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501-1	On behalf of our broad coalition of family farmers, labor unions, business groups, local government, public safety advocates, conservationists, taxpayer groups and citizens, we are writing to express our strong support for the Delta Conveyance Project as detailed in the Draft Environmental Impact Report (EIR). The Delta Conveyance Project would modernize aging State Water Project (SWP) infrastructure and help protect against future water supply losses caused by climate change.	Please see Common Response 1, CEQA Process, General Approach to Analysis, and Other Environmental Review Issues, regarding comments that state opinions of general support of the project. This comment does not raise a significant environmental issue relating to the proposed project or address the adequacy, accuracy, or completeness of the Draft EIR. DWR has reviewed all comments and will consider all comments in its decision-making process.
501-2	We urge the Department of Water Resources and Governor Newsom's Administration to approve and move forward with the proposed project presented in the Draft EIR, which consists of a 6,000 cubic feet per second conveyance system that connects directly into the California Aqueduct. Climate change and sea level rise threaten to make future operations of the SWP [State Water Project] increasingly less reliable. It is prudent and responsible to pursue this project now, before climate change creates a water supply emergency. Failure to act on this project as proposed, will inevitably limit the SWP in the future, and result in the loss of continued local investment and water supplies for a majority of Californians.	Please see response to comment 501-1 regarding comments in support of the project.
501-3	The ongoing drought has once again demonstrated that California's aging water infrastructure is not equipped to handle the regular boom and bust cycles of our changing climate. The proposed project is an essential climate adaptation strategy as it will ensure the SWP [State Water Project] can capture, move, and store water when it is available as we face new climate realities such as intense yet unpredictable storms, extended, more frequent droughts and increasing water temperatures, among others. In fact, if the Delta Conveyance Project had been operational at the end of 2021 when the state saw record-breaking storm events,	This comment describes information regarding droughts in California and observed impacts on California's water supply. The comment is generally consistent with the information in Chapter 30, Climate Change. The comment does not raise a significant environmental issue relating to the proposed project or address the adequacy, accuracy, or completeness of the Draft EIR. Please see Common Response 1, CEQA Process, General Approach to Analysis, and Other Environmental Review Issues, regarding comments that state opinions of general support for the project.

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	approximately 236,000 acre-feet of water could have been captured and moved into storage – enough water for 2.5 million Californians or nearly 850,000 households - for a full year. This water would have helped ease the current drought which is decimating family farms and forcing significant cutbacks for residents and businesses.	
501-4	The proposed Delta Conveyance Project is a very different project from previous conveyance proposals. DWR took a fresh look at everything, and the current proposed project reflects significant changes and improvements to minimize impacts. Ultimately, the project has been downsized, refined, rerouted, and redesigned. In addition to the design changes, the proposed project also includes a Community Benefits Program to ensure the communities most affected by construction of the project are provided the means and resources to achieve local benefits, and a commitment to robust community engagement with Environmental Justice/Disadvantaged Communities, Tribes and local Delta communities.	This comment does not raise a significant environmental issue relating to the proposed project or address the adequacy, accuracy, or completeness of the Draft EIR. DWR has reviewed all comments and will consider all comments in its decision-making process.
501-5	Ultimately, the proposed Delta Conveyance Project will: Aid in ensuring the SWP [State Water Project] can capture, move, and store water when it is available in our changing climate.	The comment discusses the operations of the SWP in a changing climate; however, it does not raise a significant environmental issue relating to the proposed project or address the adequacy, accuracy, or completeness of the Draft EIR. DWR has reviewed all comments and will consider all comments in its decision-making process.
501-6	Ultimately, the proposed Delta Conveyance Project will: Protect our water supplies from sea-level rise, the effects of climate change and earthquakes.	This comment does not raise a significant environmental issue relating to the proposed project or address the adequacy, accuracy, or completeness of the Draft EIR. DWR has reviewed all comments and will consider all comments in its decision-making process.
501-7	Ultimately, the proposed Delta Conveyance Project will: Ensure communities and water managers across the state have a stable water supply to pursue local resiliency and meet all needs, including health and safety, economic, environmen[t]al and water quality.	The comment discusses the operations of the SWP with regard to the importance of maintaining a stable water supply; however, it does not raise a significant environmental issue relating to the proposed project or address the adequacy, accuracy, or completeness of the Draft EIR. DWR

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		has reviewed all comments and will consider all comments in its decision-making process.
501-8	Getting to this point has been a long and thorough process. Now is the time to act and move forward [with the DCP] to protect California's water security.	Please see response to comment 501-1 regarding comments in support of the project.
504-1	The attached comments on the Delta Conveyance DEIR are being submitted on behalf of the Natural Resources Defense Council, the Bay Institute, California Sportfishing Protection Alliance, Defenders of Wildlife, Pacific Coast Federation of Fishermen's Associations, Institute for Fisheries Resources, Save the Bay, Restore the Delta, San Francisco Baykeeper, Golden State Salmon Association, Save California Salmon, California Indian Environmental Alliance, Friends of the River, and the Planning and Conservation League. The exhibits to this letter will follow in subsequent emails, due to file size limitations. In addition, I have cc'd staff with the National Marine Fisheries Service, U.S. Fish and Wildlife Service, California Department of Fish and Wildlife, U.S. Environmental Protection Agency, U.S. Bureau of Reclamation, and State Water Resources Control Board, in order that this letter be included in each of those agencies' administrative records as they review this project and/or consider issuing permits for this project under state and federal law.	This information describes the structure or organization of the comment letter, the background of the organization or individual commenter, clarification on the submittal of the comment letter, or general introductory text. It is not a comment on the contents of the Draft EIR. DWR has reviewed all comments and will consider all comments in its decision-making process. All comments are included in the administrative record.
504-2	I would greatly appreciate if you would confirm receipt of this letter. Please let me know if you have any problems opening the attachment or do not receive all of the subsequent exhibits (identified as Exhibits A through H), and please accept my apologies for the multiple emails this morning. Thank you for consideration of our views.	Confirmation emails were sent automatically to all senders upon receipt of emailed comments during the public review period for the Delta Conveyance Project Draft EIR.

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504-3	On behalf of the Natural Resources Defense Council, the Bay Institute, California Sportfishing Protection Alliance, Defenders of Wildlife, Pacific Coast Federation of Fishermen's Associations, Institute for Fisheries Resources, Save the Bay, Restore the Delta, San Francisco Baykeeper, Golden State Salmon Association, Save California Salmon, California Indian Environmental Alliance, Friends of the River, and the Planning and Conservation League, we are writing to provide public comments on the Delta Conveyance Draft Environmental Impact Report ("DEIR").	This information describes the structure or organization of the comment letter, the background of the organization or individual commenter, clarification on the submittal of the comment letter, or general introductory text. It is not a comment on the contents of the Draft EIR. DWR has reviewed all comments and will consider all comments in its decision-making process.
504-4	The DEIR fails to comply with CEQA and must be substantially revised and recirculated in order to provide the public and decisionmakers with accurate information regarding the potential environmental impacts of the proposed project and alternatives.	The EIR has been prepared in compliance with CEQA and adequately assesses potential impacts as evidenced by the contents in Chapters 5 through 32 of the EIR. This comment does not provide evidence or describe specific areas where the EIR has failed to provide a good-faith disclosure of potential impacts, as required by CEQA and, therefore, no specific response to that portion of the comment can be provided. Responses to more specific comments provided in this comment letter are provided herein.
504-5	The DEIR: -Fails to consider a reasonable range of operational alternatives, including one or more alternatives that do not propose continued implementation of the Trump Administration's biological opinions, which the California Natural Resources Agency has challenged in federal court as unlawful and inadequately protective of listed species and which has been remanded by the court, as well as a range of operational criteria for the proposed North Delta intakes;	Please refer to the Common Response 1, CEQA Process, General Approach to Analysis, and Other Environmental Review Issues, section titled CEQA Environmental Baseline regarding the existing conditions assumptions and approach, including for the current biological opinions. A detailed discussion on the CEQA baseline is provided in Chapter 4, Framework for the Environmental Analysis, and supporting information can be found in Appendix 3C, Defining Existing Conditions, No Project Alternative, and Cumulative Impact Conditions. Please also refer to Common Response 3, Alternatives Development and Description, for a discussion of the approach to project operations and why operational alternatives were not evaluated in the EIR. More specifically, as mentioned in Common Response 3, lead agencies are given broad discretion in defining projects and alternatives that meet project objectives, are potentially feasible, and could reduce

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		significant environmental impacts. Operational scenarios were conceptually developed and refined over time to maximize the achievement of the project objectives while avoiding or minimizing potential significant effects to the extent possible. This process resulted in an optimized version of facility operations and operational criteria applied to project alternatives. The project does not require continued implementation of existing biological opinions. Project operations must, and will, be governed by all applicable existing and future federal and state regulatory requirements.
504-6	The DEIR: - Uses an Improper Project Purpose and Objectives to Exclude Alternatives;	Please see Chapter 2, Purpose and Project Objectives, and Common Response 1, CEQA Process, General Approach to Analysis, and Other Environmental Review Issues, regarding the scope of the purpose and objectives under CEQA. Please see Chapter 3, Description of the Proposed Project and Alternatives, and Common Response 3, Alternatives Development and Description, regarding the development of the reasonable range of feasible alternatives evaluated in the EIR and the appropriate application of project objectives in the alternatives development process.
504-7	The DEIR: -Uses an Unlawful Environmental Baseline that Misleads the Public and Decisionmakers, including the exclusion of the effects of climate change;	The assertion that the EIR does not include an appropriate baseline as required by CEQA and excludes an analysis of climate change effects is not supported by the contents of the EIR. Please refer to Common Response 1, CEQA Process, General Approach to Analysis, and Other Environmental Review Issues, regarding CEQA requirements for establishing the baseline and the appropriate and adequate description of the environmental baseline used for the impact analysis in the EIR. This Common Response also describes the relationship of climate change to the baseline and the consideration of climate change in the EIR. Please refer to Common Response 6, Climate Resilience and Adaptation, regarding climate change analyses contained in the EIR; and see Chapter 30, Climate Change, and appendices (e.g., Appendix 5B, Surface Water 2040 Analysis; Appendix 6A, Water Supply 2040 Analysis; Appendix 7A, Flood Protection 2040/2072 Analysis) regarding the evaluation and consideration of future conditions.

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504-8	The DEIR: -Fails to Consider the Whole of the Action, including the use of Temporary Urgency Change Petitions to Violate Water Quality Standards;	The comment misrepresents the use of Temporary Urgency Change Petitions (TUCPs) by DWR; TUCPs are emergency actions DWR is allowed to request of the State Water Resources Control Board when existing water quality objectives cannot be met. Please refer to Common Response 3, Alternatives Development and Description, for more information regarding TUCPs. Please refer to Common Response 1, CEQA Process, General Approach to Analysis, and Other Environmental Review Issues, regarding analysis of the project as a whole. TUCPs are not considered part of the project. If a TUCP is needed in the future it would constitute an emergency discretionary action as authorized by the State Water Resources Control Board.
504-9	The DEIR: Fails to accurately assess environmental impacts to salmon and other native fish species;	The EIR provides an accurate assessment of environmental impacts on salmon and other native fish species, as described in responses to specific individual comments provided by this commenter, below. Chapter 12, Fish and Aquatic Resources, with its appendices, concludes that potential impacts on fish and aquatic resources would be less than significant with mitigation.
504-10	The DEIR: Fails to accurately assess environmental impacts to water quality.	This comment is a summary of detailed comments provided in letter 504. Please see responses to comments 504-124 through 504-126 for detailed responses regarding the assessment of impacts on water quality contained in Chapter 9, Water Quality, of the EIR and the accompanying Chapter 9 appendices.
504-11	I. The DEIR Fails to Consider a Reasonable Range of Alternatives, Violating CEQA: CEQA requires that the DEIR consider a reasonable range of alternatives. Cal. Pub. Res. Code §§ 21002, 21061, 21100; tit. 14, Cal. Code Regs. ("CEQA Guidelines") § 15126.6. The DEIR violates this basic obligation to consider a reasonable range of alternatives because it only considers a single operational alternative, whereas other operational alternatives could reduce or avoid adverse environmental impacts. The failure to	The comment assertion that DWR did not consider a reasonable range of alternatives for examination in the EIR is not supported by the screening and selection process and the EIR. The EIR considers a reasonable range of alternatives of feasible alternatives. Please refer to Chapter 3, Description of the Proposed Project and Alternatives, regarding the range of alternatives analyze in the EIR and Common Response 3, Alternatives Development and Description, regarding why multiple operational scenarios are not evaluated in the EIR. As described in Common Response 3 the features of alternatives, including operational scenarios, were conceptually developed and refined over time to maximize the

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	include any operational alternatives that could reduce or avoid adverse environmental impacts violates CEQA. See, e.g., Citizens of Goleta Valley v. Board of Supervisors, 52 Cal.3d 553, 566 (1990) (EIR must consider a reasonable range of alternatives that offer substantial environmental benefits and may feasibly be accomplished).	achievement of the project objectives while avoiding or minimizing potential significant effects to the extent possible. This process resulted in an optimized version of facility operations and operational criteria applied to project alternatives. The EIR fully evaluates and compares changes between baseline conditions and the project alternatives in Chapters 5 through 32 and discloses potentially significant environmental impacts from construction and operation of the alternatives on multiple resources in Chapters 7 through 32.
504-12	First, because this DEIR includes only a single operational alternative, see DEIR at section 3.16.1, all of the alternatives result in increased water diversions from the Delta and reduced Delta outflows, see DEIR at ES-51, Appendix 5A at B-327 to B-334, and the DEIR reaches identical CEQA conclusions regarding impacts to fish species from operations and maintenance for all of the alternatives, see id. at Table ES-2. The DEIR does not include any alternatives that do not increase water diversions from the Delta and improve conditions for native fish and wildlife. In contrast, although DWR's CEQA analysis for the prior Delta conveyance project (the Bay Delta Conservation Plan / California WaterFix project) was deeply flawed, it at least considered more than one operational alternative and included an operational alternative that resulted in increased Delta outflow and reduced water diversions (Alternative 8 in the Bay Delta Conservation Plan DEIR/DEIS). Not only does the current DEIR fail to consider any operational alternatives, but the proposed operational criteria for the North Delta intakes used in the DEIR are substantially less environmentally protective than the operating criteria that were required in permits for the California WaterFix project. See Letter from NRDC et al to DWR dated October 18, 2021, attached hereto as exhibit A [Attachment 1]. Particularly in light of the significant environmental impacts that result from the proposed project and alternatives, which will also violate	The comment's assertion that the Delta Conveyance Project operational approach and criteria would increase water diversions from the Delta beyond those currently allowed by SWP water rights and regulatory requirements is not supported by the analyses in the EIR. Chapter 3, Description of the Proposed Project and Alternatives, section titled Intake Operations and Maintenance, specifically notes that operation of the proposed north Delta intakes would remain consistent with all existing and future regulatory requirements. Furthermore, as described in Chapter 3 and Common Response 3, Alternatives Development and Description, the project does not increase the volume of water to which DWR holds water rights or increase the volume of water for use as allowed under its contracts. DWR is not seeking to permit south Delta operations with this project. The project would be operated in accordance with the operational criteria described in Chapter 3 to limit the potential for negative effects on fish and aquatic species. As described in Chapter 12, Fish and Aquatic Resources, the project would result in less than significant impacts or less than significant impacts with mitigation measures for fish and aquatic resources. For example, the proposed operational criteria, including factors such as diversions during excess conditions and the priority of the use of the south Delta diversions, all of which are described in Chapter 3, limit the potential for greater reverse flows relative to existing conditions, with the potentially significant impact reduced to less than significant with inclusion of tidal habitat restoration mitigation to address the north Delta hydrodynamic

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	the requirements of the ESA and CESA, the DEIR's failure to consider a range of operational criteria for the North Delta intakes, including operational criteria like those required in WaterFix, violates CEQA.	effect. Please see Common Response 3, Alternatives Development and Description, regarding comment comparisons between the Delta Conveyance Project and previous projects. As described in Chapter 1, Introduction, DWR is no longer pursuing BDCP/California WaterFix. Please also refer to Common Response 3 and response to comment 504-5 regarding the operational scenario evaluated in the EIR. As described in Common Response 3 and response to comment 504-5 DWR considered multiple operational scenarios over the course of project development designed to meet the project's fundamental purpose and project objectives and reduce or avoid the project's potentially significant impacts. Common Response 3 provides additional information regarding operational criteria development, and regarding water rights, contracts, and use of water.
504-13a	Equally important, the DEIR fails to consider any alternatives to the continuation of the Trump Administration's biological opinions for the operations of the Central Valley Project ("CVP") and State Water Project ("SWP"), which are included as part of the proposed project. DEIR at 3- 151 (describing South Delta operations of proposed project as "Same as D-1641, 2019 BiOps and 2020 SWP ITP requirements"); see id. at 3-144 ("The OMR criteria defined in the regulatory baseline (currently 2019 BiOps and 2020 SWP ITP) are applicable."); id. at 3-145 ("The Delta Conveyance Project would not change operational criteria associated with upstream reservoirs."). [Footnote 1: 1 The State's incidental take permit for operations of the State Water Project ("Incidental Take Permit") only addresses operations in the Delta, and it does not authorize incidental take of salmon or other species listed under the California Endangered Species Act ("CESA") caused by operations of the Central Valley Project, nor cause by coordinated operations of	Please refer to response to comment 504-5 regarding the existing conditions assumptions and approach, including for the current biological opinions. Chapter 1, Introduction, and Chapter 12, Fish and Aquatic Resources, in the section titled Regulatory Environment, notes that DWR, USFWS, and NMFS have reinitiated consultation on the 2019 BiOps on the coordinated long-term operation of the SWP and CVP. Please see Common Response 1, CEQA Process, General Approach to Analysis, and Other Environmental Review Issues, regarding inclusion of the 2019 Biological Opinion as the operational assumption.

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	the State Water Project and Central Valley Project upstream of the Delta. In response to a Public Records Act request by NRDC, DWR did not provide any documentation of authorization for incidental take resulting from State Water Project operations at Oroville Dam or the coordinated operations of the Central Valley Project pursuant to the Coordinated Operating Agreement. As a result, the State Water Project and Central Valley Project lack legal authorization under CESA for incidental take of listed species caused by upstream operations. In order to comply with CESA and the federal ESA, permitting of the Delta Conveyance Project will need to address the full scope of the coordinated operations of the SWP and CVP, including upstream operations. In addition, the proposed project and alternatives do not include a requirement for the CVP to comply with the San Joaquin River inflow: export ratio of the 2009 NMFS biological opinion or the related spring outflow provision of the State's Incidental Take Permit, thereby resulting in greater CVP diversions in April and May than were authorized or modeled under the State's Incidental Take Permit. See DEIR at 3-151 and n. 10 ("Spring outflow requirement is an existing regulatory requirement for the SWP. In complying with this existing requirement, total SWP exports including the north Delta diversions and the existing south Delta exports will be curtailed as needed.").] The proposed project includes continuation of these biological opinions even though the State of California has publicly claimed those biological opinions are unlawful and filed litigation to overturn those biological opinions. See Exhibit B [See attachments 2-15]. As a result of litigation by conservation and fishing groups and litigation by the State of California, those biological opinions have been remanded and the federal government is in the process of developing new biological opinions, including	

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	evaluating a range of operational criteria under NEPA. See Bureau of Reclamation, Notice of Intent to Prepare and Environmental Impact Statement and Hold Scoping Meetings on the 2021 Endangered Species Act Section 7 Consultation on the Long Term Operations of the Central Valley Project and State Water Project, 87 Fed. Reg. 11093, 11094-95 (Feb. 28, 2022); see Exhibit C [Attachments 16-22].	
504-13b	[Footnote 1: The State's incidental take permit for operations of the State Water Project ("Incidental Take Permit") only addresses operations in the Delta, and it does not authorize incidental take of salmon or other species listed under the California Endangered Species Act ("CESA") caused by operations of the Central Valley Project, nor cause by coordinated operations of the State Water Project and Central Valley Project upstream of the Delta. In response to a Public Records Act request by NRDC, DWR did not provide any documentation of authorization for incidental take resulting from State Water Project operations at Oroville Dam or the coordinated operations of the Central Valley Project pursuant to the Coordinated Operating Agreement. As a result, the State Water Project and Central Valley Project lack legal authorization under CESA for incidental take of listed species caused by upstream operations. In order to comply with CESA and the federal ESA, permitting of the Delta Conveyance Project will need to address the full scope of the coordinated operations of the SWP and CVP, including upstream operations.]	This is not a comment on the adequacy, accuracy, or completeness of the EIR. Concurrent with the CEQA process, DWR is seeking an incidental take permit under Section 2081 of the California Endangered Species Act (CESA) for activities associated with the proposed Delta Conveyance Project. DWR will also comply with the federal Endangered Species Act (ESA) in consultation with NMFS and USFWS. As these documents are being developed, DWR will adhere to all regulatory conditions applicable to the SWP that are currently in place that would apply to the Delta Conveyance Project. This includes the existing ITP (California Department of Fish and Wildlife 2020). The Delta Conveyance Project is not proposing changes to upstream operational criteria, and through screening analyses (see Common Response 1, CEQA Process, General Approach to Analysis, and Other Environmental Review Issues) has not identified any indirect effects requiring additional take authorization beyond what is currently authorized.
504-13c	[Footnote 1: In addition, the proposed project and alternatives do not include a requirement for the CVP to comply with the San Joaquin River inflow: export ratio of the 2009 NMFS biological opinion or the related spring outflow provision of the State's Incidental Take Permit, thereby resulting in greater CVP	As described in Chapter 4, Framework for the Environmental Analysis, Reclamation or a CVP contractor (or contractors) have not expressed interest in participating in the Delta Conveyance Project as project proponents. Nevertheless, please refer to Common Response 1, CEQA Process, General Approach, and Other Environmental Review Issues, for a

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	diversions in April and May than were authorized or modeled under the State's Incidental Take Permit. See DEIR at 3-151 and n. 10 ("Spring outflow requirement is an existing regulatory requirement for the SWP. In complying with this existing requirement, total SWP exports including the north Delta diversions and the existing south Delta exports will be curtailed as needed.").]	discussion of the requirements of the current USFWS- and NMFS-issued 2019 Biological Opinions (BiOps) for the long-term operations of the CVP and California Department of Fish and Wildlife-issued Incidental Take Permit for the operations of the SWP, which supersede the previous 2008/2009 BiOps and Incidental Take Permit (ITP). Coordinated SWP/CVP operations are accurately depicted in Chapter 3, Description of the Proposed Project and Alternatives, and will continue to be managed consistent with the current and future regulatory and contractual obligations of the SWP, including the State Water Board Water Quality Control Plan for the San Francisco Bay/Sacramento Delta (Bay-Delta Plan), applicable Water Right decision (D 1641), BiOps, and ITP. The assumptions used in the hydrologic modeling of operations with the Delta Conveyance Project in place are an accurate depiction of these requirements and actual project operations. The commenter's assertion that the project would result in greater CVP diversions than authorized by the current ITP in April and May is not supported by the EIR analyses. CVP operations are included in the CalSim 3 modeling as described in Appendix 5A, Modeling Technical Appendix, Section A, Modeling Overview, and results are presented in Chapter 5, Surface Water, and Chapter 6, Water Supply. In addition, please note that modeled changes in water supply disclosed in those chapters as a result of Delta Conveyance Project operations are not considered potential impacts under CEQA, but rather provide the basis for impact analyses and mitigation presented in specific resource chapters, including Chapter 9, Water Quality, and Chapter 12, Fish and Aquatic Resources. Please refer to response to comment 504-12 regarding water rights and the operation of the south Delta facilities.
504-14	Moreover, operations of the CVP and SWP have exceeded the incidental take levels in those biological opinions in recent years and fail to prevent operations from jeopardizing listed species. See, e.g., Declaration of Dr. Jonathan A Rosenfield in support of Plaintiffs Motion for Preliminary Injunction For 2022 and Plaintiffs' Opposition to Federal Defendants Motion for	Please refer to response to comment 504-5 regarding the baseline and project biological opinions assumptions. The EIR assumes the current biological opinions for CEQA analyses because they reflect existing regulatory conditions against which the proposed project and alternatives can be analyzed to estimate impacts on fish and aquatic resources. Please see Common Response 1, CEQA Process, General Approach to Analysis, and

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	Voluntary Remand Without Vacatur, Doc. 325 (Dec. 16, 2021), attached hereto as Exhibit D [Attachments 23 and 24]. And the U.S. Fish and Wildlife Service has issued a proposed rule to list Longfin Smelt as an endangered species under the Endangered Species Act, concluding that existing regulatory mechanisms -- including these biological opinions, the State's Incidental Take Permit, and existing water quality standards -- are inadequate to prevent the extinction of Longfin Smelt. U.S. Fish and Wildlife Service, Endangered and Threatened Wildlife and Plants: Endangered Status for the San Francisco Bay-Delta Distinct Population Segment of the Longfin Smelt, 87 Fed. Reg. 60957, 60970 (Oct. 7, 2022). As a result, it plainly violates CEQA not to consider any operational alternatives to continuation of the Trump Administration's biological opinions as part of the proposed project and all of the alternatives.	Other Environmental Review Issues, regarding the decision to include the 2019 Biological Opinion as the operational assumption rather than a prior historical, interim, or speculative future regulatory conditions. In regard to exceeding biological opinion incidental take levels, the referenced declaration is related to a Temporary Urgency Change Petition (TUCP) and is not directly related to proposed Delta Conveyance Project operations. Please refer to Common Response 3, Alternatives Development and Description, for an explanation of the TUCP process, why it is not a feature of the Delta Conveyance Project, and the reasons the project would not increase the use of TUCPs. Chapter 12, Fish and Aquatic Resources, presents the environmental setting for fish and aquatic resources at the time of the NOP and discloses all of the potential impacts on special-status fish species compared to existing conditions. This chapter concludes that the Delta Conveyance Project would result in less-than-significant impacts or less-than-significant impacts with mitigation measures on fish and aquatic resources. The Chapter 12 section titled "Regulatory Environment" notes that DWR, USFWS, and NMFS have reinitiated consultation on the 2019 BiOps on the coordinated long-term operation of the CVP and SWP. The Delta Conveyance Project operations would comply with applicable future Delta regulatory requirements, including future Biological Opinions.
504-15	The operational criteria used in the DEIR appear to be premised on the assumption that the project can divert water in excess of existing regulatory requirements without causing environmental harm. However, state and federal agencies have repeatedly rejected this premise for more than a decade, including the State Water Board's 2010 Public Trust flows report, which explicitly concluded that "The best available science suggests that current flows are insufficient to protect public trust resources" and recommended significant increases in Delta outflow and measures to strengthen protections for	SWRCB is responsible for establishing Delta flow requirements. Project operations must, and will, be governed by all applicable existing and future federal and state regulatory requirements. New operational criteria specific to the north Delta intakes would provide additional protections. Furthermore, the Executive Summary table titled Summary of Key Project Features by Alternative shows that significant impacts on aquatic and terrestrial biological resources would be mitigated to a less-than-significant level. In addition, refer to Chapter 3, Description of the Proposed Project and Alternatives, in the section titled Intake Operations and Maintenance and the section titled New Operational Criteria for the Proposed North

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	fish and wildlife in the Bay-Delta. State Water Resources Control Board, Development of Flow Criteria for the Sacramento-San Joaquin Delta Ecosystem [Footnote 2: This agency record is available online at: https://www.waterboards.ca.gov/waterrights/water_issues/programs/bay_delta/deltaflow/docs/final_rpt080310.pdf. This document, and all other references to a specific website, are hereby incorporated by reference]. State and federal agencies have repeatedly recognized that existing regulatory requirements are inadequate to protect the environment, further demonstrating the need for the DEIR to consider alternatives that would increase Delta inflows and outflows in order to improve environmental protections for salmon and other fish and wildlife. See, e.g., letter from United States Environmental Protection Agency to State Water Resources Control Board regarding Comprehensive Review of Bay-Delta Water Quality Control Plan, dated December 11, 2012; [Footnote 3: This agency record is available online at: https://www.epa.gov/sites/default/files/documents/sfdelta-decpost-workshopltr-dec2012.pdf] letter from United States Environmental Protection Agency to State Water Resources Control Board regarding Bay-Delta Water Quality Control Plan; Phase 2, dated February 23, 2017 [Footnote 4: This agency record is available online at: https://www.epa.gov/sites/default/files/2017-10/documents/sfbay-water-quality-control-plan-comments-on-scientific-basis-report-2017-02-23.pdf]. More recently, in 2018 the State Water Resources Control Board concluded that, "Though various state and federal agencies have adopted requirements to protect the Bay-Delta ecosystem, the best	Delta Intakes. Please also refer to Appendix 4C, Alternative Regulatory Scenario Sensitivity Analysis, which presents potential future changes in stream flow regulatory requirements. These potential changes and environmental effects would generally be similar in nature and extent to those disclosed in EIR Chapters 7 through 32 for the proposed project and alternatives. Refer to Common Response 3, Alternatives Development and Description, regarding project operations and an overview of the approach to operational alternatives. As described in this Common Response, during the winter and spring there are typically periods when Delta inflows from storm events are more than needed to meet Delta requirements and more than can be captured at the existing SWP/CVP export facilities, or south Delta diversions. The north Delta diversion would augment the existing infrastructure by providing additional capacity to capture these excess flows. The Delta Conveyance Project would also provide operational flexibility in late spring, summer, and fall, together with the SWP, to meet D-1641 salinity requirements. Please see Chapter 33, Other CEQA-Required Analyses, and Common Response 17, Public Trust, regarding the EIR's analysis of public trust resources. As described in Chapter 9, Water Quality, Chapter 12, Fish and Aquatic Resources, and Chapter 13, Terrestrial Biological Resources, and their respective appendices, the project would result in less-than-significant impacts or less-than-significant impacts with mitigation measures for water quality, terrestrial biological resources, and fish and aquatic resources, respectively.

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	available science indicates that the existing requirements are insufficient. … Existing regulatory minimum Delta outflows are too low to protect the ecosystem, and without additional regulatory protections, existing flows will likely be reduced in the future as new storage and diversion facilities are constructed, and as population growth continues. … Given these potential future demands and limited existing flow requirements in the Bay-Delta watershed, it is imperative that updated flow requirements be established in order to protect fish and wildlife beneficial uses in the Bay-Delta watershed." State Water Resources Control Board, July 2018 Framework for the Sacramento/Delta Update to the Bay-Delta Plan, at 5-7; see id. At 15 ("As discussed above, current outflow volumes are inadequate to protect the ecosystem, and current outflow requirements are even lower and less protective.") [Footnote 5: This agency record is available online at: https://www.waterboards.ca.gov/waterrights/water_issues/programs/bay_delta/docs/sed/sac_delta_framework_070618%20.pdf]. Indeed, State law requires that the State Water Resources Control Board's consideration of any change in point of diversion for Delta conveyance to include appropriate Delta flow criteria that is informed by the Board's 2010 Public Trust report, which concluded that existing flows are inadequate and recommended significant increases in Delta outflows. Cal. Water Code § 85086(c)(2).	
504-16	The State Water Resources Control Board ("SWRCB") began the regulatory process to update the Bay-Delta Water Quality Control Plan in 2008 and issued its July 2018 Framework for	Please refer to Common Response 3, Alternatives Development and Description, for a discussion of the approach to Delta Conveyance Project operations. DWR assumed current applicable Delta regulatory

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	completing the update of the Water Quality Control Plan. The DEIR fails to provide a reasoned explanation why it does not consider alternative operational criteria that would be consistent with the 2018 Framework for completing the update of the Bay-Delta Water Quality Control Plan, particularly since the final CEQA/NEPA document is intended to be used by the SWRCB in consideration of water rights permits. [Footnote 6: The State Water Board recently required the proponents of the Sites Reservoir project to provide modeling of their proposed operations of Sites Reservoir that is consistent with the 2018 Framework, in order to process the water rights application for Sites Reservoir. Letter from State Water Resources Control Board to Sites Project Authority dated August 26, 2022, attached hereto as Exhibit E [See comment 25]. Like the Sites Reservoir Project, this DEIR is intended to provide CEQA coverage for the State Water Board's consideration of a water rights petition for the Delta Tunnel project, further demonstrating the need for evaluation of alternative operational criteria, including alternatives consistent with the State Water Board's 2018 Framework, in this DEIR.]	requirements to describe existing conditions at the time of the NOP, as directed by the CEQA Guidelines. Delta Conveyance Project alternatives also assumed these current WQCP requirement and regulatory requirements for project operations because proposed updates have either not been implemented or have not been approved. Please also refer to Common Response 8, Relationship to Other Plans, Projects, Policies, and Programs, for a discussion of the State Water Board's Bay-Delta WQCP updates and their relationship to the Delta Conveyance Project. Future Delta Conveyance Project operations would be governed consistent with existing and future regulatory requirements specified in the Bay-Delta Plan and any additional requirements resulting from Delta Conveyance Project permitting.
504-17	And in fact, the State Water Board's CEQA scoping comments explicitly identified the need to consider a range of operational alternatives, including alternative operations that increase Delta outflows and a specific alternative that is consistent with the State Water Board's 2018 Framework to complete the update of the Bay-Delta Water Quality Control Plan: "The EIR should include a reasonable range of conveyance and operational alternatives…. Operating scenarios should be considered that improve conditions for native fish species that are currently in poor condition by improving Delta outflows, reducing entrainment and impingement related effects of SWP	DWR followed CEQA requirements when identifying alternatives to be considered for evaluation in the EIR. As described in Common Response 3, Alternatives Development and Description, CEQA requires lead agencies to develop project objectives to inform the identification of the project and a reasonable range of potentially feasible alternatives. CEQA does not require consideration of every variation of every alternative; CEQA requires an EIR to include a reasonable range of alternatives that meet most of the basic project objectives, are potentially feasible, and would avoid or substantially lessen one or more of the significant effects of the proposed project. Common Response 3 provides an explanation of the alternatives screening

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	(and possibly CVP) diversions, improving cold water management, and other measures without redirected impacts to native fish species. Specifically, the EIR should evaluate a scenario that is consistent with the State Water Board's efforts to update the Bay-Delta Plan to improve protections for native fish species. In 2018, the State Water Board updated the Lower San Joaquin River Flow objectives in the Bay-Delta Plan and released a Framework for potential updates to Sacramento River and Delta inflow and outflow, interior Delta flow, and cold water habitat objectives included in the plan based on science summarized in the State Water Board's Scientific Basis Report."	process and how project objectives are used to identify potential alternatives to the proposed project. The EIR Chapter 3, Description of the Proposed Project and Alternatives, presents a range of north Delta diversion intake capacities, which would be operated to meet the proposed new operational criteria. The proposed new operational criteria are designed to meet the project objectives while balancing the needs to protect Delta beneficial uses. An operational scenario that would reduce exports and increase in-stream flows would not meet the project objectives presented in Chapter 2, Purpose and Project Objectives. See also response to comment 504-18 regarding project alternatives, operations, and the relationship of the State Water Board's Bay-Delta WQCP updates to the Delta Conveyance Project. Although not required for the purposes of the CEQA analysis, DWR conducted a sensitivity analysis to provide information regarding a possible future Alternate Regulatory Scenario describing different regulatory requirements related to water quality and flow in the Delta from those assumed in the assessments provided for Chapters 5 through 32 in the EIR. Appendix 4C, Alternate Regulatory Scenario Sensitivity Analysis, considers whether potential future changes to existing regulatory requirements could cause changes to potential environmental effects disclosed in the EIR. Refer to Chapter 2, Purpose and Project Objectives, for details related to objectives of the Delta Conveyance Project and Common Response 1, CEQA Process, General Approach to Analysis and Other Environmental Review Issues, regarding the scope of the project objectives and the baseline. The Delta Conveyance Project does not propose to, nor is it required to, mitigate or improve baseline conditions.

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504-18	The State Water Board recently required the proponents of the Sites Reservoir project to provide modeling of their proposed operations of Sites Reservoir that is consistent with the 2018 Framework, in order to process the water rights application for Sites Reservoir. Letter from State Water Resources Control Board to Sites Project Authority dated August 26, 2022, attached hereto as Exhibit E [See comment 25]. Like the Sites Reservoir Project, this DEIR is intended to provide CEQA coverage for the State Water Board's consideration of a water rights petition for the Delta Tunnel project, further demonstrating the need for evaluation of alternative operational criteria, including alternatives consistent with the State Water Board's 2018 Framework, in this DEIR.	Please refer to response to comment 504-19 and Common Response 3, Alternatives Development and Description, regarding the approach to Delta Conveyance Project operations and consistency with existing water rights. Please also refer to Common Response 1, CEQA Process, General Approach to Analysis, and Other Environmental Review Issues, regarding the project's purpose and objectives, including DWR's continuing commitment to operate the State Water Project as modified to include the Delta Conveyance Project in compliance with all state and federal water quality and environmental laws. Common Response 8, Relationship to Other Plans, Projects, Policies, and Programs, addresses the relationship of the project to State Water Resources Control Board regulations and policies. The information provided in Chapter 3, Description of the Proposed Project and Alternatives, regarding the operation of the Delta Conveyance Project intakes is an accurate description of the criteria under which the Delta Conveyance Project will operate. The hydrologic modeling conducted for each alternative is an accurate depiction of how each alternative would operate and the resulting changes in hydrologic conditions, including river flows, reservoir storage, and water deliveries. Those changes are summarized in Chapter 5, Surface Water, which provides information that was used to support the environmental assessment and allow an accurate comparison of impacts between alternatives. A complete description of the hydrologic modeling undertaken for the Delta Conveyance Project environmental analysis is provided in Appendix 5A, Modeling Technical Appendix. Common Response 9, Hydrologic Modeling and Approach, further explains the hydrologic modeling framework.
504-19	Moreover, as discussed infra, the proposed project and all of the alternatives result in significant environmental impacts and the proposed mitigation measures are wholly inadequate to reduce those impacts to a less than significant level. Considering a range of operational alternatives is necessary to	The comment assertion that the proposed mitigation measures are inadequate to reduce impacts as described in Chapters 7 through 32 is not supported by the analyses in the EIR. Please see Common Response 1, CEQA Process, General Approach to Analysis, and Other Environmental Review Issues, regarding the adequacy of mitigation measures included in

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	identify ways to reduce or avoid these significant environmental impacts.	the EIR. As described in Common Response 3, Alternatives Development and Description, the operational criteria described in Chapter 3, Description of the Proposed Project and Alternatives, are designed to optimize the balance between improving water supply reliability, complying with existing applicable Delta regulatory requirements, and protecting Delta resources. Chapter 5, Surface Water, shows long-term average monthly surface water flow changes at select locations with the project alternatives compared to existing conditions. As demonstrated in Chapter 5, generally, changes for all of the alternatives are similar to existing conditions; however, some differences in surface water flow would occur depending on which alternative is selected. The EIR evaluates the potential environmental impacts of modeled surface water changes associated with the proposed project and project alternatives. The project's operational criteria do not implicate any of the significant unavoidable impacts identified in the EIR and, thus, an alternative with different operational criteria is not required to comply with CEQA's requirement to consider a reasonable range of alternatives with the potential to avoid or lessen the project's significant impacts. Please also refer to Common Response 3, Alternatives Development and Description, regarding the range of alternatives analyzed in the EIR and the approach to describing project operations. See also response to comment 504-19 regarding the approach to Delta Conveyance Project operations.
504-20	In light of the extensive scientific record regarding the inadequacy of existing regulatory standards and the need to significantly increase instream flows, Delta outflows, and other measures to avoid significant impacts to the environment, DWR's failure to analyze a reasonable range of operational alternatives in the DEIR, including any alternatives that result in increased Delta outflows and reduced water diversions, is inexplicable -- and violates CEQA. [Footnote 7: The record	Please refer to responses to comments 504-20 and 504-21 regarding the reasonable range of alternatives and the hydrologic modeling of flows. Please also refer to response to comment 504-128 regarding the consistency of project operations with all regulatory requirements. The EIR did not evaluate an increased outflow and reduced diversion scenario because it was found to not meet a majority of the basic project objectives. The EIR contains a thorough, well-reasoned, and adequate analysis of the

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	developed over the past 14 years, including numerous agency reports and findings, court orders, biological opinions, and independent scientific reviews have provided ample practical experience demonstrating the need to consider one or more alternatives that reduce water diversions from the Bay-Delta, in contrast to the factual situation that the California Supreme Court confronted in 2008. In re Bay-Delta Programmatic Environmental Impact Report Coordinated Proceedings, 43 Cal.4th 1143, 1168 (2008)]. Therefore, the DEIR must be revised to consider a range of operational alternatives, including one or more operational alternatives that significantly increase Delta outflow and that is consistent with the State Water Board's 2018 Framework, and the revised DEIR must be recirculated for public review and comment.	potential physical impacts on the environment and reasonable range of alternatives, which is supported by substantial evidence contained in the whole of the project record. Therefore, a recirculated Draft EIR is not required. Please see Common Response 1, CEQA Process, General Approach to Analysis, and Other Environmental Review Issues, for a discussion of the CEQA requirements related to recirculation. Please also refer to Common Response 3, Alternatives Development and Description, regarding the approach to project operations. Common Response 8, Relationship to Other Plans, Projects, Policies, and Programs, regarding the relationship between the Delta Conveyance Project and the Bay-Delta Water Quality Control Plan. Also, Appendix 4C, Alternate Regulatory Scenario Sensitivity Analysis, provides an Alternative Regulatory Scenario Sensitivity Analysis that provides a comparative analysis of the effects of the proposed project under a voluntary agreement scenario. This analysis is provided for information purposes only and is not used to determine significance of impacts for the proposed project or alternatives.
504-21	II. The DEIR's Project Purposes and Objectives are Inconsistent with State Law, and to the Extent they Exclude Alternatives that Reduce Water Diversions, Violates CEQA: The DEIR's project purposes and objectives are inconsistent with state law, and to the extent that these project purposes exclude consideration of alternatives that reduce State Water Project diversions from the Delta, the project purposes and objectives violate CEQA. See DEIR, Appendix 3A, at 3A-34 (screening out the 2013 Portfolio-Based Proposal, which included a 3,000 cfs tunnel, from consideration in this DEIR specifically because that proposal reduces SWP exports from the Delta).	The project purpose and objective are consistent with state law. Please see response to comment 504-6 regarding the scope of the purpose and objectives of the project as required by CEQA and the development of the reasonable range of feasible alternatives evaluated in the EIR.

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504-22	Most notably, State law establishes co-equal goals for the Delta that include restoring the health of the Bay-Delta ecosystem and its native fisheries, Cal. Water Code §§ 85001, 85020, [Footnote 8: Similarly, to the extent that the federal Central Valley Project participates in the project, as proposed in several alternatives, the federal Central Valley Project Improvement Act requires that the Central Valley Project be operated for co-equal project purposes that include protecting salmon and other fish and wildlife, as well as complying with state law. P.L. 102-575, §§3406(a),(b)] and establishes state policy to reduce reliance on the Delta, id. § 85021. In addition, under state law, the California Department of Water Resources has an affirmative obligation to protect and conserve endangered fish species, Cal. Fish and Game Code § 2052, and is subject to the Public Trust. However, these legal obligations are not reflected in the project's purpose and objectives. None of the project objectives include restoring the Bay-Delta ecosystem and its native fish species, including both species listed under the California Endangered Species Act as well as other important species like fall-run Chinook salmon, as required by state law. See DEIR at ES-7, 2-2 to 2-3. Although the DEIR references the Delta Reform Act's co-equal goals, it does not include them in the project purposes and objectives, and ignores the obligation to reduce reliance on the Delta. Id. At 2-2. Instead, the project objectives focus exclusively on increasing water diversions from the Delta, see id. At 3-69, even though increasing water diversions demonstrably harms native fish and wildlife and fails to reduce reliance on the Delta.	Please see Appendix 3E, Delta Reform Act Considerations, and Common Response 8, Relationship to Other Plans, Projects, Policies, and Programs, regarding the Delta Reform Act and the application of the co-equal goals. DWR included a discussion of the State's affirmative duty to protect public trust resources whenever feasible in Chapter 33, Other CEQA-Required Analyses, section titled: Public Trust Considerations. The objectives identified in Chapter 2, Purpose and Project Objectives, include protection of species listed under the California Endangered Species Act and consistency with the Delta Reform Act: "...consistent with the requirements of state and federal law, including the California and federal Endangered Species Acts and Delta Reform Act...operational flexibility to improve aquatic conditions in the Delta". The comment assertion regarding harm to fish and wildlife is not supported by the analyses contained in the EIR. Chapters 12, Fish and Aquatic Resources, and 13, Terrestrial Biological Resources, evaluate potential impacts of the project during construction and operation on a wide variety of fish and wildlife species and determine that impacts would be less than significant with mitigation incorporated. Please see Common Response 17, Public Trust, regarding the EIR's analysis of public trust resources.

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504-23	The DEIR's project purposes and objectives must be revised to be consistent with state law, including restoring the health of the Delta and restoring populations of native fish species protected by CESA and the Public Trust. In addition, to the extent the DEIR's project purpose and objectives are interpreted to exclude consideration of alternatives that reduce diversions from the Delta, it is inconsistent with State law and the requirements of CEQA. See also supra Section I and footnote 4.	The purpose and objectives statement is consistent with state law. Please see response to comment 504-6 regarding the scope of the purpose and objectives of the project as required by CEQA. Please also see response to comment 504-24 regarding the EIR's analysis of public trust resources.
504-24	III. The DEIR's Environmental Baseline Misleads Decisionmakers and the Public As to the Effects of Operating the Proposed Project, Violating CEQA: The DEIR uses an improper environmental baseline that misleads decisionmakers and public regarding the likely effects of operating the project, violating CEQA. A. The DEIR Fails to Provide Substantial Evidence Justifying the Inclusion of the Trump Administration's Biological Opinions and State Water Project's Incidental Take Permit in the Environmental Baseline, and Inclusion of the OMR Storm Flex Provisions of these Permits in the Environmental Baseline Violates CEQA. First, the DEIR states that the environmental baseline includes the conditions and regulatory requirements that were in effect when the Notice of Preparation ("NOP") was issued, but in fact the environmental baseline includes weaker regulatory requirements in the Delta that were adopted after the NOP was issued. The DEIR inaccurately states that the regulatory requirements and other conditions in effect when the NOP was issued includes the 2019 biological opinions and 2020	The comment assertions that the EIR does not contain an appropriate baseline are not consistent with the information provided in the EIR. Please refer to Chapter 1, Introduction, related to the history of the 2008 and 2009 biological opinions. Please refer to Common Response 1, CEQA Process, General Approach to Analysis, and Other Environmental Review Issues, regarding a discussion of baseline conditions included in accordance with CEQA requirements, and proper inclusion of the 2019 Biological Opinion (BiOps) of the USFWS and NMFS and 2020 CDFW Incidental Take Permit (ITP) which provide a realistic picture of existing conditions for evaluating potential impacts of the proposed project and project alternatives. As described in Common Response 1, the 2019 BiOps and 2020 ITP set out the current requirements for long-term operations of the CVP and SWP, and DWR has used the latest publicly approved descriptions regarding operations of the CVP and SWP for the 2020 environmental baseline and for the reasonably foreseeable future conditions. Using the 2008-2009 BiOps in the baseline would be misleading, and therefore contrary to CEQA's requirements. The information provided in the EIR regarding baseline constitutes substantial evidence as defined and described in Common Response 1.

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	Incidental Take Permit for the State Water Project. See DEIR at ES-26, 4-1, 4-4, 5-16; id., Appendix 3C, at 3C-2 to -3; id., Appendix 5A at B-18, B-44. The environmental baseline under CEQA generally includes regulatory requirements that are in effect when the NOP was issued. Cal. Code Regs., tit. 14, § 15125(a). However, when the NOP was issued on January 15, 2020, the operations of the SWP and CVP were governed by biological opinions issued in 2008 and 2009, and it was only after the NOP was issued that the agencies adopted the incidental take permit for the State Water Project (on March 27, 2020), and adopted the Record of Decision to implement the 2019 biological opinions (on February 18, 2020). Thus, the environmental baseline should include the 2008 and 2009 biological opinions and other regulations affecting the operations of the SWP and CVP at the time the NOP was issued, absent substantial evidence demonstrating a different baseline is necessary to accurately assess the impacts of the proposed project. Cal. Code Regs., tit. 14, § 15125(a). Moreover, CEQA allows an agency to define the environmental baseline to include "conditions expected when the project becomes operational" in order to provide a more accurate picture of a project's environmental impacts. Cal. Code Regs., tit. 14, § 15125(a)(1).	
504-25	The DEIR does not provide substantial evidence to justify including these subsequent regulatory decisions in the environmental baseline. Indeed, as the result of litigation, the 2019 biological opinions and 2020 Record of Decision were remanded to the agencies on March 14, 2022, and are due to be replaced with scientifically credible biological opinions in	Please refer to response to comment 504-26 regarding the proper description and use of baseline in the EIR. Because the existing BiOps and ITP are under reconsultation and/or litigation, it is unknown what may replace the existing BiOps and ITP and would be highly speculative to include something other than the existing requirements in the baseline. Please refer to Volume 2, Chapter 2, Indices of Commenters and Index of

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	2024. This remand of these biological opinions occurred before issuance of the DEIR. According to the State of California, the Trump Administration's 2019 biological opinions were unlawful. See, e.g., Office of the Attorney General, press release, Attorney General Becerra Files Lawsuit Against Trump Administration for Failing to Protect Endangered Species in the Sacramento and San Joaquin Rivers, February 20, 2020, available online at: https://oag.ca.gov/news/pressreleases/attorney-general-becerra-files-lawsuit-against-trump-administration-failing. Rather than using the Trump Administration's biological opinions as the environmental baseline, the DEIR should have used the 2008/2009 biological opinions that were in effect when the NOP was issued. Indeed, the State Water Resources Control Board's scoping comments stated that the DEIR should include the 2008/09 biological opinions as an environmental baseline for analysis.	Primary Forms, to locate the letter numbers of comments provided by other entities that are of interest. Responses to all comment letters are provided in Volume 2, Chapter 4, Response to Comments Tables.
504-26	Using the Trump Administration's 2019 biological opinions as the environmental baseline misleads the public and decisionmakers as to the effects of the proposed project, because this environmental baseline violates state and federal environmental laws. For instance, as the State's lawsuit and other evidence demonstrates, these biological opinions significantly weakened or eliminated key environmental protections for salmon and other endangered species, and their implementation is leading to extinction of fish species including winter-run Chinook salmon, Delta Smelt, and Longfin Smelt. More recently, the U.S. Fish and Wildlife Service recently concluded that existing regulatory requirements, including the 2019 biological opinions, Incidental Take Permit for the State Water Project, and existing Bay Delta Water	Please refer to responses to comments 504-26 and 504-27 regarding the proper description and use of baseline in the EIR. Please also refer to Appendix 3C, Defining Existing Conditions, No Project Alternative, and Cumulative Impact Conditions, and specifically the section titled Existing Conditions Assumptions for Ongoing Programs and Policies, that which discusses use of the 2019 BiOps and the ITP and applicability of future federal and state regulatory requirements to which the project would comply. Federal Endangered Species Act (ESA) and state ESA permitting requirements, and the purpose of USFWS and CDFW for issuing the existing BiOps and ITPs, are different than that of CEQA planning requirements for CEQA lead agencies. NMFS, USFWS, and CDFW would be exercising their authorities and responsibilities regarding the federal and state ESA through their respective issuance of permits related to the

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	Quality Control Plan are inadequate to prevent the continuing decline and extinction of Longfin Smelt. See U.S. Fish and Wildlife Service, Endangered and Threatened Wildlife and Plants; Endangered Species Status for the San Francisco Bay-Delta Distinct Population Segment of the Longfin Smelt, 87 Fed. Reg. 60957, 60970 (Oct. 7, 2022).	project. The federal and state ESA have additional species requirements which may differ when compared to CEQA (e.g., jeopardy and take under federal ESA are different thresholds than those established by CEQA). Furthermore, as described in Common Response 1, CEQA Process, General Approach to Analysis, and Other Environmental Review Issues, lead agencies under CEQA are required to evaluate the physical environmental impacts of the project, as measured by comparing the project to the baseline. Specific to longfin smelt, they are listed by the state ESA, and remain a candidate species for the federal ESA.
504-27	The DEIR fails to provide substantial evidence why the environmental baseline includes the State's Incidental Take Permit despite this permit post-dating the NOP. As noted above, the U.S. Fish and Wildlife Service has determined the State's Incidental Take Permit is not adequate to prevent the extinction of Longfin Smelt. In addition, DWR has publicly announced that it plans to begin the process to replace this permit (which is also the subject of ongoing litigation).	Please see Common Response 1, CEQA Process, General Approach to Analysis, and Other Environmental Review Issues, and responses to comments 504-26 and 504-28 regarding the proper use and description of baseline in the EIR, including the inclusion of the existing ITP and Biological Opinions. Please see response 504-15 regarding the process followed for issuance of the ITP, and please see responses 504-109 through 504-119, which address issues related to longfin smelt.
504-28	The DEIR fails to provide any explanation why the environmental baseline fails to include the update to the Bay Delta Water Quality Control Plan adopted in 2018 by the State Water Resources Control Board (which requires increased instream flows in the months of February to June in the Stanislaus, Tuolumne, Merced, and Lower San Joaquin Rivers). These regulatory requirements were adopted years before the NOP was issued.	Please see Common Response 1, CEQA Process, General Response to Analysis, and Other Environmental Review Issues, regarding the proper use of and description of the baseline in the EIR, conditions included in baseline, and the consideration of the Updates to the Bay Delta Water Quality Control Plan (San Joaquin River Flows and Southern Delta Salinity), which is referenced by the comment. As noted by the comment, the Bay-Delta Water Quality Control Plan Update (San Joaquin River Flows and Southern Delta Salinity) was approved prior to Notice of Preparation for the Delta Conveyance Project. It was not included in the baseline modeling because it has not been implemented and the State Water Board continues to develop implementation requirements that are yet to be made public. As such existing baseline conditions includes the implementation of D-1641.

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504-29a	Nor does the DEIR provide any explanation why the No Action Alternative excludes the 2018 amendments to the Bay-Delta Water Quality Control Plan and the State Water Board's "reasonably foreseeable" regulatory update to that Plan, including the 2018 Framework. See also Letter from State Water Resources Control Board to Sites Project Authority, attached hereto as Exhibit E (explaining that the State Water Board's 2018 Framework, which identified a Delta outflow requirement of 55% of unimpaired flow in the winter and spring, is a "reasonably foreseeable" regulatory requirement). [Footnote 9: The DEIR makes several other assumptions regarding the baseline that are inconsistent with Reclamation's water rights and existing conditions, including: (1) The existing conditions baseline includes full SJRRP Restoration Flows without regard to channel capacity, see DEIR, Appendix 5A-B, Attachment 2, and B-3, even though Restoration Flows are currently severely restricted to avoid seepage and channel capacity constraints, with a maximum of 300 cfs below Sack Dam (compared to approximately 4,000 cfs without such limitations); (2) the environmental baseline excludes Reclamation's obligations to release water under section 3406(b)(2) of the CVPIA b(2), see Appendix 5A-B, Attachment 2, at B-6 ("No (b)(2) actions modeled"); and, (3) the environmental baseline excludes Reclamation's obligations to meet Vernalis base and pulse flows under water rights Decision 1641, see id. At B-3. All of these assumptions distort the modeling of the proposed project and alternatives,	Please refer to Common Response 8, Relationship to Other Plans, Projects, Policies, and Programs, regarding the relationship between the Delta Conveyance Project and the Bay-Delta Water Quality Control Plan, including the 2018 Framework. Please see response to comment 504-30 regarding the No Project Alternative and inclusion of the Updates to the Bay-Delta Water Quality Control Plan in the EIR. Letters on other projects (i.e., State Water Resources Control Board to Sites Project Authority) are not comments on the Delta Conveyance Project and are beyond the scope of this project. For responses to comments by agencies and other commenters on the Delta Conveyance Project, please refer to Volume 2, Chapter 2, Indices of Commenters and Index of Primary Forms, to locate the letter numbers of comments provided by other entities that are of interest. Responses to all comment letters on the Delta Conveyance Project are provided in Volume 2, Chapter 4, Response to Comments Tables.

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	misleading the public and decisionmakers as to the likely environmental impacts.]	
504-29b	[Footnote 9:]The DEIR makes several other assumptions regarding the baseline that are inconsistent with Reclamation's water rights and existing conditions, including: (1) The existing conditions baseline includes full SJRRP Restoration Flows without regard to channel capacity, see DEIR, Appendix 5A-B, Attachment 2, and B-3, even though Restoration Flows are currently severely restricted to avoid seepage and channel capacity constraints, with a maximum of 300 cfs below Sack Dam (compared to approximately 4,000 cfs without such limitations); (2) the environmental baseline excludes Reclamation's obligations to release water under section 3406(b)(2) of the CVPIA b(2), see Appendix 5A-B, Attachment 2, at B-6 ("No (b)(2) actions modeled"); and, (3) the environmental baseline excludes Reclamation's obligations to meet Vernalis base and pulse flows under water rights Decision 1641, see id. At B-3. All of these assumptions distort the modeling of the proposed project and alternatives, misleading the public and decisionmakers as to the likely environmental impacts.	Please see response to comment 504-32 regarding the proper description and use of baseline in the EIR. Please see Common Response 9, Hydrologic Modeling and Approach, regarding the discussion of water rights as they were simulated as diversions in CalSim 3 in conjunction with diversions by both SWP and CVP contractors under existing conditions baseline and under the project alternatives. Common Response 9 also describes the use of CalSim 3 as the best available tool to evaluate changes to the SWP and CVP service areas. As described in Common Response 9, the CalSim 3 model is the most current and best available tool for representing operating conditions of the CVP and SWP because it has been developed and refined over many decades by both Reclamation and DWR. CalSim 3 reflects the decisions made by Reclamation as to how they operate the CVP. As described in Common Response 1, CEQA Process, General Approach to Analysis, and Other Environmental Review Issues, the selection of the study areas for evaluation in the resource chapters of the EIR (e.g., Chapters 7 through 32) do not include areas upstream of the north Delta intakes or downstream in the San Joaquin River Watershed. Although the information regarding the San Joaquin River is contained in the CalSim 3 domain and modeling results, as noted by the comment, upstream data at Vernalis and even at Freeport show that there would be no changes to water supply and surface water. Furthermore, there are no SWP facilities on the San Joaquin River. Therefore, impacts in the San Joaquin River are not expected nor would changes result due to operation of the project.
504-30a	Even assuming arguendo use of the 2019 biological opinions and 2020 Incidental Take Permit as part of the baseline, the DEIR's existing conditions baseline also unlawfully includes operational criteria that allow for more water export pumping but have never been used before, in violation of CEQA. The CEQA guidelines require that, "An existing conditions baseline	Please see responses to comments 504-26, 504-28, and 504-30 regarding the proper use and description of baseline in the EIR. The Delta Conveyance Project is not permitting south Delta operations, and is not permitting CVP operations, including CVP outflow. DWR has appropriately modeled all operating criteria and conditions of the SWP and hydrology in the EIR and provided substantial evidence for the representation of

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	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." Cal. Code Regs., tit. 14, § 15125(a)(3). The DEIR violates this provision of CEQA in several ways. First, the existing conditions baseline includes the so-called "OMR storm flex" provisions of the State's Incidental Take Permit and the 2019 biological opinions in the environmental baseline. However, while these permits allow for more negative flows in Old and Middle River ("OMR") during certain poorly defined conditions, implementation of these permit provisions has never actually occurred. Second, the existing conditions baseline does not require the CVP to meet the I:E ratio from the 2009 NMFS biological opinion or the spring outflow requirements of the State's Incidental Take Permit. See DEIR, Appendix 5A, Table 5A-B2.1 ("Met through San Joaquin River Inflow to Export Ratio (SJR IE). Applied to SWP only, under ITP."). However, as a result of the preliminary injunction in federal court litigation and subsequent Interim Operations Plan(s), the CVP has been required to meet these requirements, and CVP pumping has not reached the levels identified in the DEIR's existing conditions baseline since the biological opinions went into effect in 2020. The inclusion of these regulatory provisions in the baseline, that hypothetically could result in increased pumping from the Delta, violates CEQA. Cal. Code Regs., tit. 14, § 15125(a)(3). The DEIR's environmental baseline must be revised to be consistent with CEQA.	baseline conditions. Existing conditions are not hypothetical as asserted by the comment because existing conditions are based on current regulatory environment, current facilities programs and operational criteria, and current water demands and water usage, among other things, as described in Common Response 9, Hydrologic Modeling and Approach. DWR does not have the authority to change regulations or water quality objectives or requirements. Regarding the potential for additional export pumping, please refer to Chapter 3, Description of the Proposed Project and Alternatives, which identifies that the Delta Conveyance Project is not proposing to increase the total quantity of water permitted for diversion under existing DWR water rights. However, as described in Chapter 6, Water Supply, and Appendix 5A, Modeling Technical Appendix, Section B, Hydrology and Systems Operations Modeling, exports would increase during certain times of the year under certain water year types based on the project operations description in Chapter 3. Any increase in exports under project operations is fully evaluated throughout the EIR and is appropriately described in the methodology sections of the resource chapters, Chapters 7 through 32.
504-30b	The DEIR's modeling of OMR flows, which affects entrainment of fish species by the CVP and SWP, demonstrates how including the Trump Administration's biological opinions and the State's Incidental Take Permit in the baseline misleads the public and decisionmakers as to the effects of the proposed	Please refer to Chapter 3, Description of the Proposed Project and Alternatives, regarding Old and Middle River (OMR) flows in section titled Old and Middle River Flows. The operations of the proposed north Delta intakes would remain consistent with existing regulatory requirements. OMR flows criteria serve to constrain the magnitude of reverse flows, to

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	project and alternatives. As the table below [see Exhibit 1] shows, January to June OMR under the existing conditions baseline in the 2022 Delta Conveyance DEIR is substantially more negative in dry and critically dry years than was OMR under the existing conditions baseline in the 2015 WaterFix RDEIR/SDEIS: These more negative OMR values under the 2019 biological opinions and 2020 Incidental Take Permit also occur in other water year types, particularly in the months of April and May, where the existing conditions baseline in the 2015 WaterFix RDEIR/SDEIS shows positive OMR in April and May in Wet, Above Normal, and Below Normal years. WaterFix RDEIR/SDEIS, Appendix B, Supplemental Modeling, Table B.7-25; see also DWR, Final Environmental Impact Report for Long-Term Operation of the State Water Project, at 5-12 (showing OMR under proposed project and alternatives significantly more negative in April and May than under existing conditions baseline). The DEIR uses OMR modeling under the existing conditions baseline to assert that the proposed project and alternatives generally would result in slightly lower entrainment than the existing conditions for most species. See, e.g., DEIR at 12-93 to 12-94. Yet compared to the existing conditions baseline in the WaterFix RDEIR/SDEIS from 2015--the baseline conditions that existed until adoption of the State's Incidental Take Permit and the unlawful Trump Administration biological opinions after issuance of the NOP--the proposed project and alternatives appear to cause substantial increases in negative OMR and entrainment of fish species, particularly in the months of April and May.	limit fish entrainment, and use the criteria guided by the current regulatory baseline. Please see responses to comments 504-26, 504-28, 504-30, and 504-32 regarding the proper use and description of baseline conditions in the EIR and the modeled representation of baseline conditions in the EIR. The EIR evaluates the Delta Conveyance Project alternatives described in Chapter 3 and compares these alternatives to the existing baseline, not a baseline from a past document. Accordingly, comparing the dry years to the previous Bay Delta Habitat Conservation Plan (BDCP)/California WaterFix DEIR/DEIS is not appropriate. The BDCP/California Water Fix are projects no longer proposed, the baseline used to evaluate those projects is not applicable to the Delta Conveyance Project, and past baselines in past documents do not have any bearing on the analysis in the Delta Conveyance Project EIR.

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504-31	[Exhibit 1: Table titled "Comparison of Old and Middle River Flows under Existing Condition Baseline between Delta Conveyance DEIR (2022) and WaterFix DEIR (2015)".]	The commenter provided the referenced table within the comment in support of their comments. Those comments are addressed in the respective responses to the commenter's letter.
504-32	Similarly, the increases in export pumping and other changes in operations authorized by the biological opinions and Incidental Take Permit result in far less Delta outflow in the winter and spring months under the existing conditions baseline in this DEIR, even though the California Department of Fish and Wildlife determined those changes in permit conditions between 2015 and 2022 would reduce the abundance of Longfin Smelt: "Both models predict declines in abundance for LFS under Alt 2B, from 0-4% assuming different survival levels in the RN 2016 model or 1-12% using the updated Kimmerer model. Regardless of the issues with either model, the inherent signal to noise ratios (simulated variability), all model simulations demonstrated a reduction in the FMWT index for LFS under the PP and Alternative 2b as compared to existing conditions. Although, that reduction in the FMWT index was lesser in the Alternative 2b scenario as compared to the PP scenario." California Department of Fish and Wildlife, Findings of Fact of the California Department of Fish and Wildlife Under the California Endangered Species Act, Attachment 7 (Effects Analysis, State Water Project Effects on Longfin Smelt and Delta Smelt, March 2020), at 75, attached hereto as Exhibit G. Compared to the existing conditions baseline in the 2015 WaterFix RDEIR/SDEIS, the proposed project and alternatives in this DEIR result in even more substantial reductions in the modeled abundance of Longfin Smelt, because Delta outflow	Part of this comment compares certain aspects of the Delta Conveyance Project EIR to the previous Bay Delta Habitat Conservation Plan (BDCP)/California WaterFix EIR/EIS. This part of the comment does not directly address the Delta Conveyance Project Draft EIR and DWR is not required to respond to comments on projects that are no longer being pursued. DWR is providing a response to those portions of the comment that may be applicable to the current Delta Conveyance Project. Please see responses to comments 504-26, 504-28, 504-30, and 504-32 regarding the proper use and description of baseline conditions in the EIR and the modeled representation of baseline conditions in the EIR. Please refer to Common Response 3, Alternatives Development and Description, regarding operational criteria of the project. DWR has a continuing commitment to operate the State Water Project as modified to include the Delta Conveyance Project in compliance with all state and federal water quality and environmental laws. Please refer to responses to comments 504-109 through 504-119 regarding effects on longfin smelt and mitigation to reduce the effects to less than significant.

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	was reduced as a result of adoption of the biological opinions and Incidental Take Permit. That is even more true because the modeling in the State's Incidental Take Permit assumed that the CVP would provide the proportional share of spring outflow required by the SWP under condition 8.17 of the Incidental Take Permit, yet here the DEIR assumes that the CVP will not contribute to spring outflow, resulting in even more severe impacts to Longfin Smelt than those identified in the modeling of the Incidental Take Permit and related at 2020 Final EIR, due to the greater reductions in Delta outflow and further reductions in the abundance of Longfin Smelt. The inclusion of the Trump Administration's biological opinions and State's Incidental Take Permit in the environmental baseline, including operational criteria that allow for more pumping but have not been utilized, violates CEQA. The DEIR must be revised to include a lawful environmental baseline.	
504-33	B. The DEIR's Environmental Baseline Violates CEQA Because it Excludes the Effects of Climate Change, Misleading Decisionmakers and the Public of the Likely Effects of Operating the Proposed Project. Second, the DEIR's environmental baseline violates CEQA because it excludes the effects of climate change [Footnote 10: References to climate change in these comments include the effects of sea level rise] that will have occurred by the time that the proposed project is operational. The DEIR analyzes the environmental effects of the proposed project and alternatives compared to the "existing condition" baseline. DEIR at 4-4; see, e.g., id. At Table 5-11. But "existing conditions" does not include the effects of sea level rise and climate change, and instead simply repeats the hydrologic conditions of 1922 to	The comment assertions that the EIR improperly described baseline conditions or did not consider climate change are not supported by the analysis contained in the EIR. Please refer to Common Response 1, CEQA Process, General Approach to Analysis, and Other Environmental Review Issues, regarding the proper use and description of the environmental baseline and the separate consideration of climate change in the EIR. As described in Common Response 1 and in Chapter 4, Framework for the Environmental Analysis, climate change and effects such as drought, increased heat events, and overall shifts in weather intensity (i.e., more intense wet periods/atmospheric rivers) that can lead to higher river flows and discharge, are incorporated into the EIR's analysis in multiple chapters and appendices, including Chapter 30, Climate Change. As described in the Chapter 30 section titled Applicable Laws, Regulations, and Programs, the analysis in this chapter evaluates the impacts of climate change on the project and adaptation benefits provided by the project in accordance with

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	2015 - without accounting for the observed effects of climate change since 1922. DEIR at Appendix 3C-5, 3C-8, 3C-10; DEIR, Appendix 5A, Attachment 1, at B-18; see id., Appendix 5A, Attachment 4, at B-6 to B-7. There is no question that climate change has and will affect baseline ecological conditions in the Delta. The DEIR admits that "the effects of climate change and sea level rise will foreseeably have a sizeable effect on the Delta environment by 2040." DEIR at Appendix 3C-8. Similarly, the DEIR states that, "By 2050, extreme Delta drought conditions are projected to occur five to seven times more frequently," and "[o]ver the next several decades, dry years will become drier." DEIR at 30-18 to 30-19. Even though the DEIR identifies these likely effects of climate change, the DEIR fails to analyze the effects of operations of the project with extreme drought conditions that occur five to seven times more frequently or much drier dry years as a result of climate change. Moreover, modeling of the effects of climate change is available: the DEIR incorporates some of the effects of climate change in the No Action Alternative, DEIR at Appendix 3C-3, and it includes several appendices that compare the No Action alternative in 2040 with the effects of the proposed project and alternatives, see DEIR at 4-5 to 4-6. [Footnote 11: As discussed infra, the DEIR's modeling of the effects of climate change are wholly inconsistent with the DEIR's descriptions of the effects of climate change and the best available science]. However, as the DEIR explains, those appendices that consider the effects of climate change are excluded from the CEQA analysis:	the guidance provided in DWR's Climate Action Plan Phase 2: Climate Change Analysis Guidance (California Department of Water Resources 2018), which is cited by the comment. The information about climate change in Chapter 30 and throughout the EIR provides decision makers and the public with information to understand potential conditions under climate change and how those may differ with conditions evaluated using existing conditions for impact determination purposes. For additional explanation on climate change, please refer to Common Response 9, Hydrologic Modeling and Approach, regarding the modeling of future conditions influenced by climate change. Please see Common Response 6, Climate Resilience and Adaption, regarding observed and projected climate trends in the study area including drought, sea level rise, and operations under climate change conditions.

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	"These longer-term analyses were performed outside of CEQA requirements to provide information about possible future environmental conditions once conveyance facilities are operational. Because these analyses are provided for informational purposes, no CEQA significance conclusions are presented for potential impacts, and no mitigation measures are recommended to reduce potential impacts." Id. As a result, the DEIR's analysis of the proposed Delta tunnel and alternatives excludes the effects of climate change in assessing environmental impacts. This violates CEQA and DWR's own guidance regarding the effects of climate change. As DWR's director wrote in 2018, "Climate change is not a far-off future risk. The extreme hydro-climatic conditions of the last six years "both dry and wet" are exactly the types of conditions scientists have been identifying as the hallmark of what climate change will look like. Today's planning, management, and investment efforts must factor in resiliency and adaptability to climate conditions outside the scope of our historical experience." DWR, Climate Action Plan, Phase 2: Climate Change Analysis, Guidance September 2018, at V, available online at: https://water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/All-Programs/Climate-Change-Program/Climate-Action-Plan/Files/CAPII-Climate-Change-Analysis-Guidance.pdf.	
504-34	DWR's 2018 guidance further states that with respect to analyzing environmental effects on resources, "For impact evaluations, DWR projects should consider how expected changes in climate could exacerbate the environmental consequences of the project or generate new	Please see response to comment 504-37 regarding climate change analyses in the EIR and the incorporation of DWR's Climate Action Plan, Phase 2: Climate Change Analysis in Chapter 30, Climate Change. DWR considers climate change effects, including longer-term effects, and hydrologic changes driven by climate change throughout the EIR as described in

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	consequences that would not have otherwise occurred. This is typically done by comparing estimates of potential project impacts between a project alternative under existing climate conditions to the estimates of potential project impacts for a project alternative under expected future conditions 20 - 50 years into the future." Id. At 21. The DEIR fails to follow DWR's own guidance: the DEIR's modeling ignores the observed effects of climate change to date, and ignores the longer term effects of the project and alternatives with the effects of climate change. Instead, the DEIR analyzes effects based on the hydrological conditions that the State has historically experienced--even though those are not the effects that the State is experiencing today.	Common Response 1, CEQA Process, General Approach to Analysis, and Other Environmental Review Issues; Common Response 6, Climate Resilience and Adaptation; and Chapter 4, Framework for the Environmental Analysis.
504-35	The failure to analyze effects of operating the project in light of the effects of climate change violates CEQA in several ways. Climate change has already caused significant changes to temperatures and hydrological conditions compared to conditions decades or a century ago, including earlier runoff, increased air and water temperatures, and more frequent drought conditions. For instance, average and median Sacramento River unimpaired runoff from 2000 to 2021 is substantially lower than the average and median Sacramento River unimpaired runoff from 1906 to 2021, as the table below [see Exhibit 2] shows: In addition, the DEIR warns that, "Between 1906 and 1960, one third of the water years in California were considered by the California Department of Water Resources (DWR) to have been "dry or critical"; that percentage increased to 46% from 1961 to 2017 (Bureau of Reclamation 2019:H-2)." DEIR at 5-4.	Please refer to responses to comments 504-37 and 504-38 for discussion of climate change and information included throughout the EIR and technical appendices that supported the analysis. The analysis contained in the EIR does not violate CEQA because, as described in responses to comments 504-37 and 504-38, the EIR properly describes and evaluates baseline conditions from which to make impact determinations. Furthermore, the EIR provides decisions makers and the public information regarding climate change in which to understand potential climate change effects.

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	Similarly, DWR's Delivery Reliability Report finds that the actual average SWP Allocation from 2011 to 2020 was significantly lower than their models predict the average allocation would be based on observed hydrology from 1922-2015 (and just adding the years 2004-2015 to their model reduced the long term average allocation, as the table below [See Exhibit 3] shows): And consistent with the predictions regarding the effects of climate change, in October 2022 DWR announced that, "The current drought from 2020 to 2022 is now the driest three-year period on record, breaking the old record set by the previous drought from 2013 to 2015," and the Director warned of the need to plan for hotter, drier future "where we see less precipitation." See DWR, New Water Year Begins Amid Preparations for Continued Drought, October 3, 2022, online at: https://water.ca.gov/News/News-Releases/2022/Oct-22/New-Water-Year-Begins-Amid-Preparations-for-Continued-Drought. In other words, over the past 10 years, California has twice set new records for the driest consecutive three-year period in the State's historical record (record low runoff in 2013-2015, broken again in 2020-2022), punctuated by very wet years in 2017 and 2019.	
504-36	[Exhibit 2: Table titled "Sacramento Valley Unimpaired Runoff".]	The commenter provided the referenced table within the comment in support of their comments. Those comments are addressed in the respective responses to the commenter's letter.
504-37	[Exhibit 3: Table with modeled SWP long-term average allocations.]	The commenter provided the referenced table within the comment in support of their comments. Those comments are addressed in the respective responses to the commenter's letter.
504-38	Because the proposed project will not be operational until around the year 2040, see id., Appendix 3C, at 3C-3, using the existing condition baseline fails to accurately assess the	The assertion of the comment that the EIR grossly misleads the public and decision makers is not supported by the analyses contained in the EIR. The EIR provides substantial evidence regarding the potentially significant

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	environmental impacts of operating the project. The CEQA guidelines allow an agency to define the environmental baseline to include "conditions expected when the project becomes operational" in order to provide a more accurate picture of a project's environmental impacts. Cal. Code Regs., tit. 14, § 15125(a)(1). The DEIR admits that the effects of climate change will be "sizeable" by the time the project is operational. See DEIR at Appendix 3C-8. Modeling results in the DEIR--which are not considered for purposes of CEQA--demonstrate the significant effects of climate change between the 2020 existing conditions baseline and 2040 No Action Alternative, including: (1) Significant reduction in upstream reservoir storage. See DEIR at 5-17 to 5-18. For instance, end of September Shasta Reservoir storage in critically dry years declines from an average of 1.543 million acre feet (2020) to an average of 1.432 million acre feet (2040), and end of September storage in Oroville Reservoir declines from an average of 1.068 million acre in critically dry years (2020) to 0.834 million acre feet (2040); (2) Significant increases in water temperatures below Shasta Dam. Compare id., Appendix 5A, Table 5A-D1.13.1-B (existing conditions baseline (2020) Sacramento River at Clear Creek (CCR) average temperatures in critically dry years of 58.2 degrees Fahrenheit in September) with id., Appendix 5A, Table 5A-D2.13.1-B (No action alternative (2040) Sacramento River at Clear Creek (CCR) average temperatures in critically dry years of 56.1 degrees Fahrenheit in August, 60.4 degrees Fahrenheit in September, and 59.8 degrees Fahrenheit in October);	environmental impacts of the Delta Conveyance Project by appropriately comparing existing baseline conditions to alternative conditions. In addition, the EIR provides multiple non-CEQA required analyses for informational purposes only regarding climate change and potential operational effects. Please see responses to comments 504-26, 504-28, 504-30, 504-32, 504-37, 504-38, and 504-39 regarding the proper use and description of baseline conditions in the EIR and the modeled representation of baseline conditions in the EIR, as well as the consideration of climate change throughout the EIR. Chapter 30, Climate Change, explains the intent of the chapter is to discuss how climate change is projected to affect the study area; how the project could be affected by climate change, and how the project could increase resiliency to climate change. This is consistent with the objectives of the project regarding climate change resilience and providing reliability to SWP water deliveries (described in Chapter 2, Purpose and Project Objectives). Information contained in the EIR shows that even without the Delta Conveyance Project climate change would occur and result in some changes. For example, end of year storage for Shasta described in Appendix 6A, Water Supply 2040 Analysis, differences between existing conditions and the No Project Alternative (2040 with climate change) are not a result of operation of Delta Conveyance Project but are a result of changes in modeled hydrologic conditions between existing conditions and the No Project Alternative, which includes climate change. This is an example of more than a dozen appendices in the EIR that evaluate whether any of the impact conclusions in their respective chapters would change when considered under future conditions that reflect changes to hydrology and sea level rise as a result of climate change. Additionally, please refer to Common Response 6, Climate Resilience and Adaptation, regarding the sensitivity analysis presented in Appendix 30A that demonstrated the reliability of the climate change analysis presented throughout the EIR.

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	(3) Substantial increases in temperature dependent mortality of winter-run Chinook salmon below Shasta Dam, compare id., Appendix 5A, Table 5A-E2.1-B (existing conditions (2020) average temperature dependent mortality using the Martin Model of 42% in critically dry years and 8% overall) with id., Appendix 5A, Table 5A-E4.1-B (No action alternative (2040) average temperature dependent mortality using the Martin Model of 66% in critically dry years, 18% in dry years, and 14% overall). Even though the project will not be operational until 2040, the DEIR wholly ignores its own projections of these significant effects of climate change for the purposes of CEQA. The Delta Conveyance Project is clearly a case where using the existing conditions baseline, which excludes the effects of climate change, grossly misleads the public and decisionmakers of the likely environmental impacts of operating the proposed project starting in the year 2040.	Please refer to Common Response 3, Alternatives Development and Description, regarding Delta Conveyance Project proposed operations, which do not include modifications to State Water Project reservoir operations upstream of the project. DWR would not increase storage withdrawal for exports, except flood releases, even though the proposed Delta Conveyance Project may provide additional diversion capacity. The project would not modify the Central Valley Project reservoir operations upstream of the project. With respect to fish and aquatic resources, the comment provides an example of winter-run Chinook salmon egg mortality. As the comment notes, there is a modeled increase in mortality between existing conditions (2020 climate) and the No Project Alternative (2040 climate) suggested by the Martin model. However, there is a similarly small difference between the project alternatives and existing conditions at 2020 climate as there is between the project alternatives and the No Project Alternative at 2040 climate (compare results in Appendix 5A, Modeling Technical Appendix, Section E, SALMOD and Egg Mortality Models, Attachment 2, Martin and Anderson Model Results for Existing Condition and Alternatives at 2020, and Attachment 4, Martin and Anderson Model Results for No Project Alternative and Alternatives at 2040; see also response to comment 504-76). This is contrary to the commenter's suggestion that the project would exacerbate climate change effects. The similarities in the comparisons reflect application of the same upstream operational criteria under the project alternatives as existing conditions and the No Project Alternative. Appendix 12C, Fish and Aquatic Resources 2040 Analysis, further illustrates the general similarity in the relative difference between the project alternatives and existing conditions at 2020 climate and between the project alternatives and the No Project Alternative at 2040 climate.
504-39	By failing to adequately account for the hydrological changes that have already occurred, and those that are anticipated to occur as a result of climate change before the proposed project	Please see responses to comments 504-26, 504-28, 504-30, 504-32, 504-37, 504-38, and 504-39 regarding the use and description of existing baseline conditions and the modeled representation of baseline conditions

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	would be operational, the DEIR's use of "current conditions" as the environmental baseline--hydrological and temperature conditions from 1922 to 2015--does not reflect reality and underestimates the environmental impacts of operating the proposed project. And as discussed at more length infra, the use of existing conditions as the environmental baseline violates CEQA because the DEIR fails to adequately evaluate the whole of the action, which includes environmental effects over the life of the project, which necessarily includes evaluating the effects in 2040 and thereafter, given the very long anticipated life of the proposed project. Cal. Code Regs., § 15126.2(a).	in the EIR, as well as the consideration of climate change throughout the EIR. In addition, please refer to Common Response 1, CEQA Process, General Approach to Analysis, and Other Environmental Review Issues, regarding the evaluation of the project as a whole and long-term operation, and the overall scope of analysis.
504-40a	C. The DEIR's Modeling of the Effects of Climate Change in the Appendices Mislead the Public of the Likely Effects of the Proposed Project in Light of Climate Change The DEIR's assumptions regarding climate change and sea level rise, including in the No Action Alternative [Footnote 12: The No Action Alternative also continues the Trump Administration's unlawful biological opinions and the State's 2020 Incidental Take Permit for operations of the State Water Project, while also failing to incorporate the State Water Resources Control Board's 2018 amendments to the Bay-Delta Water Quality Control Plan. Nor does the No Action Alternative incorporate "reasonably foreseeable updates to instream flow and Delta outflow objectives in the Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta." See Letter from State Water Resources Control Board to Sites Project Authority dated August 26, 2022, attached hereto as Exhibit E [See attachment 25]. The No Action Alternative should be revised to include these reasonably foreseeable requirements.] and 2040 modeling, fail to provide adequate	DWR has taken into account climate change and sea level rise as part of the environmental impact analysis provided in the EIR. The consideration of climate change and sea level rise in the EIR is based on the best available information at the time the EIR was prepared. Common Response 6, Climate Resilience and Adaptation, provides a broader overview of how climate change was considered throughout the EIR. Appendix 30A, CalSim 3 Results Sensitivity to 2040 Climate Change and Sea Level Projections, also included a sensitivity analysis using two additional climate change scenarios: (1) 2040 Central Tendency with 0.5-ft sea level rise assumption and (2) with 2040 Median with 1.8ft. sea level rise assumption. As shown in the appendix, atmospheric temperatures are expected to increase under each scenario. Under the 2040 Central Tendency scenario, precipitation and runoff is estimated to increase when measured at each rim reservoir within major watersheds. Similarly, evapotranspiration rates are also expected to increase. For the 2040 Median scenario, runoff is also expected to decrease in all major watersheds and evapotranspiration rates would increase. With the exception of the Sacramento River watershed, precipitation is expected to increase in all major watersheds. The timing of runoff for both climate change scenarios would shift to a pattern of being higher than existing

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	and accurate information to decisionmakers and the public regarding the risks and likely environmental effects of operations of the proposed project. While the DEIR claims that it uses “a conservative climate change and sea level rise assumption,” DEIR at 4-5, in fact the DEIR uses what it admits are an "extreme" assumption regarding sea level rise, id., Appendix 3C, at 3C-10. Moreover, the DEIR’s modeling assumptions predict that climate change will increase runoff compared to the historical record -- a hotter, wetter future -- even though the text of the DEIR and other state documents predict climate change will result in reduced precipitation and runoff, more frequent and severe droughts, and a hotter, drier future. As a result, the DEIR’s modeling and quantitative analysis fails to adequately account for the likely effects of climate change, and dramatically underestimate those effects, resulting in inaccurate and misleading quantitative analysis of the effects of the project in light of the likely effects of climate change in the appendices and No Action Alternative.	conditions in the December through March period and then lower than existing conditions. This is attributable to a warmer climate and a shift of precipitation from snow to rain.
504-40b	[Footnote 12:] The No Action Alternative also continues the Trump Administration’s unlawful biological opinions and the State’s 2020 Incidental Take Permit for operations of the State Water Project, while also failing to incorporate the State Water Resources Control Board’s 2018 amendments to the Bay-Delta Water Quality Control Plan. Nor does the No Action Alternative incorporate "reasonably foreseeable updates to instream flow and Delta outflow objectives in the Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta." See Letter from State Water Resources Control Board to Sites Project Authority dated August 26, 2022, attached hereto as Exhibit E [See attachment 25]. The No Action Alternative should be revised to include these reasonably foreseeable requirements.	Please see Common Response 1, CEQA Process, General Approach to Analysis, and Other Environmental Review Issues, regarding CEQA requirements for defining the baseline and the inclusion of the existing biological opinions in the baseline. Please also see Common Response 1 for inclusion of the updates to the State Water Board’s Bay-Delta Water Quality Control Plan included in the cumulative analysis of various resources. Please also see Appendix 3C, Defining Existing Conditions, No Project Alternative, and Cumulative Impact Conditions, for a description of the No Project Alternative assumptions, which include the 2018 amendments to the Bay-Delta Water Quality Control Plan. In addition, Common Response 8, Relationship to Other Plans, Projects, Policies and Programs, describes other plans, policies, and programs of the State Water Board and the relationship to the Delta Conveyance Project. Please also refer to response to comment 504-31 regarding the No Project Alternative,

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		the 2018 Framework, and the letter referenced by the comment.
504-41	First, instead of using the most probable estimate of sea level rise, the DEIR's No Action Alternative instead uses an "extreme assumption" of 1.8 feet of sea level rise by 2040, which the State admits has a less than a 0.5% chance of occurring by 2040. DEIR, Appendix 3C at 3C-10; Ocean Protection Council, State of California Sea-Level Rise Guidance, 2018. As a result, the model assumes more flow through the Delta is necessary to maintain the hydraulic salinity barrier, resulting in higher flows into the Delta and lower reservoir storage. See DEIR at 30-25. In contrast, the State's median projection of sea level rise is 0.6 feet by 2040. Ocean Protection Council 2018.	Please see Common Response 9, Hydrologic Modeling and Approach, regarding best available tools, modeled representation of future conditions and climate change, modeled representation of CEQA baseline existing condition, and climate change assumptions as input into the hydrologic model. Please also see Common Response 6, Climate Change Resilience and Adaptation, regarding the multiple climate changes analyses throughout the entire EIR. As described in that Common Response, DWR analyzed multiple scenarios including an extreme scenario, which is more than what is required by CEQA. The EIR also includes an evaluation of the Delta Conveyance Project's incremental changes under a 0.5-ft sea level rise (see Appendix 30A, CalSim 3 Results Sensitivity to 2040 Climate Change and Sea Level Projections).
504-42	Second, the DEIR fails to provide a reasoned explanation why the No Action Alternative and other modeling of climate change effects use the Central Tendency of the climate models, which predicts precipitation and annual runoff will increase compared to today. See DEIR at 30-20 (concluding that by 2040 climate change will increase precipitation compared to 1981-2010 conditions: "all major watersheds are projected to be wetter, with average precipitation increases from 2.7% to 4.8%."); id., Appendix 30A, at Figure 30A-2. DWR's modelling of the Central Tendency shows increased runoff in the state's rivers, as the graphic below shows, which means there is more water than today to be captured and exported by the tunnel – not less water than today: However, State and Federal agencies have repeatedly found that climate change is likely to decrease runoff. For instance, the State of California's 2022 Water Supply Strategy: Adapting to a Hotter, Drier Future explains that "DWR estimates a 10% reduction in water supply by 2040 … consider[ing] increased	Please see Common Response 9, Hydrologic Modeling and Approach, regarding best available information, modeled representation of future conditions and climate change, and climate change assumptions as input into the hydrologic model. Climate change is also expected to increase short-duration flashy winter rainstorms, resulting in short periods of high flows in the Delta regardless of water year type. This could occur even during drought conditions, such as the events experienced in 2015 and 2021. Existing physical and regulatory constraints on the facilities in the south Delta limit DWR's ability to capture this water supply when available. Thus, the Delta Conveyance Project would be especially valuable for providing operational flexibility and allow adaptation to the changing runoff patterns by capturing increased winter flows into the Delta, and high flows from flashy storm events in extended dry periods. The CalSim 3 2040 Climate Sensitivity Analysis section of Appendix 30A, CalSim 3 Results Sensitivity to 2040 Climate Change and Sea Level Projections, explains the use of the 2040 Central Tendency climate

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	temperatures and decreased runoff due to a thirstier atmosphere, plants, and soil." See Office of the Governor, Natural Resources Agency, Department of Water Resources, California Water Boards, California Environmental Protection Agency, and California Department of Food and Agriculture, Water Supply Strategy: Adapting to a Hotter, Drier Future, August 2022, at 1, available online at: https://resources.ca.gov/-/media/CNR AWebsite/Files/Initiatives/Water-Resilience/CA-Water-Supply-Strategy.pdf (emphasis added). Similarly, the Bureau of Reclamation has released updated modeling of the effects of climate change, which estimates that climate change is likely to reduce annual runoff by 1% by 2040. See Exhibit C. The DEIR does not provide information about the effects of climate change on the frequency of water year types or on runoff in drier water year types (only providing annual averages), but Reclamation's modeling predicts more frequent critically dry years and indicates that DWR's modeling does not result in more frequent critically dry years. Id. And in contrast to the DEIR's predictions of increased runoff compared to the 1981-2010 period as a result of climate change, Sacramento Valley unimpaired runoff has declined substantially over the past two decades. See supra.	scenario. The Presentation of Results section of Appendix 5A, Modeling Technical Appendix, Section B, Hydrology and Systems Operations Modeling, explains how CalSim 3 computes water year types. The Forecasting section describes the dynamic forecasting routine used.
504-43	[Exhibit 4: Figure 30A-2. Projected Absolute Changes in Precipitation, Evapotranspiration, and Runoff for Major Watersheds in the Sacramento and San Joaquin River Basins for 2040 CT, Compared to Historical Reference Period (1995).]	The commenter provided this exhibit for reference purposes in support of their comments. Those comments are addressed in response to comment 504-46.
504-44	In contrast to the Central Tendency, the DEIR also presents results of the Median climate models, which predicts decreased runoff compared to the historical record [See Exhibit 5]:	Please see Common Response 9, Hydrologic Modeling and Approach, regarding modeled representation of future conditions and climate change, and climate change assumptions as input into the hydrologic model. The CalSim 3 2040 Climate Sensitivity Analysis section of Appendix 30A,

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	However, the DEIR does not use the 2040 Median climate change modeling, despite the fact that the median is a better reflection of the "typical" year and is not overly influenced by extremely wet years, as the "mean" (or central tendency) metric is. This median prediction appears more consistent with hydrology over the past two decades. As the DEIR admits, "[i]n the context of climate change, projections of future precipitation are even more uncertain than projections for temperature. Uncertainty regarding precipitation projections is greatest in the northern part of the state, and a stronger tendency toward drying is indicated in the southern part of the state." DEIR at 5-4. Given this uncertainty, it is irresponsible for the DEIR to assume increased precipitation as a result of climate change (Central Tendency) without equally considering reduced precipitation and runoff as a result of climate change (2040 Median).	CalSim 3 Results Sensitivity to 2040 Climate Change and Sea Level Projections, explains that the CalSim 3 simulations in this sensitivity analysis are similar between the 2040 Central Tendency and 2040 Median. Please see response to comment 504-46 for additional information regarding climate change and modeling.
504-45	[Exhibit 5: Figure 30A-3. Projected Changes in Precipitation and Runoff for the Major Watersheds in the Sacramento and San Joaquin River Basins for the 2040 Median, Compared to Historical Reference Period 1995.]	The commenter provided this exhibit for reference purposes in support of their comments. Those comments are addressed in these responses to the commenter's letter.
504-46	Third, the DEIR's modeling of climate change does not account for the effects of increased frequency and duration of droughts as a result of climate change compared to the historical record -- as explained in the DEIR. For instance, the text of the DEIR explains that "By 2050, extreme Delta drought conditions are projected to occur five to seven times more frequently," and "[o]ver the next several decades, dry years will become drier." DEIR at 30-18 to 30-19. Similarly, the DEIR warns that, "Between 1906 and 1960, one third of the water years in California were considered by the California Department of Water Resources (DWR) to have been "dry or critical"; that percentage increased to 46% from 1961 to 2017 (Bureau of	Please see Common Response 9, Hydrologic Modeling and Approach, regarding modeled representation of future conditions and climate change, and climate change assumptions as input into the hydrologic model. The Application of California Climate Projections to Alternatives Analysis section of Chapter 30, Climate Change, provides the rationale for selection of the 2040 Central Tendency climate change scenario evaluated in the EIR. Please see response to comment 504-46 for additional information regarding climate change and the analyses within the EIR. Please see response to comment 504-44 regarding modeled changes in precipitation, temperature, evapotranspiration rates, and runoff. Overall, when measured at rim reservoirs within the major watersheds, precipitation and

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	Reclamation 2019:H-2)." DEIR at 5-4. These results are consistent with expectation of the typical year (the median years) being drier in the future than it was in the past. However, the DEIR's climate change modeling does not result in extreme drought conditions occurring five to seven times more frequently, or dry years become drier. Instead, the DEIR's climate modeling assumes wetter conditions with increased runoff, including increased runoff in dry and critically dry years. [Footnote 13: The DEIR states that by 2040, climate change effects result in more frequent critically dry years and decreased numbers of wet, AN, BN, and dry years, but it does not quantify these effects. DEIR at 5-15. However, the DEIS' modeling frequently shows increased river flows in critically dry years in 2040 (with climate change) compared to critically dry years in 2020 (without climate change)]. As a result, the DEIR's modeling and analysis underestimate the likely effects of climate change on hydrology, resulting in the DEIR overestimating flows into and through the Delta, and thus underestimating the proposed project's likely adverse environmental impacts and overestimating the volume of water diverted by the proposed project and alternatives.	temperature would increase when compared to existing conditions.
504-47	The modeling of wetter conditions with greater river runoff in the winter and spring months as a result of climate change leads to biased analysis of the effects of climate change on fish and wildlife populations. For example, because the best available science shows that the survival of juvenile salmon down the Sacramento River and into and through the Delta is a function of the amount of flow (Perry et al 2018), the DEIR shows that climate change will increase survival of juvenile salmon migrating through the Delta in the winter and spring months. Compare DEIR Table 12-30 (2020 no project	With respect to comments regarding climate change modeling, please see the discussion of climate change analyses in the EIR in Common Response 6, Climate Resilience and Adaptation, and the discussion of modeled representation of future conditions and climate change in Common Response 9, Hydrologic Modeling and Approach. Please also see responses to comments 504-46 and 504-51 regarding climate change and modeling. Please see responses to comments 504-77, 504-78, 504-79, and 504-80 regarding the Delta Passage Model and IOS.

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	alternative) with id. Table 12C-9 (2040 No Action Alternative) [see Exhibit 6]. Similarly, modeling of juvenile salmon survival in the DEIR using the Delta Passage Model [Footnote 14: As discussed infra, the DEIR modified the Delta Passage Model in a manner that fails to use the best available science] shows increased survival through the Delta as a result of the modeled increase in flows through the Delta from climate change: In addition, the DEIR's IOS [Footnote 15: As discussed infra, the IOS model assumes that temperature mortality of winter run Chinook salmon does not begin until 56 degrees Fahrenheit, despite the fact that this fails to use the best available science, as the State of California has argued in federal court] life cycle model predicts that the abundance of endangered winter run Chinook salmon will decline less under climate change compared to existing conditions, notwithstanding the numerous scientific publications that conclude climate change threatens the viability of winter-run Chinook salmon: The same is true for modeling of the proposed project and alternatives in the appendices, where the increased flows modeled to result of climate change leads to similarly unrealistic outcomes. As these examples show, the DEIR fails to provide the public and decision-makers with accurate information about the likely effects of climate change. As a result, at a minimum the DEIR must be revised to include modeling of the proposed project with Median climate change effects, including modeling and analyses regarding project operations during more frequent and severe droughts.	Please refer to Chapter 30, Climate Change, and Appendix 30A, CalSim 3 Results Sensitivity to 2040 Climate Change Projections and Sea Level Projections, regarding the climate change analysis. Please refer to Chapter 5, Surface Water, regarding changes in river flow under the No Project Alternative compared to existing conditions, and Appendix 5A, Modeling Technical Appendix, Section E, SALMOD and Egg Mortality Models, regarding SALMOD and Egg Mortality Models.
504-48	[Exhibit 6: Table of through Delta survival of winter-run (Delta Passage Model) for Existing Conditions (2020) and the No Project Alternative (2040)]	The commenter is providing this exhibit in support of their comments. Those comments are addressed in response to comment 504-52.

