use provides also matters for reasonableness. That a particular use of water provides some benefit does not establish that it is necessarily reasonable. Claiming that any benefit from a use is enough to satisfy Article X, section 2 "ignores rather than observes the constitutional mandate." (Joslin v. Marin Municipal Water Dist. (1967) 67 Cal.2d 132, 143.) Finally, what constitutes reasonable use is case-specific. "California courts have never defined ... what constitutes an unreasonable use of water,	Please see Common Response 1.1, General Comments, for responses to comments that make general comments, do not raise specific environmental impacts of the project, or do not raise specific economic effects of the project.

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		perhaps because the reasonableness of any particular use depends largely on the circumstances.” (Light, 226 Cal.App.4th at 1479.) Water Code section 13247 provides state agencies “shall comply” with water quality control plans. (Wat. Code, § 13247.) The State Water Board and other state agencies are required to exercise their authorities in a manner consistent with water quality objectives as adopted. (Id.; State Water Resources Control Board Cases (2006) 136 Cal.App.4th 674, 730.) As the current amendment process demonstrates, water quality objectives are not quickly or easily amended after adoption.	
268	140	[ATT 2] It is essential that the State Water Board understand the costs and benefits of adopting new water quality objectives at the time of adoption, and not defer that analysis until later. That is particularly so with the proposed numeric objective for Delta inflow. The proposed inflow objective would require “inflows from the Sacramento/Delta tributaries at 55% of unimpaired flow, within an allowed adaptive range between 45 and 65% of unimpaired flow.” (Draft Staff Report at p. 5-17.) Adoption of that objective would be a decision to commit a volume of water, at minimum 45% of unimpaired flow, to instream uses each year. As is explained above, the Draft Staff Report lacks the information and analysis necessary to determine what benefits the proposed Plan amendments are expected to provide and at what cost to other beneficial uses. By design, the State Water Board would defer analysis and decisions essential to adoption of objectives to a later phase, during implementation of the already-adopted objectives. For example, the Draft Staff Report does not identify the biological goals for the fish intended to be benefited by the flow-based amendments, instead deferring definition of those goals to implementation after adoption of the proposed Plan amendments. (Draft Staff Report at pp. 5- 64 – 5-65; see also, supra, Section I.B.2(a).) Likewise, new reservoir operating criteria necessary to preserve cold water habitat will be required if the inflow objectives are adopted, because meeting the instream flow requirements will deplete reservoir storage.	The Staff Report fully documents the intended benefits of the proposed Plan amendments in Chapter 3, Scientific Knowledge to Inform Fish and Wildlife Flow Recommendations; Chapter 4, Other Aquatic Ecosystem Stressors, and Chapter 5, Proposed Changes to the Bay-Delta Plan for the Sacramento/Delta. The development of biological goals for the Sacramento/Delta watershed is proposed to help inform the implementation of the Bay-Delta Plan, including adaptive implementation, the effectiveness of Bay-Delta Plan and its implementation; the Bay-Delta Monitoring and Evaluation Program (BDMEP) (described in Section 4.5.1, Harvest), and future changes to the Bay-Delta Plan and its implementation. This is entirely appropriate and does not constitute any improper deferment of information or analyses. Please see also Common Response 1.3, Revised Proposed Plan Amendments, regarding the revised proposed Plan amendments. See Common Response 7.1, General CEQA and Approach to the Analysis, regarding the project in the context of CEQA and the approach to the analyses. See Common Response 1.2, Water Quality Control Planning Process, regarding consideration of beneficial uses and consideration of non-flow measures and State Water Board’s authority to impose non-flow measures. See Common Response 3.1, Fish Protection, regarding the habitat benefit analyses and flow-benefit analyses.

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		But the State Water Board would defer defining what those measures will be to implementation, making it impossible to determine the benefits and costs of the proposed water quality objectives at the time of adoption. (Draft Staff Report at p. 5-23 – 5-24.) Despite acknowledging that the full set of conditions fish need to thrive include factors other than flow, the Draft Staff Report fails to analyze what water quality conditions could be achieved through the coordinated control of all factors, including through use of nonflow measures.	
268	141	[ATT 2] Under Water Code section 13247, if the proposed Plan amendments are adopted, the State Water Board will be bound to require water rights holders to limit their diversions to meet the numeric inflow objective. Adoption of that objective would leave no room to sort out later, such as during implementation, questions of whether requiring that volume of flow in a particular watershed, or in the Delta, or through the Delta as outflow is a reasonable use of water. A minimum of 45% of unimpaired flow for inflow to the Delta will be mandated. The volume of water prescribed by the objective would have to be left instream regardless of the benefits for fish, and would be largely unavailable for other beneficial uses regardless of the costs to other uses. Substantial volumes of water would thus flow to the ocean to the detriment of existing beneficial uses before the State Water Board even understands what benefits will likely be realized therefrom or at what cost. That would be poor stewardship of the state's water resources. In essence, the proposed numeric inflow objective would commit a defined quantity of water to instream use without and before an assessment of whether doing so will use the water resources of the state "to the fullest extent of which they are capable" or consistently with "the reasonable and beneficial use thereof in the interest of the people and for the public welfare." Adopting numeric flow-based objectives and deferring to later on how to make wise use of that set volume of water is a "ready, fire, aim" approach. It would be an unreasonable use of water and hence violate Article X, section 2 of the California Constitution.	While Water Code section 13247 requires compliance with water quality control plans, the revised proposed Plan amendments contain numerous provisions allowing for flexibility and addressing concerns expressed by commenters related to potential water supply impacts. Please see the response to comment 268-138 for a discussion of the State Water Board's reasonable use analysis, and benefits and impacts of various alternatives, including the revised proposed Plan amendments. In addition to the proposed Plan amendments, which remain part of the project as the regulatory pathway, the project has also been revised in response to comments received expressing concerns over potential water supply and carryover storage impacts. The inflow requirements contained in the revised proposed Plan amendments include water supply adjustments for existing water right holders at the outset of plan implementation to reduce water supply impacts and allow more water to be stored in reservoirs. Please see Common Response 1.3, Revised Proposed Plan Amendments, for a discussion of the revised proposed Plan amendments' inflow objective and its associated water supply adjustments. The regulatory pathway also includes additional tributary-specific water supply adjustments on a subset of tributaries that would allow for more frequent reductions in flow requirements and no new flow requirements during the driest conditions. In response to comments asserting that the initial carryover storage requirements were too restrictive, the revised proposed Plan amendments allow reservoir owner/operators, as part of their development of long-term temperature management strategies, to propose their own carryover storage levels within an

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			appropriate range tailored to each reservoir that is lowered during drought years. The revised proposed Plan amendments' program of implementation also provides for a VA pathway for an initial eight-year term that reduces flow contributions required from VA water rights. Finally, the program of implementation also contains numerous flexible provisions allowing for adaptive management to minimize water supply impacts (e.g., the ability to manage numeric flow requirements as a total volume of water to shape flows) and also contains provisions allowing the State Water Board to develop and implement curtailment exceptions for human health and safety needs and other appropriate purposes. Please also see Common Response 1.2, Water Quality Control Planning Process, for a discussion of the State Water Board's authority to prevent waste and unreasonable use under Article X, Section 2 of the California Constitution.
268	142	[ATT 2] Additional Specific Comments on the Draft Staff Report Appendix A – Modeling for Unimpaired Flow Scenarios Appendix A1 (Inconsistent Baselines Used for Modeling) San Joaquin River inflow is an important modeling component that affects Delta exports. However, the modeling assumptions for San Joaquin River inflow that were used to simulate hydrological changes under the VA alternative differs from the modeling assumptions that were used to simulate hydrological changes under the proposed Plan amendments. Concerning the San Joaquin River ("SJR") input (inflow) to the Sacramento Water Allocation Model ("SacWAM") analyses, staff has incorporated a CalSim 3 baseline data set for Vernalis that equates to an average annual flow of approximately 2,662 thousand acre-feet ("TAF") and will manifest into a certain set of hydraulic/hydrological consequences throughout the Delta and SacWAM domain, including Delta Outflow, internal Delta circulation, and Delta Exports. In contrast, the SJR input for the	The inflows from the San Joaquin River at Vernalis are the same in all of the SacWAM scenarios, including the VA scenario, analyzed in the draft Staff Report. The WSE-VA model is only used for the Staff Report in Chapter 9, Proposed Voluntary Agreements, to evaluate how the Tuolumne VA and 2018 LSJR flow objectives could increase outflow from LSJR tributaries and, ultimately, the Delta. The WSE is used to estimate the incremental changes in flow that would be expected with implementation of the Tuolumne VA proposal and LSJR flow objectives. Please see Section 9.5.2, VA Modeling Approach, for more information on VA modeling.

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		State Water Board's Water Supply Effects modeling of the VAs alternative ("WSE-VA") incorporates a different baseline (CalSim II based) that is used to simulate incremental changes at Vernalis due to differing San Joaquin River flow operations. The CalSim II based result at Vernalis equates to an average annual flow of approximately 3,130 TAF, which would manifest a different set of hydraulic/hydrologic consequences throughout the SacWAM domain, and/or provide a baseline in WSE-VA different than was used to evaluate the proposed Plan amendments. This discrepancy caused an inconsistent and misrepresentative baseline in one or both models and complicates effective comparisons between modeling results.	
268	143	[ATT 2] Appendix A1 (SacWAM Modeling of Changes to Delta Salinity) The Draft Staff Report's method of modeling Delta salinity/flow for the proposed Plan amendments is inadequate and flawed. The Draft Staff Report states that the Vernalis flow data set does not change among baselines or alternative scenarios, and that the Delta Simulation Model II ("DSM2") and Delta flow relationships are not changed among alternatives in the context of Vernalis flow and quality. Results for interior Delta conditions and Delta outflow would be different from that presented if full integration of changed Vernalis flows was integrated within scenario analyses.	SacWAM assumptions for Vernalis flow do not change across any of the modeling scenarios. This update of the Bay-Delta Plan focuses on the Sacramento Delta watershed, whereas the 2018 Plan update focused on the San Joaquin River and its eastern salmon-bearing tributaries. See also the response to comment 268-144.
268	144	[ATT 2] The Draft Staff Report's post-analysis adjustment to SacWAM (without SJR actions) results, as described in Section G3a.2.5, beginning at page G3a-9, is not adequate to illustrate all of the hydrologic/hydraulic effects of changes to SJR flows. The assumed incremental changed flows at Vernalis will manifest throughout the Delta, not just at selected points of interest or compliance. The estimated incremental changes in Vernalis flow should be implemented throughout the modeling tools.	The Tuolumne River VA and the 40% unimpaired flow contributions from other San Joaquin Tributaries are undergoing modeling through a separate process. The reductions in recapture from the Friant VA are a relatively small amount of water on the scale of the Sacramento/Delta watershed, however there may be some very small improvements to water quality in the South Delta. The analysis of the VA scenario has been updated in Chapter 13, Revised Proposed Plan Amendments, of the 2025 partially recirculated draft Staff Report such that any additional flow contributions from the Stanislaus, Tuolumne, and Merced Rivers are no longer included because they are considered through a separate process. Effects associated with the Friant VA are

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			evaluated where appropriate in Section 13.4.4, Changes in Water Supply.
268	145	[ATT 2] Appendix A1 (CVP Deliveries Among Customer Sectors and Total Delta Exports) The Draft Staff Report's evaluation of the proposed Plan amendments' water supply impacts to the CVP is flawed. The CVP customer sector delivery statistics, which are depicted in a series of graphs in Appendix A1 (e.g., section A1.12.8.54), suggest that State Water Board staff did not correctly incorporate current water delivery allocation forecasting procedures or correct temporal delivery assumptions for annually allocated water in its modeling of the proposed Plan amendments. Further, the Draft Staff Report does not include comprehensive modeling to inform the reviewer if water shortages to the south of Delta Exchange Contractors can in fact be met by exercising water rights to divert from the San Joaquin River, as suggested in the text.	Please see Common Response 6.1, Sacramento Water Allocation Model and Changes in Hydrology and Water Supply, for a response to comments regarding modeling of CVP allocations and obligations.
268	146	[ATT 2] Chapter 3 – Scientific Knowledge to Inform Fish and Wildlife Flow Recommendations Section 3.2.1, p. 3-3 The Draft Staff Report states that: "Implementation of a more natural flow regime with high spring flows has been shown to favor native over nonnative species in Putah Creek, although nonnatives still dominate in the lowermost reach (Kiernan et al. 2012)." To the contrary, Kiernan et al. 2012 states: We propose that the expansion of native fishes was facilitated by creation of favorable spawning and rearing conditions (e.g., elevated springtime flows), cooler water temperatures, maintenance of lotic (flowing) conditions over the length of the creek, and displacement of alien species by naturally occurring	Please see Common Response 3.1, Fish Protection, for a discussion of the effects of flows resulting from the Putah Creek Accord on native fish species. More recent evidence cited in Common Response 3.1 substantiates the text in Chapter 3, Scientific Knowledge to Inform Fish and Wildlife Flow Recommendations, of the Staff Report describing that non-native species continue to dominate the lower reaches of Putah Creek and that additional flow would be expected to provide benefits to native fish species. Although small numbers of salmon have returned to the creek following implementation of the Putah Creek Accord flows, native species should dominate the lower reaches of Putah Creek if the volume of flow delivered under the Accord flows were sufficient to restore a native fish community, as implied by the commenter.

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		high-discharge events. Importantly, restoration of native fishes was achieved by manipulating stream flows at biologically important times of the year and only required a small increase in the total volume of water delivered downstream (i.e., water that was not diverted for other uses) during most water years. Our results validate that natural flow regimes can be used to effectively manipulate and manage fish assemblages in regulated rivers. This study highlights the importance for flow measures to be implemented at biologically critical times to disrupt non-natives and recognizes the need for multiple factors to be in place to manage non-native fish. The Draft Staff Report's discussion of the benefits of unimpaired flow with respect to invasive species should be revised to acknowledge that existing studies have focused on using water at biologically important times, and have hypothesized that these benefits can be achieved with only a "small increase in the total volume of water delivered downstream."	
268	147	[ATT 2] Section 3.14.1.1, p. 3-112 The Draft Staff Report states that: "The significant difference between these flow levels indicates that existing Bay-Delta Plan and [2019] BiOp flow requirements are not adequate to ensure Delta outflow conditions necessary for the reasonable protection of fish and wildlife beneficial uses." To the contrary, the figures that follow (Figures 3.14-2 – 3.14-5) fail to demonstrate that the BiOp flow requirements are not adequate, as the demonstrated flow requirement level of the 2019 BiOps is not separated out from the other requirements within the baseline.	The minimum required delta outflow (MRDO) reflects the minimum Delta outflows to meet the requirements included in the 2006 Bay-Delta Plan (D-1641) and 2019 USFWS BiOp. Flow requirements in the 2019 USFWS BiOp apply during October and November of wet and above normal water years. Figure 3.14-5 in Section 3.14, Evaluation of Bay-Delta Environmental Flow Effects, shows that the MRDO flows are much lower than baseline conditions. The preceding sentence in the 2023 draft Staff Report states, "the difference between the MRDO "line" in the figures and the existing flow level in the figures represents flows that are not required under the Bay-Delta Plan and the USFWS BiOp that could be diminished in the future as the result of additional diversions in the absence of additional flow requirements. Given that native species continue to decline in the Bay-Delta system under baseline conditions and that MRDO is substantially lower than baseline, the flow requirements in the 2019 USFWS BiOp would not be sufficient to provide sufficient Delta outflow conditions necessary for the protection of fish and wildlife.
268	148	[ATT 2]	See Common Response 3.1, Fish Protection, on use of best available science, data sources, and the flow-benefit analyses.