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504-49	[Exhibit 7: Table of Mean Adult Female Winter-Run Escapement (IOS model) for Existing Conditions (2020) and No Project Alternative (2040)]	The commenter is providing this exhibit in support of their comments. Those comments are addressed in response to comment 504-52.
504-50	IV. The DEIR Fails to Consider the Whole of the Action, Violating CEQA: The DEIR violates CEQA because it fails to consider the whole of the action, including: (1) long term effects of the proposed project; (2) changes in upstream reservoir operations of the CVP and SWP necessary to adapt to climate change; (3) DWR's operations during droughts, including installation of salinity barriers and submission of Temporary Urgency Change Petitions to allow DWR and Reclamation to violate minimum Delta Water Quality Objectives; and, (4) water transfers. Each of these flaws results in a DEIR that misleads the public and decision-makers as to the likely environmental impacts of the proposed project and alternatives, as discussed in detail below.	Please refer to Common Response 1, CEQA Process, General Approach to Analysis, and Other Environmental Review Issues, regarding the evaluation and scope of analysis of the project and evaluation of the project as a whole. Please also see responses to comments 504-37, 504-38, 504-39, and 504-42 regarding long term effects, climate change, and upstream reservoir operations. As described in Common Response 1 and response to comment 504-8, TUCPs are not part of the project and thus are not considered a part of the whole of the action. Installation of salinity barriers are also not part of this project. This is a separate and independent project that could be pursued by DWR at an unknown future time. As described in Chapter 3, Description of the Proposed Project and Alternatives, in the section titled Use of North Delta Intakes for Wheeling, water transfers are not part of the project and thus would not be considered a part of the whole of the action. Appendix 3H, Non-Project Water Transfer Analysis for Delta Conveyance, describes the potential use of new facilities for water transfers. As noted in this appendix and in Chapter 3, even though the Delta Conveyance Project may add additional export capacity, it is unlikely to increase water transfers, given the fact that there is existing unused capacity in the system.
504-51	A. The DEIR Violates CEQA Because it Fails to Consider Long-Term Effects of the Project. CEQA requires the DEIR to consider the whole of the action, "giving due consideration to both the short-term and long-term effects." Cal. Code Regs., tit. 14, § 15026.2 (a). There is no question that the proposed project and alternatives would be operational for many decades into the future. See also DEIR at 4-6. Nor is there any question that the effects of climate change significantly alter the effects of the proposed project	The comment assertions regarding the failure to discuss long-term impacts and significant adverse effects as a result of the project are not consistent with the discussion and analysis in the EIR. Please refer to Chapter 4, Framework for the Environmental Analysis, and the section titled Approach to CEQA Analysis and the section titled Additional Analyses of Potential Future Conditions. Please see Common Response 9, Hydrologic Modeling and Approach, which provides a discussion of the CalSim 3 modeling conducted for the project and why CalSim 3 is a valid and accurate tool for assessing environmental impacts across all project alternatives.

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	and alternatives--resulting in changes in water supply, water quality in the Delta, river flows, water temperatures, and resulting effects on native fish populations. Indeed, even the flawed modeling of the effects of climate change included in the appendices to the DEIR demonstrate these significant adverse effects. Yet the DEIR excludes consideration of long-term effects of the project under CEQA, such as effects in 2040 or 2070 that include the effects of climate change, and only considers the effects of the proposed project compared with the existing condition baseline. See DEIR at 4-5 ("These longer-term analyses were performed outside of CEQA requirements to provide information about possible future environmental conditions once conveyance facilities are operational."); Id. At 4-6 (explaining that the DEIR's approach excludes consideration of the effects of climate change from the analysis). This plainly violates CEQA's mandate to consider long-term effects.	Different analyses contained in the EIR are presented for different timeframes to document potential effects associated with the project and climate change. As noted in Chapter 4, and throughout the EIR, these longer-term analyses were performed to provide information about possible future environmental conditions once conveyance facilities are operational and show that conditions would not substantially vary between the types of impacts and impact determinations disclosed in the Chapters 7 through 32 and the conditions under the 2040 scenario (including climate change) or under the 2070 scenario (including climate change). For example, as demonstrated in Appendix 12C, Fish and Aquatic Resources 2040 Analysis, in the table titled Summary of Winter-Run Chinook Salmon Quantitative Analyses and Differences at 2040 Relative to 2020, results between conditions disclosed in Chapter 12, Fish and Aquatic Resources, and Appendix 12C would be generally similar. In other words, the impact determinations made in Chapter 12 would not change with the information disclosed in Appendix 12C. This is similar to the results presented in Appendix 5B, Surface Water 2040 Analysis, Appendix 6A, Water Supply 2040 Analysis, and Appendix 9L, Water Quality 2040 Analysis. Please refer to Common Response 1, CEQA Process, General Approach to Analysis, and Other Environmental Review Issues, regarding use of relevant data, literature, and models that guided analysis methodology, use of the substantial evidence, framework of the analysis considering the uncertainty of future conditions and how the project may operate, and rationale for the project baseline including discussion of and use of a future baseline.
504-52	B. The DEIR Violates CEQA Because it Fails to Consider Necessary Changes to Upstream Operations of the CVP and SWP as part of the Long-Term Effects of the Project. CEQA broadly defines a "project" as the whole of the action, even where separate governmental approvals are required. Cal. Code Regs., tit. 14, §15378; Cal. Pub. Res. Code § 21065.	The comment assertions regarding failure to consider upstream operations as part of the project are not supported by the project description, the purpose of the project, or project elements. Please refer to Common Response 1, CEQA Process, General Approach to Analysis, and Other Environmental Review Issues, which discusses the selection of the study areas for evaluation in the EIR, including a discussion of areas upstream of the north Delta intakes, and analysis of the project as a whole. Please refer

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	This broad definition of project is intended to protect the environment by prohibiting the segmentation or piecemealing of environmental review by dividing a project into several pieces and evaluating the environmental impacts of each piece separately, where each of the individual pieces may have no significant impact on the environment. See, e.g., Tuolumne County Citizens for Responsible Growth v. City of Sonora, 155 Cal.App.4th 1214, 1222-23 (2007); Association for a Cleaner Environment v. Yosemite Community College Dist., 116 Cal.App.4th 629, 637-639 (2004). The DEIR violates this basic tenet of CEQA by excluding consideration of necessary changes in upstream operations of the SWP and CVP that are related, foreseeable, and integral parts of the whole of the action.	to Common Response 3, Alternatives Development and Description, regarding Delta Conveyance Project proposed operations, which do not include modifications to State Water Project or Central Valley Project reservoir operations upstream of the project. DWR would not increase storage withdrawal for exports, except flood releases, even though the proposed Delta Conveyance Project may provide additional diversion capacity.
504-53	While DWR proposes to operate the Delta tunnel "in conjunction" with the coordinated operations of the existing facilities of the State Water Project and federal Central Valley Project, see DEIR at ES-13, the DEIR fails to adequately consider the changes necessary in upstream operations to adapt to climate change and protect fish and wildlife as part of the whole of the project. The DEIR admits that the proposed project and alternatives could affect upstream reservoir storage and flows. DEIR at ES-47 ("However, because of the effect that integration of the proposed north Delta intakes has on the overall system, their operation could lead to changes in river flows and upstream storages."). However, DWR does not propose any measures to ensure that upstream operations adequately protect fish and wildlife and comply with state and federal environmental laws, particularly in light of the effects of climate change. Instead, DWR's modeling relies on unrealistic upstream operations, misleading the public and decisionmakers as to the likely environmental effects of realistic operations of the proposed project and alternatives.	DWR's analysis meets the CEQA requirement to make a good-faith effort at full disclosure, and every effort has been made to base the analyses on up-to-date and accurate information. Please refer to Common Response 1, CEQA Process, General Approach to Analysis, and Other Environmental Review Issues, regarding the selection of the study areas for evaluation in the EIR and a discussion of areas upstream of the north Delta intakes. Common Response 1 also addresses a description of baseline conditions and how climate change is considered in the EIR. Please refer to Common Response 3, Alternatives Development and Description, regarding how the project would be operated to shift diversions from the south Delta to the north Delta (during the summer and fall) or divert water in the north Delta during excess flow conditions while meeting regulatory requirements (during the winter and spring). As described in Common Responses 1 and 3, the Delta Conveyance Project's operations do not include changes to State Water Project or Central Valley Project operations upstream of the proposed north Delta intakes. The operations of the alternatives are accurately represented by CalSim 3 for the purposes of CEQA impact analyses in EIR Chapters 7-32 (refer to

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		Common Response 9, Hydrologic Modeling and Approach, regarding the hydrologic model used in the EIR). As described in Common Response 1, Common Response 3, and elsewhere in the Final EIR (e.g., Chapter 3 and Chapter 4), DWR must comply with environmental laws and regulations to protect fish and wildlife, and the project description and modeled representation of operations of the alternatives reflect DWR's compliance. Feasible mitigation measures are proposed where the proposed project or an alternative was found to have a significant impact (please refer to the Executive Summary table titled Summary of Delta Conveyance Project Impacts and Mitigation Measures for mitigation measures throughout the EIR).
504-54	The DEIR's modeling assumes unrealistic upstream reservoir operations under the existing conditions baseline and all of the alternatives. As a result, the DEIR overestimates water diversions and water supply allocations and underestimates potential environmental impacts of the proposed project and alternatives, including the use of Temporary Urgency Change Petitions to allow the SWP and CVP to violate minimum water quality objectives in the Delta. For instance, the DEIR assumes that under existing conditions, end of September Oroville Reservoir storage will average 1.068 MAF in critically dry years. DEIR, Appendix 5, Table 5A-B3.1.3.1- B. Similarly, the DEIR estimates that the proposed project (Alternative 5) will result in reduced Oroville Reservoir end of September storage, to an average of 1.061 MAF. Id., Appendix 5, Table 5A-B3.1.3.4-B. In contrast, DWR has publicly explained that it targets a minimum Oroville Reservoir end of September storage of 1.6-million-acre-feet, because this is the minimum necessary to meet water contracts and downstream obligations. In its 2019 State Water Project Delivery Capability Report, DWR explains that, "The Oroville carryover target (September storage target) was	Please refer to Common Response 3, Alternatives Development and Description, for discussions of (1) upstream operations and storage and (2) temporary urgency change petitions (TUCP) under dry conditions, including a definition of emergency conditions, the primary reason for TUCPs and the process for submission and issuance/approval, which requires specific additional biological review. As described in Common Response 9, Hydrologic Modeling and Approach, and Appendix 5A, Modeling Technical Appendix, Section B, Hydrology and Systems Operations Modeling, in the section titled Water Management Facilities Upstream of Delta, the CalSim 3 EIR modeling assumptions are an accurate representation of the operations described in Chapter 3, Description of the Proposed Project and Alternatives. Clarifications have also been made to Chapter 3, in the section titled Integration of North Delta Intakes with South Delta Facilities, regarding operation of the project and upstream storage and operations. None of those clarifications resulted in a new significant environmental impact or substantial increase in the severity of an environmental impact or required additional mitigation measures to which DWR was unwilling to commit. While the Delta Conveyance Project may provide additional diversion capacity, DWR would not increase storage water withdrawal for exports. The project objectives

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	updated in the model to be consistent with current State Water Project operational guidelines of 1.6 MAF from 1.0 MAF. The Water Operations Office, within the State Water Project, Operations and Maintenance, routinely evaluates the projected demands on Oroville for meeting contractual and regulatory requirements. Recent evaluations have indicated a need to keep storage levels higher what than the previous water supply guidelines methodology was providing." DWR, Technical Addendum to The State Water Project Final Delivery Capability Report 2019 (Aug. 26, 2020), at 4, available online at: https://data.cnra.ca.gov/dataset/1f404a72-b583-418a-81b9-6fe5d5595cd7/resource/9cab8a24-778f-486b-abf5-bae6c8ee1666/download/dcr2019_technical-addendum.pdf; see id. At 11 (explaining that increasing the Oroville carryover storage target from 1.0 to 1.6 will require more conservative operations during the summer, will decrease Dry and Critical year water deliveries, water supply allocations, and exports). The DEIR likewise assumes Shasta reservoir storage during critical dry years that average 1.586 MAF under the existing condition baseline, see DEIR, Appendix 5A, Table 5A-B3.1.2.1-B, and only 1.570 MAF under the proposed project, id., Table 5A-B3.1.2.4-B. In contrast, NMFS has previously concluded that a minimum end of September storage of 1.9 MAF is necessary to protect endangered winter-run Chinook salmon under the ESA. NMFS 2017, Proposed Amendment to the Reasonable and Prudent Alternative in the 2009 Opinion, available online at: https://media.fisheries.noaa.gov/dam-migration/nmfs_s_draft_proposed_2017_rpa_amendment_-_january_19__2017.pdf. Modeling more realistic and protective Shasta reservoir operations will require reduced	include increased operational flexibility and redundancy to ensure resiliency of critical water infrastructure and deliveries to address climate change and earthquake risk, while meeting applicable regulatory requirements aimed at protecting aquatic conditions and species in the Delta. In addition, the assertion that the EIR modeling assumes unrealistic upstream reservoir operations is inaccurate and unsupported. The EIR CalSim model does use the same 1.6 MAF End-of-September Oroville storage target as both the 2019 State Water Project Delivery Capability Report and the most recent 2021 edition. DWR would still aim at meeting those targets, with or without the addition of the north Delta diversions as part of the Delta Conveyance Project. Reclamation is not currently a participant in the Delta Conveyance Project, which thus does not include modification to Central Valley Project reservoir operational criteria upstream of the project including for Shasta Reservoir. Nonetheless, while there is no explicit End-of-September storage target for Shasta, and thus no required operational rule, the EIR modeling guidelines outlined in Appendix 5A, Modeling Technical Appendix, Section B, Hydrology and Systems Operations Modeling, ensure to the greatest extent possible that the exceedance plot is similar to those generated from the Delivery Capability Report. Please note that storage targets are not regulatory constraints, and while DWR (Oroville) or Reclamation (Shasta) always try to meet those targets or resource agency recommendations, there are times, particularly in drought conditions, when meeting all regulatory requirements for the protection of aquatic resources and water quality preclude it. This would not be exacerbated with the Delta Conveyance Project in place compared to existing conditions, as exemplified by the small and often positive differences in upstream reservoirs storage presented in Chapter 5, Surface

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	releases from Shasta Dam than those identified in the DEIR, which is likely to result in reduced water deliveries and environmental impacts that are not considered in the DEIR.	Water; nor will it increase the frequency at which TUCPs would be necessary.
504-55	[Footnote 16:] In addition, we note that Reclamation would have to comply with NEPA in order to participate in Delta Conveyance, as considered in several alternatives in the DEIR. Indeed, the DEIR shows that even without Reclamation's participation in the project, the proposed project and alternatives affect CVP operations, including reservoir storage, as a result of the Coordinated Operating Agreement. We do not understand how Reclamation could change its operations of CVP facilities without first complying with NEPA. While we understand that the Army Corps of Engineers is preparing a draft EIS that considers the effects of constructing the proposed project and alternatives, no federal agency is preparing an EIS under NEPA that considers the environmental impacts of operating the project. Federal agencies must analyze the effects of constructing and operating this project before implementation of any biological opinion by NMFS or USFWS that authorizes construction and operation of the project under the federal Endangered Species Act. See San Luis & Delta Mendota Water Authority v. Salazar, 747 F.3d 581, 645-655 (9th Cir. 2014). Nor could FWS and NMFS solely consider the construction of the project--and exclude the environmental impacts of operations of the project--in a lawful biological opinion under the Endangered Species Act. Moreover, DWR (and Reclamation) currently lack authorization for incidental take of listed species resulting from upstream operations of the State Water Project and Central Valley	As described in response to comment 504-57, project operations do not include modifications to State Water Project reservoir operations upstream of the project and would not include modifications to Central Valley Project reservoir operations upstream. Alternative 2a and 4a include potential CVP participation, which is reflected in the hydrologic modeling. As described in Chapter 4, Framework for the Environmental Analysis, in the section titled U.S. Bureau of Reclamation of Central Valley Project Contractor(s), the analysis of potential impacts disclosed in the EIR for Alternatives 2a, 4a, or 5 would not be anticipated to change in any appreciable way. Therefore, changes in water deliveries under Alternative 5 (if Reclamation or CVP contractors were to express interest in participation) would not be expected to result in new or more severe impacts than those disclosed in this EIR for Alternatives 2a and 4a. Chapter 5, Surface Water, discusses existing regulations, operational rules, and water supply allocation procedures governing the SWP and CVP system. As shown in the Chapter 5 table titled Comparison of Surface Water Resources by Project Alternative, changes upstream are negligible. Nonetheless, these changes are disclosed in the EIR, where appropriate (e.g., see the section titled Upstream of the Delta in Chapter 9, Water Quality). Specific to permitting requirements and prior to any operations, the project will comply with all applicable federal Endangered Species Act and state Endangered Species Act requirements. Please refer to Common Response 1, CEQA Process, General Approach to Analysis, and Other Environmental Review Issues, regarding compliance with the NEPA process that would be undertaken by the United State Army Corps of Engineers (USACE).

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	Project under the California Endangered Species Act, despite such operations causing incidental take under CESA. See also supra footnote 1. Obtaining incidental take authorization for the operations of the Delta tunnel "in conjunction" with the coordinated operation so the SWP and CVP requires considering the whole of the action.	
504-56	Even without considering the effects of climate change, the DEIR admits that upstream reservoir operations would drop to dead pool under certain conditions with the proposed project: "With inadequate runoff and pattern changes of snowmelt runoff resulting from climate change, CalSim 3 model results show (although infrequently) simulated occurrences of extremely low storage conditions at SWP and CVP reservoirs during critical drought periods when storage is at dead pool levels (i.e., when the water level is so low that it cannot drain by gravity through the dam's outlets). Instances may also occur in the simulation results in which flow conditions fall short of minimum flow criteria, salinity conditions may exceed salinity standards, diversion conditions fall short of allocated diversion amounts, and operating agreements are not met (as described in Chapter 6). High temperatures and lower precipitation levels would result in a rapid drop of carryover storage and performance levels for Folsom, Oroville, and Trinity Reservoirs; however, Shasta Reservoir could be slightly more resilient due to its greater inflow of rain, rather than snowmelt (California Department of Water Resources 2018b:21–22). As noted in Appendix 5A, Modeling Technical Appendix, modeling results are limited and include an inherent degree of uncertainty, likely within 5%. During real-life operations, operators would use real-time adjustments in operation to satisfy regulatory, legal, and contractual requirements given the current	The analysis contained in the EIR is not consistent with the assertion by the commenter that the modeling and analyses do not reflect real-life operations. Model simulations were developed with DWR and Reclamation to ensure that project operations in model simulations are realistic and generally represent how the system is and would be operated with uniform risk profiles, and result in consistent operations across baseline and alternative models. As CalSim 3 operates according to fixed operational rules, which do not include the day-to-day decisions and discretionary actions that occur in real operations, project operations were refined to meet the operational guidelines to the fullest extent possible. The guidelines are described in detail in Appendix 5A, Section B, SWP and CVP Operational Assumptions and Modeling Guidelines. Please refer to Common Response 9, Hydrologic Modeling and Approach, regarding the assumptions used in the modeling for Chapters 5 and 6.

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	conditions and hydrologic constraints." DEIR at page 30-17; see id. at 6-35. Remarkably, the DEIR fails to analyze the environmental impacts from real-life operations that are necessary to avoid such effects, which as discussed supra, have caused and will cause significant environmental impacts that are not disclosed in the DEIR.	
504-57	The DEIR shows that the effects of climate change result in even lower upstream reservoir storage and thereby result in more severe impacts on fish and wildlife from upstream operations of the CVP and SWP. For instance, as noted earlier, end of September Shasta Reservoir storage in critically dry years declines from an average of 1.543 million acre feet (2020) to an average of 1.432 million acre feet (2040), and end of September storage in Oroville Reservoir declining from an average of 1.068 million acre in critically dry years (2020) to 0.834 million acre feet (2040). See DEIR at 5-17 to 5-18. This results in significant increases in temperature-dependent mortality of winter-run Chinook salmon in the Sacramento River. See DEIR, Appendix 5A, Table 5A-E4.1-B (No action alternative (2040) average temperature dependent mortality using the Martin Model of 66% in critically dry years, 18% in dry years, and 14% overall). Yet the DEIR does not include any changes to upstream operations of the SWP and CVP to adapt to climate change and protect fish and wildlife as required by state and federal environmental laws, including the ongoing process to revise the Trump Administration's unlawful biological opinions. See also DEIR at 3-145 ("The Delta Conveyance Project would not change operational criteria associated with upstream reservoirs.").	Chapter 5, Surface Water, provides a summary of the results of the CalSim 3 hydrologic modeling effort and concludes there would be no change in upstream reservoir storage or river flows attributable to the project. Chapter 5 explains that storage at SWP and CVP north-of-Delta reservoirs averaged for all years and for dry/critical years under the project alternatives are similar to existing conditions for all time periods examined. For large upstream reservoirs, storage changes are minimal and are generally minor increases because of lower releases for exports and carriage water savings. Appendix 5B, Surface Water 2040 Analysis, further explains that the effect of the project alternatives on SWP and CVP reservoir storages under 2040 conditions would be similar to what is described in Chapter 5, although for some alternatives, increases would be of a greater magnitude. By 2070, it is possible that reservoir storage could reduce, but reduced reservoir storage and decreased flows in the river would not be caused, or exacerbated, by the proposed project and, whether DWR approves the proposed project or not, are likely to trigger future management or regulatory actions to balance water supply needs (either through modifications of the operations of existing facilities or increasing water storage) with the environment. As described in Chapter 2, Purpose and Project Objectives, the basic objective of the project is to restore and protect the reliability of SWP water deliveries. The project is not proposing changes to operations or amount of water supply, including storage, provided by upstream facilities.

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		The project will be operated in adherence to all applicable regulatory laws, both current and future.
504-58	Realistic upstream reservoir operations during critically dry years and droughts are likely to result in significant environmental impacts that are not disclosed or discussed in the DEIR. Because upstream operations of the CVP and SWP are integrated with operations in the Delta, changes in upstream operations of the SWP and CVP to comply with state and federal environmental laws and water rights conditions will ripple throughout the watershed, resulting in effects that are not considered in the DEIR such as lower instream flows that reduce survival of migrating salmon, reduced Delta outflow that harms native fish and wildlife and violates water quality objectives, and lower water diversions. The DEIR's failure to include operational changes at upstream reservoirs to comply with state and federal environmental laws results in a DEIR that misleads the public and decisionmakers as to the likely environmental effects of the proposed project and alternatives.	The analysis contained in the EIR is not consistent with the assertion by the commenter that significant environmental impacts have not been disclosed. The Delta Conveyance Project is not proposing changes to operations or amount of storage provided by upstream facilities. The following tables in Chapter 3, Description of the Proposed Project and Alternatives, describe the circumstances under which the project can divert water from the Sacramento River: the table titled Delta Conveyance Project Preliminary Proposed Operations Criteria; the table titled Proposed North Delta Diversion Bypass Flow and Pulse Protection Requirements; and the sub-table titled North Delta Diversion Bypass Flow Criteria. In addition, the Chapter 3 figure titled Seasonal Diversions graphically depicts how the project would operate. As described in Common Response 3, Alternatives Development and Description, proposed intakes would only be permitted to operate with regulatory protections of existing standards and as prescribed by the federal and state environmental permitting process. As described in Chapter 9, Water Quality, and Chapter 12, Fish and Aquatic Resources, the project would result in less-than-significant impacts or less-than-significant impacts with mitigation measures for water quality and fish and aquatic resources, respectively.
504-59	C. The DEIR Violates CEQA Because it Fails to Consider Likely Operations during Droughts, Including Temporary Urgency Change Petitions The DEIR fails to disclose the significant adverse effects that are reasonably foreseeable to occur from operations of the proposed project and alternatives during drought conditions, particularly the use of Temporary Urgency Change Petitions	Please refer to response to comment 504-8 and Common Response 3, Alternatives Development and Description, regarding Temporary Urgency Change Petitions (TUCPs).

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	("TUCPs") to allow DWR to violate minimum Delta water quality objectives. Analyses by state and federal agencies have demonstrated that previous TUCPs - which reduced flows into and through the Delta below the minimums required by the 2006 Water Quality Control Plan and Water Rights Decision 1641 - have caused significant harm to fish species, further reducing the survival and abundance of species including Delta Smelt, Longfin Smelt, winter-run Chinook salmon, spring-run Chinook salmon, and fal-lrun Chinook salmon, depending upon the time of year when such TUCPs were granted. See, e.g., State Water Resources Control Board, Water Rights Order 2015-0043 (Corrected January 19, 2016); id., Water Rights Order 2022-0095 (Feb. 15, 2022); id., Order Approving Temporary Urgency Changes to Water Right License and Permit Terms Relating to Delta Water Quality Objectives (April 4, 2022), available online at: https://www.waterboards.ca.gov/waterrights/water_issues/programs/drought/tucp/docs/2022/20220404_TUCOb_swrcb.pdf; id., Water Rights Order 2014-0029 (September 24, 2014), available online at: http://www.waterboards.ca.gov/waterrights/board_decisions/adopted_orders/orders/2014/wro2014_0029.pdf; U.S. Bureau of Reclamation and DWR, Temporary Urgency Change Petition Regarding Delta Water Quality, December 1, 2021, available online at: https://www.waterboards.ca.gov/waterrights/water_issues/programs/drought/tucp/docs/2022/2021.12_2022_TUCP.pdf; Declaration of Dr. Jonathan A Rosenfield in support of Plaintiffs Motion for Preliminary Injunction For 2022 and Plaintiffs' Opposition to Federal Defendants Motion for Voluntary Remand Without Vacatur, Doc. 325 (Dec. 16, 2021), attached hereto as Exhibit D [see attachments 23 and 24]; see also	

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	Exhibit F [see attachments 26-41]. Implementation of TUCPs has also contributed to and exacerbated Harmful Algal Blooms in the Delta, and peer reviewed research has concluded that reduced Delta outflow (shifting X2 upstream) significantly contributes to the abundance of toxic cyanobacteria in the genus Microcystis. Id.; Lehman et al 2020; Lehman et al 2022. Moreover, TUCPs are reasonably foreseeable in future droughts, and are likely to have similar adverse environmental impacts in the future. DWR and Reclamation have previously admitted that TUCPs like those implemented in 2014-2015 are reasonably foreseeable in future droughts. See Exhibit F. More recently, in July 2022 DWR released a Draft EIR for its proposal to install a Delta Salinity Barrier at West False River for up to 40 of the next 120 months, and in that DEIR DWR assumed TUCPs would be implemented whenever the salinity barrier was installed: "Before installation of the 2015 and 2021-2022 EDBs, the State Water Board issued temporary urgency change orders for D-1641 to establish temporary emergency water quality standards for the CVP's and SWP's water rights. This permit process would also occur for the proposed project before installation of the barrier (under all three installation scenarios)." DWR, West False River Drought Salinity Barrier DEIR at 3.5-16, available online at: https://water.ca.gov/-/media/DWR-Website/Web-Pages/Water-Basics/Drought/Files/Publications-And-Reports/WFRDSB_DEIR_July2022_ADA.pdf; see id. (explaining that it is "reasonable to assume" that TUCPs that allowed for violation of salinity standards would occur with	

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	implementation of the proposed project). However, the DEIR never analyzes or considers the adverse environmental impacts on fish and water quality from the use of TUCPs that are reasonably certain to occur as part of the proposed project. [Footnote 17] Violation of water quality standards constitutes a significant impact under CEQA, and the further reductions in the abundance and survival of fish and wildlife listed under CESA that would result from implementation of TUCPs are also a significant impact under CEQA. See Cal. Code Regs., tit. 14, § 15065(a)(1). As a result, the DEIR misleads the public and decisionmakers as to the likely environmental consequences of the proposed project and alternatives, violating CEQA. [Footnote 17: In addition, modeling by the U.S. Bureau of Reclamation shows that TUCPs generally do not increase reservoir storage at Shasta Reservoir, as the minimum 3,250 cfs release from Keswick reservoir is sufficient to meet its share of obligations under D-1641. See Exhibit C. Similarly, DWR found that the 2022 TUCP did not improve Shasta storage, instead concluding that the TUCP conserved storage in Oroville and Folsom, but did not improve storage and water temperatures for salmon below Shasta Dam. See DWR, Electronic Transmittal: Conserved Water Accounting for Condition 4 of the April 2022 under TUCP Order, online at: https://www.waterboards.ca.gov/waterrights/water_issues/programs/drought/tucp/docs/2022/20220513_Condition4_DWR.pdf; DWR, Electronic Transmittal: Conserved Water Accounting for Condition 4 of the April 2022 under TUCP Order for May 2022, online at: https://www.waterboards.ca.gov/waterrights/water_issues/pr	

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	ograms/drought/tucp/docs/2022/20220613-cond4-dwr.pdf; DWR, Electronic Transmittal: Conserved Water Accounting for Condition 4 of the April 2022 under TUCP Order for June 2022, online at: https://www.waterboards.ca.gov/waterrights/water_issues/programs/drought/tucp/docs/2022/20220714-cond4-dwr.pdf. TUCPs cause significant environmental impacts in the Delta and do not provide benefits to salmon or other fish and wildlife in the Sacramento River, as Reclamation and DWR have previously claimed].	
504-60	D. The DEIR Fails to Accurately Analyze South Delta Pumping Allowed under the Proposed Project and Alternatives, Underestimating the Severity of Impacts to Fish Species: Finally, the DEIR's modeling of CVP/SWP operations significantly underestimates South Delta pumping that is allowed under the State's Incidental Take Permit and the Trump Administration's unlawful biological opinions, which are part of the proposed project and alternatives. For instance, the DEIR assumes an OMR limit of -6,250 cfs for both the CVP and SWP, even though the biological opinion imposes no maximum OMR limit, and the California Natural Resources Agency has failed to pursue its claim that the Bureau of Reclamation must comply with CESA. See DEIR, Appendix 5A, Attachment B, at Table 5A-B2.1.18 [Footnote 18: The DEIR does not appear to include CalSim callouts for the proposed project, only for the existing condition and no action baselines, but the DEIR makes clear the proposed project includes the same requirements.]. Similarly, the DEIR assumes OMR Storm Flex is only used for 6 days at -6,250 cfs, see id., even though both the biological opinion and Incidental Take Permit allow OMR storm flex whenever the Delta is in balanced conditions and no other	The comment suggests that assumptions related to south Delta operations were not accurately analyzed and that this would underestimate the severity of impacts from the proposed project. Assumptions were consistent with prior modeling efforts, such as those supporting the biological opinions alluded to in the comments. As the comment notes, the assumptions for south Delta operations were the same for the project alternatives and existing conditions, therefore the south Delta-related effects would be consistent regardless of south Delta operations assumptions. South Delta operations are consistent between the baseline and proposed project to isolate the impacts of the Delta Conveyance Project. Please see Appendix 5A, Modeling Technical Appendix, for details regarding the modeling approaches used for the Delta Conveyance Project, assumptions used, and the results obtained. Chapter 12, Fish and Aquatic Resources, details potential impacts of OMR flows. Please refer to the section titled Environmental Impacts.

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	requirements have been triggered, as discussed in the attached letter from NRDC et al to DWR commenting on the State's DEIR for Long Term Operations of the State Water Project. Exhibit H [see Attachment 43]. And the DEIR's modeling and analysis assumes more restrictive OMR in March, April and May of drier years than what is actually required by the biological opinions and Incidental Take Permit. See DEIR, Appendix 5A, Attachment B, at Table 5A-B2.1 (modeling -3,500 cfs in March, April and May of non-critical years). These modeling assumptions underestimate the CVP/SWP pumping that is permitted under the proposed project, thereby underestimating negative OMR and the reduction in Delta outflow from the proposed project, and thus underestimating the severity of impacts to fish species that are likely to result.	
504-61	E. The DEIR Violates CEQA because it Fails to Consider the Effects of Water Transfers. The DEIR excludes the effects of water transfers, claiming that it would not result in increased water transfers. DEIR at 3-147. However, the DEIR also acknowledges that water transfers through the new Delta tunnel could result in reduced carriage water, which is the water loss that occurs when moving transfer water across the Delta to the South Delta pumps. Id. Even if there is not an increase in water transfers, reducing carriage water losses, which are typically 20-30% of water transfers, would result in reduced Delta outflow. See also id., Appendix 3H, at 3H-5 (Estimating carriage water losses of 20% of maximum authorized water transfers would be approximately 180,000 acre-feet of water per year). Reduced Delta outflow that results from water transfers that reduce carriage water, particularly in the summer and fall months, likely would result in significant adverse impacts including reduced survival of Delta Smelt, increased salinity, and	Please see Appendix 3H, Non-Project Water Transfer Analysis for Delta Conveyance, regarding the potential use of the north Delta intakes to transfer water. The comment assertions regarding reduced carriage water and significant adverse impacts are not supported by the analysis in the EIR. As described in the appendix, the purpose of carriage water is to maintain water quality conditions in the Delta, as measured by salinity, so that conditions are the same as if the water transfer had not occurred. DWR added text to Chapter 9, Water Quality, and Chapter 12, Fish and Aquatic Resources, to identify there is no potential for a significant impact because carriage water would maintain similar water quality conditions in the Delta regardless of transfer diversion location. None of the revisions to Chapter 9 and Chapter 12 resulted in a new significant environmental impact or substantial increase in the severity of an environmental impact or required additional mitigation measures to which DWR was unwilling to commit. Therefore, as described in the appendix and the EIR chapters, the carriage water volume from use of the north Delta intakes would have little effect on water quality.

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	increased harmful algal blooms that threaten human health and safety. The DEIR's failure to consider the effects of water transfers, including reduced Delta outflow, as part of the proposed project violates CEQA.	
504-62	V. The DEIR's Analysis of Cumulative Impacts Violates CEQA: The DEIR also violates CEQA because it fails to adequately analyze cumulative impacts of the proposed project in conjunction with other relevant projects, including the proposed Sites Reservoir Project. Adequate cumulative impacts analysis is essential under CEQA because, the full environmental impact of a proposed project cannot be gauged in a vacuum. One of the most important environmental lessons that has been learned is that environmental damage often occurs incrementally from a variety of small sources. These sources appear insignificant when considered individually, but assume threatening dimensions when considered collectively with other sources with which they interact. See Bakersfield Citizens for Local Control v. City of Bakersfield, 124 Cal.App.4th 1184, 1213-1215 (2004) (citations omitted). As in that case, other projects that propose to increase diversions from the Bay-Delta, including the Sites Reservoir project, clearly are relevant projects, and their meaningful exclusion from the cumulative impacts analysis in the DEIR prevents the severity and significance of cumulative impacts from being adequately considered.	Please refer to Common Response 1, CEQA Process, General Approach to Analysis, and Other Environmental Review Issues, regarding the approach to the cumulative analysis and the cumulative impact analysis contained in the EIR. This Common Response describes both the qualitative and quantitative nature of the cumulative impact analysis. The Sites Reservoir is not excluded from the cumulative impact analysis in the EIR and is included in Appendix 3C, Defining Existing Conditions, No Project Alternative, and Cumulative Impact Conditions, on the project list and incorporated into the chapter analysis where appropriate: for example, Chapter 17, Socioeconomics, and Chapter 22, Energy, which include the Sites Reservoir in the cumulative analysis. Additionally, the cumulative impact analysis provided in Chapter 12, Fish and Aquatic Resources, focuses on the effects of operations and maintenance of the project in combination with other water resource-related projects including the Sites Reservoir.
504-63	CEQA requires that the DEIR consider the cumulative effects of the proposed project in combination with other projects that will divert water from the watershed, such as Sites Reservoir, even if the DEIR considers the impacts from each project to be individually minor. Cal. Code Regs., tit. 14, § 15355. CEQA also requires that the discussion of cumulative impacts in the DEIR	With respect to the adequacy of mitigation, please see responses to comments relating to mitigation, including 504-84, 504-85, 504-86, 504-87, 504-88, 504-101, 504-114, 504-115, 504-116, 504-117, 504-118, and 504-119. Regarding cumulative impacts, please see response to comment 504-70 and the discussion of quantitative modeling for cumulative impact assessment in Common Response 1, CEQA Process, General Approach, and

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	"reflect the severity of the impacts and their likelihood of occurrence," and must include a "reasonable analysis of the cumulative impacts of the relevant projects." Id., § 15130. While the DEIR includes Sites Reservoir on its list of projects considered for cumulative impacts, see DEIR, Appendix 3C at 3C-90, the DEIR devotes only three pages to consider cumulative impacts of construction and operation of the proposed project and all other cumulative projects on fish species, see id. At 12-245 to 12-248. These three pages in the DEIR grossly understates the severity and significance of the cumulative impacts of implementing both the proposed project and Sites Reservoir, as well as other projects that will increase water diversions from the Bay-Delta. In addition, as discussed infra, the DEIR's very brief discussion of cumulative impacts is premised upon mitigation measures that fail to mitigate the adverse impacts to fish species that will result from the cumulative increase in water diversions under the proposed project and other relevant projects.	Other Environmental Review Issues.
504-64	The amount of water flowing down the Sacramento River and into and through the Delta significantly affects the survival and abundance of numerous fish species, with lower flows generally resulting in lower survival and abundance. Several of the analyses in the DEIR are based on these flow: survival and/or flow: abundance relationships, including for Longfin Smelt, Delta Smelt, all four runs of Chinook salmon, and both Green Sturgeon and White Sturgeon. The DEIR acknowledges that, "projects diverting water from the Sacramento River could affect fish and aquatic species in an analogous manner to that analyzed for the project alternatives, e.g., by reducing river flow, thereby potentially affecting migration survival for	Please see response to comment 504-70 regarding information on quantitative modeling and response to comment 504-67 regarding the approach to the cumulative analysis and consideration of Sites Reservoir. Please also see the discussion of quantitative modeling for cumulative impact assessment in Common Response 1, CEQA Process, General Approach, and Other Environmental Review Issues.

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	juvenile salmonids (Perry et al. 2018) or abundance of longfin smelt through Delta outflow-abundance relationships (see Impact AQUA-7)." DEIR at 12-247. However, as this discussion shows, the DEIR does not analyze or discuss the severity of the cumulative impacts from the proposed project and other projects (like Sites Reservoir) that propose to divert water from the Sacramento River.	
504-65	Moreover, none of the modeling in the DEIR includes the cumulative effects of water diversions by the proposed project in combination with the Sites Reservoir project, even though state agencies have reviewed and commented on two CEQA documents for the Sites Reservoir project, and the State Water Resources Control Board has conditionally accepted a water rights application for the project. See DEIR at 12-247 (stating that effects from some projects that are considered in the analysis of cumulative impacts are included in the modeling, but that the modeling excludes the effects of Sites Reservoir). Neither project is included in the environmental baseline for the others' DEIR, and neither of the CEQA documents includes modeling of the cumulative effects of the project - even though CalSim modeling of each project is publicly available, which would enable quantitative analysis of the cumulative impacts of these two projects.	Regarding quantitative modeling and the approach to the cumulative analysis, please see the discussion of quantitative modeling for the cumulative impact assessment in Common Response 1, CEQA Process, General Approach, and Other Environmental Review Issues. The potential cumulative impact on fish and aquatic resources was considered qualitatively and was concluded to be potentially significant, with mitigation proposed to address the incremental effect. Common Response 1 also includes discussion related to CEQA environmental baseline. Sites Reservoir does not meet the CEQA requirements for inclusion in the baseline; it has not been approved nor implemented. Please also see response to comment 504-67 regarding the approach to the cumulative analysis and consideration of Sites Reservoir.
504-66	The cumulative effects of both projects would result in greater reductions in flows into and through the Delta, with substantially more severe and significant cumulative adverse impacts on fish species, than is observed when each project is viewed in isolation. In addition, the proposed project and the proposed Sites Reservoir are also likely to compete to divert flows, with the two projects proposing to divert at least some	With respect to the adequacy of mitigation, please see responses to comments relating to mitigation, including 504-84, 504-85, 504-86, 504-87, 504-88, 504-101, 504-114, 504-115, 504-116, 504-117, 504-118, and 504-119. With respect to the cumulative impacts analysis, please see response to comment 504-70. Please also refer to Common Response 1, CEQA Process, General Approach to Analysis, and Other Environmental Review Issues, regarding the approach to the cumulative analysis and the

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	of the same molecules of water, and the analyses for both of these projects in isolation - rather than quantitative modeling the effects of both of these projects - simultaneously overestimates likely water supply from these projects while also underestimating the cumulative reduction in Delta inflows and Delta outflows and resulting adverse impacts to fish species [Footnote 19: Stated another way, all of the analysis in the DEIR is based on modeling of flows that are projected to occur, rather than considering the effect of the project compared to the minimum instream flows that are required. Because instream flows today are greater than existing requirements in many years, see also supra page 4-6, additional storage and diversion projects that reduce instream flows, and/or reduced runoff from drought and climate change, will reduce flows compared to those analyzed in the DEIR, leading to more severe environmental impacts by the proposed project and alternatives. The DEIR does not analyze these cumulative impacts]. Yet the DEIR simply states that the cumulative impacts would be -potentially significant for some species,- as discussed in the DEIR for the impacts of the proposed project, without any discussion or analysis - let alone modeling - of the severity of the cumulative impacts on fish species. DEIR at 12-147. The DEIR then restates the discussion of mitigation measures in the DEIR (which as discussed infra are wholly inadequate to reduce impacts to a less than significant level) and includes a sentence that assumes that similarly inadequate mitigation measures (primarily tidal marsh habitat restoration) would be imposed on these other projects, like Sites Reservoir, and claims that the cumulative impacts would be less than significant with mitigation. Id. Like the DEIR's conclusions regarding habitat	cumulative impact analysis contained in the EIR. Diversions from the Delta Conveyance Project and other diversion projects on the Sacramento River are determined by water rights managed by the State Water Board. The Delta Conveyance Project would divert excess flows from the proposed north Delta intakes under an existing water right priority senior to that of the proposed Sites Reservoir. The Delta Conveyance Project would be operated to comply with existing water rights and contracts. Please see Appendix 5A, Modeling Technical Appendix, for details regarding the modeling approaches used for the Delta Conveyance Project, assumptions used, and the results obtained.

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	restoration and other mitigation measures, these conclusions are likewise arbitrary and are not supported by the evidence. CEQA requires more, particularly where the cumulative impact is significant. Cal. Code Regs., tit. 14, § 15130. Indeed, DWR has acknowledged in other CEQA documents that the cumulative impacts of foreseeable projects have significant environmental impacts to fish species. For instance, in its FEIR document for Long Term Operations of the California State Water Project, DWR admitted that, "The impacts of past projects, including past operation of the SWP, have been included in the description of the baseline environmental conditions provided in Section 3.4. The cumulative impact of these past projects has resulted in a baseline consisting of a trending decline of listed-species population within the Delta and other waterways used by anadromous fish populations in northern California. As noted, multiple factors have contributed to this trending decline, and it is difficult to quantify the proportion of the decline attributable to a specific project, action, or event" Despite these protections, the cumulative impact of past Delta modifications and other past and present projects has contributed to the continuing decline in Delta fish populations and habitat of protected species. This overall cumulative impact is significant. The majority of past, present, and reasonably foreseeable projects that are shown in Table 4.6-1 may have impacts on the same aquatic species and/or habitats as the Proposed Project. Specific quantifiable details regarding the biological impacts of	

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	every one of these projects were not available, and therefore this analysis is conducted qualitatively." DWR, FEIR for Long Term Operations of the California State Water Project, at 4-317 to 4-318 (emphasis added). While that FEIR erroneously concluded that the cumulative impacts of the proposed project would be less than significant / not cumulatively considerable, it included substantial discussion of the cumulative impacts to fish species from various categories of projects. Moreover, hydrologic modeling of the Sites Reservoir project is available today and this hydrologic modeling could and should be utilized in the DEIR to quantitatively assess cumulative impacts of Sites Reservoir and Delta Conveyance; the failure to use the existing modeling to quantitatively analyze cumulative impacts, given the likely severity of cumulative impacts to listed fish species, is not reasonable.	
504-67	VI. The DEIR's Analysis and Conclusions Regarding Environmental Impacts to Native Fish Fails to Use the Best Available Science and Misleads the Public and Decisionmakers as to the Likely Effects of the Project: As discussed below, the DEIR's analysis of environmental impacts from operations of the proposed project fails to use the best available science, is not supported by the evidence, and underestimates the significant impacts that are likely to result from the proposed project and alternatives. Equally important, the DEIR's conclusions regarding mitigation measures for the impacts that are identified as significant likewise fail to use the best available science, are not supported by the evidence, and are arbitrary and capricious.	The EIR has been prepared in compliance with CEQA and adequately evaluates and discloses potentially significant impacts on environmental resources. Please see Common Response 1, CEQA Process, General Approach to Analysis, and Other Environmental Review Issues, regarding use of best available science and the adequacy of mitigation measures included in the EIR. Please also see responses to specific comments in letter 504 related to the environmental impact analysis, conclusions, and mitigation, for example, comments 504-83 through 504-90 related to winter-run Chinook salmon and comments 504-102 through 504-119 related to delta smelt and longfin smelt.

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504-68	A. Winter-Run Chinook Salmon The DEIR's conclusion that the operations of the proposed project results in less than significant impacts with mitigation to winter-run Chinook salmon, see DEIR at ES-33, is contrary to the evidence before the agency. The DEIR also fails to consider important aspects of the problem such as the effects of climate change and the use of Temporary Urgency Change Positions that reduce survival of winter-run Chinook salmon migrating down the Sacramento River and through the Delta. The DEIR relies on methods to evaluate impacts that fail to use the best available science and that substantially underestimate the likely environmental impacts to the species, yet even these flawed methods still show significant impacts to this highly endangered species, including reduced survival through the Delta and reduced abundance and escapement (in two of the life cycle models). DEIR at Table 12-0. The DEIR's assumption that tidal marsh and channel habitat restoration will mitigate these impacts, id. At ES-33, is inconsistent with the best available science and not supported by the evidence. Contrary to the DEIR's conclusion, the proposed project and alternatives will cause significant impacts to the species, and operational changes (including increased bypass flows with unlimited pulse protection at the proposed North Delta Diversion ("NDD")) are necessary to mitigate these impacts.	Please see responses to detailed comments 504-74, 504-75, 504-76, 504-77, 504-78, 504-79, 504-80, 504-81, and 504-82, which provide evidence to support the impact conclusion. Regarding specific comments related to mitigation and operations criteria, please see responses to comments 504-84, 504-85, 504-86, 504-87, 504-88, and 504-89. With respect to climate change modeling, please see the discussion of climate change analyses in the EIR in Common Response 6, Climate Resilience and Adaptation, and the discussion of modeled representation of future conditions and climate change in Common Response 9, Hydrologic Modeling and Approach. With respect to Temporary Urgency Change Petitions, please see the discussion of analysis of the project as a whole in Common Response 1, CEQA Process, General Approach to Analysis, and Other Environmental Review Issues, and the discussion of dry conditions and Temporary Urgency Change Petitions in Common Response 3, Alternatives Development and Description. With respect to the comment's suggestion that there should be operational changes, please see the discussion of operational criteria refinements provided in Common Response 3.
504-69	1. The DEIR's Analyses Demonstrate that the Proposed Project and Alternatives are Likely to Result in Significant Environmental Impacts to Winter-Run Chinook Salmon. The analyses in the DEIR show that the proposed project and alternatives are likely to reduce the survival of juvenile winter-run Chinook salmon migrating through the Delta and reduce the abundance of this critically endangered species. DEIR at Table 12-0. With respect to juvenile survival through the Delta,	As the commenter notes, the EIR concluded that there would be a potentially significant operations-related impact from the north Delta intakes. Operational criteria described in Chapter 3, Description of the Proposed Project and Alternatives, are intended to minimize the potential for negative effects to winter-run Chinook salmon and other species, with mitigation proposed to reduce the potential impact to a less-than-significant level. Please see response to comment 504-89 related to specific issues regarding operational criteria that the commenter raised. Please also

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	both the Delta Passage Model and the Perry et al. 2018 model (STARS Model) show that all of the alternatives, including the proposed project (Alternative 5), are likely to reduce survival through the Delta compared to the unsustainable status quo, as a result of diversions from the new North Delta intakes that reduce flows into and through the Delta. Id.; DEIR at 12-100 to 12-105 (explaining that the Perry et al. 2018 model finds that for the key months of December to April, "mean through Delta survival under the Project alternatives was 0-4% lower than existing conditions," and was reduced further in the fall months and in June; Delta Passage Model concludes that the proposed project and most of the project alternatives reduce through-Delta survival by 1-3%). It is important to acknowledge that the status quo for winter-run Chinook salmon is declining abundance; thus, even seemingly small reductions in survival of this critically endangered species increase the risk that the population will be extinguished, constituting a significant impact that warrants changes in operations to avoid these impacts.	see the discussion of operational criteria refinements provided in Common Response 3, Alternatives Development and Description. Please also see Appendix 5A, Modeling Technical Appendix, Section E, SALMOD and Egg Mortality Models, regarding specifics on modeling performed to simulate the annual production potential for each run of Chinook salmon in the Sacramento River using SALMOD and early life stage temperature-related mortality for winter-run Chinook salmon in the Sacramento River. The SALMOD model was applied to compute the annual production potential for juvenile Chinook salmon, including number of out-migrants, annual mortality, length, and weight of the smolts for the fall, late-fall, winter, and spring runs in the Sacramento River from Keswick Dam to just upstream of the decommissioned Red Bluff Diversion Dam (RBDD).
504-70	In addition to reduced survival through the Delta, two of the three life cycles that are utilized in the DEIR conclude that the proposed project would further reduce the abundance of winter-run Chinook salmon compared to the degraded status quo. The DEIR shows that the proposed project and the alternatives would further reduce abundance of winter-run Chinook salmon by 7- 13%, primarily as a result of reduced survival through the Delta. DEIR at 12-121. The OBAN model estimates that the proposed project and alternatives (all except for Alternatives 2a/4a) would reduce the abundance of winter-run Chinook salmon. Id. at 12-123. In addition, the OBAN model was also run assuming a 5-10% increase in near field mortality (e.g., as a result of increased predation at the	With respect to the comment's suggestion that the impact conclusion of less than significant with mitigation is erroneous, please see discussion of mitigation in responses to comments 504-84, 504-85, 504-86, 504-87, and 504-88. Please note that inclusion of additional 5%-10% mortality for the OBAN model, as noted in the comment, was more informed by far-field effects reflecting flow-survival results (see OBAN results table in Impact AQUA-2 in Chapter 12, Fish and Aquatic Resources), although it could also account for any near-field mortality (however, as described further in response to comment 504-82, there is limited evidence for near-field effects and the EIR did not identify a potentially significant effect for near-field effects). Please also see Appendix 5A, Modeling Technical Appendix, Section E, SALMOD and Egg Mortality Models, regarding specifics on modeling performed to simulate the annual production potential for each

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	North Delta Diversion facilities), which resulted in even lower overall abundance of the species (and declining abundance under Alternative 2a/4a). Id. at 12-123. Moreover, the OBAN model predicts that quasi-extinction of winter-run Chinook salmon (abundance less than 100 spawners) is extremely likely under all the alternatives, with Alternative 2a/4a slightly reducing the risk of extinction due to slightly cooler water temperatures for spawning eggs. Id. at 12-123; id., Appendix 12B, Attachment 12B.1, at 7-8. The DEIR recognizes that, "The available information generally indicates that diversion at the NDD would negatively affect winter-run Chinook salmon through flow-survival and habitat impacts." DEIR at 12-126. The DEIR admits that the proposed project and alternatives will cause a significant impact to winter-run Chinook salmon, but it erroneously claims that tidal marsh and channel margin habitat restoration will mitigate these impacts to a less than significant level. Id. At ES-33. Winter-run Chinook salmon are at significant risk of extinction under the degraded status quo, yet the proposed project and alternatives would further reduce survival of the species through the Delta and are likely to result in even lower abundance than today, based on the modeling and analyses in the DEIR.	run of Chinook salmon in the Sacramento River using SALMOD and early life stage temperature-related mortality for winter-run Chinook salmon in the Sacramento River. The SALMOD model was applied to compute the annual production potential for juvenile Chinook salmon, including number of out-migrants, annual mortality, length, and weight of the smolts for the fall, late-fall, winter, and spring runs in the Sacramento River from Keswick Dam to just upstream of the decommissioned Red Bluff Diversion Dam.
504-71	2. The DEIR's Analytical Methods Fail to Use the Best Available Science and Significantly Underestimate Impacts to the Species from the Proposed Project and Alternatives The methods utilized in the DEIR fail to accurately assess impacts to winter-run Chinook salmon. Most notably, the DEIR ignores the effects of climate change, as discussed infra. Even the DEIR's flawed modeling regarding the effects of climate change, which are not considered under CEQA, shows significant increases in temperature dependent mortality of	The comment suggests, without specific reference to where in the EIR the comment is referring, that there would be significant increases in temperature-dependent mortality of eggs requiring mitigation. Such effects are not attributable to the project alternatives, for which the difference compared to the No Project Alternative under the 2040 climate scenario is similar to the difference compared to existing conditions at 2020 climate (compare egg mortality results using the Anderson and Martin models in Attachment 2 [2020 climate] and Attachment 4 [2040 climate] of Appendix 5A, Modeling Technical Appendix, Section E, SALMOD

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	eggs that will require mitigation, and adequate mitigation measures such as increased carryover storage requirements will substantially change water project operations from those presented in the DEIR. As a result, the DEIR fails to provide the public and decisionmakers with accurate information regarding the likely environmental impacts from operating the proposed project starting in 2040. In addition, several of the specific models used in the DEIR to assess impacts fail to use the best available science and significantly underestimate the adverse impacts of the proposed project as a result.	and Egg Mortality Models). Regarding climate change and CEQA, please see the discussion of the CEQA environmental baseline in Common Response 1, CEQA Process, General Approach to Analysis, and Other Environmental Review Issues. For further discussion of climate change modeling, please see the discussion of climate change analyses in the EIR provided in Common Response 6, Climate Resilience and Adaptation, and the discussion of modeled representation of future conditions and climate change in Common Response 9, Hydrologic Modeling and Approach. With respect to use of best available science related to specific models, see responses to specific comments on these models, including 504-77, 504-78, 504-79, 504-80, 504-81, and 504-82.
504-72	a. The IOS Life Cycle Model Fails to Use the Best Available Science The IOS life cycle model relies on a 1999 study by the U.S. Fish and Wildlife Service to estimate temperature mortality, and it estimates 0.001 daily mortality at 55 degrees Fahrenheit and daily mortality of 0.018 at 60 degrees Fahrenheit. DEIR, Appendix 12B, at 12B-116. However, state and federal agencies have rejected use of this study in favor of more recent peer reviewed scientific studies that conclude temperature dependent mortality of winter-run Chinook salmon begins at temperatures equal to 53.5 degrees Fahrenheit (Martin et al 2017, Martin et al 2020), including in recent biological opinions by NMFS. Martin et al 2017 and 2020 demonstrated that lab studies of temperature mortality, like USFWS 1999, significantly underestimated temperature mortality in the real world. Most recently, the State of California argued in court that this USFWS 1999 study fails to use the best available science, and that the Martin et al studies constitute the best available science. See Exhibit B. Because the IOS model fails to use the best available science to estimate temperature dependent mortality of winter-run Chinook salmon, it	The IOS model is one of several methods employed in the EIR that include consideration of upstream water temperature. The EIR includes analysis using the Martin et al. (2017) model in Appendix 5A, Section E, SALMOD and Egg Mortality Models, with the results being consistent with the results of IOS and the Winter-Run Life Cycle Model in terms of showing little difference between existing conditions and the project alternatives in egg survival. Therefore, although there are differences in representation of temperature-related egg mortality between IOS and other available models, the models are consistent in indicating similar egg survival between existing conditions and the project alternatives as a result of the same operational criteria being applied upstream under existing conditions and the project alternatives, indicating that overall differences between scenarios reflect differences caused by Delta operations. The comment refers to overestimation of abundance, but the comparative approach (project alternatives vs. existing conditions) addresses concerns with respect to absolute abundance estimates.

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	overestimates survival and abundance in light of the effects of climate change and the proposed project. [Footnote 20: For example, the IOS model predicts there would be no temperature dependent mortality of winter-run Chinook salmon under below normal and dry conditions, and only 14% temperature dependent mortality in critically dry years. DEIR at 12-122 (Table 12-40). According to the National Marine Fisheries Service, from 1996 to 2016 temperature dependent mortality has averaged approximately 68% in critically dry years, 9% in dry years, and 10% in below normal years. See National Marine Fisheries Service, January 19, 2017, Proposed Amendment to the Reasonable and Prudent Alternative of the 2009 Opinion, available online at: https://media.fisheries.noaa.gov/dam-migration/nmfs_s_draft_proposed_2017_rpa_amendment_-_january_19__2017.pdf].	
504-73	In addition, the IOS model's evaluation of how Sacramento River flow affects survival, see DEIR, Appendix 12B, at 12B-119 to -120, appears to inaccurately model the effects of flow on survival compared with peer reviewed research, such as Hassrick et al. 2022. Compared with the results of Hassrick et al. 2022, the IOS model appears to significantly overestimate survival of juvenile winter-run Chinook salmon under lower flow conditions, underestimate survival under flows around 24,000 cfs, and overestimate survival at higher flows.	The comment suggests that the IOS model inaccurately represents the effects of flow on survival compared with the relationship found by Hassrick et al. (2022). The data used by the IOS model to model Sacramento River flow effects on survival are the same data modeled by Hassrick et al. (2022), with this paper being published after the IOS model relationship was completed. Although the modeling approaches differ, both approaches are supported by the data and apply to the upstream riverine environment, for which the screening analysis referenced in Chapter 12, Fish and Aquatic Resources, indicated minimal differences in flow between scenarios. Thus, application of either relationship would give similar results between scenarios.
504-74	Finally, as discussed below, the IOS model relies on the modified Delta Passage Model to estimate survival of juvenile salmon through the Delta, see DEIR at 12B-120, which likewise fails to use the best available science and overestimates survival through the Delta.	Please see response to comment 504-80 regarding comments related to the Delta Passage Model.

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504-75	b. The Revisions to the Delta Passage Model Fail to Use the Best Available Science While DWR's Delta Passage Model historically found that increased South Delta exports have a weakly negative effect on survival through the Delta, based on studies of salmon with coded wire tags when exports and flows were not strongly correlated as a result of OMR limits, see DEIR, Appendix 12B at 12B-102, DWR's revised Delta Passage Model finds that increased South Delta exports by the SWP and CVP increase the survival of salmon migrating through the Delta, Id. At 12B-102 to -103. In the revised model, DWR has eliminated all of the data and analyses of survival that predate the adoption of OMR limits, which limits the data set to a period in which flows and exports are highly correlated as a result of OMR limits. Id. Even though exports and flow are highly correlated in this recent data set, and even though the DEIR admits that the effect of exports "was not well supported" in the model that included the effects of flow and claims the data suggests "the absence of a negative effect of exports on survival of Sacramento River origin" salmon, see DEIR at 12B-102, the DEIR's Delta Passage Model concludes that exports have a positive effect on salmon survival, even in situations where flow and exports are not highly correlated. This approach fails to use the best available science.	The comment claims that flows and exports are highly correlated in the data set used to update the Delta Passage Model, citing Appendix 12B, Bay-Delta Methods and Results. Evidence of such correlations is not provided in Appendix 12B. In fact, the data do not show strong correlations between flow and exports. This is because many of the releases of acoustically tagged juvenile Chinook salmon tracked with the JSATS (Juvenile Salmon Acoustic Telemetry System) technology occurred outside of the April-May period, including all of the winter-run Chinook salmon releases. The previous statistical relationship included in the Delta Passage Model mentioned in the comment was based on Newman and Brandes (2010). Even in that study a model with no export effects was not distinguishable from one with weak effects. One of the shortcomings of the Newman and Brandes (2010) study was that the routing and reach of mortality could not be identified. The acoustic (JSATS) data were used in the updated Delta Passage Model to increase the resolution of where mortality occurred and under what flow and export conditions fish survived. The updated export relationship is very similar to the previous one in that there is little evidence for any effect and what effect is detected is very weak. Thus, the updated Delta Passage Model represents use of the best available data to model export effects on Sacramento River-origin juvenile Chinook salmon.
504-76	c. The DEIR Fails to Provide Substantial Evidence to Support its Conclusions Regarding the Winter Run Life Cycle Model Results The DEIR fails to provide evidence to support its conclusory statements regarding NMFS' Winter Run Life Cycle Model, as neither the main document nor the appendices provided a description of the model, the model inputs, or detailed model results. Moreover, the DEIR does not include any results from the Winter Run Life Cycle Model that incorporate the effects of	An attachment describing the Winter-run Chinook Salmon Life Cycle Model and main results has been added to Final EIR Appendix 12B, Bay-Delta Methods and Results. None of the revisions to Appendix 12B resulted in a new significant environmental impact or substantial increase in the severity of an environmental impact or required additional mitigation measures to which DWR was unwilling to commit. It is unclear what the commenter is referring to with respect to incorporation of the effects of climate change to date, as the analysis in Chapter 12 focuses on current climate. Results

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	climate change that have been observed to date, let alone the effects anticipated when the project would be operational in 2040. As a result, the DEIR's conclusory statements regarding the results of the Winter Run Life Cycle Model are not supported by substantial evidence.	from the analysis at 2040 climate are included in Appendix 12C, Fish and Aquatic Resources 2040 Analysis, of the EIR.
504-77	d. The DEIR's Assumption that There Will Not be Increased Predation or Mortality at the North Delta Intakes Fails to Use the Best Available Science The DEIR also concludes that the new fish screens and diversion facilities in the North Delta will not result in increased predation, impingement, or otherwise reduce survival from near field effects. See DEIR at 12-90 to 12-92. However, the proposed project and alternatives would construct new large fish screens in the Delta, creating potential hot spots for predation, and many existing structures in the Delta have been identified as predation hot spots, including the Head of Old River Barrier, Delta Cross Channel Gates, and Clifton Court Forebay. Grossman et al 2013. Similarly, NMFS concluded that the WaterFix project would create habitat and opportunity for large predators, resulting in adverse effects to winter-run Chinook salmon, and modeling of effects using the Winter Run Life Cycle Model evaluated a range of near field mortality from 0 to 5 percent. NMFS 2017. While the design of the fish screens has changed from those evaluated in the WaterFix biological opinion, life cycle modeling in the DEIR indicates that if there is additional 5% near field mortality at the North Delta intakes, the proposed project and alternatives would result in far greater negative impacts to the abundance of the species and would increase the risk of quasi-extinction. DEIR at 12-123 (mean escapement reduction of 12% for the proposed project assuming no near field mortality, rising to a 25% reduction in escapement assuming 5% mortality at the North Delta Intakes);	Mortality considerations related to predation in the EIR are informed by several Central Valley studies, which suggest limited potential for negative effects (which is qualitatively accounted for in the overall project impact), with uncertainty addressed with fisheries studies as part of adaptive management considerations. Inclusion of additional 5% mortality for the OBAN model, as noted in the comment, was more informed by far-field effects reflecting flow-survival results (see OBAN results table in Impact AQUA-2 in Chapter 12, Fish and Aquatic Resources), although could also account for any near-field mortality (although as noted above, there is limited evidence for extent of potential effect and the EIR did not identify a potentially significant effect for near-field effects). With respect to the NMFS biological opinion for the California WaterFix project cited in the comment, that document did not rely on quantitative estimates because NMFS regarded the estimates as being uncertain due to the various assumptions in the modeling and the estimates did not provide context for how such losses would compare to baseline losses without the north Delta intakes (National Marine Fisheries Service 2017:593). Modeling with the Winter Run Life Cycle Model of the project alternatives in the EIR did not include these uncertain assumptions. Please note that the NMFS biological opinion for the California WaterFix project assumed that the potential hydraulic effect of the proposed intakes would extend across the full river width, whereas the critical streakline analysis included in Impact AQUA-2 of the Delta Conveyance Project EIR illustrates that this would not be the case. With respect to the Grossman et al. (2013) study cited in the comment, none of the hot spots identified in that document (Grossman et al. 2013:34) are analogous to the proposed north Delta intake fish screens in the Sacramento River, those hot spots being two bridges (Paintersville

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	id., Appendix 12B, Attachment 12B.1, at 15-24 (increased risk of quasi-extinction for all alternatives).	Bridge and Borden Highway Bridge); several Delta channels (Georgiana Slough, Delta Cross Channel [not the gates themselves as suggested in the comment], and the Stockton Ship Channel); a large scour hole directly downstream of the head of Old River; Clifton Court Forebay; two flooded Delta islands with considerable aquatic vegetation (Franks Tract and Mildred Island); fish salvage release sites; seasonal south Delta physical barriers spanning the full channel width at head of Old River and Old River near Tracy; and the Red Bluff Diversion (based on a historical study for which predatory fish were primarily associated with the Red Bluff Diversion Dam gates when lowered).
504-78	3. The DEIR's Conclusion that Operational Criteria and Habitat Restoration will Fully Mitigate Impacts is Arbitrary and Capricious: Finally, the DEIR's conclusion that proposed operations criteria and habitat restoration would fully mitigate these adverse impacts [impacts on winter-run salmon] is contrary to the peer reviewed research and is not supported by substantial evidence. Specifically, the DEIR claims that the tidal marsh restoration would "reduce negative hydrodynamic effects such as flow reversals in the Sacramento River at Georgiana Slough (CMP-25) and reduced effects from reduced inundation of riparian/wetland benches as a result of NDD operations (CMP-26)." DEIR at 12-126. These statements in the DEIR are inconsistent with the best available science, and the DEIR fails to provide a reasoned explanation to support its conclusions that these mitigation measures will fully mitigate these adverse effects.	The comment suggests that the EIR concludes that operations criteria and habitat restoration would fully mitigate impacts on winter-run Chinook salmon. Full mitigation is not the standard that is analyzed in the EIR; rather it is mitigation to a less than significant level, which is the conclusion reached in Impact AQUA-2 (Chapter 12, Fish and Aquatic Resources) related to winter-run Chinook salmon. Regarding specific comments related to mitigation and operations criteria, please see responses to comments 504-84, 504-85, 504-86, 504-87, 504-88, and 504-89.
504-79	First, as the DEIR explains, the Perry et al 2018 analysis reflects the effects of reduced flows on survival of "salmon migrating through the Delta," not salmon that are rearing in the Delta. Id. At 12-100. The DEIR presents no scientific evidence -- and we	As noted in the comment and in the EIR, the channel margin mitigation is intended to mitigate flow-related effects to riparian and wetland bench habitat. This mitigation is not focused on mitigating flow-survival effects on migrating salmon, as the comment seems to infer; rather, it is focused on

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	are not aware of any such evidence -- showing that restoring channel margin habitat will mitigate the effects of reduced flow to migrating salmon and improve their survival; [Footnote 21: Even with respect to floodplain habitat, for which there is a much larger body of scientific evidence, while there are numerous studies finding that salmon reared on floodplains generally result in increased size and faster growth rates, there appears to be no scientific evidence finding that salmon reared on the floodplain have higher survival and subsequent abundance than salmon reared in the main channel Sacramento River. See Takata et al 2017; see also Pope et al 2018.] instead, the DEIR claims that "DWR will undertake channel margin habitat restoration to mitigate for potential flow-related impacts on riparian and wetland bench habitat used by juvenile Chinook salmon for rearing." Id., Appendix 3F, at 3F.1-13.	potentially negative effects on the extent of bench rearing habitat from operations. To the extent that migrating juvenile salmon use bench habitat during migration, the channel margin habitat restoration mitigation would also mitigate negative effects from reduced extent of bench habitat to these migrating fish by providing the equivalent amount of restored channel margin habitat. The comment's footnote regarding floodplain therefore is not relevant to this issue because the channel margin restoration is to mitigate for lost channel margin habitat, not to mitigate for flow-survival effects. See also response to comment 504-88 regarding other aspects of mitigation, specifically tidal habitat restoration for downstream hydrodynamic effects.
504-80	The DEIR also cites Hellmair et al. 2018 to claim that channel margin habitat restoration has been demonstrated to be effective. Id. At 3F.1-14. However, while Hellmair et al found that salmon were more likely to be found occupying natural or restored channel habitats (particularly sites with instream cover from terrestrial vegetation or woody material) compared to shorelines that consist of rock revetments, this study does not analyze, let alone demonstrate, that channel margin habitat restoration increased survival of migrating or rearing salmon. In addition, studies in the Sacramento River upstream of the Delta have found that while flow significantly affects survival of migrating salmon, neither the percentage of off channel habitat within 50 feet of the river nor adjacent cover (defined as "the percent of non-armored river bank with adjacent natural woody vegetation") were statistically significant covariates affecting survival. Henderson et al 2017.	With respect to the comment's suggestion that restored or natural channel margin habitat has not been demonstrated to increase survival, the channel margin habitat restoration is not focused on offsetting flow-survival effects; it is focused on replacing potential negative effects to the extent of rearing habitat, as described further in the response to comment 504-84.

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	Thus, the Hellmair study does not support the DEIR's conclusion that channel margin habitat restoration will mitigate the reduction in survival caused by increased diversions from the North Delta intakes, and Henderson et al 2017 likewise does not support the DEIR's conclusion that channel margin habitat restoration is likely to increase survival of migrating salmon sufficient to mitigate the adverse impacts of reduced flows caused by the proposed project and alternatives.	
504-81	In addition, as the DEIR admits, approximately 47,000 linear feet (8.9 miles) of channel margin habitat has been restored in recent decades as part of levee improvement projects, DEIR at 12- 106, yet the DEIR presents no evidence that these channel habitat restoration projects have improved the survival of winter-run Chinook salmon through the Delta. Here, the DEIR appears to propose to restore "up to 4,900" linear feet of channel margin habitat. Id. at 3F-18, 3F-56. Equally important, peer-reviewed studies have found that given existing low abundance of salmon and existing flows into and through the Delta, there is adequate rearing habitat in the Delta for salmon. Munsch et al 2020. That study did not indicate that rearing habitat in the Delta is a limiting factor for salmon at current population levels, and instead suggests that without higher abundance and increased flows, habitat restoration in the Delta is unlikely to improve productivity or provide substantial population level benefits. Similarly, in its 2017 biological opinion regarding WaterFix, NMFS found that for winter-run Chinook salmon, "The proposed Delta habitat restoration did not improve the cohort replacement rate under this scenario because the current low abundance of the winter-run population is not limited by Delta rearing habitat." NMFS	Please see responses to comments 504-84 and 504-85 regarding the purpose of channel margin habitat restoration (i.e., mitigating reduced extent of rearing habitat as opposed to addressing flow-survival impacts). With respect to flows, the project alternatives include various north Delta intake operational criteria such as bypass flows to limit the potential for negative effects to species. Regarding tidal marsh restoration effects, please see responses to comments 504-87 and 504-88. Note that the habitat restoration analyzed with the Winter-Run Life Cycle Model for California WaterFix as cited in the comment did not account for hydrodynamic effects of restored habitat, only rearing habitat capacity.

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	2017 at 810. Furthermore, the effects of tidal marsh habitat restoration do not substitute for flows, but instead depend on adequate flows and temperatures to provide benefits; recent studies have found that the Delta provides rearing habitat that supports higher growth of salmon than salmon that rear in the American River in years with adequate flows, but not in drought years. Coleman et al. 2022 (concluding that "variation in water flow and temperature (Figure 1) were likely the primary abiotic factors that generated differences in growth opportunities in each habitat within and among years.").	
504-82	Second, while tidal marsh habitat can change hydrodynamics to reduce the frequency of reverse flows at Georgiana Slough caused by reductions in flows under the proposed project and alternatives, there is no evidence that tidal marsh habitat restoration would improve survival of migrating salmon in reaches downstream from Georgiana Slough. Perry et al. 2018 demonstrates that the effects of flow on juvenile salmon survival through the Delta are not only a result of reverse flows at Georgiana Slough, but instead include flow: survival relationships in many reaches in the Delta, including reaches downstream from Georgiana Slough. See also DEIR at 12-17 ("In addition to influencing migratory pathways, Sacramento River flow is positively correlated with juvenile Chinook salmon survival in river reaches transitioning from bidirectional (tidal) flow to unidirectional (downstream) flow with increased river flow (i.e., Sacramento River from Georgiana Slough to Rio Vista; Sutter and Steamboat Slough; and Georgiana Slough) (Perry et al. 2018)."). The published paper concludes that, "First, survival decreases sharply and routing into the interior Delta (where survival is low) increases sharply as Delta inflows decline below approximately 1,000 m3·s-1, the point at which	With respect to flows and flow-survival relationships, the project alternatives include various north Delta intake operational criteria such as bypass flows to limit the potential for negative effects to species (see also response to comment 504-89). The comment focuses on reverse flows without discussion of the function of tidal habitat restoration mitigation to limit the potential for entry of juvenile Chinook salmon into the interior Delta. As demonstrated in the papers cited in the comment and as discussed in the EIR (e.g., see the discussion of hydrodynamic effects within Impact AQUA-2 in Chapter 12, Fish and Aquatic Resources), survival of migrating juvenile Chinook salmon within the interior Delta is lower than on the mainstem Sacramento River. The tidal habitat restoration therefore would limit the potential for increased entry of fish into the low-survival interior Delta as a result of north Delta intake operations. The effect of this tidal habitat restoration would also occur during periods when the north Delta intakes are not operational (i.e., potentially reducing entry into the low-survival interior Delta compared to conditions without restoration). Please also see response to comment 504-88 regarding extent of tidal habitat restoration and hydrodynamic analysis. With respect to the comment's characterization of Hance et al. (2022; 2021 was the online version of the publication) in finding that flow had a positive effect on survival of migrating juvenile winter-run Chinook salmon through

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	transitional reaches shift from bidirectional to unidirectional flow (Figs 7 and 8). In contrast, at inflows greater than 1,000 m3·s-1, survival is maximized and changes relatively little with flow while routing into the interior Delta via Georgiana Slough is minimized and insensitive to inflow. These findings indicate that water management actions that reduce inflows to the Delta will have relatively little effect on survival at high flows, but potentially considerable negative effects at low flows." Perry et al 2018. The paper concludes that flows affect reach-specific survival in reaches identified in Perry et al 2018 as reaches 3, 4, 5, and 6, with higher flows resulting in higher survival in those reaches, and lower flows resulting in lower survival. More recently, Hance et al 2021 also found that flow had a positive effect on survival of migrating juvenile winter-run Chinook salmon through most reaches of the Delta, including a positive effect of flow on survival from the interior Delta to Chipps Island. Hance et al 2021. The DEIR fails to consider this study, particularly the conclusion that there is a strong flow: survival relationship between the interior Delta and Chipps Island for migrating juvenile winter-run Chinook salmon. Thus, diverting water through the proposed North Delta intakes (when flows in the Sacramento River at Freeport are less than approximately 35,000 cfs, the equivalent of 1,000 cubic meters per second) affects route selection and reach specific survival in these portions of the Delta, and both of these functions of flow (route selection and reach specific survival rates) affect overall migratory survival.	most reaches of the Delta, it is important to note that although there was a positive correlation between flow and survival from the mouth of Georgiana Slough to Chipps Island (i.e., the Interior Delta to Chipps Island), the correlation between survival and flow was relatively flat from the head of Georgiana Slough to the mouth of Georgiana Slough (i.e., the start of the Interior Delta) and from Rio Vista to Chipps Island. Hance et al. (2022:427) noted “Perry et al. (2018) found no effect for river flow on survival through the Interior Delta, whereas in our study we found relatively high survival for fish during the extreme high flows of 2017 and for some of 2016,” implying that extreme high flows may have affected the patterns observed.
504-83	While habitat restoration is proposed to "reduce negative hydrodynamic effects such as flow reversals in the Sacramento River at Georgiana Slough," the DEIR does not propose that this habitat restoration would eliminate the increase in flow	Tidal habitat restoration to mitigate hydrodynamic effects in association with operational criteria such as bypass flows were concluded to result in a less-than-significant impact on migrating salmon. Operational criteria address the flow-related issue raised in the comment. Regarding

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	reversals at Georgina Slough caused by the proposed project, nor is there any credible scientific evidence that this habitat restoration would mitigate the effects of reduced flow on reach specific survival of migrating salmon in reaches 3, 4, 5 and 6 identified in Perry et al. 2018. In other words, although tidal marsh habitat may partially mitigate the effects on route selection, it would not mitigate the effects on reach specific survival. For the same reasons, there is no basis to conclude that tidal marsh or channel margin habitat restoration would offset or mitigate the adverse effects to juvenile migratory survival caused by reduced flow and identified by the Delta Passage Model. See also DEIR at 12B-99 (explaining the reach specific flow: survival relationships in reaches Sac1, Sac2, Sac3, and Sac4 in the Delta Passage Model).	operational criteria, see response to comment 504-89. As discussed further in response to comment 504-87, tidal habitat restoration effects would also occur when the north Delta intakes are not operational. With respect to channel margin habitat restoration mitigation purpose, see responses to comments 504-84 and 504-85. The extent of tidal habitat proposed for Mitigation Measure CMP, specifically CMP-25, has been added to Final EIR Appendix 3F, Compensatory Mitigation Plan for Special-Status Species and Aquatic Resources, based on hydrodynamic analysis conducted by the California Department of Water Resources (2023b). None of the revisions to Appendix 3F resulted in a new significant environmental impact or substantial increase in the severity of an environmental impact or required additional mitigation measures to which DWR was unwilling to commit.
504-84	Third, the proposed operational measures are not adequate to minimize and mitigate these impacts [to juvenile migratory survival caused by reduced flow]. The proposed bypass flows at the North Delta intakes are significantly weaker than what was required in 2017, as they do not include unlimited pulse protection and allow for higher diversions at lower flow levels than previously required. See Exhibit A. [See Attachment 1] Even though Perry et al. 2018 demonstrates that diverting water from the North Delta Diversion when flows at Freeport are less than 35,000 cfs reduces the survival of salmon migrating through the Delta, the proposed bypass flow criteria allow the NDD to divert 70 percent of the flows greater than 20,000 cfs. See DEIR at 3-153. As a result, when flows at Freeport are 35,000 cfs, the minimum bypass flow is only 22,900 cfs, and the North Delta intakes could pump at full capacity under all of the alternatives, even though this would reduce salmon survival. In addition to reducing survival and subsequent abundance, these inadequate bypass rules will also	It is unclear how the commenter interprets the flow criteria referenced in the comment as diverting 70% of flows greater than 20,000 cfs. The example given for 35,000 cfs implies that diversions could be 12,100 cfs, whereas capacity constraints alone mean maximum diversions range from 3,000 cfs (Alternatives 2b/4b) up to 7,500 cfs (Alternatives 2a/4a). As illustrated in Chapter 12, given the combination of operational criteria specific to the project alternatives as well as overall system constraints such as D-1641 water quality criteria, the percentage of flow diverted (monthly average) is generally limited (e.g., median diversions of 6%–7% in March, 0% in April-June; maxima of no more than 22% of flow diverted; see the table titled Percentage of Sacramento River Flow Diverted by the North Delta Diversions, March–June in Impact AQUA-6). The effects of proposed operations were assessed in the impact analysis included in Chapter 12, which found that operational criteria (in association with proposed mitigation, if necessary, based on quantitative analysis and consideration of species status) would result in less-than-significant impacts on salmonids. Please also see the discussion of refinement of operational criteria (e.g., pulse protection) through agency coordination in Common

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	adversely affect life history diversity, [Footnote 22: Maintaining historic levels of life-history diversity within Central Valley Chinook salmon runs is critical to maintaining population viability as it allows these populations to "distribute the risks that disturbances from droughts, fires, disease, food availability, and other natural and manmade stressors present to populations." SWRCB 2017 at 1-18, McElhany et al. 2000; Lindley et al. 2007; Satterthwaite et al. 2014; Sturrock et al 2015; 2019 SEP Group 2019.] as late migrating salmon are likely to face reduced bypass flows and even lower survival under Level 2 and Level 3 bypass flows. See DEIR at 3-153. Moreover, unlike the requirements for WaterFix, the DEIR does not propose unlimited pulse protection or otherwise propose to limit North Delta pumping based on real time monitoring of salmon migration. DEIR at 3-150. As a result, the DEIR does not propose real time operations at the North Delta intakes that could mitigate these impacts.	Response 3, Alternatives Development and Description. As described in Chapter 3 of the EIR, during the time from permit issuance through initial north Delta diversion operations, DWR would conduct studies such as evaluating the relationship between the hydrologic conditions and the behavior of migrating juvenile salmonids in the Sacramento River reach between Wilkins Slough/Knights Landing and the north Delta intakes as part of the Operations Adaptive Management and Monitoring Plan (OAMMP). The studies would be focused on gathering additional real-time fish monitoring data to inform potential triggers for real-time operational responses of the north Delta intakes as a mechanism to further minimize exposure effects to the listed species. The real-time operation and the proposed criteria may be refined, if needed, through the OAMMP. The operational criteria elements that would be studied further based on real-time fish monitoring include hydrologic/behavioral cues upstream of and in the Delta for triggering, duration, and conclusion of pulse protection, Level 1, Level 2, and/or Level 3 bypass flow criteria and transitions, as well as diel (night/day) behavior in the intake reaches.
504-85	Therefore, even with the proposed mitigation measures, the proposed project and alternatives are likely to reduce survival of migrating juvenile winter-run Chinook salmon below the degraded baseline conditions under which the species' existence is jeopardized. As a result, the proposed project and alternatives results in significant impacts under CEQA, and mitigation measures -- specifically higher bypass flow requirements in the North Delta -- are necessary.	Please see responses related to the issues upon which the comment makes its suggestion regarding significant project impacts on winter-run Chinook salmon in comments 504-83, 504-84, 504-85, 504-86, 504-87, 504-88, and 504-89. Based on these considerations, the EIR concludes that the operations and maintenance impacts on winter-run Chinook salmon is less than significant with mitigation. With respect to jeopardy to the species, as described further in Common Response 1, CEQA Process, General Approach to Analysis, and Other Environmental Review Issues, there will also be a permitting process under federal and state endangered species acts. Permits for the project will only be issued if the project does not result in jeopardy to listed species such as winter-run Chinook salmon.
504-86	B. Spring-Run Chinook Salmon The DEIR's conclusion in the Executive Summary that the operations of the proposed project results in less than	The typographical error in the Executive Summary that the comment mentions has been corrected such that the Executive Summary and Chapter 12 are consistent in the Final EIR (both state that the impact would

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	significant impacts to spring-run Chinook salmon, see DEIR at ES-33, is contrary to the evidence before the agency -- and is inconsistent with the DEIR's own finding in the body of the report. Compare DEIR at ES-33 (AQUA-3 conclusion that the impact of operations of and maintenance of all of the alternatives would be less than significant) with id. At 12-134 ("it is concluded that the operations and maintenance impact of the project alternatives would be significant for spring-run Chinook salmon."). As with winter-run Chinook salmon, the DEIR also fails to consider important aspects of the problem such as the effects of climate change and the use of TUCPs that worsen survival of spring-run Chinook salmon migrating down the Sacramento River and through the Delta compared to what is presented in the DEIR. And like its analysis of impacts to winter-run Chinook salmon, the DEIR relies on methods to evaluate impacts that fail to use the best available science and substantially underestimate the likely environmental impacts to the species, yet even these flawed methods still show significant impacts to this threatened species, particularly reduced survival through the Delta. DEIR at Table 12-0. And as with winter-run Chinook salmon, the DEIR erroneously claims that tidal marsh and channel habitat restoration will fully mitigate these impacts. Contrary to the DEIR's conclusion, the proposed project and alternatives will cause significant impacts to the species, and operational changes (including increased bypass flows with unlimited pulse protection at the proposed North Delta intakes) are necessary to mitigate these impacts.	be significant before mitigation). None of the revisions described in the EIR resulted in a new significant environmental impact or substantial increase in the severity of an environmental impact or required additional mitigation measures to which DWR was unwilling to commit. With respect to climate change modeling, please see the discussion of climate change analyses in the EIR in Common Response 6, Climate Resilience and Adaptation, and the discussion of modeled representation of future conditions and climate change in Common Response 9, Hydrologic Modeling and Approach. With respect to Temporary Urgency Change Petitions, please see the discussion of analysis of the project as a whole in Common Response 1, CEQA Process, General Approach to Analysis, and Other Environmental Review Issues, and the discussion of dry conditions and Temporary Urgency Change Petitions in Common Response 3, Alternatives Development and Description. With respect to the comments regarding impacts, best available science, mitigation, and operational criteria, please see responses to detailed comments 504-92, 504-93, 504-94, and 504-95, and cross-references therein to responses on the same topics regarding winter-run Chinook salmon.
504-87	1. The DEIR's Analyses Demonstrate that the Proposed Project and Alternatives are Likely to Result in Significant Environmental Impacts to Spring-Run Chinook Salmon Similar to winter-run Chinook salmon, the DEIR finds that the proposed project and alternatives will reduce the survival of	With respect to yearling spring-run Chinook salmon, the text summarizing modeling results incorrectly referenced the table summarizing the results of the Perry et al. analysis and has been corrected in the Final EIR; the text now notes that through-Delta survival generally would be similar between the project alternatives and existing conditions, with water-year-type

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	juvenile spring-run Chinook salmon migrating down the Sacramento River. See DEIR at 12-132. Based on analyses using the Delta Passage Model and Perry et al 2018 analysis, the DEIR concludes that the reductions in Sacramento River flows as a result of North Delta Diversions will reduce survival of spring-run Chinook salmon migrating through the Delta by 3-4 percent compared to the existing conditions baseline. Id. The impacts likely would be even greater for yearling spring-run that migrate earlier during the fall months. Id. While the DEIR does not include a life cycle model for spring run Chinook salmon, the life cycle modeling for winter-run Chinook salmon demonstrates that even small reductions in survival through the Delta can result in significant adverse population level effects. For spring-run salmon migrating from the San Joaquin basin, the DEIR finds that survival would be reduced in dry years under the proposed project and most alternatives, and in critically dry years under several alternatives. Id. At 12-134.	means ranging from 2%-3% less in October of critically dry years to 2%-3% more in October of below normal years and November of below normal/dry years under some project alternatives. None of the revisions described in the EIR resulted in a new significant environmental impact or substantial increase in the severity of an environmental impact or required additional mitigation measures to which DWR was unwilling to commit. The EIR concluded that there would be the potential for significant impacts on spring-run Chinook salmon and included mitigation to address the hydrodynamic effects (i.e., Mitigation Measure CMP, specifically CMP-25), in addition to the operational criteria described in Chapter 3, Description of the Proposed Project and Alternatives, to result in a less than significant conclusion. With respect to spring-run Chinook salmon emigrating from the San Joaquin basin, although there is the potential for small negative differences as the comment notes, through-Delta survival from the San Joaquin basin is low under all scenarios, as described in Impact AQUA-4.
504-88	2. The DEIR's Analytical Methods Fail to Use the Best Available Science and Significantly Underestimate Impacts to Spring-Run Chinook Salmon From the Proposed Project and Alternatives As discussed with respect to winter-run Chinook salmon, the DEIR's failure to consider the effects of climate change, the modifications to the Delta Passage Model, and the assumption of zero near field mortality at the North Delta intakes result in the DEIR significantly underestimating the adverse effects of the proposed project and alternatives on spring-run Chinook salmon. See supra sections VI(A)(2), VI(A)(2)(b), VI(A)(2)(d).	With respect to climate change modeling, please see the discussion of climate change analyses in the EIR in Common Response 6, Climate Resilience and Adaptation, and the discussion of modeled representation of future conditions and climate change in Common Response 9, Hydrologic Modeling and Approach. Additional discussion of consideration of climate change can be found in Common Response 1, CEQA Process, General Approach to Analysis, and Other Environmental Review Issues, as well. With respect to the Delta Passage Model, see response to comment 504-80. With respect to near-field mortality, please see response to comment 504-82.
504-89	Relatedly, the DEIR's modeling of the effects of South Delta exports is inconsistent with the text of the DEIR regarding the effects of South Delta exports. The text of the DEIR references studies that concluded that increased South Delta exports	As the comment notes, the EIR cites a 2015 study by Cunningham et al. that found negative correlations between south Delta exports and through-Delta survival. This study provided context on what has been found historically, but the EIR also mentioned that south Delta exports during the

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	reduce survival of migrating spring-run and fall-run Chinook salmon. DEIR at 12-21 (citing Cunningham et al 2015). Yet the modeling in the DEIR using the Delta Passage Model estimates that increased South Delta exports increase the survival of salmon, including fall-run and spring-run Chinook salmon, as discussed supra. The DEIR is internally inconsistent, and it fails to provide a reasoned explanation to support the Delta Passage Model's estimate that increased pumping in the South Delta will increase survival of migrating salmon from the Sacramento River.	historical period examined were relatively high compared to the current management regime. As cited in the EIR, the Cunningham et al. study (Cunningham et al. 2015) suggested that changes to water routing may provide a more reasonable explanation for the estimated survival influence of Delta water exports. Such effects were analyzed in the EIR based on DSM2-HYDRO, showing limited potential for effects in the interior Delta/south Delta (see, for example, Hydrodynamic Effects section of Impact AQUA-2 in Chapter 12, Fish and Aquatic Resources), with the potential for negative effects in the north Delta as a result of north Delta intake operations being acknowledged and leading to specific provision of mitigation to address the hydrodynamic effects (i.e., Mitigation Measure CMP, specifically CMP-25). Please see response to comment 504-80 regarding justification for the statistical relationship used in the Delta Passage Model.
504-90	In addition, the proposed bypass flows for the North Delta under all alternatives are significantly weaker for the months when spring-run Chinook salmon are migrating through the Delta. The proposed pulse protection requirements require lower bypass flows under Level 2 and Level 3 than Level 1, and the DEIR indicates that Level 2 and Level 3 pulse protection criteria can apply as early as February. See DEIR, Appendix 5A-B, at 5B-58. This results in greater diversions from the North Delta and further reduces flows below the intakes; for instance, between December and April under Level 3 pulse protection, if flows are only 15,000 cfs, the North Delta could divert 3,000 cfs (50% of the flows over 9,000 cfs), reducing flows to 12,000 cfs, whereas under Level 1 pulse protection, if flows are only 15,000 cfs, the bypass flow requirement would be 15,000 cfs -- allowing no pumping from the north Delta. Id. These weaker protections under Level 2 and Level 3, which would occur more frequently when spring-run Chinook salmon are migrating, would result in significantly lower survival of	The comment suggests that the analysis does not adequately consider the potential effects of north Delta intake operations on migrating juvenile spring-run Chinook salmon across the range of migration months, which has implications for diversity. However, such effects are considered given that the results of the Perry et al. analysis presented in Impact AQUA-2 are considered and cover the range of months from September to June, which includes yearlings migrating in October/November (see response to comment 504-92) to the end of young-of-the-year migration in May/June. The potential for a significant impact is described and as such mitigation is proposed to address hydrodynamic effects (see response to comment 504-94). As described in Chapter 3, Description of the Proposed Project and Alternatives, real-time considerations related to fish are part of potential north Delta operational responses, consistent with the adaptive management and monitoring approach, including transitioning between bypass criteria levels (e.g., Level 1 to Level 2); or adjusting planned diversions to a level consistent with low concern based on flow-survival estimates and fish presence (i.e., more or less restrictive operations based on hydrological, biological, and diurnal conditions). Please see the

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	migrating spring-run Chinook salmon. In addition, the proposed bypass flows are significantly weaker in the months of May, despite the fact that May is a significant month for young-of-the-year spring-run Chinook salmon migration through the Delta. See DEIR at 12-132. For instance, when flows are only 20,000 cfs at Freeport in May, the pulse protection rules under Level 1 would allow diversion of 2,100 cfs, while Level 2 would allow diversion of 5,250 cfs and Level 3 would allow diversion of 7,600 cfs. DEIR at 3-153. While the DEIR assumes flows in the Sacramento River that are greater than regulatory minimums in the winter and spring months, such flows are not reasonably certain to occur, given the effects of climate change, droughts, and additional water diversion and storage projects. These inadequate bypass flow criteria for the proposed project and alternatives would result in far more severe environmental impacts on spring-run Chinook salmon that are not adequately considered in the DEIR. Taken together, these operational provisions will not only reduce survival and subsequent abundance of spring run Chinook salmon in general, but will adversely affect life history diversity by further reducing survival of late migrating salmon. See supra note 22. The DEIR does not consider these adverse effects to life history diversity from the proposed project and alternatives, which threaten the viability of this species.	discussion of operational criteria refinements provided in Common Response 3, Alternatives Development and Description.
504-91	3. The DEIR's Conclusion that Operational Criteria and Habitat Restoration will Fully Mitigate Impacts is Arbitrary and Capricious: As discussed with respect to winter-run Chinook salmon, the DEIR's conclusory statements that habitat restoration and operational criteria will fully mitigate significant impacts to	Please see responses related to the same issues raised for winter-run Chinook salmon in comments 504-83, 504-84, 504-85, 504-86, 504-87, 504-88, and 504-89. Based on these considerations, the EIR concludes Impact AQUA-3, based on substantial evidence, is less than significant with mitigation.

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	spring-run Chinook salmon fails to use the best available science and is unsupported by the evidence. The proposed project and alternatives result in significant adverse impacts that require operational changes to reduce these impacts to a less than significant level.	
504-92	C. Fall-Run Chinook Salmon Even though the DEIR explains that the "operations of the north Delta intakes would have negative effects on fall- and late fall-run Chinook in a generally similar manner to what was discussed for winter- and spring-run Chinook salmon," DEIR at 12-143, the DEIR concludes that the impacts to fall-run Chinook salmon would be less than significant before mitigation, id; see DEIR at ES-34. As with the flawed analysis of impacts to winter-run and spring-run Chinook salmon, the DEIR relies on flawed analytical methods that underestimate impacts to fall-run Chinook salmon, and the DEIR erroneously concludes that habitat restoration measures proposed for impacts to other species will benefit fall-run Chinook salmon as well. See supra section VI(a)(3). In addition, the DEIR also fails to consider important aspects of the problem such as the effects of climate change and the use of Temporary Urgency Change Petitions that worsen survival of fall-run Chinook salmon migrating down the Sacramento River and through the Delta. In contrast to the findings in the DEIR, the proposed project and alternatives are likely to have substantial adverse impacts on fall-run Chinook salmon, particularly in light of the inadequate bypass flows proposed for North Delta Diversions under all alternatives.	The rationale for a less-than-significant impact conclusion for fall-run Chinook salmon is provided in the CEQA conclusion, that is, the migration period is later in the spring when there is less use of the north Delta intakes. With respect to the suggestion that the EIR used flawed analytical methods, please see responses to comments on winter-run Chinook salmon, for example, 504-80 and 504-82. With respect to habitat restoration measures, please see responses to comments 504-84, 504-85, 504-86, 504-87, and 504-88. With respect to climate change modeling, please see the discussion of climate change analyses in the EIR in Common Response 6, Climate Resilience and Adaptation, and the discussion of modeled representation of future conditions and climate change in Common Response 9, Hydrologic Modeling and Approach. With respect to Temporary Urgency Change Petitions, please see the discussion of analysis of the project as a whole in Common Response 1, CEQA Process, General Approach to Analysis, and Other Environmental Review Issues, and the discussion of dry conditions and Temporary Urgency Change Petitions in Common Response 3, Alternatives Development and Description.
504-93a	The proposed North Delta bypass flows would have unreasonable and severe impacts on migrating fall-run Chinook salmon that are not adequately considered in the DEIR. As the DEIR admits, fall-run Chinook salmon can migrate through the	The rationale for a less-than-significant impact conclusion for fall-run Chinook salmon is provided in the CEQA conclusion, that is, the migration period is later in the spring when there is less use of the north Delta intakes. The comment notes that north Delta diversions are not prohibited

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	Delta throughout the winter and spring months, including through June. DEIR at 12-137. However, the North Delta bypass flows generally allow more diversions, and require lower bypass flows, later in the spring. For instance, the proposed bypass flows are only 5,000 cfs in the month of June, which would result in far greater reductions in river flow and salmon survival through the Delta in that month. DEIR at 12-137; id. At 12-102 (estimating that juvenile salmon survival through the Delta under the proposed project is reduced in the month of June by 4% in wet years and 10% in above normal years). As noted supra with respect to spring-run Chinook salmon, the bypass criteria are also weaker for the month of May, and Level 2 and Level 3 pulse protection likewise provide less protection for fall-run Chinook salmon that migrate later in the spring. Moreover, while the DEIR appears to assume there will be no diversions from the North Delta in May or June of Below Normal, Dry, and Critically Dry years, see DEIR at 12-102, the proposed project and alternatives do not prohibit use of the North Delta Diversions in those months and years. [Footnote 23] The DEIR also erroneously assumes that South Delta entrainment of fall-run Chinook salmon would be limited because of protections for spring-run and winter-run Chinook salmon. DEIR at 12-138. However, existing OMR regulatory requirements explicitly do not apply to fall-run Chinook salmon, and existing OMR requirements also fail to specifically protect young of the year spring-run Chinook salmon from entrainment and losses in the South Delta. See also Exhibit D. Moreover, under the proposed project, South Delta exports would increase in May (Wet, Above Normal, and Below Normal water year types) and would increase in April (Dry and Critically Dry water year types). DEIR at 12-141. This would likely cause additional adverse effects on fall-run Chinook salmon that are	in later months, which is correct; however, what is analyzed is an appropriate representation of operations consistent with new proposed operational criteria for the north Delta diversions and existing criteria within the Delta and supports the conclusions as stated. Please see response to comment 504-87 regarding effects of tidal habitat restoration occurring not just during north Delta diversions but at other periods as well, which would contribute to lessening potential impacts.

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	not adequately considered in the DEIR. See Cunningham et al. 2015.	
504-93b	[Footnote 23] The DEIR also erroneously assumes that South Delta entrainment of fall-run Chinook salmon would be limited because of protections for spring-run and winter-run Chinook salmon. DEIR at 12-138. However, existing OMR regulatory requirements explicitly do not apply to fall-run Chinook salmon, and existing OMR requirements also fail to specifically protect young of the year spring-run Chinook salmon from entrainment and losses in the South Delta. See also Exhibit D. Moreover, under the proposed project, South Delta exports would increase in May (Wet, Above Normal, and Below Normal water year types) and would increase in April (Dry and Critically Dry water year types). DEIR at 12-141. This would likely cause additional adverse effects on fall-run Chinook salmon that are not adequately considered in the DEIR. See Cunningham et al. 2015.	The EIR acknowledges that regulatory requirements for listed Chinook salmon do not apply to fall-run Chinook salmon but notes that temporal overlap with listed salmon results in ancillary protection. The comment selectively cites small (0%-4%) instances of greater south Delta exports in some water year types, without also acknowledging that there are also instances of less south Delta exports that are actually greater in magnitude (up to 7% less in wet years in April); overall, south Delta exports are generally similar, as stated in the EIR, therefore supporting the EIR's conclusion that south Delta entrainment risk would not be noticeably different under the project alternatives compared to existing conditions. See response to comment 504-94 with respect to the study of Cunningham et al. (2015).
504-94	D. Central Valley Steelhead Like winter-run Chinook salmon, the DEIR admits that the proposed project is likely to result in significant impacts to Central Valley steelhead as a result of reduced flow through the Delta. DEIR at 12-152. The DEIR also fails to consider important aspects of the problem such as the effects of climate change and the use of Temporary Urgency Change Petitions that worsen survival of steelhead down the Sacramento River and through the Delta. The DEIR also misstates the conclusions of Buchanan et al 2021 regarding the effects of exports on survival of steelhead, concluding that increased South Delta pumping during April and May by the CVP under continuation of the Trump Administration's biological opinions would have "no difference in juvenile through-Delta survival." See DEIR at 12-150. The State of California rejected this position in its	Although the EIR notes the potential for significant impacts on Central Valley steelhead, the impact was concluded to be less than significant with mitigation. With respect to climate change modeling, please see the discussion of climate change analyses in the EIR in Common Response 6, Climate Resilience and Adaptation, and the discussion of modeled representation of future conditions and climate change in Common Response 9, Hydrologic Modeling and Approach. With respect to Temporary Urgency Change Petitions, please see the discussion of analysis of the project as a whole in Common Response 1, CEQA Process, General Approach to Analysis, and Other Environmental Review Issues, and the discussion of dry conditions and Temporary Urgency Change Petitions in Common Response 3, Alternatives Development and Description. With respect to the commenter's interpretation of the Buchanan et al. (2021) study, Table 5 in that paper is consistent with the statements in the

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	filings with the federal court in 2021. See Exhibit B [see Attachments 2-15]. Buchanan et al 2021 found that the San Joaquin River inflow: export ratio is strongly correlated with through-Delta steelhead survival, and the paper specifically warned that its conclusions should not be used to justify changes in management. See also Exhibit D [see Attachments 23 and 24].	EIR showing that San Joaquin River inflow was strongly statistically significantly positively correlated with through-Delta survival, whereas south Delta exports was not. The comment specifically focuses on inflow/export ratio, which while also statistically significantly correlated with through-Delta survival, was considerably less well supported than inflow. Regardless of statistical evidence for potential importance of inflow/export ratio, as shown in Appendix 5A, Section B, Hydrology and Systems Operations Modeling, Attachment 3, CalSim 3 Model Results for Existing Condition and Alternatives at 2020, south Delta exports and San Joaquin River flow at Vernalis are very similar between existing conditions and the project alternatives; this results in inflow/export ratio also being very similar, with water-year type means under the project alternatives ranging from 3% lower to 7% greater than existing conditions in April, and from 3% lower to 2% greater than existing conditions in May. Current management of entrainment risk would continue under existing conditions and the project alternatives. Consistent with the commenter's interpretation of the Buchanan et al. study, the project alternatives do not propose changes in south Delta export management.
504-95	As with respect winter-run Chinook salmon, the DEIR erroneously concludes tidal marsh and channel margin habitat restoration would reduce these impacts [on California steelhead] to a less than significant level, assertions that fail to use the best available science and are not supported by substantial evidence. The DEIR cites studies that do not demonstrate that habitat restoration would improve survival of migrating salmon, let alone provide survival benefits to migrating steelhead sufficient to offset the adverse impacts of reduced flow. See supra section VI(a)(3); see also DEIR at 12-152 (citing Brown 2003 to conclude that tidal habitat restoration "would have the potential" to provide foraging habitat for steelhead). Any comparison of Chinook Salmon shallow water habitat usage to that of Steelhead would be size-	Please see responses to comments 504-84 and 504-85 regarding the purpose of channel margin habitat restoration (i.e., mitigating reduced extent of bench habitat as opposed to addressing flow-survival impacts) and response to comment 504-87 with respect to the hydrodynamic function of tidal habitat restoration in mitigating entry into the interior Delta, a function that would also occur when the north Delta intakes would not be operating. As the commenter notes and as the EIR describes, juvenile steelhead's association with habitat variables is weaker than for juvenile Chinook salmon, therefore less access to bench habitat would likely have less potential for effect to juvenile steelhead than for juvenile Chinook salmon; nevertheless, restored bench habitat would mitigate the potential for less access caused by operation of the north Delta intakes. This, combined with the tidal habitat restoration mitigation for hydrodynamics discussed above, as well as operational criteria to limit the

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	specific. Migrating juvenile Steelhead are the size of very large juvenile Chinook Salmon; the scientific literature provides no evidence that large Chinook Salmon smolts benefit from shallow-water rearing habitats (see, e.g., Iglesias et al. 2017; Henderson et al. 2018; Pope et al. 2018), and because the DEIR infers the behavior of migrating Steelhead from Chinook salmon smolt behavior, then steelhead would not be expected to benefit significantly from restored sub-tidal wetland rearing habitat. Moreover, the DEIR admits that "juvenile steelhead's association with habitat variables is weaker than juvenile Chinook salmon," id., further demonstrating that the DEIR's conclusion that habitat restoration would reduce these impacts to a less than significant level is arbitrary and capricious.	potential for negative effects, form the basis for the less than significant conclusion for steelhead.
504-96	E. Delta Smelt: The DEIR erroneously claims that the proposed project and alternatives would result in a less than significant impact to Delta Smelt. DEIR at ES-72. This conclusion is contrary to the evidence, particularly given the extremely dire status of the species. As with other species, the DEIR also fails to consider important aspects of the problem including the effects of climate change and the use of TUCPs that worsen the survival of Delta Smelt.	With respect to the comment regarding the impact conclusion to delta smelt, please see responses to detailed comments 504-103, 504-104, 504-105, 504-106, and 504-107, which provide evidence to support the impact conclusion. Note that the impact conclusion is less than significant with mitigation, with mitigation concluded to be required as a result of the potentially significant impact resulting from operations effects in consideration of the species' status. With respect to climate change modeling, please see the discussion of climate change analyses in the EIR in Common Response 6, Climate Resilience and Adaptation, and the discussion of modeled representation of future conditions and climate change in Common Response 9, Hydrologic Modeling and Approach. With respect to Temporary Urgency Change Petitions, please see the discussion of analysis of the project as a whole in Common Response 1, CEQA Process, General Approach to Analysis, and Other Environmental Review Issues; and the discussion of dry conditions and Temporary Urgency Change Petitions in Common Response 3, Alternatives Development and Description.
504-97	The DEIR identifies a number of adverse effects on Delta Smelt from the proposed project and alternatives, including reduced abundance of important prey species like E. affinis and P.	The comment cites a summary table at the start of Chapter 12, Fish and Aquatic Resources, which provides an overview of quantitative differences between the project alternatives and existing conditions. Context and

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	forbesi, increased water clarity that results from sediment entrainment in the North Delta intakes, and reduced summer/fall habitat for Delta Smelt. DEIR at 12-5. However, the DEIR fails to adequately consider the severity and implications of these impacts. Since the population is declining towards extinction under existing conditions, the DEIR fails to provide a reasoned explanation why any further adverse impacts to Delta Smelt would not constitute a significant adverse impact under CEQA. Cal. Code Regs., tit. 14, § 15065(a)(1).	explanation of the EIR's conclusion for delta smelt is provided in Impact AQUA-6. Please see response to comment 504-105 related to sediment entrainment, response to comment 504-106 regarding prey species, and response to comment 504-104 regarding outflow-related effects and conclusion of significance.
504-98	For instance, the DEIR fails to explain why it does not use existing life cycle models (e.g., Rose et al. 2013, Polansky et al. 2021) to assess the impacts of the proposed project and alternatives. These life cycle models have identified important variables that affect Delta Smelt, including the positive effect of spring outflow on Delta Smelt recruitment, that the DEIR wholly fails to consider. See Polansky et al 2021. With respect to summer and fall outflow, the DEIR fails to explain why the reductions in summer and fall outflow under the proposed project and alternatives, which the best available science shows would reduce survival and recruitment of Delta Smelt, do not constitute a significant impact. Id.; see also DEIR at 12-175 to 12-176.	With respect to the Polansky et al. (2021) model referenced in the comment, note that the support for spring outflow was limited and follow-up modeling by Smith et al. (2021) did not include spring outflow. Delta smelt life cycle modeling is being undertaken as part of project permitting. Results from application of the Life Cycle Model with Entrainment (LCME) model of Smith et al. (2021) gives the same conclusion as qualitatively provided in the EIR based on consideration of differences in summer outflow, i.e., the potential for small negative effects of the project relative to existing conditions (California Department of Water Resources 2023a). The comment suggests that the EIR concluded that outflow-related effects of the project alternatives were less than significant. In fact, the EIR concluded these effects to be significant and required mitigation to make the impact less than significant with mitigation, as described in the CEQA conclusion of Impact AQUA-6 in Chapter 12, Fish and Aquatic Resources.
504-99	With respect to effects of the proposed project on entrainment of sediment and turbidity in the Delta, the DEIR also fails to explain why it does not use existing models to quantitatively analyze the effects of North Delta diversions on turbidity in the Delta. See Achete et al. 2015; Martyr-Koller et al., 2017. Instead, the DEIR speculates that these effects on turbidity "may be limited by future increases in sediment entering the Delta," DEIR at 12-176, as a result of more severe storms "over	Although effects on sediment entrainment from the project alternatives may indeed in the long-term be limited by future increases in sediment entering the Delta, as noted in the Draft EIR, the reference to this has been removed in the Final EIR at the location cited in the comment because this is less relevant for the comparison to existing conditions, as implied by the comment. None of the revisions described in the EIR resulted in a new significant environmental impact or substantial increase in the severity of an environmental impact or required additional mitigation measures to

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	the next century" as a result of climate change, id. At 165 (emphasis added). Here, the DEIR selectively and improperly relies on potential effects from climate change in the future (potential for increased sediment by 2040) compared with existing conditions today. Moreover, the DEIR's analysis focuses on sediment, rather than suspended sediment (turbidity), despite the availability of existing models to analyze effects on suspended sediment (turbidity), and it does not account for the limitations and uncertainty of the conclusions in Stern et al 2020 [Footnote 24: In addition, Stern et al 2020 concludes that the RCP 4.5 and 8.5 ensemble averages did not show a statistically significant increase in suspended sediment concentration (SSC), explaining that "the nonsignificant trends of a levelling off or decline of sediment are also plausible outcomes," and identifying many sources of uncertainty and limitations in the study].	which DWR was unwilling to commit. With respect to uncertainty in the study of Stern et al. (2020), this is acknowledged in Impact AQUA-6 where it is noted that there is the potential for such increases to offset to largely reverse the approximately 50% reduction in sediment loading from the Sacramento River estimated to have occurred during the second half of the 20th century; this is not stated as being certain to occur. The EIR recognizes uncertainty in the potential for effects to sediment and turbidity and includes Environmental Commitment EC-15 to address the issue of sediment entrainment (see Appendix 3B, Environmental Commitments and Best Management Practices), while concluding that the impact related to sediment is less than significant. This environmental commitment includes multi-year monitoring and estimation of sediment entrainment during initial operations following north Delta diversion construction; monitoring and modeling of potential effects relative to performance criteria based on the sediment entrainment estimates; and development and implementation of a sediment reintroduction plan should performance criteria have been exceeded. The monitoring component will allow more accurate assessment and modeling to occur than is possible with available data, particularly given that diversion operations themselves are subject to adaptive management (see Chapter 3, Description of the Proposed Project and Alternatives) and in light of factors that may change over the time frame before operations of the north Delta intakes commencing (such as sediment loading as suggested to be possibly by the study of Stern et al. 2020). With respect to the comment that the analysis focuses on sediment rather than the turbidity, the link between the two is made in the sediment entrainment analysis for Impact AQUA-6, wherein it is noted that the main potential for impact is less sediment for resuspension.
504-100	In addition, the DEIR repeatedly asserts that food availability is a limiting factor for Delta Smelt, see DEIR at 12-13, yet the DEIR fails to consider the effects of CVP/SWP pumping in the South Delta on primary and secondary productivity. The DEIR includes modeling of effects of North Delta pumping on phytoplankton,	The comment suggests that there should be more disclosure of the Hammock et al. (2019b) study and implies that the model from that paper should be used to assess potential effects of the project alternatives on phytoplankton abundance. Although the EIR cites Hammock et al. (2019b), it does so noting that Hammock et al.'s comparison did not fully account

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	concluding that the proposed project and alternatives would generally entrain zero to eight percent of the phytoplankton carbon. DEIR at 12-171 to 12-174; id., Appendix 12B, at 12B-164 to -165. However, while the DEIR mentions Hammock et al. 2019 and qualitatively discusses the effects of SWP/CVP pumping in the South Delta on phytoplankton, the DEIR does not disclose the conclusion of Hammock et al 2019 that SWP/CVP South Delta pumping reduces phytoplankton abundance by 74 percent, nor does the DEIR use the model to analyze the effects of SWP/CVP south Delta operations on phytoplankton abundance. The DEIR must be revised to consider these important aspects of the problem.	for differences in operations that would have been associated with the hypothetical elimination or reduction in south Delta exports that it explores and compares to, which is a limitation of the study. Therefore, there has been an appropriate level of disclosure of the study. With respect to applying the model to show effects of south Delta pumping as suggested in the comment, this is not necessary given that south Delta exports are similar or less under the project alternatives compared to existing conditions (See, e.g., the two figures in the section titled SWP and CVP South Delta Exports Monthly Volumes found in Section B (Hydrology and Systems Operations Modeling), Attachment 3 [CalSim 3 Model Results for Existing Condition and Alternatives at 2020] of Appendix 5A, Modeling Technical Appendix) and therefore, indicating that south Delta effects would be similar or less under the project alternatives compared to existing conditions.
504-101	Finally, the DEIR asserts that the proposed project and alternatives may result in reduced entrainment of Delta Smelt, but these potential benefits are not reasonably certain to occur because the proposed project and alternatives do not require reduced pumping in the South Delta or less negative OMR values, and instead propose the continuation of the Trump Administration's biological opinions for the South Delta. In addition, the DEIR fails to discuss how there is no safe level of entrainment for Delta Smelt, as any level of entrainment mortality reduces the existence of the species. See Exhibit D [ATT 23 and 24]. Taken together, the available evidence shows that the proposed project is likely to cause significant impacts to delta smelt.	It is unclear which analysis the comment is referring to with respect to the suggestion that the EIR asserts that the proposed project and alternatives may result in reduced entrainment of delta smelt; for example, the analysis of south Delta exports and the CEQA conclusion in Impact AQUA-6 both note that entrainment risk would be similar between the project alternatives and existing conditions, with current operational criteria under federal and state water project permits applying to all scenarios. Please see Common Response 1, CEQA Process, General Approach to Analysis, and Other Environmental Review Issues, regarding inclusion of the 2019 biological opinions and 2020 ITP in the existing conditions and project alternative assumptions. With respect to the suggestion that the DEIR fails to acknowledge that there is no safe level of entrainment for delta smelt, it is unclear what "any level of entrainment mortality reduces the existence of the species" means; entrainment mortality does reduce the population abundance based on the number of fish lost to entrainment mortality, with the risk of such entrainment being limited by operational criteria under federal and

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		state water project permits applying to all scenarios analyzed in the EIR, as noted above. Loss of individual fish to entrainment does not necessarily translate into population-level effects, i.e., changes in trajectory of the overall population abundance over time (e.g., Maunder and Deriso 2011). The exhibit cited in the comment cites a published paper (Smith et al. 2021, which is cited in the EIR Chapter 12, Fish and Aquatic Resources) that concluded that no level of predicted delta smelt entrainment mortality led to a high probability of population growth and that there was little difference in the probability of population growth between widely differing levels of south Delta pumping as reflected in Old and Middle River flows (e.g., management to -5,000 cfs versus 0 cfs Old and Middle River flows). The paper also indicated that entrainment actions were successful in reducing mortality and supporting status quo water operations, but given management limits for the San Francisco Estuary, management includes supplementation of the wild population with hatchery-origin fish (as noted in Chapter 12). Such factors do not differ between existing conditions and the project alternatives. With respect to the comment regarding the proposed project causing significant impacts on delta smelt, this is consistent with the EIR's conclusion of a significant impact (because of less Delta outflow), and is addressed with mitigation as described in Chapter 12, which reduces this impact to a less-than-significant level.
504-102	F. Longfin Smelt: The DEIR's analysis of impacts to Longfin Smelt fails to accurately assess and disclose the significant environmental impacts that would result from the proposed project and alternatives. The DEIR uses flawed methodology that fails to use the best available science and substantially underestimates the severity of adverse impacts to Longfin Smelt. In addition, the DEIR erroneously concludes that tidal marsh habitat	Please see responses to comments 504-109 through 504-119, which address the specific issues summarized in this comment.

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	restoration would mitigate these impacts to a less than significant level, which is inconsistent with the best available science and is not supported by substantial evidence.	
504-103	The DEIR grudgingly admits that the reduction in Delta outflow caused by the proposed project and alternatives would reduce the population of Longfin Smelt by 4-10% under the proposed project, which would constitute a significant impact under CEQA. DEIR at 12-198. However, the text of the DEIR and the methodology used in the DEIR to assess these impacts -- like that used by DWR and rejected by the California Department of Fish and Wildlife in 2020 -- tends to "obscure" the effects of the proposed project and "have the consistent effect of downplaying the effect" of the proposed project, thereby failing CEQA's mandate to accurate inform the public and decisionmakers of the likely environmental impacts of the proposed project and alternatives. See California Department of Fish and Wildlife, Findings of Fact of the California Department of Fish and Wildlife Under the California Endangered Species Act, Attachment 7 (Effects Analysis, State Water Project Effects on Longfin Smelt and Delta Smelt, March 2020), at 74, attached hereto as Exhibit G [see attachment 42].	The EIR has been prepared in compliance with CEQA and adequately evaluates and discloses potentially significant impacts on environmental resources. Rather than obscuring or downplaying effects as suggested in the comment, the analysis referenced in the comment aimed to provide full context to the statistical probability of potential differences in longfin smelt fall midwater trawl index between the project alternatives compared to existing conditions. As noted in the comment, the conclusion of the analysis was that the impact was significant and required mitigation, and the impact conclusion was less than significant after mitigation.
504-104a	For instance, despite the California of Fish and Wildlife rejecting the use of very similar methodology in 2020 and requiring use of the "'Kimmerer regression' approach" instead, id. At 74-75, DWR in this DEIR fails to even present results using the Kimmerer regression approach. And despite the California Department of Fish and Wildlife's reminder to DWR of "the scientific literature's consistent conclusions about the effects of Delta outflow to LFS abundance," id. At 75, the DEIR mischaracterizes the consistent scientific conclusions regarding the adverse effects of reducing Delta outflow on longfin smelt by describing the effects as "uncertain," see DEIR at 12-198, by	With respect to the comment noting that similar methodology was rejected by California Department of Fish and Wildlife in 2020, the method used in the EIR addresses the noted shortcomings, such as density-dependence being too strong (see discussion of Nobriga and Rosenfield model in Impact AQUA-7 in Chapter 12, Fish and Aquatic Resources). As noted in Attachment 2 to Appendix E of the 2020 SWP LTO FEIR, DWR considered the "Kimmerer regression" to not constitute best available science because of factors such as not including stock size of the longfin smelt population; as also noted therein, the Nobriga and Rosenfield model and the "Kimmerer regression" showed the same general differences and level of uncertainty between the different alternatives. This would also be

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	claiming that changes in abundance are "were very small relative to the variability in the predicted values, which spans several orders of magnitude," id. At 12-194, or by erroneously claiming that Napa River flows are more important than Delta outflow for longfin smelt population dynamics, id. At 12-195. Notwithstanding DWR's attempts to obfuscate the scientific consensus, numerous peer-reviewed scientific studies going back decades have consistently found that winter-spring Delta outflow is a driving factor in longfin smelt recruitment and population dynamics. See, e.g., Nobriga and Rosenfield 2016; Thomson et al. 2010; MacNally et al. 2010; Kimmerer 2002; Kimmerer 2009; Jassby et al. 1995. Most recently, in proposing to list longfin smelt as endangered under the federal Endangered Species Act, the U.S. Fish and Wildlife Service concluded that, "We consider reduced and altered freshwater flows resulting from human activities and impacts associated from current climate change conditions (increased magnitude and duration of drought and associated increased temperatures) as the main threat facing the Bay-Delta longfin smelt due to the importance of freshwater flows to maintaining the life-history functions and species needs of the DPS. However, because the Bay-Delta longfin smelt is an aquatic species and the needs of the species are closely tied to freshwater input into the estuary, the impact of many of the other threats identified above are influenced by the amount of freshwater inflow into the system (i.e., reduced freshwater inflows reduce food availability, increase water temperatures, and increase entrainment potential)." 87 Fed. Reg. at 60963.\ [Footnote 25: The DEIR fails to adequately consider that proposed projects to increase	the case with the Delta outflow-abundance index method used in this EIR. (Note that California Department of Fish and Wildlife did not request that the "Kimmerer regression" be used for this EIR. Responses to all comment letters are provided in Volume 2, Chapter 4, Response to Comments Tables; the comments from California Department of Fish and Wildlife are provided in letter 568.) With respect to scientific literature and effects of Delta outflow on longfin smelt, this linkage is acknowledged in EIR, for example, see the Delta Outflow-Abundance analysis in Impact AQUA-7. Please see response to comment 504-109 with respect to providing full context regarding statistical differences, which addresses the mischaracterization suggested to have occurred by the commenter. With respect to the comment that the EIR claims that Napa River flows are more important than Delta outflow for longfin smelt population dynamics, the EIR actually states that in the statistical analysis by Maunder et al. (2015), general hydrological conditions in the Sacramento River watershed and Napa River were a better explanation of population dynamics than Delta outflow, that is, this is summarizing the results of a statistical analysis examining different factors for their correlation with longfin smelt abundance index trends, in order to provide fuller context around uncertainty in potential operations-related differences in longfin smelt population-level effect from the project alternatives compared to existing conditions. Ultimately, the analysis conducted statistical comparisons using Delta outflow as the point of comparison and concluded that the impact would be significant, requiring mitigation, and that the impact conclusion was less than significant with mitigation.

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	diversions from the Bay-Delta, like Sites Reservoir, would also produce negative effects to Longfin Smelt from reduced Delta Outflow, even though the NEPA documents for Sites Reservoir misapplies methods to compare project alternatives with the No Project Alternative, thus underestimating adverse impacts. See Sites RDEIR/SDEIS at 11-270 to 11-272. Similarly, with respect to the environmental baseline, the DEIR fails to adequately disclose the major increases in larval and juvenile entrainment resulting from the Incidental Take Permit, which also causes significant reductions in abundance to longfin smelt from reduced Delta outflow. See ITP Final EIR at 4- 177 to 4-186.]	
504-104b	[Footnote 25:]The DEIR fails to adequately consider that proposed projects to increase diversions from the Bay-Delta, like Sites Reservoir, would also produce negative effects to Longfin Smelt from reduced Delta Outflow, even though the NEPA documents for Sites Reservoir misapplies methods to compare project alternatives with the No Project Alternative, thus underestimating adverse impacts. See Sites RDEIR/SDEIS at 11-270 to 11-272.	Please see response to comment 504-70 regarding the approach for the cumulative analysis; please also see the discussion of quantitative modeling for the cumulative impact assessment in Common Response 1, CEQA Process, General Approach, and Other Environmental Review Issues.
504-104c	[Footnote 25:] Similarly, with respect to the environmental baseline, the DEIR fails to adequately disclose the major increases in larval and juvenile entrainment resulting from the Incidental Take Permit, which also causes significant reductions in abundance to longfin smelt from reduced Delta outflow. See ITP Final EIR at 4- 177 to 4-186.	The comment's apparent suggestion that the EIR should compare existing conditions to conditions prior to existing conditions is not required by CEQA. Furthermore, issuance of the SWP LTO ITP mentioned in the comment involved inclusion of mitigation and operational criteria meeting the CESA standard of full mitigation. Additionally, as noted in the environmental setting and impact sections of Chapter 12, Fish and Aquatic Resources, the ITP and USFWS and NMFS 2019 Biological Opinions include operational criteria limiting potential entrainment of listed fish and the ITP includes longfin smelt spring outflow criteria, which is part of the baseline and therefore is part of the criteria met by the project alternatives. It is to this baseline that the project alternatives are compared. Please see also Common Response 1, CEQA Process, General Approach to Analysis, and

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		Other Environmental Review Issues, for a discussion of the CEQA environmental baseline.
504-105	The DEIR also attempts to downplay other adverse effects of the proposed project and alternatives on Longfin Smelt. For instance, the DEIR's modeling shows reduced abundance of prey species important to Longfin Smelt, including E. affinis and mysid shrimp. DEIR at 12-193. However, using language that is nearly identical to the DEIR's attempts to mislead the reader regarding the effects of Delta outflow on Longfin Smelt, the DEIR claims that the reduced abundance of E. affinis caused by the proposed project and alternatives "are much less than the range of the prediction intervals from this statistical model, which span several orders of magnitude," and concludes that there is little potential for negative effects on Longfin Smelt with respect to food availability, id. Moreover, the DEIR does not actually model the effects of the proposed project on mysid abundance (the word "mysid" does not appear in Appendix 12B), and the DEIR's conclusory statements lack any evidentiary support in the DEIR. And with respect to entrainment of Longfin Smelt, the DEIR shows that the proposed project and alternatives would likely result in an increase in entrainment of larval Longfin Smelt. DEIR at 12-188 to 12-190. Given the endangered status of the species, each of these adverse effects are likely to cause significant effects individually and in combination.	With respect to food availability and E. affinis, the EIR characterizes the results appropriately in light of the variability in the estimates of E. affinis indicated by the width of the prediction intervals compared to the differences between the project alternatives and existing conditions. With respect to the mysid N. mercedis, the analysis notes that there is a positive correlation between mysid density with spring Delta outflow (i.e., a negative correlation with spring X2) and that there is a positive relationship with May–October X2 (i.e., a negative correlation with Delta outflow), indicating the potential for small mixed effects from the project alternatives and very little potential for negative effects. As described in the Biological Review for the February through March 2023 Temporary Urgency Change Petition (California Department of Water Resources and Bureau of Reclamation 2023:2-9), although there is a positive correlation between the mysid Neomysis mercedis and Delta outflow, abundance indices of N. mercedis declined considerably in the late 1990s and by far the most abundant mysids now are Hyperacanthomysis longirostris and Neomysis kadiakensis. Neither H. longirostris nor N. kadiakensis have statistically significant correlations with Delta outflow, which is reflected in the lack of significant correlations with Delta outflow for all three mysid taxa combined; this provides further evidence that the project alternatives would have very little potential for negative effects to mysids relative to existing conditions. With respect to entrainment, the modeling results did show minor differences entrainment of particles in the analysis informing entrainment risk of larval longfin smelt, with the project alternatives generally having more entrainment than existing conditions. However, the EIR analysis further noted that real-time operational measures required under the CDFW ITP for the SWP are included in the existing conditions and the alternatives that manage Old and Middle River flows for the protection of

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		longfin smelt. Please also note that a recent peer-reviewed publication suggested that larval longfin smelt losses to entrainment are too low to measurably influence population dynamics (Kimmerer and Gross 2022). This further indicates that larval entrainment under the project alternatives would not have significant effects on longfin smelt.
504-106	The DEIR's conclusion that restoration of less than 150 acres of tidal marsh habitat would reduce these impacts [on longfin smelt] to a less than significant level [Footnote 26: Of course, the proposed project and alternatives would not only have to reduce impacts to a less than significant level but has to ensure that these impacts are "fully mitigated under CESA. Cal. Fish & Game Code § 2081(b)(2). The DEIR claims that this tidal marsh restoration would "reduce the potential effects caused by reduced outflow," but does not claim that it would fully mitigate these impacts. As discussed herein, it would not.] is arbitrary and capricious. See DEIR at 12-198. The DEIR does not cite any scientific studies demonstrating that restoring tidal marsh habitat will increase the abundance of Longfin Smelt, nor is there any credible scientific basis to conclude that the scale of tidal marsh habitat proposed in the DEIR would lead to measurable increases in abundance. While Longfin Smelt may have been found near a restored tidal marsh, see DEIR at 12-198, the mere presence of larval Longfin Smelt at a restoration site does not provide scientific evidence demonstrating that restoration of more acres of tidal marsh habitat would increase abundance of Longfin Smelt. For example, results of a preliminary otolith chemistry "fingerprinting" study concluded that, "..of the adult fish that were classified with moderate confidence (e.g., 75%), nearly all appeared to have reared in the northern SFE... " Lewis et al. 2019 at 9 and Figures 17 and 18. Furthermore, decades of shallow tidal habitat restoration in the San Francisco Bay-Delta estuary have produced no	The EIR applied methodology consistent with the methods used to calculate mitigation required for the 2020 SWP ITP. With respect to full mitigation under CESA, the standard for environmental compliance under CEQA and as applied in this EIR is to mitigate to a less-than-significant impact. Please also see the discussion of project approvals, permitting processes, and other required actions in Common Response 1, CEQA Process, General Approach to Analysis, and Other Environmental Review Issues. Consistent with the study cited in the comment showing most longfin smelt reared in the northern San Francisco Estuary based on a "fingerprinting" study, tidal habitat mitigation restoration required by the CMP could be located in the northern San Francisco Estuary. See Appendix 3F, which also discusses performance standards and monitoring with respect to mitigation. With respect to the continued decline of longfin smelt over the past decade despite various tidal habitat restoration actions, fall midwater trawl abundance indices for longfin smelt in 2021 and 2022 were actually the highest observed since the very wet year of 2011 (California Department of Fish and Wildlife 2023), despite very low outflow conditions typically correlated with lower indices of abundance.

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	noticeable effect on Longfin Smelt abundance or productivity -- in fact, declines have been observed repeatedly in both of these attributes of population viability. The U.S. Fish and Wildlife Service recently concluded that, "The loss of tidal marsh habitats may have hampered [Longfin Smelt] productivity, but to date, there are no indications that restoration has been sufficient to stem the decline. Therefore, we cannot conclude whether or not the species has lost resilience due to landscape changes that occurred in the 19th and 20th centuries." U.S. Fish and Wildlife Service, Species Status Assessment for the San Francisco Bay-Delta Distinct Population Segment of the Longfin Smelt, available online at: https://www.regulations.gov/document/FWS-R8-ES-2022-0082-0003/content.pdf, at 56. The DEIR fails to provide a reasoned explanation for its assumption that less than 150 acres of tidal marsh habitat restoration would mitigate these impacts of reduced Delta outflow, particularly given the improvements in scientific understanding in the past decade (see, e.g., Herbold et al. 2014, Nobriga and Rosenfield 2016) and the continued decline in abundance of Longfin Smelt over the past decade despite the habitat restoration required under the prior Longfin Smelt ITP and other actions.	
504-107	Similarly, while the DEIR cites Lewis et al. 2020 to suggest that restored tidal marsh habitat would benefit Longfin Smelt, Lewis et al. 2019 and Lewis et al 2020 do not support the DEIR's conclusion. Most notably, Lewis et al. 2019 states clearly that the value of restored shallow subtidal habitats "remains unknown." Lewis et al. 2020 reports findings from "...previously undescribed aggregations of Longfin Smelt that	Citation of Lewis et al. (2020) as noted in the comment was done to provide an example of longfin smelt occurring in restored habitats. Please see response to comment 504-114 with respect to restoration not being assumed in south San Francisco Bay.

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	were attempting to spawn in restored and underexplored tidal wetlands of South San Francisco Bay." There is no evidence that restoration activities in these areas of South San Francisco Bay generated any positive effect for longfin smelt. In fact, Longfin Smelt occupancy of and recruitment in these restored shallow marsh habitats in South San Francisco Bay appears to be dependent on freshwater flow. Lewis et al. 2019 observed successful recruitment of Longfin Smelt larvae to marshes in South San Francisco Bay only in years of locally high freshwater flow into the Bay; during other years, adult longfin smelt returning to and spawning in the vicinity of the South Bay Salt Ponds may have represented an ecological sink. And there is no evidence that longfin smelt benefited from the existence of the restored shallow sub-tidal habitat in years that were not wet. Regarding their detections of substantial numbers of longfin smelt west of Suisun Bay, which occurred primarily during the wet years 2017 and 2019 (and, for restored South Bay salt ponds, only during those two years), they state: ... it is valuable to consider whether, with high Delta outflows, it is feasible and probable that larval and juvenile longfin smelt found in high numbers in San Pablo Bay, and even Lower South San Francisco Bay, could have been transported from Delta and Suisun Bay spawning sites by currents, tides, and winds." Id. Thus, these papers do not support the DEIR's claim that tidal marsh habitat restoration would mitigate the effects of reduce Delta outflow.	
504-108	Furthermore, there is little evidence for any mechanism connecting the extent of shallow subtidal marsh environments to viability of the estuary's longfin smelt population. Contrary to the assumption that restoration of shallow tidal habitat will increase abundance and productivity of the SF longfin smelt population by increasing larval production, the local Longfin	It is unclear what the basis is for the commenter's suggestion that it is assumed that restoration of shallow tidal habitat will increase abundance and productivity by increasing larval production; such an assumption is not stated within the EIR, which points to the more general expansion of diversity, quantity, and quality of rearing and refuge habitat for the species, as cited from the California Department of Fish and Wildlife ITP (see CEQA

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	Smelt population does not appear to be limited by larval production, which is relatively consistent from year to year and shows no correlation with Delta outflow. See, e.g., Dege and Brown 2004; Eakin 2021. Whereas longfin smelt larvae are observed in shallow marsh environments, it is not clear what percentage of the population makes use of these areas and the duration of residence in shallow marsh habitats appears to be very short (<1 month). Juvenile longfin smelt are rare in shallow, sub-tidal marsh and so would not be expected to benefit from restoration of such habitats. There is also little evidence for a substantial positive effect on SF longfin smelt of prey items exported from shallow sub-tidal habitats. For example, although Hammock et al. 2019 found potential support for the hypothesis that tidal marshes can improve delta smelt foraging success on the margins of marsh habitats, Hammock et al. 2019 did not find evidence to support the hypothesis that tidal marshes export zooplankton to other parts of the estuary. This potential mechanism of providing foraging habitat would likely be less important for longfin smelt, given that they aggregate in habitats that are distant from shallow marshes.	conclusion for Impact AQUA-7 in Chapter 12, Fish and Aquatic Resources). This could include larvae as well as subsequent life stages. With respect to the comment's suggestion that larval production is relatively consistent from year to year and the citations included, Dege and Brown (2004) showed annual abundance indices varying over three orders of magnitude and Eakin (2021) observed changes in larval density coincident with recent drought, for example; Kimmerer and Gross (2022) estimated larval abundance indices during 2009-2020 to vary between 70 million fish in 2015/2016 and nearly 3.7 billion fish in 2010. Kimmerer and Gross (2022) also found that there was a positive correlation between larval abundance and the subsequent fall midwater trawl abundance index of juveniles. With respect to the study of Hammock et al. (2019a) cited by the commenter, that study found that there was a positive correlation between stomach fullness and tidal wetland area within 2 kilometers of where the fish had been collected. The study did not attempt to address the issue of export of zooplankton as the comment implies; as shown in Figure 1 of Hammock et al. (2019a), the 2-kilometer radius around each sampling site does not confine fish solely to the margins of marsh habitat as stated in the comment, but it includes areas well into open water habitat. This suggests that longfin smelt would not necessarily have to occur within or immediately next to tidal marsh to benefit from tidal marsh.
504-109	Despite the lack of evidence that restored shallow tidal marsh habitat can mitigate for the negative effects of reduced Delta Outflow and increased entrainment of Longfin Smelt, the DEIR explains that it relies on an unpublished 2010 memorandum by Daniel Kratville ("Kratville 2010") to calculate the acreage required to mitigate impacts from "flow-related impacts." Id., Appendix 3F, at 3F.1-14; see id., Appendix 12B, at 12B-204 to 12B-205. However, Kratville 2010, which has never been peer-reviewed, only considered the effects of SWP "exports" on entrainment of Delta Smelt and Longfin Smelt, and it did not consider the effects of reduced Delta outflow on the	Substantial evidence supports use of the Kratville method cited in the comment to calculate mitigation for the EIR. The method was first used in association with the 2009 SWP incidental take permit. In that permit, California Department of Fish and Wildlife, known then as California Department of Fish and Game, required two main components for full mitigation of SWP operations: flow measures and tidal habitat restoration (California Department of Fish and Game 2009). California Department of Fish and Wildlife stated that the flow measures minimized take and provided partial mitigation for the remaining take by (1) minimizing entrainment; (2) improving estuarine processes and flow; (3) improving downstream transport of longfin smelt larvae; and (4) providing more

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	abundance of Longfin Smelt. For instance, Kratville 2010 states that, "This analysis does not take into account the effect of the pumps on elements of delta smelt critical habitat in the estuary such as nutrients, primary production, and secondary production." Kratville 2010 at 6. [Footnote 27: Similarly, the 2009 incidental take permit for operations of the State Water Project required 800 acres of tidal marsh habitat restoration that was explicitly intended to mitigate the effects of entrainment of larval and adult Longfin Smelt. Attachment B to the 2009 incidental take permit explains that, "The pumping restrictions and operational measures will not, however, fully minimize and mitigate the take of longfin smelt-some longfin smelt will still be lost at the pump. Therefore, the ITP requires further measures to mitigate for these losses. The habitat restoration measures of the ITP, which require DWR to restore 800 acres of longfin smelt habitat in specific locations, will provide mitigation that is roughly proportional to the portion of the longfin smelt population that will be taken after application of the other Conditions of Approval." California Department of Fish and Wildlife, California Incidental Take Permit 2081-2009-001-03, Attachment B, at 8; see id. ("The Effects Analysis also helps to explain how the Conditions of Approval in the ITP will minimize and fully mitigate this loss or entrainment in the case of larvae." (emphasis added). There is no evidence in that permit that the 800 acres of tidal marsh habitat restoration was intended to mitigate the effects of reduced abundance from decreased Delta outflow.]	water that is used as habitat (increased habitat quality and quantity) (California Department of Fish and Game 2009:9). The flow measures consisted of meeting winter/spring Old and Middle River flow criteria to protect longfin smelt adults, larvae, and juveniles and restricting Barker Slough Pumping Plant to protect larval longfin smelt. To contribute to full mitigation, California Department of Fish and Wildlife determined that permanent protection of inter-tidal and associated sub-tidal habitat wetland habitat to enhance longfin smelt water habitat was necessary and required under CESA to fully mitigate the impacts (California Department of Fish and Game 2009:14). California Department of Fish and Wildlife stated that the restoration, together with the flow measures, “will enhance the estuarine processes and open water habitat beneficial for Longfin Smelt and provide some additional habitat for Longfin Smelt in deeper areas” (California Department of Fish and Game 2009:14). This suggests a broader function of the restoration in achieving full mitigation.

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504-110	The Kratville 2010 methodology is based solely on entrainment of particles as a surrogate for entrainment of larval and juvenile Delta Smelt and Longfin Smelt. Kratville 2010 uses the same approach to calculating mitigation requirements for the effects of pumping on Delta Smelt and Longfin Smelt, even though the effect of winter-spring Delta outflow on Longfin Smelt population dynamics and geographic distribution are very different from, and much stronger than, the effects of Delta outflow on Delta Smelt. Indeed, the words “outflow” and “X2” do not appear in Kratville 2010, and there is nothing to suggest that this analysis accounts for the effects of reduced Delta outflow on Longfin Smelt abundance. [Footnote 28: content contained in comment 119] For all of these reasons, the DEIR’s reliance on the Kratville 2010 methodology to calculate mitigation for the effects of reduced Delta outflow on Longfin Smelt is plainly arbitrary and capricious.	Although not focused on Delta outflow-related effects, use of the Kratville method in the EIR was not arbitrary because there was precedence for use of the method as part of the 2009 and 2020 SWP permitting efforts (with the rationale provided in response to comment 504-117), together with Old and Middle River flow criteria and (in the case of the 2020 ITP) Delta outflow criteria, to fully mitigate impacts on longfin smelt. The project alternatives would be operated to these flow criteria and would include tidal habitat restoration to mitigate residual outflow-related effects.
504-111	[Footnote 28:]] The DEIR also claims that Longfin Smelt could benefit from tidal habitat restoration because the State Water Project’s Incidental Take Permit includes "tidal marsh habitat restoration required for outflow impacts to the species." DEIR at 12-198. Yet the California Department of Fish and Wildlife’s 2020 Incidental Take Permit does not state that tidal marsh habitat is required to mitigate the effects of reduced outflow; in fact, the agency included Condition of Approval 8.17 to limit the reduction of Delta outflow, concluding that, "Because SWP exports have the effect of reducing outflow, including during the spring, Condition of Approval 8.17 is a key measure to minimize the Project’s impacts to LFS in the form of population abundance reductions." See Exhibit G at 85; id. At 75 (admitting that Alternative 2b, which included Condition of Approval 8.17, would result in a lesser reduction in the Fall Midwater Trawl index of Longfin Smelt abundance than the	As noted in the comment, the Incidental Take Permit includes Condition of Approval 8.17 to limit reduction of Delta outflow. As described in the EIR, operations of the project alternatives are done such that they meet this condition (see, for example the Delta Outflow-Abundance analysis in Impact AQUA-7). See responses to comments 504-117 and 504-118 regarding mitigation and the method used to calculate mitigation needs.

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	proposed project, but still resulted in reduced abundance). In addition, NRDC and other plaintiffs are challenging the 2020 Incidental Take Permit in court, and the mere fact that this prior permit used similar calculations of mitigation measures does not provide any justification for its continued use in the DEIR, given the clearly arbitrary use of Kratville 2010.	
504-112	G. Green and White Sturgeon The DEIR fails to adequately consider and disclose significant environmental impacts to Green and White Sturgeon, concluding that the impacts of the proposed project and all alternatives will be less than significant. DEIR at ES-34. The southern distinct population segment of Green Sturgeon, which spawns in the Sacramento River and rears in the Delta, is a federally threatened species. White Sturgeon are a State species of special concern. Both populations experienced extreme rates of mortality in 2022 following an unprecedented bloom of the harmful algae, Heterosigma akashiwo; this has raised concerns over the viability of both populations in the San Francisco Bay estuary. For instance, the DEIR acknowledges that Delta outflows are positively correlated with White Sturgeon recruitment and rearing success in this estuary, and are also likely correlated with recruitment of Green Sturgeon. DEIR at 12-202, 12-208; see Israel et al 2009 (citing Kolhorst et al 1991); USFWS 1995; AFRP 2001 Final Plan; NMFS 2010 Testimony to the SWRCB, Exhibit 9. The DEIR indicates that the reduction in Delta outflow from March to July caused by the proposed project and alternatives would likely reduce White Sturgeon year class strength substantially, reducing year class strength by 3% in Wet years, 13-17% in Above Normal years, 15-25% in Below Normal Years, and reducing year class strength from 1 to zero in dry years. DEIR at 12-208. Yet the DEIR erroneously claims	Although the white sturgeon year-class strength estimates from March–July Delta outflow suggested the potential to exceed the significance threshold of approximately 5% lower population abundance, substantial evidence described in the EIR supports the conclusion of a less-than-significant impact on white sturgeon (and by extension green sturgeon, should similar mechanisms apply): the statistical relationships may be related to upstream flow or Delta inflow as opposed to Delta outflow; changes are limited to differences within water year type as opposed to hydrological-condition-scale differences (i.e., greatest recruitment in wetter years); the prediction intervals of the statistical relationship range over several orders of magnitude; and there is little difference in estimates based on the April–May averaging period examined.

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	these sizeable reductions in abundance are less than significant because of uncertainty. Id. at 12-209. Although the DEIR is correct that the mechanism behind these effects is uncertain, id. at 12-208, these relationships between Delta outflow and White Sturgeon are the best available science, and given the population status of these species, even small reductions constitute a significant impact under CEQA.	
504-113	Similarly, migration and dispersal of juvenile and larval White Sturgeon and Green Sturgeon will likely be significantly and adversely affected by reduced flows below the North Delta Diversion under the proposed project and alternatives. Israel and Klimley 2008 indicate that the volume of flow in the middle and lower Sacramento River is a stressor that can limit transport and dispersal of larval and juvenile Green Sturgeon; Israel et al 2009 identifies the same potential stressors for White Sturgeon, and rates "flow operations" as the stressors with the highest possible importance and understanding for this species. The proposed project and alternatives would substantially reduce flows below the North Delta Diversions, including during the August to March period when Green Sturgeon juveniles would be in the lower Sacramento River.	As described in Appendix 12A, Environmental Setting Background Information, and Chapter 12, Fish and Aquatic Resources, green sturgeon larvae occur upstream of the Delta and therefore would not be affected by operations of the project alternatives. The commenter presumably cites August to March as the period with presence of green sturgeon in the lower Sacramento River based on Table 1 of Israel and Klimley (2008); as shown in that table, those authors specifically considered the middle and lower Sacramento Rivers as distinct areas from the Delta, so the comment's discussion of volume of flow is not applied to the location of the proposed north Delta intakes. Chapter 12 notes in the Impact AQUA-8 green sturgeon analysis it is hypothesized that similar mechanisms related to volume of flow may apply to green sturgeon. Similarly, in AQUA-9, volume of flow is discussed in the context of the quantitative analysis for white sturgeon. There are no quantitative relationships available between green sturgeon population outcomes and far-field measures of flow such as Delta outflow that could be affected by the project alternatives. With respect to white sturgeon and flow, please see response to comment 504-120.
504-114	In addition, the DEIR fails to consider the adverse effects of increased predation as a result of the proposed project. For instance, reduced turbidity -- as a result of NDD entrainment of suspended sediment, as well as a result of reduced flows below the NDD -- is likely to increase predation of Green Sturgeon and White Sturgeon. Israel and Klimley 2008 and Israel et al.	With respect to the comment's citation of Israel and Klimley (2008) and Israel et al. (2009) related to predation on the youngest/smallest life stages of sturgeon in the riverine environment, such effects occur upstream of the proposed north Delta intakes and potential project effects, which are within the Delta. Israel and Klimley's (2008:37) life history stressor matrix for green sturgeon juveniles in the Delta gave predation an importance

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	2009 both indicate that predation may be a concern to the youngest/smallest life stages of both sturgeon species, when they are in the riverine environment. Increased water clarity increases predator efficiency on sturgeon. Gadomski and Parsley 2005. Reduced flows and reduced turbidity caused by the proposed project and alternatives are likely to exacerbate the increased predation rates that might arise from either of the individual impacts. Reducing river flows below the new North Delta Diversion may also concentrate predators and prey into a smaller area, may cause a drop in river depth (stage) that will allow sunlight to penetrate through more of the water column, to depths that represent prime sturgeon habitat in many places. And the proposed cylindrical tee-screens located on the river bottom are likely to create new predation hot spots, a common problem with existing water infrastructure in the Delta. The DEIR does not consider potential adverse impacts from increased predation as a result of the proposed project and alternatives.	score of 2 (low importance), with an understanding score of 1 (little or no understanding), and a predictability score of 1 (little or no predictability); this reflects the uncertainty in knowledge of predation effects on green sturgeon in the Delta and indicates it is speculative to infer much with respect to potential effects of the project alternatives. With respect to the citation of Gadomski and Parsley (2005) in the context of water clarity and predator efficiency on sturgeon, note that this was specifically a laboratory study of sculpin predation on larval white sturgeon, for which there was no statistically significant difference in predation over a broad range of turbidity from 0 to 60 nephelometric turbidity units, and no statistically significant difference in predation between treatments of 0 and 180 nephelometric turbidity units; the main differences in predation were between 0-20 and 360 nephelometric turbidity unit treatments. This indicates major differences in turbidity would be required in order to see some potential for effect, with such effects being very unlikely for the north Delta intakes given the limited extent of suspended sediment entrained and bypass flow criteria limiting diversions. With respect to the issue of sediment/turbidity, please also see response to comment 504-105, which discusses the environmental commitment to monitor effects on turbidity. With respect to the potential for the proposed north Delta intakes to create a predation hotspot, please see response to comment 504-82.
504-115	Finally, the DEIR's conclusions regarding entrainment and impingement of Green Sturgeon and White Sturgeon at the North Delta Diversion are arbitrary and capricious. For instance, the DEIR asserts that there would be "no risk of entrainment at the north Delta intakes" of larval Green Sturgeon and 0 very small effects on juvenile Green Sturgeon. DEIR at 12-200. However, unlike salmonids, Green Sturgeon adults and juveniles are generally found near the bottom of the water column. See DEIR at 12A-51 (citing Chapman et al 2019 and	As stated in the EIR, there would be no risk of entrainment at the north Delta intakes of larval green sturgeon because that life stage occurs upstream of the Delta. This is the only life stage of green sturgeon that could potentially be entrained through a fish screen; juveniles occurring in the Delta would be considerably greater in size than the 20-mm size discussed in association with entrainment risk for white sturgeon in Impact AQUA-9. The comment is incorrect in suggesting that green sturgeon impingement risk is not discussed; laboratory studies specifically addressing impingement risk in association with approach velocity criteria are discussed in order to provide context for why the proposed north Delta

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	Thomas et al. 2019). These concerns are even greater for White Sturgeon, given the geographic distribution of larval White Sturgeon throughout the Delta. DEIR at 12-206. The cylindrical tee-screens located on the river bottom under the proposed project and alternatives are likely to cause adverse effects on Green Sturgeon from impingement and entrainment, yet the DEIR fails to even consider potential impingement and exclusively discusses entrainment, unlike with respect to other species. The DEIR fails to provide a reasoned explanation for its conclusions, given that Green Sturgeon and White Sturgeon are generally found along the bottom of the water column and the DEIR does not discuss impingement.	intake screens' approach velocity of 6 centimeters per second would have very low potential for negative effects based on being considerably lower than criteria derived from laboratory studies (29 centimeters per second or greater, depending on month). The same information is discussed with respect to white sturgeon, for which it is noted that there is the potential for entrainment and this is analyzed and concluded not to be a significant impact because of factors such as limited approach velocity.
504-116	VII. The DEIR's Assessment of Water Quality Impacts is Inadequate: Finally, the DEIR's conclusions that the proposed project and alternatives would have less than significant impacts to water quality, DEIR at ES-32, is not supported by substantial evidence. These conclusions also fail to consider important aspects of the problem, particularly the effects of climate change (which will increase water temperatures and the formation of harmful algal blooms), and the use of Temporary Urgency Change Petitions to allow for violations of salinity and other water quality standards. That is particularly true for impacts regarding chloride (salinity), turbidity, [Footnote 29: See supra page 43 regarding the analysis of impacts to turbidity.] and harmful algal blooms.	The water quality analysis is supported by substantial evidence using a variety of data sources and comparing changes between baseline conditions and alternatives in the context of federal or state water quality standards. Please refer to Common Response 1, CEQA Process, General Approach to Analysis, and Other Environmental Review Issues, regarding CEQA requirements for establishing the baseline and the appropriate and adequate description of the environmental baseline used for the impact analysis in the EIR. This Common Response also describes the relationship of climate change to the baseline and the consideration of climate change in the EIR. Please see Common Response 3, Alternatives Development and Description, regarding Temporary Urgency Change Petitions and proposed project operations. Please see response to comment 504-105 regarding turbidity impacts. Please see response to comment 504-125 regarding salinity impacts. Please see response to comment 504-126 regarding harmful algal bloom impacts.
504-117	With respect to salinity, the DEIR demonstrates that the proposed project and alternatives would increase salinity at several locations in the Delta, including Emmaton and Three Mile Slough, and would increase the frequency of violating the	Chapter 9, Water Quality, Impacts WQ-4 (chloride) and WQ-5 (electrical conductivity [EC]), and modeling output in Appendix 9F, Chloride, and Appendix 9G, Electrical Conductivity, demonstrate that the project alternatives would not cause increased frequency of exceedance of Bay-

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	water quality standards for the Sacramento River at Emmaton, the San Joaquin River at Jersey Point, and the San Joaquin River at Prisoner's Point. DEIR at 9-89 to 9-90, 9-93, 9-94; id., Appendix 9G-1, at 9G-8. Moreover, the DEIR's claims regarding compliance with water quality standards and use of real time operations to avoid these modeled violations of water quality standards, DEIR at 9-94, fails to consider the routine violation of salinity standards in the Bay-Delta Water Quality Control Plan during critically dry years since 2014 pursuant to Temporary Urgency Change Petitions, the reasonably foreseeable continuation of such violations in future droughts, and the adverse environmental impacts that result of use of Temporary Urgency Change Petitions. Because a violation of water quality standards constitutes a significant impact under CEQA, the DEIR fails to comply with CEQA.	Delta Water Quality Control Plan objectives for chloride and EC. The comparison of existing conditions versus the proposed project and project alternatives discloses potential impacts associated with implementing the project alternatives and is the basis for the CEQA significance conclusions in the EIR. The EIR compares the water quality conditions under the project alternatives to the water quality baseline existing conditions and identifies whether the project alternatives could affect the ability to meet water quality standards in the Delta. Federal or state numeric standards for certain water quality constituents are the appropriate standard to apply to the impact analysis. Please see Common Response 3, Alternatives Development and Description, regarding Temporary Urgency Change Petitions and proposed project operations.
504-118	With respect to harmful algal blooms, the DEIR fails to consider the adverse effects of reduced Delta outflow (X2) on the increased magnitude, duration, and intensity of harmful algal blooms. DEIR at 9-26 to 9-27, 9-154. Peer reviewed scientific studies by scientists with DWR conclude that even small shifts in the location of X2 increase harmful algal blooms. For example, Lehman et al. 2020 concluded that even small changes in the location of X2 will dramatically increase the abundance and distribution of harmful algal blooms because there was a "strong correlation of microcystis abundance with the X2 index and water temperature," with their model finding that outflow and water temperatures explained 58-78% of the variation in bloom surface. Most notably, the paper concludes that, "Importantly, relatively small changes in the location of the X2 index may be important. A shift of the X2 index by only 3 km	The regression model in Lehman et al. (2022) indicated that two variables combined (water temperature and X2 position) were able to explain a significant portion of the variation in Microcystis biomass or abundance in the Delta, not X2 position alone. Moreover, this relationship between X2 position, temperature, and CHABs was based on data from two extreme hydrologic years (2014 [extremely dry] and 2017 [extremely wet]) and was not found to correlate significantly to Microcystis biomass or abundance across months within either 2014 or 2017. Consequently, Chapter 9, Water Quality, Impact WQ-14 (CHABs) explains that small increases in X2 alone are not likely to explain changes in CHABs at different locations across the Delta. Instead, complex interactions among the multiple factors that affect bloom development and accumulation are what drive bloom magnitude and severity. Impact WQ-14 also addresses Lehman et al. (2022) use of X2 as a proxy for residence time for the entire Delta and how it does not address residence time at specific locations. The EIR uses an assessment of site-specific residence time as modeled directly using DSM2 in combination with modeled temperature, channel velocity, nutrients, and irradiance to

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	was associated with a factor of 3 increase in the percent abundance of subsurface Microcystis cells in the cyanobacterial community between the extreme drought years 2014 and 2015 (Lehman et al., 2018). Similarly, the increase in the X2 index from 71 km in July to between 75 and 76 km in August and September may have facilitated retention of cells in the central Delta during the peak of the bloom in 2017." Lehman et al. 2020. This finding is consistent with other research from the Bay-Delta, which has found that the frequency of these blooms is closely linked to water residence time (i.e., flow rates). Berg M. and Sutula M. 2015. Factors affecting the growth of cyanobacteria with special emphasis on the Sacramento-San Joaquin Delta. Southern California Coastal Water Research Project, Technical Report 869 August. More recently, Lehman et al 2022 concluded that X2 (Delta outflow) and water temperature predict much of the variation in microcystis surface biovolume, that it was "not unexpected that the X2 index would account for most of the variation in the microcystis bloom abundance" in the Delta, and that the microcystis bloom in 2014 peaked when X2 was above 85 km. The DEIR's failure to consider the proposed project and alternatives' adverse effects of reduced Delta outflow on the formation and extent of harmful algal blooms violates CEQA. The DEIR's conclusions regarding water quality impacts fail to consider important aspects of the problem and are not supported by substantial evidence.	determine impacts of the project alternatives on CHABs. Residence time modeling indicates that residence time would decrease in the Stockton Deep Water Ship Channel and have little to no change in the southern, eastern, and western parts of the Delta. The project alternatives are expected to increase residence time in some locations and months within the central Delta. The greatest increases in residence time would occur in Discovery Bay where there are already very long residence times (i.e., 2 to 5 weeks under existing conditions). Increases in residence time for the project alternatives may contribute to more Microcystis cell and colony production and accumulation/aggregation in Discovery Bay due to a 1- to 2-day increase in residence time in July at this location. There is uncertainty regarding how modeled increases in residence time would translate to Microcystis bloom size through additional growth, accumulation, and aggregation provided by longer residence time. However, an additional day or two of residence time at Discovery Bay (a location that already has annual CHAB events) would not cause Microcystis blooms to substantially increase in size or last substantially longer, relative to existing conditions. DSM2 temperature modeling found that project operations would not increase water temperatures in the Delta relative to existing conditions. There would also be negligible differences in nutrients, channel velocity, and irradiance under the project alternatives relative to the existing conditions. Considering the factors (i.e., temperature, channel velocity, nutrients, irradiance, and residence time) that drive emergence and subsequent growth and accumulation of CHABs in the Delta, the CHAB analysis found bloom development and magnitude would not be substantially affected by the project alternatives. As such, there would be a less than significant impact on CHABs. Regarding turbidity, Chapter 9 addresses effects of project operations on total suspended solids and turbidity of study area waterbodies. As described in the section titled Impacts of the Project Alternatives on Water

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		Quality, project operations would not affect water quality of the rivers upstream of the Delta, including total suspended solids (TSS) and turbidity levels. Furthermore, as described in Impact WQ-13 (TSS and turbidity), it is the high runoff events that contribute to the high TSS and Delta sediment load, which would not change substantially for project operations, relative to existing conditions.
504-119	VIII. Conclusion. The DEIR fails to comply with CEQA, and it must be substantially revised to provide the public and decision-makers with accurate information regarding the effects of the proposed project and alternatives, and recirculated for public comment. Thank you for consideration of our views.	Please refer to the detailed responses in letter 504 in this table. As described in these responses, the EIR fully complies with CEQA and provides decision-makers sufficient information regarding the type of and magnitude of potentially significant impacts to make a decision regarding the project. Please refer to Common Response 1, CEQA Process, General Approach to Analysis, and Other Environmental Review Issues, regarding the requirements for recirculation, none of which are met for the EIR.
504-120	[ATT 1:] RE: Request that DWR Reconsider the Proposed Operational Criteria for the Delta Tunnel Project Dear Director Nemeth: On behalf of the Natural Resources Defense Council, Restore the Delta, Sierra Club California, California Sportfishing Protection Alliance, San Francisco Baykeeper, Defenders of Wildlife, Save California Salmon, and Golden State Salmon Association, we are writing to express our concerns with the proposed operational criteria for the Delta tunnel project that were summarized in the August 3, 2021 Fisheries webinar. We were surprised and alarmed to see that DWR's proposed operational criteria for the Delta Tunnel are significantly more environmentally harmful than the operations required by state and federal permits for the California WaterFix project, even though the WaterFix project was shown to reduce the survival and abundance of salmon, would have worsened environmental conditions in the estuary, and was ultimately	Chapter 3, Description of the Proposed Project and Alternatives, in the EIR provides a detailed discussion of intake operations, operational criteria, and integration of the SWP and CVP. The project operations are consistent with existing Delta regulatory requirements and include measures to, for example, minimize fish entrainment and effects to migration. The analyses disclosed in the EIR for fish and aquatic resources and water quality identify potentially significant impacts and propose mitigation to reduce them to less than significant levels. Please refer to Common Response 3, Alternatives Development and Description, for more details regarding the development of the operational criteria for Delta Conveyance Project. The proposed operational approach considered information from previous agency coordination, including California WaterFix. Note that the Delta Conveyance Project and California WaterFix are two independent and separate projects.

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	withdrawn in the face of numerous lawsuits. We therefore request that DWR substantially revise the proposed operational criteria and propose new operational criteria that are significantly more environmentally protective than those required by the permits for the California WaterFix project.	
504-121	[ATT 1:] First, DWR is proposing to use the Delta tunnel for water exports in the summer months, whereas WaterFix prioritized pumping from the South Delta for the months of July to September. See WaterFix Final Biological Assessment at 3-96 ("Jul - Sep: Prefer south delta intake up to total pumping of 3,000 cfs; No specific intake preference beyond 3,000 cfs."). This change in operations appears likely to reduce Delta outflow and worsen water quality conditions in the estuary during the summer months, including by reducing the incidental contributions to Delta outflow that result from water transfers. As well as harming fish and wildlife that depend on outflow during the summer months, this operational change appears likely to increase the frequency and extent of harmful algal blooms and harm to other legal users of water, including farms and cities in the legal Delta. See id. At 3-86 ("The PA operations include a preference for south Delta pumping in July through September months to provide limited flushing flows to manage water quality in the south Delta.").	Part of this comment compares certain aspects of the Delta Conveyance Project to the California WaterFix Biological Assessment and mischaracterizes major operational aspects of the Delta Conveyance Project. Note that the Delta Conveyance Project and California WaterFix are two independent and separate projects. The Delta Conveyance Project is designed to augment the SWP's ability to capture excess flows when available, but this would primarily occur in winter and spring, not summer. In the winter and spring, the SWP would first divert water from the south Delta as under existing conditions and would then use the proposed north Delta diversion to opportunistically capture additional water during high flow periods. The project is not intended to increase exports in the drier months of summer and fall, during which the primary focus would be on meeting Delta water quality requirements, with some potential shifting of diversions from the south Delta to the north Delta if it could result in carriage water savings. Chapter 3, Description of the Proposed Project and Alternatives, specifies that this shifting operation could only occur if at least 3,000 cfs was remaining in the south Delta to manage salinity in the Old and Middle River corridor. As described in Chapter 3, the north Delta intakes would operate in conjunction with the existing south Delta intakes and would remain consistent with all existing and future regulatory requirements in addition to newly proposed operational criteria designed to minimize near-field and far-field effects on aquatic resources. The assumptions used in the CalSim 3 modeling supporting the impact analyses are an accurate depiction of those operational criteria that would control or limit shifting diversions from south to north intakes in summer and fall, including for instance:

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		export/inflow ratio export cap, minimum bypass flows, or whenever south Delta exports are reduced to 3,000 cfs from July to September. The commenter's assertions that the project would reduce Delta outflow in a manner that would cause degradation of water quality conditions (including through an increase in frequency and intensity of HABs), or harm fish and water users, are unsupported by the analyses presented for instance in Chapter 9, Water Quality, or Chapter 12, Fish and Aquatic Resources.
504-122	[ATT 1:] Second, DWR's operational criteria for the Delta tunnel does not include requirements to reduce pumping from the South Delta (less negative Old and Middle River flows ("OMR")), whereas WaterFix required less negative OMR during the winter and spring months in order to help mitigate some of the new environmental harm caused by diversion through the new tunnels. See id. At 3-85 to 3-86. Moreover, DWR's current operational criteria would allow more negative OMR flows than were permitted in WaterFix, using OMR criteria in the Incidental Take Permit for the State Water Project. Several of our organizations are challenging that permit in state court because of its failure to adhere to the best available science and other requirements of the California Endangered Species Act.	As described in Chapter 3, Description of the Proposed Project and Alternatives, operations of the project will be governed by newly proposed north Delta diversions operation criteria as well as all applicable regulatory requirements, including the Old and Middle River (OMR) flow criteria defined in the regulatory baseline (currently 2019 BiOps and 2020 SWP ITP), consistent with CEQA. Common Response 1, CEQA Process, General Approach to Analysis, and Other Environmental Review Issues, discusses existing conditions baseline, including those regulations. Should these OMR flow criteria evolve in future iterations of the ITP or BiOps, DWR would adjust operations of the project accordingly. Part of this comment compares certain aspects of the Delta Conveyance Project to the California WaterFix. Note that the Delta Conveyance Project and California WaterFix are two independent and separate projects. As such alleged environmental harm that would have been caused by WaterFix is not directly relevant in the context of the Delta Conveyance Project for which all fish and aquatic resources impacts were determined to be less than significant, or less than significant with the implementation of feasible mitigation measures (see for instance Impact AQUA-6 (delta smelt) and AQUA-7 (longfin smelt) in Chapter 12, Fish and Aquatic Resources).
504-123	[ATT 1, Exhibit 1: Table listing OMR flows required by Month and Water Year Type for WaterFix and proposed Delta Tunnel.]	The commenter is providing this exhibit in support of their comments. Those comments are addressed in the responses to the commenter's letter, specifically response to comment 504-130.

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504-124	[ATT 1:] Third, DWR's proposed bypass flow criteria for the Delta tunnel is significantly weaker than what was required by the permits for WaterFix.[Footnote 1] The Delta tunnel criteria only allows for two pulse protection events when salmon are migrating through the Delta, only applies those pulse protection criteria during the months of December to April (which fails to protect fall run Chinook salmon and other salmon that migrate in May and June), and allows unlimited pumping even during periods when peer reviewed scientific studies show it would reduce salmon survival through the Delta. In contrast, the permits for WaterFix rejected criteria similar to those now proposed for the Delta tunnel and instead required "unlimited pulse protection," meaning that diversions in the North Delta had to cease when salmon were migrating through the Delta and applied these pulse protection criteria from the months of December through June. See NMFS Biological Opinion for WaterFix at 100, 731-732, 751. The permits for WaterFix also established that full pumping was allowed when flows at Freeport were greater than 35,000 cfs. See id. At 731-732. These bypass flows and pulse protection measures were required because water diversions from the North Delta significantly reduce the survival of juvenile salmon migrating through the Delta when flows are less than 35,000 cfs. See id.; see also Perry et al 2018. [Footnote 1] Many of our organizations have significant concerns with this general approach of modifying bypass flow requirements based on monitoring for fish presence, which is likely to significantly underestimate the harm that will be caused to migrating salmon and other native fish species.	This comment compares certain aspects of the Delta Conveyance Project EIR to the California WaterFix permits and mischaracterizes major operational aspects of the Delta Conveyance Project. Note that the Delta Conveyance Project and California WaterFix are two independent and separate projects. The following response is provided for those elements of the comment that are applicable to the Delta Conveyance Project Draft EIR. The commenter's assertion that pulse protection events only apply from December to April is inaccurate. As described in Chapter 3, Description of the Proposed Project and Alternatives, protection for the initial pulse can be implemented from October to June, including before December 1, in which case any second pulse that may occur from December through June will receive the same protection. Please also note that "unlimited pumping" is never allowed (neither under the current State Water Project operations, nor for the project with maximum allowable diversion for the new intakes capped at 6,000 cfs when the river is at the applicable flow and all other regulatory requirements and operation criteria described in Chapter 3 are met). It is unclear where the minimum bypass flow levels cited in the table associated with this comment come from. Please refer to Chapter 3 for detailed bypass flow criteria, which vary throughout the year. Note that all of the fish and aquatic resource impacts thoroughly analyzed in the resource chapters (from CalSim 3 modeling outputs based on assumptions that accurately represent the regulatory requirements and operational criteria, including minimum bypass flows and pulse protection) were determined to be less than significant or less than significant with the implementation of mitigation measures. Concerns that operation of the north Delta intakes would reduce survival of juvenile salmon migrating through the Delta are thus unsupported by the analyses. With respect to the comments regarding impacts, best available science, mitigation, and operational criteria, including flow-survival relationship in migrating

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		salmonids, please see responses to detailed comments 504-92, 504-93, 504-94, and 504-95, and cross-references therein. Please refer to Common Response 3, Alternatives Development and Description, for more details regarding the development of an operational scenario for Delta Conveyance Project, including bypass flows and pulse protection based on salmon flow-survival relationships. The proposed operational approach considered information from previous agency coordination, such as development of the California WaterFix/Bay Delta Conservation Plan, relied on best available science including sensitivity analyses with the Perry et al. model cited in the comment, and ensured through those sensitivity analyses, for example, that the proposed operational criteria meets project objectives and delivers similar levels of protection to species compared to other potential operational criteria. Please also note that, as clearly described in Chapter 3, any future refinement to the operational criteria and real-time operational responses of the north Delta intakes would be with the intent of addressing future uncertainties and further minimizing effects to listed species, if applicable, and would be made through the Operations Adaptive Management and Monitoring Plan (OAMMP) and carefully validated by sound scientific studies (not limited to monitoring for fish presence).
504-125	[ATT 1, Exhibit 2: Table of Bypass Flow Criteria for the North Delta Tunnel Intakes for WaterFix and the proposed Delta Tunnel.]	The commenter is providing this exhibit in support of their comments. Those comments are addressed in the responses to the commenter's letter, specifically response to comment 504-132.
504-126	[ATT 1:] Finally, DWR's proposed Delta outflow criteria for the Delta Tunnel project is the same as the criteria included in the Incidental Take Permit, even though that permit shows that these outflow criteria will reduce the abundance of Longfin Smelt (which is listed as threatened under the California Endangered Species Act and is at near record lows of	This comment compares certain aspects of the Delta Conveyance Project EIR to the California WaterFix. Note that the Delta Conveyance Project and California WaterFix are two independent and separate projects. The following response is provided for those elements of the comment that are applicable to the Delta Conveyance Project Draft EIR. The commenter's assertions that the project would substantially reduce

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	abundance). See California Department of Fish and Wildlife, Incidental Take Permit for the State Water Project, Appendix 7 at 75. Moreover, these criteria mean that the Delta tunnel is likely to significantly reduce Delta outflow during the winter months (December to March), harming other species as well, including salmon. Years of scientific data and studies demonstrate the need to increase Delta outflow during the winter and spring months, and in 2018 the State Water Resources Control Board explained that the staff proposal would significantly increase Delta outflow in the long overdue update of the Bay-Delta Water Quality Control Plan. DWR's failure to include any increases in Delta outflow in the proposed operating criteria -- instead proposing to reduce Delta outflow -- is inconsistent with the best available science. Analyses of the California WaterFix project showed that the project was likely to reduce the survival and abundance of salmon and other fish species listed under the state and federal Endangered Species Acts. See, e.g., NMFS Biological Opinion for WaterFix at 795-796, 799- 802 (reduced abundance of winter-run Chinook salmon under WaterFix as compared to the No Action Alternative); id. At 758-761 (concluding that WaterFix would reduce the survival of all salmon runs migrating through the Delta in the months of October through June). Moreover, the State Water Resources Control Board has a legal duty to protect fall-run Chinook salmon and other species that are not protected under the State and federal Endangered Species Acts, and the Board has the authority and legal duty to consider protections that are significantly stronger than those acts in order to maintain fish in good condition, achieve the salmon doubling objective in the water quality	Delta outflow and significantly impact longfin smelt and other fish species including salmon are not supported by the impact analyses presented in the resource chapters of the EIR. As described in Chapter 12, Fish and Aquatic Resources, all fish and aquatic resources impacts are determined to be less than significant, or less than significant with the implementation of mitigation measures. As described in Chapter 3, Description of the Proposed Project and Alternatives, operations of the project will be governed by all applicable requirements defined in the regulatory baseline (currently State Water Control Board's Bay Delta Plan/Water Rights Decision 1641, 2019 BiOps, 2020 SWP ITP), consistent with CEQA. Common Response 1, CEQA Process, General Approach to Analysis, and Other Environmental Review Issues, discusses existing conditions baseline, including those regulations. Should any regulatory requirement, including Delta outflow evolve in the future, DWR would adjust operations of the project accordingly to continue to meet regulatory requirements.

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	control plan, and provide reasonable protection of fish and wildlife.	
504-127	[ATT 1:] Despite the fact that WaterFix would have worsened conditions for native fish species that live or migrate through the Delta, DWR has proposed operating criteria for the Delta tunnel project that will significantly increase the impacts to native fish species and further reduce their survival and abundance compared to WaterFix. Our native fish and wildlife cannot survive such additional impacts, and there is no scientific basis for proposing operational rules that are less protective than those required for the WaterFix project -- indeed, a water rights permit from the State Water Resources Control Board will almost certainly require stronger environmental protections than what is required by the ESA and CESA.	This comment compares certain aspects of the Delta Conveyance Project EIR to the California WaterFix. Note that the Delta Conveyance Project and California WaterFix are two independent and separate projects. The following response is provided for those elements of the comment that are applicable to the Delta Conveyance Project Draft EIR. Please refer to response to comment 504-128 regarding the Delta Conveyance Project's operations and environmental impacts including impacts on fish and aquatic resources and water quality. The comment assertions regarding project impacts are not consistent with the analyses in Chapters 12, Fish and Aquatic Resources, and Chapter 9, Water Quality, of the EIR.
504-128	[ATT 1:] In addition, the proposed operating criteria for the Delta tunnel project are likely to worsen water quality for all beneficial uses in the Delta, including contributing to the proliferation of harmful algal blooms, and further reduce fish populations available for subsistence fishers and Northern California Tribes. As a result, the Delta Tunnel project is likely to cause significant negative impacts for Northern California's environmental justice communities. We therefore urge DWR to reconsider the proposed operations criteria for the Delta tunnel project.	Please refer to response to comment 504-128 regarding project impacts on water quality and fish and aquatic resources disclosed in the EIR. Analyses in Chapter 29, Environmental Justice, indicates that some effects on environmental justice community could occur but that water quality impacts for the proposed project and alternatives would have no disproportionate effect on environmental justice communities because water quality changes, including for CHABs, were determined to be less than significant. Impacts of changes to fish and aquatic resources are mitigated to less-than-significant levels and determined to not disproportionately affect environmental justice communities because with mitigation measures, changes to fish species would be minor.
504-129	Attachment 2: Press release dated February 20, 2020 titled "Attorney General Becerra Files Lawsuit Against Trump Administration for Failing to Protect Endangered Species in the Sacramento and San Joaquin Rivers".	The commenter provided this attachment for reference purposes in support of their comments. Those comments are addressed in these responses to the commenter's letter.

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		Please refer to response to comment 504-5 and 504-13 regarding the current biological opinions.
504-130	Attachment 3: The California Natural Resources Agency et al. vs. Wilbur Ross, in his official capacity as Secretary of Commerce et al. Case 3:20-cv-01299 in the US District Court for the Northern District of California Complaint for Declaratory and Injunctive Relief and all associated filings.	The commenter provided this attachment for reference purposes in support of their comments. Those comments are addressed in these responses to the commenter's letter.
504-131	Attachment 4: The California Natural Resources Agency et al. v. Wilbur Ross, in his official capacity as Secretary of Commerce et al. In the US District Court for the Eastern District of California, Case No. 1:20-cv-00426-DAD-SKO, First Amended Complaint for Declaratory and Injunctive Relief. April 21, 2020.	The commenter provided this attachment for reference purposes in support of their comments. Those comments are addressed in these responses to the commenter's letter.
504-132	Attachment 5: California Natural Resources Agency et al. v. Wilbur Ross, et al. Case No. 1:20-cv-00426-DAD-SKO in the US District Court for Eastern District of California - Plaintiffs' Memorandum of Points and Authorities in Support of Motion for Preliminary Injunction, May 19, 2020.	The commenter provided this attachment for reference purposes in support of their comments. Those comments are addressed in these responses to the commenter's letter.
504-133	Attachment 6: California Natural Resources Agency et al. v. Wilbur Ross, et al. Case No. 1:20-cv-00426-DAD-SKO in the US District Court for Eastern District of California - Declaration of Bruce Herbold, Ph.D., in Support of Plaintiff's Motion for Preliminary Injunction. 4/21/20.	The commenter provided this attachment for reference purposes in support of their comments. Those comments are addressed in these responses to the commenter's letter.
504-134	Attachment 7: Curriculum Vitae for Dr. Bruce Herbold.	The commenter provided this attachment for reference purposes in support of their comments. The attachment concerns the qualifications of the commenter and does not require a response.
504-135	Attachment 8: California Natural Resources Agency et al. v. Wilber Ross, et al. Case No. 1:20-cv-00426-DAD-EPG and Pacific Coast Federation of Fishermen's Associations, et al. v. Wilbur Ross, et al. Case No. 1:20-CF-00432-DAD-EPG in the US District Court for Eastern District of California - Order Granting Motion	The commenter provided this attachment for reference purposes in support of their comments. Those comments are addressed in these responses to the commenter's letter.

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	for Preliminary Injunction and Order Granting in Part and Denying in Part as Moot Motion for Preliminary Injunction and Holding Certain Issues in Abeyance. Filed May 12, 2020.	
504-136	Attachment 9: California Natural Resources Agency et al. v. Gina Raimondo, et al. Case No. 1:20-cv-00426-DAD-EPG in the US District Court for Eastern District of California - Declaration of Les Grober in Support of Motion for Interim Injunctive Relief and Temporary Stay of Litigation. Filed February 20, 2020.	The commenter provided this attachment for reference purposes in support of their comments. Those comments are addressed in these responses to the commenter's letter.
504-137	Attachment 10: California Natural Resources Agency et al. v. Gina Raimondo, et al. Case No. 1:20-cv-00426-DAD-EPG in the US District Court for Eastern District of California - Declaration of Bruce Herbold in Support of Motion for Interim Injunctive Relief and Temporary Stay of Litigation. Filed February 20, 2020.	The commenter provided this attachment for reference purposes in support of their comments. Those comments are addressed in these responses to the commenter's letter.
504-138	Attachment 11: California Natural Resources Agency et al. v. Gina Raimondo, et al. Case No. 1:20-cv-00426-DAD-EPG in the US District Court for Eastern District of California - CA plaintiffs' reply memorandum of points and authorities in support of motion for interim injunctive relief and temporary stay of litigation - February 1, 2022.	The commenter provided this attachment for reference purposes in support of their comments. Those comments are addressed in these responses to the commenter's letter.
504-139	Attachment 12: California Natural Resources Agency et al. v. Gina Raimondo, et al. Case No. 1:20-cv-00426-DAD-EPG in the US District Court for Eastern District of California, Supplemental declaration of Les Grober in support of motion for interim injunctive relief and temporary stay of litigation - February 1, 2022	The commenter provided this attachment for reference purposes in support of their comments. Those comments are addressed in these responses to the commenter's letter.
504-140	Attachment 13: California Natural Resources Agency et al. v. Gina Raimondo, et al. Case No. 1:20-cv-00426-DAD-EPG in the US District Court for Eastern District of California - Supplemental declaration of Bruce Herbold in support of motion for interim injunctive relief and temporary stay of litigation - February 1, 2022.	The commenter provided this attachment for reference purposes in support of their comments. Those comments are addressed in these responses to the commenter's letter.

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504-141	Attachment 14: California Natural Resources Agency et al. v. Gina Raimondo, et al. Case No. 1:20-cv-00426-DAD-EPG in the US District Court for Eastern District of California - Supplemental declaration of Les Grober in support of motion for interim injunctive relief and temporary stay of litigation dated February 1, 2022.	The commenter provided this attachment for reference purposes in support of their comments. Those comments are addressed in these responses to the commenter's letter.
504-142	Attachment 15: California Natural Resources Agency et al. v. Gina Raimondo, et al. Case No. 1:20-cv-00426-DAD-EPG in the US District Court for Eastern District of California - Supplemental Declaration of Bruce Herbold in support of motion for interim injunctive relief and temporary stay of litigation, dated February 1, 2022.	The commenter provided this attachment for reference purposes in support of their comments. Those comments are addressed in these responses to the commenter's letter.
504-143	Attachment 16: US Bureau of Reclamation Powerpoint re: Long-term operation consultation, Central Valley Project and State Water Project, November 29-December 1, 2022.	The commenter provided this attachment for reference purposes in support of their comments. Those comments are addressed in these responses to the commenter's letter.
504-144	Attachment 17: US Bureau of Reclamation Powerpoint re: Shasta Operations Analysis, June 2022.	The commenter provided this attachment for reference purposes in support of their comments. Those comments are addressed in these responses to the commenter's letter.
504-145	Attachment 18: US Bureau of Reclamation Powerpoint re: LTO 2021 Initial Alternatives Modelling, October 2022.	The commenter provided this attachment for reference purposes in support of their comments. Those comments are addressed in these responses to the commenter's letter.
504-146	Attachment 19: US Bureau of Reclamation Powerpoint re: NGO Scenario Modelling Update, October 21, 2022.	The commenter provided this attachment for reference purposes in support of their comments. Those comments are addressed in these responses to the commenter's letter.
504-147	Attachment 20: US Bureau of Reclamation Powerpoint re: Shasta Operations Status, September 2022.	The commenter provided this attachment for reference purposes in support of their comments. Those comments are addressed in these responses to the commenter's letter.
504-148	Attachment 21: Powerpoint re: LTO Climate Change Process, 2040 Median Climate Change Scenario, 2021 LTO Modelling Coordination Meeting	The commenter provided this attachment for reference purposes in support of their comments. Those comments are addressed in these responses to the commenter's letter.

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504-149	Attachment 22: Memorandum to the President from Secretary of the Interior re: Update on California Water Issues. Dated August 30, 2016.	The commenter provided this attachment for reference purposes in support of their comments. Those comments are addressed in these responses to the commenter's letter.
504-150	Attachment 23: Pacific Coast Federation of Fisherman's Associations, et al. v. Wilber Ross, et al. and San Luis & Delta-Mendota Water Authority, et al. Case No. 3:19-cv-07897-LV in U.S. District Court for the Northern District of California. Declaration of Dr. Jonathan A. Rosenfield in Support of Plaintiffs' Motion for Preliminary Injunction. Dated April 9, 2020.	The commenter provided this attachment for reference purposes in support of their comments. Those comments are addressed in these responses to the commenter's letter.
504-151	Attachment 24: Pacific Coast Federations of Fishermen's Associations et al. v. Gina Raimondo et al. in U.S. District Court for the Eastern District of California Case No. 1:20-cf-00431-DAD-EPG. Declaration of Dr. Jonathan A. Rosenfield in Support of Plaintiffs' Motion for Preliminary Injunction for 2022 and Plaintiffs' Opposition to Federal Defendants' Motion For Voluntary Remain Without Vacatur. Hearing date: February 1, 2022.	The commenter provided this attachment for reference purposes in support of their comments. Those comments are addressed in these responses to the commenter's letter.
504-152	Attachment 25: August 26, 2022, Letter from SWRCB to Sites Project Authority regarding Application A025517X01.	The commenter provided this attachment for reference purposes in support of their comments. Those comments are addressed in these responses to the commenter's letter.
504-153	Attachment 26 - May 21, 2015, Letter from US Bureau of Reclamation and CA DWR to SWRCB regarding modification and renewal of the April 6, 2015 Order and TUCP.	This attachment supports comments in comment 504-64 and does not contain comments on the Delta Conveyance Project EIR. Please refer to response to comment 504-64 regarding the effect of the proposed project and alternatives operations on Temporary Urgency Change Petitions.
504-154	Attachment 27: January 23, 2015, letter from USBR and DWR to SWRCB re: Temporary Urgency Change Petition	The commenter provided this attachment for reference purposes in support of their comments. Please refer to response to comment 504-64 regarding Temporary Urgency Change Petitions. This attachment does not include comments on the Delta Conveyance Project EIR.
504-155	Attachment 28: STATE WATER RESOURCES CONTROL BOARD, BOARD MEETING SESSION - DIVISION OF WATER RIGHTS,	The commenter provided this attachment for reference purposes in support of their comments. Please refer to response to comment 504-64

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	DECEMBER 15, 2015, ITEM 7	regarding Temporary Urgency Change Petitions. This attachment does not include comments on the Delta Conveyance Project EIR.
504-156	Attachment 29: May 29, 2015, Letter from SWRCB to US Bureau of Reclamation Re: Suspension of Sacramento River Temperature Management Plan	This letter addresses a Sacramento River Temperature Plan and does not include comments on the Delta Conveyance Project EIR. The commenter provided this attachment for reference purposes in support of their comments. Those comments are addressed in these responses to the commenter's letter.
504-157	Attachment 30: March 24, 2015, Letter from US Bureau of Reclamation and DWR to SWRCB re: Request for Modification of the Revised Order that Approved a Temporary Urgency Change in License and Permit Terms and Conditions Requiring Compliance with Delta Water Quality Objectives in Response to Drought Conditions (dated March 5, 2015) (Order).	The commenter provided this attachment for reference purposes in support of their comments. Please refer to response to comment 504-64 regarding Temporary Urgency Change Petitions. This attachment does not include comments on the Delta Conveyance Project EIR.
504-158	Attachment 31: New Melones Permits Applications 16597, 16600 and 20245. Order Approving in Part and Denying in Part Petition for Temporary Urgency Changes in Permit Conditions Requiring Compliance with San Joaquin River Flows. April 19, 2016	The commenter provided this attachment for reference purposes in support of their comments. Please refer to response to comment 504-64 regarding Temporary Urgency Change Petitions. This attachment does not include comments on the Delta Conveyance Project EIR.
504-159	Attachment 32: June 1, 2020, Letter from SWRCB to US Bureau of Reclamation re: Order 90-5 Sacramento River Temperature Management	This letter addresses a Sacramento River Temperature Plan and does not include comments on the Delta Conveyance Project EIR. The commenter provided this attachment for reference purposes in support of their comments. Those comments are addressed in these responses to the commenter's letter.
504-160	Attachment 33: May 7, 2009, Letter from SWRCB to NRDC Re: Central Valley Project Deliveries to Sacramento River Settlement Contractors	This letter attachment addresses requirements and limitations for export of CVP water and it does not include comments on the Delta Conveyance Project EIR. The commenter provided this attachment for reference purposes in support of their comments. Those comments are addressed in these responses to the commenter's letter.
504-161	Attachment 34: Specified License Permits of the Department of Water Resources and U.S. Bureau of Reclamation for the State Water Project and Central Valley Water Project. Order	The commenter provided this attachment for reference purposes in support of their comments. Please refer to response to comment 504-64 regarding Temporary Urgency Change Petitions. This attachment does not

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	Conditionally Approving a Petition for Temporary Urgency Changes to License and Permit Terms and Conditions Requiring Compliance with Delta Water Quality Objectives in Response to Drought Conditions. June 1, 2021	include comments on the Delta Conveyance Project EIR.
504-162	Attachment 35: May 17, 2021, Letter from DWR and USBR to SWRCB Re: 2021 Temporary Urgency Change Petition Regarding Delta Water Quality.	The commenter provided this attachment for reference purposes in support of their comments. Please refer to response to comment 504-64 regarding Temporary Urgency Change Petitions. This attachment does not include comments on the Delta Conveyance Project EIR.
504-163	Attachment 36: March 12, 2021, Letter from NRDC et al. to SWRCB re: Request for Immediate Action to Ensure Reasonable Protection of Fish and Wildlife Under Water Rights Order 90-5 and Full Implementation of Bay-Delta Water Quality Objectives	The commenter provided this attachment for reference purposes in support of their comments. Those comments are addressed in these responses to the commenter's letter.
504-164	Attachment 37: March 18, 2022, Letter from DWR and USBR to SWRCB Re: Temporary Urgency Change Petition	The commenter provided this attachment for reference purposes in support of their comments. Please refer to response to comment 504-64 regarding Temporary Urgency Change Petitions. This attachment does not include comments on the Delta Conveyance Project EIR.
504-165	Attachment 38: December 1, 2021, Letter from DWR and USBR to SWRCB Re: Temporary Urgency Change Petition.	The commenter provided this attachment for reference purposes in support of their comments. Please refer to response to comment 504-64 regarding Temporary Urgency Change Petitions. This attachment does not include comments on the Delta Conveyance Project EIR.
504-166	Attachment 39: Specified License Permits of the Department of Water Resources and U.S. Bureau of Reclamation for the State Water Project and Central Valley Project. Order Approving Temporary Urgency Changes to Water Right License and Permit Terms Relating to Delta Water Quality Objectives. April 4, 2022	The commenter provided this attachment for reference purposes in support of their comments. Please refer to response to comment 504-64 regarding Temporary Urgency Change Petitions. This attachment does not include comments on the Delta Conveyance Project EIR.
504-167	Attachment 40: Reconsideration of Executive Director's June 1, 2021 Order Conditionally Approving a Petition for Temporary Urgency Changes to License and Permit terms and Conditions Requiring Compliance with Delta Water Quality Objectives in Response to Drought Conditions; and Executive Director's June 10, 2021 Sacramento River Temperature Management Plan	The commenter provided this attachment for reference purposes in support of their comments. Please refer to response to comment 504-64 regarding Temporary Urgency Change Petitions. This attachment does not include comments on the Delta Conveyance Project EIR.

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	Approval Pursuant to Order 90-5. Order Denying in Part and Granting in Part Petitions for Reconsideration and Addressing Objections. February 15, 2022	
504-168	Attachment 41: Order WR 2015-0043. In the Matter of Specified License and Permits of the Department of Water Resources and U.S. Bureau of Reclamation for the State Water Project and Central Valley Project regarding the Executive Director's February 3, 2015, Order and Subsequent Modifications to that Order. January 19, 2016	The commenter provided this attachment for reference purposes in support of their comments. Please refer to response to comment 504-64 regarding Temporary Urgency Change Petitions. This attachment does not include comments on the Delta Conveyance Project EIR.
504-169	Attachment 42: CDFW report titled "Effects Analysis; State Water Project Effects on Longfin Smelt and Delta Smelt, dated March 2020.	The commenter provided this attachment for reference purposes in support of their comments. Please refer to comment 504-109.
504-170	Attachment 43: January 6, 2020, Letter from NRDC et al. to DWR re: Comments on the Draft Environmental Impact Report for Operations of the State Water Project	This attachment provides comments from the commenter submitted to DWR on the Draft EIR for Operations of the State Water Project dated January 6, 2020. The commenter provided this attachment for reference purposes in support of their comments. Those comments are addressed in these responses to the commenter's letter.
516-1	Attached are comments from AquAlliance, the California Sportfishing Alliance, and the California Water Impact Network. We are also submitting exhibits A-P, which will come in multiple e-mails. I will state in the last e-mail it is the last. Please acknowledge receiving our comments and exhibits.	This comment is a notification for DWR regarding the numerous emails being sent supporting the respective comment letter. Confirmation emails were sent automatically to all senders upon receipt of emailed comments during the public review period for the Delta Conveyance Project Draft EIR.
516-2	AquAlliance represents groundwater dependent communities, farms, and ecosystems in the northern Sacramento Valley and foothills and submits the following comments and questions with the California Sportfishing Protection Alliance and the California Water Impact Network (hereafter "AquAlliance") regarding the Draft Environmental Impact Report ("DEIR") for the Delta Conveyance Project ("Project") ("One Tunnel project"). The Project would increase existing diversions on average by 543,000 acre-feet ("AF") per year to 2,972,000 acre-feet and in dry and critical years by 316,000 AF per year to	This information describes the structure or organization of the comment letter, the background of the organization or individual commenter, clarification on the submittal of the comment letter, or general introductory text. This comment does not raise a significant environmental issue relating to the proposed project or address the adequacy, accuracy, or completeness of the Draft EIR. It is not a comment on the contents of the Draft EIR. DWR has reviewed all comments and will consider all comments in its decision-making process.

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	1,633,000 AF.1 [Footnote 1: Delta Conveyance DEIR, 2022. Executive Summary, p. ES-51.]	Please refer to Common Response 3, Alternatives Development and Description, regarding project operations and how the project would be operated to shift diversions from the south Delta to the north Delta (during the summer and fall) or divert water in the north Delta during excess flow conditions while meeting regulatory requirements (during the winter and spring).
516-3	The Project follows recent failures of the Bay Delta Conservation Plan ("BDCP") and the WaterFix to construct what the voters turned down in 1982, the Peripheral Canal. The Project eliminated the habitat conservation plan ("HCP") started with BDCP pursuant to the federal Endangered Species Act ("ESA") and the natural community conservation plan ("NCCP") pursuant to the California Natural Community Conservation Planning Act for the Sacramento–San Joaquin River Delta that were requirements established in the 2009 Delta Reform Act. [Footnote 2: Water Code Section 85320 et seq. Https://leginfo.legislature.ca.gov/faces/codes_displaySection.xhtml?sectionNum=85320.&lawCode=WAT]	This comment is primarily regarding the Bay Delta Conservation Plan/California WaterFix project. Thus, the comment does not directly address the Delta Conveyance Project Draft EIR and DWR is not required to respond to comments on projects that are no longer being pursued. However, DWR has reviewed the comment's content to determine whether the comment may be applicable to the proposed Delta Conveyance Project. The Delta Conveyance Project never included an habitat conservation plan (HCP) or natural community conservation plan (NCCP), nor contemplated inclusion of an HCP or NCCP. Furthermore, this comment does not raise a significant environmental issue relating to the proposed project or address the adequacy, accuracy, or completeness of the Draft EIR.
516-4	The California Department of Water Resources ("DWR"), the US Bureau of Reclamation ("Bureau") ("Agencies") and many of their contractors [Footnote 3: While not disclosed in the 2022 DEIR, the BDCP proponents included the following state and federal water contractors under either the SWP or CVP: Alameda County Flood Control and Water Conservation District, Zone 7; Kern County Water Agency; Metropolitan Water District of Southern California; San Luis & Delta-Mendota Water Authority; Santa Clara Valley Water District; and Westlands Water District. Additional water contractors may become BDCP proponents in the future through the BDCP	Part of this comment is regarding the Bay Delta Conservation Plan/California WaterFix project and this portion of the comment does not directly address the Delta Conveyance Project Draft EIR and DWR is not required to respond to comments on projects that are no longer being pursued. However, DWR has reviewed the comment's content to determine whether the comment may be applicable to the proposed Delta Conveyance Project. The following response is provided for those elements of the comment that are applicable to the Delta Conveyance Project Draft EIR. Please refer to Chapter 1, Introduction, which discusses the Bay Delta Conservation Plan (BDCP), the history of its development, and its relation to the California Water Fix. Please refer to Common Response 1, CEQA

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	process. (BDCP DEIR/EIS p. 1-1) are the proponents of the Project.] DWR acts as the lead agency for the purposes of the California Environmental Quality Act ("CEQA"). Notably, the federal government didn't create a National Environmental Policy Act ("NEPA") document for the project with DWR or at all to date.	Process, General Approach to Analysis, Other Environmental Review Issues, regarding the United States Army Corps of Engineers (USACE) and preparation of an EIS for the project.
516-5	Unfortunately, despite decades of analysis, lawsuits, and public expenditures, the Project purpose remains virtually the same: drain as much water as possible from the Sacramento River Watershed and the Delta to continue some of the most destructive forms of desert agriculture, urban sprawl, and industrial extraction. The DEIR attempts to disclose impacts as required by CEQA, but simultaneously obfuscates many of the direct and indirect impacts. AquAlliance seeks to bring to light some of these hidden impacts and baseline information as we did with past comments on BDCP and the WaterFix through NEPA and CEQA documents and through the State Water Resources Control Board water rights hearings. We underscore the destructive nature of the One Tunnel project, which creates the infrastructure to drain the Sacramento River Watershed and the Delta of essential fresh water.	The assertion that the project will be operated to capture as much water as possible and drain the Sacramento River watershed and Delta is not consistent with the EIR. Please see Chapter 1, Introduction, for a description of the State Water Project and background information regarding how water supply has been developed and managed in California. Please also refer to Chapter 2, Purpose and Project Objectives, and Common Response 1, CEQA Process, General Approach to Analysis, Other Environmental Review Issues, regarding the project's purpose and objectives, including DWR's continuing commitment to operate the State Water Project as modified to include the Delta Conveyance Project in compliance with all state and federal water quality and environmental laws. Please refer to Common Response 3, Alternatives Development and Description, regarding how the project would be operated to increase deliveries during excess flow conditions (winter and spring) while meeting regulatory requirements. The analyses provided in the EIR Chapters 5 through 32 evaluate the potential impacts of the proposed operations for all alternatives. Please see Common Response 1 regarding the CEQA baseline used for assessing significance of impacts of the Delta Conveyance Project. This comment does not provide evidence or describe specific areas where the EIR has failed to provide a good-faith disclosure of potential impacts, as required by CEQA and, therefore, no specific response to that portion of

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		the comment can be provided. Responses to more specific comments provided in this comment letter are provided herein.
516-6	We incorporate by reference as though fully stated herein, for which we expressly request that a response to each comment contained therein be provided, all comments submitted by Kit Custis (Exhibit A) [see ATT 1] and Professor Kyran Mish (Exhibit B) [see ATT 2]. We also incorporate by reference as though fully stated herein AquAlliance's previous comments on the Bureau's Environmental Assessments for the 2010/2011 Water Transfer Program (Exhibit C) [see ATT 3], the 2013 Water Transfer Program (Exhibit D) [see ATT 4], the 2014 Water Transfer Program (Exhibit E) [see ATT 5], the Bureau and San Luis & Delta-Mendota Water Authority's Ten-Year Water Transfer Plan (Exhibit F) [see ATT 6], the Glenn Colusa Irrigation District ("GCID") 10-Wells Project DEIR (Exhibit G) [see ATT 7], comments created by Kit Custis for AquAlliance on the Ten-Year Water Transfer Plan (Exhibit H) [see ATT 8], comments by Kit Custis on the GCID 10-Wells Project DEIR (Exhibit I) [see ATT 9], and all comments on the 2018 Long-Term Water Transfer Program (Exhibits J, K, and L) [see ATT 10,11,12 resp.]. These comment letters all pertain to water transfer programs and streamflow depletion that illustrate the history of Sacramento Valley water transfers to south of the Delta, contain valuable background and impact information for the area of origin, and present AquAlliance's opposition to the water transfers that will expand under the One Tunnel project, despite the denial of transfer expansion in the Project's 2022 DEIR.	The commenter provided these citations to the attachments for reference purposes in support of their comments. The referenced comments are addressed in these responses to the commenter's letter.
516-7	A. Hydrology 1. The DEIR fails to adequately disclose the planned increase in	The Delta Conveyance Project does not include plans to increase water transfers from the Sacramento River Watershed to south-of-the-Delta. The Delta Conveyance Project does not include water transfers (Chapter 3,

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	water transfers from the Sacramento River Watershed to south of the Delta. If the Tunnel is built as planned with the capacity to take from 6,000 cubic feet per second ("cfs") from the Sacramento River, it will have the capacity to drain 26% of the Sacramento River's average annual flow of 23,490 cfs at Freeport4 (north of the planned Tunnel) [Footnote 4: USGS 2009. http://wdr.water.usgs.gov/wy2009/pdfs/11447650.2009.pdf.] As proposed, the Tunnel will be able to increase water transfers when the infrastructure for the Project has capacity as discussed in the 2018 WaterFix "SDEIS/RDEIR: "...the facility provides conveyance that would not be restricted by Delta reverse flow concerns or south Delta water level concerns. As a result of avoiding those restrictions, transfer water could be moved at any time of the year that capacity exists in the combined cross-Delta channels, the new cross-Delta facility, and the export pumps, depending on operational and regulatory constraints..." [Footnote 5: WaterFix SDEIS/RDEIR Appendix A, pp. 5-15, 5-16] However, the current DEIR downplays the potential for increased water transfers: "The analysis in Appendix 3H, Non-Project Water Transfer Analysis for Delta Conveyance, concludes that there is more than sufficient available export capacity for water transfers in all water year types with the current facilities... Therefore, though the project may add additional export capacity, it is unlikely to increase the amount of water transfers, because the current capacity is not even fully utilized. For this reason, potential direct or indirect impacts of water transfers is not further discussed in this chapter, as the project appears very unlikely to increase	Description of the Proposed Project and Alternatives, section titled Use of North Delta Intakes for Wheeling) as a project element. Water transfers are qualitatively included in existing conditions and the No Project Alternative, as described in Appendix 3C, Defining Existing Conditions, No Project Alternative, and Cumulative Impact Conditions. The EIR evaluates whether increasing export capacity could have the potential to increase transfers in Appendix 3H, Non-Project Water Transfer Analysis for Delta Conveyance. Water transfers are performed between willing buyers and sellers and DWR's role would be limited to conveying the water through the SWP if capacity is available as required by law. As described in Appendix 3H water transfers can occur within a year and between years and have done so between 1995 and 2020. Potential changes to the system during a water transfer are described in Appendix 3H. Appendix 3H also includes a discussion of transfers through the proposed north Delta intakes, as opposed to the existing south Delta locations. As disclosed in the appendix, even though the Delta Conveyance Project may add additional export capacity, it is not reasonably foreseeable that it would increase the amount of water transfers, since the current capacity is not fully utilized. The project would not exacerbate potential effects described in the EIR because, in general, water transfers under operating conditions of the project would be the same as those described under existing conditions. Furthermore, the responsibility of disclosing potential environmental effects of water transfers is that of the willing buyer and seller conducting the transfer and not DWR. All environmental effects would be taken into consideration during the time of the transfer by the willing buyer and seller. Also as described in Appendix 3H, with the Delta Conveyance Project, some transfer water that is currently conveyed through the south Delta may be conveyed through the proposed north Delta facilities. However, this change in diversion location would not affect the need to manage water

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	transfer activity..." (p. 6-33) With the obvious intention of increasing transfers under Alternative 5 to the reader, it is unclear how this CEQA effects conclusion was reached, when the DEIR states that the Delta Conveyance Project "[i]s not proposed specifically to accommodate water transfers, new Delta conveyance facilities could provide the ability for water transfers to occur through the facility by providing increased capacity...The project can potentially (1) add additional export capacity if current facilities are limited and/or (2) provide additional efficiency in moving water transfers across the Delta by potentially lowering the required carriage water to export the transfer supplies." (p. 3-147)	quality conditions in the Delta. With either diversion location, the SWP would still release "carriage water" to manage water quality in the Delta. Carriage water is the amount of Sacramento River inflow required to maintain water quality conditions in the Delta in the absence of a water transfer, and it is typically a portion of the water made available by the seller. Carriage water would maintain similar water quality conditions in the Delta regardless of transfer diversion location.
516-8	The WaterFix NEPA/CEQA document provided a more honest assessment of the intention to increase transfers with new tunnels under the Delta: "CEQA Conclusion: Alternative 4 would increase water transfer demand compared to existing conditions. Alternative 4 would increase conveyance capacity, enabling additional cross-Delta water transfers that could lead to increases in Delta exports when compared to existing conditions." [Footnote 6: WaterFix 2018. SDEIS/RDEIR 4.3.1-9]	This comment compares the Delta Conveyance Project EIR to the previous Bay Delta Habitat Conservation Plan (BDCP)/California WaterFix DEIR/DEIS. Thus, the comment does not directly address the Delta Conveyance Project Draft EIR and DWR is not required to respond to comments on projects that are no longer being pursued. However, DWR has reviewed the comment's content to determine whether the comment may be applicable to the proposed Delta Conveyance Project. The content in the Delta Conveyance Project EIR does not support the assertion that the BDCP/California WaterFix DEIR/DEIS is "a more honest assessment" of DWR's intentions to "increase water transfers." The Delta Conveyance Project would *not* include water transfers, but, as described in the EIR, it may be used to convey water transfers from sellers to buyers (instead of the existing south Delta facilities) as required by law. Appendix 3H, Non-Project Water Transfer Analysis for Delta Conveyance, contains more information.
516-9	The WaterFix DEIS/EIR also stated that north-to-south water transfers will occur during dry years when State Water Project ("SWP") contractor allocations drop to 50 percent of Table A amounts or below or when Central Valley Project ("CVP") agricultural allocations are 40 percent or below, or when both	Please see response to comment 516-8 regarding comments on projects that are no longer being pursued.