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		Chapter 3 (Current Longfin Smelt Abundance Trends) In discussing the scientific basis for a decline in longfin smelt abundance, the Draft Staff Report presents a re-analysis of “the most recent Fall Midwater Trawl (“FMWT”) indices” (pg. 3-55) including data from 1967-2016. First, data through 2016 is not the most recent since FMWT indices of abundance are available from California Department of Fish and Wildlife (“CDFW”) for the period from 2017-2023, which have not been included in the SWRCB analysis. Second, the CDFW FMWT surveys longfin smelt abundance indices only during September-December and only at sampling locations in the western Delta and Suisun Bay. Data from the midwater trawl and otter trawl sampling by CDFW demonstrate that a portion of the longfin smelt population is present in San Pablo and San Francisco Bays and therefore are not included in the FMWT survey further upstream. The Draft Staff Report, to be complete, should present an up-to-date analysis of trends in abundance based on both the midwater trawl and otter trawl sampling, recognizing that an additional portion of the longfin smelt population resides in coastal marine waters that are not sampled for longfin smelt at all. Although the Draft Staff Report presents results of the relative abundance indices for longfin smelt, it does not discuss the fact that there are no absolute estimates of longfin smelt abundance each year from the estuary. In addition, the discussion of the Delta outflow and abundance index for longfin smelt (Figure 3.5-2 pg. 3-57) is based on the same incomplete data (e.g., based on relative indices of abundance and not population estimates, does not include data for 2017-2023) as discussed above. The high variance and uncertainty in the flow-abundance index analysis presented in the Draft Staff Report produces estimates of the Delta outflow needed to produce a 50% probability of population growth ranging from 51,000 cfs between January and March, 42,800 cfs from January to June, and 35,000 cfs between January and March. (Draft Staff Report at p. 3-57.) The flow estimates that range from 35,000 to 51,000 cfs, but that produce the same predicted population response, reflect the high degree of uncertainty in the Draft Staff Report’s assessment of Delta outflows.	Section 3.5.2, Life History, of the Staff Report acknowledges that longfin smelt spend time in San Francisco Bay and may go outside of the Golden Gate. The abundance indices used in the Staff Report represent the best available data because, as the commenter acknowledges, “there are no absolute estimates of longfin smelt abundance each year from the estuary.” The Staff Report appropriately refers to this data as abundance indices. The analysis in the 2023 draft Staff Report Section 3.5, Longfin Smelt (<i>Spirinchus thaleichthys</i>), describes that Delta outflows associated with a 50% probability of positive population growth of longfin smelt are 42,800 cfs during the January-June period. The section also cites the findings of TBI and NRDC (2010) predicting the positive population growth of longfin smelt with 51,000 cfs during January-March period or 35,000 cfs for March-May. The 2023 draft Staff Report further stated that the flow levels associated with population growth are “sensitive to the choice of months and years in the analysis.”

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268	149	[ATT 2] Chapter 3 (Flow Abundance Correlation for Longfin Smelt) Chapter 3 discusses flow-abundance correlations for a number of fish and invertebrates with the underlying premise that higher Delta inflow and outflow will produce greater abundance and that lower outflow will produce lower indices of species abundance. The Draft Staff Report should be revised to clearly articulate that correlation is not causation. Longfin smelt are cited as the species with the strongest correlation between outflow and abundance. However, the longfin smelt correlation between outflow and abundance has changed substantially in recent years, such that the same level of Delta outflow no longer is correlated with the earlier relationship. (See <i>infra</i> Figures 1 [Exhibit 6 of ATT 2] and 2 [Exhibit 7 of ATT 2].) The data from the CDFW Bay Study surveys, depicted below in Figures 1 and 2, provide a better representation of longfin smelt distribution and abundance when compared to the FMWT data depicted in Figure 3.5-2.	As described in Chapter 3, Scientific Knowledge to Inform Fish and Wildlife Flow Recommendations, of the Staff Report, the scientific information supporting modifications to existing flow requirements is broader than the quantitative relationships evaluated in Chapter 3 and includes knowledge of life history, ecology, and the conditions under which native species evolved. Chapter 3 presents substantial evidence for the benefits of increased flow for species in the Bay-Delta watershed. Please see Common Response 3.1, Fish Protection, on data sources and flow-benefits analysis.
268	150	[ATT 2: Exhibit 6: Graph titled Figure 1. Relationship between Log10 Bay Study Midwater Trawl longfin smelt catch and Delta Outflow (Jan-Mar), in surveys from 1980 through 2019]	This attachment was included with the comment letter. The attachment does not raise a specific environmental impact or economic effect of the project. Refer to Common Response 1.1, General Comments, for the approach to addressing attachments to comments.
268	151	[ATT 2: Exhibit 7: Graph titled Figure 2. Relationship between Log10 Bay Study Otter Trawl (OT) longfin smelt catch and Delta Outflow (Jan-Mar), in surveys from 1980 through 2018]	This attachment was included with the comment letter. The attachment does not raise a specific environmental impact or economic effect of the project. Refer to Common Response 1.1, General Comments, for the approach to addressing attachments to comments.
268	152	[ATT 2] Further, longfin smelt abundance indices would be predicted to increase substantially in wet years with high winter-spring outflow and be low in years of drought when Delta outflow is low. However, the CDFW FMWT abundance index for recent wet and dry years, shown below [Exhibit 8 of ATT 2], does not support that conclusion: The Draft Staff Report (Figure 3.5-2 on pg. 3-57) presents the	It is unclear how the five non-contiguous years in the table referenced by the commenter were selected, or why other years were excluded from that table. The commenter has not explained how the presentation of longfin smelt index numbers for 5 non-contiguous years selected by the commenter does not support the effects of flow on abundance concluded in Chapter 3, Scientific Knowledge to Inform Fish and Wildlife Flow Recommendations, of the Staff Report. Chapter 3, presents significant evidence for the benefits of outflow for longfin smelt.

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		FMWT indices for longfin smelt relative to average January-June Delta outflow for 1967-2016. The Draft Staff Report did not include available data for the years 2017 – 2023. The explanatory notes for Figure 3.5-2 acknowledge that several step changes have occurred (declines in FMWT indices of longfin smelt abundance and the daily average January – June outflow relationship) that have been detected through statistical analyses related to introduction of the invasive Asian overbite clam (first detected in 1987) and the Pelagic Organism Decline (2003). Including data from 2017-2023 changes the interpretation and the narrative of the relationships between longfin smelt abundance and Delta outflow. Specifically, the positive relationship between longfin smelt abundance and Delta outflow appears to have declined further in recent years. (See supra Figures 1 and 2.) Further, evidence of a significant change in the population dynamics is evident in the longfin smelt abundance indices during recent drought conditions of 2021 and 2022 when the FMWT abundance was the highest observed since the extremely wet year of 2011, although the mechanisms underlying the variable relationship between outflow and longfin smelt abundance is unknown. The Draft Staff report presents a logistic relationship using FMWT data from 1967-2016 (Figure 3.5-3 pg 3-58) to predict longfin population response to Delta outflow but provides no discussion or acknowledgement of the responses in 2021 and 2022 that were not predicted using the earlier relationship.	See Common Response 3.1, Fish Protection, on data sources and the flow-benefit analysis.
268	153	[ATT 2: Exhibit 8: Table described as the CDFW FMWT abundance index for recent wet and dry years]	This exhibit was included in the comment letter. The exhibit does not raise a specific environmental impact or economic effect of the project. Refer to Common Response 1.1, General Comments, for the approach to addressing exhibits.
268	154	[ATT 2] The Draft Staff Report (Figure 3.14-1 on pg. 3-110) presents the FMWT indices for longfin smelt, delta smelt and Sacramento splittail relative to average January-June Delta outflow for 2008-2014. The Draft Staff Report did not include available data for the years 2015 – 2022. Including these additional years changes the interpretation and the narrative of the relationships. Specifically, the positive relationship between longfin smelt FMWT indices and Delta outflow is no longer observable using	Uncertainty is presented in the outflow abundance relationship for longfin smelt, for example in Figures 3.5-2 and 3.5-3 in Section 3.5, Longfin Smelt (<i>Spirinchus thaleichthys</i>), and uncertainty is also presented for other species. See Common Response 3.1, Fish Protection, on the use of best available science, data sources and the flow-benefit analyses.

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		these data. (See <i>infra</i> Figure 3 [Exhibit 9 of ATT 2].) In fact, the longfin smelt abundance indices during 2021 and 2022 were the highest observed since the extremely wet year of 2011, although the Delta outflows were generally similar to those of the drought years of 2014-2015. Based on these recent FMWT results, there is a high degree of uncertainty in the accuracy of earlier predictions that longfin smelt abundance will increase substantially in response to high Delta outflow during the winter and early spring. The level of uncertainty in the outflow abundance relationship and the associated premise that longfin smelt abundance will increase substantially in response to increased Delta outflow is not discussed nor is it transparent in the Draft Staff Report. The level of uncertainty in flow-abundance relationships for other species presented in the Draft Staff Report should also be presented since the underlying mechanisms affecting the population dynamics of these species are unknown.	
268	155	[ATT 2: Exhibit 9: Two graphs titled Figure 3. Updated version of Figure 3.14-1 from Pg. 3-110 of the Draft Staff Report showing FMWT indices for delta smelt, longfin smelt and Sacramento splittail with average January-June Delta outflow from 2008-2022]	This exhibit was included in the comment letter. The exhibit does not raise a specific environmental impact or economic effect of the project. Refer to Common Response 1.1, General Comments, for the approach to addressing exhibits.
268	156	[ATT 2] Section 3.5.4.1, p. 3-56 The Draft Staff Report states that the “population abundance of longfin smelt in fall is positively correlated to Delta outflow or X2 as its proxy during the previous winter and spring”, and “the strongest relationship is with outflow between January and June”. (Draft Staff Report at p. 3-56.) However, Kimmerer and Gross (2022) study, attached hereto as Exhibit 2 [ATT 2 of ATT 2], found that “Population size was unrelated to freshwater flow in the year of hatching but positively related to the subsequent juvenile abundance index. Thus, the mechanisms underlying the strong variability in the annual abundance index of longfin smelt with freshwater flow are constrained to occur after March.” (Kimmerer and Gross (2022) Exhibit 2 [ATT 2 of ATT 2] at p. 1.)	Please see Common Response 3.1, Fish Protection, for the discussion on use of best available science, data sources and flow benefits analyses. Chapter 3, Scientific Knowledge to Inform Fish and Wildlife Flow Recommendations, of the final Staff Report has been updated to reflect more recent scientific literature. The Kimmerer and Gross (2022) study cited by the commenter does not contradict the substantial scientific evidence presented in Chapter 3 supporting the importance of Delta outflow during the January-June period for longfin smelt. Kimmerer and Gross (2022) suggests that “population size was not related to freshwater flow in the year of hatching [larval stage] but positively related to the subsequent juvenile abundance index.” In the same study, Kimmerer and Gross (2022) ran a model including the year and spring X2 location as predictors of abundance, which were found to explain

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		This apparent contradiction in findings regarding the relationship between Delta outflow (or X2 location) during the spawning season and subsequent juvenile abundance is not discussed in the Draft Staff report. (See also, Draft Staff Report at p. 7.6.2-13.) In fact, neither Chapter 3 nor Chapter 7 acknowledge or cite the published paper by Kimmerer and Gross (2022). The Draft Staff Report should be revised to include references to the published paper by Kimmerer and Gross (2022). It should also be revised to focus its evaluation of the effects of Delta outflow on the longfin smelt population during months outside of January-March.	81% of the deviance in the longfin smelt fall abundance index (Figure 2).
268	157	[ATT 2] Section 3.6 The Draft Staff Report discusses white sturgeon, noting that “[l]ong life and high fecundity make it possible for sturgeon to maintain a stable population with infrequent high-outflow years.” (Draft Staff Report at p. 3-62.) In the absence of any further analysis of the frequency of high outflows needed to maintain a stable sturgeon population, the Draft Staff Report identifies a Delta outflow averaging 37,000 cfs or larger between March and July (Table 3.6-1 pg 3-68) but does not present estimates of how frequently that outflow is needed to maintain stable populations of either green or white sturgeon. In the absence of data reflecting the frequency that these outflows are needed, it would not be possible for the Draft Staff Report to assess if the proposed action provides reasonable protection of sturgeon.	See Common Response 3.1, Fish Protection, on the frequency of flows for reasonable protection.
268	158	[ATT 2] Section 3.7 (Evaluation of the Big Notch Project) The Draft Staff Report discusses the analyses that predict Delta outflows of 30,000 to 47,000 cfs between February and May are needed to produce strong year classes of Sacramento splittail. (Draft Staff Report at p. 3-68.) As discussed for sturgeon, the Draft Staff Report does not present results of lifecycle modeling	Please see Common Response 3.1, Fish Protection, regarding the flow-benefit analyses. The cumulative impacts of the Big Notch Project were analyzed in Section 7.23, Cumulative Impact Analysis, of the 2023 draft Staff Report under the name “Yolo Bypass Salmonid Habitat Restoration and Fish Passage Project.” As discussed in Chapter 5, Proposed Changes to the Bay-Delta Plan for the Sacramento/Delta, of the Staff Report, the reason for the inflow

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		to estimate the frequency at which these flows would be needed. The Draft Staff Report acknowledges that successful reproduction by splittail is linked to frequency and duration of floodplain inundation during the spring spawning season. The Draft Staff Report notes that the required average daily Delta outflow would not be as high as the 30,000 to 47,000 cfs (Table 3.7-1) if non-flow actions were taken to increase the frequency, duration, and magnitude of floodplain inundation in the Yolo Bypass and other floodplains. (Draft Staff Report at p. 3-70.) The Draft Staff Report fails to discuss that the California Department of Water Resources ("DWR") has designed, permitted, and is currently completing construction of a large opening in the Freemont Weir (known as the Big Notch Project) that regulates floodplain inundation in the Yolo Bypass. Operation of the Big Notch Project to increase the frequency, duration, and magnitude of floodplain inundation in the Yolo Bypass, and the commensurate reduction in Sacramento River or Delta outflow needed for successful splittail spawning, is not presented in the Draft Staff Report or included in the hydrologic simulation modeling of the proposed Plan amendments. The hydrologic modeling presented in the Draft Staff Report does not reflect actual conditions contributing to floodplain inundation for splittail and many other resident and migratory fish, and therefore is not the best available scientific foundation for assessing effects of the proposed Plan amendments on splittail and other native fish that use floodplain habitat for spawning, egg incubation, larval rearing, juvenile rearing and growth, and as a migratory pathway for both juvenile and adult fish. The Draft Staff Report should be amended to discuss and analyze: (a) whether the construction and operation of the Big Notch Project can increase the magnitude, frequency, and duration of seasonal floodplain inundation in the Yolo Bypass without an increase in Sacramento River flows; and (b) whether the construction and operation of the Big Notch Project would affect the daily Delta outflow recommendations presented in the Draft Staff Report.	and outflow requirements is to provide comprehensive minimum instream flow and cold water habitat provisions and distribute the responsibilities more broadly across the watershed in a way that adjusts to available supplies and provides for flexibility. In addition to flow-related actions, actions by others may be needed to address climate change, including fish passage projects, riparian reforestation, other habitat restoration, and other measures. Thus, the justification for the inflow and outflow requirements is not limited to providing increased inundation in Yolo Bypass. See Common Response 1.3, Revised Proposed Plan Amendments, for more information on the reason for the regulatory pathway requirements.
268	159	[ATT 2]	See Common Response 3.1, Fish Protection, on use of best available science and data sources.

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		The Draft Staff Report (pg. 3-69 to 3-70) describes and displays the relationship between splittail abundance (FMWT catch data) against flow for years with a linear regression, showing a reduction in catch from 1976-2016. However, FMWT catch data should not be used for trends in Sacramento splittail abundance because splittail are a bottom-oriented species and the FMWT does not target bottom-oriented species (Malinich et al. 2022; Moyle et al. 2020). If Figure 3.14-1 on pg. 3-110 of the Draft Staff Report were to be updated, it would show 0 splittail catch in the FMWT data from 2018 through 2022, despite varying Delta outflow conditions. By contrast, the UC Davis Suisun Marsh Study, which includes both otter trawl and beach seine surveys, should be used to illustrate trends in relative splittail abundance (Moyle et al. 2020; O’Rear et al. 2022) and assess recruitment goals. The Suisun Marsh Study splittail catch data show an overall increasing trend in annual abundance since 1994, including the highest CPUE ever recorded in the Suisun Marsh Study’s history (starting in 1980) in 2018 (O’Rear et al. 2022). Based on catch data going back to 1980, the Suisun Marsh Study demonstrates a recovery of CPUE to levels observed in the early 1980s and the resiliency of the splittail population during and subsequent to a multi-year drought. As stated by Moyle et al. (2020), although it should be carefully monitored given its limited distribution, splittail can be regarded as a management success over the past 10-20 years due to favorable flows, floodplain restoration, and potentially due to operation of the Salinity Control Gates on Montezuma Slough. As a result, the Draft Staff Report should be revised to include analyses of the correlation of splittail abundance based on increased flow or floodplain inundation using otter trawl surveys, as compared to FMWT data.	
268	160	[ATT 2] Chapter 3 (Incomplete References to Scientific Literature) The references to scientific literature presented in Chapter 3 are incomplete. For example:	See Common Response 3.1, Fish Protection, on use of best available science and entrainment. Castillo et al. 2012 cites results from Clark et al. 2009 that they observed consistently high pre-screen losses. Clark et al. 2009’s findings do not contradict the conclusion, included in the Staff Report, from Castillo et al. 2012 that “high mortality rates in

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		The Draft Staff Report (p. 3-12) discusses high mortality rates of fish within Clifton Court Forebay, citing Castillo et al. 2012. The Draft Staff Report, however, fails to include any discussion of the scientific literature regarding quantification of pre-screen loss of juvenile steelhead in Clifton Court Forebay (Clark et al. (2009)) or the over 1,000 page compilation of Clifton Court Forebay predation studies compiled by US Bureau of Reclamation (https://www.usbr.gov/mp/bdo/docs/ba-appendix-g-clifton-court-forebay-predationstudies.pdf).	front of the fish screens mean that the number of fish salvaged is a small portion of the fish entrained.” Predation effects are discussed in Chapter 4, Other Aquatic Ecosystem Stressors in Section 4.4.1, Fishes.
268	161	[ATT 2] The Draft Staff Report (pg. 3-48) discusses the salmonid survival studies for the San Joaquin River published by Buchanan, et al. in 2013 and 2018 but fails to discuss the much more comprehensive study results of the 6-year steelhead survival study published by Buchanan, et al. in 2021. The study published by Buchanan, et al. in 2021 is attached hereto as Exhibit 1 [ATT 1 of ATT 2].	Results from ^Buchanan et al. 2021 are included in the 2023 draft Staff Report in Section 3.4.5.3, Juvenile Through-Delta Emigration, and Section 7.24 Alternatives Analysis, Section 7.24.5.2, Head of Old River Barrier Alternative (Alternative 4b), to describe the effectiveness of the HORB in improving the through-Delta passage and survival of juvenile salmonids originating from the San Joaquin River basin. See Common Response 3.1, Fish Protection, for a discussion on use of best available science.
268	162	[ATT 2] The Draft Staff Report fails to discuss the almost 500 page synthesis report prepared by DWR in 2015 titled “An Evaluation of Juvenile Salmonid Routing and Barrier Effectiveness, Predation, and Predatory Fishes at the Head of Old River, 2009–2012” (https://water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/State-Water-Project/Operations-And-Maintenance/Files/Bay-Delta/South-Delta-Temporary-Barriers-Project/Reports/An-Evaluation-of-Juvenile-Salmonid-Routing-and-Barrier-Effectiveness-Predation-and-Predatory-Fishes.pdf).	Please see Common Response 3.1, Fish Protection, on Use of Best Available Science. Adding DWR (2015a) to the references would not change the overarching conclusions of the Staff Report documenting the benefits of installation of the HORB for the routing and survival of migrating juvenile salmonids (e.g., ^Buchanan et al. 2021; Buchanan and Whitlock 2022).
268	163	[ATT 2] The Draft Staff Report discusses the effects of Delta Cross Channel gate operation and Georgiana Slough on salmonid migration into the interior Delta and effects on survival (p. 3-44). The Draft Staff Report, however, fails to discuss or even include a citation to the extensive testing and studies done by DWR of the effects of behavioral barriers on salmonid migration into Georgiana Slough and juvenile survival (https://water.ca.gov/Programs/State-Water-Project/Operations-and-Maintenance/Georgiana-Slough-	The 2023 draft Staff Report discussed in Chapter 3, Scientific Knowledge to Inform Fish and Wildlife Flow Recommendations, Section 3.4.5.3, Juvenile Through-Delta Emigration, the bio-acoustic behavioral fish fence (BAFF) at Georgiana Slough. This section in the final Staff Report has been updated to include the Department of Water Resources study on BAFF performance between 2011 and 2012. Please see Common Response 3.1, Fish Protection, on use of best available science.

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		Salmonid-Migratory-Barrier-Project) and the DWR final report on pilot testing done in 2012 (https://www.noaa.gov/sites/default/files/legacy/document/2020/Oct/07354626712.pdf).	
268	164	[ATT 2] The Draft Staff Report's discussion of delta smelt abundance trends (pg 3-74 and 3-75) based on FMWT data from 1967 to 2016 is outdated (missing the most recent data from 2017 to 2023). The Draft Staff Report discusses the high level of uncertainty when assessing potential relationships between indices of delta smelt abundance and reproductive success (20 mm indices) and winter-spring outflow, summer outflow, and fall outflow. Baxter, et al. (2015) evaluated the potential relationship between spring outflow and the delta smelt 20 mm index over an 11-year period (2003-2013) and found statistical evidence suggesting a potential relationship (pg 3-76), however, they cautioned that the results should be considered preliminary until additional data, analyses, and review were completed. Results of extensive statistical analyses have recently been completed as part of developing current lifecycle models for delta smelt (Maunder and Deriso 2011, Hamilton and Murphy 2018, Rose, et al. 2013, and most recently Smith, et al. 2021) that offer insight into factors effecting delta smelt, including consideration of Delta outflow, are not discussed in detail in the Draft Staff Report. In fact, the Smith, et al. (2021) lifecycle model developed by the US Fish and Wildlife Service is not even cited in the Draft Staff Report. Further, the Draft Staff Report cites Feyrer, et al. (2007, 2011) as the scientific base for a fall outflow relationship with delta smelt preferred low-salinity habitat used in the 2008 United States Fish and Wildlife Service ("USFWS") BiOp. The Draft Staff Report does not discuss, however, that the habitat-outflow relationship presented by Feyrer, et al. Further, the staff report presents a relationship between the 20 mm delta smelt index of abundance and September-December average X2 location (Figure 3.8-4 pg 3-80) as part of the scientific foundation for the fall outflow recommendation based on the Baxter, et al. (2015) analyses that the authors cautioned as preliminary and needing further data and analysis. Despite scientific controversy and recent reinitiation of consultation with	See Common Response 3.1, Fish Protection, on use of best available science, data sources and flow benefit analyses. Chapter 3, Scientific Knowledge to Inform Fish and Wildlife Flow Recommendations, is based on the 2017 Scientific Basis Report which includes peer-reviewed studies and underwent external scientific peer review. Chapter 3 of the Staff Report discusses the statistically significant relationship between spring X2, X2 during the previous fall, and the abundance of larval Delta smelt in the following spring measured by the 20-mm index (Figure 3.8-4 in Section 3.8.4.3, Fall Outflow, citing ^Baxter et al. 2015 also known as the IEP-MAST Report Figure 79). ^Baxter et al. (2015) describes that there were significant univariate relationships between the 20-mm index (larval to early juvenile abundance) and spring X2, prior fall X2, and prior FMWT abundance index. The prior fall X2 was the strongest predictor of the 20-mm index survey in the spring (^Baxter et al. 2015. The IEP-MAST report is a product of collaborative and comprehensive efforts among researchers from many resources and regulatory agencies that have gone through rigorous peer reviews (both public and academic) and revisions (IEP-MAST 2015, Appendix A). In addition, more recent papers, including Polansky et al. (2021) concluded that X2 during the previous fall is one of the most important influences on Delta smelt recruitment in the spring . Moreover, Polansky et al. (2024) found that higher Delta outflow during the summer positively affects Delta smelt survival and has the largest effect of the considered habitat factors (flow, food, temperature) on population growth rate. For more discussion of the findings of recent papers related to flow effects on Delta smelt, see Common Response 3.1, Fish Protection. References to the scientific literature have been updated in the final Staff Report, Section 3.8.4, Flow Effects on Delta Smelt.

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		USFWS regarding delta smelt, the Draft Staff Report recommends inclusion of a summer outflow (X2< 80 km in July and August) and a fall outflow in wet and above normal water years (Table 3.8-1 pg 3-79) as one element of the proposed Plan amendments.	Please see Common Response 1.3, Revised Proposed Plan Amendments, for information on the Delta outflow objectives.
268	165	[ATT 2] Chapter 3 (Non-Flow Actions Needed) Natural flows are just one of many elements that impact the quality and availability of suitable habitat and the population dynamics of aquatic species. For example, many of the main Delta tributaries have been channelized by levees that significantly alter channel geometry. Under natural channel conditions, the availability of wetted channel habitat and floodplain inundation increase in response to increased instream flows that benefit fish and other aquatic species. As shown in Figures 4 [Exhibit 10 of ATT 2] and 5 [Exhibit 11 of ATT 2], below, increasing flows in channelized reaches of the Sacramento River does not translate to habitat benefits through inundation of shallow lower velocity channel margin habitat or floodplain. The predicted effectiveness of more natural flow regimes varies substantially among rivers based on geomorphology of the channels.	The limitations of channel conditions and activating habitat through the different flow scenarios are discussed in Staff Report Section 3.14.2, Salmonid Tributary Habitat Analyses. In addition, Staff Report Chapter 4, Other Aquatic Ecosystem Stressors, discusses other aquatic ecosystem stressors including channelization. Please also see Common Response 3.1, Fish Protection, for information on the benefit analyses, including the analysis of habitat benefits.
268	166	[ATT 2: Exhibit 10: Graphic titled Figure 4. Cross section of a natural Sacramento River channel]	This exhibit was included in the comment letter. The exhibit does not raise a specific environmental impact or economic effect of the project. Refer to Common Response 1.1, General Comments, for the approach to addressing exhibits.
268	167	[ATT 2: Exhibit 11: Graphic titled Figure 5. Cross section of a channelized reach of the Sacramento River]	This exhibit was included in the comment letter. The exhibit does not raise a specific environmental impact or economic effect of the project. Refer to Common Response 1.1, General Comments, for the approach to addressing exhibits.
268	168	[ATT 2] Chapter 4 – Other Aquatic Ecosystem Stressors Section 4.4.1, p. 4-22 The Draft Staff Report states: “The altered hydrology creates	The selected sentence in Section 4.4.1, Fishes, of the 2023 draft Staff Report has been revised to clarify conclusions from the ^Bunn and Arthington (2002) study.

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		more competitively favorable conditions for spawning and rearing of nonnative species than for native organisms (Brown and Bauer 2009), suggesting that a return to a more natural hydrology may be one of the few ways of favoring native species at the expense of introduced ones (Bunn and Arthington 2002)." In reviewing the citation Bunn and Arthington 2002, it does not appear to support the claim that "a return to a more natural hydrology may be one of the few ways of favoring native species at the expense of introduced ones." Instead, this source outlines the importance of flow and impacts of altered flow regimes but does not appear to comment on the effectiveness of returning an altered hydrograph back to a more natural hydrograph and if that will decrease introduced species after they have already been established. In relevant part, Bunn and Arthington 2002 provides that "[c]urrently, evidence about how rivers function in relation to flow regime and the flows that aquatic organisms need exists largely as a series of untested hypotheses. To overcome these problems, aquatic science needs to move quickly into a manipulative or experimental phase, preferably with the aims of restoration, and measuring ecosystem response." The statements on pg. 4-22 of the Draft Staff Report should be revised because the study does not suggest "that a return to a more natural hydrology may be one of the few ways of favoring native species at the expense of introduced ones." Alternatively, the citation should be deleted.	
268	169	[ATT 2] Section 4.5.2, p. 4-30 The Draft Staff Report states: "Recent reviews and evaluations of these hatchery programs (California Hatchery Scientific Review Group 2012 and Hatchery Genetic Management Plans) have led to a number of proposed strategies or recommended changes in hatchery policies and management to address these impacts and assist in the conservation and recovery of listed evolutionary significant units and distinct population segments and other naturally spawning Chinook salmon populations. These recommendations include marking hatchery-produced fish to	The commenter raises minor suggestions for additional information to be included in the final Staff Report that is not significant to the Staff Report analyses or its conclusions. Therefore, the suggested revisions to the 2023 draft Staff Report are not warranted. Please see Common Response 1.1, General Comments, for responses to comments that make general comments, do not raise specific environmental impacts of the project, or do not raise specific economic effects of the project.

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		distinguish them from naturally spawned individuals, examining the role and contribution of existing hatchery production to overall population abundance, and maintaining genetic diversity and integrity of different runs.” The Draft Staff Report should be revised to recognize the work that has been done in rivers/tributaries both before the review and in response to the review. Additionally, the Draft Staff Report should describe its recommendations with more specificity. The cited review of hatchery programs did not recommend a blanket marking approach to hatchery-produced fish to distinguish them from naturally spawned individuals. Instead, it offered specific recommendations of the amount of marking that should occur: “For Chinook salmon mitigation/harvest programs, the California HSRG recommends tagging 100 percent of hatchery-released fish with CWT plus marking 25 percent of hatchery-released fish by adipose fin-clip.” “For Chinook salmon conservation-oriented programs (winter run Chinook salmon produced at Livingston Stone Hatchery), the California HSRG recommends 100 percent CWT plus 100 percent adipose fin-clip marking and tagging.”	
268	170	[ATT 2] Chapter 5 – Proposed Changes to the Bay-Delta Plan for the Sacramento/Delta Sections 5.4.2.1 and 5.4.2.2, pp. 5-13 – 5-15 With respect to certain Sacramento/Delta tributaries, the Draft Staff Report states that “some of these tributaries may dry up at times of year, affecting native fish and wildlife due to the lack of flow requirements; and other tributaries may have inadequate flow and water quality conditions to protect fisheries resources.” (Draft Staff Report at p. 5-14.) In response, the proposed action would include a requirement for year-round inflows in the Sacramento/Delta tributaries. (Ibid.) However, the Draft Staff Report does not provide any analysis to demonstrate that it is feasible to satisfy minimum instream flow and water quality conditions year-round in all Sacramento/Delta tributaries, particularly during consecutive drought years.	SacWAM includes existing requirements and thus demonstrates that it is possible to meet existing obligations in addition to the new instream flow requirements that would be added by each of the flow scenarios, including during consecutive drought years. Section A1.12.10, Unmet Instream Flow Requirements, in Appendix A1, Sacramento Water Allocation Model Methods and Results of the Staff Report demonstrates that, with infrequent exceptions, both existing regulatory flow requirements and new Sacramento/Delta unimpaired flow requirements can be met in most scenarios.