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	projects' allocations are at or below these levels (p. 5-52). However, ongoing patterns contradicted this premise in Table 5-2, which illustrated that past water transfers have regularly occurred when SWP and CVP San Joaquin Ag allocation percentages have been much higher (p. 5-51).	
516-10	Added to the current denial that the Project may increase water transfers, the DEIR also fails to illustrate the long history of water transfers and to provide more current information to the present. AquAlliance provides context and history that should be presented in another recirculated CEQA document. - 1991. WY - Critical. Reported transfers amounted to 820,000 AF. [Footnote 7: USBR, 2008. Draft Environmental Assessment for the Option Agreement Between Glenn-Colusa Irrigation District, Bureau of Reclamation, and the San Luis & Delta-Mendota Water Authority for 2008 Operations. (p.17)] - 1992. WY - Critical. Reported transfers amounted to 193,000 AF. (Id.) - 1993. WY - Above Normal. No transfers appear to have occurred. (Id.) - 1994. WY - Critical. Reported transfers amounted to 220,000 AF. (Id.) [Footnote 8: In 1994, following seven years of low annual precipitation, the state continued a Drought Water Bank program, which allowed water districts to sell surface water and continue growing rice with ground water. Western Canal Water District and Richvale Irrigation District exported 105,000 AF of river water to buyers outside of the area and substituted groundwater from the Tuscan aquifer to continue growing rice. This early experiment in the conjunctive use of the groundwater resources - conducted without the benefit of project specific environmental review - caused a significant and	The Delta Conveyance Project would not include water transfers, but, as described in the EIR (in Chapter 3, Description of the Proposed Project and Alternatives, in the section titled Use of North Delta Intakes for Wheeling), it may be used to convey water transfers from sellers to buyers instead of the existing south Delta facilities. Appendix 3H, Non-Project Water Transfer Analysis for Delta Conveyance, considers the potential for the project or alternatives to indirectly allow increased water transfers by removing capacity limitations, but it finds that capacity has not been a constraint. In this appendix, water transfers between 1995 and 2020 are evaluated (refer to the table titled Historical 1995–2020 Cross Delta Water Transfers, which also includes multiple water year types). Water transfers that occurred prior to 1995 occurred under a regulatory context that is dramatically different from the regulatory context post-1995 when the State Water Resources Control Board adopted water rights order D-1641, which has governed SWP and CVP operations since 1995. As such, transfers that occurred prior to 1995 do not accurately represent water transfers that have occurred nearer-term or water transfers that could occur under Delta Conveyance Project operations. DWR incorporated information from various documents regarding water transfers, including documents that evaluated groundwater substitution, crop idling, and reservoir releases, which are typical examples of activities that occur during water transfers. Please see response to comment 516-7, which states that the responsibility of disclosing potential environmental effects of water transfers is that of the willing buyer and seller. Furthermore, the source material referenced in Appendix 3H evaluated potentially significant environmental effects associated with those transfers (e.g., Bureau of Reclamation 2021). There is

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	immediate adverse impact to orchards, residents, and the environment (Msangi 2006). Until the time of the 1994 water transfers, groundwater levels had dropped, but the Tuscan aquifer had sustained the normal demands of domestic and agricultural users. The water districts' extractions, however, an abnormal demand on the groundwater, lowered groundwater levels throughout the Durham and Cherokee areas of eastern Butte County (Msangi 2006). The water level fell, the water quality deteriorated in the municipal wells serving the town of Durham (Scalmanini 1995), and even shallow residential wells dried up tens of miles away from the pumping. Irrigation wells failed on several orchards in the Durham area. One farm never recovered from the loss of its crop and later entered into bankruptcy.] - 2002. WY - Dry. Settlement Contractors in the Sacramento Valley received 100% of their allocation. Reported transfers amounted to 172,000 AF. [Footnote 9:Western Canal Water District, 2012. Initial Study and Proposed Negative Declaration for Western Canal Water District 2012 Water Transfer Program. (p. 25)] - 2003. WY - Above Normal. Settlement Contractors in the Sacramento Valley received 100% of their allocation. Reported transfers amounted to 206,000 AF. (Id.) - 2004. WY - Below Normal. Settlement Contractors in the Sacramento Valley received 100% of their allocation. Reported transfers amounted to 120,500 AF. (Id.) - 2005. WY - Above Normal. Settlement Contractors in the Sacramento Valley received 100% of their allocation. Reported	no planned increase in water transfers from the Sacramento River Watershed to south of the Delta under the Delta Conveyance Project, nor does the analysis show an increase is reasonably foreseeable.

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	transfers amounted to 5 AF. (Id.) - 2006. WY - Wet. Settlement Contractors in the Sacramento Valley received 100% of their allocation. No transfers were reported. (Id.) - 2007. WY - Dry. Settlement Contractors in the Sacramento Valley received 100% of their allocation. Reported transfers amounted to 147,000 AF. (Id.) - 2008. WY - Critical. Settlement Contractors in the Sacramento Valley received 100% of their allocation. GCID alone planned an 85,000 AF transfer [Footnote 10: GCID, 2008. Initial Study and Proposed Negative Declaration for Option Agreement Between Glenn-Colusa Irrigation District, San Luis & Delta-Mendota Water Authority and the United States Bureau of Reclamation for 2008 Operations, and Related Forbearance Program.] of an expected cumulative total from the Sacramento Valley of 360,000 AF. [Footnote 11: USBR, 2008. Draft Environmental Assessment for the Option Agreement Between Glenn-Colusa Irrigation District, Bureau of Reclamation, and the San Luis & Delta-Mendota Water Authority for 2008 Operations. (pp. 4 and 17)] Another source revealed that the actual transfers for that year were 233,000 AF.[Footnote 12:Western Canal Water District, 2015. Initial Study and Proposed Negative Declaration for Western Canal Water District 2015 Water Transfer Program. (p. 21)] - 2009. WY-Dry. Settlement Contractors in the Sacramento Valley received 100% of their allocation. The Bureau approved a 1-year water transfer program under which a number of transfers were made. Regarding NEPA, the Bureau issued a	

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	FONSI based on an EA. DWR opined that, "As the EWA's exclusive mechanism in 2009 for securing replacement water for curtailed operations through transfers, the DWB is limited to the maximum 600,000 acre feet analyzed in the EIS/EIR for the program..."[Footnote 13:DWR, 2009. Addendum to the Environmental Water Account Environmental Impact Statement/Environmental Impact Report http://www.usbr.gov/mp/nepa/nepa_projdetails.cfm?Project_ID=107 Re: 2009 Drought Water Bank Transfers State Clearinghouse #1996032083. (p. 3)] Reported transfers amounted to 274,000 AF.[Footnote 14: Western Canal Water District, 2012. Initial Study and Proposed Negative Declaration for Western Canal Water District 2012 Water Transfer Program. (p. 25)] - 2010/2011. WYs - Below Normal, Wet. Settlement contractors in the Sacramento Valley received 100% of their allocation for both years. The Bureau approved a 2 year water transfer program through an Environmental Assessment/FONSI. The 2010-2011 Water Transfer Program sought approval for 200,000 AF of CVP related water transfers and suggested there would be a cumulative total of 395,910 AF of CVP and non-CVP water. [Footnote 15: AquAlliance, 2010. Comments on the Draft Environmental Assessment and Findings of No Significant Impact for the 2010-2011 Water Transfer Program. (pp. 1-2)]. The Bureau asserted in that no actual transfers were made under the 2010/2011 Water Transfer Program; however, a Western Canal Water District Negative Declaration declared that 303.000 AF were transferred from the Sacramento Valley and through the Delta in 2010.[Footnote 16:Western Canal Water District, 2012. Initial Study and Proposed Negative Declaration for Western	

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	Canal Water District 2012 Water Transfer Program. (p. 25)] - 2012. Settlement contractors in the Sacramento Valley received 100% of their allocation. The Bureau planned 2012 water transfers of 76,000 AF of CVP water all through groundwater substitution, but it is unclear if CVP transfers occurred. [Footnote 17USBR 2012. Memo to the Deputy Assistant Supervisor, Endangered Species Division, Fish and Wildlife Office, Sacramento, California regarding Section 7 Consultation.] SWP contractors and the Yuba County Water Agency ("YCWA") did transfer water and the cumulative total transferred is stated to be 190,000 AF.[Footnote 18:Western Canal Water District, 2015. Initial Study and Proposed Negative Declaration for Western Canal Water District 2015 Water Transfer Program. (p. 21)] - 2013. WY - Dry. Settlement contractors in the Sacramento Valley received 100% of their allocation. The Bureau approved a 1-year water transfer program, again issuing a FONSI based on an EA. The EA incorporated by reference the environmental analysis in the 2010-2011 EA. The 2013 Water Transfer Program proposed the direct extraction of up to 37,505 AF of groundwater (pp. 8, 9, 11, 28, 29, 35), the indirect extraction of 92,806 AF of groundwater (p. 31), and the cumulative total of 190,906 (p. 29). [Footnote 19: USBR, 2013. Draft Environmental Assessment and Findings of No Significant Impact for the 2013 Water Transfers. (p.29)]Reported transfers amounted to 210,000 AF.[Footnote 20:Western Canal Water District, 2015. Initial Study and Proposed Negative Declaration for Western Canal Water District 2015 Water Transfer Program. (p. 21)]	

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	- 2014. Federal Settlement Contractors in the Sacramento Valley received 75% and State Settlement Contractors received 100% of their allocations. Total maximum proposed north-tosouth transfers were 378,733 AF and total maximum proposed north-to-north transfers were 295,924 AF.[Footnote 21:AquAlliance, 2014. 2014 Sacramento Valley Water Transfers. (Data from: 1) USBR, 2014 EA for 2014 Tehama-Colusa Canal Authority Water Transfers; 2) USBR and SLDMWA, 2014. EA/Negative Declaration, 2014 San Luis & Delta Mendota Water Authority Transfers.)] Reported north-to-south transfers amounted to 198,000 AF.[Footnote 22:Western Canal Water District, 2015. Initial Study and Proposed Negative Declaration for Western Canal Water District 2015 Water Transfer Program. (p. 21)] - 2015-2024. The Bureau and SLDMWA approved the FEIS/EIR for the 10-Year Water Transfer Program (aka Long-Term Water Transfers) with the ability to transfer up to 600,000 AF per year; however, the FEIS/EIR was vacated in 2018. No water was transferred under this program. - 2016-2020. The Bureau's Accelerated Water Transfer and Exchange Program for Sacramento Valley Central Valley Project Contractors - Contract Years 2016-2020 may transfer up to 150,000 acre-feet among Central Valley Project contractors for "[i]rrigation, incidental domestic use, M&I use, groundwater recharge, and/or maintenance of habitat and habitat conditions for fish and wildlife resources." - 2018-2024. The Western Canal Water District and Richvale Irrigation District Water approved a project that may transfer up to 60,000 AF per year	

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	to south of the Delta. - 2018-2023. 5-year Warren Act contracts were approved for CVP water service contractors within the Sacramento Canals Unit to convey groundwater in federal facilities. - 2018-2024. The Bureau and SLDMWA circulated a SDEIS/RDEIR for a 6-Year Water Transfer Program (aka Long-Term Water Transfer Program) that may transfer up to 600,000 AF per year. The DEIR violates CEQA by failing to provide analysis of the significant impacts that will accompany increased transfers due to the Project.	
516-11	2. The DEIR fails to disclose the Lead Agency's conjunctive use and water transfer plans, programs, projects, funding, and impacts. The DEIR fails to reveal that the current Project is part of many more plans, programs, projects, and funding to develop groundwater in the Sacramento Valley, to develop a "conjunctive" system for the region, and to place water districts in a position to integrate the groundwater into the state water supply. These are plans that DWR, the Bureau, water districts, local governments, and now Sustainable Groundwater Management Agencies have pursued and developed for many years. Examples include the presentations of DWR's Carl Hauge and Dan McManus where "Aquifers are emptied" in the Sacramento Valley [Footnote 23: Hauge, Carl, 2011. Presentation to the State Water Commission, September 14, 2011. pp. 11,12,14. (Exhibit M)] in order to "[f]acilitate and support Sacramento Valley groundwater substitution transfers	The Delta Conveyance Project is not considered part of programs, projects, and funding to develop groundwater in the Sacramento Valley. The Delta Conveyance Project is separate and independent from groundwater projects that may be pursued by local, regional or state agencies (even DWR) and stakeholders and is intended to be part of the existing SWP. Chapter 8, Groundwater, in the section titled Cumulative Analysis and the table titled Cumulative Impacts on Groundwater from Plans, Policies, and Programs, considers the Sustainable Groundwater Management Act (SGMA) as well as other conjunctive use programs that may conjunctively use groundwater in different regions. Furthermore, the No Project Alternative includes actions by participating water agencies, including groundwater conjunctive use, that may occur in the absence of the Delta Conveyance Project. This discussion is included in Chapter 8 in the section titled No Project Alternative, and table titled Examples of Effects on Groundwater from Construction and Operation of No Project Alternative Projects. Finally, please see Common Response 8, Relationship to Other Plans, Projects, Policies, and Programs, for information on the relationship between the Delta Conveyance Project and the Sustainable Groundwater

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	and conjunctive mgmt." [Footnote 24: McManus, Dan, 2014. Presentation to the State Water Commission, March 3, 2014. p. 2. "Future Water Supply Program (FWSP), Provides data collection and analysis to facilitate and support Sacramento Valley groundwater substitution transfers and conjunctive mgmt." (Exhibit N)] The DWR publication Conjunctive Management and Groundwater Storage (2016) continued promoting conjunctive use and transfers, but remarkably it disclosed some of the downsides to them: - "Conjunctive water management can change existing surface water and groundwater interaction significantly." p. 23 - "Groundwater recharge involves using water from various sources to recharge a groundwater basin. The quality of water used for recharge is usually different from the water in the receiving groundwater basin. Uncertainty in regulatory status with regard to the quality of recharging and receiving waters increases the uncertainty in the planning effort of conjunctive management and may increase cost or even make a conjunctive water management project infeasible during implementation." p. 24 - "Availability of a model with finer spatial resolution is extremely important because while the State's goal is to encourage conjunctive water management statewide, the effects of bad management are felt locally by citizens dependent on groundwater" pp. 25-26 - "The lack of data and tools to evaluate the groundwater and	Management Act (SGMA) and groundwater sustainability plans (GSPs) of the groundwater basins in Delta and neighboring areas.

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	surface water interaction has hindered conjunctive water management and water transfer practices because of the failure to quantify compensations to injured parties. The inability to identify the impact of groundwater pumping on surface water and aquatic ecosystems fully, adds to the risk of effective conjunctive water management planning." p. 26	
516-12	Legal implications of conjunctive management, groundwater use to create space for artificial recharge, are not presented in the DEIR. Conjunctive management will likely cause conflicts between people with domestic and small agricultural wells and the large wells installed by water districts: "[r]echarge projects could decrease the amount of water that has previously been abandoned. In this situation, there would be a decrease in native groundwater supplies available for groundwater right holders. Groundwater users would not lose their right to divert groundwater to support beneficial uses on the overlying land, but lower groundwater elevations may increase cost or make it impracticable. It is also possible that recharge projects may underestimate the amount of water that migrates or is 'lost', which could result in allowing the recharger to extract more water than is reasonable, which could result in decreasing the amount of water available for overlying groundwater users." [Footnote 25; Kincaid, Valerie et al. 2020. Memo to Vina Stakeholder Advisory Committee: Legal Implications of Potential Projects and Management Actions. P. 2 (Exhibit O)]	Please see response to comment 516-11 regarding groundwater use and conjunctive use and the fact that the Delta Conveyance Project is an independent project and not part of a conjunctive use project or program. Chapter 2, Purpose and Project Objectives, indicates that the fundamental purpose of the Delta Conveyance Project is to protect the reliability of SWP and possibly CVP deliveries south of the Delta. The Delta Conveyance Project does not speculate on how those deliveries would be used by the participating water agencies. Presumably, Delta Conveyance Project participating water agencies involved in conjunctive use projects would operate those projects in such a fashion as to avoid the conflicts raised in the comment and meet permit or environmental compliance conditions unique to their project. It would be speculative for DWR to identify the type or location of conjunctive use beyond those projects already identified in the EIR (e.g., see cumulative project list in Appendix 3C, Defining Existing Conditions, No Project Alternative, and Cumulative Impact Conditions). As stated in Chapter 8, Groundwater, in the section titled Cumulative Impacts of the Project Alternatives, the increased reliability of CVP and SWP supplies would allow groundwater sustainability agencies (GSAs) charged with managing the long-term sustainability of groundwater basins, along with water agencies, to improve the conjunctive use of their surface water and groundwater supplies and reduce stress on the underlying groundwater basins.
516-13	DWR's failure to conduct project or programmatic level CEQA review for long-term or annual water transfers and comprehensive environmental review for the Sacramento	The Sacramento Valley Water Management Agreement (SVWMA, also known as the Short-Term Settlement Agreement) was executed in December 2002 by more than 40 water suppliers in the Sacramento Valley

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	Valley Water Management Agreement has segmented a known, programmatic project for decades. (A list of connected actions and similar actions is found in the Cumulative Impacts section below.) Therefore, the impacts, proposed mitigation, monitoring, and reporting are lacking for any understanding of the effects from the One Tunnel project's addition to all the past and reasonably foreseeable transfer and conjunctive use actions. The DEIR's failure to present and analyze what AquAlliance introduces here about how transfers and conjunctive management activity are not only related, but integral to the Project, violates CEQA.	(Northern California Water Association 2023). To implement the SVWMA, Northern California water districts and companies proposed more than fifty projects as part of short- and long-term work plans (Northern California Water Association 2023). In the agreement, Section 24 discusses environmental compliance and outlines all applicable environmental review, including how compliance with CEQA and NEPA will be completed when carrying out actions that may arise from the agreement (California Department of Water Resources et al. 2002). This section identifies that a program environmental document will be prepared by DWR and Reclamation with respect to actions resulting from SVWMA's program documents (California Department of Water Resources et al. 2002). Reclamation and DWR issued a notice of intent and notice of preparation in 2003 to prepare a programmatic EIR/EIS; however, it appears the document was never prepared. In addition, Section 24.3 of the Short-Term Agreement identifies upstream water users will be lead agencies under CEQA for preparing and approving project-level environmental documentation of their respective projects, as identified in the Short-Term Workplan (California Department of Water Resources et al. 2002). Subsequently, the Sacramento Valley Integrated Regional Water Management Plan (SVIRWMP) was prepared that lists five objectives, which are to improve the economic health of the region; improve regional water supply reliability for local water users, the region, and California; improve flood protection and floodplain management; improve and enhance water quality; and protect and enhance the ecosystem (Northern California Water Association 2006). The lack of preparation for the programmatic EIR/EIS by DWR and Reclamation does not preclude state or other agencies, with moving forward with the environmental analysis of a specific project, such as the Delta Conveyance Project. Section 24.3 of the Short-Term Agreement specifically identifies CEQA being performed for approving project-level environmental documentation of respective projects, as identified in the

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		Short-Term Workplan. Furthermore, as described in Chapter 3, Description of the Proposed Project and Alternatives, and Common Response 3, Alternatives Development and Description, the Delta Conveyance Project would be integrated into the operation of the SWP. DWR has complied and would continue to comply with water code requirements, the water rights priority system, and environmental and regulatory requirements with or without the Delta Conveyance Project. Projects could have been independently pursued over the years by different stakeholders within the Sacramento River Basin as a result of the Short-Term Settlement Agreement, independent of DWR's pursuit of the Delta Conveyance Project. Projects considered in the existing baseline conditions and cumulative analysis are narratively described and listed in Appendix 3C, Defining Existing Conditions, No Project Alternative, and Cumulative Impact Conditions. In addition, the CalSim 3 hydrologic model used to represent existing baseline conditions is described in Appendix 5A, Modeling Technical Appendix, and specifically includes multiple reasonable assumptions based on existing water rights, contracts, and SWP and CVP operations, to provide an accurate representation of water supply and demand under different hydrologic conditions. Finally, please refer to Appendix 3H, Non-Project Water Transfer Analysis for Delta Conveyance, that describes the potential use of new facilities for water transfers through cooperative efforts between agencies. Even though the project may add additional export capacity, it is unlikely to increase the amount of water transfers, since the current capacity is not fully utilized. As described in Chapter 3, if the Bureau of Reclamation used water through the Joint Points of Diversion administered by the State Water Resources Control Board (SWRCB) Water Rights Decision 1641, all such transfers would be subject to appropriate environmental review, permitting, and compensation to include compliance with applicable local, state, and federal laws and regulations.

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516-14	3. The SDEIS/RDEIR fails to adequately disclose the existing geology that is the foundation of the Sacramento River's hydrology and the Sacramento Valley's groundwater basins. The DEIR notes the existence of the Cascade Range, yet there isn't even a minimal description of the mountain range let alone how crucial it is to the Sacramento River Watershed. Its location is noted in Figure 10-1 (p.10-5), but it is noticeably missing in the text: "The valley is bounded by the Sierra Nevada on the east and the Coast Ranges on the west," (Figure 10-1, p. 10-4). This must be corrected. The Cascade Range is the genesis of the Sacramento River and some of its most significant tributaries: the Pit and the McCloud Rivers. The enormous influence of the Cascade Mountain Range on not only the Sacramento River, but the geology, soils, and hydrology of the Sacramento Valley's groundwater basin is also completely missing. The California Department of Conservation describes the Range thusly: "The Cascade Range, a chain of volcanic cones, extends through Washington and Oregon into California. It is dominated by Mt. Shasta, a glacier-mantled volcanic cone, rising 14,162 feet above sea level. The southern termination is Lassen Peak, which last erupted in the early 1900s. The Cascade Range is transected by deep canyons of the Pit River. The river flows through the range between these two major volcanic cones, after winding across interior Modoc Plateau on its way to the Sacramento River." [Footnote 26: California Department of Conservation, California Geological Survey, 2002. California Geomorphic Provences. [sic]] The Sacramento River Watershed Program provides another	A description of the Cascade Range is not necessary to determine the potential impacts of the project related to geologic, soil, groundwater, or hydrologic resources, and adding the text cited in the comment would not alter the impact analyses nor contribute information important to understanding the environmental context. Please see Chapter 5, Surface Water, for a description of the hydrology of the Sacramento River basin. Please see Chapter 8, Groundwater, for a discussion of the Sacramento Valley groundwater basin.

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	simple, adequate description of its namesake: "The Sacramento River is the largest river and watershed system in California (by discharge, it is the second largest U.S. river draining into the Pacific, after the Columbia River). This 27,000-square mile basin drains the eastern slopes of the Coast Range, Mount Shasta, the western slopes of the southernmost region of the Cascades, and the northern portion of the Sierra Nevada. The Sacramento River carries 31% of the state's total surface water runoff." [Footnote 27: https://www.watereducation.org/aquapedia/sacramento-river] The failure of the DEIR to present some of the most basic geologic, geographic and hydrologic information on which the entire Project is dependent causes the reader to wonder what else has been ignored or purposely omitted in the document.	
516-15	4. The DEIR fails to disclose the over-appropriation of water rights in the Sacramento River Watershed AquAlliance brought the over appropriation of water to the Lead Agency's attention in comments for the WaterFix. It appears to have been ignored, so we raise it again here. The public is presented with inadequate baseline data with which to consider the consequences of the Project. The comparison of the average unimpaired flow of the Sacramento River Watershed stacked against the claims that have been made for water is but one example. The average annual unimpaired flow in the Sacramento River basin has been 21.6 MAF, but the consumptive use claims are an extraordinary 120.6 MAF! [Footnote 28: California Water Impact Network, AquAlliance, and California Sportfishing Protection Alliance 2012. Testimony on Water Availability Analysis for Trinity, Sacramento, and San	As described in Appendix 5A, Modeling Technical Appendix, Section B, Hydrology and System Operations Modeling, the CalSim 3 existing conditions model accurately represents SWP and CVP operations to comply with the regulatory requirements as of 2020. The section titled Stream Diversions and Water Rights in Appendix 5A, Section B, describes how water rights are addressed with respect to CalSim 3 modeling efforts. The existing conditions assumptions include facilities and ongoing programs that existed as of January 15, 2020, the publication date of the Notice of Preparation (NOP) for the project. The existing conditions assumptions also include facilities and programs that received approvals and permits by January 15, 2020. Also, please refer to Common Response 1, CEQA Process, General Approach to Analysis, and Other Environmental Review Issues, regarding the CEQA environmental baseline.

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	Joaquin River Basins Tributary to the Bay-Delta Estuary.]	
516-16	5. The DEIR fails to present the existing conditions of Sacramento Valley groundwater. There is an absence of accurate and detailed information in the DEIR that describes the Sacramento Valley groundwater conditions (p. 18). "While groundwater is used for both potable and irrigation supply, in most areas of the Sacramento Valley, groundwater levels recover to pre-irrigation season levels each spring" (Id.). This conclusory, general statement is not based on any facts presented in the DEIR. We remind the Lead Agency, as we did during the WaterFix, that a summary of conditions in the Durham area of Butte County find that while water levels may recover after dry to drought periods with intense use, wells aren't returning to previous levels, but moving steadily in a downward trajectory. [Footnote 29 - Buck, Christina 2014. Groundwater Conditions in Butte County.] Additionally, even the Yuba River area, often touted by state and federal agencies as a successful conjunctive use program, takes 3-4 years to recover from groundwater substitution in the south sub-basin[Footnote 30 - 2012. The Yuba Accord, GW Substitutions and the Yuba Basin. Presentation to the Accord Technical Committee. (pp.21, 22)] although the Yuba County Water Agency analysis fails to determine how much river water is sacrificed to achieve the multi-year recharge rate. More examples that contradict long-term assertions of groundwater recovery in the Sacramento Valley are found in DWR maps. [Footnote 31 - https://data.cnra.ca.gov/dataset/northern-sacramento-valley-groundwater-e - levation-change-maps] AquAlliance's Table 1 [see Exhibit 1 DWR Groundwater Change Monitoring 2004-	Chapter 8, Groundwater, has been updated to remove the statement that the groundwater levels in the Sacramento Valley always recover pre-irrigation season levels. None of those revisions resulted in a new significant environmental impact or substantial increase in the severity of an environmental impact or required additional mitigation measures to which DWR was unwilling to commit. It is also noted that, as described in Chapter 5, Surface Water, operation of the project or alternatives would have minor, if any, effects on hydrology upstream of the Delta, including river flows and reservoir storage. As described in Common Response 3, Alternatives Development and Description, the Delta Conveyance Project's operations do not include changes to State Water Project or Central Valley Project operational criteria upstream of the proposed north Delta intakes.

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	2016, 2017, and 2018] covers 15 years and illustrates what should have been shared with the public in the DEIR. It demonstrates maximum groundwater elevation decreases at three aquifer levels in Butte, Colusa, Glenn, and Tehama counties between the fall and spring of 2004 and 2018. [Footnote 32 - Id.] The DWR data clearly present a different picture of the condition of the Sacramento Valley groundwater basin over time than what is provided in the DEIR. This must be corrected and considered in the CEQA process.	
516-17	[Exhibit 1: DWR Groundwater Change Monitoring 2004-2016, 2017, and 2018]	The commenter is providing this exhibit in support of their comments. Those comments are addressed in these responses to the commenter's letter.
516-18	6. The DEIR fails to report SGMA's limitations, potential for negative GSP results, and inadequacy for eliminating Project impacts. DWR's skill at creating and/or perpetuating misinformation continues into the Sustainable Groundwater Management Act ("SGMA") realm. Despite rejecting many 2020 Groundwater Sustainability Plan ("GSP") submissions, DWR paints a rosy picture in the DEIR that they hope will absolve them of lead agency responsibility to disclose and mitigate impacts from the Project. "Implementation of the GSPs and the resulting achievement of groundwater sustainability by 2040 or 2042 would result in stable groundwater levels and the active management of groundwater extractions within predetermined operating ranges." [Footnote 33 - DWR 2022. Delta Conveyance DEIR p. 8-21.] There are multiple lawsuits challenging the veracity of a number of GSPs and also critical comments from expert agencies, NGOs, and individuals that	Please see Common Response 1, CEQA Process, General Approach to Analysis, Other Environmental Review Issues, regarding the scope of the Delta Conveyance Project EIR. The project is not a groundwater management project. The focus of the groundwater assessment in Chapter 8, Groundwater, is to disclose local construction- and operation-related impacts that could result from the project. Please see Common Response 8, Relationship to Other Plans, Projects, Policies, and Programs, regarding California's Sustainable Groundwater Management Act (SGMA). The EIR does not rely on SGMA to assume no impacts from the project will occur. Project operations are evaluated for existing and future conditions. Potential projects under SGMA are not considered as part of this analysis. Modeled groundwater changes occurring under the 2040 No Project Alternative when compared with 2020 existing conditions are predominantly due to climate change conditions and expected changes to land use, agricultural, and urban demands. The Delta Conveyance Project has no bearing on the Sacramento Valley

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	evaluated numerous Central Valley GSPs. The DEIR fails to note these facts. Additionally, the DEIR's reliance on SGMA plans to assume no impacts from the Project violates CEQA. Actions taken or not taken by another entity doesn't absolve a lead agency from requirements to disclose impacts, propose mitigation, and monitor. Added to this is the DEIR's assumption that the GSPs are adequate to the task of sustainability. Consider the following detrimental effects from four GSPs in the Sacramento Valley (Butte, Colusa, Corning, and Vina): The attached modified water budget tables show that the proposed sustainable management for all four subbasins anticipates that under the Future 2070 Climate Change scenario the change in groundwater pumping over the Historical baseline will range from a slight decline of approximately 2% in the Vina subbasin to an approximate 48% increase in the Butte subbasin. This change in groundwater pumping is accompanied by changes in seepage (surface water recharging groundwater), and accretion (stream gains from groundwater discharge). Seepage recharge to groundwater will increase over baseline from approximately 14% to 31% in these four subbasins, while the amount of accretion to stream from groundwater will decline from -12% to -43%. See those portions of Exhibits 3, 5, 7 and 10 that are enclosed in red boxes. Overall, the net change in stream flow gains is a loss of -37% to -466% when compared to the Historical baseline, with the net volume of change in stream flow gains ranging from -6,300 AFY to -189,100 AFY. The ratio of the change from the	basins the comment provides water budget information for. Potential groundwater impacts upstream of the Delta region are described in Chapter 8 in the section titled Analysis of Groundwater Conditions Upstream of the Delta Region. Based on the surface water analysis discussed in Chapter 5, Surface Water, operation of the proposed project or alternatives would not affect hydrological conditions upstream of the Delta. The project would not affect the ability of groundwater managers upstream of the Delta to comply with the provisions of SGMA.

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	Historical baseline in groundwater pumping to the net stream flow gains ranges from 104% to 287%. Note that while the Vina subbasin Future 2070 Climate Changebudget calculates a decrease in groundwater pumping, the net stream flow gains still decrease, which produces a positive value for the percentage of change. [Footnote 34 - Custis, Kit 2022. Comments for AquAlliance on the Delta Conveyance Project DEIR. pp. 6-7. (Exhibit A)] DWR must reject GSPs as window-dressing for disclosure, analysis, and proposed mitigation of impacts to groundwater resources and streamflow loss in the Sacramento Valley.	
516-19	7. Delta groundwater impacts are inadequately identified and addressed. Groundwater supply and quality in the Delta are virtually ignored in the DEIR. "The conclusion that the DEIR appears to draw about potential project impact to the Delta groundwater system is that all project impacts will be insignificant relative to potential future non-project impacts to the Delta, such as sea level rise and river flow timing and volumes resulting from climate change.”."35 [Footnote 35: Id. p. 13 refers to Footnote 34 Custis, Kit 2022. Comments for AquAlliance on the Delta Conveyance Project DEIR. pp. 6-7. (Exhibit A)] The conclusion that the DEIR appears to draw about potential project impacts to Delta groundwater quality is that there will be no degradation in quality from the DCP’s construction or operations. This conclusion is reached despite: (1) the assessment being qualitative; (2) a lack of baseline sampling data for groundwater quality in the Delta, only two well are sampled; and (3) there is no apparent intent to create a Delta	DWR fully evaluates the construction-related groundwater impacts of the Delta Conveyance Project in the EIR. Common Response 10, Surface Water Quality and Groundwater Resources, provides additional clarifying information regarding the methodology and information used to adequately and appropriately evaluate construction-related impacts described in Chapter 8, Groundwater. As described in Common Response 10 and Chapter 8 (in the section titled Methods for Analysis) the Delta Conveyance Project construction-related impacts are evaluated using existing groundwater conditions and hydrogeology, standard design and construction methods (Delta Conveyance Design and Construction Authority 2022h, 2022i), and anticipated changes in groundwater elevations, storage, and quality during construction. The Groundwater Quality section in Chapter 8 provides sufficient baseline information and summarizes the primary groundwater quality concerns for basins in and around the Delta. Groundwater quality is assessed qualitatively under Impact GW-7. Areas of groundwater concern near the study area are identified in the figure titled Location of Identified Groundwater Plumes in the Study Area. Analysis shows that changes in groundwater elevation near the areas of concern would be limited to 1 to 2 feet and is unlikely to cause a change in groundwater flow paths. Hydraulic gradients are calculated

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	groundwater quality sampling program to document baseline conditions for comparison to any changes measured during construction and/or operations. Despite the lack of groundwater quality data, the DEIR appears to assume a valid correlation between groundwater levels and groundwater quality such that changes in groundwater levels can be a surrogate for changes in water quality. The DEIR doesn't provide any site-specific data do [sic] validate or calibrate this groundwater-level-to-water-quality correlation. For example, what is the change in the concentration of total dissolved solids with a one-foot change in groundwater elevation? What are the correlations between other chemical constituents, such as chloride, manganese, arsenic, and/or iron? What distance will a known contaminant plume migrate with a one-foot change in groundwater elevation? [Footnote 36: Id. p. 15. see previous footnote] The Lead Agency failed to fully disclose the environmental impacts from the Project on Delta groundwater as required by CEQA. A recirculated DEIR is needed.	using groundwater levels and therefore the numerical flow model indirectly calculates changes in hydraulic gradient. In evaluating contaminant movement, advection is the primary process by which plume migration occurs (with dispersion and diffusion being secondary processes). As advection is the movement of contaminants driven by hydraulic gradients, and hydraulic gradients are calculated from groundwater levels, the use of groundwater levels as a proxy is an appropriate methodology. Operational impacts on groundwater quality would be plume migration and/or introduction of saline waters, both of which can be evaluated using hydraulic gradients and groundwater levels. In addition, Common Response 10 identifies and clarifies common mechanisms for impacts on groundwater quality, including plume migration, salinity intrusion and sea level rise, and includes discussion of the linkages between groundwater elevations (as measured in the DeltaGW model), hydraulic gradient, and advective flow of constituents such as salt. As described in Common Response 10, cutoff walls would be designed to applicable standards depending on the unique site-specific conditions and the location of the facility being constructed. Cutoff walls are designed and used to minimize need for dewatering and the movement of groundwater outside of the cutoff walls. Given this, and the other information provided in Common Response 10, construction would not result in substantial changes to groundwater levels or groundwater water quality. Furthermore, the analysis in Impact GW-1 and Impact GW-2 shows that under construction groundwater levels would generally be maintained at the level of existing conditions during the use of cutoff walls or dewatering. As the proposed project and project alternatives would not result in a substantial change in groundwater levels, they would also not result in a substantial change in groundwater salinity associated with a decline in groundwater levels. And, if unanticipated changes to groundwater levels occurred during construction, the changes would be localized and in the immediate area of the construction. The EIR also includes Mitigation Measure GW-1, which requires monitoring during

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		construction and adjustments to construction activities as needed, depending on the groundwater level monitoring results. Although it is determined that the project would not impact groundwater quality, Mitigation Measure GW-1 has been revised to include monitoring of electroconductivity at select locations during construction to provide data confirming the conclusions in the EIR. Impact GW-1 and Impact GW-2 remain less than significant prior to the implementation of the revised mitigation measure, as described in Chapter 8. The revision does not result in a new significant environmental impact, substantial increase in the severity of an environmental impact, or require additional mitigation measures to which DWR was unwilling to commit. Finally, water quality is further covered under Chapter 9, Water Quality. The water quality analysis considered 17 different potential water quality impacts, all of which were found to be less than significant under all alternatives.
516-20	8. The Project Description does not include all project components. a) The Bureau fails to disclose significant past, present, and future streamflow depletion. Streamflow depletion is mentioned sparingly in the DEIR. The absence of any meaningful disclosure of past, present, and future groundwater and streamflow depletion underscores once again the completely vacuous attempts by the Lead Agency to meet CEQA requirements. AquAlliance presents a figure [see Exhibit 2] that is a comprehensive picture of the destructive past and present impacts to the groundwater and streams of the Sacramento River that should have been revealed in the NEPA and CEQA documents for this project. It encapsulates all that the Lead Agencies seek to obfuscate from the public and policy makers.	The comment's assertion that the EIR does not disclose information on streamflow and groundwater depletion is not supported by the content of the EIR. Chapter 8, Groundwater, analyzes stream gains and losses under the No Project Alternative and the project alternatives in Impact GW-1. Chapter 8 also provides mitigation measures to maintain groundwater supplies in affected areas and to address increases in groundwater elevations near project intake facilities affecting agricultural drainage. Details of the groundwater modeling assumptions and analysis results are provided in Appendix 8A, Delta Groundwater Model, Development and Calibration; Appendix 8B, Impact Analysis, Groundwater Model Results; and Appendix 8C, Groundwater 2040 Analysis. As with other resources, potential groundwater impacts resulting from project construction or operation, including streamflow depletion, are evaluated in the EIR by comparison to existing conditions (the CEQA baseline). "Past" or "present" streamflow depletion as described at length in the comment are part of that CEQA baseline. In addition, Appendix 8C presents a 2040 No Project Alternative which is compared to existing conditions (CEQA baseline) to evaluate changes in groundwater conditions resulting from climate change,

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	Figure 1 [see Exhibit 2] was created in 2014 for AquAlliance for comments on the DEIS/EIR for the Long-Term Water Transfer Program by Kit Custis, who explained: Two recent reports on the condition of groundwater in the Sacramento Valley are provided by the Northern California Water Association (NCWA, 2014a and 2014b). Tables 3-6, 3-7, and 3-8 in the NCWA technical supplement report (2014b; Exhibits 10.5a to 10.5c) provide water balance information for the Sacramento Valley for the same three decades as Brush and others (2013a). The NCWA tables separate the water balance elements into three types, land uses (Table 3-6), streams and rivers (Table 3-7), and groundwater (Table 3-8). The values of the change in groundwater storage given in Table 3-8 are similar to those given by Brush and others (2013a). The NCWA technical supplement report (2014b) also provides additional information on the 1922 to 2009 water balance through the use of graphs and bar charts. Figures 3-22 and 3-24 (Exhibits 10.6c and 10.6d) provide graphs of simulated estimates of annual groundwater pumping in the Sacramento Valley and the annual stream accretion. Positive stream accretion occurs when groundwater discharges to surface water, negative when groundwater is recharged. Other graphs include simulated deep percolation, Figures 3-26 and 3-27 (Exhibits 10.6e and 10.6f), annual diversions, Figures 3-19 and 3-20 (Exhibits 10.6a and 10.6b), and relative percentages of surface water to groundwater supplies, Figure 3-29 (10.6g). The NCWA technical supplement report (2014b) notes in Sections 3.8 and 3.8.4 that negative changes in groundwater storage...suggest that the groundwater basin is under stress and experiencing overdraft in some locations. Review of the	land use, and demand changes under future conditions. Please refer to Chapter 4, Framework for the Environmental Analysis, and Common Response 4, No Project Alternative Description and Analysis, for further explanation regarding existing conditions, the No Project Alternative, and CEQA requirements. As described in Chapter 4, Reclamation or a CVP contractor (or contractors) have not expressed interest in participating in the Delta Conveyance Project as project proponents. The Delta Conveyance Project is not a groundwater management project. The focus of the groundwater assessment in Chapter 8 is to disclose local construction- and operation-related impacts that could result from the project. Please see Common Response 8, Relationship to Other Plans, Projects, Policies, and Programs regarding California's Sustainable Groundwater Management Act (SGMA). Please also see response to comment 516-41 regarding the Delta Conveyance Project and water transfers.

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	Sacramento Valley water balance, as characterized based on C2VSim R374 and summarized in Tables 3-6 through 3-8 reveals substantial changes in water balance parameters over time that affect overall groundwater conditions... Over time, it appears that losses from surface streams have increased as a result of declining groundwater levels. The declining levels result from increased demand for groundwater as a source of supply without corresponding increases in groundwater recharge. (page 41) A contributing factor to the decrease in accretions to rivers and streams over the last 90 years is that deep percolation of surface water supplies (and other forms of recharge) has not increased in a manner that offsets increased groundwater pumping. (page 48) The simulated groundwater pumping graph in NCWA Figure 3-22 and stream accretion graph in NCWA Figure 3-24 were combined into one graph by scaling and adjusting their axes (Exhibits 10.7). The vertical scales of these two graphs were adjusted so that a zero value of stream accretion aligned with 1.5 million acre-feet (MAF) of annual groundwater pumping. This alignment was done to reflect the fact that in the early 1920s, groundwater pumping was approximately 0.5 MAF per year (MAFY) while stream accretion was approximately 1.0 MAFY. As shown in the combined graph, stream accretion generally decreases at approximately the same rate as groundwater pumping increases. Thus, at a point of no appreciable groundwater pumping, pre-1920s, the total long-term average annual stream accretion was likely 1.5 MAF, based on the C2VSim simulations. Drawn on top of the stream depletion and groundwater pumping graphs are several visually fit, straight trend lines.	

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	These lines, which run from 1940 to the mid-1970s and the late 1980s to mid-1990s, are mirror images reflected around the horizontal 0 accretion axis. Information provided at the bottom of the composite graph was taken from NCWA Tables 3-7 and 3-8 (Exhibits 10.5b and 10.5c). The slope of the trend line from 1940 to the mid- 1970s is approximately (+-)27,000 AFY, and (+-)85,000 AFY in the late 1980s to the mid- 1990s; a 3-fold increase in slope. After the mid-1990s the slope of groundwater pumping flattens to be similar to that of the 1940s - mid-1970s, while the stream depletion line became almost flat, ie., no change in rate of accretion. The reason for the stream depletion rate being flat is unknown, but there are several factors that could contribute to a fixed rate of stream accretion. First, after depleting 1.5 MAFY from the Sacramento Valley streams, the surface waters may not be able to provide much more, at least no increase to match the pumping. Second, this may also be a consequence of the model design because the number of streams simulated was limited. Third, the model's grid may not extend out far enough to encompass all of the streams that contribute to groundwater recharge. More information on the areas of where streams gain and lose in the Sacramento Valley is needed to determine if there are any sections of stream, gaining or losing, that might still have the ability to interact at a variable rate in the future, ie., during and after the 10-year groundwater substitution transfer project. A third graph is drawn on the composite accretion-pumping graph in Exhibit 10.7 that shows the C2VSim simulated cumulative change in groundwater storage for the Sacramento Valley from 1922 to 2009. This graph was taken from Figure 35	

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	of Brush and others, 2013b (Exhibit 10.4). A straight trend line with a negative slope of approximately -163,417 AFY is drawn on top of the third graph, which is the value for average annual change in storage from 1922 to 2009 given in Table 10 of Brush and others (2013a; Exhibit 6.3a) for the seven subregions of the Sacramento Valley. The selected graph of the cumulative change in groundwater storage is one of three available. The graph of cumulative change in groundwater storage for the Sacramento Valley in Figure 35 differs from the graph in Figure 83 in Brush and others (2013a; Exhibit 10.3) and in Figure B9 of Faunt (ed., 2009; Exhibit 10.2a). Both of Figure 83 and Figure B9 show a gain in groundwater storage with their Sacramento Valley graphs lying generally above the horizontal line of zero change in storage. The cumulative change in groundwater storage graph from Figure 35 (Exhibit 10.4) was selected because: -its slope is a close match for the average annual change in storage from 1922 to 2009 of -163,417 AFY given in Table 10, -the values for change in groundwater storage in the three selected decades are all negative (Table 3-8, NCWA, 2014b), which the other two graphs don't clearly indicate, -the calculation of average annual change in groundwater storage from 1962 to 2003 shown in Table B3 and Figures B10-A and B10-B of Faunt (ed., 2009) are negative, which conflicts with Figures B9 and 83, and -change in DWR groundwater elevation maps from spring 2004 to spring 2014 (Exhibit 3.1, 3.2 and 3.3) suggest that there are	

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	significant regions of the Sacramento Valley that have lost groundwater storage, which suggests that the current condition is one of a loss in storage rather than a gain. Additional review and analysis of the changes in groundwater storage in the Sacramento Valley is needed. Any additional review of changes in groundwater storage in the Sacramento Valley should consider the recent changes in groundwater elevations such as those shown in DWR (2014b) for WYs 2004 to 2014, and Figures 2-4 and 2-5 of NCWA, 2014b (Exhibit 10.8 and 10.9), as well as other studies such as the support documents for the regional IRWMPs. [Supporting material found in AquAlliance's Tables 1 and 2 above.] While this critique dates back eight years, it exemplifies the past trends that have only become worse (see Table 1) [see Exhibit 1]. The deficiencies in the DEIR strike at the core of our evaluation, which views the CVP and the SWP as once-upon-a-time operating within the law, albeit with more water on paper than could ever be available, until the limits of hydrology caused the Agencies and some of their contractors to look for tools to exploit the law -- and the hydrology -- of California. The CVP and SWP have extended water far from the areas of origin for agricultural, urban, and industrial uses. In so doing, particularly with paper water, [Footnote 37: C-WIN, et al, 2012. Testimony on Water Availability Analysis for Trinity, Sacramento, and San Joaquin River Basins Tributary to the Bay-Delta Estuary] the state and federal governments have facilitated a destructively unrealistic demand for water. Ever willing to destroy natural systems to meet demand for profit, the San Joaquin River dried up, and subsidence caused by groundwater depletion in the San Joaquin Valley continues	

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	cracking water conveyance facilities. [Footnote 38: Sneed, et al., 2012. Abstract: Renewed Rapid Subsidence in the San Joaquin Valley, California. "The location and magnitude of land subsidence during 2006–10 in parts of the SJV were determined by using an integration of Interferometric Synthetic Aperture Radar (InSAR), Global Positioning System (GPS), and borehole extensometer techniques. Results of the InSAR measurements indicate that a 3,200-km2 area was affected by at least 20 mm of subsidence during 2008–10, with a localized maximum subsidence of at least 540 mm. Furthermore, InSAR results indicate subsidence rates doubled during 2008. Results of a comparison of GPS, extensometer, and groundwater level data suggest that most of the compaction occurred in the deep aquifer system, that the critical head in some parts of the deep system was exceeded in 2008, and that the subsidence measured during 2008–10 was largely permanent." Conference presentation at Water for Seven Generations: Will California Prepare For It?, Chico, CA.] Added to this are conjunctive use water sales and programs where the Agencies facilitate and their contractors implement river water sales and pump groundwater to continue crop production. The continual, long-term groundwater overdraft in the San Joaquin Valley, the expansion of permanent crops in both the San Joaquin and Sacramento valleys, and groundwater substitution transfers by CVP and SWP contractors all cause streamflow depletion (also see Groundwater Section above [comments 16-19]). Failing to disclose how the CVP and SWP have historically caused streamflow depletion is a major omission that must be corrected and included in a recirculated DEIR.	

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516-21	[Exhibit 2: Comparison of Groundwater Pumping and Accretion, Sacramento Valley 1920s to 2009]	The commenter is providing this exhibit in support of their comments. Those comments are addressed in these responses to the commenter's letter, specifically comment 516-20 regarding groundwater impacts.
516-22	b) Source water for Tunnel operation is not disclosed. AquAlliance commented previously about internal BCDP communication from the Department of the Interior that indicated that the purchase of approximately 1.3 MAF of water was planned as a means to make up for flows that would be removed from the Sacramento River by the BDCP tunnels. [Footnote 39: Belin, Lety Summary of Assurances Email, dated 2/25/13. (Exhibit P)] As provided above, it is possible that the Tunnel may extract 26% of the average annual flow from the Sacramento River, which is what creates the need for additional water. Using the Belin figure for the Twin Tunnels' impact of 9,000 cfs, the Project's 6,000 cfs would require 871,000 AF. The source of this additional water that is integral to the Project was not disclosed or analyzed in the DEIR. Neither CEQA nor NEPA permit this approach of segmenting and piecemealing review of the whole of a project. As noted above, water transfers are expected to increase and are an integral part of the Project, and groundwater substitution transfers are a significant piece of water transfer practices, plans, and programs, either directly or indirectly through reservoir reoperation. The deferral to disclose the amount of water that could be transferred, the source of the water to compensate for the Tunnel operation, and the impacts from transferring water from the Sacramento Valley are absent. AquAlliance emphasizes once again that the DEIR does not reveal that the current Project is part of multi-decade planning and implementation process to develop groundwater in the	Part of this comment is regarding the Bay Delta Conservation Plan (BDCP)/California WaterFix project and this portion of the comment does not directly address the Delta Conveyance Project Draft EIR and DWR is not required to respond to comments on projects that are no longer being pursued. However, DWR has reviewed the comment's content to determine whether the comment may be applicable to the proposed Delta Conveyance Project. The following response is provided for those elements of the comment that are applicable to the Delta Conveyance Project Draft EIR. The comment conflates information from the BDCP/California Water Fix operation (e.g., 26% of average annual flow, and 9,000 cfs, and 871,000 AF) with the current Delta Conveyance Project. As described above, DWR is no longer pursuing the BDCP/California Water Fix Project and therefore claiming extraction of 26% of the average annual flow of the Sacramento River is incorrect. Please refer to Common Response 3, Alternatives Development and Description, regarding a discussion of the operation of the project and examples of the amount of flow that the project could divert under the operating criteria described in Chapter 3, Description of the Proposed Project and Alternatives. As described in Chapter 2, Purpose and Project Objectives, the basic objective of the Delta Conveyance Project is to restore and protect the reliability of SWP water deliveries. The Delta Conveyance Project helps meet this by constructing and operating new water supply facilities within the Delta. The Delta Conveyance Project is not proposing changes to operational criteria or amount of storage provided by upstream facilities and also does not preclude future changes to the state's water supply either through modifications of the operation of existing facilities or

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	Sacramento Valley, to develop a "conjunctive" system for the Sacramento Valley, and to "integrate" Sacramento Valley groundwater into the state's water supply.	increasing water storage. As described in Chapter 6, Water Supply, under the project, over the long-term average, annual SWP water deliveries would increase by approximately 540,000 acre-feet. As discussed in Chapter 3, Description of the Proposed Project and Alternatives, the Delta Conveyance Project is not proposed specifically to accommodate water transfers. Appendix 3H, Non-Project Water Transfer Analysis for Delta Conveyance, provides an analysis of the available export capacity for water transfers with current facilities to determine if current facilities limit the export of transfer water. The analysis concluded that, even though the project may add additional export capacity, it is unlikely to increase the amount of water transfers, since the current capacity is not even fully utilized. Common Response 8, Relationship to Other Plans, Projects, Policies, and Programs, provides additional discussion on the relationship between the Delta Conveyance Project and water transfers. Please refer to responses to comments 516-7, 516-8 and 516-10 in the same letter for additional details regarding water transfers. Please also refer to responses to comments 516-11, 516-12 and 512-13 regarding groundwater use and conjunctive use and the fact that the Delta Conveyance Project is an independent project and not part of a conjunctive use project or program.
516-23	B. The DEIR's models are seriously deficient for the Project. The Lead Agency relies on seriously deficient modeling to build its house of cards in the DEIR. Expert opinion by Kyran Mish, Ph.D. provides analysis regarding the deficiencies (Exhibit B) [see ATT 2]. "The results of any computational technique are subject to various sources of uncertainty, including uncertainties that we can characterize accurately as well as those we cannot. The	The commenter has provided a statement of opinion regarding the modeling framework described in the Overview of Modeling Approach section of Appendix 5A, Modeling Technical Appendix, Section A, Modeling Overview; however, the comment does not provide new information, raise a significant environmental issue relating to the proposed project or address the adequacy, accuracy, or completeness of the EIR. DWR has reviewed all comments and will consider all comments in its decision-making process. The section titled Model Precision in a Relative Analysis in Appendix 5A, Section B, Hydrology and Systems Operations, provides a discussion of the precision of the CalSim 3 model. Although no exact

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	combined effect of these two classes of uncertainties rarely reaches a figure as low as 5% even in ideal circumstances of high-quality manufacturing, and the assertion that such a reassuring low estimate of uncertainty can be realized in a model that includes natural systems is a red flag that makes a subject matter expert wonder where such as figure came from.”" (p.2) "This lack of characterization of uncertainty serves to validate the assessment that at the system-level scale, the use of computational models lies outside the mainstream of current modeling practice, and that the DEIR requires improvement before its predictions can be characterized as realistic.”" (p. 2)	quantification of model uncertainty is available, DWR believes that CalSim 3 comparative results are subject to uncertainty that is within 5% and likely much lower. The modeling tools and the framework used for evaluating project impacts in the EIR are the best available community-accepted information at the time of preparing the Draft EIR.
516-24	B. The DEIR’s models are seriously deficient for the Project The Lead Agency relies on seriously deficient modeling to build its house of cards in the DEIR. Expert opinion by Kyran Mish, Ph.D. provides analysis regarding the deficiencies (Exhibit B) [see ATT 2]. "The physical effects outlined in Chapter 10 include earthquake motions, liquefaction of the soil deposits that comprise much of natural and built environments of the Delta, buoyancy effects on the tunnel, and differential settlement that can pose deadly risks to large-scale infrastructure such as tunnels and pumping facilities, but the overall effect of these various physical effects is not clearly identified, and the cumulative effect of the uncertainties involved is also not well-characterized." (p. 2)	The analysis of geologic hazards provided in Chapter 10, Geology and Seismicity, does not support the comment assertion by Kyran Mish in (Exhibit B) [see ATT 2] that physical effects are not clearly identified and cumulative effects are not well characterized. In this chapter, the effects related to geology and seismicity are described in the Environmental Impacts section and the associated cumulative effects are described in the Cumulative Analysis section. As discussed in Common Response 1, CEQA Process, General Approach to Analysis, Other Environmental Review Issues, the EIR was written and organized consistent with CEQA and written in plain language with an emphasis on clearly and adequately disclosing the project’s potential environmental impacts to assist public, agency, and decision maker review of the EIR. Please also see Common Response 9, Hydrologic Modeling and Approach, for a discussion of the modeling used for the project analyses.
516-25	B. The DEIR’s models are seriously deficient for the Project. The Lead Agency relies on seriously deficient modeling to build	Please refer to Common Response 1, CEQA Process, General Approach to Analysis, Other Environmental Review Issues, regarding the selection of the existing baseline condition. The DeltaGW model is based on the best

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	its house of cards in the DEIR. Expert opinion by Kyran Mish, Ph.D. provides analysis regarding the deficiencies (Exhibit B) [see ATT 2]. • "[c]onvergence studies require more computational resources be deployed, and the most refined computational grids described in the DEIR (e.g., the C2VSim-FG finite element mesh mentioned in Chapter 8 and in various appendices) are remarkably coarse grids when assessed by current standards in computational engineering. These coarse meshes are generally unsuitable for predictions of important environmental effects such as subsidence and loss of aquifer capacity (both of which require much more detail in the vertical direction of the finite element mesh to characterize accurately the layered structure of the Central Valley)." (p. 3)	available model and data at the time of the notice of preparation. Please refer to Common Response 10, Surface Water Quality and Groundwater Resources, explaining why the model is suitable for analysis of local impacts on groundwater. The DeltaGW Model represents the best available planning-level analytical tool for the Delta region and is an improved and expanded version of C2VSimFG, which has been the standard planning model for the Central Valley since 2012. The DeltaGW model inherits the model grid from C2VSimFG (see Appendix 8A, Delta Groundwater Model: Development and Calibration). However, data from the CoSANA model was leveraged to improve the water budget calibration of the DeltaGW Model. Land use, evapotranspiration, irrigation period, soil parameters, surface water diversions, urban demands, and well pumping from the CoSANA model were mapped to the DeltaGW model and incorporated into the historical model to improve calibration.
516-26	B. The DEIR's models are seriously deficient for the Project. The Lead Agency relies on seriously deficient modeling to build its house of cards in the DEIR. Expert opinion by Kyran Mish, Ph.D. provides analysis regarding the deficiencies (Exhibit B) [see ATT 2]. "'[a]n independent technical review of the DeltaGW model used in DEIR impact assessments requires investigation of other software tools (e.g. IWFM, DWR's Integrated Water Flow Model) that are also not well-characterized in the DEIR and unfortunately not particularly well-characterized in the open literature, either. In the case of IWFM, there is a theory manual available on the DWR's website, but deducing the details of how DeltaGW is utilized in practice is not a trivial exercise, which limits the value of technical reviews by independent experts. This in turn limits the ability of public-minded subject	Please see response to comment 516-25 regarding the suitability of the DeltaGW model to assess impacts on groundwater for the EIR.

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	matter experts to contribute to the evaluation of the suitability of the DEIR." (p. 4)	
516-27	B. The DEIR's models are seriously deficient for the Project The Lead Agency relies on seriously deficient modeling to build its house of cards in the DEIR. Expert opinion by Kyran Mish, Ph.D. provides analysis regarding the deficiencies (Exhibit B).[see ATT 2] The DEIR's modeling problems are enormous and warrant additional work before another CEQA document would be ready for public circulation.	Appendix 5A, Modeling Technical Appendix, Section B, Hydrology and Systems Operations Modeling, provides a summary of hydrologic modeling performed to simulate the hydrology, water resources, and water management within the project area. DWR believes the modeling conducted for the project is an accurate representation of baseline and with project hydrologic conditions and the EIR accurately evaluates impacts on environmental resources that may be affected by changes in those hydrologic conditions. The modeling tools and the framework used for evaluating project impacts in the EIR are the best available community-accepted information at the time of the notice of preparation. Please also refer to responses to comments 516-23 to 516-26 regarding the statement of opinion on various model aspects by Kyran Mish, Ph.D. provided in (Exhibit B) [see ATT 2].
516-28	C. Cumulative Impacts. An EIR must discuss significant cumulative impacts. CEQA Guidelines §15130(a). Cumulative impacts are defined as two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts. CEQA Guidelines §15355(a). "[I]ndividual effects may be changes resulting from a single project or a number of separate projects. CEQA Guidelines § 15355(a). A legally adequate cumulative impacts analysis views a particular project over time and in conjunction with other related past, present, and reasonably foreseeable future projects whose impacts might compound or interrelate with those of the project at hand. Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time. CEQA Guidelines § 15355(b). "[A] cumulative impact consists of an impact which is created	Part of this comment compares certain aspects of the Delta Conveyance Project EIR to the previous Bay Delta Habitat Conservation Plan (BDCP)/California WaterFix DEIR/DEIS. These components of the comment do not directly address the Delta Conveyance Project Draft EIR and DWR is not required to respond to comments on projects that are no longer being pursued. DWR has responded to parts of the comment that may be applicable to the current Delta Conveyance Project. Please refer to responses to comments 516-7 to 516-10, 516-13, 516-42 and 516-43 regarding the consideration of water transfers in the EIR. In addition, please refer to Common Response 1, CEQA Process, General Approach to Analysis, Other Environmental Review Issues, regarding of the approach to evaluating cumulative impacts in the EIR and past, present, and reasonably foreseeable projects considered in the EIR. The cumulative projects discussed are those that could incrementally add to an effect of the project. It is unclear what effect, if any, the four water transfers over 10 years ago over the course of one- or two years would have combined with

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	as a result of the combination of the project evaluated in the EIR together with other projects causing related impacts." (CEQA Guidelines § 15065(a)(3).) The cumulative impacts concept recognizes that "[t]he full environmental impact of a proposed...Action cannot be gauged in a vacuum." Whitman v. Board of Supervisors (1979) 88 Cal. App. 3d 397, 408 (internal quotation omitted). As discussed above, the Project is dependent on the hydrology of the Delta watershed to implement the project. We pointed out in past comments on BDCP and the WaterFix, and again here because the issue hasn't been corrected, that the cumulative impact analysis is abysmal, as it fails to consider other past, present and reasonably foreseeable future actions in the Delta watersheds by deferring analysis to a future day. AquAlliance submits a partial list of Sacramento River Watershed programs, plans, and projects in which the Agencies have participated or funded, that, at a minimum, should have been presented in the DEIR for cumulative impact discussion, and better yet, analyzed to comply with CEQA and NEPA when a DEIS is circulated: -In 2009, the Bureau approved a 1-year water transfer program under which a number of transfers were made. Regarding NEPA, the Bureau issued a FONSI based on an EA. -In 2010, the Bureau approved a 2-year water transfer program (for 2010 and 2011). No actual transfers were made under this approval. Regarding NEPA, the Bureau again issued a FONSI based on an EA.	the Delta Conveyance Project, and the commenter does not provide any discussion of resources they could affect. Regarding the 2014 project, the comment does not explain how the referenced miscalculation in the document prepared for that project would affect the conclusions in the EIR. Hence, it is unclear, and not explained, how the past transfers would have any bearing on the impacts disclosed for the Delta Conveyance Project.

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	-The Bureau planned 2012 water transfers of 76,000 AF of CVP water all through groundwater substitution. [Footnote 40: USBR 2012. Memo to the Deputy Assistant Supervisor, Endangered Species Division, Fish and Wildlife Office, Sacramento, California regarding Section 7 Consultation.] -In 2013, the Bureau approved a 1-year water transfer program, again issuing a FONSI based on an EA. The EA incorporated by reference the environmental analysis in the 2010-2011 EA. -The Bureau and SLDMWA's 2014 Water Transfer Program proposed transferring up to 91,313 AF under current hydrologic conditions and up to 195,126 under improved conditions. This was straightforward; however, when attempting to determine how much water may come from fallowing or groundwater substitution during two different time periods, April-June and July-September, the reader was left to guess. [Footnote 41. The 2014 Water Transfer Program's EA/MND was deficient in presenting accurate transfer numbers and types of transfers. The numbers in the "totals" row of Table 2-2 presumably should add up to 91,313. Instead, they add up to 110, 789. The numbers in the "totals" row of Table 2-3 presumably should add up to 195,126. Instead, they add up to 249,997. Both Tables 2-2 and 2-3 have a footnote stating: "These totals cannot be added together. Agencies could make water available through groundwater substitution, cropland idling, or a combination of the two; however, they will not make the full quantity available through both methods. Table 2-1 reflects the total upper limit for each agency."]	

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	These closely related projects impact the same resources, are not accounted for in the environmental baseline, and must be considered as cumulative impacts.	
516-29	1. The Lead Agencies have failed to consider the cumulative impacts of other groundwater development and surface water diversions affecting the Sacramento Valley In addition to the improper segmentation evident in the DEIR, the assessment of environmental impacts is further deficient because DWR failed to consider the cumulative impacts of area of origin extraction when taken in conjunction with other projects proposed for the development of groundwater and surface water that will intersect with the One Tunnel project. Many programs, plans, and projects to develop water in the Sacramento Valley have been studied and/or completed to develop a "conjunctive" system in the Sacramento Valley. These programs, plans, and projects place water districts in a position to "integrate" the groundwater into the state water supply, which has been funded by state and federal funds. [Footnote 42: USBR 2006. U.S. Bureau of Reclamation, September 2006. Grant Assistance Agreement with Glenn Colusa Irrigation District; "...improve Central Valley system-wide water supply reliability through participation in the emerging water transfer markets…" (p. 2) that would "…integrate the Lower Tuscan Formation into the local water supply system and into the Central Valley wide water supply system;…""] The One Tunnel is one of those plans that the Lead Agencies, water districts, and others have been pursuing and developing for many years.	Please see Common Response 1, CEQA Process, General Approach to Analysis, Other Environmental Review Issues, regarding the scope of the Delta Conveyance Project EIR. The Delta Conveyance Project is not a groundwater management project. The focus of the groundwater assessment in Chapter 8, Groundwater, is to disclose local construction- and operation-related impacts that could result from the project. Please see Common Response 8, Relationship to Other Plans, Projects, Policies, and Programs, regarding California's Sustainable Groundwater Management Act (SGMA). Please refer to Appendix 3C, Defining Existing Conditions, No Project Alternative, and Cumulative Impact Conditions, regarding projects that are considered part of the cumulative impact analysis. Cumulative analysis of impacts on groundwater resources is described in the Cumulative Analysis section of Chapter 8. The table in Chapter 8 titled Cumulative Impacts on Groundwater from Plans, Policies, and Programs lists projects considered for cumulative effects on groundwater. A complete list of projects is included in Appendix 8C, Groundwater 2040 Analysis.

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516-30	The Lead Agencies have failed to consider the cumulative impacts of other groundwater development and surface water diversions affecting the Sacramento Valley a) Yuba Accord The relationship between the Project and the Lower Yuba River Accord is not found in the DEIR, but it is illuminated in a 2013 Environmental Assessment. The Lower Yuba River Accord (Yuba Accord) provides supplemental dry year water supplies to state and Federal water contractors under a Water Purchase Agreement between the Yuba County Water Agency and the California Department of Water Resources (DWR). Subsequent to the execution of the Yuba Accord Water Purchase Agreement, DWR and the San Luis & Delta- Mendota Water Authority (Authority) entered into an agreement for the supply and conveyance of Yuba Accord water, to benefit nine of the Authority's member districts (Member Districts) that are SOD [south of Delta] CVP water service contractors." A Fact Sheet produced by the Bureau, it provides some numerical context and more of DWR's involvement by stating, "Under the Lower Yuba River Accord, up to 70,000 acre-feet can be purchased by SLDMWA members annually from DWR. This water must be conveyed through the federal and/or state pumping plants in coordination with Reclamation and DWR. Because of conveyance losses, the amount of Yuba Accord water delivered to SLDMWA members is reduced by approximately 25 percent to approximately 52,500 acre-feet. Although Reclamation is not a signatory to the Yuba Accord, water conveyed to CVP contractors is treated as if it were Project water." However, the Yuba County Water Agency	See Common Response 3, Alternatives Development and Description, regarding Delta Conveyance Project's operations which does not include changes to State Water Project or Central Valley Project operations upstream of the proposed north Delta intakes. Please see Common Response 1, CEQA Process, General Approach to Analysis, Other Environmental Review Issues, regarding the selection of the study area(s), discussion of the areas upstream of the north Delta Intakes, as well as the approach regarding cumulative impacts and the consideration of reasonably foreseeable projects included in the cumulative analysis. The Lower Yuba River Accord is included in the EIR analysis as appropriate and is discussed in Appendix 3C, Defining Existing Conditions, No Project Alternative, and Cumulative Impact Conditions. Cumulative projects identified in Appendix 3C are considered, as applicable, in Chapters 5 through 32. Please also see response to comment 516-10 regarding the analysis of water transfers within the EIR (Appendix 3H, Non-Project Water Transfer Analysis for Delta Conveyance), the operation of the project, and the Yuba Accord.

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	("YCWA") may transfer up to 200,000 under Corrected Order WR 2008-0014 for Long-Term Transfer and, "In any year, up to 120,000 AF of the potential 200,000 AF transfer total may consist of groundwater substitution. (YCWA-1, Appendix B, p. B-97.)." Potential cumulative impacts from the Project and the YCWA Long-Term Transfer Program from 2008 - 2025 are not disclosed or analyzed in the DEIR. Moreover, the 2015-2024 Water Transfer Program could transfer up to 600,000 AF per year through the same period that the YCWA Long-Term Transfers are potentially sending 200,000 AF into and south of the Delta. How these two projects operate simultaneously could have a very significant impact on the environment and economy of the Feather River and Yuba River's watersheds and counties, as well as the Delta. The involvement of Browns Valley Irrigation District and Cordua Irrigation District in both long-term programs must also be considered. This must be analyzed and presented to the public in a revised DEIR. Also not available in the DEIR is disclosure of any issues associated with the YCWA transfers that have usually been touted as a model of success. The YCWA transfers have encountered troubling trends for over a decade that, according to the draft Environmental Water Account ("EWA") EIS/EIR, are mitigated by deepening domestic wells (2003 p. 6-81). While digging deeper wells is at least a response to an impact, it hardly serves as a proactive measure to avoid impacts. Additional information finds that it may take 3-4 years to recover from groundwater substitution in the south sub-basin although YCWA's own analysis fails to determine how much river water is sacrificed to achieve the multi-year recharge rate.	

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	None of this is found in the EWA EIS/EIR. What is found in the EWA EIS/EIR is that even the inadequate SACFEM2013 modeling reveals that it could take more than six years in the Cordua Irrigation District area to recover from multi-year transfer events, although recovery is not defined (pp, 3.3-69 to 3.3-70). This is a very significant impact that isn't addressed cumulatively.	
516-31	The Lead Agencies have failed to consider the cumulative impacts of other groundwater development and surface water diversions affecting the Sacramento Valley b) General Plans The cumulative impacts on water supply from Sacramento Valley General Plans must be considered as well as the significant agricultural crop and land use changes that have taken and are taking place. AquAlliance must emphasize again that existing conditions in the Sacramento River Watershed, that is so crucial to California's population, economy, and environment, and therefore the Project, must be more accurately understood and described, so that impacts may be more accurately assessed from the Project.	Please see Common Response 1, CEQA Process, General Approach to Analysis, Other Environmental Review Issues, for a description of the overall approach for analyzing cumulative impacts in the EIR. Please also see Appendix 3C, Defining Existing Conditions, No Project Alternative, and Cumulative Impact Conditions, which describes the approach to the cumulative impact analysis used in the EIR and includes a full list of potential projects on the cumulative project list. As shown in the appendix table titled Descriptions of Programs, Projects, and Policies Considered for Existing Conditions, No Project Alternative, and Cumulative Impact Analysis, general plans in the Sacramento Valley (e.g., the Alameda East County General Plan, Contra Costa County General Plan 2005-2020, Sacramento County General Plan of 2005-2030, and San Joaquin County General Plan Update) are included in the cumulative project list and are evaluated as appropriate in each resource chapter. These general plans are accurate representations of land use changes that have taken and are taking place in the Sacramento Valley. The changes in agricultural crops that have and are taking place in the study area are described in Chapter 15, Agricultural Resources, in the section titled Study Area Crop Types and Distribution and in the table titled 2018 Crop Acreages in the Study Area by County, which provides the acreages of crops grown in the study area by county in 2018.
516-32	1. The Lead Agencies have failed to consider the cumulative impacts of other groundwater development and surface water diversions affecting the Sacramento Valley	Please see Common Response 1, CEQA Process, General Approach to Analysis, Other Environmental Review Issues regarding the process for the cumulative analysis and sources used to determine the scope of the cumulative project list in Appendix 3C, Defining Existing Conditions, No

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	c. Biggs-West Gridley The Biggs-West Gridley Water District Gray Lodge Wildlife Area Water Supply Project, a Bureau project, is not mentioned anywhere in the Vegetation and Wildlife or Cumulative Impacts sections. [Footnote 43 - http://www.usbr.gov/mp/nepa/nepa_projdetails.cfm?Project_ID=15381] This water supply project is located in southern Butte County where Western Canal WD, Richvale ID, Biggs-West Gridley WD, and Butte Water District actively sell water on a regular basis, yet impacts to Giant Garter Snake (GGS) from this project are not disclosed. GGS have been slaughtered during construction of this water supply project and survival of relocated snakes questionable. [Footnote 44 - Swaim, Mitchel 2015. GRAY LODGE WATER SUPPLY PROJECT - QUARTERLY COMPLIANCE REPORTs January and April 2015.] This is a serious omission that must be remedied in a recirculated DEIR.	Project Alternative, and Cumulative Impact Conditions. The Biggs-West Gridley Water District is approximately 50 miles north and upstream of the Delta Conveyance Project study area; therefore, it did not meet the criteria for the cumulative effects analysis. These criteria meet the standards of practicality and reasonableness in CEQA Guidelines Section 15130(b). The EIR provides an impact analysis of potentially significant impacts on giant garter snake, including environmental commitments and avoidance and minimization measures to avoid take of giant garter snake (refer to Chapter 13, Terrestrial Biological Resources, Impact BIO-30).
516-33	The Lead Agencies have failed to consider the cumulative impacts of other groundwater development and surface water diversions affecting the Sacramento Valley d. Other Projects i) Court settlement discussions between the Bureau and Westlands Water District (Congressional oversight still pending) over provisions of drainage service. Case # CV-F-88-634-LJO/DLB will further strain the already over allocated Central Valley Project with the following conditions: • A permanent CVP contract for 890,000 acre-feet of water a year exempt from acreage limitations.	Please see responses to comments 516-7 to 516-10 and 516-30 regarding water transfers and the evaluation in the EIR. As described in Chapter 4, Framework for the Environmental Analysis, Reclamation or a CVP contractor (or contractors) have not expressed interest in participating in the Delta Conveyance Project as project proponents. As described in Chapter 3, Description of the Proposed Project and Alternatives, only Alternatives 2a and 4a may involve existing CVP facilities. Please see Common Response 1, CEQA Process, General Approach to Analysis, Other Environmental Review Issues, regarding the study area for resources analyzed in Chapters 5–32 and areas upstream of the project and the cumulative analysis in the EIR. Please also refer to Common Response 3, Alternatives Development and Description, regarding Delta Conveyance Project's operations which does not include changes to State Water Project or Central Valley Project operations upstream of the proposed north Delta intakes. The outcomes of pending litigation and court settlement

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	• Minimal land retirement consisting of 100,000 acres; the amount of land Westlands claims it has already retired will be credited to this final figure. Worse, federal administrations have stated they will be satisfied with 100,000 acres of "permanent" land retirement. • Forgiveness of nearly $400 million owed by Westlands to the federal government for capital repayment of Central Valley Project debt.	discussions are considered speculative because the outcome is unknown and therefore would not be appropriate to consider in a CEQA cumulative impact analysis.
516-34	The Lead Agencies have failed to consider the cumulative impacts of other groundwater development and surface water diversions affecting the Sacramento Valley ii) Five-Year Warren Act Contracts for Conveyance of Groundwater in the Tehama-Colusa and Corning Canals – Contract Years 2018 through 2023.	Please see responses to comments 516-7 to 516-10 and 516-30 regarding water transfers and the evaluation in the EIR. Please see response to comment 516-33 regarding Reclamation involvement, the CVP system, and the upstream study area and upstream storage. As described in this response, effects upstream of the north Delta intakes would be limited or would not occur. Groundwater development and surface water diversions in the Sacramento Valley upstream of the north Delta intakes would not be affected.
516-35	1. The Lead Agencies have failed to consider the cumulative impacts of other groundwater development and surface water diversions affecting the Sacramento Valley[.] iii) Additional past, current, and future projects with cumulative impacts upon groundwater and surface water resources affected by the Project include the detailed list of water transfers since 1991 above (section A-1) [see comments 7-10] and: - The DWR Dry Year Purchase Agreement for Yuba County Water Agency water transfers from 2015-2025 to SLDMWA [The San Luis & Delta-Mendota Water Authority] [Footnote 45: SLDMWA Resolution # 2014 386 http://www.sldmwa.org/OHTDocs/pdf_documents/Meetings/	Please see responses to comments 516-28 to 516-34 and responses to comments referenced therein regarding cumulative impacts and groundwater. Please see Appendix 3C, Defining Existing Conditions, No Project Alternative, and Cumulative Impact Conditions, for a comprehensive list of programs, projects, and policies included in existing conditions and No Project Alternative assumptions and reasonably foreseeable probable future programs and projects. Some of the projects that the commenter has listed are no longer being pursued (e.g., GCID's Stony Creek Fan Aquifer Performance Testing Plan and "10-Wells Project") and are therefore not included in the cumulative analysis. Other projects mentioned such as the ACID Groundwater Production Element Project were previously completed and are included as part of baseline conditions.

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	Board/Prepacket/2014_1106_Board_PrePacket.pdf] - GCID's [Glenn-Colusa Irrigation District's] Stony Creek Fan Aquifer Performance Testing Plan to install seven production wells in 2009 to extract 26,530 AF of groundwater as an experiment that was subject to litigation due to GCID's use of CEQA[']s exemption for research. - Installation of numerous production wells that are used to facilitate water transfers in the area of origin, many with the use of public funds such as Butte Water District, [Footnote 46: Prop 13. Ground water storage program: 2003-2004 Develop two production wells and a monitoring program to track changes in ground.] GCID, Anderson Cottonwood Irrigation District, [Footnote 47: "The ACID Groundwater Production Element Project includes the installation of two groundwater wells to supplement existing district surface water and groundwater supplies." Originally found at: http://www.usbr.gov/mp/nepa/nepa_projdetails.cfm?Project_ID=8081]and Yuba County Water Authority [Footnote 48: Prop 13. Ground water storage program 2000-2001: Install eight wells in the Yuba-South Basin to improve water supply reliability for in-basin needs and provide greater flexibility in the operation of the surface water management facilities. $1,500,00] among others. - GCID's 10-Wells Project in 2015 proposed to install five new production wells and continue operating five additional production wells during dry and critically dry years for 8.5 months from approximately February 15-Mar[c]h 15 and April 1-November 15. The annual, maximum, cumulative total pumping was 28,500 AF and is more water than the annual use	

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	of the Chico district of California Water Service Company that serves over 100,000 people. [Footnote 49: California Water Service Company 2010 Urban Water Management Plan Chico-Hamilton City District, p. 32.]	
516-36	D. Conclusion The DEIR is seriously deficient as noted here and in the comments of Custis and Mish (Exhibits A and B) [see ATT 1 and ATT 2]. The failure of the Lead Agency to produce an adequate DEIR in 2022 after tremendous and repeated feedback from interested parties on past CEQA documents and at SWRCB hearings (BDCP and the WaterFix), causes us to wonder if DWR really wishes to pursue the Project. State spending on staff, attorneys, and consultants is exorbitant and seemingly endless. AquAlliance requests that DWR actually pay attention to these and other comments and correct the extensive flaws in the DEIR if the Project is truly a priority--otherwise save valuable resources and drop the project.	DWR has prepared the EIR in compliance with CEQA. The EIR provides a complete and adequate disclosure of potential impacts and proposes mitigation measures where needed to reduce those impacts. This comment does not provide a specific description of, or evidence supporting the assertion that the EIR is inadequate. DWR has reviewed all comments and will consider all comments in its decision-making process. Specific comments raising specific significant environmental issues relating to the proposed project or the adequacy, accuracy, or completeness of the Draft EIR are addressed herein.
516-37	[Att 1:] RE: Comments on the Department of Water Resources Delta Conveyance Project Draft Environmental Impact Statement, July 2022 This letter provides comments on the information provided in the July 2022 Department of Water Resources Delta Conveyance Project (DCP} Draft Environmental Impact Report (DEIR} related to potential impacts to groundwater resources in the Delta and the Sacramento Valley. These comments are based on reviewing chapters in the main DEIR document as well as Appendices, and Engineering Project Reports (EPR}. Review of multiple documents was needed to gain an understanding of the scope of the DCP. The comments are annotated with the chapter and/or page number of the source	This information describes the structure or organization of the comment letter, the background of the organization or individual commenter, clarification on the submittal of the comment letter, or general introductory text. It is not a comment on the contents of the Draft EIR. DWR has reviewed all comments and will consider all comments in its decision-making process.

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	document to facilitate further review.	
516-38	[Att 1:] Potential Impacts to Water Rights Holders and Well Owners in Sacramento Valley from Delta Conveyance Project 1. The Project Description Section 3.16.4 - Use of North Delta Intakes for Wheeling, in the DCP DEIR, and the Central Valley Project (CVP} that allows wheeling, which is the transmission of water owned by one entity through the facilities owned by another entity. The DEIR notes one of the JPOD objectives is facilitation of water transfers. Although the DEIR states that the Delta Conveyance Project ....is not proposed specifically to accommodate water transfers, new Delta conveyance facilities could provide the ability for water transfers to occur through the facility by providing increased capacity...The project can potentially {1} add additional export capacity if current facilities are limited and/or (2) provide additional efficiency in moving water transfers across the Delta by potentially lowering the required carriage water to export the transfer supplies. (page 3-147} Carriage water being ...the additional water needed for Delta outflow to compensate for the additional exports made on behalf of a transfer to assure compliance with the water quality requirements of the SWP and CVP. [Footnote 1: https://water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/State-Water-Project/Management/Water-Transfers/Files/Draft CarriageWaterOverview 20191101 ADA.pdf] The DEIR then states that analysis in Appendix 3H found that there is more than sufficient available export capacity for water transfers in all water year types with the current facilities. Maximum historical water transfers in each water year type were less than the permitted annual volumes. In	This comment provides a summary of content in Chapter 3, Description of the Proposed Project and Alternatives, as well as Appendix 3H, Non-Project Water Transfer Analysis for Delta Conveyance. Appendix 3H provides a discussion of the potential use of the north Delta intakes for water transfers. Please see response to comment 516-7 regarding the unused existing capacity for transfers in the system and the use of the north Delta intakes for transfers instead of the existing south Delta location. As described in that response, the project would not exacerbate potential effects described in the EIR because, in general, water transfers under operating conditions of the project would be the same as those described under existing conditions and required carriage water under a transfer at the north Delta intakes would maintain similar water quality conditions in the Delta regardless of transfer diversion location.

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	below normal years, when there is greater demand for water transfers, historical data shows there was still sufficient available export capacity even after water transfers were exported. (page 3-147) The north intake wheeling discussion concludes that potential direct or indirect impacts of water transfers needn't be discussed in this DEIR because even though the project may add additional export capacity, it is unlikely to increase the amount of water transfers, since the current capacity is not even fully utilized. (page 3-147) This statement seems to contradict the assertion that the north of the Delta intakes might reduce the carriage water requirement, thereby making more water available for transfer. The Department of Water Resources (DWR) overview of carriage water for non-project transfers indicates that …carriage water has varied between 20 to 35 percent of the transfer amount depending upon the hydrology and other operational parameters. [Footnote 1: https://water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/State-Water-Project/Management/Water-Transfers/Files/Draft CarriageWaterOverview 20191101 ADA.pdf]	
516-39	[Att 1:] Appendix 3H states that [a] component of the proposed Delta Conveyance Project (project) and project alternatives is the opportunity to accommodate water transfers. The DEIR assumes that environmental impacts from long-term water transfers are based on the available water transfers amounts from sellers analyzed in the 2021 Bureau of Reclamation (BOR) Long-Term Water Transfers Environmental Impact Report/Environmental Impact Statement (LTWT) Record of Decision (ROD). The volume of maximum transfer analyzed in the LTWT apparently didn't include potential buyers that are	Appendix 3H, Non-Project Water Transfer Analysis for Delta Conveyance, uses the 2021 Reclamation document as a source of information to characterize the water year type and volume of water that have occurred in transfers. Environmental impacts associated with water transfers are analyzed in the Reclamation document; the Delta Conveyance Project does not include water transfers as a project element (see Chapter 3, Description of the Proposed Project and Alternatives in the section titled Use of North Delta Intakes for Wheeling). Please see response to comment 516-7, which states that the responsibility of disclosing potential environmental effects of water transfers is that of the willing buyer and

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	not State Water Project (SWP) Contractors. (Appendix 3H, Section 3H.2.2)	seller. In addition to the water transfer volume information in the 2021 Reclamation document, Appendix 3H also uses the Feather River Service Area and Lower Yuba River Accord assumed water transfer supplies, which were included in addition to the information from the 2021 Reclamation document to represent additional sellers for SWP-related transfers.
516-40	[Att 1:] The DEIR doesn't appear to consider the environmental impacts from one-year transfers, which have become all too common in recent years, because those types of transfers aren't part of the LTWT [Long-Term Water Transfers Environmental Impact Report/ Environmental Impact Statement] or DWR's Transfer Program proposal requirements. [Footnote 2: https://water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/State-Water-Project/Management/Water-Transfers/Files/Draft_WTWhitePaper_20191203.pdf] Short term or temporary transfers of post-1914 appropriative water rights, transfers of one-year or less, receive expedited review by the State Water Resources Control Board (SWRCB) per Water Code (WC) §1725, et seq. To approve a WC §1725 transfer, the SWRCB must find that the transfer doesn't injure any legal user of the water or unreasonably affect fish, wildlife, or other instream beneficial uses. Water transfers approved by the SWRCB under §1725 are exempt from California Environmental Quality Act (CEQA), Public Resources Code, Division 13, §21000 (Water Code §1729). The DCP north of the Delta intakes will likely make these one-year transfers of Sacramento Valley water easier and more profitable by allowing 20% to 30% more water for export because of the reduction in required carriage water to export the transfer supplies. These one-year transfers include groundwater substitution transfers.	Water transfers are performed between willing buyers and sellers and are qualitatively included in existing conditions and the No Project Alternative because they would occur with or without the proposed Delta Conveyance Project (see Appendix 3C, Defining Existing Conditions, No Project Alternative, and Cumulative Impact Conditions). DWR's role would be limited to conveying the transfer water through the SWP if capacity is available as required by law. As described in Appendix 3H, Non-Project Water Transfer Analysis for Delta Conveyance, water transfers can occur within a year and between years and have done so between 1995 and 2020. DWR incorporated information from various documents regarding water transfers during this timeframe, including documents that evaluated groundwater substitution. Potential changes to the system during a water transfer are described in Appendix 3H. As disclosed in the appendix, even though the Delta Conveyance Project may add additional export capacity, it is not reasonably foreseeable that it would increase the amount of water transfers, since the current capacity is not fully utilized. The project would not exacerbate or worsen potential effects of water transfers because, in general, water transfers under operating conditions of the project would not change from those that occur under existing conditions. The volume of carriage water could decrease because of the potential use of the north Delta intakes for a water transfer; however, as described in Appendix 3H, regulatory requirements would still govern inflow and outflow requirements of the Delta, and this volume of water would still be required as part of the carriage for facilitating any transfer. Furthermore, the responsibility of disclosing potential environmental effects of water transfers is that of the willing buyer and seller conducting the transfer and

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		not DWR. All environmental effects would be taken into consideration during the time of the transfer by the willing buyer and seller.
516-41	[Att 1:] 3. In assuming the LTWT [Long-Term Water Transfers Environmental Impact Report/Environmental Impact Statement] evaluation of transfer environmental impacts is accurate, the DCP DEIR appears to assume that the transfer year one-time 13%, or greater, stream depletion adjustment for groundwater substitution transfers is a valid reduction in transfer amount that compensates for the additional loss in surface water flows from transfer groundwater pumping. [Footnote 2: https://water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/State-Water-Project/Management/Water-Transfers/Files/Draft_WTWhitePaper_20191203.pdf] AquAlliance has previously provided extensive comments on the inaccuracy of the 13% LTWT–DWR stream depletion adjustment for groundwater substitution transfers. [Footnote 3: See my previous comments on transfers in AquAlliance exhibits AQUA-29 through AQU-32, and AquAlliance comments in exhibits AQUA-37 through AQUA-42 at SWRCB's WaterFix FTP site: https://www.waterboards.ca.gov/waterrights/water_issues/programs/bay_delta/california_waterfix/exhibits/cspa_et_al.html] The assumption that stream depletion from groundwater substitution pumping occurs only in the year of transfer is inconsistent with the scientific literature and apparently with the modeling conducted to determine stream depletion factor. In a recent presentation to the SWRCB staff on Streamflow Depletions [Footnote 4: MBK Engineers, Gary Kienlen, January 26, 2022, Streamflow Depletions, 24 slide page presentation to SWRCB staff via Teams; document obtained from SWRCB staff	Please see responses to comments 516-7 through 516-10, 516-38, and 56-40 regarding the consideration of water transfers and groundwater. As described in Chapter 2, Purpose and Project Objectives, the basic objective of the Delta Conveyance Project is to restore and protect the reliability of SWP water deliveries, and the project is not proposed specifically to accommodate water transfers. The Delta Conveyance Project helps meet this objective by constructing and operating new water supply facilities within the Delta. The Delta Conveyance Project is not proposing changes to operations or amount of storage provided by upstream facilities and also does not preclude future changes to the state's water supply either through modifications of the operation of existing facilities or increasing water storage. Appendix 3H, Non-Project Water Transfer Analysis for Delta Conveyance, provides an analysis of the available export capacity for water transfers with current facilities to determine if current facilities limit the export of transfer water. The analysis concluded that, even though the project may add additional export capacity, it is unlikely to increase the amount of water transfers, since the current capacity is not even fully utilized.

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	member Kathryn Gaffney] from groundwater substitution pumping, attached as Exhibit 2 [see ATT 1 ATT2], MBK Engineering presented a Timing of Recharge graph on page 17 that shows the results of model simulations of the timing of cumulative recharge to groundwater from groundwater pumping for a single year transfer. The model simulations apparently evaluated streamflow depletion for 10 different types of years (see page 11 in MBK presentation) and found stream depletion to range from 14% to 41% of pumping (see pages 11 and 18 in MBK presentation). Attached Exhibit 1 [see ATT 1 ATT 1] is a modification of the Timing of Recharge graph from page 17 of the presentation with percentages of cumulative recharge estimated for years 2 through 9 after the start of pumping or a single transfer event. This graph shows that streamflow depletion continues for at least 9 years following one year of transfer pumping. If the 1976 curve is assumed to be an average of the simulations, the cumulative recharge during 9 years is approximately 86% of the total volume pumped during year 1. The cumulative timing of recharge curve in Exhibit 1 is typical of a groundwater pumping stream depletion curve with depletion continuing after pumping stops. [Footnote 5 -See Barlow, P.M, and Leake, S.A. 2012, Streamflow depletion by wells: understanding and managing the effects of groundwater pumping on streamflow, USGS Circular 1376; https://pubs.usgs.gov/circ/1376/] The LTWT–DWR one-year stream depletion adjustment for a groundwater substitution transfer doesn't account for this multi-year loss of stream flow. The assumption that streamflow depletion from a groundwater substitution transfer occurs only in the year of transfer fails to recognize that stream flow losses are additive. That is, the total streamflow depletion from	

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	repeated years of groundwater substitution transfers is the sum of the depletion from each individual year with offsets based on the differences between the first transfer year and subsequent transfer years. The LTWT–DWR transfer procedures require only a 22.3% streamflow depletion adjustment in the year of the transfer. This means that there is no accounting for the depletion after the year of transfer, an additional cumulative loss by the end of year 9 of approximately 64% of the total pumped volume. The failure to fully account for the total stream depletion groundwater substitution transfers likely encourages this type of transfer to the detriment of the source area in both the loss of groundwater storage and the reduction in stream flow.	
516-42	[Att 1:] 4. The apparent conclusion reached in the DEIR is that the DCP can facilitate more water transfers from sellers north of the Delta to buyers south of the Delta, but won't increase what would occur without the DCP and therefore the DEIR doesn't need to consider any potential impact from transfers. This seems to directly contradict the findings and conclusions reached by the environmental impact assessments done in the past for the WaterFix Project. In Part 1 of my WaterFix testimony in 2016 before the SWRCB [Footnote 6: All AquAlliance's testimony and exhibits can be downloaded from the SWRCB's WaterFix FTP site at: https://www.waterboards.ca.gov/waterrights/water_issues/programs/bay_delta/california_waterfix/exhibits/cspa_et_al.html] I listed relevant statements from the 2013 WaterFix DEIS/DEIR and 2015 RDEIR/SDEIS about the potential changes in flow in the Sacramento River and the groundwater levels that might occur with the anticipated increase in water transfers from the use of the WaterFix tunnels. Although the 2022 DCP project will construct only one tunnel, it still	Please refer to responses to comments 516-7 through 516-10, 516-38, and 516-40 regarding the consideration of water transfers in the EIR. This comment is regarding the Bay Delta Conservation Plan/California WaterFix project and the comment does not directly address the Delta Conveyance Project Draft EIR. DWR is not required to respond to comments on projects that are no longer being pursued, including BDCP/CWF. However, DWR has reviewed the comment's content to determine whether the comment may be applicable to the proposed Delta Conveyance Project. The comment claims the information cited from BDCP/California WaterFix documents is applicable to the Delta Conveyance Project; however, the assumptions regarding water transfers for the Delta Conveyance Project, as well as the description of the operation of the Delta Conveyance Project, are much different from those used in the BDCP/California WaterFix analysis. Therefore, any information or conclusions referenced by the comment are no longer applicable. As explained in Common Response 3, Alternatives Development and Description, the Delta Conveyance Project operations do not include changes to State Water Project or Central Valley Project operations upstream of the proposed north Delta intakes and Common Response 1, CEQA Process, General Approach to Analysis, Other

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	proposes to create two new northern points of diversion to route river flows around the Delta, which creates new opportunities to transfer water. The text \of my 2016 Part 1 WaterFix testimony is attached as Exhibit 21, while the exhibits to the testimony can be downloaded from the SWRCB's WaterFix website. [Footnote 6: All AquAlliance's testimony and exhibits can be downloaded from the SWRCB's WaterFix FTP site at: https://www.waterboards.ca.gov/waterrights/water_issues/programs/bay_delta/california_waterfix/exhibits/cspa_et_al.html] Some of the relevant discussions on potential impacts from new points of diversion north of the Delta taken from the 2013 and 2015 WaterFix environmental impact and assessment documents that conflict with the 2022 DCP DEIR conclusions but are likely still applicable include: - ...Overall, there could be changes in diversion patterns throughout the year for SWP and CVP water users in the Sacramento Valley, other water rights water users located in the Sacramento River and in the Delta, and Delta exports. The changes could differ by water year type. (2015 RDEIR/SDEIS, Section 5.2.2.1) - To the extent that implementation of the cumulative projects reduces SWP and CVP Delta exports, there would be a cumulative effect on cross-Delta water transfers evidenced as an increase in the frequency of water transfer demands and an increase in the average annual cross-Delta transfers. (2015 RDEIR/SDEIS, Section 5.2.2.1) - ...Transfer water could potentially be moved at any time of the year that capacity exists in the new BDCP cross-Delta	Environmental Review Issues, describes the selection of study areas(s) for evaluation in the EIR and provides a discussion of areas upstream of the north Delta intakes. Potentially significant environmental impacts that are associated with the operation of the project are addressed in Chapters 7–32, as applicable. As described in the other responses to comments noted in this response, even though the Delta Conveyance Project may add additional export capacity, it is not reasonably foreseeable that it would increase the amount of water transfers, since the current capacity is not fully utilized and inflow and outflow regulatory requirements would still be met even if carriage water volumes are reduced. Furthermore, the issues raised by the comment related to water transfers (e.g., crop shifting and groundwater storage) are not applicable with regard to the operation of the Delta Conveyance Project.