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268	171	[ATT 2] Section 5.6.1.3, pp. 5-56 – 5-57 The Draft Staff Report highlights numerous uncertainties and information gaps associated with implementation of the numeric unimpaired flow requirement. Specifically, it has not developed any method to “determine required stream-flows under the proposed Plan amendments.” (Draft Staff Report p. 5-56.) Specifically, the “proposed program of implementation would include provisions for development of methods to determine unimpaired flow and required flow levels for applicable tributaries and the Delta, including methods to estimate and account for losses to groundwater and riparian vegetation, including floodplain inundation. The program of implementation also would include provisions for forecasting.” (Ibid.) These statements demonstrate that the significant uncertainties associated with implementation of the proposed Plan amendments. In comparison, the VA alternative does not involve these major uncertainties. Historically, estimates of unimpaired flow have been very difficult to quantify and were only intended to provide a rough comparison to historical observed flows on a seasonal timescale. In the past, estimates of unimpaired flow were calculated well after the runoff season was over. Implementation of the proposed Plan amendments will require the unimpaired flow objective to be implemented in real time, requiring significant new investment in monitoring and gaging (with no assurance that adequate monitoring will occur). Computing these unimpaired flows in real time, on a daily basis, is unproven for the purpose of regulatory compliance. Factors that make it difficult to quantify unimpaired flows include: limited number of gaging locations, uncertainty regarding snowmelt runoff dynamics, uncertainty about total number of small and medium diversions and return flows in the system, and uncertainty about stream-groundwater interaction. The Draft Staff Report does not suggest that it will be feasible to resolve these uncertainties in the timeframe required for implementation.	Chapter 5, Proposed Changes to the Bay-Delta Plan for the Sacramento/Delta, does not state the State Water Board has not developed any method to determine required stream flows under the proposed Plan amendments. Instead, it states that methods would be needed to determine required streamflows under the proposed Plan amendments. Please see Common Response 1.3, Revised Proposed Plan Amendments, for information on the implementation methodology.

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		In contrast to the proposed Plan amendments, the operations and actions outlined in the VA alternative are better defined and understood, are closer to the range of historic operations.	
268	172	[ATT 2] Section 5.6.1.4, pp. 5-63 5-64 Section 5.6.1.4 discusses developing SMART (specific, measurable, achievable, relevant, and time-bound) quantitative measurable biological goals that would be developed to evaluate performance of the proposed Plan amendments. (Draft Staff Report at pp. 5-63 – 5-64.) Because quantitative biological goals (e.g., abundance, productivity, genetic and life history diversity, population spatial extent, distribution, structure, and quantity of spawning, rearing, and migration habitat, juvenile production, and juvenile outmigrant survival) have not been developed, it is not clear how any analysis was performed to determine that the proposed Plan amendments will meet the objectives of the Bay Delta Plan Update or provide a reasonable level of protection for fish and wildlife. In addition, the Draft Staff Report does not discuss how these SMART objectives will be applied to evaluating performance of the proposed Plan amendments. For example, if the population of a target fish species does not meet the quantitative biological goal, what tools will the State Water Board use to determine whether the cause was insufficient instream flow or other stressors that are outside the control of the proposed action (e.g., insufficient quantity and quality of physical habitat, bioaccumulation of contaminants, poor ocean productivity and food supplies, etc.)?	Projected benefits of the proposed Plan amendments, including quantified benefits, are described in Chapter 3, Scientific Knowledge to Inform Fish and Wildlife Flow Recommendations, and Chapter 4, Other Aquatic Ecosystem Stressors, of the 2023 Draft Staff Report and in Common Response 3.1, Fish Protection. Please see Common Response 1.2, Water Quality Control Planning Process, for information on the reasonable protection of fish and wildlife. Biological goals would be developed through a subsequent public process and specific details regarding the analytical methods will be available when they are developed. Please see Common Response 1.3, Revised Proposed Plan Amendments, for more information on biological goals.
268	173	[ATT 2] Chapter 5 (Balancing Beneficial Uses) The Draft Staff Report notes that the proposed Plan amendments are intended to maximize the benefits of flows in protecting native fish and wildlife in a reasonable manner with protection for other beneficial uses (with the exception that p. 5-19 reports a balancing goal is to provide minimum health and safety water supplies in drought years). (Draft Staff Report at p. 5-10.)	See Common Response 1.2, Water Quality Control Planning Process, on consideration of beneficial uses.

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		Balancing competing water allocations for a variety of beneficial uses implies that the proposed Plan amendments are intended to provide a reasonable level of protection for sensitive fish and other aquatic species inhabiting the Bay-Delta estuary. The Draft Staff Report does not appear to balance competing beneficial uses of the available water supply but rather identifies actions that maximize fish benefit (Draft Staff Report at pp. 5-19, 5-20, 5-31, 7.6.2-54) and optimize flows for fisheries protection (Id. at 7.6.2-99). The Draft Staff Report does not clearly describe the balancing done to achieve a reasonable level of protection for sensitive aquatic species. The proposed Plan amendments require annual operations plans be developed for State Water Board approval that avoid or minimize any potential adverse impacts of reservoir operations on recreation, terrestrial species, aesthetics, power generation, cultural, and other environmental resources but omits adverse impacts on water supplies. (Draft Staff Report at p. 5-24.) The Draft Staff Report should be revised to include more explicit consideration regarding other beneficial uses of water and how to optimize flows for fisheries protection while protecting other existing and future beneficial users of water, as required by the Porter-Cologne Act.	
268	174	[ATT 2] Chapter 6 – Changes in Hydrology and Water Supply MBK Engineers has prepared a technical review of the Draft Staff Report and associated modeling. The MBK report provides useful information the State Water Board should consider. A copy of MBK's report will be submitted together with the comments by other water agencies, and hence the Water Authority and its Member Agencies will not submit another copy. The MBK Report confirms that the information and analysis in the Draft Staff Report does not support adoption of the proposed Plan amendments. In summary, MBK's technical review: (1) compares the VA alternative with the proposed Plan amendments; (2) summarizes independent modeling of the VA alternative done by	Please see Common Response 1.1, General Comments, for responses to comments that make general comments, do not raise specific environmental impacts of the project, or do not raise specific economic effects of the project. To the extent that this comment summarizes topics discussed in more detail in other comments contained in this letter, please see the substantive responses to those comments.

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		the Department of Water Resources using the CalSim 3.0 model; (3) describes the unavoidable impacts caused by unimpaired flow based requirements, such as are included in the proposed Plan amendments; (4) describes key information that is missing from the Draft Staff Report, including the effects of climate change that will exacerbate the consequences of unimpaired flow based requirements; and (5) provides a technical review of the SacWAM modeling. More detail on the analysis supporting these findings is included in MBK's report.	
268	175	[ATT 2] Key findings in MBK's report include: The VA alternative provides more benefits with less impacts than the proposed Plan amendments.	Please see Common Response 1.1, General Comments, for responses to comments that make general comments, do not raise specific environmental impacts of the project, or do not raise specific economic effects of the project.
268	176	[ATT 2] Key findings in MBK's report include: Separate modeling of the VA alternative, performed by DWR, wherein the regulatory requirements remain consistent with those in the DWR baseline, show significantly more Delta outflow with the VA alternative as compared to results set forth in the Draft Staff Report.	Please refer to Common Response 6.2, Baseline and No Project Alternative, for comments that raise issues about baseline assumptions. Please also see Common Response 6.1, Sacramento Water Allocation Model and Changes in Hydrology and Water Supply, for a discussion about SacWAM VA scenario assumptions.
268	177	[ATT 2] Key findings in MBK's report include: The SacWAM modeling underestimates the water supply impact that would occur to south of Delta CVP contractors under the proposed Plan amendments because it does not accurately represent how the Bureau of Reclamation allocates shortages under its existing policies and contracts.	Please see Common Response 6.1, Sacramento Water Allocation Model and Changes in Hydrology and Water Supply, for response to comments regarding modeling of CVP allocations.
268	178	[ATT 2]	Please see Common Response 4.2, Drought and Climate Change, regarding the consideration of climate change in the Staff Report.

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		Key findings in MBK's report include: The unimpaired flow approach in the proposed Plan amendments will exacerbate the adverse effects of climate change, but the analysis in the Draft Staff Report does not account for climate change.	
268	179	[ATT 2] Key findings in MBK's report include: The Draft Staff Report lacks a plan for implementing the unimpaired flow approach in combination with the proposed cold water habitat objective.	Please see Chapter 5, Proposed Changes to the Bay-Delta Plan for the Sacramento/Delta, of the 2023 draft Staff Report for information on the implementation of the inflow and cold water habitat objectives. Please also see Common Response 1.3, Revised Proposed Plan Amendments, for further information on implementation of the revised proposed Plan amendments.
268	180	[ATT 2] Key findings in MBK's report include: The lack of an implementation plan and the wide range of potential actions for the proposed Plan amendments make it extremely difficult to understand the impacts of the proposed Plan amendments on reservoir operations, river flows, water deliveries, and Delta outflow.	Please see Common Response 1.3, Revised Proposed Plan Amendments, for details on the revised proposed Plan amendments' program of implementation. The draft Bay-Delta Plan released in October 2024 and the revised drafts released in July and December 2025 each contain a program of implementation describing how the Plan updates would be implemented.
268	181	[ATT 2] Key findings in MBK's report include: The Draft Staff Report does not provide information on the impacts of the proposed Plan amendments during multi-year drought periods.	Please see Common Response 1.1, General Comments, for responses to comments that make general comments, do not raise specific environmental impacts of the project, or do not raise specific economic effects of the project. To the extent that this comment references other comments, please see the substantive responses to those comments. See also Common Response 4.2, Drought and Climate Change, for responses to comments that raise issues with the analysis of multi-year droughts in the Staff Report.
268	182	[ATT 2] Key findings in MBK's report include: The Draft Staff Report provides discloses the results of quantitative analysis of the effects of only one of the "modular" alternatives, despite acknowledging they may have significant impacts.	The 2023 draft Staff Report described the modular alternatives in Section 7.2, Description of Alternatives, with sufficient detail for the purposes of the analysis. These alternatives were adequately analyzed in Sections 7.24.5, Modular Alternatives for Interior Flows/Fall Delta Outflow (Alternatives 4a, 4b, and 4c), and 7.24.6, Modular Drought Alternatives (Alternative 5a and 5b), of the 2023 draft Staff Report. Please see Common Response

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			7.24, Alternatives Analysis, for more information on the description and analysis of the alternatives.
268	183	[ATT 2] Key findings in MBK's report include: Differences in how the unimpaired flow requirements and narrative cold water habitat objective are modeled on different river systems within the Sacramento Valley result in disproportionate impacts within the Sacramento Valley, North and South of Delta, and between the CVP and SWP.	As discussed in Chapter 2, Hydrology and Water Supply, of the Staff Report, some tributaries are more impaired than others and therefore require greater increases in streamflow from baseline to meet the unimpaired flow requirements, affecting diversions differently for different tributaries. Please see Common Response 6.1, Sacramento Water Allocation Model and Changes in Hydrology and Water Supply, regarding CVP allocations and obligations. Additionally, some reservoirs are currently operated closer to the carryover storage values estimated to protect cold water habitat under the existing conditions than other reservoirs. As a result, less of a change is required on the tributaries where these reservoirs are located, and therefore the impacts may be smaller.
268	184	[ATT 2] Chapter 7 – Environmental Analysis Section 7.1, p. 7.1-5; Section 7.2, p. 7.2-10 The Draft Staff Report states that: In addition, specific proposed changes to the interior Delta flow objectives include new and modified numeric objectives. For the most part, the proposed changes to the interior Delta flow objectives and implementation measures involve the addition of existing BiOp and ITP requirements into the Bay-Delta Plan, including requirements contained within the USFWS and National Marine Fisheries Service BiOps and California Fish and Wildlife ITP. While these requirements already exist, it is possible that they will change. To avoid undue complexity in an already complex regulatory regime, these measures are proposed to be built on existing requirements and implemented in an integrated fashion with the BiOps and ITP. In so doing, implementation of the objectives is proposed to rely on the existing BiOp and ITP processes, including monitoring, evaluation, coordination, and review processes, with the	The revised proposed Plan amendments include provisions for annual and periodic review that would enable updates to the Plan or implementation measures in response to evolving scientific understanding. Please see Common Response 1.3, Revised Proposed Plan Amendments, for more information on the interior Delta flow requirements and annual and periodic review provisions in the revised proposed Plan amendments.

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		incorporation of the State Water Board into these processes. In the event of changes to the BiOps and ITP, as discussed further in Chapter 5, Proposed Changes to the Bay-Delta Plan for the Sacramento/Delta, the proposed implementation measures would provide flexibility to adjust the requirements as appropriate. (Draft Staff Report at pp. 7.1-9 – 7.1-10.) It also states that: However, removal of the export constraints based on San Joaquin River inflows could have a larger effect if those provisions are not maintained into the future, with greater effects at lower flow levels. Accordingly, this alternative largely evaluates removal of the new I:E provisions from the proposed Plan amendments and other flow alternatives. (Id., at p. 7.2-10.) The Draft Staff Report should not incorporate the Fall Delta Outflow Objective, I:E provisions, or other BiOp- or Incidental Take Permit (“ITP”)-related provisions into the proposed Plan amendments because these requirements will change over time in response to the best available science. There is no indication that the Bay-Delta Plan can be easily or quickly changed or amended to address future changes to BiOp or ITP related provisions. Instead, future changes to BiOp or ITP related provisions will result in conflicts and confusion regarding implementation of the proposed Plan amendments. Additionally, USFWS, NMFS, and CDFW are currently faced with a number of scientific uncertainties with respect to existing provisions of the BiOps and ITP and need to maintain future flexibility as new scientific information is generated and applied through the adaptive management process. As a result, consistent with Alternative 4a, the State Water Board should not incorporate BiOp- or ITP-related provisions into the proposed Plan amendments.	
268	185	[ATT 2] Section 7.1, p. 7.1-8	As described in page 5-10 of the 2023 draft Staff Report “Absent successful voluntary implementation plans, default provisions for implementing the proposed Plan amendments would apply, and the State Water Board would proceed to implement the Plan

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		The Draft Staff Report states that there would be two potential pathways to implementation of the cold water habitat provisions, voluntary or default implementation. Presumably, “default” implementation refers to actions directed by the State Water Board, as opposed to by the reservoir operators. If the State Water Board anticipates that “default” implementation will be required, then it should have evaluated the methods for default implementation that it is proposing. Additionally, the State Water Board does not provide justification for omitting any discussion of details regarding “default” implementation (which does not include actions by third parties) as compared to “voluntary” implementation (which does require action by third parties).	in the most efficient and effective manner possible using its various water quality and water right authorities.” The proposed Plan amendments and all alternatives in the Staff Report have been fully evaluated. The commenter has not provided details on which specific default implementation methods they believe were not evaluated in the Staff Report. For each proposed new objective with the opportunity for voluntary implementation, there is included in Chapter 5, Proposed Changes to the Bay-Delta Plan for the Sacramento/Delta, of the 2023 draft Staff Report a discussion of default and voluntary implementation so it is unclear which details the commenter believes are missing.
268	186	[ATT 2] Section 7.2 The Draft Staff Report lists and analyzes both stand-alone and “modular” alternatives that could be layered onto one or more of the stand-alone alternatives, including the VAs alternative. Of the stand-alone alternatives, the Water Authority and its Member Agencies support the VA alternative. The Water Authority and its Member Agencies oppose Alternative 3, the “High Flow” alternative, because it retains all the flaws of the proposed Plan amendments but worsens water supply impacts by requiring even higher inflows to the Delta. Alternative 2, the “Low Flow” alternative, would have lesser water supply impacts but still is lacking the benefits including from non-flow measures that the VA alternative would provide.	Please see Common Response 1.1, General Comments, for responses to comments that make general comments, do not raise specific environmental impacts of the project, or do not raise specific economic effects of the project.
268	187	[ATT 2] The “modular” alternatives are numbered 4a, 4b, 4c, 5a and 5b. The Draft Staff Report provides that “Alternatives 4a, 4b, and 4c could be adopted in combination with the proposed Plan amendments or other flow alternatives. Alternatives 5a and 5b could be adopted in combination with the proposed Plan amendments, other flow alternatives, or the Proposed VAs.” (Draft Staff Report at p. 7.2-3.) The modular alternatives should	The State Water Board was not a signatory to the VA MOU and is not bound by its terms. The alternatives were fully analyzed in Section 7.24, Alternatives Analysis, and Chapter 9, Proposed Voluntary Agreements, of the 2023 draft Staff Report. Please see Common Response 7.24, Alternatives Analysis, for a discussion of the modular alternatives.

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		not be added to any of the stand-alone alternatives. As an initial matter, the modular alternatives were not modeled, or at least the Draft Staff Report does not disclose the results of any modeling. Even if the modular alternatives were modeled, they could not be added to any of the alternatives without modeling the combined alternative, as there could be significant effects related to the combining of alternatives. The combined effect of any modular alternative and any of the other alternatives could have a significant impact on the environment. Moreover, adding the modular alternatives to the Vas alternative could undermine the Vas alternative such that it is no longer reflective of the parties' understanding and intent expressed in their respective MOU, and for that additional reason should not be paired with the Vas alternative.	
268	188	[ATT 2] In addition, the best available science does not support the adoption of any of the modular alternatives. [Footnote 37: While it is possible that Alternative 4a, the "Exclusion of Interior Delta Flow and Fall Delta Outflow Related Amendments Alternative," could avoid duplication of or inconsistency with requirements imposed on CVP and SWP operations pursuant to the federal Endangered Species Act (ESA) in the BiOps, or on SWP operations only under the California Endangered Species Act (CESA) in the ITP applicable to SWP operations, Alternative 4a was not modeled, and would be of no real effect, since the CVP and SWP are already required to comply with requirements of the federal ESA and CESA, respectively.] The San Joaquin River I:E ratio (excluded from Alternative 4a, included in Alternative 4c) is not currently imposed on CVP or SWP operations in the 2019 BiOp issued pursuant to the ESA, but is a requirement imposed on the SWP in the ITP issued under CESA. The Draft Staff Report notes that adopting the I:E ratio as a Plan amendment would result in a significant loss of water supply to regions south of the Delta. (Draft Staff Report at pp. 7.24-38 to 39.) According to the estimates in Table 7.24-5, omitting the I:E ratio from the proposed Plan amendments would reduce the loss of CVP water supplies by an average of 76 TAF across all year types, and by 122 TAF for the CVP and SWP combined if the I:E ratio were also eliminated from the ITP.	Modular alternatives were described in Section 7.2, Description of Alternatives, and were analyzed in Section 7.24, Alternatives Analysis of the Staff Report. Please see Common Response 7.24, Alternatives Analysis, for more information on the description and analysis of alternatives. ^Buchanan et al. (2021) found that the through-Delta survival (head of Old River to Chipps Island) of juvenile steelhead was affected by year, barrier (Head of Old River Barrier [HORB]), and fork length at tagging. They found that survival from head of Old River to Chipps Island would be higher with higher SJR inflows, when the HORB was installed, and for larger fish. Further, survival was positively related to the SJR inflow, negatively related to temperature, positively related to I:E ratio, and negatively related to X2 when the effects of year, barrier, and fork length were accounted for. In addition, the project has been revised. Please see Common Response 1.3, Revised Proposed Plan Amendments, for information on interior delta flow requirements in the revised proposed Plan amendments. Please see Common Response 1.2, Water Quality Control Planning Process, on the consideration of beneficial uses.

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		As discussed elsewhere in these comments, the I:E ratio is not scientifically supported as a management tool. The I:E ratio was originally adopted in the 2009 BiOp as a measure to protect juvenile steelhead emigrating from the San Joaquin River. The Buchanan, et al. (2021) studies have since demonstrated that the rate of exports does not affect survival of juvenile steelhead migrating from the San Joaquin River. (Buchanan, et al. (2021) Exhibit 1 [ATT 1 of ATT 2] at pp. 1882-1883.) While the rate of San Joaquin River inflow to the Delta may be important to survival, the rate of exports is not. The I:E ratio is flawed because it combines two factors, one which is not important to survival (exports) and a second one that may be (inflow). Imposing the I:E ratio is also inconsistent with the reasonable protection and balancing required by the Porter-Cologne Act, because it would restrict exports and hence water supply without providing benefits to survival of out-migrating fish. To the extent the I:E ratio is rationalized as a way to reduce entrainment at the export pumps, there are other existing restrictions based on Old and Middle River (“OMR”) flows that directly address entrainment. The I:E ratio is the wrong tool for addressing entrainment.	
268	189	[ATT 2] Alternative 4c, the “Extended Export Constraint Alternative,” would expand the period the I:E ratio is in effect to five months, from February through June. The proffered scientific justification for the measure is to benefit native fish by restoring “more natural” inflow from the San Joaquin River to the Delta. (Draft Staff Report at pp. 7.2-11, 7.24-43, 7.24-45, 3-53.) This “more natural” justification is exceedingly weak. The Draft Staff Report cites no scientific studies suggesting that the resulting difference in flows within the Delta would provide any meaningful benefit to native fish. There are many reasons to believe it would not. Even assuming relatively more inflow from the San Joaquin River would be more “natural” in the sense that it would more closely resemble pre-development conditions, much besides inflow from the San Joaquin River to the Delta has changed over the last two hundred years. For example, the Delta has been channelized, resulting in massive losses of tidal wetlands and marshes. Tidal wetlands in the Delta are now 3% of the acreage they were	Please see the 2023 draft Staff Report, Section 3.2.1, Riverine Flows, which cites studies describing benefits of more natural inflows to native fish that reside and/or migrate through the Delta. As described in Section 3.2.4, Interior Delta Flows and Entrainment, more natural inflow from the San Joaquin River is important because Project facilities usually export much more water than the median flow on the San Joaquin River, so most of the Delta is filled by water from the Sacramento River and its tributaries, obscuring and confusing the chemical and flow cues that San Joaquin salmonids use to reach the ocean and spawning grounds. Also see Section 2.1.1, Natural and Unimpaired Flow, which acknowledges that native species now inhabit an altered landscape and describes the differences between natural and unimpaired flow. Alternative 4c, Extended Export Constraint Alternative, was adequately analyzed in Section 7.24, Alternatives Analysis, of the 2023 draft Staff Report. See also Common Response 7.24, Alternatives Analysis, for more information on the analysis of alternatives.

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		before the Gold Rush. (Draft Staff Report at p. 4-4.) Further, non-native species now predominate within the Delta. “It has been acknowledged by the scientific community that the Bay-Delta estuary has become a novel ecosystem given all the nonnative introductions (Moyle et al. 2012).” (Id. at p. 4-22.) And movement of water within the Delta is largely determined by the tides, not by inflow. “Because it is a tidal environment, water in Delta channels flows both landward and seaward twice each day. The flow volumes of fresh water from the rivers entering the Delta are generally two or three orders of magnitude less than tidal flows.” (Id. at p. 3-11.) “At channel junctions dominated by tidal influence (interior Delta channels), river inflow and diversions had relatively small effects on predicted fish routing because of the large influence of tidal action on the direction and volume of flow.” (Id. at 3-45.) The notion that partially restoring “more natural” inflow from the San Joaquin River relative to the Sacramento River or other tributaries will benefit native fish within the Delta is simply speculation. Against such speculative benefit for native fish the State Water Board must weigh the likely massive water supply impacts from restricting exports based on the I:E ratio for the five months from February through June. In a narrative discussion at pages 7.24-45 and 7.24-46, the Draft Staff Report acknowledges Alternative 4c would significantly reduce water supply. It states “the water supply impacts of this alternative would be very significant and may not be considered reasonable, particularly in combination with the water supply impacts from the flow alternatives.” (Id. at p. 7.24-46.) The Draft Staff Report does not disclose the quantity of those water supply reductions. If Alternative 4c is to be given any further consideration, those water supply impacts must be quantified and disclosed, in addition to the myriad environmental impacts that would be caused by such a “very significant” loss of water supply. In sum, there is no substantial evidence presented in the Draft Staff Report that would support adoption of Alternative 4c.	
268	190	[ATT 2] Alternative 5a (Instream Flow Protection Provision Alternative) would require water diverters (in addition to DWR and	Please see Common Response 1.1, General Comments, for responses to comments that make general comments, do not raise specific environmental impacts of the project, or do not raise specific economic effects of the project.

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		Reclamation) to bypass water needed to meet existing water quality objectives during drought circumstances similar to existing standard water right Term 91; Alternative 5b (Shared Water Shortage Provision Alternative) would require all water users to reduce their use during drought conditions. There is a critical need to protect limited available water supplies in times of drought, consistent with water rights. Assuming water rights are respected, the Water Authority and its Member Agencies would welcome additional efforts by the State Water Board to prevent unlawful diversions in times of drought.	
268	191	[ATT 2] Section 7.4 The Draft Staff Report should be updated to more fully evaluate and disclose economic (and related environmental) impacts of the proposed Plan amendments to export reductions. The Draft Staff Report should be updated to describe and include reference to the Shires study conducted for Westlands Water District (See https://wwd.ca.gov/wpcontent/uploads/2022/03/economic-impact-report-2022-update.pdf), which demonstrates that poverty rates are tied to water allocations, as well as the Sunding study conducted for the Water Blueprint for the San Joaquin Valley, which correlated water supply reductions to reduced economic output in various geographic regions of the San Joaquin Valley (see https://waterblueprintca.com/wp-content/uploads/2021/09/Blueprint.EIA_PhaseOne.2.28-v41.pdf). In comparison to the proposed Plan amendments, the VA alternative would cause less harm to local economies and communities.	The Staff Report appropriately evaluates agricultural impacts and agricultural economic effects that could occur under the flow scenarios, and provides estimates of the changes in crop acreage and crop revenue and regional economic effects using the best available information. Please see the response to comment 268-63 for information on the SWAP model. In addition, the Staff Report acknowledges that changes in agricultural production could result in additional economic effects that affect total industry output (sales), income, and employment that are evaluated using the IMPLAN Input-Output modeling system. These results are presented in Chapter 8, Economic Analysis and Other Considerations, and Appendix A4, Regional Economic Analysis Modeling Procedure. Please see Common Response 8.1, Economic Analysis and Other Considerations, for response to comments concerning the two referenced reports (Shires 2022; Sunding and Roland-Holst 2020). The suggested revisions to the 2023 draft Staff Report are not warranted.
268	192	[ATT 2] Section 7.4, pp. 7.4-8 – 7.4-10, 7.4-61, 7.4-92 Reliance on groundwater pumping data from 2005-2015 is a skewed representation of baseline pumping, and it is not reasonable to assume that same level of groundwater pumping will continue. The baseline water supply data summarized on pages 7.4-8 - 7.4-10 demonstrates that the Draft Staff Report used average water supply data from years prior to SGMA	The SWAP modeling analysis does not rely on groundwater pumping data specifically from 2005-2015. The Staff Report describes the existing water supply in each study area geographic region based on historical water deliveries data for the period of 2005-2015 and estimates of Sacramento/Delta supply from SacWAM results. The historical water deliveries data convey the overall magnitude of the average water supply available to each region and sector (i.e., agriculture, municipal, managed wetland uses) and are summarized in Table 2.8-1 and Table 2.8-2, but these values are not used to inform the SWAP

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		implementation, including 2014 and 2015 – drought years that saw major spikes in groundwater pumping. By using a higher groundwater pumping baseline, the modeling results cannot accurately represent the likely effects to agricultural productivity associated with diminished water supplies. This is particularly true for the San Joaquin Valley, which relies heavily on groundwater for agricultural water supply during years of reduced surface water supplies. The Draft Staff Report assumes that current agricultural groundwater use in the San Joaquin Valley is 9,034,000 AFA (65% of all groundwater used for agriculture in the state), however, this assumes that pumping has remained consistent since SGMA implementation. Furthermore, the “maximum replacement groundwater pumping scenario” and the “no replacement groundwater pumping scenario” are both unrealistic because they do not account for several factors that will reduce availability of groundwater supplies. The Draft Staff Report admits that the “maximum replacement” groundwater scenario is unrealistic; this is particularly true because it results in projections that there will be no impacts to agriculture. Even the no replacement groundwater scenario that maintains pumping at historic levels in the San Joaquin Valley is unrealistic because the Draft Staff Report admits that the entire region would experience a reduction in physical availability of groundwater through implementation of the proposed Plan amendments.	estimated changes in crop acreage presented in Section 7.4, Agriculture and Forest Resources. Historical water deliveries data is also summarized in other locations in the Staff Report, including Tables 7.4-1 and 7.4-2 on page 7.4-9. These data are based on evaluation of historical water deliveries data from DWR’s 2018 California Water Plan and other sources. The methods used to obtain the historical water deliveries data estimates are described in Appendix A1b, Methodology for Estimating Existing Water Supply from Historical Water Deliveries Data. As discussed in Appendix A3, Agricultural Economic Analysis: SWAP Methodology and Modeling Results, the replacement groundwater pumping range is represented by two bookends: maximum replacement groundwater pumping and no replacement groundwater pumping—to evaluate the potential economic effects of reduced surface water supplies on agriculture. Under no replacement pumping, groundwater would not be used to replace reductions in surface water deliveries. As such, each SWAP production region is limited to the SWAP model estimated pumping levels for average water years under baseline conditions. Under maximum replacement groundwater pumping, regional groundwater limits for the Sacramento Valley are set at the highest estimated annual pumping levels as estimated by SacWAM. For the SWAP production regions not covered by SacWAM, default SWAP groundwater limits representing 2014 estimated groundwater pumping capacities are applied. See Common Response 7.4, Agricultural Resources, for additional information on the groundwater bookends used in the analysis. The Staff Report appropriately evaluates agricultural impacts that would occur under the flow scenarios, and provides estimates of the changes in crop acreage using the best available information. As discussed in Section 7.4, Agriculture and Forest Resources, the SWAP model is used to evaluate the agricultural impacts from the change in water supply. See the response to comment 268-63 for information on the SWAP model. Please see the response to comment 268-65 for further discussion on the no replacement groundwater pumping bookend used in the SWAP analysis.