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	facility and the export pumps, depending on operational and regulatory constraints. If the new north Delta facilities are not restricted to the current July through September transfer export window, crop idling or crop shifting based transfers may become a more viable source of transfer water for much of the Sacramento Valley. (2013 DEIR/EIS, Section 30.3.6) - ... (1) [t]ransfers could lead to decreased reservoir storage levels if additional transfers result in the release of water from a reservoir when it would otherwise have been stored; (2) [t]ransfers of water could also change the rate and timing of flows in the Sacramento River and its tributaries; (3) [t]he incidence and magnitude of changes in flows would depend on the volume of water transferred and the scheduled release of that water; (4) [f]lows could also vary as a result of groundwater substitution-based transfers due to changes in the timing of surface water releases and the interaction between stream flows and groundwater (Bureau of Reclamation 2010); and (5) [t]his could result in an increase in groundwater recharge from surface water (i.e. accretion) or a reduction of groundwater that would otherwise have discharged into surface water (i.e. depletion). (2013 DEIR/EIS, Section 30.3.6.1) - ...(1) [g]roundwater pumping could result in the lowering of local groundwater levels, which could create environmental effects including depletion of streamflow or depletion of groundwater flow that would otherwise have caused an increase to streamflow in absence of the transfer; (2) ... yield from groundwater wells may be reduced while the costs to pump groundwater could increase as a result of declining groundwater levels; [g]roundwater	

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	drawdown could temporarily exceed historical seasonal fluctuations and dry years could extend the period necessary for recovery of groundwater levels; ..; (4) ...groundwater pumping could add to the potential for subsidence by decreasing groundwater levels, which could allow consolidation of underlying clay beds; (5) while subsidence is a gradual process, in extreme cases it could create problems for flood control, infrastructure, and water distribution systems; and (6) [g]roundwater substitution transfers could also result in changes in groundwater quality because pumping can alter local groundwater levels, flow patterns can change and surface water could be drawn into the groundwater. (2013 DEIR/EIS, Section 30.3.6.2) - [t]he Delta pumps are currently unlikely to have available capacity for transfers at the start of the irrigation season under conditions imposed by the Biological Opinions. This constraint may be removed, however, if the transfer water is moved in BDCP facilities. (2013 DEIR/EIS, Appendix 5C, Section 5C.10.2.1)	
516-43	[Att 1:] 5. The assertion in this 2022 DCP DEIR that there is ample capacity for water transfers also appears to conflict with statements in the December 2019 Draft Technical Information for Preparing Water Transfer Proposals prepared by DWR and BOR [Bureau of Reclamation]. [footnote 7 - https://water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/State-Water-Project/Management/Water-Transfers/Files/Draft_WTWhitePaper_20191203.pdf] Section 1.2 in this document discusses the risks and constraints of water transfers and states that: "Buyers and sellers should be aware of the uncertainty and risk associated with	The content in the EIR does not support the assertion that the Delta Conveyance Project EIR conflicts with the statements in the December 2019 Draft Technical Information for Preparing Water Transfer Proposals prepared by DWR and the Bureau of Reclamation. The text in the December 2019 draft technical document characterizes the factors that influence the ability to successfully execute a transfer. Capacity constraints of infrastructure are one factor that affects the ability to transfer water. Beyond capacity constraints, as noted in the 2019 draft technical document, there is uncertainty and risk. Uncertainty and risk with water transfers may include carriage water requirements, which are described in Appendix 3H, Non-Project Water Transfer Analysis for Delta Conveyance, of the Delta Conveyance Project EIR.

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	water transfers. The Project Agencies cannot guarantee that a particular transfer will be successful even with adequate planning, regulatory approval, and monitoring due to the uncertainties related to California's hydrologic conditions, regulatory restrictions on Project Agencies' operations, and the availability of Project Agencies' facilities. As the hydrology gets wetter, there is typically less available capacity to export transfer water through the Delta. Buyers and sellers located in the Delta or the Yolo Bypass should contact the Project Agencies for specific risks that may affect their transfer proposal. Project Agencies' operations are governed by a number of regulatory restrictions, including State Water Resources Control Board (SWRCB) Decision 1641 (D1641), the 2008 U.S. Fish and Wildlife Service (USFWS) biological opinion for the coordinated operations of the CVP and SWP and its effects on the listed Delta smelt, and the 2009 National Marine Fisheries Service (NMFS) biological opinion for the coordinated operations of the CVP and SWP and its effects on listed anadromous fish and marine mammals. Current federal Endangered Species Act (ESA) consultations for export of transfer water through Banks and Jones Pumping Plants covers the period of July through September,	

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	and transfers will be limited to this interval. Limitations on CVP and SWP Delta operations in the early winter and spring months often result in the need to maximize Project exports during July through September, which can further limit the available export capacity for water transfers. The transfer proponents assume the risk that all, or a portion of, the water made available from the water transfer cannot be exported and may be lost."	
516-44	[Att 1:] 6. Since the conclusion of the WaterFix Project, the Sustainable Groundwater Management Act of 2014 (SGMA) has been implemented in the Sacramento Valley. Sacramento Valley groundwater sustainability plans (GSPs) were submitted in January 2022 for numerous groundwater subbasins, and those plans have received public comment and are now being reviewed by DWR. AquAlliance and others have provided extensive comments on the Draft and Final GSPs for the Colusa (5-021.52), Butte (5-021.70), Vina (5-021.57), and Corning (5-021.51) subbasins, which are all high priority subbasins. The complete sets of comments can be found at DWR's SGMA Portal website. 8 [Footnote 8: SGMA documents are available at: https://sgma.water.ca.gov/portal/gsp/status] As part of AquAlliance's review of the four GSPs, exhibits were provided that are modifications of the surface water and groundwater budgets tables included each of the four GSPs. The GSP water budget tables were modified by adding columns that calculate the difference in acre-feet-per-year (AFY) and percentage change between the baseline Historical water	The comment indicates that groundwater pumping, as a result of water transfers, would substantially increase or worsen conditions in groundwater basins north of the project in 2070 with the Delta Conveyance Project (compared to a without-project condition). The Chapter 8, Groundwater, section titled Cumulative Impacts of Project Alternatives acknowledges that any of the alternatives implemented, in conjunction with programs and projects listed in the Chapter 8 table titled Cumulative Impacts on Groundwater from Plans, Policies, and Programs (e.g., SGMA Implementation) are anticipated to have more beneficial impacts on groundwater than adverse impacts. Please also see response to comment 516-18 and Common Response 8, Relationship to Other Plans, Projects, Policies and Programs, regarding Sustainable Groundwater Management Act (SGMA) and Groundwater Sustainability Plan (GSPs). Furthermore, Appendix 4A, Consideration of 2070 Conditions, considers conditions in 2070. It is difficult to predict the cumulative effect of implementation of numerous SGMA projects (since each one is generally focused on only a part of the aquifer). As described in Common Response 1, CEQA Process, General Approach to Analysis, Other Environmental Review Issues, and Common Response 6, Climate Resilience and Adaptation, DWR readily acknowledges that the EIR addresses several topics for which there is some

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	budget and the Future 2070 Climate Change budget. Rows were also added at the bottom of the tables that summarize the changes between the Historical and 2070 Future scenarios, including the change in groundwater storage, net stream flow gains (accretion minus seepage), and net stream flow gains relative to the change in groundwater pumping. The modified tables from AquAlliance's GSP comments are attached as Exhibits 3 through 15. [See ATT 1 ATTs 3-15] The attached modified water budget tables show that the proposed sustainable management for all four subbasins anticipates that under the Future 2070 Climate Change scenario the change in groundwater pumping over the Historical baseline will range from a slight decline of approximately 2% in the Vina subbasin to an approximate 48% increase in the Butte subbasin. This change in groundwater pumping is accompanied by changes in seepage (surface water recharging groundwater), and accretion (stream gains from groundwater discharge). Seepage recharge to groundwater will increase over baseline from approximately 14% to 31% in these four subbasins, while the amount of accretion to stream from groundwater will decline from -12% to -43%. See those portions of Exhibits 3, 5, 7 and 10 [See ATT 1 ATTs 3, 5, 7, and 10] that are enclosed in red boxes. Overall, the net change in stream flow gains is a loss of -37% to -466% when compared to the Historical baseline, with the net volume of change in stream flow gains ranging from -6,300 AFY to -189,100 AFY. The ratio of the change from the Historical baseline in groundwater pumping to the net stream flow gains ranges from 104% to 287%. Note that while the Vina subbasin	scientific uncertainty, including climate change. Please see Common Response 1 regarding the study area for resources analyzed in Chapters 5–32 and areas upstream of the project. Please see responses to comments 516-7 to 516-10, 516-38, 516-39, and 516-40 regarding water transfers and the water transfer analyses contained in Appendix 3H, Non-Project Water Transfer Analysis for Delta Conveyance. As described in those responses and in Appendix 3H, water transfers can occur within a year and between years and have done so between 1995 and 2020. DWR incorporated information from various documents regarding water transfers, including documents that evaluated groundwater substitution, crop idling, and reservoir releases, which are typical examples of activities that occur during water transfers. Therefore, for the current facilities, available export capacity should be sufficient to move future water transfers, and adding the project facilities for all the alternatives is not expected to affect the amount of water transfers that may occur during any water year type. Inflow and outflow regulatory requirements would still require water even if carriage water volumes are reduced. Furthermore, the use of the north Delta intakes in a water transfer would not change the operations as described within Chapter 3, Description of the Proposed Project and Alternatives, because the Delta Conveyance Project would operate within the criteria and parameters described in the EIR, permits, and to meet regulatory standards.

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	Future 2070 Climate Change budget calculates a decrease in groundwater pumping, the net stream flow gains still decrease, which produces a positive value for the percentage of change. These four high priority groundwater subbasins are a source for many of the groundwater substitution transfers. The proposed GSPs for management of these groundwater subbasins anticipate an increase in groundwater pumping and a decrease in net stream flow gain. However, the impacts of groundwater substitution transfers were apparently not considered in the simulation of future conditions. [Footnote 9 - Colusa GSP states that [i]n the historical simulation, surface water supplies implicitly reflect historical surface water transfers and any effects of transfers on groundwater pumping. In the current conditions and future conditions scenarios, possible future water transfers (unrelated to GSP projects) were considered but not simulated, as they were considered to be highly speculative. Colusa Subbasin Final GSP, December 2021, Section 3.3.3, page 3-87] As discussed above, it is reasonable to conclude that the DCP's intakes north of the Delta will likely make transfers of Sacramento Valley water to buyers south and west of the Delta easier and more profitable, which would include groundwater substitution transfers. Increasing the number of groundwater substitution transfers will increase the anticipated groundwater pumping and likely increase the losses in surface water flows, especially when the full multi-year stream depletion losses aren't being accounted for with the current LTWT [Long-Term Water Transfers Environmental Impact Report/Environmental Impact Statement] or the WC 1725 transfer permitting processes. Increasing groundwater pumping would also likely make groundwater management of these subbasins more complex	

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	and may hinder the progress in achieving long-term groundwater basin sustainability. The future reduction in stream flow gains will apparently occur with the implementation of the sustainability projects and management actions in the GSPs. Many of the planned and proposed groundwater sustainability projects and management actions will increase groundwater recharge using diversions of surface water, which will likely decrease stream flows. Taken together, the potential DCP-caused increases in transfers and the GSP-planned increase in surface water diversions for recharge may at different times during the year and in different water years decrease the surface water flows that reach the Delta. The management actions and projects in the subbasins shouldn't be considered mitigation measures for the DCP, regardless of whether the subbasins achieve the goals of the GSPs. The discussions and analyses in GSPs regarding water supply and resources aren't a substitute for a full and accurate disclosure and analyses of the potential DCP project impacts.	
516-45	[Att 1:] 7. Because of the acknowledged potential for the tunnel to increase the number and frequency of water transfers south and west of the Delta, a revised DEIR should be prepared that provides analyses of the potential for environmental impacts from construction and operation of the DCP tunnel to water rights holders, groundwater well owners, groundwater dependent ecosystems, and habitat and wildlife in Sacramento Valley. The revised DEIR should include monitoring and mitigation measures that protect the Delta and the water resources and wildlife of the Sacramento Valley, including integration with the groundwater management actions and projects in the final approved GSPs. Environmental	Please see responses to comments 516-7 to 516-10, 516-38, and 516-40 regarding water transfers and the water transfer analyses contained in Appendix 3H, Non-Project Water Transfer Analysis for Delta Conveyance, including water transfers at the north Delta intakes. A revised Draft EIR is not required because even though the Delta Conveyance Project, as an element of the SWP, may be used to facilitate water transfers, it is not reasonably foreseeable that it would increase the amount of water transfers, since the current available capacity of the SWP is not fully utilized. Inflow and outflow regulatory requirements would still be met even if carriage water volumes are reduced. Furthermore, the use of the north Delta intakes in a water transfer would not change the operations as described within Chapter 3, Description of the Proposed Project and

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	impacts and questions that should be addressed in a revised DEIR include but are not limited to: a. What environmental impacts might occur if the DCP tunnel adds additional export capacity for water transfers? B. What changes in the permit and environmental requirements should occur if the DCP tunnel adds additional export capacity for water transfers? C. What changes in the permit terms and conditions, and environmental requirements should occur if water transfers occur outside of the July to September export window? D. If the number of water transfer days each year is increased because of the DCP tunnel, what are the environmental impacts to surface water and groundwater users in the Sacramento Valley? E. Will an increase in the number of days or volume of water transfers result in additional groundwater substitution, crop idling, crop shifting, or other types of water transfers from the Sacramento Valley to buyers south and west of the Delta? F. How will an increase in the number of groundwater substitution transfers affect the Sacramento Valley surface water flows and the habitats and wildlife that depend on those flows, such as fisheries and groundwater dependent ecosystems?	Alternatives, because the Delta Conveyance Project would operate within the criteria and parameters described in the EIR, permits, and to meet regulatory standards. As described in Appendix 3H, the volume of carriage water could decrease because of the potential use of the north Delta intakes for a water transfer, and the effects of reduced carriage water requirements are addressed in the appendix and relevant chapters in the EIR, including Chapter 9, Water Quality. As described in the appendix and EIR chapters, the reduced carriage water volume from use of the north Delta intakes would have little effect on water quality.

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	G. What environmental impacts would an increase in the number of days or volume of water transfers have on the sustainability of the groundwater subbasin in the Sacramento Valley? H. What additional management actions, mitigation measures, and/or permit terms and conditions are needed to ensure that the groundwater subbasins of the Sacramento Valley can achieve long-term sustainability when water transfers utilize the DCP tunnel or increase in total due to the construction of the DCP? i. What management actions, mitigation measures, and/or projects should be added to the GSPs for Sacramento Valley to ensure that the groundwater subbasin achieve long-term sustainability should the DCP tunnel become operational? J. Why does the environmental analysis of water transfers for the DCP tunnels fail to acknowledge the potential impacts identified in the earlier WaterFix project's environmental analysis, which include the potential for changes in diversion patterns; increases in frequency and volume of cross-Delta transfers; potential changes in reservoir storage, reservoir releases, groundwater pumping, and subsidence; and the associated potential problems with flood control, infrastructure, and water distribution systems?	

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	K. How will the quantity and quality of water available for transfer be affected if the permit conditions for groundwater substitution water transfers continue to require only one year of compensation for the known multi-year loss of streamflow? L. What actions, mitigation measures, and permit terms and conditions are needed to ensure that water transfers account for the multiple years of streamflow depletion caused by a groundwater substitution transfer? M. What additional environmental impacts might occur from buyers that are not State Water Project Contractors that utilize the DCP tunnel for water transfers? N. How often and under what conditions will non-State Water Project Contractors be able to participate in water transfers that utilize the DCP tunnel?	
516-46	[Att 1:] Potential Impacts to Water Rights Holders and Well Owners in Sacramento Valley from Delta Conveyance Project 8. In the July 2022 DEIR for the DCP, DWR has identified Alternative 5, the Bethany Reservoir alignment with two intakes and 6,000 cubic feet per second (cfs) conveyance capacity, as the proposed project (page ES-13 and Figure ES-2). The environmental analysis of potential DCP impacts to groundwater resources is given in Chapter 8 - Groundwater, and its Appendices 8A through 8C. In addition, there are Engineering Project Report (EPR) technical memoranda for the Central and Eastern alignments and the Bethany Reservoir alternative that address multiple issues including tunneling	This comment identifies the project description for Alternative 5. Chapter 8, Groundwater, and its appendices, engineering project reports, and technical memoranda include a project timeline for the Bethany Reservoir alternative. Appendix 23B, Air Quality and GHG Analysis Activity Data, in a table titled Construction Assumptions—Construction Schedule, provides the assumed construction start dates for all of the project elements. The construction schedule was developed to support air quality and other analyses that depend on construction durations. This table indicates that general construction for the Bethany Reservoir alternative is assumed to begin in approximately 2026. Detailed design of project facilities would occur after certification of the Final EIR, approval of applicable permits, and approval of the project.

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	effects, levee vulnerability, liquefaction and ground improvement, and potential future field investigations.[Footnote 10: Technical memoranda available at: https://www.dcdca.org/info-center/document-library/#Engineering-Project-Reports] A detailed project timeline for the Bethany Reservoir alignment is given in technical memorandum file 017B - Preliminary Construction Schedules for Bethany Reservoir Alternative, which shows the project construction continuing for approximately 14 years. Geotechnical, soils, groundwater, and buried well investigations will be completed as part of the design phase (Sections 5.7 and 6.3 in file 001 1 B EPR Narrative Report.pdf). The total time for the design phase is unclear as the construction schedule starts with notice to proceed (NTP) for Early Works, which is the work required to provide access and utilities to each work site (Section 3.1 in file 017B).	Regarding water rights holders and well owners, please refer to Common Response 3, Alternatives Development and Description, for a discussion of water rights, contracts, and the use of water. The Delta Conveyance Project would not modify existing water rights and does not propose to convey water supplies beyond those that are currently allowed by existing water rights or contracts. Please see Common Response 8, Relationship to Other Plans, Projects, Policies, and Programs, regarding other statewide activities related to water management being led by different state agencies with different authorities over the water management system in California.
516-47	[Att 1:] 9. The DEIR groundwater analysis includes development of a new integrated groundwater–surface water model, called the DeltaGW Model (Section 8.3.3.1). The DeltaGW Model is based on DWR's Integrated Water Flow Model platform. The DeltaGW Model uses the same model grid structure as DWR's C2VSim-FG model, but covers a smaller model domain that includes the Delta and surrounding areas (Figure 8-3). However, the DeltaGW Model is a completely independent and separate model from C2VSim-FG. The conclusions regarding potential environmental impacts to groundwater resources are based extensively on the results of the DeltaGW Modeling effort. The DEIR states that … quantitative analysis of effects of project operations includes evaluation of resultant changes in groundwater elevations (including associated effects on supply wells and agricultural drainage systems), groundwater storage, and interconnected	This comment quotes content from Chapter 8, Groundwater, of the Draft EIR and does not raise a significant environmental issue associated with the Delta Conveyance Project. DWR has reviewed all comments and will consider all comments in its decision-making process.

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	surface water systems… (page 8-13). While [t]he effects of project operations on land subsidence and groundwater quality resulting from changes in groundwater conditions were also evaluated qualitatively due to the lack of an available analytical tool… (page 8-14).	
516-48	[Att 1:] 10. The DEIR describes the groundwater condition of the Delta as having "extensive groundwater– surface water interaction…" Because the Delta is a large floodplain and the shallow groundwater is hydraulically connected to the surface water, changes in river stages affect groundwater levels and vice versa (Section 8.1.3.1). During runoff from the snow melting in the Sierra Nevada, the flows increase in the Sacramento and San Joaquin Rivers and tributaries, which results in the rise of shallow groundwater levels near the rivers. The fluctuations in tides and the associated changes in surface water flowing into and out of the Delta from the ocean should also affect nearby shallow groundwater levels.	This comment quotes content from Draft EIR Chapter 8, Groundwater, and does not raise a significant environmental issue associated with the Delta Conveyance Project. DWR has reviewed all comments and will consider all comments in its decision-making process.
516-49	[Att 1:] 11. The beneficial uses of groundwater in the Delta are described in Section 8.1.3.3 as: [g]roundwater also provides water supply for the Delta communities of Clarksburg, Courtland, Freeport, Hood, Isleton, Rio Vista, Ryde, and Walnut Grove. In the rural portions of the Delta, private groundwater wells provide domestic water supply (Solano Agencies 2005). In the central Delta, groundwater use is limited because of low well yields and poor water quality. Shallow groundwater occurring at depths of less than 100 feet is too saline and therefore not adequate for most beneficial uses. Approximately 200 square miles of the central Delta are affected by saline shallow groundwater (CALFED Bay-Delta Program 2000:5.4-7). Because shallow groundwater levels are detrimental when they encroach on crop root zones,	This comment quotes content from the Environmental Setting section of Draft EIR Chapter 8, Groundwater, and does not raise a significant environmental issue associated with the Delta Conveyance Project. The information was provided as context for the condition of some groundwater water resources within the Delta study area. As demonstrated in the Impacts of the Project Alternatives on Groundwater section in Chapter 8, neither construction nor operation of the proposed project or alternatives would result in a significant impact on existing groundwater resources. DWR has reviewed all comments and will consider all comments in its decision-making process.

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	groundwater pumping is used to drain the waterlogged agricultural fields. Groundwater pumping for agricultural irrigation mostly occurs in the north Delta for orchards and in the south Delta around the city of Tracy.	
516-50	[Att 1:] 12. In the discussion of future groundwater conditions, the DEIR assumed that with the No Project Alternative the State Water Project and Central Valley Project (SWP/CVP) operations would be like existing conditions (Section 8.3.2.1). The DEIR analysis expected that DWR and BOR [Bureau of Reclamation] would …..continue to operate the SWP and CVP to divert, store, and convey water consistent with applicable laws, contractual obligations, and permit requirements. The No Project Alternative also assumes there will be no construction or modifications to SWP or CVP facilities or operations criteria between 2020 and 2040, and the implementation of GSPs developed in response to the SGMA, including associated projects for the sustainable management of underlying groundwater basins. Elsewhere in the DEIR it states that [t]he 2040 No Project Alternative does include the projects that would move forward in the absence of the Delta Conveyance Project. However, the modeled representation of the 2040 No Project Alternative does not include those projects because of their programmatic nature. (Section 8.3.2.1, page 8-22) The DEIR did assume that groundwater conditions in the Delta, and SWP and CVP service areas would: …..vary under the No Project Alternative because of a variety of factors. Sea level rise, climate change, an increase in north-of-Delta urban water demands, and changes in land use could be expected to cause changes in SWP and CVP deliveries as compared to existing conditions, and could result in associated	This comment quotes content from Draft EIR Chapter 8, Groundwater and does not raise a significant environmental issue associated with the Delta Conveyance Project. The EIR assumes that there will be no changes in State Water Project and Central Valley Project operations under the No Project Alternatives. The first paragraph quoted in the comment highlights the assumptions used for the analysis. The second paragraph quoted by the comment is an acknowledgement of the uncertainty in assessing conditions in 2040.

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	changes in groundwater conditions as groundwater extractions may increase to make up for shortages in surface water deliveries until the high- and medium-priority groundwater basins are operated in compliance with SGMA. Additionally, the implementation of GSPs submitted in 2020 for critically overdrafted subbasins (predominantly in the San Joaquin Valley) and the anticipated implementation of GSPs in noncritically overdrafted medium- and high-priority groundwater basins (predominantly in the Sacramento Valley) could result in the development of new programs and projects to achieve and maintain basin sustainability on a regional level, including the development of new surface water supplies, new groundwater recharge projects, and in some places, groundwater pumping curtailments. Implementation of the GSPs and the resulting achievement of groundwater sustainability by 2040 or 2042 would result in stable groundwater levels and the active management of groundwater extractions within predetermined operating ranges. (Section 8.3.2.1, page 8-21)	
516-51	[Att 1:] 13. The DEIR also states that climate change models predict more extreme winter precipitation events with more rainfall rather than snow, and more rapid spring snow melt (Section 8.3.2.1). These climate changes will affect the timing and volume of recharge to groundwater basins. In addition, [s]ea level rise, another anticipated impact resulting from climate change, could be expected to affect coastal groundwater basins directly by driving seawater further inland in the subsurface, and groundwater basins in and around the Delta indirectly by driving saltwater further inland in Delta surface water, resulting in changes to surface water management and releases from upstream freshwater reservoirs to offset the increased Delta water salinity levels.	SGMA is considered as part of the cumulative analysis contained in Chapter 8, Groundwater, in the section titled Cumulative Analysis. Please see Common Response 8, Relationship to Other Plans, Projects, Policies, and Programs, regarding consideration of Sustainable Groundwater Management Act (SGMA). The project would not affect the ability of groundwater managers upstream of the Delta to comply with the provisions of SGMA. For further information regarding the selection of study area(s) for evaluation in the EIR, including a discussion of areas upstream of the north Delta intakes, please see Common Response 1, CEQA Process, General Approach to Analysis, Other Environmental Review Issues. In addition, as described in Common Response 3, Alternatives Development and Description, the Delta Conveyance Project's operations do not include changes to State Water Project or Central Valley Project

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	The DEIR states that … only projects that are implemented within the DeltaGW Model domain could be included in the analysis. Potential projects under SGMA are not considered as part of this analysis. (Section 8.3.2.1, page 8-22) While the DEIR doesn't consider potential SGMA projects part of the DCP analysis, it does appear to assume that these unnamed future projects will be implemented by 2040 and that development of new surface water supplies and new groundwater recharge projects won't have any negative environmental impacts on the surface water flows either upstream or within the Delta. As discussed above in my comment no. 3, [see comment #40] the implementation of the GSPs as currently proposed for the Sacramento Valley subbasins may not achieve groundwater sustainability by 2040 without negative consequences to surface waters and the resources that depend on them. The groundwater budgets in the currently proposed GSPs indicate that planned increases in groundwater pumping will be accompanied by net reductions in surface water flows. In addition, there will likely be multiple years of streamflow depletion following any future groundwater substitution transfers. These negative environmental impacts are unacknowledged and unanalyzed in the DCP DEIR.	operations upstream of the proposed north Delta intakes.
516-52	[Att 1:] 14. The DEIR identifies seven areas of potential groundwater impact: (1) changes in stream gains or losses in various interconnected stream reaches; (2) changes in groundwater elevation; (3) reduction in groundwater levels affecting supply wells; (4) long-term declines of groundwater in storage; (5) increases in agricultural drainage; (6) damage to major conveyance facilities from land subsidence; and (7) degradation of water quality (Section 8.3.2.2). The DEIR	This comment quotes and restates content from Draft EIR Chapter 8, Groundwater, and does not raise a significant environmental issue associated with the Delta Conveyance Project. The monitoring wells along the tunnel alignment are for collecting engineering data and not for monitoring dewatering. Dewatering would not occur along the tunnel alignment nor be needed along the tunnel alignment. DWR has reviewed all comments and will consider all comments in its decision-making process.

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	proposes two measures to mitigate these potential impacts: Mitigation Measure GW-1: Maintain Groundwater Supplies in Affected Areas; and Mitigation Measure GW-5: Increases in Groundwater Elevations near Project Intake Facilities Affecting Agricultural Drainage, which is a simplified implementation of Mitigation Measure GW-1. (Section 8.3.2.2, pages 8-27 to 8-60) The DEIR states that Mitigation Measure GW-1 will "reduce impacts during construction and O&M to less than significant" even for those alternatives that have the highest number of intakes with larger construction footprints. "Mitigation Measure GW-1 …could be implemented, in which a series of groundwater recharge and extraction wells could also be installed to allow discharge of captured dewatered water back into the subsurface in the event that some local external effects due to dewatering are observed, or for additional groundwater extraction to mitigate for mounded water outside the construction (Section 8.3.2.2, pages 8-34 to 8-36)." Mitigation Measure GW-1 will require that prior to construction, the location of existing wells would be determined within the anticipated area of influence of project sites at which dewatering would occur during construction or maintenance. Monitoring actions that will be taken for Mitigation Measure GW-1 include: Monitor the depth to groundwater within Existing wells would be determined; constructing new monitoring wells during geotechnical explorations and construction phases sufficiently close to the groundwater dewatering sites and along the Sacramento River (for the intakes) and Italian Slough (for the Southern Forebay).	

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	Existing monitoring wells or new monitoring wells (to be installed as part of field investigations during the design phase) inside and outside the area of influence would also be used. Monitoring would be conducted to assess changes in water levels attributable to dewatering activities and maintenance by comparing changes in groundwater elevations within and outside the dewatering area of influence. Monitoring wells at the intakes would continue to be used as part of a conveyance operations monitoring program. No monitoring would occur near tunnel shaft locations because dewatering would be limited to volume within the constructed tunnel shaft after the shaft has been isolated from the aquifer. Apparently, no groundwater level monitoring will be done along the tunnel alignment because [n]o dewatering would occur along the tunnel during tunnel boring (page 8-29). The DEIR states on page 8-35 that Mitigation Measure GW-1 will be implemented during …construction or maintenance dewatering, if the results of groundwater monitoring described above indicate that the difference between average groundwater elevation declines in monitoring wells inside the area of influence of dewatering and control (background) monitoring well outside the area of influence is more than 10% of the depth of the shallowest known well inside the area, mitigation of impacts to groundwater supplies would be needed. For wells that may be impacted by groundwater level declines as determined by the described herein, the following would be implemented: Reinject groundwater using injection wells; potable supplies	

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	would be brought in temporarily while injection wells are constructed and the groundwater basin recharges, if needed. The following additional measures would also be implemented if injection wells are not feasible in an area or not sufficient to offset potential impacts on groundwater levels in the area of influence: 1. Deepen or modify (e.g., lower pump intakes) wells used for domestic or agricultural purposes; potable supplies would be brought in temporarily while wells are modified, if needed. 2. Secure a temporary water supply or compensate farmers for production losses due to a reduction in available groundwater supplies. 15. The DEIR proposes to mitigate the adverse changes in groundwater levels using Mitigation Measure GW-1 remedies that include either recharging groundwater, modifying wells, providing temporary water supplies, or paying compensation (pages 8-34 to 8-36). Whether these actions will be implemented likely depends on whether any groundwater level changes after the start of the project can be shown to be caused by the DCP activities. According to the DEIR the tunnel shafts are a closed system because of the concrete liner and plug so there will be no effect on the adjacent groundwater formations during the dewatering of the shafts. The DEIR also asserts that no dewatering would occur along the tunnel during tunnel boring (page 8-29, lines 15 to 18). Nevertheless, groundwater level monitoring wells will be constructed in every third soil boring, which are planned for every 1,000 feet along the tunnel alignment along with CPT borings every 500	

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	feet (Section 3.1.1.3 in EPR file 014 B). Groundwater wells with possible water quality monitoring are planned for every 2 miles, or maybe every 5,000 feet, along the tunnel alignment between shafts (Section 4.2.2 and Table 4.2 in EPR file 014 B).	
516-53	[Att 1:] 16. The conclusion that the DEIR appears to draw about potential project impact to the Delta groundwater system is that all project impacts will be insignificant relative to potential future non-project impacts to the Delta, such as sea level rise and river flow timing and volumes resulting from climate change. Analysis of the project impacts to areas outside the Delta weren't made because the DEIR appears to assume that the project won't result in any changes to upstream water management practices, such as causing an increase in south of the Delta water transfers. The analysis of the project impacts to groundwater elevations (including associated effects on supply wells and agricultural drainage systems), groundwater storage, and interconnected surface water systems were said to be quantitative, while the effects of project operations on land subsidence and groundwater quality resulting from project driven changes in groundwater conditions were only evaluated qualitatively due to the lack of available analytical tools and apparently the lack of data.	This comment primarily summarizes information from Draft EIR Chapter 8, Groundwater, and does not raise a significant environmental issue associated with the Delta Conveyance Project. Please refer to Common Response 10, Surface Water Quality and Groundwater Resources, for a discussion on suitability of a qualitative assessment of construction related impacts. The EIR evaluates subsidence and groundwater quality using existing data and known information. Subsidence is evaluated qualitatively due to a lack of availability of land subsidence process modeling under project operations. Groundwater quality is evaluated qualitatively due to the lack of availability of a contaminant transport model. Please refer to response to comment 516-19 for additional details regarding groundwater impacts.
516-54	[Att 1:] Impacts on the Delta Groundwater Quality 17. The DEIR states that knowledge about the groundwater quality in the Delta is limited (Section 8.1.3.2). The Draft EIR identifies only two Delta wells for water quality information. These two wells were sampled as part of the U.S. Geological Survey's Groundwater Ambient Monitoring Assessment (GAMA) program. One well is located in the central Delta, west of Sherman Island and the Sacramento River, and has a depth of 800 feet bgs. The other well is located in the eastern Delta,	Chemical constituent movement in groundwater is driven by a number of mechanisms including advective flow, dispersion, and diffusion, with advective flow being the dominant transport mechanism. By definition, advective flow is the movement of constituents based on average aquifer properties and average hydraulic gradients that drive the flow. Hydraulic gradients are calculated using groundwater levels and therefore the numerical flow model indirectly calculates changes in hydraulic gradient, which in turn, indirectly simulates the advective movement of conservative constituents such as salts. Hence, the use of groundwater levels as a proxy for predicting migration of constituents is an appropriate methodology.

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	near the Delta Cross Channel, and has a depth of 244 feet bgs. Both wells were sampled for several chemical constituents. 18. Groundwater quality in the Delta is affected by the concentration of total dissolved solids (TDS), which varies more widely across the DWR subbasins that make up parts of the Delta (see Figure 8-2 for subbasin areas). The high salinity of groundwater is attributed to poor-quality groundwater intrusion from the Delta caused by the decline of groundwater levels and worsened by sea level rise. …. High chloride concentrations have also been observed in well water in the Eastern San Joaquin Subbasin. … Nitrate is observed in some areas of the subbasin (i.e., Brentwood), with concentrations exceeding the MCL (10 mg/L) that may be linked to historical agricultural influences in the area. The most detected chemicals above an MCL or SMCL are manganese, arsenic, and iron. There are also several sites of groundwater contamination in various stages of cleanup based on information from the SWRCB's GeoTracker website. See Table 25-1 - Sites of Concern within or near the Study Area, in Chapter 25 - Known Hazardous Materials Sites, for list of the contaminant site names, types, status, and the alignment and alternatives affected. See Figures 8B-11 in Appendix 8B and 8C-10 in Appendix 8C for a map showing locations of GeoTracker sites with the maximum groundwater elevation difference contours for Alternative 5 and Alternative 5 in 2040, respectively. 19. As noted above, degradation of water quality was not evaluated quantitatively for the DEIR. Instead, the changes in groundwater elevations from the groundwater flow model were used for a qualitative evaluation of the DCP's impacts to water quality. This qualitative assessment is made even though	The Groundwater Quality section in Chapter 8, Groundwater, summarizes the primary groundwater quality concerns for basins in and around the Delta. There are no statements suggesting there is insufficient water quality data to document a baseline condition. Groundwater quality is assessed qualitatively under Impact GW-7. Areas of groundwater concern near the study area are identified in the figure titled Location of Identified Groundwater Plumes in the Study Area. Analysis shows that changes in groundwater elevation near the areas of concern would be limited to 1 to 2 feet and is unlikely to cause a change in groundwater flow paths. Furthermore, the analysis in Impact GW-1 and Impact GW-2 shows that under construction groundwater levels would generally be maintained at the level of existing conditions during the use of cutoff walls or dewatering. As the proposed project and project alternatives would not result in a substantial change in groundwater levels, they would also not result in a substantial change in groundwater salinity associated with a decline in groundwater levels. And, if unanticipated changes to groundwater levels occurred during construction, the changes would be localized and in the immediate area of the construction. The EIR also includes Mitigation Measure GW-1, which requires monitoring during construction and adjustments to construction activities as needed, depending on the groundwater level monitoring results. Although it is determined that the project would not impact groundwater quality, Mitigation Measure GW-1 has been revised to include monitoring of electroconductivity at select locations during construction to provide data confirming the conclusions in the EIR. Impact GW-1 and Impact GW-2 remain less than significant prior to the implementation of the revised mitigation measure, as described in Chapter 8. The revision to Mitigation Measure GW-1 does not result in a new significant environmental impact, substantial increase in the severity of an environmental impact, or require additional mitigation measures to which DWR was unwilling to commit.

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	[a] review of well completion reports from DWR's Online System of Well Completion Reports (OSWCR) database shows a total of 3,565 production wells were installed within the statutory Delta boundary between 1977 and 2018. These wells have a median depth of 190 feet and an average depth of 211 feet (see Impact GW-3: Reduction in Groundwater Levels Affecting Supply Wells, page 8-19). These wells were apparently constructed despite the observation that [s]hallow groundwater occurring at depths of less than 100 feet is too saline and therefore not adequate for most beneficial use (Section 8.1.3.3). The 39-foot outside diameter Bethany Reservoir alternative tunnel is constructed at depths that range from approximately 100 to 165 feet below the ground surface, which is slightly higher than the median and average depth of the 3,500 plus production wells (Plan Sheet STB-G-0080GN in EPR file 020 B General Drawings.pdf). 20. The DEIR states that a [r]eduction in groundwater levels is considered substantial if more than 20 feet of groundwater decline occurs at a supply well in the Delta region. The 20-foot groundwater decline threshold for supply wells is deemed to be a conservative estimate for depletion of groundwater supplies because it is less than 10% of the average depth of supply wells in the statutory Delta. In addition, [r]educed groundwater levels could affect the capacity of the supply wells and may result in some shallower wells going dry or requiring well modifications such as the lowering of pump intakes. (Impact GW-3, page 8-29). It's unclear what level of groundwater elevation change results in degradation to groundwater quality. …No quantitative analysis of water quality impacts of the project was conducted	Operational impacts on groundwater quality would be plume migration and/or introduction or movement of saline waters, both of which can be evaluated using hydraulic gradients and groundwater levels. Because impacts on groundwater quality are not expected, no mitigation is proposed. See Common Response 10, Surface Water Quality and Groundwater Resources, for more discussion regarding the adequacy of the groundwater impact analysis. Water quality is further covered under Chapter 9, Water Quality. The water quality analysis considered 17 different potential water quality impacts, all of which were found to be less than significant under all alternatives. Refer to Chapter 30, Climate Change, for discussion on sea level rise and associated potential impacts on groundwater.

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	because of the lack of availability of a contaminant transport model to support quantitative analysis. Instead, the changes in groundwater elevations around the known contaminant plume sites obtained from the groundwater flow model results were used to qualitatively infer potential for migration of plumes near the project alignment (see Impact GW-7: Degradation of Groundwater Quality, page 8-20). 21. In the discussion of future degradation of water quality, the DEIR states that [b]ased on groundwater flow model results, the largest groundwater elevation changes occur in urban areas where demand increases are the most significant. Across the rest of the model domain, changes in groundwater elevations would be less than 10 feet in most of the study area. These changes in groundwater elevations could potentially change the flow of groundwater across the region enough to mobilize contaminant plumes or cause migration of groundwater from areas of poor water quality to areas of higher quality. Notably, the DeltaGW modeling analysis did not include effects of sea level rise, which could contribute to saltwater intrusion in the Delta under 2040 conditions (Section 8.3.2.1, page 8-24). 22. The DEIR states in the all-project alternatives conclusions section for Impact GW-7 - Degradation of Groundwater Quality, that [s]ignificant impacts on groundwater quality as a result of project construction are not anticipated as construction-related practices and BMPs would minimize the potential for water quality impacts…No significant groundwater quality impacts are anticipated in and adjacent to the project alignment due to project operations because significant changes to regional patterns of groundwater flow	

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	are not anticipated. Additionally, project operations and maintenance activities would follow BMPs, minimizing any impacts relating to spills or other occurrences that could affect groundwater quality. This impact would be less than significant (page 8-59). In the discussion on page 8-60 of other mitigation measures for Impact GW-7, the DEIR states that [s]ome mitigation measures would involve providing new water wells or relocating and/or replacing wells, pipes, power lines, drainage systems, and other infrastructure that would have the potential to degrade groundwater quality. … Temporary groundwater quality degradation resulting from mitigation measures would be similar to construction effects of the project alternatives in certain construction areas and would contribute to groundwater quality impacts of the project alternatives. Groundwater removed with the dewatering system would be treated as necessary prior to reuse, storage, and possible discharge. Water would be discharged in accordance with the Stormwater Pollution Prevention Plan Because of the temporary and localized nature of construction dewatering, the potential for migration of poor-quality groundwater into areas of higher-quality groundwater would be low, and similarly, the likelihood of migration of existing contaminant plumes in groundwater would be low. Therefore, other mitigation measures are unlikely to result in the degradation of groundwater quality and the impact of groundwater quality would not be substantial. Overall, the impact of degradation of groundwater quality from construction of compensatory mitigation and implementation of other mitigation measures, combined with project	

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	alternatives, would not change the less-than-significant impact conclusion. 23. The conclusion that the DEIR appears to draw about potential project impacts to Delta groundwater quality is that there will be no degradation in quality from the DCP's construction or operations. This conclusion is reached despite: (1) the assessment being qualitative; (2) a lack of baseline sampling data for groundwater quality in the Delta, only two well are sampled; and (3) there is no apparent intent to create a Delta groundwater quality sampling program to document baseline conditions for comparison to any changes measured during construction and/or operations. Despite the lack of groundwater quality data, the DEIR appears to assume a valid correlation between groundwater levels and groundwater quality such that changes in groundwater levels can be a surrogate for changes in water quality. The DEIR doesn't provide any site-specific data do validate or calibrate this groundwater-level-to-water-quality correlation. For example, what is the change in the concentration of total dissolved solids with a one-foot change in groundwater elevation? What are the correlations between other chemical constituents, such as chloride, manganese, arsenic, and/or iron? What distance will a known contaminant plume migrate with a one-foot change in groundwater elevation? The DEIR appears to mitigate the lack of groundwater quality knowledge by offering in Mitigation Measure GW-1 to remedy impacts with actions that either recharge groundwater, modify wells, provide temporary water supplies, or pay compensation (page 8-34 to 8-36). Whether these actions will be implemented likely depends on whether any groundwater	

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	quality degradation after the start of the project can be shown to be caused by the DCP activities, remembering that water quality degradation is expected without implementation of the project, and no baseline groundwater quality monitoring program is apparently proposed in the DEIR.	
516-55	[Att 1:] 24. My testimony for part 2 of the WaterFix project provided a summary of the hydrogeologic setting for the Delta; the text of my testimony is attached as Exhibit 22 [see ATT 1 ATT 22]. I also discussed the reasons why the construction of the WaterFix tunnels would create a 39-mile long, 40-foot diameter, north-to-south impermeable barrier that cuts across the general east-to-west flow of shallow groundwater in the aquifer system of the Delta (see comment No. 1, pages 3 through 8, and conclusion No. 1, page 19 in Exhibit 22). Exhibits 16 and 17 [see ATT 1 ATT 16 and ATT 1 ATT 17, resp.] are revisions of exhibits in my part 2 testimony taken from Shlemon (1971) [Footnote 11: 1971, The Quaternary Deltaic and Channel System in the Central Great Valley, California, Annals of the Association of American Geographers, vol. 61, no. 3, pp. 427---440. https://www.csus.edu/indiv/h/hornert/geologic%20maps%20and%20references/shlemon%201971%20quaternary%20deltaic%20and%20channel%20system%20central%20valley%20ca.pdf] that show the generalized Deltaic reduced sediments, Mokelumne Fan, and coarse-grained Pleistocene channel deposit boundaries, and a cross-section overlain with the approximate location of the DCP Bethany Reservoir alternative. Exhibits 18 and 19 [see ATT 1, ATT 18, and ATT 1 ATT 19, resp.] are revisions of exhibits in my part 2 testimony taken from DWR Bulletin 118-3 (1974) [Footnote 12: California Department of Water Resources (DWR), July 1974, Evaluation of Ground Water: Sacramento County, Bulletin 118---3, p. 141.	The content of the Delta Conveyance Project EIR does not support the assertion that the Delta Conveyance Project would "likely interrupt the east-to-west flow of fresh groundwater recharge to the Delta, causing significant changes in the quality of the shallow groundwater west of the DCP tunnel". Model layering was specifically refined to better represent the physical features of the project and determine whether the project would affect the flow of groundwater. As described in the Model Layering section of Appendix 8A, Delta Groundwater Model: Development and Calibration, to improve DeltaGW Model performance and facilitate the representation of the physical components of the project, the top two layers of the DeltaGW Model were divided into four layers. In areas where the combined thickness of the top two layers exceeded 200 feet, the top layer was assigned a thickness of 65 feet, followed by 50-foot thickness for the second and third layers. Please refer to Common Response 10, Surface Water Quality and Groundwater Resources, for additional information and discussion regarding the suitability of the model. Flow around the tunnel barrier is simulated in the DeltaGW Model. As discussed in Impact GW-2, the tunnel is not expected to result in any significant impacts on groundwater elevations within the Delta study area. The Groundwater Quality section in Chapter 8, Groundwater, summarizes the primary groundwater quality concerns for basins in and around the Delta. There are no statements suggesting there is insufficient water quality data to document a baseline condition. Groundwater quality is assessed qualitatively under Impact GW-7. Areas of groundwater concern near the study area are identified in the figure titled Location of Identified Groundwater Plumes in the Study Area. Analysis shows that changes in

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	https://www.csus.edu/indiv/h/hornert/Geologic%20maps%20and%20references/DWR_Bull_118-3_text.pdf] that show the locations of shallow coarse-grained channel deposits, called the superjacent series, in the northern portion of the Delta, overlain with the approximate locations of the DCP Central and Eastern alternatives. The DCP Bethany alternative has moved the tunnel alignment further to the east than the WaterFix tunnels, which is closer to the transition between the Mokelumne Fan deposits and the Deltaic reduced sediments. This shift to the east may result in the DCP tunnel encountering more variation and interfingering of fan and Deltaic sediments as well as more coarse-grained channel deposits. Shlemon (1971) described the Quaternary Deltaic and channel systems in the Mokelumne River area. Three and possibly four Mokelumne River Fan deposits and gravel-filled channels were identified that interfinger with Deltaic sediments. Shlemon describes the alluvium of the Delta as: The ancestral Sacramento and San Joaquin rivers, major drainages of the Great Valley, intermixed in the California Delta before passing through the Carquinez Strait and northern San Francisco Bay on the way to the sea. The Delta, although some fifty miles (80 km) from the Pacific Ocean, also responded to Pleistocene climatic change by expanding and contracting areally with each glacioeustatic oscillation. In the California Delta, channels of the lower Sacramento-San Joaquin river system and local tributaries apparently were repeatedly incised and backfilled with each major climatic fluctuation. 25. The Delta rivers responded to the Pleistocene declines in sea level with repeated incision and backfilling of Deltaic river	groundwater elevation near the areas of concern would be limited to 1 to 2 feet and is unlikely to cause a change in groundwater flow paths. Water quality impacts of the proposed project and alternatives are evaluated in detail in Chapter 9, Water Quality. The water quality analysis considered 17 different potential water quality impacts, all of which were found to be less than significant under all alternatives.

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	channels that cut across the east-to-west channel deposits of the Mokelumne River Fan, and other deposits discharging from the Sacramento and San Joaquin Valleys. The interfingering of fine and coarse-grained deposits along with glacioeustatic oscillation of incision and backfilling has likely created a very complex hydrogeologic setting. The DCP Bethany Reservoir alignment tunnel will bore through this complex aquifer system. The proposed Bethany Reservoir DCP will construct a 45-mile long, 39-foot-diameter impermeable barrier that will likely interrupt the east-to-west flow of fresh groundwater recharge to the Delta, causing significant changes in the quality of the shallow groundwater west of the DCP tunnel. The tunnel barrier will interrupt the groundwater flow at a depth that is slightly higher than the median depth of the 3,565 production wells in the Delta, (see above comment no. 19) [see comment #54]. Shallow groundwater from the east still has to flow around the tunnel barrier. The path of the flow will depend on the hydraulic head that builds on the up-gradient side of the tunnel and the permeability and interfingering of sediments cut by the boring.	
516-56	[Att 1:] Although the DeltaGW groundwater modeling utilized data from 613 wells (Section 8A.4.3 and Figure 8A-13 in Appendix 8A), the model layering doesn't appear to capture the complexity of the interfingering of the buried coarse-grained channel identified by Shlemon (1971) and DWR (1974) (Section 8A.3.1.2.1 and Figure 8A-7 in Appendix 8A). There is likely insufficient existing data to provide the details on the interfingering of sediments needed to accurately model the flow paths of groundwater blocked by the tunnel barrier and the impacts of that redirected flow. The DEIR clearly states that there are insufficient water quality data to document a baseline condition (Section 8.1.3.2). Without a baseline for	Model layering was specifically refined to better represent the physical features of the project. As described in the Model Layering section of Appendix 8A, Delta Groundwater Model: Development and Calibration, to improve DeltaGW Model performance and facilitate the representation of the physical components of the project, the top two layers of the DeltaGW Model were divided into four layers. In areas where the combined thickness of the top two layers exceeded 200 feet, the top layer was assigned a thickness of 65 feet, followed by 50-foot thickness for the second and third layers. Please refer to Common Response 10, Surface Water Quality and Groundwater Resources, for additional information and discussion regarding the suitability of the model to assess Delta Conveyance Project impacts on groundwater.

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	comparison, it will likely be impossible to make a determination on whether future changes in groundwater quality in the Delta are the result from the tunnel construction or from natural changes. Clearly more detailed hydrogeologic data are needed.	Please see response to comment 516-55 regarding how groundwater quality was evaluated and reported in Chapter 8, Groundwater.
516-57	[ATT 1:] 26. DWR [Footnote 13: https://water.ca.gov/programs/sgma/aem] and the SWRCB with the U.S. Geological Survey [Footnote 14: https://www.waterboards.ca.gov/water_issues/programs/groundwater/sb4/regional_monitoring/index.html; https://www.usgs.gov/news/state-news-release/low-flying-helicopter-survey-coalinga-and-pyramid-hills-areasgroundwater?Utm_source=comms&utm_medium=rss&utm_campaign=news] have been implementing airborne geophysical surveys using the SkyTEM [Footnote 15: https://skytem.com/geophysical-surveys/] system, a helicopter airborne electromagnetic (AEM) system, to measure the electromagnetic properties of the subsurface materials in groundwater aquifer systems. Typically, materials that are electrically conductive are interpreted as fine-grained materials, like silts and clays, or can be interpreted as water with high salinity. Materials that are electrically resistive are interpreted as coarse-grained materials, like sands and gravels. The interpretation of AEM data is supported by information that describes the physical characteristics of the rocks. Existing information from well completion reports, electromagnetic geophysical (resistivity) logs, water quality reports and water level reports are used to do obtain this information. The AEM method can image the subsurface to depths of up to about 1,000 feet, depending on the electrical properties of the subsurface materials.	This comment describes a helicopter airborne electromagnetic (AEM) system used to measure the electromagnetic properties of the subsurface materials. The comment does not raise significant environmental issues related to the analysis of impacts discussed in the EIR. DWR has reviewed all comments and will consider all comments in its decision-making process.

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	27. The DWR is conducting airborne AEM surveys in the high- and medium-priority groundwater basins to support local water managers with the implementation of SGMA GSPs. The SWRCB is using airborne AEM surveys to support a Regional Monitoring Program in California's oil and gas production areas in order to protect all waters designated for any beneficial use and prioritizing the monitoring of groundwater that is, or has the potential to be, a source of drinking water. Factors that are considered in the SWRCB's oil and gas field monitoring program include oil and gas activities that have the potential to contaminate groundwater, such as an oil and gas well failure or breach, and well field simulation treatments, and fluid injections done under the Underground Injection Control Program (UIC) administered by the Geologic Energy Management Division (CalGEM) of the California Department of Conservation [Footnote 16: https://www.conservation.ca.gov/calgem/general_information/Pages/UndergroundinjectionControl(UIC).aspx]. 28. The airborne AEM surveys have been successful in producing three-dimensional, high-resolution subsurface hydrogeologic data. [Footnote 17: https://skytem.com/downloads-water-environment/] Regional AEM surveys can map intricate networks of buried river channels such as the coarse-grained Pleistocene channels in the Mokelumne Fan and the superjacent channel deposits of southern Sacramento County. Geologic investigations of aquifer systems using only borings is expensive. When boreholes are widely spaced, the information is subject to uncertainties especially in complex geologic settings, like the Delta. Regional AEM geophysical surveys can provide cost-	

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	effective supplemental data that fill in between and complement existing borehole data and add more certainty to the hydrogeologic interpretation.	
516-58	[Att 1:] 29. In addition to providing details on the subsurface geology, the AEM surveys can aid in mapping groundwater quality by identifying distribution of high salinity waters. [Footnote 18: https://skytem.com/wp-content/uploads/2014/12/Greater-water-security-with-groundwater.pdf] The DEIR notes that the existing high salinity in the shallow groundwater in the Delta and potential for increased saltwater intrusion with future climate change and sea level rise are all existing conditions that will likely occur with or without construction of the DCP tunnel. Conducting a regional airborne AEM survey of the Delta could provide detailed baseline groundwater quality data about the current areas of high salinity. Periodic repeated AEM surveys during the 14 years of tunnel construction and then continued during operation would document the DEIR's assertion that the tunnel project won't have any impact on the groundwater quality in the Delta. Should increases in salinity occur in produced groundwater, repeated AEM surveys would provide detailed subsurface data on how the salinity has migrated and the relationship to the tunnel project.	This comment describes how periodic AEM surveys could be used to track the impact of the project on salinity but does not raise significant environmental issues related to the analysis of impacts discussed in the EIR. The EIR also includes Mitigation Measure GW-1, which requires monitoring of groundwater during construction and adjustments to construction activities as needed, depending on the groundwater level monitoring results. Furthermore, it is determined that the project would not impact groundwater quality, as described in Chapter 8, Groundwater. DWR has reviewed all comments and will consider all comments in its decision-making process.
516-59	[Att 1:] 30. The conclusion that the DEIR appears to draw about potential project impact to Delta groundwater elevations and quality is that the tunnel shaft and tunnel construction activities and the tunnel operations will have no lasting significant impact on the groundwater system in the Delta. The DEIR assumes that there is a valid correlation between groundwater levels and groundwater quality, and because of this assumption if there is no impact to groundwater levels there can be no degradation in groundwater quality. This	The comment presupposes impacts and responses that may occur. Water quality is covered under Chapter 9, Water Quality. The water quality analysis considered 17 different potential water quality impacts, all of which were found to be less than significant under all alternatives. Please refer to Common Response 10, Surface Water Quality and Groundwater Resources, regarding the use of the DeltaGW model for assessment of groundwater quality. Common Response 10 identifies and addresses common mechanisms for impacts on groundwater quality,

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	conclusion is reached even though the tunnel will create a 45-mile long, 39-foot diameter impermeable hydraulic barrier across the shallow groundwater flow system of the Delta. This conclusion is reached even though additional subsurface hydrogeologic data need to be collected during the design phase of the project because the current level of knowledge is apparently insufficient to allow for the design of the project (Section 3.1.1.3 in EPR file 014 B).	including plume migration, salinity intrusion and sea level rise, and includes discussion of the linkages between groundwater elevations (as measured in the DeltaGW model), hydraulic gradient, and advective flow of constituents such as salt. Please see response to comment 516-61 for a description of the Delta Conveyance Project's assessment of how the presence of the tunnel could affect groundwater movement.
516-60	[Att 1:] Soil borings are planned to be every 1,000 feet along the tunnel alignment, and CPT borings every 500 feet. Groundwater-level monitoring wells will be constructed in every third soil boring (Section 3.1.1.3 in EPR file 014 B) with groundwater quality monitoring every 2 miles, or possibly 5,000 feet, along the tunnel alignment between shafts (Section 4.2.2 and Table 4.2 in EPR file 014 B). The DEIR leads to a number of questions regarding environmental impacts that might occur with construction of a 45-mile-long impermeable hydraulic barrier that should be addressed in a revised DEIR, including but not limited to: a. Will the addition subsurface data and groundwater level measurements be used to revise the DeltaGW model? b. Will additional simulations be made using a revised DeltaGW model and when will those simulations be completed? d. How will the result of any revised DeltaGW model simulations be incorporated into the mitigation and monitoring program for the DCP? e. Will additional groundwater testing and/or monitoring result from the revised DeltaGW model simulations, and if so, what type of monitoring, groundwater levels and/or groundwater quality?	As described in Chapter 3, Description of the Proposed Project and Alternatives, if findings resulting from future field investigations require project description modifications, DWR would review those modifications and determine whether additional CEQA review was warranted. Additional actions not analyzed in this EIR associated with field investigations would comply with the necessary state environmental review requirements. At this time, the early results from field investigations during the planning phase have confirmed assumed existing geotechnical conditions. The additional monitoring wells installed before construction could be incorporated into the monitoring described under Mitigation Measure GW-1. As described in the mitigation measure, during the design phase, the locations of existing wells that would require monitoring would be determined. The information would be used to determine the need and location for construction of new monitoring wells. Groundwater levels would be monitored in accessible existing wells. The analysis in Impact GW-1 and Impact GW-2 shows that under construction groundwater levels would generally be maintained at the level of existing conditions during the use of cutoff walls or dewatering. As the proposed project and project alternatives would not result in a substantial change in groundwater levels, they would also not result in a substantial change in groundwater salinity associated with a decline in groundwater levels. And if unanticipated changes to groundwater levels occurred during construction, the changes would be localized and in the immediate area of the construction. The EIR also includes Mitigation Measure GW-1, which requires monitoring during

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		construction and adjustments to construction activities as needed, depending on the groundwater level monitoring results. Although it is determined that the project would not impact groundwater quality, Mitigation Measure GW-1 has been revised to include monitoring of electroconductivity at select locations during construction to provide data confirming the conclusions in the EIR. Impact GW-1 and Impact GW-2 remain less than significant prior to the implementation of the revised mitigation measure, as described in Chapter 8, Groundwater. The revision to Mitigation Measure GW-1 does not result in a new significant environmental impact, substantial increase in the severity of an environmental impact, or require additional mitigation measures to which DWR was unwilling to commit.
516-61	[Att 1:] Soil borings are planned to be every 1,000 feet along the tunnel alignment, and CPT borings every 500 feet. Groundwater-level monitoring wells will be constructed in every third soil boring (Section 3.1.1.3 in EPR file 014 B) with groundwater quality monitoring every 2 miles, or possibly 5,000 feet, along the tunnel alignment between shafts (Section 4.2.2 and Table 4.2 in EPR file 014 B). The DEIR leads to a number of questions regarding environmental impacts that might occur with construction of a 45-mile-long impermeable hydraulic barrier that should be addressed in a revised DEIR, including but not limited to: c. Are the current simulations with the DeltaGW model adequate to accurately identify the changes in flow paths of groundwater around the 45-mile-long tunnel barrier?	The DeltaGW Model is based on the best available model and data at the time of initiating the study pursuant to the CEQA guidelines. Please refer to Common Response 10, Surface Water Quality and Groundwater Resources, regarding the suitability of the model for analysis of local impacts. Chapter 8, Groundwater, Impact GW-2, includes the assessment of how the presence of the tunnel could affect groundwater movement. The analysis concluded that the tunnel would have a less than significant impact on groundwater levels. Model layering was specifically refined to better represent the physical features of the project and are an accurate representation of how project facilities may affect groundwater movement. As described in the model layering section of Appendix 8A, Delta Groundwater Model: Development and Calibration, to improve DeltaGW Model performance and facilitate the representation of the physical components of the project, the top two layers of the DeltaGW Model were divided into four layers. In areas where the combined thickness of the top two layers exceeded 200 feet, the top layer was assigned a thickness of 65 feet, followed by 50-foot thickness for the second and third layers.

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		The representations of the project features are described in the Physical Project Features section of Appendix 8B, Impact Analysis: Groundwater Model Results. The project alignments are represented through a series of low-permeability elements in the third layer of the model. The third layer represents a depth of 115-165 feet below ground surface. The tunnel is expected to terminate at a depth of 165 feet and be approximately 40 feet in diameter. The low-permeability elements represent the flow barrier that will be formed by the alignments.
516-62	[Att 1:] Soil borings are planned to be every 1,000 feet along the tunnel alignment, and CPT borings every 500 feet. Groundwater-level monitoring wells will be constructed in every third soil boring (Section 3.1.1.3 in EPR file 014 B) with groundwater quality monitoring every 2 miles, or possibly 5,000 feet, along the tunnel alignment between shafts (Section 4.2.2 and Table 4.2 in EPR file 014 B). The DEIR leads to a number of questions regarding environmental impacts that might occur with construction of a 45-mile-long impermeable hydraulic barrier that should be addressed in a revised DEIR, including but not limited to: f. What criteria will be used to determine when additional subsurface investigation work and/or groundwater monitoring are needed, and when will this additional work occur relative to the design and construction of the DCP?	Please see the Field Investigations section of Chapter 3, Description of the Proposed Project and Alternatives, for information pertaining to data collection prior to and during construction. This information would be used for engineering purposes. The Field Investigations section of Chapter 3 explains that this information will be collected during the design phase and would be used for furthering engineering designs. Additional actions not analyzed in this EIR associated with field investigations, such as additional subsurface investigations, would comply with the necessary state environmental review requirements and may require additional CEQA review, as described in Chapter 3.
516-63	[Att 1:] Soil borings are planned to be every 1,000 feet along the tunnel alignment, and CPT borings every 500 feet. Groundwater-level monitoring wells will be constructed in every third soil boring (Section 3.1.1.3 in EPR file 014 B) with groundwater quality monitoring every 2 miles, or possibly 5,000 feet, along the tunnel alignment between shafts (Section 4.2.2 and Table 4.2 in EPR file 014 B). The DEIR leads to a number of questions regarding environmental impacts that	There are no plans to revise the DeltaGW model or conduct additional analysis following the collection of soil data as part of the design or pre-construction phase. Soil samples obtained during exploration would be used to confirm the suitability of soil conditioning and to perform additional environmental testing on both the conditioned soil and the native soil at the tunnel depth. The Delta Conveyance Final Draft Engineering Project Report—Bethany Reservoir (Delta Conveyance Design and Construction Authority 2022i) provides additional information on the

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	might occur with construction of a 45-mile-long impermeable hydraulic barrier that should be addressed in a revised DEIR, including but not limited to: g. What evidence is there that the proposed future soil borings and CPT exploration sites will be appropriately located so that the complexity of the hydrogeology along the Alternative 5 tunnel will be accurately represented in the groundwater model?	geotechnical data collection efforts for the project.
516-64	[Att 1:] Soil borings are planned to be every 1,000 feet along the tunnel alignment, and CPT borings every 500 feet. Groundwater-level monitoring wells will be constructed in every third soil boring (Section 3.1.1.3 in EPR file 014 B) with groundwater quality monitoring every 2 miles, or possibly 5,000 feet, along the tunnel alignment between shafts (Section 4.2.2 and Table 4.2 in EPR file 014 B). The DEIR leads to a number of questions regarding environmental impacts that might occur with construction of a 45-mile-long impermeable hydraulic barrier that should be addressed in a revised DEIR, including but not limited to: h. What are the reasons for and against utilizing regional geophysical investigations, such as the SkyTEM system, to add to the knowledge of the Delta hydrogeologic setting and the baseline water quality?	Please see the Field Investigations section of Chapter 3, Description of the Proposed Project and Alternatives, for a discussion of the data collection efforts that will occur prior to and during construction. The purpose of the field investigations during design is to identify very site-specific conditions that will be used to define site-specific criteria that could vary along the tunnel alignment and between construction sites. As noted in Chapter 3, aerial surveys (such as SkyTEM) will be used to identify locations of natural gas and water wells in larger areas of interest. The purpose of this project is not to develop a regional description of hydrogeological and water quality conditions.
516-65	[Att 1:] Soil borings are planned to be every 1,000 feet along the tunnel alignment, and CPT borings every 500 feet. Groundwater-level monitoring wells will be constructed in every third soil boring (Section 3.1.1.3 in EPR file 014 B) with groundwater quality monitoring every 2 miles, or possibly 5,000 feet, along the tunnel alignment between shafts (Section 4.2.2 and Table 4.2 in EPR file 014 B). The DEIR leads to a	Please see the Field Investigations section of Chapter 3 for a discussion of the data collection efforts that will occur prior to and during construction. As noted in Chapter 8, Groundwater, the tunnel will not adversely affect movement of groundwater, so the tunnel would not have the potential to cause changes in groundwater quality. Because the impact analysis did not identify a mechanism to adversely affect groundwater quality, the EIR identifies limited need for additional groundwater quality monitoring. The

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	number of questions regarding environmental impacts that might occur with construction of a 45-mile-long impermeable hydraulic barrier that should be addressed in a revised DEIR, including but not limited to: i. What efforts will be made to establish a baseline for groundwater quality in the Delta before beginning the DCP construction; what constituents will be monitored, at what frequency; and by what method and frequency will monitoring data be reported?	analysis in Impact GW-1 and Impact GW-2 shows that under construction groundwater levels would generally be maintained at the level of existing conditions during the use of cutoff walls or dewatering. As the proposed project and project alternatives would not result in a substantial change in groundwater levels, they would also not result in a substantial change in groundwater salinity associated with a decline in groundwater levels. And, if unanticipated changes to groundwater levels occurred during construction, the changes would be localized and in the immediate area of the construction. The EIR also includes Mitigation Measure GW-1, which requires monitoring during construction and adjustments to construction activities as needed, depending on the groundwater level monitoring results. Although it is determined that the project would not impact groundwater quality, Mitigation Measure GW-1 has been revised to include monitoring of electroconductivity at select locations during construction to provide data confirming the conclusions in the EIR. Impact GW-1 and Impact GW-2 remain less than significant prior to the implementation of the revised mitigation measure, as described in Chapter 8. The revision to Mitigation Measure GW-1 does not result in a new significant environmental impact, substantial increase in the severity of an environmental impact, or require additional mitigation measures to which DWR was unwilling to commit.
516-66	[Att 1:] Soil borings are planned to be every 1,000 feet along the tunnel alignment, and CPT borings every 500 feet. Groundwater-level monitoring wells will be constructed in every third soil boring (Section 3.1.1.3 in EPR file 014 B) with groundwater quality monitoring every 2 miles, or possibly 5,000 feet, along the tunnel alignment between shafts (Section 4.2.2 and Table 4.2 in EPR file 014 B). The DEIR leads to a number of questions regarding environmental impacts that might occur with construction of a 45-mile-long impermeable hydraulic barrier that should be addressed in a revised DEIR, including but not limited to:	Thresholds of significance for changes in water quality will be linked to the subbasin's sustainable management criteria for groundwater quality. If pre-construction, construction, and post-construction monitoring demonstrates that these criteria are violated as a result of project construction or operations, then additional actions may be triggered.

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	j. What evidence is needed and what are the thresholds of significance for changes in water quality that trigger mitigation measures, such as alteration or replacement of a water well, or financial compensation?	
516-67	[Att 1:] Soil borings are planned to be every 1,000 feet along the tunnel alignment, and CPT borings every 500 feet. Groundwater-level monitoring wells will be constructed in every third soil boring (Section 3.1.1.3 in EPR file 014 B) with groundwater quality monitoring every 2 miles, or possibly 5,000 feet, along the tunnel alignment between shafts (Section 4.2.2 and Table 4.2 in EPR file 014 B). The DEIR leads to a number of questions regarding environmental impacts that might occur with construction of a 45-mile-long impermeable hydraulic barrier that should be addressed in a revised DEIR, including but not limited to: k. Who will arbitrate a dispute and decide whether compensation for groundwater quality impacts from the DCP construction or operation is warranted?	Chapter 8, Groundwater, fully and adequately evaluates the construction and operation of the alternatives facilities, including the tunnel, shaft sites, and cutoff walls. Impacts GW-1 through GW-7 use different qualitative and quantitative methods to disclose potentially significant environmental impacts on groundwater. Impacts on groundwater are determined to be less than significant. Furthermore, DWR has included Mitigation Measure GW-1 to further reduce the less-than-significant impacts during construction. As indicated in Chapter 3, Description of the Proposed Project and Alternatives, in the section titled Field Investigations, DWR will conduct additional field surveys prior to commencing construction of the intakes, tunnel shafts, tunnel, pumping plants, and other planned facilities. These surveys would include locating groundwater wells within footprint of the planned facilities as well as the tunnel right-of-way. If groundwater wells are located with the footprint or right-of-way, they would be evaluated to determine methods to abandon, relocate, or avoid the wells. DWR will work with the owners of active groundwater wells to ensure construction of the proposed project or alternatives would not restrict access to groundwater supplies. As described in Chapter 8, there are no significant adverse changes anticipated in groundwater quality associated with project construction or operations practices, migration of existing groundwater contaminant plumes, and/or inducement of migration of poorer-quality (higher-saline) water into the areas of higher-quality groundwater. Also, as described in Chapter 8, there are no significant adverse changes anticipated in surface salinity associated with project construction or operations. Please also refer to response to comment 516-65 regarding groundwater quality.

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516-68	[ATT 1:] Potential Environmental Impacts from Construction of Delta Conveyance Project Through the California Delta Gas Fields 31. The Delta Conveyance Project Alternatives 1 through 5 will convey from 3,000 to 7,500 cubic feet per second (cfs) using two or three intake structures on the Sacramento River near Clarksburg, Hood, and Courtland, and a single tunnel with the outside diameter ranging from 28 to 44 feet, depending on the alternative. The proposed project is Alternative 5, the Bethany Reservoir Alignment, that conveys up to 6,000 cfs using two intakes and a 45 mile long, 36-foot-inside diameter, 39-foot-outside diameter single tunnel (Table 3.2, and Section 3.14). Alternative 5 captures Sacramento River water at Intake B, north of the City of Hood, and Intake C, between the cities of Hood and Courtland, then directs it to the Twin Cities Complex, a single tunnel then turns south and follows the Eastern Alignment as far as Lower Roberts Island, where is turns southwest to Bethany Reservoir (Figure 3.2). In Chapter 25 -- Hazards, Hazardous Materials, and Wildfire, the DCP DEIR discusses excavation and tunneling near oil and natural gas production facilities and tunneling near gas fields. The DEIR notes that flammable gases such as methane can pose a hazard to workers during deep excavations and tunneling, and that petroleum deposits underlying the study area could result in the migration of oil or natural gas from deep reservoirs into shallow strata that may be disturbed during construction (Section 25.1.2.1, page 25-3). Petroleum production in the project area is mainly natural gas extraction that's been ongoing since 1936 with numerous oil and gas wells drilled throughout the project area (Section 25.1.2.4), a	Determining the most accurate geophysical methods to locate abandoned natural gas wells will be part of the field test program described in Chapter 3, Description of the Proposed Project and Alternatives, in the Location of Buried Groundwater and Natural Gas Wells section. As stated in the Potential Future Field Investigations technical memoranda (Delta Conveyance Design and Construction Authority 2022d, 2022e), these investigations would be conducted following adoption of the EIR to focus on the adopted project and to facilitate access to the sites for detailed field investigations. The information presented in the Chapter 3 Field Investigations section also describes activities, such as past and future efforts to identify geotechnical, hydrogeologic, agronomic, and other field conditions that will guide appropriate construction methods and monitoring programs, which would occur during the final engineering design and/or construction phases of the project facilities. As described in Section 4.2.4 of the Delta Conveyance Design and Construction Authority Potential Future Field Investigations—Bethany Reservoir Alternative technical memorandum (Delta Conveyance Design and Construction Authority 2022d), it is assumed that 40 percent of the area surveyed during design would be subject to additional land surveys, drilling, and trenching to locate these buried features. If there were additional actions not described in the EIR associated with the field investigations, subsequent activities would comply with the necessary state environmental review requirements and may require additional CEQA review, as described in the Field Investigations section of Chapter 3. For a discussion on how DWR will obtain access to properties to conduct utilities surveys, please see Common Response 7, Implementation Considerations, regarding the property acquisition process.

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	total of 2004 gas wells in the three-county study area (Chapter 27, Section 27.1.2.2 -- Natural Gas Resources, Table 27-2, page 27-10). A number of these wells are apparently present along the project alignments, see Figure 25-2, and attached Exhibit 20 (modified Figure 27-2). The DEIR notes that [a]ctive, abandoned, and idle oil and gas wells may be present in areas where excavation is planned. Improperly sealed natural gas wells have the potential to act as natural gas conduits from deep reservoirs to shallow strata where flammable gases may pose hazards to excavation or tunneling activities. 32. The DEIR assumes that the locations of active wells can be easily determined, but the locations of abandoned or plugged wells may be unknown due to inadequate or missing data or poor record keeping (Chapter 25, Section 25.1.2.4, page 25-7). In fact, the CalGEM Well Finder website, [Footnote 19: https://maps.conservation.ca.gov/doggr/] a product of California's State oil and gas regulator, provides a clear disclaimer about the accuracy of all well info: The Department of Conservation, Geologic Energy Management Division (CalGEM) provides the data contained in this website for informational purposes. The data in this website is supplied by third parties and the content is believed to be reliable. However, no warranty expressed or implied is made by CalGEM regarding: accuracy, adequacy, completeness, legality, reliability, merchantability, fitness for a particular purpose, freedom from contamination by computer viruses, or	

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	usefulness of any information. All warranties of any kind, express or implied, including, but not limited to, the implied warranties of non infringement [sic] of proprietary rights ARE DISCLAIMED. 33. The proposed project actions to mitigate potential hazards from oil and gas wells are discussed in Chapter 27 -- Mineral Resources. Section 27.3.1.2 -- Evaluation of Construction Activities, discusses the use of geographic information system (GIS) data to quantify the number of oil and natural gas wells, areal extent of natural gas fields, ... affected by the footprints of all components of the project alternatives, including conveyance-related activities. See Exhibit 20 [see ATT1 ATT20] for a map of wells and alternative alignments. In the Section 3.15.2.6 -- Location of Buried Groundwater and Natural Gas Wells, the DEIR proposes to conduct desktop surveys prior to the construction phase to locate documented and undocumented oil and gas wells. A field test program is also proposed to evaluate the suitability of various geophysical techniques to detect buried and abandoned wells. The DEIR assumes that magnetic surveys would be conducted using wide-area airborne methods (drones, helicopter, and/or fixed-wing aircraft) would be followed by site-specific walk- or tow-over ground based magnetic surveys at intake, tunnel shaft, and along tunnel alignments (page 3-138). Surface geophysical methods would also be conducted at these locations. Located wells would be evaluated to determine methods to abandon, relocate, or avoid the wells. Elsewhere in Section 3.15.3.2 the DEIR states that land surveys, drilling, and trenching would be used to identify abandoned buried groundwater, natural gas, and oil wells before and during construction (page 3-141).	

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	34. From the DEIR discussions cited above, it is apparent that no site-specific information or knowledge has been analyzed for the DEIR regarding the number and locations of gas and water wells that would have to be modified to allow for construction of the tunnel and/or the associated surface facilities. The only discussion concerns known active wells which will not be displaced by the project construction footprint by any of the project alternatives (Chapter 27, Section 27.3.3.2, page 27-18, lines 21 to 23). What is known is that there are likely several gas wells within the footprint of the project that could interfere with construction, see Exhibit 20 [see ATT1 ATT 20].	
516-69	[ATT 1:] The feasibility of the proposed geophysical studies for locating documented and undocumented wells is likewise uncertain; a field test program will be implemented to find any suitable methods. The EPR technical memorandum (file 014 B) of the Potential-Future-Field-Investigations -- Bethany Reservoir Alternative (Final Draft) [Footnote 20: This technical memorandum is part of the Delta Conveyance Design and Construction Authority, May 2022, Volume 1: Delta Conveyance Final Draft Engineering Project Report -- Central and Eastern Options, Sacramento, CA and is available at: https://www.dcdca.org/info-center/document-library/; https://www.dcdca.org/wpcontent/uploads/2022/07/014-B-Potential-Future-Field-Investigations-TM.pdf] discusses potential field studies for locating abandoned wells. The memorandum states that: It is assumed that a low-flying helicopter would conduct the airborne magnetic surveys over the facility sites and the entire	Please see response to comment 516-68 regarding the field test program that will be used to determine the most accurate geophysical methods to locate abandoned natural gas wells. The comment assertions regarding airborne geophysical surveys are not consistent with the analyses in the EIR. Please refer to Chapter 3, Description of the Proposed Project and Alternatives, section titled Location of Buried Groundwater and Natural Gas Wells, which explains that airborne methods will be used: "the use of wide-area airborne methods (drone, helicopter, and/or fixed-wing aircraft) to conduct magnetic surveys followed by more site-specific walk- or tow-over ground-based magnetic surveys is assumed." In regard to the spacing of the flight lines along the tunnel alignment, the total width of the tunnel alignment construction area would be 100 feet, with the tunnel located in the center of this alignment. Therefore, three flight lines would be along the center line and along each alignment boundary (50-feet off the tunnel center line). In areas where any metallic pipelines or wells are identified through the flight surveys and/or desktop

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	tunnel alignment. A helicopter similar to a Bell 407 would be used to tow a device containing field magnetic sensors approximately 50 ft below the helicopter. The helicopter would fly at a low altitude of approximately 150 ft altitude, towing the field magnetic sensors at approximately 100 ft altitude. It is assumed that the helicopter would fly a total distance of approximately 400 miles over 3 days. In addition to detecting wells, the airborne magnetic surveys would also detect other metallic features, such as pipelines. To differentiate between wells and other metallic features, the helicopter would make an average of 7 passes along the tunnel alignment, with flight lines offset 50, 100, and 200 ft on either side of the tunnel centerline, for a total of 7 passes. Anomalies that appear on successive profiles depicting a linear feature could then be excluded from the data. Using this approach, the approximate location of wells located within 100 ft of the tunnel centerline should be able to be inferred. Following the use of airborne magnetic surveys, ground-based walk-over magnetic surveys would be conducted to refine the locations of the wells. The walk-over ground based magnetic surveys would be conducted using the Cesium Vaper Total Field Magnetometer (CVTFM) method. For the CVTFM method, a magnetometer and geographic positioning system unit would be hand-carried by a technician to measure the ambient magnetic field. The technician would walk a line collecting readings (Figure 1). This process would be repeated for the next line spaced approximately 10 ft (3 meters) to 15 ft (4.6 meters) away from the first. Survey areas would be approximately 100 ft wide by 100 ft long. Approximately 300 areas would be surveyed using the walkover CVTFM method.	studies, ground surveys would be conducted along 10- to 15-foot grid lines, as described in Section 3.6 of the Potential Future Field Investigations—Bethany Reservoir Alternative technical memorandum (Delta Conveyance Design and Construction Authority 2022d). In regard to the reference to identification of linear features (generally pipelines) by the aerial surveys, these types of features are assumed to be constructed at depths much higher than the top of the tunnel, which would be located more than 100 feet below the ground surface. Therefore, these shallow features would not be modified to protect the tunnel boring machine.

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	35. Although Volume 1 of the DCP Final Draft EPR is cited in the DEIR, the engineering report's recommended design for an airborne geophysical survey to locate buried gas wells isn't included as an intended field investigation. Instead, the DEIR appears to leave the well survey design to a future study (see Section 3.15.2.6, page 3-138). The EPR 014 B technical memorandum doesn't provide any reference or analysis that the proposed 50-foot line spacing will identify all wells within the tunnel alignment. Apparently, determining the actual airborne survey line spacing is part of the future field test program needed to evaluate the suitability of various geophysical techniques to detect buried and abandoned wells. If that's the case, the number of line miles of aeromagnetic surveys might need to be significantly greater. The geophysical survey line spacing and sampling distances should be designed so that there is a very high probability that a buried well will be identified. A published study [Footnote 21: Agocs, W.B., 1955, Line Spacing Effects and Determination of Optimum Spacing Illustrated by Marmara, Ontario Magnetic Anomaly, Geophysics, V. XX. Mo. 4, p. 871-885.] on the effects of line spacing for identification of a magnetic anomaly indicates that for a circular anomaly of diameter D, that is less than the line spacing S, the probability of a line crossing the anomaly is: Probability of intersection = Diameter of anomaly / Spacing of survey lines. For example, if the magnetic anomaly above a buried well is 20 feet in diameter, then the probability of seeing that anomaly	

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	with survey lines spaced 50 feet apart and sampled every 50 feet is 40% (20 feet / 50 feet = 0.40). The identification of a buried well anomaly is made even more difficult by the likelihood of other magnetic artifacts, such as buried gas lines. The technical memorandum EPR file 014 B states that a linear anomaly that appears in successive profiles, presumably a buried gas line, would be excluded from the data (Section 3.6). The technical report doesn't provide any analysis of why it can be assumed that a gas line, or other cause of a linear magnetic anomaly, can't be placed above a buried well. The well abandonment regulations in California Code of Regulations Title 14, Sections 1723.5 requires that a well casing shall be cut off at least 5 feet but no more than 10 feet below the surface of the ground. [Footnote 22: https://www.conservation.ca.gov/index/Documents/CALGEM-SR-1%20Web%20Copy.pdf] This well abandonment burial requirement wouldn't prevent construction of a pipeline above or adjacent to an abandoned well. The magnetic anomalies from both objects may create a single magnetic signature, especially with line spacings of 50 feet to 100 feet. The line spacing requirements and other issues associated with using geophysical methods for locating abandoned wells have been discussed in more detail by Frischknecht and others (1983). [Footnote 23: Frischknecht, F.C., Muth, L., Grette, R., Buckley, T., Kornegay, B., 1983, Geophysical Methods for Locating Abandoned Wells, USGS, Open-File Report 83-702, 211 pgs.]	
516-70	[ATT 1:] 36. Identification of all buried wells within the tunnel alignment should be the goal of the buried well investigation because of the significant impacts to the environment and to the project's budget should the tunnel boring machine strike a buried well. For example, in 2013 a tunneling boring machine in Seattle encountered a water well casing that required that	As described in Chapter 3, Description of the Proposed Project and Alternatives, in the Field Investigations section, field investigations would be conducted to identify potential conflicts with abandoned natural gas wells during the design phase and construction phase. As described in Section 4.2.4, Location of Buried Groundwater and Natural Gas Wells, of the Potential Future Field Investigations—Bethany Reservoir Alternative

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	the boring cutting head be brought to the surface for repair. [Footnote 24: See reports of incident at: https://seattlebusinessmag.com/manufacturing/spin-zone-bertha-maker-hitachi-zosen-bites-back [;] https://seattlebusinessmag.com/policy-regulations/who-killed-bertha-why-seattle-tunnel-disaster-isnt-what-itseems-and-why-wsdot-making/ [;] https://www.seattletimes.com/seattle-news/bertharsquos-nemesis-119-foot-steel-pipe/ [;] https://www.jdsupra.com/legalnews/seattle-tunnel-partners-bertha-case-2452218/] This required that a shaft be constructed down to the tunneling machine so that cranes could lift the cutting head to the surface. The repair of the tunneling machine delayed the project 2 years and triggered multiple lawsuits for cost recovery. Should the Delta Conveyance tunneling machine encounter a well and require similar repairs, a large diameter shaft would have to be excavated down approximately 160 feet, with road(s) constructed to allow heavy equipment to cross the Delta. These construction activities and delays have the potential to cause at least locally significant environmental impacts and require follow-up mitigation measures to restore the disturbed lands.	technical memorandum (Delta Conveyance Design and Construction Authority 2022d), it is assumed that 40 percent of the area surveyed during design would be subject to additional land surveys, drilling, and trenching to locate these buried features. If there were additional actions not described in the EIR associated with the field investigations, subsequent activities would comply with the necessary state and federal environmental review requirements and may require additional CEQA review, as described in Chapter 3 of the EIR, in the introduction to the section titled Field Investigations.
516-71	[ATT 1:] 37. Even if the geophysical studies were undertaken with a high degree of certainty that a buried well would be located, the DEIR doesn't address what impacts might occur or the mitigation that might be needed should the proposed future study(s) identify a physical hazard to the project that might require a change to the project's alignment, a redesign of the tunnel, or relocation of a surface structure. The DEIR simply states that identified wells would be evaluated to determine the methods to abandon, relocate, or avoid the	Although several shaft locations were adjusted to avoid identified wells, the presence of an abandoned well would not necessarily necessitate changing a tunnel alignment. However, information collected during the field investigations would be used to determine the need to remove or abandon the natural gas wells and pipelines within the tunnel alignment. All actions to remove or abandon oil and natural gas wells and pipelines would occur in accordance with state laws, including CalGem and Central Valley Regional Water Quality Control Board requirements. As described in the Chapter 3, Description of Proposed Project and Alternatives, section

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	wells (Section 3.15.2.6). Avoiding a well might significantly change the tunnel alignment and the location of surface structures. Relocation of a gas well doesn't seem like a viable alternative if it's a buried and abandoned well. Finally, abandoning a well would require exposing the buried well and then removal of at least the upper 170 feet of well casing to keep it out of the path of the tunnel or foundation of any surface structures. The task of removing the upper portion of an abandoned well should require replugging of the remaining well. This would likely require a drill rig and a driller with experience at reclamation, reworking, and reabandoning oil and gas wells. The DEIR should document the opinions and procedures on the feasibility of performing this type of reabandonment from knowledgeable and experienced gas well drillers and the State's oil and gas regulator CalGEM, a division of the California Department of Conservation. Reabandonment of a well should be done in a manner that ensures that no future modification of the well would be required. Reburial of the well below the tunnel structures would likely prevent any future repairs should the new well plug fail. It is likely that a permit would have to be obtained from CalGEM for any well reabandonment activities, but the DEIR doesn't list CalGEM as an agency for permitting. The DEIR also doesn't appear to acknowledge the work effort to reabandon a gas well (see Attachment C in EPR file 014 B) or the regulatory oversight role that CalGEM might have in any modifications or reabandonment of an oil or gas well (Chapter 1, Section 1.5.2.4, Table 1-1).	titled Introduction, additional actions not analyzed in this EIR associated with the field investigations and subsequent activities would comply with the necessary state and federal environmental review requirements and may require additional CEQA review. The Chapter 1, Introduction, table titled Summary of Potential Agencies and Review, Approval, or Other Responsibilities, in Addition to Those under CEQA of the EIR has been revised to include the California Geologic Energy Management Division (CalGem) of the Department of Conservation. This minor revision does not result in a new significant environmental impact or substantial increase in the severity of an environmental impact, nor does it require additional mitigation measures to which DWR is unwilling to commit.
516-72	[ATT 1:] 38. Other potential environmental issues associated with constructing the DCP tunnel through natural gas fields that don't appear to be discussed in the DEIR include: (1)	Please see response to comment 516-68 related to tunneling activities in areas with flammable gasses and hydrocarbons.

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	tunnel construction disturbance of the surrounding soils or boring vibrations that damage or rupture the seals in nearby abandoned, inactive, or active oil or gas wells; (2) procedures when encountering an abandoned gas or oil well whose location is unknown or is improperly located; (3) how known inactive wells will be modified to allow for the tunnel construction while maintaining the well seal; and (4) procedures that will be used should the tunnel boring machine encounter and/or be damaged by a known or unknown well casing. All these issues have the potential to cause significant impacts to the environment if proper monitoring and mitigation measures aren't implemented. The potential for impacts from construction and operation of the DCP tunnel in a natural gas resource area should be analyzed, and monitoring and mitigation measures provided, as part of the DCP environmental review and permit documents, not left to a future study.	Regarding vibrations in the soil during operations of the tunnel boring machine, this would be primarily related to velocity of soil displacement, as described in the Tunneling Effects Assessment technical memorandum (Delta Conveyance Design and Construction Authority 2022f). The 41-foot outside diameter tunnel would be located in the center of a 100-foot-wide alignment with approximately 30 feet (or 9 meters) from the edge of the tunnel to the edge of the alignment. Results of the field investigations and additional land surveys, drilling, and/or trenching would be used to determine the need to remove or abandon natural gas wells or pipelines that could be affected by the tunnel boring machine. In addition, the possible impact of tunneling on nearby natural oil/gas wells that will be left in place (abandoned) and located within the 100-foot-wide alignment will be assessed on a site-specific basis, including information collected from the field investigations, as described in response to comment 516-69. Please see response to comment 516-73 for a discussion of the low likelihood of damage to nearby wells and the monitoring that would occur to detect natural gas leaks. If natural gas wells or pipelines are determined to be affected by the tunnel boring machine, they would be removed or abandoned in place in accordance with the CalGem criteria, including methods to avoid release of natural gas constituents into the air, soil, or groundwater. If water supply wells or pipelines are determined to be affected by the tunnel boring machine, they would be removed or abandoned in place in accordance with the Department of Water Resources Well Standards and local standards and ordinances. It is not anticipated that an unknown gas well would be encountered because field investigations and monitoring would prevent such an encounter; however, should that occur, DWR would abandon the well following the regulations described in further detail in response to comment 516-74. This response also describes the procedures in place should the tunnel boring machine encounter an unknown natural gas well.

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		As described in the introduction to Chapter 3, Description of the Proposed Project and Alternatives, additional actions not analyzed in this EIR associated with the field investigations and subsequent activities would comply with the necessary state environmental review requirements and may require additional CEQA review.
516-73	[ATT 1:] Environmental impacts and questions that should be addressed include: a. Is there the potential for natural gas or saline water to migrate into shallow groundwater aquifers and contaminate the water supply or possibly create a flammable or explosive buildup of natural gas from disturbance of soils or excessive boring vibrations that damage the well seal or well plug of a gas well? i. What is the minimum setback distance from the tunnel boring needed to maintain well seals and plugs? ii. What procedures will be used before, during and after tunnel construction to identify any natural gas and/or saline water migration into shallow groundwater aquifers? iii. What procedures and mitigations will be used to remedy tunnel construction impacts to groundwater and surface water quality, the potential for natural gas accumulation, the occurrences of any flammable or explosive	DWR considered regional local standards in determining impacts and appropriate mitigation for groundwater. DWR will comply with all local requirements where applicable. In regard to the separation between the tunnel boring machine and nearby natural gas wells, those items will be determined on a site-specific basis, including determinations based on information from the field investigations, as described in response to comment 516-69. Due to the implementation of these actions as part of the project description, the potential for changes in discharges from the natural gas wells is extremely low. As described in the Tunnel Excavation and Drive Assessment technical memorandum (Delta Conveyance Design and Construction Authority 2022g), the tunnel boring is anticipated to occur in an area categorized as "potentially gassy" or "gassy"; therefore, the tunnel boring machines will have monitors to detect if gas is present and equipment to stop the tunneling if that occurs.

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	events from the buildup of natural gas, and the migration of natural gas and/or saline water.	
516-74	[ATT 1:] Environmental impacts and questions that should be addressed include: b. The Draft EIR has identified and tabulated the known existing active and abandoned gas and water wells within the right of way of all tunnel alternatives. The Draft EIR doesn't address how the known inaccuracy of the gas well locations (Section 25.1.2.4, page 25-7) will impact the construction of the tunnel or provide specific information on how wells or other structures in the pathway of the tunnel will be properly abandoned. Environmental impacts and questions that should still be addressed include: i. What specific surface and subsurface procedures will be implemented to identify and accurately locate any known and unknown oil, gas, and/or water wells in the path of the tunnel bore and within a buffer zone that's set back from the tunnel bore at a distance that prevents the tunnel-boring machine vibrations from causing any damage to an existing well? ii. What are the specific procedures for documenting the actual locations and the characteristics of any known or unknown wells within the buffer zone of the path of the tunnel bore? iii. What are the legal and permitting requirements and procedures for modifying any oil, gas, or water well to ensure the safe and timely	In regard to actions to abandon or relocate natural gas wells and pipelines, please see response to comment 516-71. All actions to remove or abandon oil and natural gas wells and pipelines would occur in accordance with state laws, including CalGem and Central Valley Regional Water Quality Control Board requirements. All work would be completed in accordance with Cal/OSHA, Mining and Tunneling Unit. In regard to what specific surface and subsurface procedures would be used to locate oil, gas, and water wells, please see the section titled Location of Buried Groundwater and Natural Gas Wells, in the two Potential Future Field Investigations technical memoranda in the Engineering Project Reports (Delta Conveyance Design and Construction Authority 2022d, 2022e). The level of detail in the technical memoranda is sufficient for the purposes of CEQA, and more detail will be developed further in the design process. The procedures for documenting the well locations will be in keeping with standard practices developed by DWR. Environmental impacts associated with abandoning wells are not anticipated because DWR will comply with state regulations, including CalGem and Central Valley Regional Water Quality Control Board requirements. For further information, please see response to comment 516-71. In regard to procedures to repair the tunnel boring machine, the Tunnel Shafts section of Chapter 3, Description of the Proposed Project and Alternatives, and the Tunnel Excavation and Drive Assessment technical

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	construction of the tunnel and associated facilities? iv. What are the procedures and methods for removing and/or otherwise properly abandoning any oil, gas, or water well from the pathway of the tunnel? v. What are the environmental impacts of removing and/or abandoning oil, gas, or water wells for the tunnel construction? vi. What are the monitoring requirements and procedures for ensuring that a removal and/or abandonment of an oil, gas, or water well was properly implemented? vii. What are the procedures and mitigations that will be implemented should the removal and/or abandonment of an oil, gas or water well fail to protect groundwater quality or present any other environmental hazard, such as a potential for a gas explosion? viii. What are the procedures and methods for repairing the tunnel boring machine should it break down from an encounter with a well casing or other buried structure, or be damaged? ix. What are the environmental impacts from implementing any repairs of the tunnel boring machine, the legal and permitting requirements	memorandum (Delta Conveyance Design and Construction Authority 2022g) describe the design elements in place to prevent and address repairs. The maximum tunnel drive lengths between the tunnel launch, maintenance, and reception shafts were defined based upon conservative criteria to allow all maintenance activities to occur at these shafts. The criteria included use of special cutterheads, cutting tools, wear sensors, and soil conditioners. Use of hard cutterhead face and rim materials, such as chromium carbide wear protection plates, would reduce the need for frequent maintenance. In addition, the cutting tools would be made of high-strength material and be replaceable. The cutterhead design should consider designs that would allow for exchange of the cutterhead tools and main bearings from the back of the cutterhead within the Tunnel Boring Machine (TBM) or within a maintenance shaft. Regular maintenance of the TBM would be required, including weekly inspections (and possible use of a camera in the excavation chamber), use of wear detection systems, and regular changing of lubricant oil. Soil conditioners would be used to reduce the wear of the cutterheads and extend the useable life of the equipment parts. The tunnel alignment includes many maintenance shafts to allow for complete removal of both sides of the cutterhead within a dry tunnel shaft. As noted in the technical memorandum, similar tunnels have been constructed with distances between maintenance shafts of 6 to almost 14 miles. For the Delta Conveyance Project, the maximum distance between maintenance shafts would be approximately 6 miles. Because of these design elements, it is not anticipated that additional ground disturbance would be necessary.

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	to implement repairs, and the mitigation measures for these impacts? x. What are the procedures and mitigation measures that would be implemented to reclaim the disturbed lands should it be necessary to bring the boring machine to the surface at an unplanned location?	
516-75	[ATT 1 of ATT 1: Modified Timing of Recharge Graph] Exhibit 1	The commenter is providing this exhibit in support of their comments. Those comments are addressed in these responses to the commenter's letter.
516-76	[ATT 2 of ATT 1: MBK Engineers Streamflow Depletions Presentation] Exhibit 2	The commenter is providing this exhibit in support of their comments. Those comments are addressed in these responses to the commenter's letter.
516-77	[ATT 3 of ATT 1: Butte Final Groundwater Sustainability Plan Groundwater Budget Summary] Exhibit 3	The commenter provided this attachment for reference purposes in support of their comments. Those comments are addressed in these responses to the commenter's letter.
516-78	[ATT 4 of ATT 1: Butte Final Groundwater Sustainability Plan Land and Surface Water Budget Summary] Exhibit 4	The commenter provided this attachment for reference purposes in support of their comments. Those comments are addressed in these responses to the commenter's letter.
516-79	[ATT 5 of ATT 1: Modified Colusa Final Groundwater Sustainability Plan Groundwater System] Exhibit 5	The commenter provided this attachment for reference purposes in support of their comments. Those comments are addressed in these responses to the commenter's letter.
516-80	[ATT 6 of ATT 1: Modified Colusa Final Groundwater Sustainability Plan Land and Surface Water System] Exhibit 6	The commenter provided this attachment for reference purposes in support of their comments. Those comments are addressed in these responses to the commenter's letter.
516-81	[ATT 7 of ATT 1: Modified Vina Final Groundwater Sustainability Plan Groundwater System] Exhibit 7	The commenter provided this attachment for reference purposes in support of their comments. Those comments are addressed in these responses to the commenter's letter.
516-82	[ATT 8 of ATT 1: Modified Vina Final Groundwater Sustainability Plan Land and Surface Water System] Exhibit 8	The commenter provided this attachment for reference purposes in support of their comments. Those comments are addressed in these responses to the commenter's letter.

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516-83	[ATT 9 of ATT 1: Modified Corning Subbasin Historical vs 2070 Groundwater Budget Parts A and B] Exhibit 9	The commenter provided this attachment for reference purposes in support of their comments. Those comments are addressed in these responses to the commenter's letter.
516-84	[ATT 10 of ATT 1: Modified Corning Subbasin Historical vs. 2070 Groundwater Budget Part C] Exhibit 10	The commenter provided this attachment for reference purposes in support of their comments. Those comments are addressed in these responses to the commenter's letter.
516-85	[ATT 11 of ATT 1: Modified Corning Subbasin Current vs. 2070 Groundwater Budget Parts A and B] Exhibit 11	The commenter provided this attachment for reference purposes in support of their comments. Those comments are addressed in these responses to the commenter's letter.
516-86	[ATT 12 of ATT 1: Modified Corning Subbasin Current vs. 2070 Groundwater Budget Part C] Exhibit 12	The commenter provided this attachment for reference purposes in support of their comments. Those comments are addressed in these responses to the commenter's letter.
516-87	[ATT 13 of ATT 1: Corning Subbasin Changes in Net Stream Gains Historical vs. 2070 Parts A and B] Exhibit 13	The commenter provided this attachment for reference purposes in support of their comments. Those comments are addressed in these responses to the commenter's letter.
516-88	[ATT 14 of ATT 1: Corning Subbasin Changes in Net Stream Gains Historical vs. 2070 Part C] Exhibit 14	The commenter provided this attachment for reference purposes in support of their comments. Those comments are addressed in these responses to the commenter's letter.
516-89	[ATT 15 of ATT 1: Corning Subbasin Historical Land Surface Water Budget] Exhibit 15	The commenter provided this attachment for reference purposes in support of their comments. Those comments are addressed in these responses to the commenter's letter.
516-90	[ATT 16 of ATT 1: California Delta and Mokelumne River Pleistocene Channels and Alluvial Fan Overlay with Proposed Project] Exhibit 16	The commenter is providing this exhibit in support of their comments. Those comments are addressed in these responses to the commenter's letter.
516-91	[ATT 17 of ATT 1: Interfingering Glacial Channel and Interglacial Detaic Deposits] Exhibit 17	The commenter is providing this exhibit in support of their comments. Those comments are addressed in these responses to the commenter's letter.
516-92	[ATT 18 of ATT 1: 1974 DWR Bulletin Stream Channel Deposits Part 1] Exhibit 18	The commenter is providing this exhibit in support of their comments. Those comments are addressed in these responses to the commenter's letter.

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516-93	[ATT 19 of ATT 1: 1974 DWR Bulletin Stream Channel Deposits Part 2] Exhibit 19	The commenter is providing this exhibit in support of their comments. Those comments are addressed in these responses to the commenter's letter.
516-94	[ATT 20 of ATT 1: Modified DEIR Figure 27-2 with Project Alternative Alignments] Exhibit 20	The commenter provided this attachment for reference purposes in support of their comments. Those comments are addressed in these responses to the commenter's letter.
516-95	[ATT 21 of ATT 1: Testimony of Kit Custis on the Matter of DWR and Bureau of Reclamation Request for a Change in Point of Diversion for California Waterfix.] Exhibit 21	The commenter provided this attachment for reference purposes in support of their comments. Those comments are addressed in the responses to the commenter's letter.
516-96	[ATT 22 of ATT 1: Testimony of Kit Custis on the Matter of DWR and Bureau of Reclamation Request for a Change in Point of Diversion for California Waterfix Part 2] Exhibit 22	The commenter is providing this exhibit in support of their comments. Those comments are addressed in these responses to the commenter's letter.
516-97	[ATT 2:] Summary This independent technical evaluation of the Delta Conveyance Project Draft Environmental Impact Report (henceforth referred to as the DEIR) yields good news and bad news for the California Department of Water Resources (DWR). The good news is that the various contributors to the DEIR deserve congratulations for their contributions to the assessment of environmental impacts spanning a broad level of detail ranging from estimates of subsurface geology through evaluations of biodiversity to the potential effects of climate change.	This information describes the general opinion of the organization on the EIR. It is not a comment on the contents of the Draft EIR. DWR has reviewed all comments and will consider all comments in its decision-making process.
516-98	[ATT 2:] But there is bad news in the DEIR as well, and it compromises the work performed in assembling the massive technical detail presented in the DEIR. That unfortunate news arises at the system scale where important resource allocation decisions are made, and there, the DEIR fails to provide adequate technical justification to demonstrate the value of the proposed Delta Conveyance Project. The summary story at this larger scale is that many of the models used in the DEIR lie	Please see response to comment 516-27 regarding the accuracy and use of the hydrologic modeling conducted for the project.

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	well outside the mainstream of the current state of practice in computational modeling of both natural and built environments. That omission compromises the utility of the DEIR in practical applications for allocation of California's water resources. There is also an unrealized opportunity here, in that much of the technical insufficiency of the DEIR could at least in theory be remedied by bringing the quality of its various models up to current acceptable standards of quality. The decision-makers at the DWR should be encouraged to "go back to the drawing board" to improve the quality of the technical basis for the DEIR.	
516-99	[ATT 2:] Some Relevant Supporting Detail[.] In general, the review commentary below concentrates on some of the essential elements that are missing from the DEIR, and how those gaps compromise the utility of the DEIR. Risk in Decision-Making[.] Effective decision-making for resource allocation necessarily includes assessments of risk, with risk defined in the usual manner as the product of the likelihood of an outcome and the impact of that outcome. So risk can be substantial for unlikely events if the outcome is sufficiently broad in scope, and modern decision-making practices utilize risk-graded approaches to decisions by requiring more technical due diligence when the risk is large than when it is small. When the task of assessing the risk to California's water resources is considered for various decision-making scenarios,	The Delta Conveyance Project EIR has been prepared in compliance with CEQA and evaluates the full range of potentially significant environmental impacts pursuant to the requirements of CEQA. The EIR evaluates potentially significant environmental impacts associated with geotechnical risks that may result from construction and operation of the proposed project and its alternatives. Please refer to Common Response 1, CEQA Process, General Approach to Analysis, Other Environmental Review Issues, for a discussion of the scope of the project purpose and objectives, which were developed in part to address the risks of climate change and geologic hazards and seismic considerations, and to help ensure reliability of the SWP (i.e., statewide water supply). Please refer to Chapter 10, Geology and Seismicity, and Chapter 11, Soils, regarding impact analysis associated with earthquakes, subsidence, settlement, and a discussion of required site-specific geotechnical reports to inform final design and engineering. The chapter acknowledges the uncertainties associated with the seismic contributions to the hazard of levee failure and describes future studies to address these uncertainties. As described in the Conceptual Design Phase Seismic Site Response Analysis

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	the potential impact to literally millions of people looms large: California is not only the nation's most populous state, it is also one of the world's most important suppliers of agricultural products. So risk-graded decisions that will define the future of California's water resources require that all of the supporting models demonstrate the highest level of quality possible, and that their application in the decision-making process be subject to evaluation by well-informed technical experts to ensure best analysis practices are consistently followed. In simple terms, the citizens of California deserve no less than the application of the most technologically mature models for such important resource decisions. The fundamental problem of assessing risk is that traditional definitions require a priori estimates of the probability of an outcome and those are seldom well-characterized in real-world practice. For a project of the scale of the Delta Conveyance Project, potential negative outcomes include failure of the tunnel and water transport infrastructure due to multiple uncertain physical effects (e.g., earthquakes, subsidence, differential settlement) that could potentially waste billions of dollars. At this scale of risk management, only the best practices in environmental assessment modeling should be deployed to characterize and mitigate risk.	(Delta Conveyance Design and Construction Authority 2022a:2), the analysis used an updated version of the source model used in the DRMS study. As appropriate, the geometry of some of the fault sources, and other parameters such as seismogenic crustal thickness and slip rate, were modified from the DRMS model to incorporate new data and interpretations, some of which are included in the more recent Uniform California Earthquake Rupture Forecast, Version 3 (UCERF 3). In addition, the potentially active local faults, such as West Tracy and Midland Faults, were characterized and incorporated based on best available fault data developed since the DRMS model. The updated model was used to estimate the Maximum Considered Earthquake to develop design criteria for the proposed project facilities. The conditions and design criteria associated with protections for levees were specifically addressed in the Tunneling Effects Assessment technical memorandum (Delta Conveyance Design and Construction Authority 2022f), Liquefaction and Ground Improvement Analysis technical memoranda (Delta Conveyance Design and Construction Authority 2022b), Liquefaction and Ground Improvement Analysis for Bethany Reservoir Alternative technical memorandum (Delta Conveyance Design and Construction Authority 2022c), and West Tracy Fault Preliminary Displacement Hazard Analysis technical memorandum (Delta Conveyance Design and Construction Authority 2022j).
516-100	[ATT 2:] Uncertainty Accurate assessments of the effects of uncertainty are a key component of modern engineering practice, and especially when computational models are utilized (as they are in the DEIR). The particular principle used is termed "uncertainty quantification", or UQ. These assessments of uncertainty are key components of risk mitigation methods, and the DEIR	Please see Common Response 9, Hydrologic Modeling and Approach, regarding best available tools. The commenter suggests that Appendix 6A, Water Supply 2040 Analysis, lacks detail related to the discussion of uncertainty. Appendix 5A, Modeling Technical Appendix, specifically Section B, Hydrology and Systems Operation Modeling, provides a detailed discussion of this topic that is referenced in the second paragraph of Appendix 6A. Please also refer to responses to comments 516-23 and 516-24 regarding models' uncertainty.

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	provides remarkably little relevant information on how (or even whether) this essential component of an environmental assessment is determined within the DEIR. One example of this lack of relevant technical detail is provided in Appendix 6A, with this bald assertion of UQ for the Calsim 3 model (a key model used for water resources allocation practices described in the DEIR): Although no exact quantification of model uncertainty is available, the California Department of Water Resources (DWR) believes that CalSim 3 results are subject to approximately a 5% uncertainty. This assertion generates serious concerns about its validity for anyone well-versed in computational modeling. The results of any computational technique are subject to various sources of uncertainty, including uncertainties that we can characterize accurately as well as those we cannot. The combined effect of these two classes of uncertainties rarely reaches a figure as low as 5% even in ideal circumstances of high-quality manufacturing, and the assertion that such a reassuring low estimate of uncertainty can be realized in a model that includes natural systems is a red flag that makes a subject matter expert wonder where such as figure came from. Ideally, there would be sufficient transparency in the DEIR to permit the DWR experts to "show their work" in support of such a remarkable figure, but in this case, further review of the assessments of due diligence in the DEIR UQ efforts yield only more uncertainty. This lack of characterization of uncertainty serves to validate the assessment that at the system-level scale, the use of computational models lies outside the	

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	mainstream of current modeling practice, and that the DEIR requires improvement before its predictions can be characterized as realistic.	
516-101	[ATT 2:] Another example occurs in the technical discussions of seismicity in Chapter 10 of the DEIR. In that chapter the authors demonstrate appropriate respect for the considerable uncertainty inherent in assessments of subsurface geology, and their attention to details confirms the previous summary assertion that good work is being performed at the small scale of the DEIR. But how the various uncertainties outlined in this chapter are propagated to the system-level decisionmaking processes of the DEIR is not apparent to a technical reviewer. The physical effects outlined in Chapter 10 include earthquake motions, liquefaction of the soil deposits that comprise much of natural and built environments of the Delta, buoyancy effects on the tunnel, and differential settlement that can pose deadly risks to large-scale infrastructure such as tunnels and pumping facilities, but the overall effect of these various physical effects is not clearly identified, and the cumulative effect of the uncertainties involved is also not well-characterized.	The commenter provided this attachment for reference purposes in support of their comments. Those comments are addressed in these responses to the commenter's letter. Specifically, please refer to responses to comments 516-23 and 516-24 regarding model uncertainty and cumulative effects related to the analyses presented in Chapter 10, Geology and Seismicity.
516-102	[ATT 2:] Software Quality Another important example of the technical gaps in model development practices found in the DEIR lies in the assessment of the quality of the software used to predict the outcomes of the various alternative scenarios described in the DEIR. In this case, the evidence presented in the DEIR for evaluating the quality of the underlying computational models is out of the mainstream of current software quality assurance (SQA) practices, as evidenced less by what is included in the DEIR and more by the pieces that are missing from the DEIR technical	Please see Common Response 9, Hydrologic Modeling and Approach, regarding best available tools. The commenter suggests that discussion related to the quality of underlying computational models is inadequate. The Modeling Limitations section of Appendix 5A, Modeling Technical Appendix, Section A, Modeling Overview, introduces the discussion on model limitations and each section of Appendix 5A, Section B, Hydrology and Systems Operations Modeling, of this appendix provides additional discussion on model limitations and uncertainties for the respective models. DWR Modeling Support Office and U.S. Bureau of Reclamation jointly

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	assessment puzzle. For example, the term "software quality" apparently doesn't appear in the DEIR, despite the central importance of software tools in the assessment of environmental impacts and of the benefits found for each alternative scenario. Another example of these sins of omission is that the most common terminology for characterizing software quality includes terms such as "CMM" (for "Capability Maturity Model", which is a foundational element of modern SQA practices) and these various terms of art in software quality practices are not readily found in the DEIR. Even the term "convergent" (indicating that the computational model can be shown to be predictive in its capability for accurate estimations in time and space) is not found in the DEIR, despite the fact that convergence metrics are among the most fundamental measures of whether a computational model can yield accurate predictions. (In the interest of full disclosure, the term "convergent" is actually found once in the DEIR, in Chapter 10 where it refers to a convergent motion of geological formations. This usage has no practical relevance in terms of software quality, so it is the exception that proves the rule)	develop the CalSim 3 model and underlying software. The development process includes appropriate documentation and version control. The model is open-sourced and available to the community of users and their ongoing review.
516-103	[Att 2:] More examples [of technical gaps in model development practices found in the DEIR] are found in descriptions of software tools such as DeltaGW or Calsim 3. These applications are only as good as their practical use by analysts, which along with the missing puzzle piece of convergence generates a potential technical concern that there might be an underlying constraint involving a lack of appropriate computational resources in the current	Please refer to Common Response 10, Surface Water Quality and Groundwater Resources, regarding the suitability of the DeltaGW model for analysis of local impacts on groundwater, specifically, the section on model resolution and representation of local surface water features. Please also refer to Common Response 9, Hydrologic Modeling and Approach, which provides an overview as to why CalSim 3 is considered the best available tool for describing the hydrologic conditions for each of the project alternatives. Please refer to responses to comments 516-25 and

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	computational modeling environment used for the predictions of the DEIR. In particular, studies of convergence (and hence accuracy) of computational models such as DeltaGW necessarily involve refinement of the computational meshes utilized in the underlying analyses, so that convergence in both time and space s [sic] can be demonstrated. If these methods are not convergent, they cannot be trusted in real-world applications such as the DEIR. But convergence studies require more computational resources be deployed, and the most refined computational grids described in the DEIR (e.g., the C2VSim-FG finite element mesh mentioned in Chapter 8 and in various appendices) are remarkably coarse grids when assessed by current standards in computational engineering. These coarse meshes are generally unsuitable for predictions of important environmental effects such as subsidence and loss of aquifer capacity (both of which require much more detail in the vertical direction of the finite element mesh to characterize accurately the layered structure of the Central Valley). Local effects such as sinkholes also require more mesh refinement in the surface directions, which then increases the need for finer resolution models. The commentary in the DEIR about the computational models used to assess water resources would seem by dint of omitting key principles like convergence to indicate that may be a constraint on the size (and hence accuracy) of the computational tools utilized. If this is the case, that constraint should be clearly identified so it can be characterized and remedied to ensure better accuracy in model predictions.	516-26 for more details regarding the adequacy of DeltaGW and CalSim 3.

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516-104	[ATT 2:] Technological Maturity This concern about computational resources naturally leads to questions about the technological maturity of the software utilized in the various models that predict the availability of water resources. These questions raise additional concerns about the maturity of the computational models used by DWR personnel to support the DEIR. For example, an independent technical review of the DeltaGW model used in DEIR impact assessments requires investigation of other software tools (e.g., IWFM, DWR's Integrated Water Flow Model) that are also not well-characterized in the DEIR and unfortunately not particularly well-characterized in the open literature, either. In the case of IWFM, there is a theory manual available on the DWR's website, but deducing the details of how DeltaGW is utilized in practice is not a trivial exercise, which limits the value of technical reviews by independent experts. This in turn limits the ability of public-minded subject matter experts to contribute to the evaluation of the suitability of the DEIR. In particular, it would be useful to know whether the lack of analysis details (e.g., convergence studies that help characterize accuracy of the computational models) are due to limitations in the software used (e.g., lack of scalability for parallel computation, which greatly limits effective use even on current desktop workstations), or personnel limitations, or something else altogether. Again, this is an area where more transparency would be helpful for DWR to gain broader informed commentary from the public.	The DeltaGW model is based on the best available model and data at the time of the Notice of Preparation. Please refer to Common Response 10, Surface Water Quality and Groundwater Resources, explaining why the model is suitable for analysis of local impacts on groundwater. In addition, please refer to Appendix 8A, Delta Groundwater Model: Development and Calibration, for the details regarding the development of the DeltaGW Model for assessment the impacts of the Delta Conveyance Project on groundwater conditions in and around the Delta region. Please refer to responses to comments 516-25 and 516-26 for more details regarding the adequacy of DeltaGW.

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	It is important to note in this context that there are well-established available methods for performing UQ studies that can help reduce the effects of uncertainty and thus improve estimates of risk, but those techniques require much greater computational resources. These higher performance computational resources are readily available (e.g., at many California universities), but their lack of representation in the DEIR serves to generate a concern that this important aspect of decision-making is not being considered.	
516-105	[Att 2:] Another important arena for assessing the technological maturity of the computational models used lies in whether those models can accurately predict important environmental side-effects of current water use policies in California, e.g., subsidence. Chapter 8 of the DEIR provides many examples of the uncertainties inherent in modeling subsidence effects, and the authors of that chapter deserve congratulations for their candor regarding the lack of maturity of computational predictions of this important environmental effect: The effects of project operations on land subsidence and groundwater quality resulting from changes in groundwater conditions were also evaluated qualitatively due to the lack of an available analytical tool. In fact, there is a well-established body of research literature in the field of poromechanics that can provide (and has provided) the basis for analytical tools to model subsidence, but those more modern methods are apparently not used in the analyses underlying the DEIR. The DEIR admission that there is a perceived lack of an	Please refer to response 516-104 regarding why the model selected for the groundwater analysis is considered the best available. Please refer to Common Response 1, CEQA Process, General Approach to Analysis, Other Environmental Review Issues, regarding best available science. The Groundwater Quality section referenced in the comment used the best available information to generally characterize groundwater quality in the study area. Please see Common Response 8, Relationship to Other Plans, Projects, Policies, and Programs, regarding California's Sustainable Groundwater Management Act (SGMA) and inelastic land subsidence. Both subsidence and water quality were evaluated using changes in groundwater elevations simulated by the DeltaGW model for all project operations. Declines in groundwater elevations near the major conveyance facilities obtained from the DeltaGW Model results were used to qualitatively infer potential for land subsidence due to project operations. Changes in groundwater elevations as simulated during project operations resulted in changes of less than 5 feet across most of the model domain, with dewatering occurring in the upper 165 feet of the groundwater basin. Groundwater elevation changes exceeding 5 feet were infrequent and occurred over a limited area under all alternatives and occurring above significant clay layers and are, therefore, unlikely to result in land subsidence.

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	appropriate modeling tool for accurate assessments of an environmental effect is yet one more example of how the DEIR demonstrates that many subject matter experts have contributed technical work at the scale of individual components of the overall document, but that at the system scale where decision-making occurs, the uncertainties inherent in all the models are not well-characterized.	For water quality, the locations of identified groundwater plumes were plotted relative to anticipated changes in groundwater elevations resulting from project operations under each project alternative (Impact GW-7). Near the groundwater plume sites, changes in groundwater elevations are limited to 1 to 2 feet between the baseline and alternatives, which is unlikely to cause a change in groundwater flow paths. Furthermore, the analysis in Impact GW-1 and Impact GW-2 shows that under construction groundwater levels would generally be maintained at the level of existing conditions during the use of cutoff walls or dewatering. As the proposed project and project alternatives would not result in a substantial change in groundwater levels, they would also not result in a substantial change in groundwater salinity associated with a decline in groundwater levels. And, if unanticipated changes to groundwater levels occurred during construction, the changes would be localized and in the immediate area of the construction. The EIR also includes Mitigation Measure GW-1, which requires monitoring during construction and adjustments to construction activities as needed, depending on the groundwater level monitoring results. Although it is determined that the project would not impact groundwater quality, Mitigation Measure GW-1 has been revised to include monitoring of electroconductivity at select locations during construction to provide data confirming the conclusions in the EIR. Impact GW-1 and Impact GW-2 remain less than significant prior to the implementation of the revised mitigation measure, as described in Chapter 8, Groundwater. The revision does not result in a new significant environmental impact, substantial increase in the severity of an environmental impact, or require additional mitigation measures to which DWR was unwilling to commit.
516-106	[ATT 2:] Suggestions for Improvement The summary assessment of the technical quality of the DEIR is that is a good start on solving an important problem, but it still contains gaps in its technical foundation, and that many of	This statement summarizes previous comments in the same letter that have been responded to herein (see responses to comments 516-97 through 516-105). Please refer to Common Response 1, CEQA Process, General Approach to Analysis, Other Environmental Review Issues, regarding the use of best available tools, best available science, and

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	those gaps arise from computational techniques used in the DEIR being well outside the mainstream of modern computational engineering practice. Some examples have been identified in the quantification of uncertainty, assurance of software quality, and technological maturity, but others are readily found, and all of these technical limitations point to the summary assessment that the DEIR is a good start, but it is also only a good start, because it is still incomplete.	uncertainty considered in the preparation of the EIR. Please also refer to Chapter 4, Framework for the Environmental Analysis, which discusses the Engineering Project Reports (EPRs) (Delta Conveyance Design and Construction Authority 2022h, 2022i). The EPRs provide detailed technical information, engineering concept drawings, and GIS to develop conceptual project plans. Future investigations (i.e., geotechnical studies) are described in the EPRs and EIR, as appropriate, and would be conducted during pre-construction and construction phases to further evaluate sites and assess design needs. Based on the project element and the environmental conditions of the sites, specific designs will then be finalized. This typical process for designing, engineering, and constructing a large project such as the Delta Conveyance Project would minimize uncertainty in future designs and would utilize best available science at the time to inform project designs.
516-107	[ATT 2:] It is important for independent subject matter experts to identify weaknesses in an EIR, but equally important for those experts to suggest concrete and constructive remedies for those weaknesses, and for this review, those remedies include some suggestions for improvement: Transparency: an improved EIR should provide appropriate levels of detail characterizing the technical basis for the models used. These characterizations should include estimates of maturity that can be deployed for assessing risks inherent in the models, as well as sufficient detail of the methods used to characterize their accuracy in real-world settings.	The development of the EIR and supporting documentation was reviewed by subject matter experts, CEQA practitioners, Delta Conveyance Project management team members, and legal review team members prior to release of the Draft EIR for public and agency review and comment. Please see Common Response 9, Hydrologic Modeling and Approach, which provides a discussion as to why CalSim 3 is considered the best available tool for estimating the operational-related effects of the Delta Conveyance Project and the basis for its selection.
516-108	[ATT 2:] It is important for independent subject matter experts to identify weaknesses in an EIR, but equally important for those experts to suggest concrete and constructive remedies for those weaknesses, and for this review, those remedies include some suggestions for improvement:	The development of the EIR and supporting documentation was reviewed by subject matter experts, CEQA practitioners, Delta Conveyance Project management team members, and legal review team members. DWR and consultant staff preparing the EIR are representative of a multidisciplinary approach for conducting environmental and engineering assessments.

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	Diversity and Inclusion: addition of more technical diversity in subject matter expertise (e.g., poromechanics expertise for more accurate subsidence estimates) would help guard against the risk of inaccuracies due to poor characterization of model and parameter uncertainties.	
516-109	[ATT 2:] It is important for independent subject matter experts to identify weaknesses in an EIR, but equally important for those experts to suggest concrete and constructive remedies for those weaknesses, and for this review, those remedies include some suggestions for improvement: Peer Review in Computational Modeling: there are plenty of independent subject matter experts on all the various technical components that are required for accurate assessments of environmental impacts of this project, and they should be identified and used as independent peer reviewers of the final EIR when possible.	The development of the EIR and supporting documentation was reviewed by subject matter experts including hydrologic modelers, CEQA practitioners, Delta Conveyance Project management team members, and legal review team members. DWR and consultant staff preparing the EIR are representative of a multidisciplinary approach for conducting environmental assessments. The models and computational methods used for the Delta Conveyance Project Draft EIR are peer-reviewed or user community-reviewed. They are the best available tools for conducting an environmental impact analysis in the California Bay-Delta.
516-110	[Att 2:] Author Background Kyran Daniel Mish had long provided pro bono independent technical assessments about topics of relevance to California resource allocation practices. His service in these roles has been motivated by the desire to include the public interest in resource allocation decisions, and his work has involved collaborations with various environmental organizations in California. Mish has served on the Engineering and Applied Mathematics faculty of the University of California, Davis, and in the faculty ranks of the School of Civil Engineering and Environmental Science at the University of Oklahoma. He served as the founding director of the Center for Computational Engineering at Lawrence Livermore National Laboratories, and although he	This information describes the background of the organization or individual commenter. It is not a comment on the contents of the Draft EIR. DWR has reviewed all comments and will consider all comments in its decision-making process.

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	no longer lives in California, he continues to find opportunities to contribute to public discussions on topics in engineering and science in the Golden State. Mish's educational background is from the University of California, Davis, where he earned a B.S. in applied mathematics, and M.S. and Ph.D. degrees in Civil Engineering.	
516-111	ATT 3: AquAlliance Comments on the Draft Environmental Assessment and Findings of No Significant Impact for the 2010-2011 Water Transfer Program	The commenter provided this attachment for reference purposes in support of their comments. Those comments are addressed in these responses to the commenter's letter.
516-112	ATT 4: AquAlliance Comments on the Draft Environmental Assessment and Findings of No Significant Impact for the 2013 Water Transfer Program and the 2010-2011 Water Transfer Program	The commenter provided this attachment for reference purposes in support of their comments. Those comments are addressed in these responses to the commenter's letter.
516-113	ATT 5: AquAlliance Comments on the Draft Environmental Assessment/Initial Study 2014 San Luis & Delta-Mendota Water Authority Water Transfers	The commenter provided this attachment for reference purposes in support of their comments. Those comments are addressed in these responses to the commenter's letter.
516-114	ATT 6: AquAlliance Comments on the Draft Environmental Impact Statement/Environmental Impact Report Long Term North-to-South 2015-2024 Water Transfer Program	The commenter provided this attachment for reference purposes in support of their comments. Those comments are addressed in these responses to the commenter's letter.
516-115	ATT 7: AquAlliance Comments on the Draft Environmental Impact Report for the Glenn Colusa Irrigation District 10-Wells Project	The commenter provided this attachment for reference purposes in support of their comments. Those comments are addressed in these responses to the commenter's letter.
516-116	ATT 8: Kit Custis Comments and Recommendations on U.S. Bureau of Reclamation and San Luis & Delta-Mendota Water Authority Draft Long-Term Water Transfer DRAFT EIS/EIR, dated September 2014	The commenter provided this attachment for reference purposes in support of their comments. Those comments are addressed in these responses to the commenter's letter.
516-117	ATT 9: Kit Custis Comments and Recommendations on Draft Environmental Impact Report for Glenn Colusa Irrigation District's Groundwater Supplemental Supply Project, June 2015	The commenter provided this attachment for reference purposes in support of their comments. Those comments are addressed in these responses to the commenter's letter.

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516-118	ATT 10: AquAlliance Comments on the Recirculated Environmental Impact Report/Supplemental Draft Environmental Impact Statement for the Long-Term Transfers (2019-2024)	The commenter provided this attachment for reference purposes in support of their comments. Those comments are addressed in these responses to the commenter's letter.
516-119	ATT 11: Kit Custis Comments on the U.S. Bureau of Reclamation and San Luis & Delta-Mendota Water Authority Revised Draft Environmental Impact Report and Supplemental Draft Environmental Impact Statement for Long-Term Water Transfers, December 2018	The commenter provided this attachment for reference purposes in support of their comments. Those comments are addressed in these responses to the commenter's letter.
516-120	ATT 12: AquAlliance Comments on Final Environmental Impact Statement/Environmental Impact Report for the Long-Term North-to-South Water Transfer Program (2019-2024)	The commenter provided this attachment for reference purposes in support of their comments. Those comments are addressed in these responses to the commenter's letter.
516-121	ATT 13: California Water Commission Groundwater/Conjunctive Management Presentation	The commenter provided this attachment for reference purposes in support of their comments. Those comments are addressed in these responses to the commenter's letter.
516-122	ATT 14: DWR Presentation "How are DWR's current groundwater efforts in alignment with the Governor's Water Action Plan and DWR's Drought Management Structure"	The commenter provided this attachment for reference purposes in support of their comments. Those comments are addressed in these responses to the commenter's letter.
516-123	ATT 15: Vina Groundwater Sustainability Agency Letter Regarding Legal Implications of Potential Projects and Management Actions	The commenter provided this attachment for reference purposes in support of their comments. Those comments are addressed in these responses to the commenter's letter.
516-124	ATT 16: Email correspondence between David Zippin, Jim Beck, Brent Walthall, Jeff Kightlinger, Jim Waldo, Mark Cowin, Chuck Bonham, Williiam Stelle, and Laura King Moon	The commenter provided this attachment for reference purposes in support of their comments. Those comments are addressed in these responses to the commenter's letter. DWR has reviewed all comments and will consider all comments in its decision-making process.
535-1	We are writing on behalf of the people of the small town of Hood, California, to ask that the intakes near Hood be moved away and that alternatives with different intake locations be presented in a recirculated DEIR.	The Department of Water Resources followed CEQA requirements when identifying alternatives to be considered for evaluation in the EIR. As described in Common Response 3, Alternatives Development and Description, CEQA requires lead agencies to develop project objectives to inform the identification of the project and a reasonable range of potentially feasible alternatives, including alternative locations. CEQA

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		requires an EIR to include a reasonable range of alternatives that meet most of the basic project objectives, are potentially feasible, would avoid or substantially lessen one or more of the significant effects of the project, and will foster informed decision making and public participation. As demonstrated in the EIR and Common Response 3, the EIR includes a reasonable range of alternatives. Common Response 3 provides an explanation of the alternatives screening process and how project objectives are used to identify potential alternatives to the proposed project. The purposes and project objectives of the Delta Conveyance Project are presented in Chapter 2, Purpose and Project Objectives, of the EIR. Appendix 3A explains how DWR considered other potential alternatives with different intakes, but none of those alternatives met screening criteria and, therefore, were not carried forward for detailed review in the EIR. Please refer to Delta Conveyance Final Draft Engineering Project Report, Part 1 of 2, Central and Eastern Options (Delta Conveyance Design and Construction Authority 2022d), for a summary of the intake site selection process. Intake locations were previously intensively analyzed for the BDCP/California WaterFix Project and re-evaluated for the analysis of the Delta Conveyance Project. For the Delta Conveyance Project, DWR also assessed alternative intake locations upstream and downstream, and found that these alternate locations did not meet the project objectives and/or did not have the potential to substantially lessen or avoid significant environmental effects of the project, which are the screening criteria for whether alternatives should move forward for further evaluation in the EIR. Screening criteria for assessing intake site suitability included proximity to existing development (including the town of Hood), number of structures and residences within the permanent footprint, and potential impacts from

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		construction traffic and new roads and road improvements. Please refer to the Intake Site Identification and Evaluation technical memorandum (Delta Conveyance Design and Construction Authority 2022c) for detailed information on site selection criteria. Please also refer to Common Response 3 which directly addresses the considerations for siting alternatives in the vicinity of the town of Hood and the criteria for moving the intake location farther north of the town. DWR has worked diligently to address Delta residents' concerns about environmental and community effects of the project and acknowledges that even extraordinary levels of outreach and engagement will not necessarily result in agreement about the project or in all concerns being assuaged. People working in good faith will nonetheless continue to disagree. The effort to hear and understand and engage with environmental justice communities and community members was attentive to and conscientious of best practices as recommended by numerous recognized state experts.
535-2	Planning for the Delta Conveyance Project so far has targeted our small Latino community for destruction and has turned a willful deaf ear to our plight. The story is not new: a powerful government agency sites an undesirable facility in a poor community that is home to people of color because structural racism rigs the process in favor of more prosperous communities and against us. Here, DWR insists on siting two enormous multi-billion dollar intake structures a few yards on either side of our town; there is no doubt that the years of construction, noise, dust, and traffic that it will take to build these structures will destroy our community. Once in operation, they will detract over the long run from development opportunities along the river bank, w hich we need badlly for our economic progress.	DWR worked diligently in identifying, evaluating, and incorporating ways to avoid or minimize effects of the project, including construction effects, on communities in the Delta. DWR specifically tasked the Delta Conveyance Design and Construction Authority (DCA) with 10 engineering and design objectives at the outset of the environmental planning process to help in this effort. These 10 objectives included: 1. Avoid increasing demand for existing emergency services in the Delta. 2. Manage flood risks to the project facilities and existing land use. 3. Manage seismic risks to people and property. 4. Minimize activities that produce noise, dust, greenhouse gas emissions, traffic, and land use disturbances. 5. Minimize construction effects to existing infrastructure or other community resources.

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	These intake structures can and should, be sited somewhere else. DWR can put forrward no engineering reason why they should not be somewhere else; only that they "have to be here." This is the familiar saga of environmental racism: the land fill, the chemical plant, the refinery, the freeway -- all somehow just "have to be" sited in poor, minority communities.	6. Minimize construction traffic and associated effects. 7. Minimize disturbance to existing land uses, including agricultural land, residences, and wildlife habitat. 8. Minimize disturbance to sensitive wildlife and protected habitat areas. 9. Minimize effects on Delta water-based recreation and navigation. 10. Minimize noise during construction and operations. The DCA approached this task in part by getting input through its Stakeholder Engagement Committee. Their efforts resulted in numerous changes to the conceptual designs that reduce, or avoid altogether, numerous effects of concern to the community. For example, the DCA was able to avoid the need for new forebays and barge landings, reduce the number of launch shafts, reduce local traffic by adding haul roads, and add state of the art fish screens to minimize the footprint of the intakes. These are just a few examples of ways that local construction effects were avoided or minimized through the design process and demonstrate that DWR took community requests to respond to concerns about impacts seriously. Please see the fact sheet titled “Preliminary Design and Engineering Objectives” from July 2022 on the project website. Please also refer to the Efforts to Minimize Delta Community Effects technical memoranda in the Engineering Project Reports (Delta Conveyance Design and Construction Authority 2022a, 2022b). Regarding intake siting, the DCA carefully assessed all possible siting locations along a 26-mile stretch of the Sacramento River. Evaluation of these potential sites included consideration of existing land uses, cultural and historic resources, river depth and geometry, and suitable geotechnical conditions. The sites must also allow for water flows that facilitate better fish passage and appropriate diversion operations. Re-examination of the

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		riverbed and other physical settings of the Sacramento River between the Town of Freeport and the confluence with Sutter Slough affirmed the selection of the candidate sites based solely on technical and scientific siting criteria. It should also be noted that the potential intake site closest to Hood was screened out for further consideration. For more information about the intake location screening process and criteria, please refer to the Intake Site Identification and Evaluation technical memorandum (Delta Conveyance Design and Construction Authority 2022c). Please also see Common Response 1, CEQA Process, General Approach to Analysis, and Other Environmental Review Issues, regarding comments that state opinions of general opposition to the project. The EIR evaluates effects on environmental justice communities, including low-income and minority populations in the community of Hood, CA, in Chapter 29, Environmental Justice. As part of the environmental review process, DWR developed and executed a robust outreach program to help ensure participation of disadvantaged communities and environmental justice organizations in the scoping process. In addition to these outreach strategies, DWR conducted the online Your Delta, Your Voice environmental justice community survey from September 20 to December 18, 2020, to gather insights on the priorities, preferences, activities, and concerns of Delta-area environmental justice communities. The Your Delta, Your Voice survey is summarized in Chapter 29, in the section titled Environmental Justice Survey Findings, and the full report is provided as Appendix 29A, Environmental Justice Community Survey Report. Survey results included concerns raised by respondents for the community of Hood, CA, particularly regarding construction impacts. Findings from the survey illuminated a sample of the priorities and concerns of a subset of the Delta environmental justice community that helped inform the environmental justice analysis. Please also refer to response to comment 535-21 regarding outreach to environmental justice communities.

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		Please refer to Common Response 3, Alternatives Development and Description, regarding the reasonable range of feasible alternatives evaluated in the EIR. DWR reviewed and evaluated alternative intake locations as part of the alternatives screening process (Appendix 3A, Identification of Water Conveyance Alternatives). The Delta Conveyance Project EIR has been prepared in compliance with CEQA and fully evaluates the range of potential impacts that may result from construction and operation of the proposed project and its alternatives in Chapters 7–32 of the EIR. DWR's analysis meets the CEQA requirement to make a good-faith effort at full disclosure, and every effort has been made to base the analyses on up-to-date and accurate information. Regarding project construction impacts, the EIR discloses impacts on air quality, noise, transportation, and environmental justice communities from construction of the project and its alternatives. Please see the analyses in Chapter 20, Transportation, Chapter 23, Air Quality and Greenhouse Gases, and Chapter 24, Noise and Vibration, which conclude that significant transportation, air quality, and noise impacts would result from construction of the proposed project and its alternatives. Please also see Chapter 29, which analyzes transportation, air quality, and noise impacts from construction of the project and its alternatives on environmental justice communities. The environmental justice analysis concludes that even with mitigation implemented, significant air quality and noise effects from construction of the project and its alternatives (e.g., Impact AQ-5, Impact NOI-1) could occur in areas with meaningfully greater minority and low-income populations and therefore represent a disproportionately high and adverse effect on environmental justice. For transportation, the environmental justice analysis concludes that transportation impacts during construction would not be greater for environmental justice communities than the general public because implementation of site-

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		specific traffic demand management plans and traffic management plans as part of Mitigation Measure TRANS-1 would reduce traffic-related impacts and equal access to information (e.g., notifications of road construction and high-volume construction traffic events) for minority and low-income residents with limited English proficiency or limited internet access would be provided (e.g., Impacts TRANS-1, TRANS-3, TRANS-4) (section titled Project Alternatives, Transportation, Air Quality and Greenhouse Gases, and Noise). In addition, Chapter 19, Cultural Resources, section titled Area of Potential Impact for Built Environment Resources, describes the methods used for setting the area of impact for CEQA historical resources that are part of the built environment (AI-BE). The project does not propose demolition within the town of Hood. The project calls for widening of an existing bridge and roadway, as well as tunneling in the vicinity of Hood Franklin Road east of its intersection with Corky Lane, As shown in the figure titled Built Environment Resources Evaluation Results in Appendix 19A, Historical Resources Survey and Evaluation Report, small sections of the periphery of Hood are within the AI-BE, but the town center of Hood does not fall within the AI-BE as neither the intake structures nor other above-grade project facilities are proposed within the one parcel buffer that defines the AI-BE.
535-3	What is new is the malicious gaslighting propaganda campaign carried out by the Delta Conveyance Office to hide their environmental injustice. In the twisted world of the Delta Conveyance Design and Construction Authority ("DCA"), "environmental justice" destroys any hope of equity. Under the guise of "environmental justice" and "inclusion" DCA refuses to meet with us [Hood Community Council] and refuses to even hear our concerns. DWR touts many environmental justice outreach and community engagement activities but the rules for "environmental justice" outreach and " stakeholder " engagement conducted by the DCA and various DWR	The commenter's assertion that DWR's outreach efforts are disingenuous is unsupported by the information provided in Chapter 35, Public Involvement. Please refer to Chapter 35 regarding the CEQA-required outreach activities as well as other outreach efforts to engage and include environmental justice communities throughout the environmental and planning processes. Please refer to Common Response 2, Public Outreach Activities, regarding the public outreach efforts conducted throughout the EIR process to provide public information and encourage public participation and comment. Please also refer to Chapter 35 regarding the Delta Conveyance Design and

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	hired consultants forbid any discussion of where the intakes are to be located. Only minor, irrelevant, details of design and a vague and unspecified community benefit plan may be discussed at any of DWR's "outreach" meetings. Please be aware, there has been no meaningful community outreach or engagement on the issues that matter to us. "Here, come and sit at the table but you can only talk about items that we allow," is the condescending atmosphere at all of these meetings. Anyone who attempts to raise any real issue is silenced. This is an outrageous insult to the people DWR is supposed to serve. Many members of the so-called stakeholder committee resigned in protest for just this reason. A letter of resignation from one of them is attached. (Attachment I.)[see ATT 1]	Construction Authority Stakeholder Engagement Committee that was convened to gather input on technical and engineering issues related to the design of the Delta Conveyance Project.
535-4	DWR also refuses to hold in-person meetings to receive public comment on the Draft EIR. Despite numerous and repeated requests, DWR will only take verbal comment at virtual events and ignores the fact that every other local and state agency has dropped the "all virtual" pandemic mantra. The virtual format doesn't work and people can't engage in that setting.	Please refer to Chapter 35, Public Involvement, and Common Response 2, Public Outreach Activities, regarding the public meetings held during the public review period for the Draft EIR and other outreach activities conducted throughout the EIR process to provide public information and encourage public participation and comment.
535-5	Because DWR refuses to engage in any meaningful way, our local elected officials set up a community meeting in our town, which was held on December 6, 2022, to hear our concerns and the concerns of the wider public about this project. Over a hundred people attended and the meeting was conducted in a calm and productive atmosphere. Pictures are attached as is a newspaper story covering the meeting. (Attachments 2 & 3.) [see ATT 2, ATT 3] We thought that if we set up the meeting and invited DWR we could at least get them to hear our concerns and engage with	Please see the response to comment 535-4 regarding the public meetings held during the public review period and other outreach activities conducted by DWR throughout the EIR process.

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	us face-to-face. DWR was invited and refused to attend. That is the sad state of affairs that DEIR chapters on public involvement community benefits and environmental justice try to cover up.	
535-6	We want the Draft Environmental Impact Report ("DEIR") to be recirculated with alternatives that place the intakes away from Hood. We are not asking for window dressing, or community liaison officers, or a community benefits plan, and most of all we are not asking for any more contorted committees or meetings where no serious discussion of the issues is allowed. None of these things will save our town. We want justice and we want equity. We want the intakes moved. At the heart of any environmental impact report is the analysis of alternatives. The Draft EIR fails to analyze any alternative locations for the intakes. There are 3 intake locations, A, B, and C depicted in the DEIR. Hood is squeezed between intakes B and C, with B right on top of our town, closer than any huge engineering structure should be to any town. The proposed project, Alternative 5, includes intakes B and C, as do all of the other alternatives that might be chosen. Two purported "alternatives," 2b and 4b include only intake C, which is still perilously close but a bit farther away than intake B. However 2b and 4b are not under real consideration because they allow for a capacity limited to 3,000 cfs and the Metropolitan Water District of Southern California, who is paying for the Project, has made clear in no uncertain terms that 6,000 cfs is the minimum they will accept. It is no surprise that 6,000 cfs is the capacity of the preferred project, Alternative 5.	Please see responses to comments 535-1 and 535-2 regarding the alternatives considered and the analysis of potential impacts.
535-7	We know that there is absolutely no engineering, ecological, or environmental reason for the intakes to be located next to Hood. Your engineers have tacitly admitted as much because in	Please refer to Delta Conveyance Final Draft Engineering Project Report—Central and Eastern Options (Delta Conveyance Design and Construction Authority 2022d) for a summary of the intake site selection process.

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	repeated exchanges they refuse to provide any engineering rationale, but only "they have to be here." The reason the intakes are located next to Hood is one of administrative convenience for DWR. Years ago, DWR applied for water rights permits to divert water from the Sacramento River near Hood. Water Rights Decision 1275, issued May 31, 1966, provides "for the Delta Water Facilities to transport water from the Sacramento River in the vicinity of Hood to the intake of the California Aqueduct" at a precise location to be determined. (Attachment 4.) [see ATT 4] Any rights under these applications have lain dormant for decades and DWR has failed to exercise due diligence in developing them. However, DWR argues that a water right to divert at Hood still exists. It is for this reason, and this reason only, that DWR wants to place the intakes at Hood. At prior hearings on DWR's petition for a change in the point of diversion for California WaterFix, DWR presented slides arguing they have a water right at Hood and therefore a new point of diversion at Hood does not initiate a new water right but entails only the lesser burden of a change in the point of diversion. (Attachment 5.) [see ATT 5] We disagree, as do most other observers. However, an application for a change in the point of diversions before the State Water Resources Control Board ("SWRCB") is a less cumbersome process than is an application for new water right. DWR wants to avoid going through the water rights process before the SWRCB and so new intakes are always located at Hood in DWR's planning.	Intake locations were previously intensively analyzed for the BDCP/California WaterFix Project and re-evaluated for the analysis of the Delta Conveyance Project. For the Delta Conveyance Project, DWR also assessed alternative intake locations upstream and downstream, and found that these alternate locations did not meet the project objectives and/or did not have the potential to lessen potential significant environmental effects, which are the screening criteria for whether alternatives should move forward for further evaluation in the EIR. Screening criteria for assessing intake site suitability included proximity to existing development (including the town of Hood), number of structures and residences within the permanent footprint, and potential impacts from construction traffic and new roads and road improvements. Please refer to the Intake Site Identification and Evaluation technical memorandum for detailed information on site selection criteria (Delta Conveyance Design and Construction Authority 2022c). The comment's assertion that a change in the point of diversion initiates a new water right is incorrect. As stated in Chapter 6, Water Supply, the project would not alter existing water rights or contractual amounts, and the project alternatives do not include any actions that would modify water deliveries to non-SWP and non-CVP water rights holders, including in-Delta water rights holders. Please refer to Common Response 3, Alternatives Development and Description, regarding water rights, contracts, and use of water. See also Common Response 8, Relationship to Other Plans, Projects, Policies, and Programs, regarding the State Water Resources Control Board's authority to approve DWR's petition to change the point of diversion, a decision process that is separate from the CEQA process and DWR's decision-making.

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535-8	And, years ago, the original applications were filed for points of diversion at Hood because we were a poor Latino community that can't fight back. And now this embedded structural racism rears its head and threatens our town. There is only one way to break this vicious cycle: Equity. Equity means we go straight to the result and make the just decision to move the intakes. Let me give you an example why. In planning sessions for the former California WaterFix Project, which has mutated into the current Delta Conveyance Project with very little change (the intakes are in identical locations), planners decided to locate intakes at Hood instead of nearby and more prosperous Clarksburg. The reason given was that Clarksburg has more "sensitive receptors" than Hood and has cultural and historic resources that Hood does not have. The sensitive receptors were high value uses that would be harmed by the noise and dust and traffic. The sensitive receptors at Clarksburg included the high school, the middle school, the library, and the marina. Hood has none of those things so the scoring process favored Clarksburg. This is how systemic racism works. We don't have a school or a library or a marina because we are a poor Latino community that has been passed by. For that matter, we are one of the last developed communities in Sacramento County that lacks sewers. Our homes and businesses are all on septic, which causes no end of problems and blocks economic development. Attached is a slide from the DCA's presentation explaining that the intake at Clarksburg was eliminated because Clarksburg has more "cultural and historic resources" and because of "construction related effects to sensitive receptors in Clarksburg." (Attachment 6.) [see ATT 6] The intake should not be at Clarksburg either but we present this to show you how embedded racism operates.	Please refer to Common Response 3, Alternatives Development and Description, regarding the reasonable range of feasible alternatives evaluated in the EIR. DWR reviewed and evaluated alternative intake locations as part of the alternatives screening process (Appendix 3A, Identification of Water Conveyance Alternatives). The DCA carefully assessed—using technical and scientific criteria—all possible siting locations along a 26-mile stretch of the Sacramento River. Evaluation of these potential sites included consideration of existing land uses, cultural and historic resources, river depth and geometry, and suitable geotechnical conditions. The sites must also allow for water flows that facilitate better fish passage and appropriate diversion operations. Re-examination of the riverbed and other physical settings of the Sacramento River between the Town of Freeport and the confluence with Sutter Slough affirmed the selection of the candidate sites based solely on technical and scientific siting criteria. It should also be noted that the potential intake site closest to the community of Hood was screened out for further consideration. For more information about the intake location screening process and criteria, please refer to the Intake Site Identification and Evaluation technical memorandum (Delta Conveyance Design and Construction Authority 2022c). For reference, please also see response to comment 535-2 regarding opposition to the project, the location of the intakes, and the evaluation of physical environmental effects on environmental justice populations. As described in Chapter 34, Community Benefits Program Analysis, the Community Benefits Program Framework (described in Appendix 3G, Community Benefits Program Framework) outlines the steps that the DWR will undertake in development of the Community Benefits Program, including ensuring opportunities for meaningful community participation. The goal of the Community Benefits Program is to define a set of commitments made by project proponents and created in coordination with the local community to create lasting, tangible, and valuable economic

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	It is said that racism is the result of bad policies not bad people. We :have no doubt that the DCA engineers making the slide presentation that day were oblivious to the implications of their decisions about intake location. However, the DCA engineers do know full well that they are stonewalling us in not talking about intake locations. We wrote to DCA executive director Graham Bradner on August 12, 2021, expressing the same concerns put forward here. The letter was ignored. In all fairness to Mr. Bradner, he does not have the authority to change intake locations and would probably lose his job if he suggested it to his employer, which is essentially the Metropolitan Water District of Southern Cafifornia ("Met"). His job is to put on a show of community involvement without making any changes. He is there to absorb and deaden community concerns, much like the Flak Catchers in Tom Wolfe's novel. And there is no answer for why the intakes can't be moved, because they can.	and social benefits to the residents, businesses, and organizations experiencing Delta Conveyance Project effects. The actions that could be implemented as a result of the Community Benefits Program would be in addition to environmental mitigation for impacts from the Delta Conveyance Project disclosed in CEQA impact analysis chapters (Chapters 7 through 32) and would also be separate and in addition to mitigation and commitments made through the government-to-government Tribal consultation process. As described in Appendix 3G, creating a Community Benefits Program is an acknowledgment that: (1) the direct project benefits related to State Water Project water supply reliability do not directly benefit the communities of the Delta; (2) the project, if approved, could have potential adverse effects that Delta communities experience through the term of construction; and (3) the limitations of traditional CEQA and other required environmental mitigation typically do not address all adverse effects on the local communities. Incorporating input from the multiple outreach processes described in Appendix 3G, the following resource categories for potential actions that could be financed by the Delta Community Fund, as part of the Community Benefits Program, were identified: water and air quality; public safety and emergency response; recreation; habitat conservation; culture and history; economy; infrastructure; agriculture; education and workforce development; levee maintenance and improvements. These areas are where activities and projects described in Chapter 34, but to be determined, could be implemented in the Delta to benefit the local communities, including that of the community of Hood.
535-9	Attached is our town's Declaration of Protest, signed by the entire community. As the Declaration explains, we are a tight nit [sic] community largely descended from the Montano, Cruz, Lujan, Chacon, and Chavez families who migrated to Hood in the 1940s. (Attachment 7.) [see ATT 7] The Declaration was sent to the DCA and to Governor Newsom. No response.	Please see Common Response 1, CEQA Process, General Approach to Analysis, and Other Environmental Review Issues, regarding comments that state opinions of general opposition to the project. This comment does not raise a significant environmental issue relating to the proposed project or address the adequacy, accuracy, or completeness of the Draft EIR. DWR has reviewed all comments, however, and will

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		consider all comments in its decision-making process.
535-10	To comment on the DEIR, Chapter 29 Environmental Justice, Chapter 34 Community Benefits Program, and Chapter 35 Public Involvement are lies. They are being used as tools to perpetuate injustice. Please recirculate the DEIR to include alternatives with an intakes at least 5 miles away from Hood before you deign to speak of environmental justice.	Please see comment response 535-8 regarding alternatives development, opposition to the project, the location of the intakes, and the evaluation of physical environmental effects on environmental justice populations.
535-11	As to Chapter 34, if, and only if, the intakes are moved away from Hood, we might discuss community benefits with you. Thus far, DWR has refused to provide a budget for a community benefits program. For a project of this size, a commitment of 1%-2'% of the Project budget should be dedicated to community benefits. Once that budget is established we would be willing to talk with you about community benefits.	As described in Appendix 3G, Community Benefits Program Framework, DWR has identified a series of steps it will take to ensure the Community Benefits Program is developed in a transparent and inclusive manner. Next steps include identifying funding limits and specific project actions as well as an implementation plan with performance measures, including a schedule and milestones. DWR is committed to continuing to engage and work with the community. No decisions will be made regarding community benefits funding or specific actions until the completion of CEQA review and DWR approval of the proposed Delta Conveyance Project. Please refer to Appendix 3A, Identification of Water Conveyance Alternatives, and Common Response 3, Alternatives Development and Description, regarding the alternatives development process and the range and scope of alternatives considered, specifically the identification of intake locations.
535-12	As far as public involvement, so far there has been none, as described in detail above. Chapter 35 should be revised to reflect the truth.	Please see the responses to comments 535-3 and 535-4 regarding the public outreach efforts conducted by DWR throughout the EIR process. Chapter 35, Public Involvement, describes the ongoing public involvement efforts for the project since 2019. The chapter has been updated for the Final EIR to include efforts that have taken place since the publication of the Draft EIR on July 27, 2022.
535-13	[ATT 1: Karen Mann's letter of resignation from the SEC.]	The commenter provided this attachment for reference purposes in support of their comments. Those comments are addressed in these responses to the commenter’s letter.

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535-14	[ATT 2: Photos from the December 6, 2022, community meeting in the town of Hood, California regarding the DCP.]	The commenter provided this attachment for reference purposes in support of their comments. Those comments are addressed in these responses to the commenter's letter.
535-15	[ATT 3: Sacramento News & Review article titled "As state preps, residents make their case that the Delta Tunnel is an environmental crime story in full-view," dated December 9, 2022.]	The commenter provided this attachment for reference purposes in support of their comments. Those comments are addressed in these responses to the commenter's letter.
535-16	[ATT 4: State Water Rights Board Decision D-1275, adopted May 31, 1967.]	The commenter is providing this attachment in support of their comments. Those comments are addressed in the responses to the commenter's letter.
535-17	[ATT 5: PowerPoint presentation titled "SWP Water Rights" prepared by DWR for presentation to the State Water Board regarding the California WaterFix petition to change points of diversion.]	The commenter is providing this attachment in support of their comments. Those comments are addressed in the responses to the commenter's letter.
535-18	[ATT 6: PowerPoint slide titled "Screening and Intake 2" from a presentation on the DCP.]	The commenter provided this attachment for reference purposes in support of their comments. Those comments are addressed in these responses to the commenter's letter.
535-19	[ATT 7] We, the principal signers of this Declaration of Protest, inform you, the Governor of California, that we object, condemn, and oppose the environmental racism being visited upon our community, the majority Latino town of Hood, by your engineers, lawyers, and consultants in the planning of the Delta Conveyance Project.	Please see Common Response 1, CEQA Process, General Approach to Analysis, and Other Environmental Review Issues, regarding comments that state opinions of general opposition to the project. The EIR evaluates environmental impacts on environmental justice communities, including low-income and minority populations in the community of Hood, CA, in Chapter 29, Environmental Justice. As part of the environmental review process, DWR developed and executed a robust outreach program to ensure participation of disadvantaged communities and environmental justice organizations in the scoping process. In addition to these outreach strategies, DWR conducted the Your Delta, Your Voice environmental justice community survey from September 20 to December 18, 2020, to gather insights on the priorities, preferences, activities, and concerns of Delta-area environmental justice communities. The Your Delta, Your Voice survey is summarized in Chapter 29, in the section titled Environmental Justice Survey Findings, and the full report is provided as Appendix 29A,

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		Environmental Justice Community Survey Report. Survey results included concerns raised by respondents for the community of Hood, CA, particularly regarding construction impacts. Findings from the survey illuminated a sample of the priorities and concerns of a subset of the Delta environmental justice community that helped inform the environmental justice analysis.
535-20	[ATT 7] In 2019, your Department of Water Resources pledged "to avoid and minimize the impacts that concern Delta communities the most" in the planning of the Delta Conveyance Project, and to take heed of environmental justice. We inform you that your Department of Water Resources has failed to uphold their pledge. Your engineers ignore the plight of our community and insist on locating two gigantic intakes a few hundred yards from the heart of our tiny town. Our pleas to your engineers to move the intakes to anywhere else among hundreds of miles of riverbank fall on deaf ears; they insist we must suffer the impacts of six or more years of heavy construction activity, the daily invasion of thousands of construction workers, that we must breathe the pollution of tons of diesel exhaust from thousands of trucks, the noise, the dust, the blockage of our roads -- we cannot survive this onslaught and our town will become a ghost town.	As discussed in the response to comment 535-2, DWR worked diligently in identifying, evaluating, and incorporating ways to avoid or minimize effects of the project, including construction effects, on communities in the Delta. DWR specifically tasked the Delta Conveyance Design and Construction Authority (DCA) with 10 engineering and design objectives at the outset of the environmental planning process to help in this effort. Please refer to Common Response 3, Alternatives Development and Description, specifically the discussion of Intake Location, regarding the development of the reasonable range of feasible alternatives evaluated in the EIR. Alternatives, including those with alternate intake locations, were initially identified and screened through a two-level filtering process to determine if the alternative could (1) meet the project purpose and most objectives and (2) avoid or lessen environmental impacts compared to the proposed project. Details on how the intake sites were considered and screened out are available in the Intake Site Identification and Evaluation technical memorandum in the Engineering Project Report, cited in the EIR's Appendix 3A, Identification of Water Conveyance Alternatives (Delta Conveyance Design and Construction Authority 2022c). Regarding project construction impacts, the EIR discloses impacts on air quality, noise, transportation, and environmental justice communities from construction of the project and its alternatives. Please see the analyses in Chapter 20, Transportation; Chapter 23, Air Quality and Greenhouse Gases; and Chapter 24, Noise and Vibration, which conclude that significant transportation, air quality, and noise impacts would result from construction of the proposed project and its alternatives. Please also see

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		Chapter 29, which analyzes transportation, air quality, and noise impacts from construction of the project and its alternatives on environmental justice communities. The environmental justice analysis concludes that even with mitigation implemented, significant air quality and noise effects from construction of the project and its alternatives (e.g., Impact AQ-5, Impact NOI-1) could occur in areas with meaningfully greater minority and low-income populations and therefore represent a disproportionately high and adverse effect on environmental justice. For transportation, the environmental justice analysis concludes that transportation impacts during construction would not be greater for environmental justice communities than the general public because implementation of site-specific traffic demand management plans and traffic management plans as part of Mitigation Measure TRANS-1 would reduce traffic-related impacts, and equal access to information (e.g., notifications of road construction and high-volume construction traffic events) for minority and low-income residents with limited English proficiency or limited internet access would be provided (e.g., Impacts TRANS-1, TRANS-3, and TRANS-4) (Chapter 29 section titled Project Alternatives, subsections Transportation, Air Quality and Greenhouse Gases, and Noise).
535-21	[ATT 7] We inform you that your "environmental justice" consultants are but a tool to perpetuate environmental racism. "We have reached out far and wide to minority communities and conducted oh so many meetings and surveys, yes we have" your consultants refrain. But we cannot discuss with you moving the intakes that destroy your town, "they must be here," say your engineers. Then "all is well," say your consultants because we have done so much outreach and held so many meeting[s]. And on it goes, the charade of justice. We demand real justice: do not obliterate our poor brown community; move the intakes.	Please see responses to comments 535-2, 535-8, and 535-20 regarding intake locations. DWR has worked diligently to address Delta residents' concerns about environmental and community effects of the project and acknowledges that even extraordinary levels of outreach and engagement will not necessarily result in agreement about the project or in all concerns being assuaged. People working in good faith will nonetheless continue to disagree. The effort to hear and understand and engage with environmental justice communities and community members was attentive to and conscientious of best practices as recommended by numerous recognized state experts. It was also responsive to criticisms made previously by Delta environmental justice advocates. As a result, DWR implemented a robust program with goals to: 1. Help ensure disadvantaged and environmental justice communities

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		know about and understand the proposed Delta Conveyance Project and its timeline. 2. Help ensure disadvantaged and environmental justice communities understand how to find information about the Delta Conveyance Project's effects on their priorities and interests. 3. Increase the disadvantaged and environmental justice network and mailing list to existing and new hard-to-reach and underrepresented communities. 4. Help ensure disadvantaged and environmental justice communities understand and know how to engage in public input opportunities. 5. Provide access to information and input opportunities that are culturally attentive using creative methods to reach people where they are. Outreach related to the release of the Draft EIR included numerous interviews of statewide and local environmental justice experts; a community survey with more than 2000 respondents; numerous community briefings; attendance at numerous community events and meetings reaching about 1500 people; development of partnerships with 12 community based organizations to aid in outreach; numerous e-blasts and PSAs that ran in English, Spanish, and Hmong on radio stations with Delta listenership; workshops and materials in English, Spanish and Chinese; flyers in locations likely to reach underrepresented communities; and numerous calls and emails throughout the community.
535-22	[ATT 7] A third intake was to be located just downstream of the Town of Clarksburg, a few miles from us. But the Clarksburg intake was eliminated because your engineers "found increased potential for construction related effects to sensitive receptors in Clarksburg." Clarksburg is majority non-Hispanic and more prosperous. We are majority Hispanic and more low income. Sensitive receptors? Why are we not "sensitive receptors"	Please see responses to comments 535-2, 535-8, and 535-20 regarding intake locations. Sensitive receptors, including environmental justice communities, were considered when siting project facilities. Potential significant environmental impacts of the project on environmental justice communities (i.e., minority and low-income communities) are evaluated in Chapter 29, Environmental Justice. Low-income and minority populations residing within the study area were considered to be sensitive receptors for the purposes of the environmental

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	deserving of respect? It has been said that racism is the result of bad policies not bad people. The policy of locating the intakes on top of us and sparing Clarksburg visits a grossly disproportionate impact on a poor brown community. We do not know what was in the heart of your engineers when they made this decision but we know the result.	impact analysis for resource topics such as noise, air quality, land use, aesthetics, and visual quality.
535-23	[ATT 7:] We demand, Governor Newsom, that you intervene and direct your engineers and lawyers to move these intakes away from our town [Hood]. Nothing short of relocating the intakes will be of any value.	Please see responses to comments 535-1 and 535-2 regarding that alternatives considered and the analysis of potential impacts.
535-24	[ATT 7:] We wish for you to know who we are before we affix our signatures. We are the kind of people who for generations have been disproportionately harmed by siting everything from toxic dumps to freeways to industrial facilities in poor disadvantaged communities throughout this country. President Biden has finally taken steps to stop this practice at the federal level. Now is the time for you to stop it in California. Here is a little about us and our history with our community: The Montano, Cruz, Lujan, Chacon, and Chavez families migrated to Hood from Colorado in the 1940s. The 104 households that now comprise Hood are largely descended from these families. Many of us are in some degree related to one and other. We value our family, our community, and our heritage. We are a majority Latino community and of modest incomes. We do not intend to stand idly by and see our way of life destroyed by this project.	Please see Common Response 1, CEQA Process, General Approach to Analysis, and Other Environmental Review Issues, regarding comments that state opinions of general opposition to the project. Potential significant environmental impacts of the project on environmental justice communities (i.e., minority and low-income communities) are evaluated in Chapter 29, Environmental Justice.

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535-25	[ATT 7:] We, the undersigned, OBJECT, PROTEST, AND DEMAND that the location of the intakes for the Delta Conveyance Project BE MOVED away from the Town of Hood	Please see responses to comments 535-1 and 535-2 regarding the alternatives considered and the analysis of potential impacts. Responses to comments 535-19 through 535-24 address the specific concerns raised in Attachment 7.
543-1	Comment 1. Water Quality and harmful algal blooms (HABs). Members of the Stockton Sailing Club are highly concerned about harmful effects that the proposed Delta Conveyance will have on water quality and recreational activities in the Delta.	Chapter 9, Water Quality, Impact WQ-14 thoroughly evaluates the effects that project operations would have on cyanobacteria harmful algal blooms (CHABs) in the Delta. The CHAB assessment considered multiple locations across the Delta including the Stockton area. Based on extensive analysis that is consistent with the current scientific understanding of CHABs in the Delta, this impact assessment determined that project operations effects on CHABs would not adversely affect Delta beneficial uses, which includes contact and non-contact recreation uses, and CHABs impacts would be less than significant. Furthermore, Chapter 26, Public Health, Impact PH-5 determined that there would be no increased public health risk related to project operations effects on CHABs.
543-2	Our membership is on the order of 300 persons and 240 boats are docked in our harbor. The Club has one of the largest junior sailing programs in San Joaquin County. Each summer, in partnership with the Richmond Yacht Club and Santa Cruz Yacht Club, up to 100 children attend sailing camps at our facility. A large portion of the teaching events occur in the main Channel. In addition, sailing regattas are scheduled on weekend days and Wednesday evenings during much of the year. One of our largest events is the Delta Ditch Run, at which up to 150 sailboats, race from the San Francisco Bay, winding their way through tributaries of the San Joaquin River to finish at the Stockton Sailing Club. The event is the kickoff of another event called the Delta Do Dah, which brings 100s of additional boats to recreate and attend events throughout the Delta during the summer. Few days pass, all year, when at least	This information describes the background of the organization or individual commenter. It is not a comment on the contents of the Draft EIR. DWR has reviewed all comments and will consider all comments in its decision-making process.

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	some of our members are not sailing their boats in Delta waters.	
543-3	We are concerned that the Conveyance Project will have a negative impact on water quality in the Delta. The DEIR does not consider alternatives that will improve water quality in the Central and Southern portions of the Delta. Water quality has diminished over the past years. The DEIR does not adequately consider downstream effects that will result from diverting up to one-third of the Sacramento River flow through the tunnel. We see no beneficial effect of the water diversion on water quality at our facility or in the overall Delta. Loss of flow, and the potential for diverting flow from the Sacramento River into the Central Delta by way of existing channels, will surely diminish water quality downstream. The potential for toxic or harmful algal blooms will increase.	Diversions from the Sacramento River would be governed by a comprehensive set of operational criteria and requirements as described in Chapter 3, Description of the Proposed Project and Alternatives. The comment assertion regarding diverting one-third of the Sacramento River mischaracterizes the information found in Chapter 3 and the various analyses contained in the EIR. All operational criteria and regulatory requirements aimed at protecting environmental resources must be met to divert water, and water from the Sacramento River would be diverted under certain (comparatively higher) flow conditions during certain times of the year (e.g., wetter, excess water condition time periods). Chapter 9, Water Quality, assessed the project alternatives' effects on water quality in the Delta. As presented in Chapter 9, water quality would neither be universally degraded nor improved in all year types and at all Delta locations. Rather, water quality effects would be constituent-specific, and, for any given constituent, both improvements and degradation may occur over time at any given location. Water quality improvements would occur for salinity constituents, for example, at Banks Pumping Plant. Chapter 9, Impact WQ-14 (CHABs) thoroughly evaluates the effects that project operations would have on CHABs in the Delta including in the Stockton area. Based on extensive analysis that is consistent with the current scientific understanding of CHABs in the Delta, this impact assessment determined that project operations would have less-than-significant impacts on Delta CHABs.
543-4	The algal blooms [harmful algal blooms Stockton Sailing Club predicts will increase as a result of the DCP] present a severe health hazard to the children in the sailing camps, as well as to any individual who participates in water sports in the Delta.	The EIR evaluates the potential for harmful algal blooms or cyanobacteria harmful algal blooms (CHABs) to occur within the Delta. As described in Chapter 9, Water Quality, under Impact WQ-14, nine Delta assessment locations and several other locations, including the Stockton Waterfront, were assessed to understand how project alternatives could potentially affect environmental factors that provide favorable conditions for CHABs (i.e., water temperature, nutrient levels, flow velocities and associated

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		turbulence and mixing, water clarity, and hydraulic residence time). Existing hydrological and water quality conditions at the Stockton Waterfront are favorable to the growth, accumulation, and aggregation of Microcystis. The impact analysis in Chapter 9 determined that project alternatives would be unlikely to change the density or extent of Microcystis and other cyanobacteria at this location relative to existing conditions. No substantial change in the frequency of CHABs or cyanotoxin concentrations at this location or in the Delta is expected. Based on this analysis, operation of the project alternatives would not result in an increased potential for public health to be affected by cyanotoxin exposure at the Stockton Sailing Club or in the Delta.
543-5	One can clearly see that the proposed Conveyance Project may potentially benefit users in the Metropolitan Water District. However, one cannot argue that the proposed water diversion gives equal, or any, benefit to the Delta.	The comment does not raise a significant environmental issue relating to the proposed project or address the adequacy, accuracy, or completeness of the Draft EIR. DWR has reviewed all comments and will consider all comments in its decision-making process.
543-6	Comment 2. Barge Traffic in the Main Channel The DEIR fails to disclose the number of barge trips that will be used in the construction of the tunnels, nor does it describe probable routes of the barge trips. It is probable that the tunnel lining segments will be fabricated outside of the Delta and transported by barge to the Port of Stockton. If barges are used for the transport, significant safety issues and potential interference to recreational activities will occur throughout Delta and must be addressed.	Impacts TRANS-2 and TRANS-5 in Chapter 20, Transportation, address potential effects on marine navigation of constructing the project. For all project alternatives, tugboats and barges would be used only to a limited extent during the latter part of intake construction on the Sacramento River to excavate the river bottom, remove dredged spoils following removal of cofferdams, and place riprap along the levee. A limited number of barges would also be used to perform the pile installation method test program, and barges, ships, or boats may be used to conduct overwater borings and testing. The estimated number of roundtrip barge trips by alternative is provided in Chapter 12, Fish and Aquatic Resources, in subsection titled Impacts of Project Alternatives on Fish and Aquatic Resources under Impact AQUA-1 and in Chapter 24, Noise and Vibration, in the subsection titled Tugboats and Barges under Impact NOI-1. The Sacramento River and San Joaquin River would always remain open to boat traffic during project construction. Prior to construction of the Sacramento River intakes, in-water work areas would be indicated by

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		buoys, signage, or other effective means to warn boaters of their presence and access restrictions. Because vessel passage would not be impeded and changes in river flows would not be of the magnitude to restrict access, the impact of constructing and operating the project alternatives on maritime navigation was determined to be less than significant.
543-7	Safety considerations are especially important for the children, learning to sail, in the pathway of frequent barge traffic [which Stockton Sailing Club claims may increase due to transportation of tunnel material via barges] in front of the Sailing Club. In addition, the tugboats, pushing the barges, spue great amounts of black diesel smoke which is known to be carcinogenic and a significant contributor to poor air quality, which is already bad in the Stockton area. The potential health and safety effects of such barge activities must be evaluated and avoided.	Because barged materials for the project alternatives would originate at the Port of Stockton, project tugboats and barges would travel past the Stockton Sailing Club on the San Joaquin River. However, these vessels would be used to a limited extent during the latter part of intake construction on the Sacramento River and during overwater field investigations. Please refer to Chapter 20, Transportation, and Appendix 23B, Air Quality and GHG Analysis Activity Data, for more information on the use of tugboats and barges. Potential air quality impacts resulting from project construction and operation related to diesel emissions, including a quantitative health risk assessment, are identified in Chapter 23, Air Quality and Greenhouse Gases.
543-8	Additional barge traffic in the Delta will add safety dangers and affect recreational activities, such as sailing and boating, in the Delta. It is projected that construction of the conveyance project will take at least 13 years, in which a generation of, particularly Stockton underserved youngsters, sailors will not have an opportunity to learn and participate in sailing. Furthermore, the years of construction will interfere with all pleasure boating and desire for membership and slip rentals in Stockton Sailing Club. Thirteen years will not be a temporary legacy of disturbed sailing in the Delta. It will be the long-term destruction of Delta recreation.	The comment assertions regarding impacts on navigation, including recreational boating, are not supported by the analysis contained in the EIR. Please refer to response to comment 543-6 regarding barge traffic and Chapter 20, Transportation, specifically as noted under Impact TRANS-5, which states that barges and tugboats would only be used for geotechnical investigations prior to construction and placement of riprap at the end of construction; therefore, the impact on marine navigation would be minor. Construction activities taking place over the 13 years will vary in intensity and types of activities and are dispersed in time and place. Most locations in the project area will not experience all activities over the course of each of the 13 years, particularly for water-based activities such as sailing, and

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		therefore will not be appreciably affected by construction in most years of construction.
547-1	The Golden State Salmon Association has submitted comments on the Delta conveyance DEIR in a letter signed by several NGOs, including NRDC. I am writing on behalf of GSSA to submit the following additional comments.	This information describes the structure or organization of the comment letter, the background of the organization or individual commenter, clarification on the submittal of the comment letter, or general introductory text. It is not a comment on the contents of the EIR. DWR has reviewed all comments and will consider all comments in its decision-making process.
547-2	The Final DEIR Must Incorporate Juvenile Survival and Adult Escapement Numbers Initial agency reports regarding 2022 juvenile salmon survival in the Central Valley and adult escapement to Central Valley rivers are deeply concerning. For example, the Stockton Record reported recently that only 158,764 endangered winter-run Chinook salmon fry survived to Red Bluff this year, compared with an average of 1.3 million. By contrast, in 2020 and 2019, 2.08 and 3.67 million winter-run fry, respectively, reached Red Bluff. [Footnote 1: Record low number of winter-run chinook baby salmon reported at Sacramento River's Red Bluff", Stockton Record, December 6, 2022. https://www.recordnet.com/story/sports/outdoors/fishing/2022/12/06/recordlow-of-winter-chinook-baby-salmon-reported-keswick-dam-red-bluff-sacramento-riverfishing/69706421007/]. In recent years, temperature related mortality has dramatically reduced juvenile salmon survival from egg to fry below Keswick Dam on the Sacramento River. Many of the salmon that survive to Red Bluff die before they reach the ocean as a result of water project operations, including low river flows during the outmigration period and the impacts of	Consistent with the comment's suggestion, juvenile salmon survival and adult escapement numbers have been updated in EIR Appendix 12A, Environmental Setting Background Information, based on data from the National Marine Fisheries Service and other sources cited therein. Impact analyses in the EIR account for population status and project impacts generally were concluded to be significant without mitigation for salmonids, with mitigation proposed to reduce impacts to less-than-significant levels (see Chapter 12, Fish and Aquatic Resources). With respect to the comment's suggestion that water project operations are by far the largest driver of the downward trend in Central Valley salmon populations in recent decades, the reference cited in this context focused only on juvenile Chinook salmon in the Stanislaus River and did not provide analysis of other life stages, including adults as implied by the comment, nor did the reference include a comparison of the relative importance of water project operations to other stressors within the life cycle, which would be needed to support the comment's claim. In addition, the mechanisms of potential effect examined in the cited reference are different from those that are pertinent to the project alternatives examined in this EIR, given the difference in the environmental setting for the reference's study area (upstream, riverine habitat) compared to this EIR (in-Delta); as described further in Chapter 12, and discussed in Common Response 1, CEQA Process, General Approach to Analysis, and Other Environmental Review Issues, the project alternatives do not result in changes to upstream operations, which is the focus of the

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	the Delta Cross Channel Gates and the SWP/CVP Delta pumps. Dangerously low juvenile survival has been reported on other Central Valley spawning streams. And dangerously high levels of temperature related mortality were experienced by Sacramento River salmon in 2020 and 2021. Further, initial agency reports also suggest that the number of adult salmon returning to Central Valley rivers, including the Sacramento River Basin, may also be far below sustainable levels. The final fall-run adult returns to the Sacramento River may be well below the 180,000 fish 2022 target for sustainability set by the Pacific Coast Fisheries Management Council. In fact, in five of the past 10 years, Sacramento River fall-run adult returns have been below the target established by the PFMC. [Footnote 2: PFMC 2021 Review of 2021 Ocean Salmon Fisheries, Table II-1 https://www.pcouncil.org/documents/2022/02/review-of-2021-ocean-salmon-fisheries.pdf/] Water project operations are by far the largest driver of the downward trend in Central Valley salmon populations in recent decades. It is important to note that the harvest of salmon in recent years has been far below historic averages. In addition, peer-reviewed scientific analysis has demonstrated that Central Valley water conditions during the spawning, rearing and outmigration period are the dominant factor in determining adult salmon populations. [Footnote 3: 3S. C. Zeug, K. Sellheim, C. Watry, J. D. Wikert, J. Merz, Response of juvenile Chinook salmon to managed flow: lessons learned from a population at the southern extent of their range in North America, Fisheries Management and Ecology, February 26, 2014	cited reference.

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	https://onlinelibrary.wiley.com/doi/full/10.1111/fme.12063] The above numbers are initial reports. The final numbers regarding juvenile survival and escapement may or may not be significantly different. The final DEIR must include the final data regarding both juvenile survival and adult escapement in 2022 and over recent decades. That analysis should include a careful examination of the long-term trends in both returns and survival. Accurate current data regarding both returns and survival is important because, as discussed in the joint comment letter that GSSA [Golden State Salmon Association] has signed, even relatively small impacts to severely depressed fish populations can have large consequences. In the case of listed runs, even small impacts could push species closer to -- or over the edge of – extinction. For unlisted salmon runs, those impacts could push fish populations below the target levels established by the PFMC as a sign of healthy, self-sustaining salmon populations.	
547-3	The final DEIR must also include a thorough analysis of the percent of returning Central Valley adults that are of wild, vs hatchery, origin. That analysis will likely reveal that river conditions, which are largely influenced by the SWP and CVP, are causing disastrous impacts to all Central Valley wild salmon before they reach the ocean.	Information regarding hatchery- and wild-origin Chinook salmon is presented in Appendix 12B, Bay-Delta Methods and Results. Analysis of potential impacts of the project alternatives in the EIR apply to all fish within a given ESU, regardless of hatchery vs. wild origin. Please also see Common Response 1, CEQA Process, General Approach to Analysis, and Other Environmental Review Issues, and response to comment 547-2, regarding upstream analyses pertinent to rivers.
547-4	Over the long term, water project operations are the primary driver of the health of Central Valley salmon runs. In 2022, however, there may be other significant contributors to low juvenile survival. These additional factors must not be cited to minimize the potential impacts of the proposed project.	With respect to other factors mentioned in the comment, Chapter 12, Fish and Aquatic Resources, provides a discussion of environmental baseline conditions as well as cumulative impacts. With respect to comments on the joint letter signed by the commenter, please refer to Volume 2, Chapter 2, Indices of Commenters and Index of Primary Forms, to locate DWR

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	Rather, these other factors must be considered as cumulative impacts that further highlight that any additional impacts from the proposed project could have devastating results. As discussed in the joint comment letter signed by GSSA, the DEIR inadequately addresses upstream impacts, and other impacts, of the proposed project. Those impacts include State Water Project impacts below Oroville Dam, Central Valley Project impacts below Shasta Dam and other CVP controlled rivers, and impacts caused by the joint operations of the SWP and CVP under the Coordinated Operations Agreement.	responses to the letter referenced by the comment, and contained in Volume 2, Chapter 4, Response to Comments Tables. With respect to the study area, analysis of the project as a whole, and upstream areas, please see Common Response 1, CEQA Process, General Approach to Analysis, and Other Environmental Review Issues.
547-5	The Final EIR Must Address Potential Impacts to the Salmon Fishing Economy The potential environmental impacts of the proposed project could cause significant economic impacts to the California salmon fishing industry. These impacts could result from increased future limitations on, or closures of, commercial and recreational fishing in California and coastal Oregon. These impacts were dramatically seen in the 2008-2009 closure of commercial and recreational salmon fishing. When California's salmon runs are relatively healthy, the state's salmon fishing industry supports 23,000 jobs and $1.4 billion in economic activity. [Footnote 4: Southwick Associates, August 2012. Attached.] [See Attachment 1] Our industry has been harmed in recent years by declining salmon runs and significant limits on commercial and recreational fishing - which are largely driven by water project operations including the SWP, CVP and CVP/SWP COA. The proposed project could result in severe additional economic and social impacts.	Chapter 12, Fish and Aquatic Resources, includes analysis of potential construction and operations/maintenance impacts of the project alternatives on Chinook salmon in Impacts AQUA-2, AQUA-3, and AQUA-4, concluding that impacts are less than significant or less than significant with mitigation. The focus of these effects is appropriate in reflecting a study area consisting of the Delta and downstream areas such as Suisun Bay/Marsh. The project alternatives do not change the environment in the coastal ocean referred to in the comment. The analysis accounts for potential effects on these salmon populations as a whole based on direct or indirect effects on salmon in the study area as illustrated in the analysis of salmon in the Pacific Ocean described in Impact AQUA-19 for southern resident killer whales. Based on the conclusions provided in Chapter 12, operation of the Delta Conveyance Project is not expected to have an effect on the economic output derived from the commercial or recreational salmon harvest.

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	Although these potential economic impacts are not considered environmental impacts under CEQA, they are reasonably foreseeable and are directly related to the environmental damage that the proposed project could cause. Therefore, they should be fully discussed in the Final EIR. Further, the final document must clearly analyze the relationship between the potential environmental impacts of the proposed project and potential social and economic impacts, including impacts to the salmon fishing economy.	
547-6	Thank you for considering these comments.	This information is general closing text. It is not a comment on the contents of the Draft EIR. DWR has reviewed all comments and will consider all comments in its decision-making process.
547-7	[ATT 1: Southwick Associates economic impact estimates to recreational salmon fishing in California from 2012.]	The commenter provided this attachment for reference purposes in support of their comments. Those comments are addressed in these responses to the commenter's letter.
551-1	On behalf of more than 75 members, the California Central Valley Flood Control Association (CCVFCA/Association), pursuant to the CA Environmental Quality Act (CEQA) these comments are submitted on the Draft Environmental Impact Report (EIR) for the Delta Conveyance Project (DCP). This consolidated set of comments is intended to provide a more comprehensive, representative flood management perspective, rather than comments of individual member agencies. All of the comments and recommendations contained herein are proposed as alternatives and/or mitigation measures to reduce significant environmental impacts and should therefore be treated as such for purposes of responding to these comments pursuant to CEQA (14 CCR section 15088). Accordingly, the Association expects responses to all comments and recommendations contained herein.	This information describes the structure or organization of the comment letter, the background of the organization or individual commenter, clarification on the submittal of the comment letter, or general introductory text. It is not a comment on the contents of the Draft EIR. DWR has reviewed all comments and will consider all comments in its decision-making process.

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551-2	I. SUMMARY OF CCVFCA [Central Valley Flood Control Association] COMMENTS ON DCP Under CEQA, the project description must provide the necessary detail to allow the public and decisionmakers to make an informed decision about a project's impacts (San Joaquin Raptor Rescue Center v. County of Merced (2007) 149 Ca1.App.4th 645, 672.) and propose and describe mitigation measures to minimize or avoid those effects. (East Sacramento Partnership for a Livable City v. City of Sacramento (2016) 5 Cal.App.5th 281, 303, citing Pub. Resources Code §§ 21002.1(a), 21100(b)(3); CEQA Guidelines, § 15126.4(a)(1).) The Draft EIR, as presented, does not meet CEQA's requirements because it does not analyze the full range of the construction and operation impacts to flood control infrastructure or Delta channels and embankments that protect people, property, habitat, and the Delta agrarian economy. For some of the impacts that the Draft EIR does identify, the determinations of significance appear to be derived from speculation without studies and data to support conclusions. The modeling may also be underestimating the severity of adverse impacts because it does not reflect DWR's ability to maximize the full capacity of the proposed new diversion intake facilities. The analysis and conclusions in the Draft EIR foster uncertainty because they make generally optimistic assumptions about the extent and duration of Project impacts, without site-specific analysis or scientific justification. Failure to ensure the implementation and effectiveness of mitigation measures could result in an increase in significant impacts that must be	Chapter 3, Description of the Proposed Project and Alternatives, provides a comprehensive description of all of the facilities and operational components for all of the alternatives. DWR does not propose to continuously operate the project alternatives at a maximum capacity, but opportunistically to capture high flows while meeting regulatory requirements and satisfying water rights. These operational parameters are reflected in the modeling in the EIR. Please refer to Common Response 3, Alternatives Development and Description, regarding project operations and information on operating to the maximum capacity. The assertion of the comment that DWR failed to fully analyze the full range of the construction and operation impacts on flood control infrastructure is not supported by the contents of the EIR. The impacts on flood protection from construction and operation of the Delta Conveyance Project is fully analyzed in Chapter 7, Flood Protection, which discloses in Impact FP-1 that construction and operation of the proposed north Delta intakes would result in a minor increase in Sacramento River water surface elevations that would not significantly affect flood protection. For Alternatives 2a and 4a, construction-related impacts would be reduced to a less-than-significant level by the application of proposed mitigation (Mitigation Measure FP-1). These results are based on an accurate depiction of surface water changes based on modeling results. Similarly Impact FP-2 discloses that construction of project facilities would have a less than significant impact on flooding and drainage conditions in the project area and no mitigation measures are required. For all mitigation measures proposed in the EIR, CEQA requires lead agencies to implement measures to reduce significant environmental impacts, including flood protection. Feasible mitigation measures and how they would be implemented are disclosed in the Mitigation Monitoring and Reporting Program that is tracked to ensure impacts are reduced to less-than-significant levels. The EIR also discloses in the resource chapters (Chapters 7–32) the potential for mitigation measures to create impacts on the

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	analyzed. The success of the Project's mitigation measures is also not certain, but the Draft EIR fails to disclose that uncertainty. Readers should be informed of the potential failure of DWR's proposed mitigation measures to minimize or offset the analyzed environmental impacts. Simply put, the Association [California Central Valley Flood Control Association] finds that the description of DCP construction and operation is incomplete and often internally inconsistent, preventing a full and meaningful disclosure of the scope, purpose, intensity, duration, and true effects in the EIR. This is not unexpected since the design is still at a very preliminary conceptual level. The interdependence of water conveyance, levee maintenance, and habitat restoration in the Delta warrant an environmental impact assessment that is more complete, comprehensive, and comprehensible than the current Draft EIR.	environment. In cases where mitigation measures are infeasible and when impacts are considered to be significant and unavoidable even with mitigation measures in place DWR would provide a statement of overriding considerations to disclose the social, economic, or other reasons the project would be approved despite impacts that could not be adequately mitigated to a less-than-significant level.
551-3	II. ASSOCIATION [Central Valley Flood Control Association] HISTORY AND INTEREST IN DCP A. Association History In existence since 1926, the Association was established to promote the common interests of its membership in maintaining effective flood control systems in California's Central Valley for the protection of life, property, and the environment. Association members include reclamation and levee districts, plus cities and counties with flood management responsibilities along the Sacramento and San Joaquin Federal Project and non-Project levee systems within the Sacramento-San Joaquin Delta. B. Protection of Flood Management System	This information describes the structure or organization of the comment letter, the background of the organization or individual commenter, clarification on the submittal of the comment letter, or general introductory text. It is not a comment on the contents of the Draft EIR. This comment does not raise a significant environmental issue relating to the proposed project or address the adequacy, accuracy, or completeness of the Draft EIR. DWR has reviewed all comments and will consider all comments in its decision-making process.

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	The Association's specific interest is assuring that the construction, mitigation, and operation activities proposed in DCP alternatives will not in any way impede, diminish, or impair the flood flow capacity or functionality of the State and Delta's levee systems. These flood control facilities are integrated and dependent on each other to operate as a system to protect people and property year-round, but particularly during highwater events, and their public safety function must not be compromised. III. CENTRAL VALLEY FLOOD PROTECTION BACKGROUND A. History of Reclamation in the California Central Valley In 1850 Congress approved the Arkansas Act granting several states title to all of the Swamp and Overflowed Lands, including approximately 2 million acres in California. The State considered the reclamation of these swampy lands essential because of their extraordinary fertility when drained (reclaimed) and also because they posed a significant public health risk due to outbreaks of malaria from mosquito breeding. The State and Federal government therefore proceeded to actively encourage the reclamation of these lands for purposes of productive farming. Flood damage in the Sacramento Valley and Delta primarily occurs from heavy precipitation, but levee failures can also occur on a sunny day from damage caused by burrowing animals destabilizing the levee prism. In its natural condition, about one- quarter of the Central Valley extending along more than 14 counties was subject to annual or periodic overflow, so the first flood-control projects were the low levees the farmers built to protect their lands from inundation. Currently, most snow-melt run-off is stored or diverted for beneficial uses or passes	

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	harmlessly to the ocean, but prolonged high-water stages can cause seepage through levees if they are not vigilantly maintained and improved to withstand the occasional flood event with excessive runoff draining through the Central Valley and Delta. B. SRFCP Purpose and History Authorized by Congress in 1917, the Sacramento River Flood Control Project (SRFCP) and San Joaquin River Flood Control Project (SJRFCP) is a system of "Project levees" and flood bypasses designed and built by the U.S. Army Corps of Engineers (USACE/Corps) for three purposes: 1) Flood control; 2) Reclamation of marshy lands for farming and other productive uses; 3) Improvement of navigation. Today, there are more than 1,600 miles of State-federal Project levees in the Central Valley, 385 miles of which are located in the Delta. More than 700 miles of additional Delta levees are classified as "non-project." The key component of the SRFCP system, the Yolo Bypass, carries 80 percent of the water at the latitude of Sacramento during extreme floods. This comprehensive system of SPFC flood control facilities is the largest flood management system in California. Collectively, the facilities, lands, programs, conditions, and mode of O&M for the State-federal flood protection system in the Central Valley are referred to as the State Plan of Flood Control (SPFC). In 1953, the SPFC works were transferred to California with a memorandum of understanding (MOU) confirming the State's	

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	obligation to operate and maintain all completed works/facilities and to hold the federal government harmless. Jurisdiction and authority throughout the drainage basin and for the 1.7 million acres within the state's Sacramento and San Joaquin Drainage District (SSJDD) is the responsibility of the Central Valley Flood Protection Board (CVFPB/Board). Created by State legislation in 1913, the SSJDD holds the property rights on about 18,000 parcels of SPFC lands, some going back to 1900. Annual inspections of the SPFC levee system are conducted twice annually by DWR	
551-4	C. Modification of SPFC This comprehensive interconnected system of SPFC [State Plan of Flood Control] and non-project levees is absolutely critical to public health and safety, including the protection of the region's transportation, energy, agriculture, business, homes, and even water conveyance. Levees in the Delta provide this protection at all times, during two daily high tides and seasonal high-flow events. Under California law, no modification to the SPFC system may be constructed on or near the Sacramento and San Joaquin Rivers or their tributaries until plans have been reviewed and the projects have been approved or a permit issued by the CVFPB. The Board authorizes use of the SPFC facilities by issuing encroachment permits only if the project is compatible with the flood system and will not hamper the State's O&M responsibilities. The DCP alternatives and EIR must embrace -- as a fundamental permit condition -- the requirement that the existing level of flood protection be maintained to protect	The table titled Summary of Potential Agencies and Review, Approval, or Other Responsibilities, in Addition to Those under CEQA, in Chapter 1, Introduction, lists the Central Valley Flood Protection Board as an agency with potential review and approval responsibilities for the project related to local sponsor requirements under USACE Section 408 requirements and possible encroachment permits. Please also see Common Response 8, Relationship to Other Plans, Projects, Policies, and Programs, for information on DWR's role in managing programs that provide funding to levee maintaining agencies for their use to protect and improve critical levees in the Delta. As described in this Common Response, DWR regularly works with local governments to maintain and improve the levees that protect the Delta, and these efforts would continue independent of project approval. Delta Conveyance Project's proposed modification of flood control levees would not reduce the protection afforded by the existing flood control system or affect the ability of local entities to increase levels of flood protection.

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	people, property, infrastructure, habitat, and conveyance of floodwater. As most public agencies within the Delta are constantly upgrading their level of flood protection, it is also essential that DCP does not create a new barrier to future ability to increase local level of flood protection.	
551-5	IV. CEQA COMMENTS A. Inadequate Project Description A proper environmental impact report must provide sufficient information as to the size and scope of all major project components and existing baseline conditions, presented in an accurate and understandable project description. The Association finds the release of the Draft EIR to be premature because the DCP is still at a conceptual level of design, resulting in several critical Project description inadequacies that prevent the public and local government agencies from being fully informed of the scope, duration, severity, and level of significance of the environmental impacts if implemented. For instance, Alternative 5 envisions a Project operated entirely within the State Water Project (SWP), but the Draft EIR leaves open the possibility of involving additional exports for Reclamation's Central Valley Project. (Draft EIR, § ES.1 ["Here, as the CEQA lead agency, DWR's underlying, or fundamental, purpose in proposing the project is "to restore and protect the reliability of State Water Project (SWP) water deliveries and, potentially, Central Valley Project (CVP) water deliveries south of the Delta… "].) Similarly, the references to operational criteria as described in Section 3.16 of the Draft EIR do not provide a clear operations plan with stable and defined parameters for how DWR will operate the north Delta intakes.	The information provided in Chapter 3, Description of the Proposed Project and Alternatives, regarding the operation of the Delta Conveyance Project intakes is an accurate description of the criteria under which the project will operate. DWR currently has the discretion to adjust operations in accordance with numerous regulations and criteria. The addition of the north Delta intakes would provide DWR the operational flexibility to continue to comply with current and future regulatory requirements to sustain water supply and water quality and protect environmental resources. Monitoring data would be used to determine if criteria for operating the proposed diversions should be more protective for sensitive fish species or if operating criteria could be relaxed under certain conditions and with approval from regulatory agencies (e.g., when risk to covered species is low or absent [e.g., 0.2 feet per second approach velocity based on temperature/calendar off-ramps when smelt are unlikely to be in the intake reach]). Please refer to Chapter 3, in the subsection titled Proposed Real-Time Actions and Compliance. While it is not anticipated, if more significant deviations from what was analyzed in the EIR were to be proposed or identified through the OAMMP process in the future, consultation and potentially new CEQA review (and public input) could be required. Please refer to Common Response 3, Alternatives Development and Description, regarding the level of design that is adequate to evaluate impacts as required by CEQA, as well as regarding project operations. The hydrologic modeling conducted for each alternative is an accurate

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	The project description states use of the northern Delta intakes will depend on whether there is an "operational advantage" in DWR's discretion, but the Draft EIR does not detail that decision-making process. Because the operational details are limited, the restrictions applied to the hydrologic modeling presents a scenario that DWR may not ultimately follow under the real Project. Without a clear description of how the DCP will be operated, the public cannot meaningfully comment on its potential impacts such as levee erosion from increased hydrologic velocities or overtopping from elevated surface water levels.	depiction of how the operation of each alternative would result in changes to hydrologic conditions, including river flows, reservoir storage, and water deliveries. Those changes are summarized in Chapter 5, Surface Water, which provides information that was used to support the environmental assessment and allow an accurate comparison of impacts among alternatives. Chapter 7, Flood Protection, fully discloses the operational related impacts of the project on the surface elevation of the Sacramento River near the intakes under a 100- and 200-year flood event. As disclosed in the assessment, the project would result in a very small increase in surface water elevations only within the vicinity of the intakes and this very small increase would not result in a significant impact on the flood protection. The analysis of Alternatives 2a and 4a with a conveyance capacity of 7,500 cfs represents the scenario that assumes CVP participation diverting a maximum of 1,500 cfs in addition to SWP's maximum diversion of 6,000 cfs. Alternatives 1, 3, 2b, 2c, 4b, 4c, and 5 assume no CVP participation. Please also refer to EIR Chapter 2, Purpose and Project Objectives, which provides a discussion of the project objectives, one of which is to restore and protect the reliability of the SWP to make water deliveries. Levee erosion and scour at the Delta Conveyance Project intake sites on the Sacramento River is addressed in Chapter 7, Flood Protection, in Impact FP-1 with supporting detail provided in the Sacramento River Flood Flow Hydraulic Modeling—HEC-RAS 2D technical memorandum in the Engineering Project Report (Delta Conveyance Design and Construction Authority 2022h). As noted in Attachment A, changes in velocity of very low magnitude would occur in front of the intakes, although within the baseline velocity range for this portion of the river. The existing natural bank and bottom protection and rip-rap protection proposed for the intake structures would protect the levee slope and river bottom from any

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		changes in potential scour force. The information contained in the EIR supports the conclusion related to levee erosion and scour as less than significant. The project is also subject to permitting through the USACE 408 permitting process which will require an additional review of the potential of the project to result in bed and bank scour and the design measures proposed to avoid scour.
551-6	B. Limited Range of Alternatives Under CEQA, an EIR must consider a reasonable range of feasible project alternatives that would substantially lessen the project's significant environment effects. (Pub. Resources Code, § 21061; CEQA Guidelines, § 15126.6, subds. (d), (f).) Section 3.2 of the Draft EIR describes DWR's process of screening and eliminating alternatives, which culminated in three potential conveyance alignments, and diversion facilities with incremental variations in water capacity. The range of alternatives selected for the Project is artificially narrow, which eliminates meaningful options for accomplishing the Project purpose. Section 2.3 of the Draft EIR identifies the main purpose for the Delta Conveyance Project is to reduce risks to the State Water Project supply infrastructure posed by climate change-induced sea level rise, and seismic events. In both scenarios, the risk to infrastructure is caused by potential levee failures that would threaten SWP deliveries. An alternative approach to address these threats, such as extensive remediation of existing conveyance infrastructure to improve levee stability in the Delta, was not evaluated as a feasible alternative in the Draft EIR. With adequate levee improvements in place, a through-Delta alternative would also reduce flood risks to Delta communities and enhance other beneficial aspects relevant to maintaining "Delta as Place," but	Please see Common Response 3, Alternatives Development and Description, regarding the alternatives evaluated and the reasonable range of potentially feasible alternatives evaluated in the EIR. The discussion in Common Response 3 explains why repairing or rehabilitating existing levees would not meet the project objectives. A through-Delta alternative was considered in Appendix 3A but eliminated from further review because it would not sufficiently improve water supply reliability in the face of sea-level rise, which not only increases the risk of levee failure, but also increases salinity intrusion even absent levee failures (improving Delta levees does nothing to address the latter). In addition, improving Delta levees alone would not meet the seismic resiliency criteria and would not offer improved Delta SWP operational flexibility because it would leave SWP operations wholly dependent on the existing south Delta diversion facilities. Please also see Common Response 8, Relationship to Other Plans, Projects, Policies, and Programs, for information on DWR's role in managing programs that provide funding to levee maintaining agencies for their use to protect and improve critical levees in the Delta. As described in this Common Response, DWR regularly works with local governments to maintain and improve the levees that protect the Delta, and these efforts would continue independent of project approval.