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268	193	[ATT 2] Section 7.4, pp. 7.4-55 – 7.4-56 The Draft Staff Report aggregates alternative available supplies throughout the entire San Joaquin Region to support the conclusion that a proposed Plan amendments would only result in a 2% reduction in total water supply. This approach masks impacts to junior water rights holders, such as CVP agricultural water service contractors, who experience greater cuts to water supplies in times of shortage and have less reliable access to replacement supplies. The Draft Staff Report’s evaluation of water supply impacts from the proposed Plan amendments to agricultural users in the San Joaquin Valley should be revised to evaluate the availability of replacement water supplies on the district and sub-regional level, as opposed to the current approach which aggregates replacement water supplies on a regional level.	The analysis presented in Section 7.4, Agriculture and Forest Resources, appropriately analyzes potential impacts on agriculture. Given the inherent uncertainties involved in modeling agricultural impacts, the Staff Report uses a reasonable and conservative approach to evaluating potential agricultural impacts of the flow scenarios. Please see the response to comment 268-63 for information on the SWAP model and analysis of impacts on agriculture. The Staff Report acknowledges that crop acreage changes would not be uniform across the entire San Joaquin Valley, as they will depend on a number of different economic and other factors, including the priority of individual water right diversions, availability of local supplies, and other factors. Crop acreage reductions as modeled in SWAP for some subregions are more pronounced than for other subregions in the San Joaquin Valley region. Overall, the Staff Report concludes that changes in water supply could lead to removing important farmland from irrigation in the San Joaquin Valley region and, as a result, to conversion of agricultural land to nonagricultural uses. The impact would be potentially significant. The State Water Board is not required to evaluate impacts on every individual water user within the study area. However, in addition to providing results for the San Joaquin Valley region as a whole, the analysis in Section 7.4, Agriculture and Forest Resources, characterizes the anticipated range of potential effects on irrigated agriculture for three smaller geographic areas within the San Joaquin Valley: Western San Joaquin Valley, Southern San Joaquin Valley, and CVP Friant Division service area.
268	194	[ATT 2] Section 7.6.1, p. 7.6.1-56 The Draft Staff Report states that: “Changes in Delta outflows that would occur as a result of the proposed Plan amendments would provide for more natural salinity conditions in Suisun Marsh, which would likely benefit special-status plant and wildlife species in Suisun Marsh. Changes would likely benefit	Please see Common Response 7.1, General CEQA and Approach to the Analysis, for a discussion regarding the approach to the analyses. The 2023 draft Staff Report, Chapter 3, Scientific Knowledge to Inform Fish and Wildlife Flow Recommendations, contains more information on the supporting science regarding flows to support native species and habitat that informs the proposed Plan amendments, including the scenarios for proposed Delta

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		special-status plant species including but not limited to, soft bird's-beak, Suisun thistle, Delta tule pea, Mason's lilaeopsis, Delta mudwort, and Suisun Marsh aster. These changes also would likely benefit special-status wildlife, including but not limited to, California black rail, California Ridgway's rail, saltmarsh common yellowthroat, Suisun song sparrow, salt-marsh harvest mouse, and Suisun shrew. The proposed flow requirements also would complement the planned tidal marsh restoration and management and enhancement of managed wetlands, including those actions identified under the Suisun Marsh Habitat Management, Preservation, and Restoration Plan (Reclamation, et al. 2013). The restoration activities in Suisun Marsh are expected to create more saline areas in the western portion of the marsh, allowing for restored areas in the eastern portion of Suisun Marsh to remain fresher." The Draft Staff Report should be amended to provide evidence for this statement and cite relevant source material for that evidence. While the species identified above have evolved with exposure to high water levels from high fluvial flows and tidal flooding, if water levels ramp up, then these tidal marsh species would move to higher ground and refugia in vegetation to avoid predation. However, if these flows occur before habitat restoration actions can be implemented, then there could be a negative impact to the species due to a lack of cover and/or suitable marsh habitat that are associated with more saline conditions (e.g., the California Ridgway's rail). Depending on the frequency, duration, and magnitude of the increases in water surface elevations (due to increased delta outflows, climate change, or those events occurring with a high tide event) an increase in delta outflows could increase predation events on salt marsh harvest mouse. The State Water Board should not consider action to adopt the proposed Plan amendments (or any unimpaired flow regime) before a quantitative analysis is undertaken.	inflows and outflows. In the 2023 draft Staff Report, the conclusions presented from changes in Delta inflows and Delta outflows are based off of SacWAM results which indicate that under the flow requirements (45 to 65 scenarios), Delta inflows would generally increase during December through June and generally decrease in July through September. The impact analysis for freshwater and tidal marshes under TER-a in Section 7.6.1.4, Impact Analysis, discusses how changes in Delta inflows and Delta outflows would more closely resemble the natural flow regime to which native species have adapted and would be expected to generally improve habitat conditions for tidal freshwater marsh species in the Delta and Suisun Marsh. The impact analysis also provides that a more natural flow regime and resulting more natural salinity conditions would be expected to support natural processes such as sediment deposition and marsh accretion and may benefit special-status plant and wildlife species in these habitats. Additionally, the impact analysis under TER-b and TER-c (combined and addressed together), discusses how changes in Delta inflows and Delta outflows could change the balance of fresh water and brackish water in and near the Delta and Suisun Marsh; however, this change would not result in adverse effects on wetland and natural communities but rather some potential conversion from one natural community type to another. The Reclamation et al. (2013) citation refers to the Suisun Marsh Habitat Management, Preservation and Restoration Plan (Suisun Marsh Plan). One objective of the Suisun Marsh Plan is to "protect and, where possible improve, water quality for beneficial uses in Suisun Marsh, including estuarine, spawning, and migrating habitat uses for fish species as well as recreational uses and associated wildlife habitat." The Suisun Marsh Plan acknowledges that multiple factors contribute to the degradation of water quality including reduced Delta outflow. The Suisun Marsh Plan also describes "Improvement of water quality and management practices will benefit the ecological processes for all habitat, including managed and tidal wetlands." The commenter does not reference or provide evidence for their assertions regarding habitat conditions and species behaviors

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			related to the California Ridgway's rail and saltmarsh harvest mouse. As such, the State Water Board staff could not evaluate their scientific validity to the project. However, flows in the Suisun Marsh as a result of the proposed Plan amendments would not be higher than what can occur with peak flows under baseline conditions and flows have limited effect on water surface elevation in Suisun Marsh. Because high flow events occur under baseline conditions, additional analysis is not required to evaluate the effect of high flow events. Because Suisun Marsh water surface elevation is strongly influenced by tides, increases in Delta outflow have limited effect on water surface elevation in the marsh and increase in flows would likely be within the realm of what has occurred in the past. See Section 7.12.1.3, Impact Analysis, of the 2023 draft Staff Report (Impacts SW-d and i). The saltmarsh harvest mouse is an endemic species only found in salt and brackish marshes of the nine Bay Area counties surrounding the San Francisco Bay (Dixon 1908; Fisler 1965). This species evolved over 3.5 million years ago and adapted to the tidal estuary, sloughs and brackish marshes of the Bay and as such, evolved specific adaptations to the dynamic environment in which it occurred (Fisler 1965). Salt marsh harvest mouse either climbs vegetation to wait out the incoming tide, or it moves into upland habitat until the tides recede. The filling of the Bay and the damming of rivers that historically flowed into the Bay have contributed significantly to the decline of the species over the last 125 years as 90% of its historic habitat has disappeared (Padgett-Flohr 2002). Interruption of the regular hydrologic processes that characterized the Bay and its marshes over millennia have drastically altered the character of the historic low, middle, and high marsh habitats that once dominated the shoreline and estuaries. The proposed Plan amendments will more closely mimic former flow regimes of the San Francisco Bay Delta and Estuary and thus will be highly beneficial to the saltmarsh harvest mouse. Further, as described in the 2023 draft Staff Report, Section 7.12.1.3, Impact Analysis (Impact SW-f), only the 35 and 45

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			scenarios show any increases in salinity (shown as electrical conductivity (EC)) during the October through May fish and wildlife objective period, but these would not be expected to cause violations in Suisun Marsh objectives (from basin plans; many water quality compliance locations in the Delta, including Suisun Marsh, have EC objectives) because the general effect under these scenarios would be a reduction in salinity, and real-time operations would be managed to meet objectives.
268	195	[ATT 2] Section 7.6.1, p. 7.6.1-64 The Draft Staff Report states that: “Restoration of wetland habitat... could offset [giant garter snake] habitat loss.” The potentially significant habitat loss of giant garter snake, by up to 21% of their habitat in the Sacramento and San Joaquin basins, stresses the importance of including habitat restoration actions alongside flow actions. There is no discussion on the mitigation of lost habitat except to cite that EcoRestore restoration projects are currently planned and would help offset potential decreases. As EcoRestore is not linked with the proposed Plan amendments, it cannot be relied on to offset potential population decreases. This comment also applies to projected decreases in other species under the proposed Plan amendments, such as Swainson’s hawk and greater sandhill crane.	Please see Common Response 7.1, General CEQA and Approach to the Analysis, for a discussion about mitigation measures. Also see Common Response 1.2, Water Quality Control Planning Process, for information on the consideration of non-flow measures and State Water Board’s authority to impose non-flow measures. While some mitigation activities are within the State Water Board’s jurisdiction, other mitigation measures are largely within the jurisdiction and control of other agencies or depend on the response actions of water users to the project. Accordingly, the State Water Board cannot guarantee that measures will always be adopted or applied fully to mitigate potentially significant impacts. Therefore, unless and until the mitigation is fully implemented, some impacts remain potentially significant. Both flow and non-flow actions are important to comprehensively address degraded conditions. The proposed objectives would be intended to provide an interconnected flow regime from upstream natal Sacramento/Delta tributaries, through the Delta, and out to the ocean along with recommendations to other entities for habitat restoration and other actions to improve ecosystem functions. The reference to EcoRestore is provided as an example of a project that habitat restoration could be implemented under. Habitat restoration could also be implemented under other efforts which would benefit giant gartersnake populations and help offset potential decreases in rice habitat. In addition to wetland habitat restoration projects under EcoRestore and other

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			efforts, other mitigation measures are identified to protect giant gartersnake in Section, 7.6.1.5, Mitigation Measures.
268	196	[ATT 2] Section 7.6.2, pp. 7.6.2-37 - 7.6.2-38 The Draft Staff Report includes modeling results that indicate the frequency “at which winter-spring outflows associated with positive population growth for [target species] (20,000 to 47,000 cfs) are met or exceeded under the proposed Plan amendments. (Draft Staff Report at pp. 7.6.2-37 - 7.6.2-38 [Tables 7.6.2-4 and 7.6.2-5].) However, the data shown on Tables 7.6.2-4 and 7.6.2-5 combine the results for all water year types (e.g., wet, average, and dry years). These modeling results would be more informative if: (1) the results were based on the juvenile Chinook salmon survival model, rather than just the percentage of months exceeding a criterion to show changes in a biological metric of interest; and, (2) the results were presented by water year-type to reflect changes in predicted hydrology. The predicted magnitude of biological benefits from the proposed Plan amendments cannot be assessed based on a simple comparison of flows meeting or not meeting a selected outflow criteria.	The 2023 draft Staff Report, Section 7.6.2, Aquatic Biological Resources, Tables 7.6.2-4 and 7.6.2-5 summarize, in an easily interpretable way, the percent of months during the modeling period that meet or exceed the criteria. This approach captures data from the entire modeling period including all water year types. See Appendix A1, Sacramento Water Allocation Model Methods and Results, for more detailed modeling results, including by water year type. For example, see Table A1-103. In the 2023 draft Staff Report, the full analysis of biological impacts is more rigorous than the summaries in Tables 7.6.2-4 and 7.6.2-5. The analysis includes quantitative evaluations of the projected changes in habitat provided for native species, quantitative evaluations of projected changes in native species abundance indices and the frequency of ecological flow thresholds, and a qualitative literature review where no quantitative models exist. Please also see Common Response 3.1, Fish Protection, regarding the adequacy of modeling to support the benefit analyses. The commenter suggests using a juvenile Chinook salmon survival model and attaches a study by Buchanan et al. (2021). The Buchanan et al. study evaluated the survival of juvenile steelhead traveling between the head of Old River to Chippis Island which is a geographic area that must be traversed by emigrating San Joaquin River salmon and steelhead. This study is considered and cited on page 3-47 of the 2023 draft Staff Report. Also, see Section 3.4.5, Flow Effects on Salmonids, for additional information regarding flow effects on salmonids, including Section 3.4.5.3, Juvenile Through-Delta Emigration, for emigration through the Delta.
268	197	[ATT 2] Section 7.6.2, p. 7.6.2-41 The Draft Staff Report states that: “Under existing conditions, export pumping at the SWP and CVP export facilities can cause OMR reverse flow that may result in the movement of large	The references in the final Staff Report Section 7.6.2, Aquatic Biological Resources, have been updated to include the 2024 USFWS and NMFS BiOps and the 2024 CDFW ITP. This revision does not change the impact conclusions in Section 7.6.2. Please see Common Response 6.2, Baseline and No Project Alternative, regarding the Staff Report baseline.

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		numbers of fish, including but not limited to longfin smelt, into the interior Delta and result in their entrainment (USFWS 2008 BiOp; NMFS 2009 BiOp)." The citation supporting this statement should be updated. Citing the 2008/2009 BiOps to describe existing conditions is not relevant, as the regulatory requirements built into existing conditions today are different than the existing conditions described pre-2008/2009 BiOps. There are significant efforts to ensure that a large number of fish are not entrained.	
268	198	[ATT 2] Section 7.6.2, p. 7.6.2-44 The Draft Staff Report presents SacWAM model results of average monthly I:E ratio on the San Joaquin River between October and June under different numeric unimpaired flow requirements. (Draft Staff Report at p. 7.6.2-44 [Table 7.6.2-11].) The report cites the Salmonid Scoping Team's 2017 report titled, "Effects of Water Project Operations on Juvenile Salmonid Migration and Survival in the South Delta," as the base for concluding that "higher San Joaquin River I:E ratios result in higher survival through the Delta." The Salmonid Scoping Team's 2017 report discusses the difficulty in evaluating the effect of the I:E ratio on survival because the same I:E ratio applies to both increases in San Joaquin River flow and reductions in export rates. Additionally, subsequent juvenile steelhead survival studies conducted as part of the 6-year study, which were not available to the Salmonid Scoping Team in 2017, found that juvenile steelhead survival was statistically related to increased San Joaquin River instream flows during migration, while survival in the lower tidal reaches of the Delta was statistically related to migration route selection. (Buchanan, et al. (2021) Exhibit 1 at pp. 1882-1883.) Buchanan, et al. (2021) evaluated the relationship between a number of environmental covariates and juvenile steelhead survival (P values less than 0.05 are considered to be statistically significant) but did not detect a statistically significant relationship between SWP export rates (P=0.22), CVP export	Staff Report Chapter 3, Scientific Knowledge to Inform Fish and Wildlife Flow Recommendations, summarizes comprehensively the science of flow effects on salmonids (Section 3.4.5, Flow Effects on Salmonids) as it pertains to juvenile through-delta emigration (Section 3.4.5.3, Juvenile Through-Delta Emigration) and acknowledges the difficulty in assessing those effects. In Section 3.4.5.3, the Buchanan et al. (2021) study was considered and cited on page 3-47. The results from the 2023 draft Staff Report page 7.6.2-44 do acknowledge that other than the month of May, the proposed Plan amendments would be unlikely to significantly affect the San Joaquin I:E ratio during the majority of the juvenile salmonid outmigration. Please also see Staff Report Section 5.4.6.2, Export Limits, for the basis of the proposed export requirements. Additionally, Common Response 3.1, Fish Protection, discusses the Staff Report use of best available science, and the adequacy of modeling to support the benefit analyses.

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		rates ($p=0.49$), or combined SWP and CVP export rates ($P=0.64$), but did detect significant relationships between San Joaquin River inflow with the Head of Old River installed ($P<0.0001$) and when the barrier was not installed ($P=0.01$). (Buchanan, et al. (2021) Exhibit 1 [ATT 1 of ATT 2] at p. 1879 [Table 5].) These results illustrate the complexity of interpreting a potential relationship between the I:E ratio and survival. Further, the results of the SacWAM modeling in the Draft Staff Report (Table 7.6.2-11), excerpted below [Exhibit 12 of ATT 2], show very little difference in estimated I:E ratios during the primary juvenile salmonid migration period (February-May) as compared to baseline. The results from page 7.6.2-44 of the Draft Staff Report, excerpted above, in combination with results from Buchanan, et al. (2021) (which is not even cited on page 7.6.2-44), indicate that there would be no significant benefit to increased juvenile salmonid survival based on regulation of exports using the I:E ratio. The Draft Staff Report should be revised to indicate that estimated increases to the I:E ratio under the proposed Plan amendments will not result in increased juvenile salmonid survival.	
268	199	[ATT 2: Exhibit 12: An excerpt from Table 7.6.2-11, pg. 7.6.2-44 listing SacWAM estimates of average monthly I:E ratio in the lower San Joaquin River.]	This exhibit was included in the comment letter. The exhibit does not raise a specific environmental impact or economic effect of the project. Refer to Common Response 1.1, General Comments, for the approach to addressing exhibits.
268	200	[ATT 2] Section 7.6.2, p. 7.6.2-62 The Draft Staff Report's discussion of the modeling data regarding temperatures impacts should be revised. The data is provided in a location-specific manner in an appendix, however, the presentation of the data in the body of the Draft Staff Report omits this information and makes it difficult to identify what locations are most at risk of impacts. As a result, the Draft Staff Report should be revised to summarize what rivers/reaches will undergo temperature impacts more clearly and discuss the resulting potential degree of impact to the species that received unfavorable temperature conditions compared to baseline.	The presentation of results in Section 7.6.2, Aquatic Biological Resources, was deliberately presented at the river scale for brevity and conciseness. For more information on the results, the text of Section 7.6.2 refers to the full suite of results found in Appendix A6, Water Temperature Modeling for the Sacramento, Feather, and American Rivers, for each river.

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268	201	[ATT 2] Section 7.6.2, p. 7.6.2-68 – 7.6.2-71 The Draft Staff Report should be updated with analysis of over-summer survival of steelhead. Water temperature management is a key issue for juvenile steelhead rearing during the late spring, summer, and early fall in a number of streams and rivers, including the American River, and there are limitations on temperature control under existing conditions.	The Staff Report includes a water temperature assessment of multiple fish species including for juvenile Central Valley steelhead year-round rearing in the American River, with a focused period of May 15 to October 31 for two temperature index values taken from the Biological Opinion on Long-term Operation of the Central Valley Project and the State Water Project (^NMFS 2019). The index values characterize the suitable, optimal, acceptable, and observed temperature range needed for survival, growth, or presence of each life stage, and provide an understanding of temperature conditions that fish would experience under each flow scenario. Please see Section, 7.6.2, Aquatic Biological Resources, and Appendix A6, Water Temperature Modeling and Fish Assessment for the Sacramento, Feather, and American Rivers, for more information. Please refer to Table A6-49 in Appendix A6 for more information about the index values used in the analysis conducted. For a summary of this analysis, also refer to the 2023 draft Staff Report p. 7.6.2-76 and Table 7.6.2-28. See Table 7.6.2-29 for a summary of potential affects, and for detailed results of the analysis for steelhead in the American River see Appendix A6, Table A6-202 through Table A6-224.
268	202	[ATT 2] Section 7.6.2, p. 7.6.2-91 The Draft Staff Report states that: “Instead, an increase in water temperature could lead to a minor beneficial effect because, if food is not limiting, fish grow faster in warmer water due to higher metabolism, resulting in larger individuals with potentially higher survival (Ward, et al. 1989; Sommer, et al. 2001a).” While Sommer, et al. 2001a shows that juvenile salmon in the floodplain can thrive in warmer temperatures, the statement in the staff report oversimplifies the findings of the study. Floodplains function quite differently from the adjacent river channel and the paper does not provide a scientific basis for water temperature increases on adjacent river channels. More analysis or a more current literature review is needed before	The 2023 draft Staff Report acknowledges that water temperature changes in the Delta are expected to be minor, therefore the effects on species in the Delta are expected to be minor. Please see Section 7.6.2, Aquatic Biological Resources (p. 7.6.2-91), which describes the similar effects these minor changes in water temperature as a result of Delta inflow would have on juvenile green sturgeon and salmonids: “However, even if increases did occur, water temperatures are not expected to be near any upper limits for these species during these months. Instead, an increase in water temperature could lead to a minor beneficial effect because, if food is not limiting, fish grow faster in warmer water due to higher metabolism, resulting in larger individuals with potentially higher survival (Ward et al. 1989; ^Sommer et al. 2001a)” and “During spring months, the increase in Delta inflow may cause a minor reduction in water temperatures in the Delta and, therefore, potentially a minor beneficial effect or no effect on these species, depending on whether water temperatures are near upper limits for the

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		making the conclusion that an increase in water temperature in this case would lead to a beneficial effect. More current literature should be shown or, if not possible, the statement of potential beneficial effects should be removed.	species.” The discussion in Section 7.6.2 of the final Staff Report was updated to add clarity. Also, an additional reference has been added as support for the statement above and to provide additional support for the effects on green sturgeon. These revisions do not change any of the impact conclusions.
268	203	[ATT 2] Section 7.6.2, p. 7.6.2-92 Regarding the effects of the proposed Plan amendments on juvenile green sturgeon, the Draft Staff Report assumes that “[e]ffects from changes in hydrology on juvenile green sturgeon, which are present in the Delta year-round, are expected to be similar to those described above for juvenile salmonids during winter and spring months.” (Draft Staff Report at p. 7.6.2-92.) However, the Draft Staff Report does not provide any scientific support for the assumption that, with respect to potential benefits from the proposed Plan amendments, juvenile salmonids are a representative surrogate for juvenile green sturgeon. Notably, the habitat of salmonids and sturgeon are different, the foraging behavior and prey are different, the size and swimming performance are different, etc. As a result, the Draft Staff Report should be amended to include scientific support for the statement regarding anticipated benefits from the proposed Plan amendments to green sturgeon.	Please see the response to comment 268-202.
268	204	[ATT 2] Section 7.12.1, p. 7.12.1-62 Pg. 7.12.1-62 of the Draft Staff Report states that: “[t]he effect of increases in mercury and methylmercury may carry downstream to the Delta, San Francisco Bay, exports, export reservoirs, and streams downstream of export reservoirs. The effect would be dissipated by mixing with other water sources, settling of mercury attached to sediment, dredging, accumulation in organisms, and photodegradation of methylmercury back to mercury (Central Valley Water Board 2010).” Because the Draft Staff Report only includes a single citation regarding dissipation,	The citation to the Central Valley Regional Water Quality Control Board’s (Central Valley Water Board’s) “Sacramento-San Joaquin Delta Estuary TMDL for Methylmercury Staff Report” (2010; cited on p. 7.12.1-62 of the 2023 draft Staff Report) is sufficient and appropriate and specifically identifies factors contributing to methylmercury losses from the Delta. The cited Staff Report underwent scientific peer review and presents Central Valley Water Board staff’s recommendations for establishing the Delta methylmercury TMDL, which were based, in part, on the review of key mercury studies in the Delta and elsewhere. The inclusion of additional citations would not alter the impact conclusion related to mercury.

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		it should be revised to include additional support for the claim that the increased mercury and methylmercury in downstream areas would dissipate.	Please refer to Common Response 3.1, Fish Protection, regarding use of best available science.
268	205	[ATT 2] Section 7.12.1, p. 7.12.1-88 The Draft Staff Report states that the proposed Plan amendments will result in significant increases in Harmful Algal Blooms (“HABs”) in Victoria Canal, which is a primary conveyance facility for the Delta export pumps, but it does not propose any mitigation. The Draft Staff Report should be amended to discuss mitigation for the potentially significant increase in HABs in Victoria Canal.	Reduced Delta inflows in summer and fall and reduced exports could lead to an incremental increase in the production of harmful algal blooms (HABs) in some Delta channels (including Victoria Canal) at some times, particularly in the southern Delta. As indicated in Section 7.12.1, Surface Water, of the Staff Report, potential HAB impacts in the Delta can be reduced through implementation of Mitigation Measures MM-SW-a,f: 1, 4, and 5.
268	206	[ATT 2] Section 7.12.2, p. 7.12.2-25 The following statement on pg. 7.12.2-25 of the Draft Staff Report: “...to recharge the aquifer through groundwater infiltration basins” should be revised to state: “...groundwater infiltration basins and creeks.” Without the additional underlined language, the description of groundwater recharge programs in the Santa Clara Valley is incomplete.	Section 7.12.2.2, Environmental Setting, is edited to make groundwater infiltration basins an example.
268	207	[ATT 2] Section 7.12.2, p. 7.12.2-59 The Draft Staff Report states that: “As described under Impact GW-b, Sacramento/Delta surface water supplies primarily are used for municipal water in the Bay Area, and potential impacts on groundwater levels in this region primarily would be related to the effects of local substitute groundwater pumping that might be implemented to replace lost surface water supplies.” Contrary to this statement, water providers such as Santa Clara Valley Water District (“Valley Water”) would have a compounded impact to groundwater due to reduced imported supplies in Valley Water’s service area, since imported water is used for both treated water and managed recharge. As a result, the Draft	The Staff Report contains a history of groundwater use within the Santa Clara subbasin and acknowledges that “Valley Water manages the Santa Clara subbasin,” that “surface water and precipitation in the Santa Clara Valley are used to recharge the aquifer through groundwater infiltration basins” and that “Sacramento/Delta surface water supplies are also used to recharge aquifers in this area.” (2023 draft Staff Report Section 7.12.2, Groundwater, p. 7.12.2-25.) The Staff Report acknowledges potentially significant impacts to groundwater levels (Impact GW-b) and groundwater quality (Impacts GW-a,f), as a result of responses to changes in hydrology and water supply. Those impacts are discussed in Section 7.12.2, Groundwater. The Staff Report acknowledges that decreases in Sacramento/Delta supplies could also reduce water supplies for groundwater storage and recovery projects. The

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		Staff Report does not fully recognize the extent of the groundwater impacts that would occur to Valley Water.	regional overviews are not intended to quantify reductions to any specific water user or supplier.
268	208	[ATT 2] Section 7.12.2, pp. 7.12.2-66 – 7.12.268 Many of the mitigation measures identified to address groundwater impacts are programs/regulations that are already being implemented and should be considered as a part of the baseline. The mitigation measures should be feasible, meaning “capable of being accomplished in a successful manner with a reasonable period of time, taking to account economic, environmental, social and technological factors” (Pub. Resources Code, § 21061.1.) If the existing program/regulations that are described as mitigation measures have not been successful to maintain clean and sustainable groundwater levels in the existing condition, there is no evidence that the application of these mitigation measures would be successful in a reasonable amount of time, especially if the proposed Plan amendments will reduce supplies that are currently used to recharge groundwater. Further, any amount of inelastic land subsidence should be considered a significant impact with irreversible outcomes. Impacts to groundwater supplies should be fully mitigated to avoid inelastic land subsidence.	The fact that the Staff Report describes a broad category of potential mitigation measures that entities can take and, in some instances, are taking, such as evolving SGMA implementation, does not make them all, generally, part of the baseline or demonstrate they are incapable of success. Section 7.9.3, Impact Analysis, discusses the potential for the proposed Plan amendments to cause subsidence because of increased groundwater pumping, reduced groundwater recharge, or both. The impact identifier is Impact GEO-c. Mitigation measures for Impact GEO-c are discussed in Section 7.12.2.4, Mitigation Measures. MM-GW-b includes actions to reduce subsidence, such as continued implementation of groundwater basin management plans, implementation of effective groundwater sustainability plans, creation of groundwater banks where feasible, water recycling and water transfers. Despite these mitigation measures, the Staff Report recognizes that impacts to groundwater could occur due to the potential response of surface water users substituting groundwater for Sacramento/Delta surface water supplies. However, mitigation measures listed in Section 7.12.2.4 are primarily the responsibility and jurisdiction of public agencies other than the State Water Board. While the State Water Board can ensure that mitigation is implemented for actions within its authority, the State Water Board cannot guarantee that measures always will be adopted or applied in a manner that fully mitigates the impacts. Therefore, unless and until the mitigations are fully and successfully implemented by other agencies, the impact to groundwater quality (Impacts GW-a and -f) and groundwater levels (Impact GW-b) remain potentially significant. For discussion on how the Sacramento/Delta update to the Bay Delta plan aligns with implementation of Sustainable Groundwater Management Act, including how SGMA is being used to address groundwater overdraft and subsidence, please see Common Response 7.12.2, Groundwater and Sustainable Groundwater Management Act.
268	209	[ATT 2]	The draft Staff Report includes all the counties that are within the study area and used the most current data available at the

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		Section 7.16, p. 7.16-3 The Draft Staff Report should rely on more recent population data and include San Francisco County as a county within the San Francisco Bay Area region. California Department of Finance maintains annual estimates that could be used for updated information.	time the document was being prepared. A Notice of Preparation was released in 2009 and a Supplemental Notice of Preparation in 2012. SacWAM development and input was conducted in 2016 and refined in 2017 and 2018. The 2017 population data utilized was the most recent data available at the time the analyses were performed. The suggested revisions would not add substantial new information to the environmental setting, nor would they alter the impact conclusions made in the 2023 draft Staff Report. The revisions are not materially significant, and therefore, have not been made to the 2023 draft Staff Report.
268	210	[ATT 2] Section 7.20, p. 7.20-13 The Draft Staff Report states that Valley Water “ manages the Santa Clara groundwater subbasin.” Although Valley Water does manage the Santa Clara groundwater subbasin, it also manages the Llagas subbasin; the statement should be revised.	An edit has been made to indicate that the Llagas subbasin is one of the groundwater subbasins managed by Santa Clara Valley Water District. The Staff Report mentions the Gilroy– Hollister Valley – Llagas area in the context of the Central Coast. The analysis and impact determination were not changed because of this edit.
268	211	[ATT 2] Section 7.20, p. 7.20-14 The Draft Staff Report states: “The Bay Area has a history of recycled water planning and high municipal water use efficiencies. Per capita municipal water use in the Bay Area is relatively low due to high water rates, cool climate, and small lot sizes. Water use in the Bay Area during recent years ranged from 104 R-GPCD in 2013 to 85 R-GPCD in 2018, based on analysis of data from the State Water Board’s Urban Water Supplier Monthly Reports Dataset (SWRCB 2018a).” Notably, municipal water use in the Bay Area is not only low because of high water rates, cool climate, and small lot size. Robust conservation programs, water conservation education, and outreach efforts also play a crucial role and should be included in the Draft Staff Report’s description above.	Edits have been made in Section 7.20.2.3, Drinking Water Treatment and Supply, to recognize the robust water conservation programs in the Bay Area. The analysis and impact determination were not changed as a result of this modification.
268	212	[ATT 2]	Environmental impact conclusions from reduced Sacramento/Delta supply do not rely on implementation of other