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	DWR eliminated the non-tunnel alternatives in the first filter screening process by concluding that through-Delta conveyance is unavoidably infeasible due to sea level rise and seismic risks. (Draft EIR, App'x 3A, at p. 3A-35.) The Final EIR should include a through-Delta levee upgrade to improve the conveyance reliability of SWP water deliveries.	
551-7	C. Insufficient Analysis of Flood Risk Under CEQA the lead agency's factual conclusions must be supported by substantial evidence -- facts, reasonable assumptions predicated upon facts, and expert opinion supported by facts (CEQA Guidelines section15384(b)). Speculation does not constitute substantial evidence, and unsubstantiated narrative or expert opinion asserting nothing more than "it is reasonable to assume" that something "potentially may occur" is not analysis supported by factual evidence. The alternatives for the Project will alter water elevations in the Delta, including reduced surface flows in late summer and early fall months. (Draft EIR, section 5.3.) However, the Draft EIR states that changes to surface water resources and water supplies, "by themselves" are not considered impacts under CEQA, and therefore only describes the potential changes as a basis for understanding potential effects on other surface water-related resources. (Draft EIR, section 5.0 at p. 5-2.) DWR's failure to consider surface water impacts as environmental impacts requiring analysis is incompatible with the clear requirement of CEQA to analyze environmental impacts. (See Pub. Resources Code, section 21002 [requiring public agencies to avoid or lessen significant environmental impacts of projects]; section 20160.5 [defining "environment"	The analysis contained in the EIR is not consistent with the generalization that factual conclusions are not based on substantial evidence in the CEQA analyses. Please see Common Response 1, CEQA Process, General Approach to Analysis, and Other Environmental Review Issues, regarding the use of best available tools and science and a discussion of uncertainty that is acknowledged and minimized, to the extent feasible, throughout the EIR. The analysis contained in the EIR is not consistent with the assertion by the commenter that the EIR fails to analyze surface water and water supply impacts. It is incorrect to assume that DWR did not take into consideration changes in hydrologic conditions within the project's study area. Please refer to Common Response 1 regarding a discussion of Chapter 5, Surface Water, and Chapter 6, Water Supply, and the evaluation of water-dependent resources throughout the EIR. Chapter 5 provides the simulated changes in river conditions that demonstrate that long-term average monthly flows under project operations would be similar to existing conditions. Chapter 3, Description of the Proposed Project and Alternatives, explains the operational criteria. Chapters 5 and 6 acknowledge that the changes to surface water resources and water supply are evaluated and disclosed, but CEQA impact determinations are not made in those chapters. CEQA impact determinations are not made because the impacts associated with changes to surface water and water supply are associated with environmental resources dependent on hydrology or water supply. Therefore, the changes

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	as the physical conditions which exist within the area which will be affected by a proposed project, including land, air, water ... "].) By only analyzing surface water and water supply impacts indirectly through the effects on other surface-water related resources, the Draft EIR fails to analyze the full environmental impacts attributable to the Project such as increased flood risk to Delta communities and agrarian economy. The programs, projects, and policies considered for cumulative impact analysis are identified in Table 3C-2 of the Draft EIR, but the Draft EIR excludes any analysis of cumulative impacts on surface water (Chapter 5) or water supplies (Chapter 6), contrary to CEQA guidelines. (CEQA Guidelines, sections 15130(a)(1), (b).)	disclosed in Chapters 5 and 6 are appropriately analyzed in resource evaluations throughout the EIR (see the section titled Surface Water Changes in Chapter 5). For example, thresholds and impact evaluations based on Appendix G of the CEQA Guidelines related to flooding use changes in hydrology presented in Chapter 5 to evaluate impacts in Chapter 7, Flood Protection (Impacts FP-1 and FP-2). The EIR fully evaluates impacts on the range of resources in Chapters 7 through 32, using information presented in Chapters 5 and 6. The surface water and water supply conditions reported in Chapters 5 and 6, respectively are based on the CalSim 3 hydrologic modeling effort conducted for the Delta Conveyance Project. Background information on how the modeling was conducted, including the consideration of water demands, water use, and land uses within the geographic area considered in the CalSim 3 model. This information is provided in Chapter 5, Appendix 5A, Section A Modeling Technical Appendix – Modeling Overview. Furthermore, these variables were modified for the 2040 analysis which took into consideration, among other factors, changes in land use, urban growth, and climate change. Chapter 7, Impact FP-1, analyzes the project's potential impact on flood protection. The hydraulic analysis concluded that the construction and operation of any of the project alternatives would not result in a significant impact on flood protection with the exception of Alternatives 2a and 4a. The construction-related impact of Alternative's 2a and 4a would be reduced to a less-than-significant level by application of proposed mitigation.
551-8	DCP alternatives would involve extensive excavation, grading, stockpiling, soil compaction, and dewatering, resulting in temporary and long-term alteration and disruption of drainage patterns, paths, and facilities. The existing drainage facilities in the Plan Area are intricate networks of canals, ditches, pipes, and pumps which means they have been carefully designed to	Please refer to Impact FP-2 in Chapter 7, Flood Protection, regarding the discharge of water from dewatering activities and stormwater runoff. Water collected during construction would be released in a manner that would not increase peak flow rates in local drainage channels. The analysis in Chapter 7 concluded that Impact FP-2 is less than significant. As described in Chapter 7, in the section titled Process and Method of Review

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	function as a system and located to work with gravity and the natural land contours and drainage patterns that exist on the Delta islands. Therefore, any disconnection potentially renders the whole system inoperable and prevents drainage to allow farming. Farming must also be protected from seepage, runoff, and dewatering discharges. The DCP alternatives assume being able to discharge the dewatering volumes into local irrigation/drainage ditches, but there is NO EXTRA CAPACITY in these local facilities and therefore CANNOT be used by the DCP during construction.	for Impeding or Redirecting Localized Flood Flow, and in Chapter 3, Description of the Proposed Project and Alternatives, in the section titled Local Water Supply, Drainage, and Utilities, all on-site dewatering flows, stormwater flows, and other drainage flows will be collected, treated in on-site treatment plants, and stored in on-site facilities for reuse during construction. If the amount of on-site generated flows occurs when the storage capacity is full and water demands are fully met, only treated water would be discharged to the adjacent streams at a rate less than what could be expected from the agricultural lands under Existing Conditions. These sections also describe that the location and capacity of existing drainage and irrigation facilities that may be affected by construction of the Delta Conveyance Project would be determined and the capacity of this infrastructure to convey drainage or irrigation water would be maintained. Discharges would occur in a manner that would not compromise existing drainage facility capacity. As described in Chapter 7, Impact FP-2, ground disturbing activities at construction sites would avoid adversely affecting the operation of existing drainage facilities. Existing facilities would be rerouted to accommodate the project's footprint. Temporary changes in drainage would be minimized or avoided by constructing new or modifying existing facilities. The steps DWR would follow to ensure existing drainage capacity is maintained during and after construction are further described in Chapter 3 Description of the Proposed Project and Alternatives, section Local Water Supply, Drainage, and Utilities. As noted in this section of Chapter 3, because some of these drainage features are buried, a final cataloging of the location of each will be made as part of final design.
551-9	Increases in surface water above historical levels during the growing season will also result in unwanted and involuntary sub-irrigation due to increased hydro-static pressure caused by the increase in seepage. Many crops grown in the Project Area, including grapes, alfalfa, kiwis, apples, pears and cherries, are	The analysis contained in the EIR is not consistent with the assertion by the commenter that the project would result in unwanted and involuntary sub-irrigation due to increased hydro-static pressure caused by the increase in seepage. Modeled changes in flows under each of the project alternatives are provided in Chapter 5, Surface Water. As described in Chapter 5, river

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	extremely sensitive to increased water within plant root zones. During the growing season, reduced oxygen to the root zone would reduce crop yield and, potentially, result in the loss of trees and vines. This will be damaging to crops and to Delta agriculture in general.	flows downstream of the intakes would be slightly reduced as part of project operations. In addition, please refer to Chapter 8, Groundwater, regarding the potential for the project to affect agricultural drainage; these effects are analyzed and the impact would be less than significant. Please refer to Chapter 7, Flood Protection, which analyzes the impact of project alternatives on increases in surface water and flood protection within the study area during construction and operation of the project. Depending on the alternative analyzed, the impact on flood protection would be less than significant or less than significant with the mitigation measure in place.
551-10	With dewatering pumps placed around the facilities under construction, with continuous groundwater pumping at rates ranging from 100 gallons per minute to 2,000 gpm. We could find no studies or references to any evidence to support how the lowered groundwater depth or the radius of influence were determined, so they appear to be nothing more than professional guesstimates without any factual surveys or technical analysis to verify these claims.	Please refer to Chapter 3, Description of the Proposed Project and Alternatives, for a discussion regarding construction and dewatering timeframes. Additional details, including dewatering estimates, can be found in the Engineering Project Reports associated with the project. Dewatering estimates are available in the Dewatering Estimates for Intake Facilities and Southern Forebay Emergency Spillway technical memorandum (Delta Conveyance Design and Construction Authority 2022b), which is an attachment to the Engineering Project Reports associated with the project (Delta Conveyance Design and Construction Authority 2022m, 2022n), and in Common Response 10, Surface Water Quality and Groundwater Resources. Dewatering at the tunnel shafts would be limited to the volume of water removed after constructing the watertight structure located below the groundwater. Dewatering would only occur at tunnel shafts after the slurry walls or diaphragm walls and the bottom of the shaft is installed. Therefore, the dewatering volume would be limited to the volume within the shaft and isolated from the adjacent groundwater aquifer. Impacts GW-1 through GW-4 evaluate dewatering effects in Chapter 8, Groundwater, on steam gains or losses, groundwater elevations, groundwater levels, and groundwater storage and determine that impacts would be less than significant. Furthermore, implementation of Mitigation Measure GW-1 would further reduce the less than significant impacts, as described in Chapter 8. Stormwater runoff and dewatering flows would be captured, treated, stored, and reused on-site (Chapter 3,

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		section titled Local water Supply, Drainage, and Utilities). In the event water could not be stored, it would be discharged to Delta channels at a rate commensurate with runoff from the previous land uses.
551-11	From a public safety standpoint, it is critical for DCP consultants to immediately consult with local RDs, the CVFPB [California Central Valley Flood Control Association], DWR's levee inspection branch, and the USACE to discuss drafting a specific mitigation measure to deal with the effects that staging of construction equipment, construction traffic, and/or road re-routing will have on levee inspections and routine levee maintenance to be performed during the 14-year construction period, such as: - The number of construction vehicles/equipment expected to drive on roadways in the Plan Area; - The approximate weight of vehicles expected to frequently drive on roadways in the Plan Area; - The approximate start and end date for heavy construction traffic usage; - Whether construction traffic will be 24/7 or be limited to certain days and hours on all roadways identified for use in the Plan Area; - Provide results from studies and analyses conducted that have tested the weight and multiple load tolerance levels of existing levees underneath roadways to be heavily used in construction. Concerns over levee stability and their performance during a seismic event are some of the primary reasons Project Proponents state for building the new facilities. Intensive and sustained ground shaking from construction trucks on levee roads 24/7 and daily, repetitive pile- driver strikes at multiple	During conceptual engineering design, DCA conducted an assessment of traffic impacts that used a spreadsheet model built in Microsoft Excel that represents traffic demand on roadways affected by the project. The model also compares demand to capacity for study roadways to identify locations where remedial action could be needed (Delta Conveyance Design and Construction Authority 2022j). The information from the assessment was used during the assessment of transportation impacts that were analyzed in Chapter 20, Transportation, and considered the schedule for construction materials, trucks, and workers. As discussed in Chapter 3 and Chapter 20, construction traffic would not be allowed to use levee roads except in limited conditions. Additionally, all project alternatives were subject to an assessment of flood risks and a levee vulnerability assessment; see the Delta Conveyance Design and Construction Authority Intake Flood Management technical memorandum and the Levee Vulnerability Assessment technical memorandum (Delta Conveyance Design and Construction Authority 2022d, 2022e). These documents identify potential vulnerabilities within the Delta levee systems; evaluate Delta flood risk; include management measures, emergency response, and flood inundation mapping; and provide site-specific recommendations for structure flood risk mitigations to major construction locations. The Delta Conveyance Project includes levee improvements at Bouldin Island, Lower Roberts Island, and Twin Cities Complex, depending on project alternative, to protect workers during construction of the tunnel launch shaft sites. It is assumed that workers at the other construction locations would be able to be evacuated in a timely manner during construction. The Delta Conveyance Project is not a project to include levee improvements for other benefits.

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	locations will adversely affect the stability of the nearby levees. The sustained intensive localized vibration for such a long duration as contemplated in the 14-year construction description could cause stress fractures and possibly levee failures, but is not acknowledged as an adverse impact or mitigated in the Draft EIR.	Please refer to Impact GEO-5 in Chapter 10, Geology and Seismicity, regarding pile driving and construction impacts on levee stability. Impact GEO-5 analyzes the potential for the use of pile driving and heavy equipment to damage roads and found that project construction would not result in ground failure.
551-12	The impacts analysis and disclosures in the EIR need to provide details on specific locations, durations, timing, size, and intensity of changes to surface water elevations and discharges from dewatering in order to provide the public with a useful environmental document. Following are flood risk impacts related to DCP activities that specifically require more analysis, disclosure, and mitigation than what is provided in the current Draft EIR: - Damage to levee stability from increased subsidence and sink holes from dewatering activities;	The Delta Conveyance Project EIR has been prepared in compliance with CEQA and evaluates the full range of potential impacts, and proposes adequate mitigation measures, that may result from construction and operation of the proposed project and its alternatives. As discussed in the Chapter 11, Soils in Impact SOILS-3, impacts from constructing and operating the project alternatives on soil subsidence are considered as less than significant because of the types of soils on which project facilities would be constructed or through which tunnelling would occur. Impacts of subsidence associated with tunneling would be avoided because the tunnel would be bored below organic soils thus avoiding subsidence caused by organic matter decomposition (Delta Conveyance Design and Construction Authority 2022l). Soils at construction pad locations susceptible to subsidence would be treated to increase strength and suitability for construction (Delta Conveyance Design and Construction Authority 2022f). In addition, as described in the Compensatory Mitigation sections and the Land Subsidence section of Chapter 7, review of subsidence related impacts on existing infrastructure will be assessed and infrastructure will be designed to avoid the effects of subsidence and sinkholes. Furthermore, as described in the section titled Process and Method of Review for Potential Increase in Delta Flood Risks and the section titled Areas Subject to Flooding in Chapter 7, Flood Protection, and in Chapter 3, Description of the Proposed Project and Alternatives, increases in water surface elevations, localized velocity patterns changes, and any associated erosion and scouring that could affect the State Plan of Flood Control levee stability would be included in the final design of the

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		project alternative, if approved. Please see response to comment 551-5 for additional discussion regarding how the project would minimize and avoid bank and bottom scour at the intake sites. DWR will install monitors during construction near levee construction sites and levee crossings of the tunnel alignment to determine if subsidence occurs. As noted in the EPR Tunneling Effects Assessment technical memorandum (Delta Conveyance Design and Construction Authority 2022k), the possible amount of settlement associated with tunnel is very small, no more than .30 inch. Dewatering would primarily be implemented at the intakes, tunnel shafts, and the Southern Complex within underground barriers that are constructed around the area to be dewatered (Delta Conveyance Design and Construction Authority 2022m:99-101). Dewatering of tunnel shafts would only occur once the shaft is completed and sealed from surrounding groundwater. These barriers would limit the interaction of the area to be dewatered from the surrounding local or regional aquifers and nearby levees, buildings, or other infrastructure. No dewatering is anticipated between tunnel shafts along the tunnel alignment based upon available geotechnical information. However, dewatering during construction and operation of the intake sedimentation basins could be located at depths that may cause minimal changes in local groundwater conditions. Therefore, for construction and operations of the intake sedimentation basins, in accordance with Mitigation Measure GW-1, monitors will be installed around the intake. If groundwater elevations substantially decline, the dewatering flows will be collected, treated, and re-injected around the intake site to manage groundwater elevations. If the groundwater elevations substantially rise, the dewatering wells surrounding the intake site will be operated to manage the groundwater elevation.

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551-13	The impacts analysis and disclosures in the EIR need to provide details on specific locations, durations, timing, size, and intensity of changes to surface water elevations and discharges from dewatering in order to provide the public with a useful environmental document. Following are flood risk impacts related to DCP activities that specifically require more analysis, disclosure, and mitigation than what is provided in the current Draft EIR: - Damage to levee stability from pile driving, tunnel muck haulage, and other construction activities;	The comment assertions regarding the significance of impacts on flood control and drainage are not supported by the analyses contained in Chapter 10, Geology and Seismicity, of the EIR. Chapter 10 addresses impacts on levees and other features during construction. As described in response to comment 551-11, construction traffic would not be allowed to use levee roads except in limited conditions. Please refer to Impact GEO-5 in Chapter 10 regarding pile driving and construction truck traffic impacts on levee stability. As described under Impact TRANS-3 in Chapter 20, Transportation, roads, bridges, and interchanges were evaluated to identify facilities that would need to be improved to accommodate construction traffic in a manner to protect the continued use of those facilities in a safe manner. Impact GEO-5 analyzes the potential for the use of pile driving and heavy equipment to damage roads and found that project construction would not result in ground failure. Please see response to comment 551-8 regarding maintaining existing drainage facilities during project construction. Additionally, as described in the Potential Future Field Investigations technical memorandum for the central and eastern alignments (Delta Conveyance Design and Construction Authority 2022g:24), equipment for monitoring movement and settlement during levee repairs and new levee construction would be installed during construction. Limits of movements on these facilities will be set and construction activities will be halted if these limits are exceeded. Existing levee conditions were evaluated within the vicinity of the project construction sites, as described in the Delta Conveyance Design and Construction Authority Intake Flood Management technical memorandum and the Levee Vulnerability Assessment technical memorandum (Delta Conveyance Design and Construction Authority 2022d, 2022e). The results were used to develop alignments to minimize levee risks and determine if existing levees would need to be improved prior to construction. These technical memorandums also stated that haul routes were sited to avoid using roads on top of levees to minimize the effects of construction to

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		existing levees and foundations. Additionally, non-structural measures would be considered in coordination with Levee Maintenance Agencies to reduce risk of flooding during construction and operations. As described in Chapter 3, Description of the Proposed Project and Alternatives, and Chapter 23, Air Quality and Greenhouse Gases, access roads would be repaved during and following construction, as needed due to construction activities, and periodically following construction for maintenance routes.
551-14	The impacts analysis and disclosures in the EIR need to provide details on specific locations, durations, timing, size, and intensity of changes to surface water elevations and discharges from dewatering in order to provide the public with a useful environmental document. Following are flood risk impacts related to DCP activities that specifically require more analysis, disclosure, and mitigation than what is provided in the current Draft EIR: - Damage to levee stability from seepage and erosion scour caused by changes in hydrology that change localized water velocities;	Increase in water surface elevations, localized velocity patterns changes, and associated erosion and scouring that could affect the SPFC levee stability and is addressed in Chapter 7, Flood Protection. Please see response to comment 551-5 describing why the project would not increase bank or bed scour at the location of the intakes or reduce levee stability. Additionally, during conceptual engineering design, all project alternatives were subject to an assessment of flood risks and a levee vulnerability assessment; see the Delta Conveyance Design and Construction Authority Intake Flood Management technical memorandum and the Levee Vulnerability Assessment technical memorandum (Delta Conveyance Design and Construction Authority 2022d, 2022e). These documents identify potential vulnerabilities within the Delta levee systems, evaluate Delta flood risk, management measures, emergency response, flood inundation mapping, and provide site specific recommendations for structure flood risk mitigations. The Delta Conveyance Project includes levee improvements at Bouldin Island, Lower Roberts Island, and Twin Cities Complex, depending on project alternative, to protect workers during construction of the tunnel launch shaft sites. As described in Chapter 7, Flood Control, Impact FP-2, launch shafts at Bouldin Island, Lower Roberts Tract, and the Twin Cities complex include levee improvements to protect workers, facilities, and equipment at these sites in the event of a major flood event. In addition, all tunnel launch shaft pads would be constructed to an elevation at or slightly higher than the height of surrounding levees, providing a safe haven for workers in the event of

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		levee failure. Each construction site would also implement nonstructural flood response efforts including flood preparation, response, and recovery systems (Delta Conveyance Design and Construction Authority 2022c:8-10). Also as described in Chapter 3, Description of the Proposed Project and Alternatives, section Design for Climate Change and Sea Level Rise, the shaft pads would be designed to withstand major flood events and these design pad heights would revaluated during design to ensure they exceed a 100-year water surface elevation with 2-feet of freeboard. The results of the analysis of the project's potential impact on flood protection is provided in Chapter 7, Impact FP-1. The hydraulic analysis concluded that the construction and operation of any of the project alternatives would not result in a significant impact on flood protection with the exception of Alternatives 2a and 4a, whose construction-related impact at the intakes only, would be reduced to a less-than-significant level by application of proposed mitigation.
551-15	The impacts analysis and disclosures in the EIR need to provide details on specific locations, durations, timing, size, and intensity of changes to surface water elevations and discharges from dewatering in order to provide the public with a useful environmental document. Following are flood risk impacts related to DCP activities that specifically require more analysis, disclosure, and mitigation than what is provided in the current Draft EIR: - Damage to levee stability from daily sustained intensive and repetitive pile driving	Please see response to comment 551-13 regarding construction-related impacts on the stability of existing levees.
551-16	The impacts analysis and disclosures in the EIR need to provide details on specific locations, durations, timing, size, and intensity of changes to surface water elevations and discharges from dewatering in order to provide the public with a useful environmental document. Following are flood risk impacts	Please see response to comment 551-14 regarding construction-related impacts on flood protection. As discussed in Chapter 7, Flood Protection, Impact FP-1, construction and operation of the project is not expected to result in a change in bank and bed scour at the location of the intakes. Please see response to comment 551-5 which provides additional

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	related to DCP activities that specifically require more analysis, disclosure, and mitigation than what is provided in the current Draft EIR: - Deflection and obstruction of flood flows in Delta channels due to cofferdam construction for two or three intakes, levee reconfigurations, sediment loading, and other construction activities that may redirect flows and alter flood risks throughout the 14-year construction time frame;	information regarding bank and bed scour as well as additional permitting requirements. See the Sacramento River Hydraulic Modeling—HEC-RAS 2D to Support Aquatics Effects Analysis technical memorandum (Delta Conveyance Design and Construction Authority 2022i) for the initial modeling analyses related to flows around the intakes. Also, channel margin enhancements associated compensatory mitigation that would occur on federal project levees may require permission from USACE in accordance with USACE's authority under the Rivers and Harbors Act (33 United States Code § 408) and levee vegetation policy. Any restoration activities associated with compensatory mitigation would be designed, constructed, and maintained to ensure no reduction in performance of the federal flood project. As noted in Chapter 3, Description of the Proposed Project and Alternatives, and Chapter 7, Flood Protection, construction of the project would not result in an increase in the discharge of dewatering flows to Delta channels because this water would be reused on-site.
551-17	The impacts analysis and disclosures in the EIR need to provide details on specific locations, durations, timing, size, and intensity of changes to surface water elevations and discharges from dewatering in order to provide the public with a useful environmental document. Following are flood risk impacts related to DCP activities that specifically require more analysis, disclosure, and mitigation than what is provided in the current Draft EIR: - Impairment of ditches, pumps and other interior drainage facilities from subsidence and sinkholes caused by dewatering activities, disconnecting interconnected drainage systems, and seepage waters exceeding existing local capacity;	The Delta Conveyance Project EIR has been prepared in compliance with CEQA and evaluates the full range of potential impacts, and proposes adequate mitigation measures, that may result from construction and operation of the proposed project and its alternatives. As described in the Local Water Supply, Drainage, and Utilities section of Chapter 3, Description of the Proposed Project and Alternatives and as evaluated in Chapter 7, Flood Protection, Impact FP-2, DWR would avoid adversely affecting existing drainage infrastructure. Please see response to comment 551-8 which provides additional discussion regarding impacts on the existing drainage infrastructure. Because construction of the project would not affect existing drainage infrastructure, it would not affect flood risk on adjacent lands. Please see response to comment 551-12 regarding subsidence occurring at the project footprint and as a result of tunneling. As discussed in Chapter 11, Soils, impacts of construction and operating the project on soil subsidence is less than significant. Specifically, Impact SOILS-

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		3, provides an assessment of the potential for subsidence in the study area resulting from constructing and operating the proposed project. The analysis determined that hazards attributable to subsidence are considered less than significant impacts of the project. Chapter 8, Groundwater, Impact GW-6, addressed subsidence as a result of dewatering activities and concluded, similar to the analysis in Chapter 11, that such activities would not result in significant impacts. Additional details regarding the geotechnical and soil considerations can be found in the Engineering Project Reports associated with the project (Delta Conveyance Design and Construction Authority 2022m, 2022n). Stormwater runoff and dewatering flows would be captured, treated, stored, and reused on-site (Chapter 3, section titled, Local Water Supply, Drainage, and Utilities). If needed, discharges would to adjacent water bodies would be conducted in a manner so as to not increase peak runoff flow rates (Chapter 3, section titled, Local Water Supply, Drainage, and Utilities). Please see response to comment 551-12 regarding dewatering activities and the analysis related to dewatering.
551-18	The impacts analysis and disclosures in the EIR need to provide details on specific locations, durations, timing, size, and intensity of changes to surface water elevations and discharges from dewatering in order to provide the public with a useful environmental document. Following are flood risk impacts related to DCP activities that specifically require more analysis, disclosure, and mitigation than what is provided in the current Draft EIR: - Obstruction of levee maintenance, flood fighting and emergency response activities through the clogging of Delta levee roadways and channels with construction traffic and equipment, and through the monopolization of barges and repair materials;	The comment assertions regarding the significance of impacts on obstruction of levee maintenance, flood fighting, and emergency response are not supported by the analyses contained in the EIR. Chapter 20, Transportation, provides an assessment of construction-related vehicle traffic that is expected to occur. Measures that have been incorporated into the Delta Conveyance Project, such as park-and-ride lots, would reduce employee vehicles and reduce the severity of construction-related traffic. Chapter 3, Description of the Proposed Project and Alternatives, in the section titled Access Routes, identifies the designated access routes that would be used during project construction. Construction traffic would be limited to the designated access routes. Additionally, Mitigation Measure TRANS-1 includes further measures to reduce construction-related transportation impacts, including a requirement to

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		coordinate with emergency responders. The Impact TRANS-2 discussion, under the subheading titled Marine Traffic, provides a discussion of the expected impacts from the use of tugboats and barges during project construction. Impacts on marine traffic would not be substantial because project facilities would not be within the Sacramento River Deep Water Ship Channel and no Delta waterways would be closed to boat traffic at any time during construction. The use of barges would be limited to the end of construction tasks at the intakes to place riprap at the edge of the intakes (Delta Conveyance Design and Construction Authority 2022m:78; Delta Conveyance Design and Construction Authority 2022a). As described in Chapter 20, conflicts with marine transportation programs for the Delta would not occur because of the limited use of barges and tugboats for construction. Chapter 25, Hazards, Hazardous Materials, and Wildfire, discusses potential construction-related impacts related to emergency response and evacuation plans. The Impact HAZ-6 discussion states that, under all project alternatives, transportation facility improvements are provided to serve the construction and material delivery processes. Access roads would be constructed to serve the project alternatives, which would help alleviate traffic congestion on existing roads in the study area. Access road activities would involve widening and improving roads, constructing new roads and bridges, and widening bridges. Please see response to comment 551-8 regarding capture and reuse of stormwater runoff and dewatering flows and the rate water would be discharged to Delta channels. Water produced through runoff or dewatering would be stored on-site for construction uses (and Chapter 3, section titled, Local Water Supply, Drainage, and Utilities). In the event water could not be stored, it would be discharged to Delta channels at a rate commensurate with runoff from the previous land uses.

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551-19	The impacts analysis and disclosures in the EIR need to provide details on specific locations, durations, timing, size, and intensity of changes to surface water elevations and discharges from dewatering in order to provide the public with a useful environmental document. Following are flood risk impacts related to DCP activities that specifically require more analysis, disclosure, and mitigation than what is provided in the current Draft EIR: - Financial impacts to RDs in the Plan Area (e.g., reduced assessment revenues during the 14- year construction, increased maintenance costs to deal with seepage/erosion damage, increased drainage pumping costs).	This comment does not raise a significant environmental issue relating to the proposed project or address the adequacy, accuracy, or completeness of the Draft EIR. As described in multiple places in the EIR (e.g., Executive Summary; Chapter 4, Framework for the Environmental Analysis; and Chapter 17, Socioeconomics) under CEQA, social or economic effects are not treated as impacts on the physical environment. EIR Chapter 7, Flood Protection, explains that all project alternatives, with the exception of modifications to levees at intake locations, include no changes in flood management infrastructure in the Sacramento River Basin and in the Delta. Chapter 7 also describes how impacts from project alternatives were evaluated for flood protection of nearby urban and nonurban areas along the reach of the Sacramento River from the American River confluence to Sutter Slough, where the drainage of floodwater may be affected by the construction and operation of the intakes. Potential impacts from project facilities impeding or redirecting localized flood flow were also evaluated. The results of the hydraulic analyses conducted for the EIR indicated that water surface elevation (WSE) increases in the Sacramento River between the American River confluence and Sutter Slough during the 100-year and 200-year flood events would result in a less-than-significant impact on flood protection during construction and during operations with permanent facilities, except that Alternatives 2a and 4a, where all three intakes are used, would increase Sacramento River WSE upstream of the intakes between 0.11 and 0.12 foot during construction and result in a significant impact. For Alternatives 2a and 4a, Mitigation Measure FP-1 would reduce the magnitude of WSE increases during the 100-year and 200-year flood event to a less-than-significant level. As discussed in Chapter 17 under ECON-4, any losses in assessments levied by special districts as a result of the State's acquisition of private lands to construct, operate, and maintain the project or the CMP would be offset in

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		accordance with California law (Wat. Code § 85089). Please see Common Response 7, Implementation Considerations, for additional information regarding special districts and the implementation of the Delta Conveyance Project. Please see response to comment 551-17 regarding flood risks on lands adjacent to the project footprints. The project would not increase flood risk on adjacent lands as existing drainage facilities would be maintained. Please see response to comment 551-5 regarding bank and bed scour as well as additional permitting requirements. The project would not increase bank or bed scour.
551-20	CCVFCA recommends the EIR: - Determine how levee stability will be impacted by the creation of subsidence and sinkholes from dewatering;	Please see response to comment 551-17 regarding levee stability and the evaluation of subsidence and dewatering throughout the EIR using information from the project description (Chapter 3) and the Engineering Project Reports. Please also see response to comment 551-12 regarding dewatering activities and the analysis related to dewatering.
551-21	CCVFCA recommends the EIR: - Examine existing conditions in terms of interconnected drainage systems and identify specific locations where construction will disconnect or disrupt the existing drainage facilities' ability to function/drain effectively;	As described in the Local Water Supply, Drainage, and Utilities section of Chapter 3, Description of the Proposed Project and Alternatives, and as evaluated in Chapter 7, Flood Protection, Impact FP-2, DWR would avoid adversely affecting existing drainage infrastructure. Stormwater runoff and dewatering flows would be captured, treated, stored, and reused on-site Chapter 3, section titled Local Water Supply, Drainage, and Utilities). In the event water could not be stored, it would be discharged to Delta channels at a rate commensurate with runoff from the previous land uses. Please see response to comment 551-17 for additional information regarding drainage systems, as well as response to comment 551-8 which provides additional discussion regarding impacts on the existing drainage infrastructure. Because construction of the project would not affect existing drainage infrastructure, it would also not affect flood risk on adjacent lands.

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551-22	CCVFCA recommends the EIR: - Identify specific discharge locations, how many locations, the capacity of the discharge location or what its capacity availability is based on local usage/needs (winter drainage or summer irrigation)	Please see responses to comments 551-8, 551-17, and 551-21 regarding drainage infrastructure.
551-23	CCVFCA [California Central Valley Flood Control Association] recommends the EIR: - Quantify the daily discharge rates and volumes from dewatering;	Please refer to response to comment 551-10 regarding dewatering activities and quantification related to dewatering.
551-24	CCVFCA [California Central Valley Flood Control Association] recommends the EIR: - Identify how long dewatering and subsequent discharges will occur at each location;	Pease see the response to comment 551-10 regarding construction-related dewater activities and the conclusion in the EIR.
551-25	CCVFCA recommends the EIR: - Identify and analyze the additional drainage maintenance works and costs DCP will need to assume in order to keep the drainage facilities functioning and able to accommodate the increased dewatering discharges.	Chapter 3, Description of Proposed Project and Alternatives, in the section titled Local Water Supply, Drainage, and Utilities describes the drainage facilities expected during construction, which are analyzed throughout the EIR. Specifically, drainage is analyzed in Chapter 7, Flood Protection, Impact FP-2, related to altering the drainage pattern of an existing location. Chapter 8, Groundwater, also provides a detailed discussion of dewatering activities during construction for all project alternatives in the section titled Impacts of the Project Alternatives on Groundwater. As described in these chapters, all water from dewatering (i.e., groundwater removal) activities and stormwater runoff would be collected, treated, and stored on-site. DWR will determine costs associated with all construction activities; however, these costs are not required for the purposes of CEQA and disclosing potentially significant physical environmental impacts.
551-26	D. Deferral of Analysis and Mitigation In order to approve a project, the lead agencies must identify feasible mitigation measures or alternatives that would avoid or substantially lessen any significant adverse environmental effects of the project. (Cal. Pub. Res. Code § 21002) The	Please refer to Common Response 1, CEQA Process, General Approach to Analysis, and Other Environmental Review Issues, regarding adequacy of mitigation measures proposed in the EIR and scope of analysis based on level of design. As described in Common Response 1, the Engineering Project Reports provide engineering concept drawings and information used to develop the conceptual project plans for future investigations that

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	mitigation measures must also be specific and mandatory, such that they are fully enforceable. The EIR cannot defer the determination of the scope and nature of significant impacts until future studies and reports are prepared without including specific performance standards, timeframes for completion, and a commitment to mitigate. However, many of the proposed Mitigation Measures fail to set specific performance standards or criteria for surveying, relocating, repairing, replacing, compensating, or restoring the impacted resource. Every chapter indicates additional surveys and investigations are necessary to determine the level of impacts anticipated during the construction and operation of the DCP. For example, Section 11.3.2 says the implementation level design would not be completed until after CEQA process is complete and the lead agency determines whether to approve a project alternative. It also states that additional geotechnical studies would be prepared at the time of final design to refine DWR's understanding of site-specific conditions. Without these investigations, the EIR acknowledges DWR will not be able to determine the soil load-bearing capacity, shrink-swell potential, corrosivity, or other parameters. This puts levees in the Project Area at risk of failure.	will be prepared to inform final design if approved. Common Response 1 also provides an overview of the scope of the CEQA analysis and the level of information to support a decision by DWR regarding the project. The EIR used available information to evaluate potential impacts of the project. Where necessary to corroborate conclusions reached in the EIR or where site specific conditions could change over time, the EIR provides that future site-specific studies will be performed as part of project design. Chapter 10, Geology and Seismicity, describes the anticipated ground conditions along the project alignment and explains how Project design measures and construction methods would be developed to minimize settlement. Discussions of Impact GEO-4 in Chapter 10 and the Tunneling Effects Assessment technical memorandum (Delta Conveyance Design and Construction Authority 2022k:14, 15) provide a sufficient level of detail to show geologic effects overall. Future geotechnical and groundwater investigations would determine what site-specific measures would be needed to protect existing infrastructure during tunnel boring machine operations, including levees, as described in EIR Chapter 3, Description of the Proposed Project and Alternatives. The use of available geotechnical information in the EIR showed variations in geology and soil conditions, and that appropriate engineering criteria and construction methods are available to construct the tunnel without major disturbances to surface infrastructure, as described in the EPR and attachments (Delta Conveyance Design and Construction Authority 2022m, 2022n). Site specific geotechnical information would be used to develop site specific engineering criteria and construction methods.
551-27	In this case, the EIR should include a map depicting the exact location of levees and drainage facilities (ditches/pipes/canals/pumping stations) that are expected to experience subsidence or liquefaction due to dewatering activities.	During conceptual engineering design, all project alternatives were subject to an assessment of flood risks and a levee vulnerability assessment at construction sites, see Delta Conveyance Design and Construction Authority Intake Flood Management technical memorandum and Levee Vulnerability Assessment technical memorandum (Delta Conveyance Design and Construction Authority 2022d, 2022e). These documents

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		identify potential vulnerabilities within the Delta levee systems, evaluate Delta flood risk, management measures, emergency response, flood inundation mapping, and provide site specific recommendations for structure flood risk mitigations for large construction sites. Maps depict the conditions of levees along the proposed alignments. Please see response to comment 551-10 regarding dewatering activities and the evaluation contained in the EIR. Response to comment 551-12 also discusses dewatering as well as the analysis related to subsidence.
551-28	Because DCP is still at a preliminary conceptual level of design, the Draft EIR inappropriately bifurcates the proposed project from disclosing legally required mitigation actions that are likely to be required once the Project reaches a 60% design level. This results in an incomplete picture of the environmental impacts for the decision maker to evaluate. Before releasing a Final EIR, DWR should complete all necessary surveys and investigations to support conclusions regarding significant impacts and to identify mitigation measures necessary to reduce the impact to a level of insignificance.	Please see response to comment 551-26 and Common Response 1, CEQA Process, General Approach to Analysis, and Other Environmental Review Issues, regarding the scope of analysis based on level of design and the evaluation of the project as a whole. CEQA does not require a project to be 100% designed or 60% designed and as described in Common Response 1, the level of detail in the EIR is sufficient such that decisions makers can understand the type, severity and magnitude, and level of impacts disclosed in the EIR. Furthermore, as described in Common Response 1, feasible mitigation measures are proposed throughout the EIR where required to reduce impacts to less than significant. If impacts cannot be reduced to levels of less than significance (e.g., as in the case of some resources such as Tribal cultural resources), the EIR explains why but still includes mitigation measures to avoid or minimize impacts where feasible.
551-29	E. Inadequate Mitigation Measures A public agency cannot approve a project as proposed if there are feasible alternatives or mitigation measures available that would substantially lessen the significant environmental effects of the project. (Pub. Resources Code, § 21002.) As stated in the CEQA Guidelines, "[a]rgument, speculation, unsubstantiated opinion or narrative, evidence which is clearly erroneous or inaccurate, or evidence of social or economic impacts which do not contribute to or are not caused by physical impacts on the environment does not constitute substantial evidence." (CEQA	The comment assertion regarding inadequate mitigation measures is not supported by the analyses contained in the EIR. As described in Chapter 2, Purpose and Project Objectives, the fundamental purpose of the Delta Conveyance Project is to restore and protect the reliability of SWP deliveries. The project is not a flood control project but has been designed to ensure that constructing intake structures on the Sacramento River and modifying flood control levees would not reduce the protection afforded by the existing flood control system. Please see response to comment 551-26 and Common Response 1 CEQA Process, General Approach to Analysis, and Other Permit Requirements, regarding the scope of analysis based on level of design and the evaluation of the project as a whole. Please also see

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	Guidelines, § 15384.) However, some of the mitigation measures provided in the Draft EIR are too vague or otherwise defer to further study in the future, leaving CCVFCA [California Central Valley Flood Control Association] unable to confirm that the proposed mitigation is in fact adequate to reduce the flood control impacts of the Project to less than significant.	Common Response 1 regarding requirements of mitigation measures and the requirement, which DWR will satisfy, to prepare a Mitigation Monitoring and Reporting Program.
551-30	The analysis and conclusions in the Draft EIR foster uncertainty because they make generally optimistic assumptions about the extent and duration of Project impacts, without site-specific analysis or scientific justification. The failure to fully analyze potential impacts undermines the credibility of the Draft EIR as a reliable environmental document, thereby harming the public's trust in DWR and the State to uphold its statutory, regulatory, and contractual obligations to protect the unique and valuable ecosystem, water supply, agriculture, and communities of the Delta. Many evaluations and studies are delayed to an unspecified date, deferring the disclosure of all Project impacts. Failure to ensure the implementation and effectiveness of mitigation measures could result in an increase in significant impacts that must be analyzed.	The assertion of the comment that DWR failed to fully analyze potential impacts is not supported by the contents of the EIR. As described in responses to comments 551-26 and 551-29, the scope of analysis contained in the EIR is based on the level of design currently described and understood, which consists of and is supported by substantial evidence (e.g., EPRs). The information contained in the EIR and the impact analysis is based on technical facts and assumptions based on facts cited throughout the document, as described in Common Response 1, CEQA Process, General Approach to Analysis, and Other Environmental Review Issues, the evaluation in the EIR used the best available science and tools including available modeling, available studies, literature, and publicly available information and databases, scientific studies, regulatory and expert review, and other scientific sources. This information was used to develop project requirements regarding the adequacy of mitigation measures, the use of considering the best available science, and uncertainty. As discussed in Common Response 1, the Mitigation Monitoring and Reporting Program (MMRP) will ensure successful implementation of mitigation measures. DWR will comply with all requirements of the MMRP as required by CEQA. Also as described in Common Response 1, the EIR focuses on minimizing uncertainty using the best available science, reasonable methodologies, and identifying uncertainty as appropriate. The existence of uncertainty does not render the impact analysis, CEQA determinations, or mitigation measures invalid.
551-31	Local Reclamation Districts (RDs) are trustee agencies under CEQA and responsible for daily inspection of levee conditions for issues such as cracks, slippage, encroachments, seepage,	Except in limited areas, no construction traffic would occur on Delta levees and transportation access would be provided at all times during construction, as described in Chapter 20, Transportation, and Chapter 3,

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	burrowing animals, etc., as well as for performing routine maintenance activities on and around the levees in order to meet USACE and FEMA levee standards. DWR conducts levee inspections twice a year and the USACE conducts more extensive Periodic Inspections every 5 years of the SPFC [State Plan of Flood Control] project levees. Over the 14-year Project construction period, local RDs, DWR, and USACE will find it difficult to conduct levee inspections, conduct levee maintenance or construct repairs or improvements due to competition or blockage by DCP construction activities and equipment staging. In addition, during an emergency, RDs and other responders may not be able to provide floodfighting if they are denied access to an area or are unable to stage equipment. In some cases, DWR may need to assume all levee maintenance and floodfighting responsibilities for several reaches of levees, particularly if there are not enough remaining landowners to sustain funding of levee maintenance and island drainage after lands are condemned for construction.	Description of the Proposed Project and Alternatives, section titled Access Roads. Please also see response to comment 551-13 regarding hauling activities and access. As described in EIR Chapter 1, Introduction, section titled Use of this Final EIR by Other Entities, trustee agencies are state agencies that have jurisdiction by law over natural resources affected by a project, that are held in trust for the people for the State of California. Because levees are not considered natural resources, reclamation districts are not recognized as trustee agencies. The project would not significantly impact levees maintained by Delta Reclamation Districts as indicated in Chapter 7, Flood Protection. Levees in the vicinity of project features would continue to be maintained following construction in a manner consistent with current practices. The text in Chapter 7 acknowledges that there are numerous levee monitoring and maintenance activities currently implemented by various entities, including Reclamation Districts and DWR itself, within the Delta as described by the Central Valley Flood Protection Program. These numerous activities would be expected to continue with or without the approval and implementation of the Delta Conveyance Project because with or without the project levee monitoring and maintenance is needed in the Delta. The Delta Conveyance Project would not change DWR's flood control authorities or responsibilities within the Delta. As described in Common Response 8, Relationship to Other Plans, Projects, Policies, and Programs, DWR has a role and responsibility along with local governments and special districts to maintain and improve levees that protect the Delta. Chapter 7, Flood Protection, discloses specific levees that would be impacted by the following project-related activities: construction of the intakes on the Sacramento River for all alternatives, construction of levees along portions of Bouldin Island under Alternatives 1 and 2, levees along

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		portions of Lower Roberts Island under Alternatives 3 through 5, construction of the Southern Forebay spillway for all alternatives except for Alternative 5, operation of the project, and, implementation of the CMP. At the intakes, the jurisdictional levees at all of the intakes, the levee will be realigned around the perimeter of the sedimentation basins and will be maintained by DWR as part of the Delta Conveyance Project. These levees will require USACE Section 408 Permits and Central Valley Flood Protection Board permits. At Bouldin and Lower Roberts Island, the levee improvements would be designed in coordination with the local reclamation districts (Reclamation District 756 and Reclamation District 684, respectively). The improved levees would not increase maintenance requirements that would continue to be provided by the local reclamation districts. At the Southern Forebay, the design of the spillway would need to be coordinated with Reclamation District 800. The spillway is part of the Delta Conveyance Project and would be maintained by DWR. Please refer to comment 551-18 regarding flood fighting and emergency response, which are not anticipated to be impacted from construction of the project.
551-32	DWR should immediately engage local RDs, the CVFPB [California Central Valley Flood Control Association], DWR's levee inspection branch, and USACE to negotiate a memorandum of agreement (MOA). Prior to certification of the Final EIR, DWR should execute a binding agreement with the Central Valley Flood Protection Board (CVFPB) and local RDs that memorializes the intent to coordinate on the development of following mitigation measures necessary to reduce flood risk during DCP construction and operation: - Establish general principles and guidelines for any proposed alterations of flood control facilities in the Plan Area, particularly those affecting the State Plan of Flood Control's	Please see responses to comments 551-2, 551-10, 551-11, 551-12, 551-26, and 551-30 addressing the overall adequacy of the flood analysis contained in the EIR. Please also refer to response to comment 551-2 regarding the overall adequacy of the mitigation measures presented in the EIR. As described in Chapter 2, Purpose and Project Objectives, the fundamental purpose of the Delta Conveyance Project is to restore and protect the reliability of SWP deliveries. The proposed project is not a flood control project but has been designed to ensure that intake structures on the Sacramento River and modifying flood control levees would not reduce the protection afforded by the existing flood control system. If DWR approves the proposed project or a project alternative, during the

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	(SPFC) location, configuration, purpose, and functionality; - Design and operate DCP conveyance construction and operation to be consistent and complementary to the modifications of the SPFC and other flood protection facilities currently being planned in the Central Valley Flood Protection Plan (CVFPP) process, including Regional Plans; - Avoid impacts that reduce the level of flood protection recently achieved from the construction of flood protection projects in the Plan Area that were financed with local, State and Federal funding (i.e., Prop. 1E and 84, WRRDA appropriations) as well as projects planned for implementation in the near future pursuant to the CVFPP or U.S. Army Corps of Engineers' ongoing feasibility studies in the Plan Area; - The design and implementation of levee height increases on both sides of the Sacramento River upstream of the proposed temporary cofferdams and permanent new diversion intakes and/or setback levees across from the intakes; - The design and implementation of any seepage berms, relief wells, and cutoff (slurry) walls;	design phase of the approved project, DWR will coordinate with the local reclamation districts in the vicinity of the project footprint regarding the required levee improvements needed for project implementation.
551-33	F. Emergency Response and Flood Recovery Risk from levee failures can be reduced, but not eliminated, so being prepared for a flood emergency is the best defense. This requires having an effective strategy for preventing failures with ongoing levee improvements and maintenance, protocols for responding with emergency flood fighting activities, and a plan for levee repair and local recovery after the flood event. The inability to quickly flood-fight and repair a damaged levee will result in loss of life and property in the area protected by that levee, and could have the domino effect of causing neighboring levee failures if construction activities/equipment prevent access to the levee break or staging of key flood-	Please refer to the Process and Method of Review for Impeding or Redirecting Localized Flood Flow section in Chapter 7, Flood Protection, regarding nonstructural flood risk management measures and measures to minimize effects on existing levees during construction. These flood risk management measures would occur in coordination with reclamation districts, levee maintaining agencies, and state and federal agencies. Please refer to response to comment 551-31 regarding impacts on levees and proposed levee improvements associated with the project. Please also refer to comment 551-18 regarding flood fighting and emergency response, which are not anticipated to be impacted from construction of the project.

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	fighting personnel and supplies. DWR should identify through MOUs [memorandum of understanding] with local emergency response agencies a clear chain of command regarding who pays for what, coordination of response and funding, and cooperative effort to pursue federal reimbursements for recovery; and to mutually develop a flood emergency response plan that addresses floodfighting, worksite and community evacuation, and levee repairs.	
551-34	VI. ECONOMIC ANALYSIS AND FISCAL ASSURANCES A. Conduct Comprehensive and Unbiased Economic Evaluation of DCP To be credible, DWR should undertake objective and comprehensive cost-benefit and socioeconomic analyses of the construction, operation, mitigation, and maintenance of the DCP. The new effort must be consistent with government economic analysis standards for public water projects; and independently peer-reviewed for accuracy and efficacy of the methodology, assumptions, models, and results. DWR's Economic Analysis Guidebook specifically states: "DWR should also broaden the economic analysis to include regional economic development (RED) or other social effects (OSE) accounts, which can significantly assist in the decision-making process. The RED account is particularly important if a proposed plan will have significantly different effects upon regions that might otherwise be irrelevant to the NED national perspective." As described in comments herein, the DCP alternatives certainly represent different benefits and impacts between Northern and Southern California, which should be	This comment does not raise a significant environmental issue relating to the proposed project or address the adequacy, accuracy, or completeness of the Draft EIR. Cost and financing are not environmental effects or significant environmental effects on the physical environment (see Common Response 7, Implementation Considerations, regarding consideration of socioeconomic effects and CEQA). An economic cost-benefit analysis is neither a CEQA-related issue nor a requirement of CEQA. The EIR addresses environmental costs and, generally, the benefits of the project (refer to Chapter 17, Socioeconomics). The socioeconomic analysis in Chapter 17 follows guidance provided in the DWR Economic Analysis Guidebook that pertains to socioeconomic impact analyses specifically. The Guidebook was used to frame the topics and analyses contained in that chapter. See also Common Response 7 for information on the economic and financial feasibility of the project. A cost-benefit analysis is part of DWR's overall planning process and will be completed as part of that process before moving forward with the project. Additional information regarding the cost-benefit study is provided in Common Response 6, Implementation Considerations.

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	accounted for as RED or OSE -- but is not accounted for in this way.	
551-35	A significant potential fiscal impact that should specifically be addressed in a new economic analysis is the State's exposure, both DWR and CVFPB [California Central Valley Flood Control Association], to tort liability related to DCP construction and operation of facilities on SPFC [State Plan of Flood Control] project levees. Inverse condemnation liability gives private individuals a pathway to recover for disproportionate damages caused by public improvements projects. After the 1986 storms and subsequent levee failures, a lawsuit involving some 3,000 plaintiffs claiming damages from a SPFC Project levee failure which resulted in evacuations, deaths, and hundreds of millions of property damage was filed against the State (Paterno v. State of California). Key factors in assessing the "reasonableness" of the risk inherent to the state's levee project included the large size of the project, the lack of direct benefit to the plaintiffs from the project, the feasibility of alternatives, and the fact that the state benefitted as a whole from the decision not to fund the levee improvements that would have prevented the breach, with foreseeability a supplemental issue considered. The appellate decision also cited case law stating that a public entity is a proper defendant in an action for inverse condemnation if the entity "substantially participated in the planning, approval, construction, or operation of a public project or improvement that proximately caused injury to private property. So long as the plaintiffs can show substantial participation, it is immaterial 'which sovereign hold title or has the responsibility for operation of the project.'"	This comment does not raise a significant environmental issue relating to the proposed project or address the adequacy, accuracy, or completeness of the Draft EIR. Please see response to comment 551-19 regarding the evaluation of potentially significant impacts associated with flooding and levees in the Delta as a result of construction and operation of the Delta Conveyance Project. Please see Common Response 7, Implementation Considerations, regarding consideration of socioeconomic effects and how under CEQA cost and financing are not environmental effects or significant environmental effects on the physical environment. See Common Response 7 also for a discussion of why a cost-benefit or financing analysis is not needed for the purposes of CEQA environmental review and why the scope of the CEQA analysis is sufficient for decision-making purposes. An economic cost-benefit analysis is neither a CEQA-related issue nor a requirement of CEQA. See Chapter 2, Purpose and Project Objectives, regarding the purpose and benefits that the Delta Conveyance Project would provide. Please also see Common Response 3, Alternatives Development and Description, regarding commenter-suggested alternatives including levee improvements and the development of the reasonable range of feasible alternatives evaluated in the EIR.

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	In 2003, the State of California settled the Paterno case for $467 million after the Third Appellate Court concluded in an appeal of the inverse condemnation lawsuit that the State was liable as the party responsible for the SRFCP facilities. The court agreed that the Paterno plaintiffs' damages were "directly caused by an unreasonable State plan which resulted in the failure" of the levee, therefore finding the State liable to pay for these damages.24 Therefore, the significant financial exposure to the State (DWR/CVFPB) from liability should be disclosed and analyzed in a new, more comprehensive economic analysis. In the case of DCP, the purpose of this project is increasing water supply in export Service Areas, so there are no direct benefits to residents in the Delta that pay assessments for levee maintenance and improvements. In addition, many of the project components propose a substantial amount of moving, modifying, or building on SPFC levees, so meets the large size criteria. The Association and many others have recommended DCP include maintenance of levees that provide a pathway for the conveyance of SWP/CVP water supply to pumps in the South Delta as a critical project component.	
551-36	B. Redirected Financial Burdens Not Analyzed or Mitigated The reclamation and levee districts that operate and maintain most flood protection and control infrastructure in the Delta rely on the local assessment roll as their primary direct funding source, and it would be highly inequitable to leave them to protect new levee improvements or higher maintenance costs associated with DCP construction, operation, and mitigation actions.	Please see Common Response 7, Implementation Considerations, for information on potential financial impacts on reclamation districts from construction and operation of the Delta Conveyance Project. The comment assertions regarding impacts on local drainage, impacts from potential increases to WSE and potential erosion effects are not supported by the analyses contained in the EIR. Please see comment responses in this letter table for details regarding the adequacy of the analysis and the conclusion that these impacts are not anticipated (e.g., 551-10, 551-11,

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	CCVFCA [California Central Valley Flood Control Association] requests a mitigation measure be added requiring DWR to pay for all additional O&M or other related district costs (i.e., higher electricity costs for drainage pumping, levee improvements to add freeboard due to sediment increases raising water surface elevations, wave fetch erosion damage from open water/tidal habitat restoration, etc.) incurred by reclamation districts as a result of implementation of any DCP actions. These costs must have their own section and budget line item in the DCP's Annual Work Plan and Budget.	551-12, 551-26, and 551-30). If DWR approves the proposed project or a project alternative, during the design phase of the approved project, DWR will coordinate with the local reclamation districts in the vicinity of the project footprint regarding the required levee improvements needed for project implementation.
551-37	VII. CONCLUSION The very preliminary conceptual nature of the DCP project design, results in the development of CEQA conclusions that are primarily based on conjecture due to lack of completed surveys and analyses. This prevents CCVFCA [California Central Valley Flood Control Association], its member agencies, and the general public from fully understanding the true scope, severity, and duration of potential environmental and economic effects associated with the construction, permitting, operation, and mitigation of DCP project components. The inadequacies of the DCP alternatives and EIR fail to protect people and property in the Plan Area or meet the legal requirements for state and federal endangered species, environmental assessment, or various Delta protection laws. Therefore, the [California Central Valley Flood Control] Association requests the State to revise per comments contained herein and once again recirculate the EIR for public review and comment.	The EIR has been prepared in accordance with CEQA and adequately discloses the potential, scope, severity, and magnitude of potential impacts for the environmental resources analyzed. Please refer to Chapters 7–32 of the EIR for analyses of potentially significant environmental impacts of the project and proposed mitigation measures. Potential economic impacts are addressed in Chapter 17, Socioeconomics. Please see Common Response 1, CEQA Process, General Approach to Analysis, and Other Environmental Review Issues, for a discussion of why it is appropriate to evaluate impacts at a conceptual design level. Please also refer to Common Response 3, Alternatives Development and Descriptions, regarding the facility and construction descriptions. The CEQA analysis provided in the EIR is supported by best available science, data, and references. Please also refer to Chapter 2, Purpose and Project Objectives, and Common Response 1 regarding the project's purpose and objectives, including DWR's continuing commitment to operate the State Water Project as modified to include the Delta Conveyance Project in compliance with all state and federal environmental laws.

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		Please refer to responses to comments 551-2 through 551-36 for detailed responses specific to comment within Letter 551.
553-1	Thank you for the opportunity to comment on the Draft Environmental Impact Report (DEIR) for the proposed Delta Conveyance Project (DCP). The following comments are submitted on behalf of the California Native Plant Society (CNPS), a non-profit environmental organization with over 12,000 members in 36 Chapters across California and Baja California, Mexico. CNPS's mission is to protect California's native plant heritage and preserve it for future generations through the application of science, research, education, and conservation. We work closely with decision-makers, scientists, and local planners to advocate for well-informed policies, regulations, and land management Practices.	This information describes the structure or organization of the comment letter, the background of the organization or individual commenter, clarification on the submittal of the comment letter, or general introductory text. It is not a comment on the contents of the Draft EIR. DWR has reviewed all comments and will consider all comments in its decision-making process.
553-2	The full impacts of this project cannot be disclosed without adequately identifying the potential impacts to special-status plant species. The purpose of a California Environmental Quality Act (CEQA) document is to outline these impacts to allow experts and the public to provide recommendations and voice concerns. Not offering comprehensive descriptions of specific mitigation measures for special-status plant species precludes the public's ability to comment on the potential impacts of this project. A supplemental or revised draft EIR (SDEIR) should be produced and circulated. The SDEIR must include additional analyses of impacts not disclosed in the DEIR and should incorporate quantifiable mitigation measures that account for all impacts. The mitigation measures should provide specific details on mitigation ratios and verify that there is sufficient suitable land for mitigation and that available credits would be applicable to mitigation needs.	The analysis contained in the EIR does not support the assertion by the commenter that impacts on special-status plant species were not adequately addressed. The commenter does not describe specific deficiencies or missing analysis. Chapter 13, Terrestrial Biological Resources, addresses impacts on terrestrial species, including plants. Appendix 13A, Special-Status Species with Potential to Occur in the Study Area, lists all special-status plant species considered for analysis in the EIR. Impacts BIO-9 through BIO-13 describe the potential impacts on various plant groups and individual special-status plant species. Mitigation Measures BIO-2a and BIO-2b are specific to the avoidance and minimization of these impacts on special-status natural communities, special-status plant species, and terrestrial biological resources, in general.

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553-3	Organization of Document The organization of the DEIR has made relevant information very difficult to locate and therefore it is almost impossible to follow the agency's "analytic route" from "evidence to action." Laurel Heights Improvement Assn. v. Regents of University of California (1988) 47 Cal.3d 376, 404. An EIR must include sufficient detail to enable those who did not participate in its preparation to understand and to consider meaningfully the issues raised by the proposed project. Sierra Club v. County of Fresno, 6 Cal.5th 502, 516 (Cal. 2018). This DEIR falls far short of this standard.	Please refer to Common Response 1, CEQA Process, General Approach to Analysis, and Other Environmental Review Issues, regarding the length and complexity of the EIR. As described in Common Response 1, the EIR includes a considerable amount of information to adequately analyze potentially significant environmental impacts due to the scope and scale of the Delta Conveyance Project. Information is presented in the EIR in a format with emphasis on conclusions and data useful to decision makers and the public. Furthermore, as described in the common response, the EIR followed generally accepted practices for the preparation of such documents and organizes information primarily by resources topics, with impacts and comparisons of project alternatives summarized at the beginning of each chapter.
553-4	The mitigation measures outlined in the DEIR are fragmented and nested into different sections of the report, meaning that the impacts section of the DEIR (13.3.3.2), the information listed in table 3F1-3, and the descriptions of the Compensatory Mitigation Plans nested in between the references sections of Appendix 3F in Table 3F.1-2 need to be viewed concurrently to understand the limited outline of the mitigation measures.	Please refer to response to comment 553-3 regarding the length and complexity of the EIR. Each resource chapter, as is typical in the organization of EIRs, includes mitigation measures that would minimize, avoid, reduce, or lessen impacts on the respective resource. The Compensatory Mitigation Plan (CMP) is appropriately referenced and included within the EIR chapters where needed. For example, Chapter 13, Terrestrial Biological Resources, references parts of the CMP under each appropriate species impact analysis. It is included in its own appendix for completion and clarity and to enable readers to view the CMP in its entirety, as opposed to individual pieces within individual parts of the EIR.
553-5	It is nearly impossible for the reader to determine with a sufficient level of certainty which species the DEIR has determined will be significantly impacted without compiling and reorganizing the information provided in Appendices 13A-C. This lack of clarity and disorganization does not allow the public to understand or meaningfully consider the evidence and conclusions outlined in the DEIR. See generally San Joaquin Raptor Rescue (2007) 149 Cal.App.4th 645, 659 (EIR should not force public and decision makers to "sift through obscure minutiae or appendices" to determine the "fundamental	Please also refer to responses to comments 553-3 through 553-5 regarding the information contained in the EIR, organization of the EIR, and presentation of materials. The comment assertions regarding the disclosure of impacts on individual species are not supported by the analysis contained in the EIR. Please refer to the Executive Summary table titled Summary of Delta Conveyance Project Impacts and Mitigation Measures, which summarizes the impacts, mitigation measures, and impact significance after mitigation for all resource topics evaluated in the EIR. This includes a listing of Impacts BIO-1 through BIO-56, which lists each species habitat or other pertinent resource that would be affected,

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	baseline assumptions" used for the environmental analysis); Vineyard Area Citizens for Responsible Growth v. City of Rancho Cordova (2007) 40 Cal.4th 412, 442 (county could not rely on information not actually incorporated or described and referenced in the EIR).	significance of impacts, and mitigation proposed as applicable. Additionally, tables providing a summary comparison of important impacts by alternative are included at the beginning of each resource chapter in the EIR. For example, all impact statements and determinations, prior to mitigation measures and after application of mitigation measures related to Chapter 13, Terrestrial Biological Resources, are summarized in the Executive Summary table mentioned above and in the Executive Summary table titled Comparison of Impacts on Terrestrial Biological Resources by Alternative (acres/CEQA findings after mitigation). The information contained in Appendix 13A, Special-Status Species with Potential to Occur in the Study Area, Appendix 13B, Species Accounts, and Appendix 13C, Impact Tables, supports the impact analysis for each species in Chapter 13 and is organized appropriately for its supportive role.
553-6	Tables throughout the document should be used as summaries of the information provided in the text. Extensive tables related to impacts, analyses, and mitigation should serve as an at-a-glance consolidation of information. Instead, tables within the document and its various appendices seem to arbitrarily omit crucial information. Again, this lack of clarity and disorganization does not allow the public to understand or meaningfully consider the evidence and conclusions outlined in the DEIR. Some of the omissions and discrepancies are discussed more thoroughly below under Impacts to Special-Status Species.	Please refer to Common Response 1, CEQA Process, General Approach to Analysis, and Other Environmental Review Issues, regarding the length and complexity of the EIR. The document makes extensive use of summary tables in the Executive Summary and in each resource chapter, as well as in appendices. Please also refer to responses to comments 553-3 through 553-4 regarding the information contained in the EIR, organization of the EIR, and presentation of materials using tables, figures, and text that are needed to ensure adequate disclosure of impacts.
553-7	Other problematic tables include: Table 13-0 omits dozens of biological impacts, including those to plants. This seems to falsely imply that the totality of the impacts is less than actual and makes comparison of alternatives worthless. Organization of Tables 13-15 through 13-36 also obfuscates any meaningful comparison of alternatives for all special-status plant species cumulatively.	The EIR format is structured to provide information important to the public in a manner that is easy to find and understand considering the extensive information contained in the EIR. Summary comparisons of quantitative impacts by alternatives are provided in table format at the beginning of each chapter. The table titled Comparison of Impacts on Terrestrial Biological Resources by Alternative in Chapter 13, Terrestrial Biological Resources, of the Draft EIR provides a summary comparison of quantitative impacts on some of the more sensitive terrestrial biological resources in

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		the study area by alternative, and the numbering of the impacts makes it clear where an impact is not included. In addition, the title of the table has been revised to emphasize that not all species are included (now titled Comparison of Impacts on Select Terrestrial Biological Resources by Alternative). Impact acres of special-status plant species, by alternative, are presented in tables in Impacts BIO-9 through BIO-13. Please also see Appendix 13C, Impact Tables, for impacts of project alternatives on special-status plant species. These analyses provide tables with clear comparisons of impacts by alternative. Chapter 13 accounts for all impacts on biological resources, including those to plants. None of the revisions described in the EIR resulted in a new significant environmental impact or substantial increase in the severity of an environmental impact or required additional mitigation measures to which DWR was unwilling to commit.
553-8	Other problematic tables include: Table 13A-1 fails to justify why certain species are not being considered even though they have a potential to occur. Additionally, the table indicates that certain species were analyzed in the EIR when no mention of the species can be found.	Please refer to responses to comments 553-11 through 553-16 regarding the justification for inclusion of species analyzed in the EIR, as listed in Appendix 13A, Special-Status Species with Potential to Occur in the Study Area, in the table titled Special-Status Plant Species Considered for Analysis (in the Study Area) and revisions that have been made to that table. None of the revisions described in the EIR resulted in a new significant environmental impact or substantial increase in the severity of an environmental impact or required additional mitigation measures to which DWR was unwilling to commit.
553-9	Other problematic tables include: Tables in Appendix 13C omit species that are otherwise considered in the document, including CRPR List 3 and 4 special-status plant species.	The Draft EIR does consider potential impacts on California Rare Plant Rank (CRPR) List 3 and List 4 special-status plant species. Appendix 13B, Species Accounts, in the section titled California Rare Plant Rank 3 and 4 Species, describes the legal status, range and distribution, habitat requirements, seasonal patterns, and approach used to describe suitable habitat for those species. For each of the CRPR List 3 and List 4 species, a species habitat suitability model was considered; however, information on the precise habitat requirements of these species is often lacking or incomplete and therefore other special-status plant species with overall habitat characteristics similar to each List 3 or List 4 species were used to evaluate

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		potential impacts. For example, Cotula navarretia (Navarretia cotulifolia), a CRPR List 4.2 species, has similar habitat requirements to shining navarretia (Navarretia nigelliformis), a CRPR List 1B.2 species; therefore, potential impacts on shining navarretia habitat were used to evaluate impacts on Cotula navarretia habitat. The tables in Appendix 13C, Impact Tables, have been modified in the Final EIR to note where CRPR List 3 or List 4 species were considered with other similar species. None of the revisions described in the EIR resulted in a new significant environmental impact or substantial increase in the severity of an environmental impact or required additional mitigation measures to which DWR was unwilling to commit.
553-10	Impacts to Special-Status Species: The DEIR identifies 29 California Rare Plant Rank (CRPR) 1 and 2 special-status species that are expected to be impacted by this project, covering hundreds of acres of impacts that will likely need to be mitigated. The potential impacts to CRPR 3 and 4 species should be included in the impact tables (Tables 13C-1 through 13C-10). Title 14 of the California Code of Regulations ("CEQA Guidelines") § 15380(d) states that "A species not included in any listing identified in subdivision © shall nevertheless be considered to be endangered, rare or threatened, if the species can be shown to meet the criteria in subdivision (b). "Where subdivision © includes species listed under the federal and state endangered species acts, and subsection (b) would include cases where "The species is likely to become endangered within the foreseeable future throughout all or a significant portion of its range and may be considered "threatened" as that term is used in the Federal Endangered Species Act." Many CRPR 3 and 4 species, including many not	Please see response to comment 553-9 regarding potential impacts on California Rare Plant Rank (CRPR) List 3 and List 4 special-status plant species.

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	yet ranked species, meet this criteria, and many 3 and 4 listed species are in the process of being re-ranked to 1B.	
553-11	Table 13A-1 of Appendix 13A lists species that were analyzed in the EIR, but not all of these species are included in the species accounts in Appendix 13B and impact tables in Appendix 13C. Boggs Lake hedge-hyssop (Gratiola heterosepala), Carquinez goldenbush (Isocoma arguta), Colusa grass (Neostapfia colusana), and Crampton's tuctoria (Tuctoria mucronata) are listed as species that were analyzed but do not appear in the species accounts or the impact tables. By omitting species that were presumably analyzed from the species accounts and impact tables in Appendix 13B, the DEIR obscures the full extent of the impacts to these species. Each of the four omitted species listed above is a CRPR 1B species, three of them are listed under the California Endangered Species Act (CESA) and two are listed under the Federal Endangered Species Act (ESA), and the potential impacts to these species must be disclosed. Table 13A-1 also lists several species from Jepson Prairie that would be affected by tidal restoration, where other species in the same area are not listed as being affected by these restoration projects.	Species listed by the commenter, except Carquinez goldenbush, were evaluated in Appendix 13A, Special-Status Species with Potential to Occur in the Study Area, as indicated in the table titled Special-Status Plant Species Considered for Analysis. Carquinez goldenbush was determined to have no suitable habitat based on the range of the species and the habitats potentially affected by programmatic tidal restoration activities described under the section titled Tidal Habitat Mitigation Framework in Appendix 3F, Compensatory Mitigation Plan for Special-Status Species and Aquatic Resources. The table titled Special-Status Plant Species Considered for Analysis in Appendix 13A has been revised in the Final EIR to clarify that Carquinez goldenbush was not analyzed in the EIR on that basis. Appendix 13B, Species Accounts, has been revised to include the remaining species accounts for Boggs Lake hedge-hyssop, Colusa grass, and Crampton's tuctoria (also known as Solano grass). None of the revisions described in the EIR resulted in a new significant environmental impact or substantial increase in the severity of an environmental impact or required additional mitigation measures to which DWR was unwilling to commit. The project would not affect these species; however, as discussed in Impact BIO-9, the impacts of implementing the compensatory mitigation (i.e., restoration activities) could affect these species. For additional information regarding tidal restoration and additional analysis of future restoration activities, please see Common Response 11, Terrestrial Biological Resources and Compensatory Mitigation Plan.
553-12	Table 13A-1 also lists the reasoning for not evaluating many of the special-status species that could be present in the project area. For many species, this reasoning cannot be justified until floristic-level surveys have been performed to verify that these conclusions are valid. A floristic survey prior to project approval would allow for an	For the species listed by the commenter in comments 553-13 through 553-16, the table titled Special-Status Plant Species Considered for Analysis in Appendix 13A, Special-Status Species with Potential to Occur in the Study Area, has been revised in the Final EIR to clarify why each species was determined to be unaffected by the project alternatives based on its potential to occur in the study area. None of the revisions described in the EIR resulted in a new significant environmental impact or substantial

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	accurate portrayal of the potential impacts to all rare species present in the project area and allow for species-specific mitigation measures (discussed below). Without the validation of a comprehensive survey the species discussed below should be included in the species accounts and impact tables in Appendices 13B and 13C.	increase in the severity of an environmental impact or required additional mitigation measures to which DWR was unwilling to commit. For the species noted by the commenter, either the species' range does not overlap with the geographic region or no suitable habitats could be affected by project activities and thus further analysis was not required in the EIR. As described in Mitigation Measure BIO-2a, preconstruction surveys for special-status plants will be conducted prior to any project impacts. See also Common Response 11, Terrestrial Biological Resources and Compensatory Mitigation Plan, for a discussion of special-status species surveys and impact analysis.
553-13	For each of the justifications that the EIR offers for not evaluating certain special-status species (listed below), CNPS [California Native Plant Society] offers the following recommendations: Species that have "occurrences in study area but outside of areas that would be affected": Parry's rough tarplant (Centromadia parryi subsp. Rudis), Antioch Dunes buckwheat (Eriogonum nudum var. psychicola), Contra Costa wallflower (Erysimum capitatum var. angustatum), stinkbells (Fritillaria agrestis), fragrant fritillary (Fritillaria liliacea), Carquinez goldenbush (Isocoma arguta), Contra Costa goldfields (Lasthenia conjugens), showy madia (Madia radiata), Baker's navarretia (Navarretia leucocephala subsp. Bakeri), Antioch Dunes evening-primrose (Oenothera deltoides subsp. Howellii), bearded popcorn-flower (Plagiobothrys hystriculus), and Delta woolly marbles (Psilocarphus brevissimus var. multiflorus). CNPS recommendation: These species need further analysis supported by protocol-level floristic surveys in years of adequate precipitation, as their know distribution in the study	See response to comment 553-12 regarding occurrences that are in the study area but outside of areas that would be affected.

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	area shows that there could be many more undocumented occurrences in areas that could be affected by this project.	
553-14	For each of the justifications that the EIR offers for not evaluating certain special-status species (listed below), CNPS [California Native Plant Society] offers the following recommendations: Species classified as "not known to occur in the project area": vernal pool small scale (Atriplex persistens), hispid bird's-beak (Chloropyron molle subsp. hispidum), Ferris's milk vetch (Astragalus tener var. ferrisiae), Suisun thistle (Cirsium hydrophilum var. hydrophilum), Peruvian dodder (Cuscuta obtusiflora var. glandulosa), adobe-lily (Fritillaria pluriflora), Santa Cruz tarplant (Holocarpha macradenia), Gairdner's yampah (Perideridia gairdneri subsp. gairdneri), showy rancheria clover (Trifolium amoenum), and oval-leaved viburnum (Viburnum ellipticum). CNPS recommendation: Table 13A does not disclose whether suitable habitat for these species is present in the project area. It is very likely that these species may occur, even if they have not been recorded previously, if suitable habitat is present. Surveys should be performed if suitable habitat exists.	See response to comment 553-12 in regard to species classified as not known to occur in the project area.
553-15	For each of the justifications that the EIR offers for not evaluating certain special-status species (listed below), CNPS [California Native Plant Society] offers the following recommendations: Species that have "occurrences in study area with questionable identification": Congdon's tarplant (Centromadia parryi subsp. Congdonii), Pappose tarplant (Centromadia parryi subsp. Parryi), and little mousetail (Myosurus minimus subsp. Apus).	Little mousetail (Myosurus minimus subsp. apus) was addressed in the Draft EIR, as described in Appendix 13A, Special-Status Species with Potential to Occur in the Study Area, in the table titled Special-Status Plant Species Considered for Analysis. Additionally, a species account for little mousetail was provided in Appendix 13B, Species Accounts. For the remaining species listed by the commenter, Congdon's tarplant and Pappose tarplant, see response to comment 553-12. None of the revisions described in the EIR resulted in a new significant environmental impact or

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	CNPS recommendation: These potential occurrences should be verified prior to determining that there would be no impacts to these species.	substantial increase in the severity of an environmental impact or required additional mitigation measures to which DWR was unwilling to commit. Additionally, for both species, their occurrences and range were assessed by a species expert, Dr. Robert Preston, and they were determined to not have a potential to occur in the project area (Preston pers. comm.).
553-16	For each of the justifications that the EIR offers for not evaluating certain special-status species (listed below), CNPS [California Native Plant Society] offers the following recommendations: Species that are "presumed to be extirpated": Wright's trichocoronis (Trichocoronis wrightii var. wrightii), Delta button-celery (Eryngium racemosum), slough thistle (Cirsium crassicaule), palmate-bracted bird's-beak (Chloropyron palmatum), and big tarplant (Blepharizonia plumosa). CNPS recommendation: These species should be analyzed as well. Presuming that a species has been extirpated does not mean that the species is not present and basing the potential impacts to a species on a presumption that is no longer present does not show that due diligence was used in the analysis of these species. It is unclear why soft bird's-beak (Chloropyron molle subsp. Molle) was included in the impact tables where these other "presumed to be extirpated" species were excluded.	See response to comment 553-12 regarding revisions made in the table titled Special-Status Plant Species Considered for Analysis (in the Study Area) in Appendix 13A, Special-Status Species with Potential to Occur in the Study Area. Preconstruction surveys for special status species will be conducted as per Mitigation Measure BIO-2a. See also Common Response 11, Terrestrial Biological Resources and Compensatory Mitigation Plan, for a discussion of the impact analysis methods and the use of special-status species surveys prior to construction. In regard to the inclusion in the EIR of special-status species presumed to be extirpated, species that were presumed to be extirpated were assessed for potential occurrence within the project area regardless of that status and were analyzed in the EIR only if they had a potential to occur and could be affected by the project.
553-17	Inaccuracies in Appendices 13A-C: Appendices 13A-C include several inconsistencies that should be corrected in subsequent revisions of the EIR. Table 13A-1 lists Eryngium jepsonii as Jepson's button-celery. Jepson's button-celery is Eryngium aristulatum and Eryngium jepsonii is Jepson's coyote thistle.	The EIR relies on scientific names because common names are not standardized or formally accepted, but common names are provided to aid the reader in using the EIR. However, the alternative common name suggested by the commenter has been added to the Final EIR in Appendix 13A, Special-Status Species with Potential to Occur in the Study Area, in the table titled Special-Status Plant Species Considered for Analysis. None of the revisions described in the EIR resulted in a new significant

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		environmental impact or substantial increase in the severity of an environmental impact or required additional mitigation measures to which DWR was unwilling to commit.
553-18	Inaccuracies in Appendices 13A-C: Appendices 13A-C include several inconsistencies that should be corrected in subsequent revisions of the EIR. San Joaquin spearscale is listed as Extriplex joaquinana (current name) in Appendix 13B and Atriplex joaquiniana (not active name) in Appendix 13A Table 13A-1.	The scientific name for Extriplex joaquiniana has been corrected in the Final EIR and the most current scientific name is now used in Appendix 13A, Special-Status Species with Potential to Occur in the Study Area, in the table titled Special-Status Plant Species Considered for Analysis. None of the revisions described in the EIR resulted in a new significant environmental impact or substantial increase in the severity of an environmental impact or required additional mitigation measures to which DWR was unwilling to commit.
553-19	Inaccuracies in Appendices 13A-C: Appendices 13A-C include several inconsistencies that should be corrected in subsequent revisions of the EIR. Delta mudwort is listed as Limosella subulata (not active name) in Table 13A-1 and Limosella australis (current name) in Appendix 13B.	The scientific name for Limosella australis has been corrected in the Final EIR and the most current scientific name is now used in Appendix 13A, Special-Status Species with Potential to Occur in the Study Area, in the table titled Special-Status Plant Species Considered for Analysis. None of the revisions described in the EIR resulted in a new significant environmental impact or substantial increase in the severity of an environmental impact or required additional mitigation measures to which DWR was unwilling to commit.
553-20	Sensitive Natural Communities: In addition to special-status plant species, sensitive natural communities (SNC) within the project area need to be identified and mapped following CDFW protocols so that appropriate mitigation measures for impacts to these communities can be developed. While the impacts to natural communities are listed in the impacts tables in Appendix 13C, these tables do not identify which of these communities are SNCs. For all natural communities a detailed analysis and map of locations should be provided, as is done for individual species in the species accounts in Appendix 13B.	The analysis contained in the EIR does not support the assertion by the commenter that appropriate analyses and mitigation measures for impacts on sensitive natural communities (SNC) were not considered. The section titled Methods Used to Assess Impacts on Sensitive Natural Communities in Chapter 13, Terrestrial Biological Resources (in the section titled Evaluation of Construction Activities), describes the methods used for determining impacts on sensitive natural communities. The EIR includes Mitigation Measure BIO-2a, which requires surveys for special-status natural communities (synonymous with “sensitive natural communities”) by qualified biologists following current USFWS and CDFW survey protocols or the most current survey protocol available from those agencies at the time the surveys are conducted. These surveys will ensure that sensitive natural communities are identified and mapped as suggested by the commenter.

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		As described in Mitigation Measure BIO-2a, the extent of mitigation for direct loss of or indirect effects on special-status plants and natural communities will be based on these survey results.
553-21	The grasslands in the study were considered to not be SNCs [Sensitive Natural Communities] due to a generalization that they are "dominated by nonnative species", although these grasslands "may contain vegetation alliances that are recognized by CDFW as sensitive, but the vegetation mapping available for this analysis does not have the resolution required to identify those alliances, which typically require on-the-ground surveys to identify," as stated in Section 13.3.3.2. These grasslands should be surveyed before determining that they do not include sensitive natural communities, and until surveys show the actual vegetation alliances in these habitats it should be assumed that they are SNCs and that they will be impacted. It is likely that if these grasslands are surveyed in a dry year or after native species have senesced that native plants may not be present or identifiable, precluding this vegetation from being adequately classified. An appropriate level of grassland community classification could potentially require multiple surveys over multiple years to accurately define the baseline conditions and identify sensitive natural communities.	Please see response to comment 553-20 regarding the identification and mapping of sensitive natural communities, as required by Mitigation Measure BIO-2a, including surveys for sensitive vegetation alliances that may occur in grasslands in the study area. Please also see Chapter 13, Terrestrial Biological Resources, and Common Response 11, Terrestrial Biological Resources and Compensatory Mitigation Plan, which describe the methods that will be used to verify land cover and habitat models. The baseline conditions used to analyze potential impacts of the project are based on best available science. Rather than assume that all grasslands in the study area be considered to be sensitive natural communities that will be impacted by the project, as suggested by the commenter, the EIR presents a reasonable evaluation of impacts on grasslands. Given that most grasslands in the study area are comprised of non-native species, designating them as a sensitive natural community would misrepresent the characteristics of the grasslands. Additionally, the commenter notes that surveys may require surveys over multiple years to accurately define baseline conditions. Mitigation Measure BIO-2a requires surveys to be consistent with USFWS and CDFW guidelines, and those guidelines address protocols required for “adverse conditions,” such as yearly weather patterns, that may affect survey results from a single survey season. Consistent with the use of those agency guidelines, and as required by Mitigation Measure BIO-2a, the surveys and survey reports would consider adverse conditions at the time the surveys are conducted, and additional surveys could be required to ensure that surveys are adequate.

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553-22	Mitigation Although the models to identify habitat for special-status plant species are comprehensive and may have overestimated the potential impacts, not including any species-specific mitigation measures for special-status plants is not acceptable. CEQA requires that mitigation measures be feasible, meaning they are "capable of being accomplished in a successful manner within a reasonable period of time." CEQA Guideline 15364. Plant species are unique and do not respond to disturbance or environmental stressors the same way, and therefore generic, one-size-fits-all mitigation measures that are broadly applied to multiple species are not likely to be accomplished in a successful manner. Without species-specific mitigation measures, the DEIR lacks substantial evidence to support a finding that the proposed mitigation measures are likely to reduce significant impacts to the particular special-status plant species the measures will be applied to.	The analysis in the EIR does provide substantial evidence to support findings of less-than-significant impacts on special-status plant species with the implementation of mitigation measures. Please see response to comment 553-21 in regard to USFWS and CDFW guidelines and protocols that will be implemented for special-status plant species. Please also see Common Response 11, Terrestrial Biological Resources and Compensatory Mitigation Plan, regarding the methods and approach for the evaluation of impacts, the use of habitat models and acres, and the adequacy of mitigation measures. Please see Appendix 3F, Compensatory Mitigation Plan for Special-Status Species and Aquatic Resources, and Chapter 13, Terrestrial Biological Resources, for species-specific mitigation measures (Mitigation Measures BIO-14 through BIO-47).
553-23	Without surveys to inform the actual extent of potential impacts, we must assume that all modelled habitat listed in the impact tables in Appendix 13C contains special-status species and SNCs that will be impacted by the project so that potential significant impacts do not go undisclosed and unanalyzed, and specific mitigation measures should be outlined for all potentially impacted species and sensitive natural communities. Even guided by this assumption, surveys would be needed to verify modelled habitat and the potential for special-status species and sensitive natural communities to occur outside of the modelled habitat, as the models may not have accurately accounted for all potential habitats. A detailed analysis of which mitigation strategy would be used	Please see Common Response 11, Terrestrial Biological Resources and Compensatory Mitigation Plan, regarding the methods and approach for the evaluation of impacts, the use of habitat models and acres, field surveys that will be required to identify suitable and occupied species habitat, and the adequacy of the mitigation strategy under CEQA. Regarding the “other approaches” to mitigation, Appendix 3F, Compensatory Mitigation Plan for Special-Status Species and Aquatic Resources, describes the mitigation approaches to compensate for impacts, which include the initial mitigation sites, mitigation credits, and site protection instruments, and a tidal habitat mitigation framework. The potential impacts from the implementation of the Compensatory Mitigation Plan (CMP) are described in Chapter 13, Terrestrial Biological Resources, for each resource under the Mitigation Impacts headings.

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	for each species that has the potential to be impacted, including the mitigation sites to be used, locations of suitable populations, and proposed mitigation ratios are necessary to show that there would be sufficient suitable mitigation available for all potential impacts to special-status species. Appendix 3F states that the proposed mitigation sites would likely not be sufficient for all compensatory mitigation needs and relying on "other approaches" that are not fully described in the DEIR does not satisfy the disclosure requirements of CEQA or the function of an EIR to be an informational document. Additionally, failure to analyze the potential impacts of "other approaches" fails to disclose the entire impact of the proposed project.	
553-24	Table 3F-1 does not identify any potential mitigation sites or measures to mitigate impacts to vernal pools but shows that all mitigation sites or measures could be used to mitigate impacts to special-status plant species that use vernal pools, alkaline seasonal wetlands, emergent wetlands, and perennial aquatic habitats. Mitigation for vernal pool landscapes is critical to preserving sites that can support plant (and animal) species dependent on vernal pools. Recent studies have shown that over nine percent of vernal pool landscapes have been lost during the 13-year period of 2005 through 2018. [Footnote 1: Witham, C.W. 2021. Changes in the Distribution of Great Valley Vernal Pool Habitats from 2005 to 2018. Sacramento, CA. Report prepared for the San Francisco Estuary Institute/Aquatic Science Center in Richmond, CA under U.S. EPA Region-9 Wetland Program Development Grant #CD_99T93601]. Applying the 250' buffers outlined in MM BIO-14 to all vernal pools, including those that are not considered to be critical habitat for vernal pool fairy shrimp and vernal	The comment notes an inconsistency in Appendix 3F, Compensatory Mitigation Plan for Special-Status Species and Aquatic Resources, in the table titled Compensatory Mitigation Approaches, regarding special-status plant species mitigation approaches. This comment also describes habitat values and regional decline of vernal pool landscapes but does not raise significant environmental issues related to the Draft EIR's impact analysis. The referenced table has been revised to correct editorial errors in response to the comment. This revision does not result in a change in the mitigation approach for vernal pools (purchase conservation credits from an approved vernal pool mitigation bank) provided in the Appendix 3F section titled Mitigation Approach. None of the revisions described in the EIR resulted in a new significant environmental impact or substantial increase in the severity of an environmental impact or required additional mitigation measures to which DWR was unwilling to commit. Mitigation Measure BIO-14 indicates that project elements will be designed to avoid direct and indirect effects on vernal pool aquatic invertebrate

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	pool tadpole shrimp, would prevent any significant impacts to vernal pool endemic special-status plant species.	habitat to the extent practicable. If construction is required within 250 feet of vernal pool aquatic invertebrate habitat, avoidance measures and BMPs will be implemented.
553-25	MM BIO-2a explains how pre-construction surveys would be used to identify mitigation needs for special-status plant species but does not include a description of the mitigation measures, or provide mitigation ratios needed to reduce the impact of taking special-status species to less than significant.	Mitigation Measure BIO-2a is specific to the avoidance and minimization of impacts on special-status natural communities and special-status plant species. Where avoidance of potentially significant impacts on special-status plant species is not possible, the EIR employs compensatory mitigation, which is described in CMP-9 in Appendix 3F, Attachment 3F.1, Compensatory Mitigation Design Parameters. Compensatory mitigation for impacts on Mason's lilaeopsis is described in CMP-10 (Attachment 3F.1). Mitigation ratios have been added to Appendix 3F, Compensatory Mitigation Plan for Special-Status Species and Aquatic Resources. None of the revisions described in the EIR resulted in a new significant environmental impact or substantial increase in the severity of an environmental impact or required additional mitigation measures to which DWR was unwilling to commit.
553-26	The "Design Commitments and Guidelines for Compensatory Mitigation to Compensate for Loss of Special-Status Species Habitat," in Table 3F.1-3, mentions that 2 acres of habitat would be created or preserved for each acre lost, but does not offer mitigation ratios for the take of individual plants.	In the event that an individual plant is impacted, the mitigation proposed under CMP-9 in Appendix 3F, Compensatory Mitigation Plan for Special-Status Species and Aquatic Resources, Attachment 3F.1, Compensatory Mitigation Design Parameters, adequately compensates for potential impacts on individual plants in the form of restoration of suitable habitat. CMP-9 defines suitable habitat, describes the factors considered for selection of restoration sites, and the contents and requirements of the restoration and monitoring plan.
553-27	The impacts of BIO-9, BIO-10, BIO-11 are not included in Table 13-0, making it unclear how many total acres of special-status plant habitat would be impacted or how many acres may be needed to mitigate these potential impacts.	Please see response to comment 553-7 regarding the table titled Comparison of Impacts on Terrestrial Biological Resources by Alternative in Chapter 13, Terrestrial Biological Resources for how the EIR reports impact acres for special status plants. In regard to mitigation acres, mitigation ratios have been added to Appendix 3F, Compensatory Mitigation Plan for Special-Status Species and

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		Aquatic Resources. None of the revisions described in the EIR resulted in a new significant environmental impact or substantial increase in the severity of an environmental impact or required additional mitigation measures to which DWR was unwilling to commit. In addition, compensatory mitigation design guidelines for unavoidable impacts on special-status plants and natural communities are described in CMP-9 (Attachment 3F-1, Compensatory Mitigation Design Parameters).
553-28	Several other impacts are not disclosed in this table as well. Table 3F.1-3 allows for the creation of new populations, however transplanting individual plants is often not successful, and a source of seed or plant material for additional mitigation needs would need to be established.	The information contained in the EIR does not support the assertion by the comment that the Draft EIR does not fully disclose impacts. Transplanting individual plants is just one of several potential actions described in CMP-9 (Appendix 3F, Compensatory Mitigation Plan for Special-Status Species and Aquatic Resources, Attachment 3F.1, Compensatory Mitigation Design Parameters). CMP-9 also includes the preparation of a restoration and monitoring plan that will include success criteria, annual monitoring, and the preparation of reports for CDFW review. Additional language has been added to CMP-9 to clarify that any propagation material would be sourced from the population impacted by the project. Therefore, impacts from proposed mitigation are analyzed and disclosed. None of the revisions described in the EIR resulted in a new significant environmental impact or substantial increase in the severity of an environmental impact or required additional mitigation measures to which DWR was unwilling to commit.
553-29	This section states that "special-status plant habitat will be carried out concurrently with sensitive natural community mitigation and sited in areas near extant populations of the affected species that could provide vegetative or seed propagules." However, the take of special-status species for mitigation would also need to be analyzed, because 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	The analysis contained in the EIR does not support the assertion by the comment that the Draft EIR does not adequately assess the project's mitigation impacts on special-status species. Please see response to comment 553-28 regarding the analysis of the proposed mitigation in the EIR and the source of any propagation material used for mitigation. Impacts on special-status plants as a result of implementation of the CMP are analyzed in the EIR. Please see the section titled Impacts of the Project Alternatives on Special-Status Plant Species, Impacts BIO-9 through BIO-13, under the heading Compensatory Mitigation, for impact analyses for a

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	project as proposed." CEQA Guideline 15126.4(a)(1)(D), citing Stevens v. City of Glendale (1981) 125 Cal.App.3d 986. The DEIR has not yet analyzed the impacts of this proposed mitigation. As such, moving individuals from nearby extant populations is an impractical option if not an entirely infeasible mitigation measure. If seed is going to be used for mitigation it should be collected from the impacted population to maintain the genetic diversity of the species, although moving a genetically isolated population to an area where it could interbreed with another genetically distinct population, or closely related taxa, would affect the genetic makeup of both populations causing a loss of genetic diversity [Footnote 2: Leppig, G. and White, J.W., 2006. Conservation of peripheral plant populations in California. Madrono, 55(3), pp. 264-274], and could cause a shift in genetic boundaries [Footnote 3: Halbur, M.M., Sloop, C.M., Zantis, M.J. and Emery, N.C., 2014. The population biology of mitigation: impacts of habitat creation on an endangered plant species. Conservation Genetics, 15(3), pp. 679-695.]. The creation of offsite populations of rare species is rarely successful [Footnote 4: Fiedler, P.L., 1991. Mitigation-related Transplantation, Relocation, and Reintroduction Projects Involving Endangered and Threatened, and Rare Plant Species in California, Final Report. California Department of Fish and Game Endangered Plant Program.], [Footnote 5: Godefroid, S., Piazza, C., Rossi, G., Buord, S., Stevens, A.D., Aguraiuja, R., Cowell, C., Weekley, C.W., Vogg, G., Iriondo, J.M. and Johnson, I., 2011. How successful are plant species reintroductions? Biological Conservation, 144(2), pp.672-682.] and the preservation of special-status populations should be prioritized	variety of special-status plants, such as special-status vernal pool plants and special-status nontidal perennial aquatic plants. Please also see Mitigation Measure BIO-2a for a discussion of the actions that will be taken to avoid or minimize impacts on special-status plants, including those affected by the CMP. From discussions with CDFW through other regulatory processes, additional language has been added to CMP-9 that describes how habitat that historically supported species will be assessed for suitability to be used as mitigation locations. None of the revisions described in the EIR resulted in a new significant environmental impact or substantial increase in the severity of an environmental impact or required additional mitigation measures to which DWR was unwilling to commit.

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	considering that offsite mitigation measures will likely not compensate for the take of a special-status population or sensitive natural community. Where "habitat that historically supported the species for which mitigation is being implemented" is going to be used for this mitigation this habitat needs to be evaluated to be sure that is still suitable for the species being mitigated for, as the loss of the species could be due to climate change or a change in hydrology which could make the site unsuitable for mitigation.	
553-30	MM BIO-2a impermissibly defers mitigation because it relies on deferring special-status plant surveys until after project approval, and at some undefined later date requires "identify[ing] where mitigation measures would be implemented to avoid or offset impacts." (DEIR, Ch. 13-81). CEQA prohibits deferring the formulation of mitigation measures or significant aspects of mitigation until a future time except in the limited cases where (1) the agency has committed itself to the action, (2) adopted specific performance standards, and (3) identified the type(s) of potential action(s) that can feasibly achieve that performance standard and that will [be] considered, analyzed, and potentially incorporated in the mitigation measure. CEQA Guideline 15126.4(a)(1)(B). The DEIR currently does not comply with these requirements. MM BIO-2a vaguely states that mitigation measures will be implemented in the future, but does not specify what those mitigation measures will entail and fails to outline any performance standard or types of potential actions that can feasibly achieve those performance standards. See Preserve Wild Santee v. City of Santee (2012) 210 Cal.App.4th 260, 280-282 (rejecting mitigation measure that lacked specific	Please refer to Common Response 11, Terrestrial Biological Resources and Compensatory Mitigation Plan, which addresses the adequacy of the mitigation measures for terrestrial biological resources, including Mitigation Measure BIO-2a; why preconstruction surveys for special-status plant species are necessary to inform mitigation based on the length of time between project approval and construction; and why mitigation is not deferred. The mitigation commitment is described in the CMP (Appendix 3F, Compensatory Mitigation Plan for Special-Status Species and Aquatic Resources) and in Attachment 3F.1, Compensatory Mitigation Design Parameters. Additional detail has been added to Mitigation Measure BIO-2a with respect to non-disturbance buffer distances for special-status plants and natural communities. None of the revisions described in the EIR resulted in a new significant environmental impact or substantial increase in the severity of an environmental impact or required additional mitigation measures to which DWR was unwilling to commit.

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	performance standards). MM BIO-2a states that the "extent of mitigation for direct loss of or indirect effects on special-status plants will be based on these survey results," (DEIR, Ch. 13-81), but does not lay out any criteria for how the extent of mitigation needed will be determined. San Joaquin Raptor Rescue Center v. County of Merced (2007) 149 Cal.App.4th 645, 670 (measures intended to protect vernal pools relied on generalized goal and lacked specific performance criteria or standards).	
553-31	MM BIO-2b is no better. It states that DWR environmental staff will conduct an environmental review of the potential for maintenance activities to impact sensitive resources prior to the start of maintenance activities, but fails to commit the agency to the actions listed in the measure with caveats like "a site visit may be conducted," "a preconstruction survey may be required," and "[a]ppropriate non-disturbance buffers may be applied around sensitive biological resources." (DEIR, Ch. 13-82, emphasis added). Like MM BIO-2a, it contains no performance standards or criteria for assessing whether the performance standards are being met. These vague and noncommittal mitigation measures [do] not commit the agency to the action, do not contain sufficient protections to reasonably ensure that significant impacts to plants will be avoided or minimized, and fail entirely to meet the standard for deferring details of mitigation outlined in CEQA Guideline 15126.4.	As described in Chapter 13, Terrestrial Biological Resources, Mitigation Measure BIO-2b is sufficient for the purposes of CEQA because it describes a stepwise approach to avoiding impacts from a wide variety of maintenance actions and locations. For each activity, DWR would ensure that the appropriate measures are taken based on the evaluation of site- and activity-specific conditions, such as presence or lack of suitable habitat and use of resource-specific non-disturbance buffers. Additional detail has been added to Mitigation Measure BIO-2b to clarify that a qualified biologist will be responsible for determining that the implemented measures are sufficient to avoid or substantially lessen impacts. Note that the use of “may” indicates that a given activity will be implemented if the specified conditions are present and does not imply that an activity is optional or defer mitigation. None of the revisions described in the EIR resulted in a new significant environmental impact or substantial increase in the severity of an environmental impact or required additional mitigation measures to which DWR was unwilling to commit.
553-32	MM-BIO-2a and 2b also eliminate public participation in a crucial part of the environmental review process by improperly deferring significant aspects of the mitigation until after project approval. By relying on pre-construction surveys to identify mitigation needs later on, MM-BIO-2a does not allow for public	Please refer to Common Response 11, Terrestrial Biological Resources and Compensatory Mitigation Plan, regarding the adequacy of the mitigation measures for terrestrial biological resources, including Mitigation Measures BIO-2a and BIO-2b; why preconstruction surveys for special-status species are necessary to inform mitigation based on the length of time between

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	review and input before the project is approved. Expertise from public comments will not be available to the project proponent or agencies for consideration when determining appropriate mitigation. See Save Our Peninsula Committee v. Monterey County Bd. Of Supervisors, 87 Cal.App.4th 99, 133 (Cal. Ct. App. 2001) ("The purpose of requiring public review is to demonstrate to an apprehensive citizenry that the agency has, in fact, analyzed and considered the ecological implications of its action. . . . Public review permits accountability and informed self-government . . . [P]ublic review ensures that appropriate alternatives and mitigation measures are considered, and permits input from agencies with expertise . . . Thus, public review provides the dual purpose of bolstering the public's confidence in the agency's decision and providing the agency with information from a variety of experts and sources." (citing Schoen v. Department of Forestry and Fire Protection (1997) 58 Cal.App.4th 556, 573-574, internal quotation marks and citations omitted)).	project approval and construction; and why mitigation is not deferred. Please also see Common Response 7, Implementation Considerations, which describes opportunities for public or other interested party engagement related to regulatory mitigation.
553-33	Given the unpredictable nature of California rainfall patterns, especially considering the increasing uncertainty associated with climate change, a single season of rare plant surveys may not be adequate to determine presence especially in an unfavorable year. Specific and measurable mitigation measures must be included for actual take of occupied habitat as well as for take of suitable habitat which was not occupied at the time of the surveys.	With regard to conducting special-status plant surveys over multiple years, please see response to comment 553-21.
553-34	Following the CDFW Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities [Footnote 6: http://nrm.dfg.gov > file handler], as described in BIO-2a, would require that DWR:	Please refer to response to comment 553-21 with respect to the requirement under Mitigation Measure BIO-2a for survey protocols to be consistent with USFWS and CDFW guidelines.