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		Section 7.20, p. 7.20-21 The Draft Staff Report states: “Several strategies could be implemented at the local or regional level using existing infrastructure to reduce potential impacts from reduced Sacramento/Delta surface water supplies, including groundwater storage and recovery, water transfers, water recycling, and conservation measures.” The Draft Staff Report’s characterization of recycling, excerpted above, is incorrect. Increasing recycling is not possible using “existing infrastructure.” New infrastructure, especially to make it suitable for treated water augmentation, which would be needed to meet treated water contract commitments with reduced water supply from exports. Furthermore, these types of new infrastructure projects take many years and resources to plan, design, permit, and construct. The additional time and finances for these sources to come online should be acknowledged in the Draft Staff Report.	water management actions even though these actions could reduce supply impacts at certain times and locations. Impact UT-b discloses that increased demand for recycled water could result in construction of additional treatment facilities. The Staff Report discusses the potential need for the construction of new or upgraded treatment facilities in Section 7.22, New or Modified Facilities. Additionally, Section 8.3.4, Water Recycling, discusses the range of potable and non-potable water recycling costs. Recognizing the time needed to implement recycling projects and the significant costs associated with water recycling projects, mitigation Measure MM-UT-d.2.ii includes actions that the State Water Board can take, such as expediting the permit and petition processes and funding water recycling efforts. Please also see Common Response 8.1, Economic Analysis and Other Considerations, regarding regional economic analysis, potential agricultural effects, and funding opportunities.
268	213	[ATT 2] Section 7.20, p. 7.20-22 The Draft Staff Report states: “This lower quality recycled water would not be expected to enter water treatment plants or WWTPs.” This statement from the Draft Staff Report, excerpted above, is unclear. Tertiary treated water (recycled water for recharge or irrigation) is treated at wastewater plants. The Draft Staff Report should be clarified to explain why this water would not be expected to enter water treatment plants.	The text was edited to clarify that treated water injected into aquifers used for irrigation only would not affect incoming water quality at water treatment plants or WWTPs. The impact determination was not changed as a result of these modifications.
268	214	[ATT 2] Section 7.23, p. 7.23-5 The Draft Staff Report states: “The proposed Plan amendments provide a framework that would allow stakeholders to implement complementary ecosystem projects in addition to flow requirements and actions that other entities could take that	The “framework” referenced by the commenter consists of existing and proposed new and modified water quality objectives and program of implementation provisions of the Bay-Delta Plan. The water quality objectives and implementation provisions work together as a framework that allows stakeholders to implement complimentary ecosystem restoration projects and other actions that contribute to the overall goal of providing reasonable protection to fish and

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		would contribute to the overall goal of providing reasonable protection to fish and wildlife in the Sacramento/Delta.” The Draft Staff Report should be revised to include a citation to where this framework is located in the Draft Staff Report.	wildlife in the Sacramento/Delta. Provisions for adaptive implementation of the numeric inflow requirements are provided to optimize flows to benefit native fish and wildlife while also minimizing water supply impacts, and for the numeric inflow requirements to be implemented in a coordinated fashion with the cold water habitat and inflow-based Delta outflow requirements. The environmental analyses evaluate a complete range of impacts in the event that water users do not utilize adaptive implementation, as well as the potential impacts from implementation of adaptive implementation. A full range of flow scenarios with cold water storage targets are analyzed in Section 7.3, Aesthetics, through Section 7.20, Utilities and Service Systems, as well as physical habitat restoration and other ecosystem projects that may be pursued in Section 7.21, Habitat Restoration and Other Ecosystem Projects. Proposed new and modified water quality objectives and implementation measures are described in Section 7.2.2, Proposed Plan Amendments, of the 2023 draft Staff Report. Additional detail is provided in Section 5.4, Proposed New and Modified Objectives and Implementation, and Section 5.6, General Changes to the Program of Implementation, of the 2023 draft Staff Report. Possible complementary ecosystem projects that may be included in the program of implementation are described in Section 5.5, Habitat Restoration and Other Complementary Ecosystem Measures, and evaluated in Section 7.21, Habitat Restoration and Other Ecosystem Projects, of the 2023 draft Staff Report. In addition, the project is revised as described in Common Response 1.3, Revised Proposed Plan Amendments.
268	215	[ATT 2] Section 7.23, p. 7.23-3 The reference to the Pacheco Reservoir Expansion Project in Section 7.23, pg. 7.23-33, Table 7.23-1 should be amended. The table states that the current proposed dam capacity is 141.6 TAF, but the current proposed dam capacity is 140 TAF. Also, the conveyance infrastructure statement should be	The capacity of Pacheco Reservoir, as reported in Table 7.23-1 of the 2023 draft Staff Report, has been revised from 141.6 TAF to 140 TAF to reflect the capacity reported in the 2022 Pacheco Reservoir Expansion Project Draft Environmental Report (2022 Draft EIR). The 2023 draft Staff Report cumulative impact determinations were not changed as a result of this revision. The 2023 draft Staff Report states that the Pacheco Reservoir Expansion Project would construct new conveyance infrastructure to segments of the CVP San Felipe Division in

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		separated from the information about the refuges. The way it is currently written implies that the infrastructure is needed to deliver the water to the refuges, which is not the case. The new infrastructure will be required to deliver the water from the new Pacheco reservoir to Valley Water's point of use. The refuge water will be delivered via exchange and/or existing infrastructure.	Merced and Santa Clara Counties and [then] deliver water supply to up to eight south-of-Delta wildlife refuges in Merced County (7.23-33). This is a correct statement according to the 2022 Draft EIR. Therefore, the revisions to wording in the 2023 draft Staff Report suggested by the commenter are not warranted. Additionally, the Pacheco Reservoir Expansion Project has been suspended as of August 2025.
268	216	[ATT 2] Chapter 8 – Economic Analysis and Other Considerations Section 8.4.2.3, p. 8-63 Pg. 8-63 of the Draft Staff Report states that: "Valley Water serves water to all of Santa Clara County, including agricultural lands (SCVWD 2015, p. 3-1). However, most agricultural users in the county rely on groundwater." This statement should be revised to state that Valley Water also provides surface water for agricultural users through the Pacheco Conduit.	The commenter suggests minor text revisions that would not alter the Staff Report's analysis or conclusions. The suggested revisions to the 2023 draft Staff Report are not warranted. See response to comment 268-217 for additional information on the study area's geographic regions.
268	217	[ATT 2] Section 8.4, p. 8-69 The Draft Staff Report appears to split Santa Clara County into two different regions for purposes of evaluating impacts: San Francisco Bay Area and Central Coast. It appears that agricultural use in south Santa Clara County is included in the Central Coast Region, while Municipal and Industrial uses are included in the SF Bay Area region. To the contrary, Santa Clara County is located in the San Francisco Bay Area and the analysis related to Santa Clara County should be organized within sections pertaining to the San Francisco Bay Area.	Staff Report Section 2.8, Existing Water Supply, discusses existing water supply and the water sources relied upon for agricultural, municipal, and wildlife refuge beneficial uses. As explained in Section 2.8, Existing Water Supply, the study area is divided into seven regions based on geography and water supply. The study area regions generally correspond to the hydrologic regions defined in DWR's California Water Plan or are aggregations of hydrologic regions, differing where appropriate for the current analysis. There is no regulatory significance to the study area regions designated in the Staff Report, and the information presented in the Staff Report occasionally spans regional boundaries. In these cases, information generally is presented where it best aligns with geographic boundaries. Section 2.8.4, San Francisco Bay Area, explains that the Bay Area region includes San Francisco County and portions of Marin, Sonoma, Napa, Solano, San Mateo, Santa Clara, Contra Costa, and Alameda counties. Section 2.8.6, Central Coast, explains that the Central Coast region includes all of Santa Cruz, Monterey, San Luis Obispo, and Santa Barbara counties; most of San Benito County; and parts of San Mateo, Santa Clara, and Ventura counties. Also see Figure 2.8-1a for a map of the study area

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			geographic regions and county boundaries. Despite the difference in regional presentation, the Staff Report’s analysis appropriately accounts for changes in Sacramento/Delta supplies. Splitting the county into two different regions does not change the Staff Report’s conclusions, and the changes suggested by the commenter are not warranted.
268	218	[ATT 2] Section 8.5.1, p. 8-95 Regarding the “Lower Bound” (the minimum annual cost to municipalities to replace the service of reduced Sacramento/Delta supply), it is not reasonable to assume that “a reduction in municipal supply of up to 10 percent often would be managed through more intensive use of demand management measures.” (Draft Staff Report at p. 8-95.) The Draft Staff Report’s analysis assumes that “urban water conservation measures represent the first source of replacement water” and that these replacement sources come at “no economic cost to the municipal provider.” (Ibid.) The Draft Staff Report’s current analysis assumes urban agencies use these reserves first, before acquiring new supplies, however, water conservation measures – where feasible – cost money to develop. The existing analysis underestimates the financial impacts associated with water conservation measures, and the feasibility of achieving such large-scale conservation in all regions, and should be revised.	The Staff Report uses a reasonable and conservative approach to evaluating the municipal water supply economic effects of the flow scenarios that is detailed in Section 8.5, Municipal Water Supply Economic Effects, and is summarized in Common Response 8.1, Economic Analysis and Other Considerations. The environmental and economic analyses presented in the Staff Report do not assume that municipal water suppliers will adopt any specific strategies in response to the Sacramento/Delta update to the Bay-Delta Plan. The analysis of municipal water supply economic effects identifies costs that are estimated as a range representing the extent to which municipal providers may rely on demand management measures and use reserve supplies, if available, versus the cost of acquiring additional water supplies to fully replace the reduction in the Sacramento/Delta water supply. A water provider’s actual cost most likely would fall between the lower and upper bound. The lower bound represents the minimum annual cost to municipalities to replace the service of reduced Sacramento/Delta supply. Urban water conservation measures are evaluated in the lower bound analysis for all regions as these measures were explicitly identified as future water portfolio strategies in various urban water management plans. The upper bound represents the maximum annual estimated cost for using reserve supplies to replace reduced Sacramento/Delta supply and the estimated cost for purchasing additional water supplies to completely replenish any reserves used to replace the reduced Sacramento/Delta supply, with no action to manage demand through demand management measures. Because upper bound assumes the purchasing of additional water supplies to completely replenish any reserves

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			used to fully replace the reduced Sacramento/Delta supply, the upper bound estimate covers a scenario where water conservation is either not feasible or costs more than purchasing a replacement supply.
268	219	[ATT 2] Section 8.8.3, p. 8-119 The projected costs of groundwater banking as a replacement water source do not reflect the increased competition and associated increase in cost that would be anticipated from a reduction of surface supplies. The economic analysis in Chapter 8 should be revised to address likely increases in projected costs of groundwater banking associated with increased competition for replacement water sources.	Section 8.8, Costs Associated with New or Modified Facilities, in the 2023 draft Staff Report (Section 8.9, Costs Associated with New or Modified Facilities, in the final Staff Report), provides information regarding the costs to modify or build new or modified dams/reservoirs and points of diversion; groundwater wells and groundwater storage and recovery projects; and new or modified drinking water treatment plans, including desalination plants and wastewater treatment plants. With respect to the analysis of replacement water costs, Appendix D, Supplemental Municipal Supply Analysis Information, included consideration of water banking for municipal water providers that identified water banking as a specific viable source in their respective UWMPs. Costs identified in Chapter 8, Economic Analysis and Other Considerations, were based on literature estimates, as described in Section 8.8.3, Groundwater Wells and Groundwater Storage and Recovery, in the 2023 draft Staff Report (Section 8.9.3, Groundwater Wells and Groundwater Storage and Recovery, in the final Staff Report), and within the Appendix D, Supplemental Municipal Supply Analysis Information, analysis. In addition, the commenter has provided no evidence for the assertion that surface water reductions from this project would result in increased groundwater banking cost. Please refer to Common Response 8.1, Economic Analysis and Other Considerations, for additional information on the analysis of municipal water supply economic effects including replacement water supply costs.
268	220	[ATT 2] Chapter 9 – Proposed Voluntary Agreements Section 9.6, p. 9-78 Figure 9.6-3 is too difficult to read. The data in C and D years is	The referenced Figure 9.6-3 in the 2023 draft Staff Report is a boxplot. The collapsing of the boxplots to a horizontal line as seen especially in critical and dry years is indicative of low variability relative to the overall scale. In this plot, the overall scale is consistent across year types and species to enable comparison of habitat areas across year types and species. The horizontal line that remains when result variability is low

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		obscured by the current size of the Figure. This figure should be restructured so that the size increases to a readable level.	represents the median outcome. Please see Common Response 2.1, Presentation of Data and Results in the Staff Report and Responses to Comments.
268	221	[ATT 2] Section 9.9, p. 9-199 The Draft Staff Report identifies a “modular alternative” that could be adopted with the VAs alternative, titled “Protection of Voluntary Agreement Flows Alternative.” This alternative would identify as part of the program of implementation additional measures to protect the base upon which the VA flows are intended to be added from new or expanded water diversions. “Specifically, under this modular alternative, any new point of diversion of water or expanded point of diversion of water would not be authorized to divert water during the January-through-June period unless Delta outflows were at levels determined in the State Water Board’s 2017 Scientific Basis Report, or future equivalent analyses, to provide conditions expected to result in the recovery of a wide array of native fish and wildlife species.” (Draft Staff Report, pp. 9-199 to 9-200.) Specific accounting measures for this modular alternative are not described in the draft Staff Report. It is unclear whether the intent is that the VA parties’ accounting approach would be used (or adapted for use) with this modular alternative, if selected. Clarity should be added on this point.	Please see Common Response 1.3, Revised Proposed Plan Amendments, for more information on the provision to protect the flow base from new water projects.
268	222	[ATT 2: ATT 1: Exhibit 1—Article titled Outmigration survival of a threatened steelhead population through a tidal estuary]	This attachment was included with the comment letter. The attachment does not raise a specific environmental impact or economic effect of the project. Refer to Common Response 1.1, General Comments, for the approach to addressing attachments to comments.
268	223	[ATT 2: ATT 2: Exhibit 2—Article titled Population Abundance and Diversion Losses in a Threatened Estuarine Pelagic Fish]	This attachment was included with the comment letter. The attachment does not raise a specific environmental impact or economic effect of the project. Refer to Common Response 1.1, General Comments, for the approach to addressing attachments to comments.