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	"Conduct botanical field surveys in the field at the times of year when plants will be both evident and identifiable. Usually this is during flowering or fruiting. Space botanical field survey visits throughout the growing season to accurately determine what plants exist in the project area. This usually involves multiple visits to the project area (e.g., in early, mid, and late-season) to capture the floristic diversity at a level necessary to determine if special status plants are present. The timing and number of visits necessary to determine if special status plants are present is determined by geographic location, the natural communities present, and the weather patterns of the year(s) in which botanical field surveys are conducted." Noting that, "Habitats, such as grasslands or desert plant communities that have annual and short-lived perennial plants as major floristic components, may require multiple annual surveys to fully capture baseline conditions."	
553-35	CEQA: This Draft EIR does not meet the intent of CEQA to fully disclose all potential impacts of the proposed project and to allow for substantive recommendations and comments from experts and the public. By not including all of the impacts to several special-status plant species and the potential impacts to sensitive natural communities, and not disclosing specific mitigation measures, this DEIR fails to meet the standards of CEQA.	The analysis contained in the EIR does not support the assertion by the commenter that potential impacts of the project alternatives have not been fully disclosed. Please see responses to comments 553-11 through 553-21 regarding changes made in the EIR and how the EIR discloses all potential impacts on special-status plant species and sensitive natural communities and adequately describes the mitigation proposed to avoid, minimize, and mitigate potential effects, consistent with the requirements under CEQA. Please also see Common Response 11, Terrestrial Biological Resources and Compensatory Mitigation Plan, regarding the adequacy of mitigation measures under CEQA.
553-36	CEQA: For each potentially significant impact, an EIR must separately: (1) describe the baseline environmental conditions on the project site, (2) analyze project impacts on baseline conditions, and (3) propose feasible mitigation measures to reduce	Please see response to comment 553-35 regarding the adequacy of the terrestrial biological resources analysis under CEQA. Additionally, please see response to comment 553-11 regarding the evaluation of potential impacts on Boggs Lake hedge-hyssop.

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	significant impacts. (CEQA Guidelines § 15125(a)(1)). Boggs Lake hedge-hyssop, (Gratiola heterosepala), was identified as a species that would have potential impacts from restoration actions, however the baseline conditions related to this species only reference a reported occurrence, this species was not included in the species accounts in Appendix 13B, the impact tables in Appendix 13C, or mentioned in Chapter 13 regarding terrestrial biological resources. To meet the requirements of CEQA for this and other species, the EIR would need to verify the baseline conditions, evaluate potential impacts, and provide feasible mitigation measures related to these findings. As written, the DEIR provides no analysis of the feasibility of the proposed mitigation measures and therefore lacks substantial evidence to support a finding that the proposed mitigation measures will reduce significant impacts.	
553-37	CEQA: Including specific mitigation measures for special-status plant species and verifying the potential impacts to these species is critical to producing a DEIR that discloses the potential impacts and verifies that mitigation will make these impacts less than significant, as required by CEQA. A supplemental draft EIR should be prepared and circulated to include a complete analysis of potentially impacted species based on a comprehensive floristic survey, as well as mitigation measures that are specific enough to be analyzed by experts and are disclosed to the public for comment and review.	The analysis contained in the EIR does not support the assertion by the comment that all potentially impacted species have not been analyzed appropriately. As described in Mitigation Measure BIO-2a, preconstruction surveys for special-status plants in and adjacent to all project sites in areas of potential suitable habitat, as identified in the habitat models, will be conducted prior to any project impacts. Please also see Common Response 11, Terrestrial Biological Resources and Compensatory Mitigation Plan, regarding the methods and approach for the evaluation of impacts, the adequacy of mitigation measures, and the use of habitat models and acres. The EIR is adequate under CEQA, and the conditions triggering a supplemental EIR are not applicable.
553-38	The California Native Plant Society would like to incorporate by reference the comment letters from Defenders of Wildlife, the Sierra Club, Friends of Stone Lakes National Wildlife Refuge,	This information describes the structure or organization of the comment letter, the background of the organization or individual commenter, clarification on the submittal of the comment letter, or general

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	Friends of the River, the Center for Biological Diversity, Bob Wright, California Sportfishing Protection Alliance, Friends of the Swainson's Hawk, Save Our Sandhill Cranes, and Audubon. Thank you for the opportunity to comment on this project and please contact us if you have any questions regarding our suggestions.	introductory text. It is not a comment on the contents of the Draft EIR. DWR has reviewed all comments and will consider all comments in its decision-making process. Please refer to Volume 2, Chapter 2, Indices of Commenters and Index of Primary Forms, to locate the letter numbers of comments provided by other entities that are of interest. Responses to all comment letters are provided in Volume 2, Chapter 4, Response to Comments Tables.
553-39	[ATT 1: Changes in the Distribution of Great Valley Vernal Pool Habitats from 2005 to 2018.]	The commenter provided this attachment for reference purposes in support of their comments. Those comments are addressed in the responses to the commenter's letter.
553-40	[ATT 2: Journal article titled "Conservation of Peripheral Plant Populations in California" by Leppig and White (2006)]	The commenter attached a journal article addressing peripheral plant populations and potential effects on genetic diversity from mitigation activities involving the use of seed for mitigation activities. DWR would offset the loss of special-status plant habitat by purchasing credits at an agency-approved mitigation bank or through the use of site protection instruments, such as conservation easements, and by implementing the design commitments and guidelines for special-status plants described in Appendix 3F, Compensatory Mitigation Plan for Special-Status Species and Aquatic Resources, Attachment 3F.1, Compensatory Mitigation Design Parameters. Mitigation efforts may also include actions such as the collection and propagation of seed. The Approach to Special-Status Species Mitigation section of Appendix 3F has been revised to clarify the source of propagation material, as described in response to comment 553-28, and to clarify that seed collection and propagation (if used) would consider the maintenance of genetic diversity when considering source populations for the seed to ensure that the mitigation would not result in effects on genetic diversity. None of the revisions described in the EIR resulted in a new significant environmental impact or substantial increase in the severity of an environmental impact or required additional mitigation measures to which DWR was unwilling to commit.

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553-41	[ATT 3: Journal article titled "The population biology of mitigation: impacts of habitat creation on an endangered plant species" by Halbur et al. (2014).]	The commenter attached a journal article addressing the impacts of habitat creation on an endangered plant species from seeding. Please refer to response to comment 553-40 regarding the use of seeding as a mitigation activity.
553-42	[ATT 4: 1991 Final Report to CDFG: Mitigation-related transplantation, relocation and reintroduction projects involving endangered and threatened, and rare plant species in California.]	The commenter attached a journal article addressing the impacts of habitat creation on an endangered plant species from seeding. Please refer to response to comment 553-40 regarding the use of seeding as a mitigation activity.
553-43	[ATT 5: Journal article titled "How successful are plant species reintroductions? By Godefroid et al. (2011).	The commenter attached a journal article addressing the impacts of habitat creation on an endangered plant species from seeding. Please refer to response to comment 553-40 regarding the use of seeding as a mitigation activity.
553-44	[ATT 6: CDFW's 2018 Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities.]	Please see response to comment 553-20, which describes the use of the reference noted by the commenter in Mitigation Measure BIO-2a.
553-45	[ATT 7: This attachment is duplicative of Attachments 1 through 6, with the addition of footers in the duplicated versions.]	The commenter provided this attachment for reference purposes in support of their comments. Those comments are addressed in these responses to the commenter's letter. DWR has reviewed all comments and will consider all comments in its decision-making process.
559-1	These comments are submitted on behalf of the Center for Biological Diversity (the "Center") regarding the Delta Conveyance Project ("Project"). The Center has reviewed the Draft Environmental Impact Report ("DEIR") for the Project and is concerned that the DEIR fails to comply with the California Environmental Quality Act ("CEQA"), Public Resources Code section 21000 et seq., and the CEQA Guidelines, California Code of Regulations, title 14, section 15000 et seq. ("Guidelines"). The Center urges the Department of Water Resources ("DWR") not to approve the Project or certify the Environmental Impact Report.	The EIR has been prepared in accordance with CEQA and adequately discloses the potential, scope, severity, and magnitude of potential impacts for the environmental resources analyzed. Responses to the detailed comments provided in this letter are provided herein.

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559-2	In particular, the DEIR's analysis of and mitigation for the Project's impacts to special-status species, sensitive habitats, and wildlife connectivity fall short of CEQA's and the CEQA Guidelines' requirements. The EIR must fully disclose and analyze the Project's potential impacts to sensitive species and habitat and provide effective and enforceable mitigation measures for impacts found to be significant.	The analysis contained in the EIR does not support the assertion by the comment that the Draft EIR falls short of meeting CEQA guideline requirements for the analysis of impacts on special-status species and habitat and the inclusion of effective and enforceable mitigation measures. The EIR discloses and analyzes potentially significant impacts on special-status species, sensitive habitat, and wildlife connectivity from all project alternatives and includes environmental commitments, best management practices, and mitigation measures (refer to Chapter 13, Terrestrial Biological Resources, and Appendix 3F, Compensatory Mitigation Plan for Special-Status Species and Aquatic Resources). The analysis in Chapter 13 concludes that all impacts on special-status species, sensitive habitat, and wildlife connectivity would be mitigated to a less-than-significant level. This analysis is sufficient for the purposes of CEQA.
559-3	At a time when the world is facing both an extinction crisis and a climate crisis, the Center [for Biological Diversity] urges state agencies like DWR to take on more responsibility to assess and learn from our previous infrastructure planning mistakes and plan for a future that has the greatest chances of maintaining and amplifying ecosystem health and climate change resilience. Tackling the climate crisis must include protecting remaining sensitive species and habitats and ensuring landscape connectivity that provides multiple pathways for animals and plants to adapt to shifting climates as climate change intensifies. More robust impact analyses and mitigation are needed to adequately assess and offset the Project's significant impacts to sensitive species and habitat and wildlife connectivity to comply with CEQA and forward the State's 30 by 30 goals to combat climate change and advance biodiversity conservation.	The EIR is sufficient in its analysis and mitigation for the purposes of CEQA. The EIR contains analysis of potentially significant impacts of the project alternatives on sensitive species, habitat, and wildlife connectivity in Chapter 13, Terrestrial Biological Resources. Common Response 11, Terrestrial Biological Resources and Compensatory Mitigation Plan, also discusses the methods used to analyze impacts on habitat connectivity. Chapter 30, Climate Change, contains analysis of impacts of the project alternatives with climate change. The analysis in the EIR is sufficient for the purposes of CEQA. Please also see Common Response 6, Climate Resilience and Adaptation, for a discussion of the climate change analysis in the EIR.
559-4	The Center [for Biological Diversity] is a non-profit, public interest environmental organization dedicated to the protection of native species and their habitats through science,	This information describes the background of the organization or individual commenter. It is not a comment on the contents of the Draft EIR. DWR has reviewed all comments and will consider all comments in its decision-

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	policy, and environmental law. The Center has over 1.7 million members and online activists throughout California and the United States. The Center has worked for many years to protect imperiled plants and wildlife, open space, air and water quality, and overall quality of life for people in the San Joaquin-Sacramento Delta Region and throughout the State.	making process.
559-5	I. The DEIR fails to adequately assess impacts to special-status species. The DEIR lists 56 impacts to terrestrial biological resources, almost all of which are determined to be significant (5 no impacts, 1 less than significant), yet somehow all impacts are deemed less than significant after mitigation (DEIR ES-34 to ES-41). In light of the DEIR's analysis and proposed mitigation, such conclusions are not supported by substantial evidence. According to the DEIR, more than 2,500 acres will be affected by the Project, which doesn't take into account any geotechnical investigation zones and fault study areas (DEIR at 3- 0). Nor does the DEIR adequately consider or discuss the Project's impacts to hydrology that will significantly impact terrestrial habitats and species. A project of this scale will have long lasting, significant, and irreversible direct and indirect impacts to the special-status species, sensitive habitats, and wildlife connectivity areas in and near the Project footprint. Proposed compensatory mitigation is not sufficient to reduce impacts to less than significant levels; where impacts will be significant, CEQA requires that all feasible mitigation measures be adopted (CEQA Guidelines § 15126.4(a)), and if mitigation is deemed not feasible, the EIR must demonstrate so with substantial evidence. The DEIR fails to meet these requirements.	The analysis contained in the EIR adequately assesses impacts on special-status species, including those caused by "long lasting, significant, and irreversible direct and indirect impacts… in and near the Project footprint," and in relation to "sensitive habitats, and wildlife connectivity areas." Please see Common Response 11, Terrestrial Biological Resources and Compensatory Mitigation Plan, for a discussion of the methods and approach used in the evaluation of impacts and the effectiveness of the Compensatory Mitigation Plan (CMP) in reducing impacts. Regarding geotechnical investigations, please see the Methods of Analysis section of Chapter 13, Terrestrial Biological Resources, for a description of the methods used to determine the acreages affected by the field investigations (including geotechnical investigation zones and fault study areas) for the purposes of the terrestrial biological resources analysis. Field investigations are then analyzed for each applicable impact. Impact acres are presented for each alternative by project feature (including geotechnical investigation zones and fault study areas) in Appendix 13C, Impact Tables. Impacts on hydrology were also considered in the impact analyses of special-status plant and wildlife species and state- and federally protected aquatic resources, in Chapter 13 within the section titled Methods Used to Assess Impacts on Special-Status Species, which describes how special-status plants and special-status wildlife habitat could be affected by changes to hydrology and erosion that alter or degrade habitat.

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		Please also see Common Response 11 for a discussion of the methods used to analyze impacts on habitat connectivity.
559-6	The Project consists of diverting 6,000 cubic feet per second (cfs) of water from the Sacramento River with two new Delta intakes; conveying the water through a 45-mile long, 39-foot diameter wide tunnel; construction of a new pumping plant and aqueduct complex and associated pipelines, tunnels, and structures; numerous access roads (new roads and widening existing roads), on-site rails to haul construction materials and reusable tunnel material (RTM); underground, aboveground, and overhead electric transmission and distribution lines and fiber optic cables; and fencing and lighting around all permanent project facilities.	The comment is summarizing major features of the project. However, the project does not "consist of diverting 6,000 cubic feet per second (cfs) of water." Rather, as described in Chapter 3, Description of the Proposed Project and Alternatives, 6,000 cfs is the total maximum diversion capacity of the intakes and the conveyance capacity of the tunnel. Please see Chapter 3 and Common Response 3, Alternatives Development and Description, for a discussion of the operational criteria. The comment does not raise a significant environmental issue relating to the proposed project or address the adequacy, accuracy, or completeness of the Draft EIR. DWR has reviewed all comments and will consider all comments in its decision-making process.
559-7	The DEIR fails to adequately assess and mitigate the Project's impacts to special-status species. Insufficient detail and information are provided for the public to determine whether the species habitat models accurately depict where the species occur, potentially occur, or historically occurred in or near the Project area. In addition, no on-the-ground, protocol-level, targeted surveys for special-status species were conducted. And only limited available occurrence data were used (e.g., CNDDB, eBird, Delta Habitat Conservation and Conveyance Program occurrence data). While models are a useful tool for land-use planning and understanding where species are likely to occur, ground-truthing models is critical to determine the accuracy, usefulness, and applicability of the model. This can be done with a combination of analyzing existing occurrence data, including crowdsourcing data from other publicly available data, like iNaturalist, [Footnote 1: https://www.inaturalist.org/] herpmappper, [Footnote 2: https://www.herpmapper.org/] the Global Biodiversity	The analysis contained in the EIR adequately assesses and mitigates the project's potential significant impacts on special-status species. Detailed information on terrestrial species occurrences is provided in the Environmental Setting section of Chapter 13, Terrestrial Biological Resources; Appendix 13A, Special-Status Species with Potential to Occur in the Study Area; and Appendix 13B, Species Accounts. This information provides a level of detail suitable for the purposes of CEQA, as described in Common Response 11, Terrestrial Biological Resources and Compensatory Mitigation Plan. Common Response 11 also describes why the data sources used in the habitat model represent the best available science, when species surveys (i.e., ground truthing) will be conducted, and why the timing of these surveys is appropriate. Transparency regarding the data sources used in the habitat models (which include species range and occurrence data where appropriate) is provided in the detailed land cover mapping methods in Chapter 13 and the descriptions for each species model in Appendix 13B.

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	Information Facility (GBIF), [Footnote 3: https://www.gbif.org/] and scientific literature, and conducting on-the-ground surveys. It is important to use the best available science and have full transparency regarding the data used to build the model; therefore, the DEIR should show the species range and known occurrences in the figures for the species habitat models so that readers can see a more comprehensive picture of how the analysis was done and how the model is performing. Such information should be included in the DEIR and the methods and analyses should be more adequately represented so that the public and decisionmakers can decipher the information and determine whether the Project's impacts are adequately assessed and mitigated.	Where species range information is available as a variable in species models, the modeled habitat is restricted to the extent of the species range as described under the species account. Appendix 13B discloses which habitat models were not restricted to a species published range (e.g., least bittern where it was deemed, based on professional judgement, that limiting the model to the species range was not adequate to estimate potential impacts). In regard to showing known occurrences on the figures, the California Natural Diversity Database (CNDDB) Management Framework (California Department of Fish and Wildlife 2020) and CNDDB Data Use Guidelines (California Department of Fish and Game 2011) have restrictions on displaying occurrences in reports available to the public to protect sensitive species and habitat; therefore, occurrences were not included in the figures for the EIR.
559-8	Here we [Center for Biological Diversity] present a few specific examples of the DEIR's inadequacies and failure to comply with CEQA. However, this is not a comprehensive list, and it is likely that similar shortcomings apply to other species, habitats, and environmental issues covered under CEQA. i. California red-legged frog The DEIR provides a California red-legged frog (CRLF) habitat model that purportedly identifies aquatic, upland, and dispersal habitat (DEIR 13B-309). Modeled suitable habitat appears to be mostly along the southwestern portion of the study area; however, there are documented occurrences on iNaturalist and Global Biodiversity Information Facility that are located outside the modeled habitat, between Bethel Island and Discovery Bay. [Footnote 4: CRLF occurrences on iNaturalist. Available at: https://www.inaturalist.org/observations?place_id=any&subvi	As discussed in Appendix 13B, Species Accounts, in the section titled Species Habitat Suitability Methods, the California red-legged frog model and other species models are not developed based on species occurrence data, which is incomplete for most species in the study area. Instead, species occurrence data are used to bolster the validity of the habitat models and, if necessary, revise the vegetation input data. Rather than focusing on individual occurrences, the impact analysis encompasses all potential landcover types within the species' range and suitable habitat definition. This approach tends to overestimate, rather underestimate, suitable habitat. The species model uses high-resolution GIS data layers and specific information on the habitat requirements of a species to indicate whether a particular location has suitable habitat for that species. Prior to project construction, refinements such as on-the-ground habitat assessments and/or species surveys would be conducted in all work areas to evaluate the presence of suitable habitat and/or occupation by special-status species. This approach is sufficient for the purposes of CEQA.

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	ew=map&taxon_id=67016 (Accessed December 8, 2022). CRLF occurrences on GBIF. Available at: https://www.gbif.org/species/2426756 (Accessed December 8, 2022).] The DEIR mentions 16 CNDDB occurrences (DEIR at 13B-301), but it does not show those occurrences on the figure provided, so it is unclear if those occurrences fall within the modeled habitat (Figure 13B.49-1, DEIR at 13B-309). This suggests that the habitat model is not accurately encompassing suitable or potentially suitable CRLF habitat. While CNDDB occurrence data are helpful and important to consider when analyzing potential suitable habitat for species, there are other available data that can be additive to informing where suitable or potentially suitable habitat is located; these data should be used to inform such analyses.	Please see Common Response 11, Terrestrial Biological Resources and Compensatory Mitigation Plan, regarding the methods and approach for evaluating impacts on terrestrial biological resources, including the approach to developing habitat models. The locations of red-legged frog occurrences relative to project components are described in Chapter 13, Terrestrial Biological Resources, in the Construction section of Impact BIO-24. Please see response to comment 559-7 regarding California Department of Fish and Wildlife restrictions on displaying occurrence data for sensitive species, and why it was not included on the figures. Please see Common Response 11 for a discussion of the occurrence data sources used in the Chapter 13 analyses, including for red-legged frog.
559-9	In addition, the DEIR lacks transparency. Although the DEIR mentions that a portion of designated CRLF critical habitat "overlaps with a portion of the study area southwest of Clifton Court Forebay" (DEIR at 13B-301), the DEIR fails to mention that the Project footprint is within some of the designated critical habitat. The Bethany Complex and associated infrastructure and access roads are at least partially within designated CRLF habitat. [Footnote 5: USFWS, 2022. California red-legged frog (Rana drayotnii). Available at: https://ecos.fws.gov/ecp/species/2891 (Accessed December 8, 2022).] Yet the DEIR omits this information and does not include designated CRLF habitat in Figure 13B.49-1, where it would be most relevant to include. Also, the amount of designated CRLF critical habitat that would be impacted by the Project is not provided in the analyses. Such information is vital for determining whether the DEIR adequately assesses and mitigates the Project's impacts. The DEIR needs to be forthcoming with this information.	The EIR provides an impact analysis of the California red-legged frog critical habitat raised by the comment. The EIR identifies the California red-legged frog critical habitat unit that overlaps with the project alternatives and addresses impacts on California red-legged frog habitat within critical habitat in Chapter 13, Terrestrial Biological Resources, Impact BIO-24, including acres of critical habitat impacts. Analysis under Impact BIO-24 concludes that all impacts on California red-legged frog would be mitigated to a less-than-significant level.

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559-10	It is disconcerting that the DEIR differentiates aquatic, upland, and dispersal habitat within the habitat model for CRLF (and many other species) (DEIR at 13B-303). Such differentiation indicates that different values will be given to the different habitats when considering mitigation (though no mitigation ratios or other information is provided on this in the DEIR). All of those habitats should be valued equally because access to each is needed for individuals to complete their life cycle, for populations to continue to exist, and for the species to avoid extinction. For example, if there are CRLF in a given area and only modeled "aquatic" and "upland" habitat are preserved while the surrounding "dispersal" habitat is completely removed by buildings, roads, etc., then that population is essentially isolated by the Project. This would make the population more vulnerable to local extirpation due to genetic bottleneck or stochastic events like wildfire, flooding, mudslides, or disease spread. The habitat models and assessments should consider the need for connected habitats and accommodate the furthest dispersers to allow for increased chances for establishment or re-establishment in unoccupied habitats, as often happens for species that exist with metapopulation dynamics, and to increase resilience to climate change (Cushman, 2006; Semlitsch & Bodie, 2003).	As described in Appendix 13B, Species Accounts, in the section titled Species Habitat Suitability Models, the habitat suitability models include specific life stages of the species, such as breeding, foraging, or dispersal habitat, where appropriate. In the California red-legged frog habitat model (see the section titled California Red-Legged Frog [Rana draytonii] in Appendix 13B), habitats are not assigned a value, but rather suitable habitat for different life stages is used to identify different time periods when the habitat could be occupied. The EIR provides an impact analysis of California red-legged frog dispersal habitat raised by the comment. The EIR evaluates impacts of habitat loss and fragmentation from all alternatives in Chapter 13, Terrestrial Biological Resources, under Impact BIO-24. Analysis under Impact BIO-24 concludes that all impacts on California red-legged frog would be mitigated to a less-than-significant level. In addition, Chapter 13 evaluates impacts of all alternatives on wildlife connectivity and movement, including California red-legged frog, in Impact BIO-53. Analysis under Impact BIO-53 concludes that all impacts on wildlife connectivity would be mitigated to a less-than-significant level. The Compensatory Mitigation Plan (Appendix 3F, Compensatory Mitigation Plan for Special-Status Species and Aquatic Resources) includes discussion of mitigation for impacts on modeled California red-legged frog habitat. The CMP has been revised to include mitigation ratios. None of the revisions described in the EIR resulted in a new significant environmental impact or substantial increase in the severity of an environmental impact or required additional mitigation measures to which DWR was unwilling to commit.

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559-11	According to the USFWS (2022), the federally threatened California red-legged frog (CRLF) has lost 57% of its historical range, primarily in the Central Valley and the coastal areas south of Santa Barbara County, and water impoundment and management projects are significant threat to the species. Yet, as presented, the DEIR shows incomplete information and does not accurately portray where CRLF are known to occur or where there is designated critical habitat or suitable or potentially suitable habitat in and near the Project area. Without using appropriate data and information to inform what the baseline conditions are, the DEIR does not adequately assess and mitigate the Project's impacts.	Please see response to comment 559-8 regarding the habitat suitability model approach used in the EIR, including use of landcover data, occurrence data, and surveys in all suitable California red-legged frog habitat prior to construction. Appropriate data and information were used to inform the baseline conditions used in the analysis, and the Draft EIR does adequately assess and mitigate the project's impacts, as described in Common Response 11, Terrestrial Biological Resources and Compensatory Mitigation Plan, in the discussion of the methods and approach used for evaluation of impacts, and in Chapter 13, Terrestrial Biological Resources.
559-12	Amphibians are the most threatened vertebrate group with more than 40% of species threatened (IUCN 2016) and approximately 200 species collapsing to or near extinction since the 1970s (Alroy, 2015; Stuart et al., 2004). According to researchers at the U.S. Geological Survey (USGS), amphibian populations in the U.S. are declining at an alarming rate of almost 4% per year (Grant et al., 2016). Amphibians are important in many terrestrial and aquatic ecosystems because they play key roles in the food chain and carbon cycle (Arribas et al., 2015; Best Welsh, 2014; Rowland et al., 2016; Semlitsch et al., 2014). They face numerous threats, including habitat loss and degradation, invasive species, chemical contaminants, disease, roads, and climate change (e.g., Riley et al. 2005; Hayes et al. 2006; Yap et al. 2015; Brehme et al. 2018; Bucciarelli et al. 2020). We must do more to protect these populations before it is too late.	The comment does not raise a significant environmental issue relating to the proposed project or address the adequacy, accuracy, or completeness of the Draft EIR. DWR has reviewed all comments and will consider all comments in its decision-making process. Please see the table titled Special-Status Wildlife Species Considered for Analysis (in the Study Area) in Appendix 13A, Special-Status Species with Potential to Occur in the Study Area, for a discussion of the amphibians considered for analysis, and Impacts BIO-22 through BIO-24 in Chapter 13, Terrestrial Biological Resources, for the analyses of project impacts on amphibians.
559-13	ii. California tiger salamander Similar to the concerns raised for the CRLF assessment and the accuracy of the reported baseline conditions, the DEIR fails to consider existing data to create an accurate habitat model to	Please see response to comment 559-8 regarding the habitat suitability model approach used in the EIR, including use of landcover data, occurrence data, and surveys in all suitable California tiger salamander habitat prior to construction.

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	determine where California tiger salamander (CTS) may occur, and therefore it is impossible to adequately assess and mitigate the Project's impacts to CTS. The DEIR lacks transparency. Although the DEIR mentions CNDDB occurrences within the study area (DEIR at 13B-285), it does not show those occurrences on the figure provided, so it is unclear if those occurrences fall within the modeled habitat (Figure 13B.49-1, DEIR at 13B-309). While CNDDB occurrence data are helpful and important to consider when analyzing potential suitable habitat for species, there are other available data that can and should be used to inform such analyses. Both iNaturalist and Global Biodiversity Facility show CTS observations in other areas of the study area outside of the modeled habitat. [Footnote 6: CTS observations on iNaturalist. Available at: https://www.inaturalist.org/observations?place_id=any&subview=map&taxon_id=26778 (Accessed December 9, 2022) CTS observations on GBIF. Https://www.gbif.org/species/2431960 (Accessed December 9, 2022)] This suggests that the habitat model is not accurately encompassing suitable or potentially suitable CTS habitat. The DEIR shows incomplete information and does not accurately portray where CTS are known to occur or where there is suitable or potentially suitable habitat in and near the Project area. In addition, when there is limited data, sometimes there are proxies that can be used to help inform the analysis. In this case, rodent burrows, like those of California ground squirrels, are good indicators of CTS presence; potential presence of California ground squirrels and rodent burrows should be a consideration for the model. Without using appropriate baseline conditions data and information, the DEIR does not adequately assess or mitigate the Project's impacts.	The locations of California tiger salamander occurrences relative to project components are described in Chapter 13, Terrestrial Biological Resources, in the Construction and the Maintenance sections of Impact BIO-22. Please see response to comment 559-7 regarding the sensitivity of occurrence data and why it was not included on the figures. Please see Common Response 11, Terrestrial Biological Resources and Compensatory Mitigation Plan, for a discussion of the occurrence data sources used in the Chapter 13 analyses.

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559-14	iii. Western spadefoot toad Similar to the concerns raised for the CRLF and CTS assessment and the accuracy of the reported baseline conditions, the DEIR fails to consider existing data to create an accurate habitat model to determine where western spadefoot toad (WESP) may occur. Therefore it is impossible to adequately assess and mitigate the Project's impacts to WESP. The DEIR states that "there are no records for western spadefoot toad in the study area" (DEIR at 13B-293); however, there are observations documented in iNaturalist that prove otherwise. [Footnote 7: Western spadefoot toad observations on iNaturalist. Available at: https://www.inaturalist.org/observations?place_id=any&subview=map&taxon_id=26702 (Accessed December 12, 2022).] Several occurrences are documented in the southern extent of the study area, including near where the Bethany Complex would be located, yet no modeled habitat is shown where these occurrences are (DEIR at 13B- 299). Like for other species, this suggests that the habitat model is not accurately encompassing suitable or potentially suitable WESP habitat. The species habitat models must be shown to accurately predict where the species occurs or has the potential to occur so that the public and decisionmakers can have confidence that the DEIR is using the best available science and accurately portraying the Project area's baseline conditions. Without using appropriate baseline conditions data and information, the DEIR does not adequately assess and mitigate the Project's impacts. As written, the DEIR fails to comply with CEQA	Please see response to comment 559-8 regarding the habitat suitability model approach used in the EIR, including use of landcover data, occurrence data, and surveys in all suitable western spadefoot toad habitat prior to construction. The locations of western spadefoot toad occurrences relative to project components are described in Chapter 13, Terrestrial Biological Resources, in the Construction section of Impact BIO-23. Please see response to comment 559-7 regarding the sensitivity of occurrence data and why it was not included on the figures. Please see Common Response 11, Terrestrial Biological Resources and Compensatory Mitigation Plan, for a discussion of the occurrence data sources used in the Chapter 13 analyses.
559-15	In addition to using actual species occurrence data, the DEIR should also consider existing scientific literature to inform the models. Recent studies have created niche models for WESP [western spadefoot toad] (Neal, 2019; Neal et al., 2018), and	The assertion that the EIR does not adequately assess the presence of suitable habitat and mitigate for western spadefoot toad is not consistent with the contents of the EIR. The environmental niche modeling used in the studies cited in the comment used climate, elevation, and slope data but

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	their models look vastly different from what is provided in the DEIR. According to the researchers, much of the study area is within highly suitable WESP habitat that has relatively flat basins and valleys [that] are important for gene flow (Neal, 2019; Neal et al., 2018). By comparing the DEIR's model with Neal et al., (2018 and 2019), it is clear that the DEIR fails to adequately assess the presence of suitable habitat for WESP, and therefore, does not adequately mitigate the Project's impacts to WESP.	did not incorporate suitable habitat land cover data. While these environmental niche modeling studies are useful for predicting the species' distribution on a large scale, they are less useful for assessing the potential impacts of the project alternatives on suitable western spadefoot toad habitat. The EIR uses habitat models that incorporate all potential land cover types included in the species' suitable habitat definition that occur within the study area. It is important to note that prior to project construction, on-the-ground habitat assessments and/or species surveys would be conducted in all work areas to evaluate the presence of suitable habitat and/or occupation by special-status species, including western spadefoot toad (Chapter 13, Terrestrial Biological Resources, Special-Status Wildlife Species section). Please see Common Response 11, Terrestrial Biological Resources and Compensatory Mitigation Plan, regarding the methods and approach for evaluating impacts on terrestrial biological resources, including the approach to developing habitat models using land cover data.
559-16	iv. Giant garter snake Although the DEIR notes that the entire study area falls within the range of giant garter snake (GIGA) and overlaps with three identified recovery units (DEIR at 13B-343), the DEIR fails to mention that the recovery units span the entire study area. According to the USFWS, "Each unit has a distinctive genetic composition that is essential to the recovery of the giant garter snake as a species" (USFWS, 2017); therefore, such information should be included in the DEIR and in the habitat model figure (Figure 13B.55-1, DEIR at 13B-351) so the public and decisionmakers can understand the geographical context.	The EIR identifies the giant garter snake recovery units, as identified by the U.S. Fish and Wildlife Service, that overlap with the study area in Appendix 13B, Species Accounts, and includes analysis of impacts on giant garter snake in Chapter 13, Terrestrial Biological Resources, under Impact BIO-30. The scale of this analysis is adequate for the purposes of CEQA.
559-17	The DEIR uses insufficient parameters in their upland habitat model for the GIGA [giant garter snake]. Despite stating that the species can be found as far as 820 feet from the edge of aquatic habitat (DEIR at 13B-344), the modeled upland only	The giant garter snake habitat model used in the EIR is sufficient and does not underestimate impacts on giant garter snake. Please see response to comment 559-8 regarding the habitat suitability model approach used in the EIR, including use of land cover data, occurrence data, and surveys in all

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	includes “suitable habitat within 200 feet of modeled aquatic habitat” (DEIR at 13B-345). The DEIR states that “the model is intended to capture where the majority of actively used upland habitat occurs,” (DEIR at 13B-345), which is an oversight and a failure to produce an accurate habitat model for the species. When determining potentially suitable habitat, the furthest dispersers should be considered in the model. Thus, the habitat modeling criteria for potential GIGA habitat should include upland habitat within at least 820 feet of aquatic features. By incorporating upland habitat within only 200 feet of modeled aquatic features, the DEIR could be severely underestimating the amount of suitable giant garter snake habitat, and therefore severely underestimating impacts to GIGA and its habitat due to the proposed Project.	suitable giant garter snake habitat prior to construction. In regard to the assertion that the furthest distance should be used, as described in Appendix 13B, Species Accounts, 200 feet is a reasonable distance and is consistent with the guidance and discussions with CDFW and USFWS through other regulatory processes. CEQA requires that the analysis be based on a reasonable scenario, rather than a worst-case scenario.
559-18	Available habitat and connectivity is important for the furthest dispersers of sensitive species so that individuals are able to move between habitat patches and provide adequate gene flow as well as recolonize areas where local extinctions have occurred, as often happens in metapopulation dynamics, or to increase resilience to climate change (Cushman, 2006; Semlitsch et al., 2014). There is ample available science that demonstrates that removal and fragmentation of habitat that is occupied or potentially occupied by sensitive species can result in significant harm to the species and even the potential extirpation of a population, particularly if metapopulation dynamics are at play (Brehme et al., 2013, 2018; Ceia-Hasse et al., 2018; Cooke et al., 2020; Dornas et al., 2019; Gray, 2017; Haddad et al., 2015; Marsh & Jaeger, 2015; Mitsch & Wilson, 1996; Shilling, 2020; Soule et al., 1992; Suraci et al., 2019; Trombulak & Frissell, 2000; van der Ree et al., 2011). The DEIR should take this into account for the GIGA [giant garter snake] and other special-status species when assessing and mitigating	The EIR does provide an impact analysis of available habitat and connectivity. Please see the discussion of Impact BIO-53 in Chapter 13, Terrestrial Biological Resources, for the analysis of potentially significant impacts on terrestrial wildlife connectivity and movement, including for giant garter snake. Appendix 13E, Terrestrial Wildlife Connectivity, provides a detailed discussion of project-related impacts on existing terrestrial wildlife connectivity resources, including landscape/habitat blocks, corridors, linkages, riparian corridors, and wildlife movement barriers. Please also see Common Response 11, Terrestrial Biological Resources and Compensatory Mitigation Plan, for a discussion of the adequacy of the habitat connectivity analysis, including the scientifically accepted methods for determining baseline conditions and the environmental commitments and mitigation measures to avoid, minimize, and compensate for project-related impacts on wildlife and habitat connectivity, including measures to facilitate movement and connectivity for giant garter snake. The threshold of significance for terrestrial wildlife habitat connectivity is, "interfere substantially with the movement of any native resident or

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	the Project's impacts.	migratory fish or wildlife species or with established native resident or migratory wildlife corridors or impede the use of Native wildlife nursery sites." As shown in this chapter, the analysis concludes that significant impacts would be mitigated to a less-than-significant level.
559-19	In addition, the CNDDB occurrences as well as other available occurrence data (i.e., iNaturalist, Global Biodiversity Information Facility, herpmapper, etc.) should be included in the assessment and shown in Figure 13B.55-1 so that the public can determine how the model is performing. Some iNaturalist occurrences appear to fall outside of the modeled habitat, which suggests the model is not accurate. [Footnote 8: Giant garter snake occurrences on iNaturalist. Available at: https://www.inaturalist.org/observations?place_id=any&subview=map&taxon_id=28394 (Accessed December 12, 2022).] The species habitat models must be shown to accurately predict where the species occurs or has the potential to occur so that the public and decisionmakers can have confidence that the DEIR is using the best available science and accurately portraying the Project area's baseline conditions. Without using appropriate baseline conditions data and information, the DEIR does not adequately assess and mitigate the Project's impacts. As written, the DEIR fails to meet this criterion and therefore does not comply with CEQA. By omitting consideration of the GIGA [giant garter snake] recovery units, the DEIR also fails to analyze the Project's potential to impair GIGA recovery, which would represent a significant adverse impact to the species.	Please see response to comment 559-8 regarding the habitat suitability model approach used in the EIR, including use of landcover data, occurrence data, and surveys in all suitable giant garter snake habitat prior to construction. Please see response to comment 559-16 for a discussion of giant garter snake recovery units described in Appendix 13B, Species Accounts, and their use in the Chapter 13, Terrestrial Biological Resources, giant garter snake analysis.
559-20	v. Western pond turtle Similar to the issues with the GIGA [giant garter snake], the DEIR uses insufficient parameters in their upland habitat model for the western pond turtle (WPT). Despite stating that the nests can be found as far as 1,640 feet from the edge of	The western pond turtle habitat model used in the EIR is sufficient and does not underestimate impacts on western pond turtle. Please see response to comment 559-8 regarding the habitat suitability model approach used in the EIR, including use of land cover data, occurrence data, and surveys in all suitable western pond turtle habitat prior to

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	aquatic habitat (DEIR at 13B-311), the modeled upland habitat only includes "suitable habitats within 650 feet of modeled aquatic habitat" (DEIR at 13B-345). The DEIR states that "This distance was chosen as an intermediate distance between the 300-foot distance where turtles typically are found nesting and the greatest distance observed of 1,640 feet the model is intended to capture where the majority of actively used upland habitat occurs," (DEIR at 13B-312); however, this reasoning is not founded in the best available science. When determining potentially suitable habitat, the furthest dispersers should be considered in the model, and WPT individuals have been documented to move up to 2,018 feet from aquatic habitat (Sloan, 2012). Thus, the habitat modeling criteria for potential WPT habitat should include upland habitat within at least 2,018 feet of aquatic features. Accommodating the more long-range dispersers is vital for continued survival of species populations and/or recolonization following a local extinction (Cushman, 2006; Semlitsch Bodie, 2003). By incorporating upland habitat within only 650 feet of modeled aquatic features, the DEIR is severely underestimating the amount of suitable WPT habitat, and therefore is severely underestimating impacts to WPT and its habitat due to the proposed Project.	construction. As noted in the comment, 650 feet was selected because this distance is an intermediate distance between where turtles are typically found and the greatest distance observed. This distance is a reasonable scenario for identifying the majority of actively used upland habitat. CEQA requires that the analysis be based on a reasonable assessment of foreseeable impacts, rather than a worst-case scenario.
559-21	vi. Special-status birds The DEIR fails to adequately disclose, assess, and mitigate impacts to resident and migratory birds. In fact, the DEIR fails to mention that the proposed Project is located within a California Audubon-designated Important Bird Areas ("IBAs") for resident and migratory birds within the Pacific Flyway, a north-south migratory corridor that extends from Alaska to Patagonia. [Footnote 9: Audubon Important Bird Areas of California. Available at: https://www.audubon.org/important-	Permanent and temporary impacts on the natural communities and species habitat within the study area, including those within the Pacific Flyway and Important Bird Areas, are quantified and analyzed in Chapter 13, Terrestrial Biological Resources. The analysis in Chapter 13 evaluates impacts from project alternatives on habitat for special-status and non-special-status migratory and resident birds and also addresses potential indirect effects such as noise and visual disturbance that may extend outside of project footprints. Please see, for example, the discussion of impacts on greater and lesser sandhill cranes in Impact BIO-33, western yellow-billed cuckoo in Impact BIO-31, and other special-status resident and migratory birds in

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	birdareas/ state/california. (Accessed December 12, 2022).] The IBAs include the Sacramento-San Joaquin Delta, the Stone Lake Area, and the Consumnes River Watershed. IBAs are critical for regional, state, and global connectivity particularly for migratory birds that require habitat along their migratory path to find food, shelter, and nesting habitat. Wetland vegetation and the riparian areas in and immediately adjacent to the Project area likely provide critical nesting and resting habitat for both resident and migratory birds, including but not limited to the greater sandhill crane and western yellow-billed cuckoo.	Impact BIO-41. Please note that the greater sandhill crane does not nest in the study area as it is outside of the breeding range of the subspecies. Although western yellow-billed cuckoo historically occupied the study area, there is limited suitable nesting habitat and therefore a low potential for the species to occur. Mitigation for natural community and species habitat impacts, including performance standards, monitoring, and adaptive management are described in Appendix 3F, Compensatory Mitigation Plan. Please see the Wildlife and Habitat Connectivity section for an overview of general habitat and context with respect to wildlife connectivity with the study area and at a larger landscape scale (defined as 25-mile area surrounding the study area) and Appendix 13E for a detailed discussion of project-related impacts on existing terrestrial wildlife connectivity resources, including landscape/habitat blocks, corridors, linkages, riparian corridors, and wildlife movement barriers documented in the study area. The scale of this analysis is adequate for the purposes of CEQA.
559-22	As discussed in more detail below, edge effects like noise and light from Project construction and operation will have impacts on wildlife and wildlife movement. Negative edge effects from human activity, traffic, lighting, noise, domestic pets, pollutants, and invasive weeds have been found to be biologically significant up to 300 meters (~1000 feet) away from anthropogenic features in terrestrial systems (Environmental Law Institute, 2003). This is important to consider when open space is immediately adjacent to the Project area, as birds and other wildlife have been found to be sensitive to edge effects. For example, field observations and controlled laboratory experiments have shown that traffic noise can significantly degrade habitat value for migrating songbirds (Ware et al., 2015). Subjects exposed to 55 and 61 Dba (simulated traffic noise) exhibited decreased feeding behavior and duration, as well as increased vigilance behavior (Ware et al. 2015). Such behavioral shifts increase the risk of	Regarding the analysis of potential impacts, including edge effects, on terrestrial species beyond the physical footprint of the project alternatives, please refer to Chapter 13, Terrestrial Biological Resources, in the Evaluation of Construction Activities section, which describes not only the quantitative analysis of direct permanent and temporary impacts on land cover and species habitat but also the qualitative analysis of potential effects, including habitat fragmentation, connectivity, patch size degradation of habitat functions, and noise and visual disturbances from construction. The impact analysis considers the environmental commitments described in Appendix 3B, Environmental Commitments and Best Management Practices, and identifies where mitigation measures and compensatory mitigation are required to reduce impacts to a less-than-significant level. Please see for example, the discussion of construction-related noise and visual disturbances and potential construction-related spills on western yellow-billed cuckoo in Impact BIO-31 and on sandhill cranes in

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	starvation, thus decreasing survival rates. Another study found a 28% decrease in bird abundance in areas when traffic noise was present compared to when there was no traffic noise (McClure et al., 2013). The DEIR fails to adequately analyze these impacts and provide appropriate mitigation.	Impact BIO-33. See also the following mitigation measures and environmental commitment related to noise and visual impacts on wildlife: Mitigation Measures NOI-1, BIO-2b, AES-4b, AES-4c, BIO-31, and BIO-33 and Environmental Commitment-14. Effective buffer distances vary depending on site-specific conditions (e.g., line of site, field of view, natural features that provide sound barriers, existing disturbances). Therefore, rather than applying a general approach to analyze and minimize indirect effects, including edge effects and noise and visual disturbance, the analysis conducted in Chapter 13 considers on-the-ground conditions. For example, Mitigation Measure BIO-31 requires noise monitoring to determine on-the-ground sound thresholds such that construction-related sound would not exceed 60 dBA within 500 feet of occupied western yellow-billed cuckoo habitat. This approach is consistent with the Environmental Law Institute (2003:16) report cited in the comment. The report found that "The intensity of edge effects is influenced by many physical factors, such as the shape and size of the patch, the direction of the edged faces (i.e., aspect), and the structural contrast of its boundaries (Soulé 1991)." In addition, the report indicated that approximately 75% of the surveyed studies estimated edge effects to be approximately 230 meters (755 feet) or less. Furthermore, the study areas for terrestrial biological resources were defined broadly to capture all project effects, including those related to noise, traffic, pollutants/spills, habitat fragmentation, and light. As described in Chapter 13, in the Environmental Setting section, a regional study area was also used for wildlife connectivity and was 25 miles beyond the study area used for other terrestrial biological resources. This study area accounts for landscape-scale project effects on connectivity resources. In addition, Mitigation Measure BIO-53 has been edited to include the

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		required credentials for an agency-approved connectivity and crossing biologist who will oversee and collaborate in the design of the project, including project elements located in or near connectivity resources and wildlife crossings and project components that have potential to affect connectivity. Wildlife connectivity design components will include avoidance and minimization of disturbance that cause edge effects. As part of the design process, the agency-approved biologist will ensure these factors are considered and included in the project design. This accounts for local-scale edge effects and disturbance effects. Therefore, any edge effects are within the study areas and are fully analyzed. None of the revisions described in the EIR resulted in a new significant environmental impact or substantial increase in the severity of an environmental impact or required additional mitigation measures to which DWR was unwilling to commit.
559-23	II. The DEIR fails to adequately mitigate impacts to special-status species and sensitive habitats. A. Inadequate description of baseline conditions makes adequate mitigation impossible[.] Any mitigation for sensitive species or habitats based on impacted acreage calculated from the habitat models is inaccurate and insufficient. The DEIR purports that the habitat models likely overestimate where a species is likely to occur; however, this is pure speculation and not substantiated by any evidence. Our [Center for Biological Diversity] above comments demonstrate how the habitat models likely grossly underestimate the amount of suitable habitat present in and near the Project area. In addition, the DEIR does not	The EIR provides an adequate description of baseline conditions in Chapter 13, Terrestrial Biological Resources and in Appendix 13B, Species accounts. Please see Appendix 13B, Species Accounts, and Chapter 13, Terrestrial Biological Resources, for the substantiated rationale for the adequacy of habitat models used to calculate impacts. Please also see Common Response 11, Terrestrial Biological Resources and Compensatory Mitigation Plan, for a discussion of the methods and approach used for the evaluation of impacts, including the use of habitat modeling and the adequacy of mitigation. The habitat models used to estimate the environmental setting for special-status species habitat was determined to adequately present the baseline conditions for the species impact analysis. The models likely over-estimated the extent of habitat based on the conservative assumptions within the habitat model and based on subject matter expert's experience

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	adequately demonstrate how the impacted acres of habitat were calculated. Although the DEIR mentions categories of permanent, long-term temporary, and temporary habitat loss and impacts (DEIR at 13-54), it does not clearly specify how impacts will be categorized and neglects to consider impacts beyond the physical aboveground footprint of the Project. For example, the DEIR states, "Permanent impacts would occur primarily at construction sites. Construction of aboveground project facilities would permanently remove or alter habitats and could result in the loss of individual special-status plants or animals" (DEIR at 13-54). This neglects permanent impacts to the hydrology of the region due to the withdrawal of 6,000 cfs of water from the Sacramento River and the 45 miles of tunneling that will likely disrupt groundwater tables and surface water features, including vernal pools, perennial wetlands, and streams. This is a catastrophic oversight; altering the hydrology of the region could permanently alter the habitats that currently exist there, which would be devastating for the many species that rely on these habitats for all or portions of their life cycles. The DEIR fails to adequately assess and mitigate the Project's impacts to the region's hydrology and the terrestrial biological resources that depend on that hydrology.	of the actual conditions in and around the Delta. The EIR adequately demonstrates how impact categories were determined. Chapter 13, in the Methods for Analysis section, defines permanent, long-term temporary, and temporary impact categories and the rationale for the assignment of impacts within these categories. Appendix 13C, Impact Tables, separates construction components into these three impact categories and quantifies the impact acres under each construction component. The comment mischaracterizes when and how the project would operate and how this operation relates to the hydrology in the area. The proposed project would primarily operate during high-flow events and would withdraw *up to* 6,000 cfs, depending on a myriad of hydraulic and aquatic conditions. Please see response to comment 559-6 regarding project operations. The EIR adequately assesses and mitigates the project's potential significant impacts on the region's hydrology. Chapter 5, Surface Water, indicates project operations would not substantially alter river flows on the Sacramento and San Joaquin Rivers. Please see the modeling results from Chapter 5 in Appendix 5A, Modeling Technical Appendix, Section B, Hydrology and Systems Operations Modeling, Attachment 3, CalSim 3 Modeling Results for Existing Condition and Alternatives at 2020, which indicate that flows upstream of the Delta in the Sacramento, Feather, and American Rivers under all project alternatives are not expected to change substantially beyond the existing variation in flows and that modeled changes at low flow periods during the summer of drier years are negligible and would be short in duration. Thus, the project is not anticipated to alter habitat for terrestrial biological resources, including plants and wildlife, relative to existing conditions. Please also see Common Response 9, Hydrologic Modeling and Approach, regarding the modeling used in analysis.

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		Regarding the disruption of groundwater tables, please see Chapter 8, Groundwater. Impact GW-1 analyzes changes in stream gains or losses of various interconnected stream reaches, and Impact GW-2 analyzes changes in groundwater elevation. Both impact discussions found that project impacts would be minimal and Mitigation Measure GW-1 would reduce impacts to a less-than-significant level.
559-24	B. MM Bio-1 is insufficient and amounts to improperly deferred mitigation The DEIR relies heavily on MM Bio-1 Compensatory Mitigation Plan (CMP) "to address impacts on sensitive natural communities, habitat for special-status species, and wetlands and other waters ("aquatic resources") from the construction and operation of the project," (DEIR at 13-76). However, as currently written, this mitigation measure lacks sufficient detail for the public and decisionmakers to be able to decipher any meaningful information or determine if the DEIR adequately mitigates the Project's impacts to special-status species or sensitive habitats. According to the DEIR, more than 2,500 acres will be affected by the Project, which does not take into account any geotechnical investigation zones and fault study areas (DEIR at 3-20). Nor does the DEIR adequately account for the hydrologic impacts or edge effects of the Project. Impacts to species and habitats likely encompass much more than 2,500 acres.	Please see Common Response 1, CEQA Process, General Approach to Analysis, and Other Environmental Review Issues, regarding the scope of impact analysis sufficient to disclose potentially significant environmental impacts and the effectiveness of mitigation measures under CEQA. Please also see Common Response 11, Terrestrial Biological Resources and Compensatory Mitigation Plan, regarding the level of specificity and efficacy of the CMP, performance standards, and long-term assurances. Please see response to comment 559-41 regarding the adequacy of analyses related to sensitive habitat, riparian corridors, and groundwater-dependent species. Please see response to comment 559-22 regarding the study area and the full analysis of edge effects. The assertion that impacts from geotechnical investigations and fault study areas are not taken into account is not supported by the analyses contained in the EIR. The comment about "more than 2,500 acres" refers to the project footprint estimated for each alternative in the table titled Temporary Construction and Permanent Acreage Impact. The impacts associated with geotechnical investigations are analyzed for each impact throughout Chapter 10, Geology and Seismicity, and Chapter 13, Terrestrial Biological Resources, as well as other resource chapters. The assertion that hydrologic impacts beyond the project footprint are not addressed is refuted by impact analyses of operations contained in Chapter 5, Surface Water, Chapter 12, Fish and Aquatic Resources, and Chapter 13, Terrestrial Biological Resources.

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		Regarding edge effects, please see Chapter 13 in the section titled Methods Used to Assess Impacts on Special-Status Species, which included consideration of habitat fragmentation, connectivity, and patch size.
559-25	B. MM Bio-1 is insufficient and amounts to improperly deferred mitigation With Bio-1 CMP, the DEIR improperly defers mitigation for impacts to special-status species, sensitive habitats, and wildlife connectivity. It states that "The final compensatory habitat mitigation needs for the project will be determined once all regulatory permits and approvals are secured" under MM Bio-1(DEIR at 13-76). No amount of acreage or mitigation ratios are provided for any of the special-status species or sensitive habitats that will be impacted, and there are no protocols or details provided regarding how the amount of compensatory mitigation would be determined or what targeted habitat and species surveys would be conducted to ground-truth the species habitat models that would ultimately determine the amount of mitigation required. In addition, the amount of habitat and locations of potential mitigation banks or areas that might be involved in the Tidal Habitat Mitigation Framework are not provided, which makes it impossible to determine whether the proposed mitigation for the Project's impacts to biological resources are adequate.	The EIR does not defer mitigation for project impacts. Please see Common Response 1, CEQA Process, General Approach to Analysis, and Other Environmental Review Issues, regarding the scope of impact analysis sufficient to disclose potentially significant environmental impacts and the use, incorporation, and effectiveness of mitigation measures under CEQA. Please also see Common Response 11, Terrestrial Biological Resources and Compensatory Mitigation Plan, regarding why mitigation is not deferred, level of specificity and efficacy of the CMP, general location of tidal habitat compensatory mitigation, mitigation ratios, analysis methods to determine mitigation needs, performance standards, and habitat connectivity. To clarify the mitigation approach, mitigation ratios have been added to the CMP in the Appendix 3F table titled Compensatory Mitigation Approaches. The mitigation ratios have been developed in coordination with CDFW, USFWS, and other agencies through other regulatory processes and are sufficient to meet the needs of CEQA. None of the revisions described in the EIR resulted in a new significant environmental impact or substantial increase in the severity of an environmental impact or required additional mitigation measures to which DWR was unwilling to commit. Please see response to comment 559-7 regarding when species surveys (i.e., ground truthing) will be conducted and why the timing of these surveys is appropriate.
559-26	B. MM Bio-1 is insufficient and amounts to improperly deferred mitigation Alarmingly, the DEIR states that "It is anticipated that preconstruction field surveys will verify habitat suitability for special-status species" (DEIR at 3F-10). Targeted habitat and species surveys should be required and conducted by USFWS- and CDFW-approved biologists following USFWS and CDFW guidelines and protocols well before construction is set to	The analysis contained in the EIR adequately addresses the timing of and requirements for preconstruction surveys, as described in the mitigation measures in Chapter 13, Terrestrial Biological Resources, and does not amount to deferred mitigation. Common Response 11, Terrestrial Biological Resources and Compensatory Mitigation Plan, describes the use of targeted preconstruction surveys to ground truth habitat models and the commitment to and timing of compensatory mitigation. In addition, DWR is required to prepare a mitigation monitoring and reporting program

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	begin or even planned out. Such surveys would inform when and where construction activities would take place, the extent of the Project's impacts, and the appropriate mitigation. Postponing any commitments to mitigate the Project's impacts until preconstruction surveys are conducted and relying on "conservatively modeled habitat" and "field surveys likely [] reduc[ing] acreages of impacts" (DEIR at 3F-10) is grossly insufficient.	that identifies the timing of the mitigation measures. Common Response 11 also describes the accuracy of the habitat models and why, in general, the models overestimate, rather than underestimate, suitable habitat. It also describes the few instances where suitable habitat for a particular species could be underestimated and possible additional review under CEQA. See Mitigation Measure BIO-2a for the requirements of qualified biologists and the use of CDFW and USFWS protocols.
559-27	B. MM Bio-1 is insufficient and amounts to improperly deferred mitigation The DEIR provides insufficient detail for the public and decision makers to ascertain whether the CMP and other proposed mitigation would adequately mitigate the Project's impacts before the Project is approved. (See San Joaquin Raptor Rescue Center v. County of Merced (2007) 149 Cal.App.4th 645, 670 [EIR inadequate where the success or failure of mitigation efforts "may largely depend upon management plans that have not yet been formulated, and have not been subject to analysis and review within the EIR"]). In the limited circumstances in which deferred mitigation is appropriate, the agency must meet all of the following elements: (1) practical considerations prevented the formulation of mitigation measures during the planning process; (2) the agency committed itself to developing mitigation measures in the future; (3) the agency adopted specific performance criteria prior to project approval; and (4) the EIR lists the mitigation measures to be considered, analyzed, and possibly incorporated into the mitigation plan. (See POET, LLC v. State Air Resources Bd. (2013) 218 Cal.App.4th 681, 736-37 [review denied].) The DEIR's proposed mitigation fails to meet these criteria.	Please see response to comment 559-24 regarding the level of detail and effectiveness of compensatory mitigation under CEQA.

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559-28	D. MM Bio-1 CMP is vague, unclear, and insufficient Although MM Bio-1 CMP identifies potential locations within Bouldin Island for created or enhanced habitat for compensatory mitigation, the Project Proponent does not have approval to use the areas identified for compensatory mitigation. According to the DEIR, Bouldin Island is owned by Metropolitan and any proposed habitat enhancement and creation activities could begin soon after Project approval "assuming Metropolitan supports the project" (DEIR at 3F-21). Improperly makes Project mitigation subject to Metropolitan's discretion, contrary to CEQA's requirement that mitigation measures must be binding and enforceable.	Regarding the assertion that compensatory mitigation on Bouldin Island is not binding or enforceable, DWR coordinated with the landowner, Metropolitan Water District of Southern California (MWD), in selecting the Bouldin Island mitigation sites and developing the habitat restoration concepts. As explained in the Parties Responsible for Implementation section of Appendix 3F, Compensatory Mitigation Plan for Special-Status Species and Aquatic Resources, as a project partner and landowner for the sites, MWD would be involved in implementing the CMP. For purposes of CEQA, a mitigation measure is feasible if it is capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, social, and technological factors. Based on DWR's discussions with MWD regarding the Bouldin Island mitigation sites, DWR has determined that it will be feasible to reach agreement with MWD regarding implementation of the Bouldin Island mitigation sites should DWR approve the proposed project or a project alternative. Furthermore, the need for coordination with another public agency does not render a mitigation measure infeasible. CEQA allows an agency to approve or carry out a project with potential adverse impacts if binding mitigation measures have been required in, or incorporated into the project, or if those changes or alterations are within the responsibility and jurisdiction of another public agency and have been, or can and should be, adopted by that other agency. In consideration of DWR's discussions with MWD regarding the Bouldin Island mitigation sites, DWR concludes that MWD can and should reach agreement with DWR to implement the Bouldin Island CMP mitigation. Common Response 11, Terrestrial Biological Resources and Compensatory Mitigation Plan, responds to the commenter's concern that compensatory mitigation sites on Bouldin Island are not binding and enforceable. Common Response 11 also notes that no land encumbrances exist and that DWR has been coordinating with the Metropolitan Water District for use of Bouldin Island for compensatory mitigation.

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559-29	D. MM Bio-1 CMP is vague, unclear, and insufficient. Even if the Bouldin Island locations are feasible for mitigation sites, there is no substantive evidence provided that demonstrates that these created habitats would be ecologically functional and able to support viable populations of the species that will be impacted by the Project. The sites are small, isolated patches of degraded agricultural lands to be converted into "extensive wetland habitat" (DEIR at 3F-21) while being surrounded by degraded agricultural lands. Although the DEIR aims to create a habitat complex "designed to provide habitat diversity and complexity to support multiple targeted species" (DEIR at 3F-26), it is unclear which species, if any of the species occur in the area, and if not, how DWR intends to have species establish and thrive in the created habitats. Although some special-status bird species will be able to access created habitat relatively easily, other less-mobile species, like GIGA, CRLF, CTS, WESP, WPT, and others will not be able to access these habitats as easily, and it is unclear if the small habitat islands that make up the compensatory mitigation would be able to support viable populations of these species. In addition, the amount of acreage dedicated to habitat creation is likely insufficient. The DEIR purports there would be ~956 acres of created/enhanced habitat for three sites in Bouldin Island, ~173 acres for I-5 Pond 6, and ~159 acres for I-5 Ponds 7 and 8 (DEIR at 3F-29, 3F-51, 3F-52). That is a total of approximately 1,288 acres of created/enhanced habitat spread out in isolated pockets of habitat surrounded by agriculture. This is barely a 0.5:1 mitigation ratio of created/enhanced habitat to impacted habitat with more than 2,500 acres of	Common Response 11, Terrestrial Biological Resources and Compensatory Mitigation Plan, describes mitigation ratios and the efficacy of compensatory mitigation. Regarding the comment about the suitability and accessibility of Bouldin Island initial mitigation sites, these sites would be accessible and suitable for wildlife such as Swainson's hawk, tricolored blackbird, and greater sandhill crane, which are known to be associated with agricultural lands such as those found on Bouldin Island. Species-specific habitat requirements to guide habitat creation are provided in Attachment 3F.1, Compensatory Mitigation Design Parameters. Initial mitigation sites have been sited and designed to provide suitable habitat that will contribute to viability of species populations across their range. The Bouldin Island sites are not intended to mitigate impacts for all wildlife. As described in Appendix 3F, Compensatory Mitigation Plan for Special-Status Species and Aquatic Resources, in the section titled Mitigation Approach, DWR recognizes that multiple approaches will be required to provide compensatory mitigation for the variety of aquatic resources and special-status species beyond those supported at the initial mitigation sites, including mitigation bank credits for certain species (including less-mobile special-status species such as California red-legged frog, California tiger salamander, and western spadefoot toad) and certain wetlands (see the Mitigation Credits and Site Protection Instruments section) and tidal habitat mitigation (see the Programmatic Approach section). Giant garter snake mitigation is targeted for the I-5 pond, and Common Response 11, Terrestrial Biological Resources and Compensatory Mitigation Plan, describes the accessibility of I-5 pond sites for giant garter snake colonization. These approaches are being developed in coordination with agencies, including CDFW and USFWS. To clarify further which aquatic resources and species habitats are provided by which mitigation site and strategy, two tables in the CMP have been updated: the table titled

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	habitat within the Project footprint and additional impacts from impacts to hydrology and edge effects. This is grossly insufficient to mitigate the Project's impacts, especially if the created habitat ends up being the only form of compensatory mitigation provided.	Compensatory Mitigation Approaches and the table titled Summary of Special-Status Species Habitat That Will Be Created or Enhanced with Full Implementation of the Initial Mitigation Sites (acres). Please see response to comment 559-25 in regard to the sufficiency of mitigation ratios. The impact acreages provided by the commenter are not consistent with the habitat impact analysis provided in Chapter 13, Terrestrial Biological Resources. Please see response 559-24 regarding the project footprint acreages and impacts related to hydrology and edge effects.
559-30	D. MM Bio-1 CMP is vague, unclear, and insufficient. Although the CMP mentions that compensatory mitigation could include the use of existing or proposed mitigation banks and the proposal of a mitigation framework under which future tidal wetland restoration and channel margin enhancement would be done, these approaches are vaguely described and it is unclear whether these approaches will be implemented. These approaches almost appear as an afterthought, with the assumption that the created habitat will be sufficient mitigation. The DEIR states that "Preconstruction surveys have the potential to reduce mitigation needs" and "On-the-ground land cover surveys and presence/absence surveys will inform more precise impact calculations and likely reduce the final mitigation burden" (DEIR at 3F-54) without providing substantive evidence to support such claims. In fact, based on our [Center for Biological Diversity] comments in the previous section and the inadequacies of the species habitat models, it is more likely that habitat area is underestimated and that the Project will require more mitigation. The assumption that the created habitat will be sufficient to mitigate the Project's	The analysis contained in the EIR adequately assesses and mitigates the project's impacts on special-status species. Please see response to comment 559-7 in regard to the adequacy of species models and the appropriate use and timing of preconstruction surveys. Please see response to comment 559-29, which refutes the assertion that the Draft EIR relies solely on created habitat (i.e., initial mitigation sites) to provide compensatory mitigation. Please see response to comment 559-24 regarding the effectiveness of mitigation measures under CEQA and the level of specificity and efficacy of the CMP.

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	impacts to biological resources is evident, and deeply concerning.	
559-31	D. MM Bio-1 CMP is vague, unclear, and insufficient. Given the importance of wetlands and associated upland (heterogeneous) habitat to special-status species like CRLF, CTS, WESP, GIGA, WPT, and others, connectivity, and overall biodiversity, the DEIR should provide higher mitigation ratios to mitigate permanent and temporary impacts to historical, occupied, and potentially suitable habitat. In addition, mitigation ratios need to take the types of compensatory mitigation to be implemented into consideration, as not all mitigation is created equal. Preservation of existing habitat where sensitive and/or special status species are known to occur through avoidance should be the primary focus, as restoration, enhancement, and creation of habitats can have limited success due to the challenges of establishing the appropriate hydrology (Matthews & Endress, 2008; Stein et al., 2018; Sudol & Ambrose, 2002; Windmiller & Calhoun, 2007). Restoring or creating complex ecosystems like wetlands often results in reduced ecological function. In studies conducted in California on wetland mitigation sites permitted between 1979 and 2002, less than 20% of mitigated wetlands were performing optimally (Ambrose et al., 2006; Sudol & Ambrose, 2002). Multiple scientific studies specifically address the need for higher mitigation ratios (along with long-term monitoring, identified and measurable success criteria, and adaptive management strategies) to improve chances of adequately mitigating impacts to habitats and species (Matthews & Endress, 2008; Mitsch & Wilson, 1996; Moilanen et al., 2009;	The analysis contained in the EIR adequately assesses and mitigates the project's impacts on special-status species. Please see the response to comment 559-25 regarding the assertion that mitigation ratios used in the Draft EIR are insufficient to provide compensatory mitigation. Please also see the discussion of the Compensatory Mitigation Plan and wetlands in Common Response 11, Terrestrial Biological Resources and Compensatory Mitigation Plan, regarding wetlands. In addition, avoidance and minimization measures for special-status plant and wildlife habitats, sensitive natural communities, and wetlands are included in the mitigation measures throughout Chapter 13, Terrestrial Biological Resources. See, for example, Mitigation Measures BIO-2a, 2b, and 2c; BIO-14; BIO-18; and BIO-30.

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	Stein et al., 2018; Sudol & Ambrose, 2002; Windmiller & Calhoun, 2007; Zedler & Callaway, 1999). The DEIR needs to take into account that, due to the proposed Project, habitat loss and species displacement are immediate, while any gains from their mitigation is uncertain. Moilanen et al. (2009) found that "very high offset ratios may be needed to guarantee a robustly fair exchange" and that "considerations of uncertainty, correlated success/failure, and time discounting should be included in the determination of the offset ratio to avoid a significant risk that the exchange is unfavorable for conservation in the long run." This is exemplified in a study that found successful western spadefoot breeding in only 33% (7 out of 21) of constructed vernal pools 10 years after they were constructed (Baumberger et al., 2020).	
559-32	D. MM Bio-1 CMP is vague, unclear, and insufficient The preservation of high-quality, connected species habitat in and near the Project area should be prioritized. The DEIR should provide compensatory mitigation to any type of special status species habitat, including but not limited to breeding, foraging, or dispersal habitat (permanent or temporary) at a minimum ratio of 3:1 for preservation and 5:1 for restoration, enhancement, or creation. Connectivity for gene flow and climate adaptability among and between suitable habitat must be prioritized. If higher mitigation ratios are not feasible, the DEIR must provide evidence and analysis supporting that conclusion.	Please see Response 559-25 in response to the comment regarding the sufficiency of mitigation ratios. Common Response 11, Terrestrial Biological Resources and Compensatory Mitigation Plan, in the discussion of wildlife connectivity and habitats, describes project elements that would not affect connectivity and environmental commitments and mitigation measures that would avoid, minimize, and compensate for project-related impacts on wildlife connectivity and habitats.
559-33	D. MM Bio-1 CMP is vague, unclear, and insufficient. If compensatory mitigation includes enhanced, restored, or created habitats, higher mitigation ratios coupled with extended years of effective monitoring and adaptive management strategies are needed to improve chances of	Common Response 11, Terrestrial Biological Resources and Compensatory Mitigation Plan, responds to the comment about efficacy, performance standards, monitoring, and long-term assurances. Common Response 11 also describes the consistency of the Compensatory Mitigation Plan with the guidance and discussions with CDFW and USFWS and guidance from the U.S. Army Corps of Engineers. In response to the comment questioning

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	establishing equivalent ecological function as the lost habitat (Ambrose et al., 2006; Bronner et al., 2013; Matthews & Endress, 2008; Moilanen et al., 2009; Stein et al., 2018; Sudol & Ambrose, 2002; Windmiller & Calhoun, 2007). Scientists recommend 15-20 years or more of monitoring and adaptive management to determine the success, or lack thereof, of enhanced, restored, or created habitat (Mitsch & Wilson, 1996; Zedler & Callaway, 1999). The DEIR proposes a "monitoring and adaptive management plan" to "guide post-construction monitoring and management during a 3- to 5-year establishment period" (DEIR at 3F-74), which would be followed by "long-term monitoring" that would entail sites being visited "every 5 years" (DEIR at 3F-75). This is insufficient and not based on the best available science. Created habitats require much longer and more intensive management. Monitoring them just once every five years (after the initial 3- to 5-year establishment period is completed) and only "identify[ing] remedial actions in the event that monitoring indicates performance standards may not be on track for success beyond the establishment period" without requiring actions to be implemented will doom these habitats.	DWR's commitment to long-term management, monitoring, and remedial actions, Appendix 3F, Compensatory Mitigation Plan for Special-Status Species and Aquatic Resources, in the Financial Assurances section, has been updated to further describe DWR's commitment to fund long-term management and maintenance in perpetuity. Please see Appendix 3F sections Maintenance and Management and Performance Standards and Monitoring regarding the approach and plans for monitoring that will trigger remedial actions.
559-34	D. MM Bio-1 CMP is vague, unclear, and insufficient All mitigation should be implemented in consultation with local and regional biologists, Indigenous groups, and government agencies, and protected in perpetuity. Compensatory mitigation on these lands should include funded long-term monitoring, specified measurable success criteria, and adaptive management strategies. While the DEIR states that "DWR commits to providing the funding for the initial establishment and long-term management of the mitigation sites," it goes on to state "This includes the initial 5-year establishment period for the mitigation sites and all activities associated with	Please see Appendix 3F, Compensatory Mitigation Plan for Special-Status Species and Aquatic Resources, in section titled Financial Assurances, and Common Response 11, Terrestrial Biological Resources and Compensatory Mitigation Plan, in sections describing performance standards and monitoring and long-term assurances, regarding DWR's commitment for funding monitoring and management of compensatory mitigation sites, as well as protection in perpetuity. Site-specific maintenance, monitoring, and adaptive management plans would be developed and submitted to the relevant wildlife agency for review and approval. Please also see response to comment 559-33 regarding financial assurances.

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	ongoing maintenance" (DEIR at 3F-71). Here it is unclear whether funding beyond the 5-year establishment period is guaranteed. The DEIR states that after the 5-year establishment period, "The source and extent of funding for postconstruction monitoring would dictate the scale and sampling frequency of monitoring" (DEIR at 3F-75). This suggests that there is no guaranteed funding for monitoring and management of compensatory mitigation beyond the initial five years and it is highly possible that the created habitats will not be monitored or managed in perpetuity. This approach is backwards. The needed funding should be dictated by the required mitigation that includes longer and more intensive monitoring and adaptive management to align with the best available science.	
559-35	III. The DEIR fails to adequately assess and mitigate impacts to wildlife connectivity and sensitive habitats. A. General wildlife connectivity. The DEIR fails to adequately describe baseline conditions and assess the Project's impacts to wildlife connectivity. There is ample available science that demonstrates that removal and fragmentation of habitat that is occupied or potentially occupied by sensitive species can result in significant harm to species and even the potential extirpation of populations, particularly if metapopulation dynamics are at play, which is the case for numerous species in and near the Project area, including but not limited to CRLF, CTS, WESP, GIGA, WPT, vernal pool fairy shrimp, conservancy fairy shrimp, and others (Brehme et al., 2013, 2018; Ceia-Hasse et al., 2018; Cooke et al., 2020; Dornas et al., 2019; Gray, 2017; Haddad et al., 2015; Marsh & Jaeger, 2015; Mitsch & Wilson, 1996; Shilling, 2020;	The EIR in Chapter 13, Terrestrial Biological Resources, and Appendix 13E, Terrestrial Wildlife Connectivity, presents information on habitat connectivity by compiling data from a rigorous list of sources and analyzing the impacts of the project. The analysis uses a Wildlife Crossing Guild approach to ensure an appropriate suite of species was considered. Please see Common Response 11, Terrestrial Biological Resources and Compensatory Mitigation Plan, for a discussion on wildlife and habitat connectivity, including details of the analysis, mitigation measures, and edits made to the Final EIR in response to comments received. None of the revisions described in the EIR resulted in a new significant environmental impact or substantial increase in the severity of an environmental impact or required additional mitigation measures to which DWR was unwilling to commit. Also, as described in Common Response 11, the project would not sever habitat because much of the impacts are underground or overhead.

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	Soule et al., 1992; Suraci et al., 2019; Trombulak & Frissell, 2000; van der Ree et al., 2011). As the Center's [for Biological Diversity] 2021 report highlights, the ability of wildlife to move between distinct habitat areas is critical to both individual and population survival (Yap, Rose, Anderson, et al., 2021). As landscapes become more fragmented by development, it is critical that proposed Projects are designed to minimize impacts on habitat connectivity. This is especially vital as climate change alters the range and amount of habitat available to different species.	
559-36	The Project occurs in and adjacent to areas that are identified as important for local, regional, and global wildlife connectivity. Although the DEIR acknowledges some identified important connectivity areas are in and around the Project area, the DEIR fails to disclose that the proposed Project is located within California Audubon-designated IBAs, which, as mentioned above, are important for resident and migratory birds within the Pacific Flyway. [Footnote 10: Audubon Important Bird Areas of California. Available at: https://www.audubon.org/important-birdareas/state/california. (Accessed December 12, 2022).] The IBAs include the Sacramento-San Joaquin Delta, the Stone Lake Area, and the Consumnes River Watershed. IBAs are critical for regional, state, and global connectivity particularly for migratory birds that require habitat along their migratory path to find food, shelter, and nesting habitat. In addition, CDFW ranks portions of Project area as having high climate resilience, for which connectivity is critical (CDFW 2018). This should be included in assessment and impact analysis.	The study area overlaps with the following Important Bird Areas: Lower Cosumnes River Watershed, Stone Lakes Area, Sacramento–San Joaquin Delta, and Byron Area (limited to the Clifton Court Forebay). Permanent and temporary impacts from project alternatives on the natural communities and species habitat within the study area, including within these Important Bird Areas, are quantified and analyzed in Chapter 13, Terrestrial Biological Resources. Mitigation for natural community and species habitat impacts, including performance standards and mitigation land protection assurances, are described in Appendix 3F, Compensatory Mitigation Plan for Special-Status Species and Aquatic Resources. In addition, Chapter 13, Impact BIO-53, provides an analysis of the impacts of the project on habitat connectivity, including mitigation measures to reduce impacts to a less-than-significant level. Please see Common Response 11, Terrestrial Biological Resources and Compensatory Mitigation Plan, for further discussion on wildlife and habitat connectivity, including details of the analysis, mitigation measures, and revisions made to the Final EIR. These analyses meet the needs of CEQA.

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559-37	It is important to examine the geographical context of the Project area. Not only does the Project sever multiple identified wildlife connectivity areas and natural landscape blocks (DEIR 13E-3 to 13E-15), but it is surrounded by open space and natural landscape blocks in all directions, where multiple branches of connecting habitats (e.g., the Consumnes, Mokelumne, Calav[e]ras, San Joaquin, Stanislaus, and Sacramento Rivers and other creeks and sloughs) converge. Even if "The majority of the study area intersects with hexagonal mapping units with 'limited connectivity opportunity,'" (DEIR at 13-39), what is more important is that "Portions of the study area intersect with hexagonal mapping units with a connectivity ranking of 4 or 5, signifying 'conservation planning linkages' and 'irreplaceable and essential corridors,'" (DEIR at 13-39), and those last-remaining, highly-important connectivity areas are bisected by the Project's footprint. Despite cutting through multiple connectivity areas and being adjacent to large landscape blocks and open space, the DEIR dismisses and downplays the Project area's importance for connectivity and the Project's impacts to connectivity. For example, the DEIR states that roads and highways, rail, aqueducts and canals, and developed lands "present substantial constraints and barriers to wildlife movement" (DEIR at 13-43). However, even if there are currently significant barriers to wildlife movement in the Project area, that simply underscores how important preserving existing connectivity and restoring formal connectivity is for the Project Area. The DEIR should not unduly minimize the value of compromised movement opportunities; indeed, the fact that	The assertion that the project would sever wildlife connectivity areas and natural landscape blocks, dismisses and downplays the importance of habitat connectivity, and does not adequately disclose or discuss habitat connectivity is not consistent with the contents of the EIR. In regard to the adequacy of the analysis, please see response to comment 559-35. In addition, the analysis does not downplay impacts but rather presents baseline conditions required for the CEQA analysis. Please see Common Response 11, Terrestrial Biological Resources and Compensatory Mitigation Plan, for a discussion of wildlife and habitat connectivity, including details of the approach to the analysis, mitigation measures to avoid creating barriers or to design and construct crossings, and revisions made to the EIR. Additional details have been added to Mitigation Measure BIO-53 in Chapter 13, Terrestrial Biological Resources, to address design specifications, monitoring, and adaptive management. None of the revisions described in the EIR resulted in a new significant environmental impact or substantial increase in the severity of an environmental impact or required additional mitigation measures to which DWR was unwilling to commit. Please see the Environmental Setting and Methods sections of Chapter 13 and Appendix 13E, Terrestrial Wildlife Connectivity, for discussions of how terrestrial wildlife connectivity resources, including the (CDFW Areas of Conservation Emphasis) hexagonal mapping units, were incorporated into the analysis. Also, as described in Common Response 11, the project would not sever habitat because much of the impacts are underground or overhead.

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	the use of a highly constrained opportunity for movement between natural areas might be made more difficult by a project should always be considered a potentially significant impact, requiring mitigation. The D[EI]R does not adequately disclose or discuss these impacts as required by CEQA. (See Citizens to Pres. The Ojai v. County of Ventura (1985) 176 Cal.App.3d 421, 430-432 [EIR may not understate information concerning severity of impacts and skew decision-makers perspective or ignore information in an applicable plan to downplay seriousness of impact]; Mountain Lion Coalition v. Fish & Game Com. (1989) 214 Cal.App.3d 1043, 1050-1051 [EIR may not avoid well-known important environmental considerations and sweep "serious criticisms [] under the rug"]; Madera Oversight Coalition, Inc. v. County of Madera (2011) 199 Cal.App.4th 48, 104 [overruled on other grounds] [EIR fails as an informational document by omitting or ignoring contrary information].	
559-38	The DEIR fails to assess the Project's edge effects and how the Project can impact wildlife connectivity beyond its physical footprint. Edge effects of development in and adjacent to critical linkage areas, like the proposed Project, will likely impact key, wide-ranging species (Crooks, 2002; Delaney et al., 2010; Lee et al., 2012; Riley et al., 2006; Smith et al., 2015, 2017; Vickers et al., 2015; Wang et al., 2017), as well as smaller species with poor dispersal abilities, such as song birds, small mammals, and herpetofauna (Benítez-López et al., 2010; Cushman, 2006; Delaney et al., 2010; Gray, 2017; Kociolek et al., 2011; Slabbekoorn & Ripmeester, 2008). Limiting movement and dispersal can affect species' ability to find food, shelter, mates, and refugia after disturbances like	Please see response to comment 559-22 regarding the study area and regional study area used in the analysis of effects on terrestrial biological resources and wildlife connectivity and the consideration of edge effects, such as human disturbance caused by noise, visual effects, and pollutants/spills, in the EIR.

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	fires or floods. Individuals can die off, populations can become isolated, sensitive species can become locally extinct, and important ecological processes like plant pollination and nutrient cycling can be lost. Negative edge effects from human activity, such as traffic, lighting, noise, domestic pets, pollutants, invasive weeds, and increased fire frequency, have been found to be biologically significant up to 300 meters (~1[,]000 feet) away from anthropogenic features in terrestrial systems (Environmental Law Institute, 2003). The Project will increase human presence (roads, traffic, lighting at night, noise, pesticides and rodenticides, etc.) in and near connectivity areas and open space, which will affect wildlife connectivity.	
559-39	Mitigation for impacts to habitat connectivity for sensitive species is insufficient. For example, new access roads, rail spurs, and improved/realigned highways will cross important connectivity areas, including several waterways (e.g., Brushy Creek, Italian Slough, unnamed channels), which could affect numerous special-status species. Although MM Bio-24b (Compensate for Impacts on CRLF Habitat Connectivity) states that "DWR will design and construct crossings (i.e., culverts or bridges) on Brushy Creek, Italian Slough, Mountain House Creek, and the unnamed channels crossing Byron Highway and Mountain House Road" (DEIR at 13-204), the DEIR does not provide details regarding the specifications of the crossings or how the locations of the crossings will be determined, and it does not provide monitoring and adaptive management of the crossings, which is needed to determine whether or not they are effective. In addition, the MM includes designing new and widened access road segments to "allow amphibian movement across	The EIR provides adequate mitigation for impacts on habitat connectivity for sensitive species. Please refer to Common Response 11, Terrestrial Biological Resources and Compensatory Mitigation Plan, for a discussion on wildlife and habitat connectivity, including details of the analysis, mitigation measures, adaptive management, and revisions made to the EIR in response to comments received. Additional details have been added to Mitigation Measure BIO-53 to address design specifications, monitoring, and adaptive management. These revisions include specifying qualifications of the agency-approved biologist, both for design and monitoring of the measures described in the mitigation measure, which include amphibian-friendly roads and curbs and new and modified roadways. None of the revisions described in the EIR resulted in a new significant environmental impact or substantial increase in the severity of an environmental impact or required additional mitigation measures to which DWR was unwilling to commit. Habitat connectivity within the study area and surrounding regions will be maintained through implementation of Mitigation Measure BIO-53 and the Compensatory Mitigation Plan (Appendix 3F, Compensatory Mitigation Plan for Special-Status Species and Aquatic Resources).

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	the road" (DEIR at 13-204), but this could lead to high levels of road mortalities for slow-moving species. Instead, in addition to constructing crossings (which should be bridges, not culverts, and should have protected open space on both sides) at waterways, DWR should identify movement hotspots on new and widened road segments where other wildlife vehicle collisions may occur and construct additional wildlife crossings with protected, suitable habitat on both sides. Such efforts should include consideration of multiple species that often overlap, like CRLF, CTS, WPT, etc. and follow recent guidelines for reducing road impacts on amphibians and reptiles, including but not limited to "Measures to Reduce Road Impacts on Amphibians and Reptiles in California" by Langton & Clevenger (2021), "Research to Inform Caltrans Best Management Practices for Reptile and Amphibian Road Crossings" by Brehme & Fisher (2020), and "Research to Inform Passage Spacing for Migratory Amphibians and to Evaluate Efficacy and Designs for Open Elevated Road Segment (ERS) Passages" by Brehme et al. (2022). All crossings should be monitored and adaptively managed.	
559-40	It is widely recognized that the continuing fragmentation of habitat by humans threatens biodiversity and diminishes our (humans, plants, and animals) ability to adapt to climate change. In a report for the International Union for Conservation of Nature (IUCN), world-renowned scientists from around the world stated that "[s]cience overwhelmingly shows that interconnected protected areas and other areas for biological diversity conservation are much more effective than disconnected areas in human-dominated systems, especially in the face of climate change" and "[i]t is imperative that the world moves toward a coherent global approach for ecological connectivity conservation, and begins to measure and monitor	Regarding the adequacy of the analysis, please see response to comment 559-35. Chapter 13, Terrestrial Biological Resources, provides an analysis of the impacts of the project on habitat connectivity, including mitigation measures to reduce impacts to a less-than-significant level. Please see Common Response 11, Terrestrial Biological Resources and Compensatory Mitigation Plan, for a further discussion on wildlife and habitat connectivity, including details of the analysis, mitigation measures, and revisions made to the Final EIR. The mitigation measures are not deferred but rather are appropriate to the early level of project design. The mitigation measures will be refined and designed under the direction of a qualified connectivity specialist during the design phase to ensure species movement needs are incorporated into crossing designs. Additional details

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	the effectiveness of efforts to protect connectivity and thereby achieve functional ecological networks" (Hilty et al., 2020). The DEIR erroneously concludes that Project impacts to wildlife movement would be less than significant after mitigation, relying on insufficient, vague, unclear, and improperly deferred mitigation measures. The DEIR fails to adequately assess and mitigate impacts to wildlife connectivity.	have been added to the Final EIR specifying the qualifications and role in project design of the qualified connectivity specialist. None of the revisions described in the EIR resulted in a new significant environmental impact or substantial increase in the severity of an environmental impact or required additional mitigation measures to which DWR was unwilling to commit. Please also see Common Response 1, CEQA Process, General Approach to Analysis, and Other Environmental Review Issues, for a discussion regarding why the project does not defer mitigation.
559-41	B. Sensitive Habitats: The DEIR fails to adequately assess and mitigate the Project's impacts to sensitive habitats like riparian and vernal pool ecosystems. The Project area is surrounded by numerous rivers, creeks, sloughs, and other various wetlands is in an area where many waterways converge. Natural riparian systems (perennial and ephemeral) and vernal pool complexes are critically important because they provide live-in habitat as well as local, regional, and global connectivity for the area's rich biodiversity. Connectivity amongst and between the heterogeneous habitats is critical for many species to complete their life cycles (i.e., many amphibians have a biphasic life history and require connectivity between aquatic and terrestrial habitat) and find food, shelter, and unrelated mates. Many species in the Project area are connected to and rely on the delta's hydrology, which will be significantly disrupted by the proposed Project. Not only will 6,000 cfs of water be removed, but 45 miles of underground tunnel will be constructed through this sensitive ecosystem. Impacts to groundwater tables and surface water will likely permanently alter habitats. The DEIR states that 15.41, 4.05, and 9.85 acres of	The EIR adequately assesses and mitigates the project's impacts on sensitive habitats, including riparian and vernal pool habitats. Please see Common Response 11, Terrestrial Biological Resources and Compensatory Mitigation Plan, regarding the methods and approach for the evaluation of impacts, the adequacy of mitigation measures, and the use of habitat models and acres, including for the assessment of impacts on riparian and vernal pool ecosystems. In regard to habitat connectivity, Chapter 13, Terrestrial Biological Resources, provides an analysis of the impacts of the project on habitat connectivity. Please see Impact BIO-53 for a discussion of impacts on habitat connectivity in riparian corridors and a description of mitigation measures to avoid and reduce impacts on connectivity. The impact analysis addresses mountain lion habitat connectivity in its discussion of the high-openness, high-mobility carnivores wildlife crossing guild. Please see Chapter 12, Fish and Aquatic Resources, Impact AQUA-1 regarding potential impacts on the habitat extent and habitat access for fish and aquatic species as a result of project construction and the environmental commitments to avoid and reduce these potential impacts. Please also see Impacts AQUA-2 through AQUA-4 for a discussion of potential impacts of project operations on Chinook salmon and riparian and wetland benches and the mitigation measures to avoid and reduce these potential impacts. Regarding potential impacts on groundwater-dependent ecosystems, such

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	valley/foothill riparian natural community will have permanent, long-term temporary, and temporary impacts, respectively. However, it is unclear where these impacted areas are located, and this analysis does not take the tunnels into consideration, stating summarily that they "do not have the potential to cause impacts on terrestrial biological resources" (DEIR at 13-50). This conclusion is an unacceptable oversight and is unsupported by any evidence in the DEIR. Many terrestrial species rely on the hydrology of these systems. Given that climate change is intensifying, with increasing and extended drought and heatwaves, any groundwater or surface water onsite is of great value, especially in an area that CDFW has identified as containing significant riparian and freshwater wetland habitats while being important for climate resilience (CDFW 2018). Connectivity among and between natural waterways and upland riparian habitat is essential for native fish species like the state endangered Sacramento River winter-run Chinook salmon to survive. The shade and the erosion control from riparian vegetation provide cool and clear streams that are ideal for spawning and rearing (Lohse et al., 2008; Moyle et al., 2011). Encroachment and over-aggressive removal and degradation of riparian and other upland areas have been identified as major drivers of declines in California's freshwater and anadromous fish (Grantham et al., 2012; Lohse et al., 2008; Moyle et al., 2011; Opperman et al., 2005; Pess et al., 2002). In addition, many other species, including mountain lions and bobcats, often use riparian areas as migration corridors or foraging habitat (Dickson et al, 2005; Hilty & Merenlender,	as valley/foothill riparian communities, and the important functions and values of those communities to the ecosystem, please see Chapter 8, Groundwater. Impact GW-1 analyzes changes in stream gains or losses of various interconnected stream reaches, and Impact GW-2 analyzes changes in groundwater elevation. Both impact discussions found that project impacts would be minimal and Mitigation Measure GW-1 would reduce impacts to less than significant. Regarding surface water, Appendix 5A, Modeling Technical Appendix, provides the DSM2 modeling results for water levels. Modeled drops in water levels can range between 0 and 0.6 feet during high flow events, below the proposed intakes, in winter and spring, but at times when there is major concern with flood water levels being too high. At low flow periods, the change in water levels is negligible and thus would not contribute to impacts on valley/foothill riparian natural communities. The determination that the project would not affect groundwater or surface water levels, and thus the dependent ecosystems, is well supported by the analyses in the EIR.

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	2004; Jennings & Lewison, 2013; Jennings & Zeller, 2017). And other sensitive species that are known or are likely to occur in the area, like the and CRLF (federally threatened), CTS (federally threatened), and WPT (species of special concern) inhabit and move through riparian areas. An estimated 90-95% of historic riparian habitat in the state has been lost (Bowler, 1989; Riparian Habitat Joint Venture, 2009). Using 2002 land cover data from CalFire, the Riparian Habitat Joint Venture estimated that riparian vegetation makes up less than 0.5% of California's total land area at about 360,000 acres (Riparian Habitat Joint Venture, 2004). This is alarming because riparian habitats perform a number of biological and physical functions that benefit wildlife, plants, and humans, and loss of what little is left will have severe, harmful impacts on special-status species, overall biodiversity, wildlife connectivity, and ecosystem function. California cannot afford to lose more riparian corridors. Riparian ecosystems have long been recognized as biodiversity hotspots performing important ecological functions in a transition zone between freshwater systems and upland habitats. Many species that rely on these aquatic habitats also rely on the adjacent upland habitats (e.g., riparian areas along streams, and grassland habitat adjacent to wetlands). In fact, 60% of amphibian species, 16% of reptiles, 34% of birds and 12% of mammals in the Pacific Coast ecoregion depend on riparian-stream systems for survival (Kelsey and West 1998).	
559-42	The DEIR fails to account for climate change when assessing the Project's impacts to riparian habitats. The DEIR fails to adequately assess the Project's impacts to	The analysis contained in the EIR accounts for climate change when assessing the project's impacts on riparian habitats. Please see Common Response 6, Climate Resilience and Adaptation, which discusses how DWR incorporated and exceeded the CEQA requirements for climate change

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	riparian corridors and the cascading effects of removed habitat and connectivity, reduced groundwater, and ongoing climate change on the special-status species and other animals and plants that rely on these habitats. Riparian habitats can provide some resilience to climate change. The canopy cover of riparian trees and the availability of groundwater have a cooling effect for both air and water temperatures, which creates a cooler microclimate for species to find refuge from a warming climate (Gray et al., 2020; Keeley et al., 2018; Knouft et al., 2021). Such connectivity also helps animals and plants adjust to shifts in resource availability and maintain a suitable climate space as climate change alters habitats and ecological processes and causes shifts in species' ranges (Cushman et al., 2013; Heller & Zavaleta, 2009; Román-Palacios & Wiens, 2020; Scheffers et al., 2016; Warren et al., 2011; Wiens, 2016). Removing already limited water due to drought and nearby agricultural wells could compromise the integrity and functionality of the riparian ecosystems in and near the Project area. With the driest 22-year period in 1,200 years in the western U.S. and drought conditions that will likely continue (Williams et al., 2022) climate change refugia and resilience provided by ecosystems like riparian areas will be ever more critical for species survival and ecosystem health. As discussed in a 2021 Center [for Biological Diversity] report (Yap et al., 2021): "Climate change is worsening ecosystem stress and species extinction risk (Trisos et al., 2020). Increasing variability and extremes in temperature, wind, and precipitation are all products of a warming climate, leaving species struggling to	analyses in the EIR, and Appendix 13F, Terrestrial Biological Resources 2040 Analysis, which presents an analysis of project alternatives in future years that reflect environmental conditions affected by climate change. Please also see response to comment 559-41, in regard to how impacts on riparian habitats were assessed and how potential impacts on riparian habitat were considered. In regard to habitat connectivity, Chapter 13, Terrestrial Biological Resources, provides an analysis of the impacts of the project on habitat connectivity. Please see Impact BIO-53 for a discussion of impacts on habitat connectivity in riparian corridors and a description of mitigation measures to avoid and reduce impacts on connectivity.

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	adapt. As a result, species' genes are changing, physiological and physical features such as body size are changing, ranges are shifting as species try to maintain a suitable climate space, and numerous species are expressing new breeding and migration behaviors (Scheffers et al., 2016)." For example, some plants are budding and flowering earlier, some marine and freshwater fishes are spawning either earlier or later, and some species with temperature-dependent sex determination are experiencing shifts in sex ratios. Climate-related local extinctions have already occurred in hundreds of plant and animal species (Wiens, 2016). And one study found that terrestrial bird and mammal populations that are experiencing greater climate warming are more likely to be experiencing greater population declines (Spooner et al., 2018). Reportedly, climate change is already impacting 82% of key ecological processes that form the foundation of healthy ecosystems (Scheffers et al., 2016). If climate change goes unabated, more than one-third of all plant and animal species could become extinct in the next 50 years (Román-Palacios & Wiens, 2020). Wildlife connectivity is critical for biodiversity resilience and climate change adaptability. A permeable landscape that has multiple pathways or linkages between habitat patches allows a wide variety of species to adjust to shifts in resource availability (Mcrae et al., 2012; Olson & Burnett, 2013; Pinto & Keitt, 2008). For smaller species with poor dispersal abilities, like San Francisco garter snakes, CRLF and San Bernardino kangaroo rats, multiple linkages can provide habitat while still allowing for their dispersal.	

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	Multiple connections also help populations persist after extreme events worsened by climate change. During floods, landslides or wildfires, these pathways provide escape routes or refugia for animals seeking safety (Cushman et al., 2013; Mcrae et al., 2008; Olson & Burnett, 2013). Such events can cause local extinctions in small, isolated populations. Prior to roads and development severely fragmenting and degrading habitats, a species could persist because individuals from neighboring populations would be able to recolonize an area that experiences a local extinction. But without adequate connectivity, recolonization and species persistence are improbable. The DEIR fails to adequately assess and mitigation the Project's impacts to riparian habitats in the context of a changing climate and increasing drought conditions.	
559-43	ii. The DEIR's proposed mitigation for impacts to riparian habitat is insufficient and improperly deferred. The DEIR relies heavily on MM Bio-1 CMP to mitigate impacts to riparian and other sensitive habitats, which is vague, unclear, insufficient, and improperly deferred mitigation (see previous section). In addition, the DEIR fails to provide any setbacks or buffers between riparian and wetland habitats and areas impacted by Project construction and operation. Connectivity between riparian and other wetland habitats and upland terrestrial habitat is important for wildlife that rely on these habitats. A literature review found that recommended buffers around aquatic resources for wildlife often far exceeded 100 meters (~325 feet) (Robins, 2002). For example, Kilgo et al. (1998) recommend more than 1,600 feet of riparian	The analysis in the EIR adequately assesses and mitigates impacts on sensitive habitats. Please see response to comment 559-41 regarding analysis of impacts on valley/foothill riparian natural communities, including habitat connectivity. In addition, Impact BIO-1 in Chapter 13, Terrestrial Biological Resources, describes impacts on valley/foothill riparian habitat and how Environmental Commitment EC-14 in Appendix 3B, Environmental Commitments and Best Management Practices, would reduce impacts by requiring non-disturbance buffers and associated construction fencing. Please also see Impact BIO-53 in Chapter 13 for a discussion of impacts on habitat connectivity in riparian corridors and a description of mitigation measures to avoid and reduce impacts on connectivity. See for example the table titled Summary of Terrestrial Wildlife Species Occurring in Study

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	buffer to sustain bird diversity. In addition, amphibians, which are considered environmental health indicators, have been found to migrate over 1,000 feet between aquatic and terrestrial habitats through multiple life stages (Cushman, 2006; Fellers & Kleeman, 2007; Semlitsch & Bodie, 2003; Trenham & Shaffer, 2005). For example, CRLF have been found to migrate about 600 feet between breeding ponds and non-breeding upland habitat and streams, with some individuals roaming over 4,500 feet from the water (Fellers & Kleeman, 2007). WPT individuals have been documented to move up to 2,018 feet from aquatic habitat (Sloan, 2012). Accommodating the more long-range dispersers is vital for continued survival of species populations and/or recolonization following a local extinction (Cushman, 2006; Semlitsch & Bodie, 2003). Yet the DEIR does not provide any setbacks for riparian or other wetland habitats to mitigate the Project's impacts.	Area with Potential Movement/Connectivity Impacts for a description of the fauna affected by loss of connectivity and the Design and Construction section for a description of the measures that will be taken to avoid and minimize impacts on habitat connectivity. Mitigation Measure BIO-53 describes the avoidance and minimization measure to maintain riparian banks and corridors. Please see response to comment 559-22 regarding effective buffer distances and how they were captured by the broadly defined study area and regional study area. Please see response to comment 559-24 regarding the effectiveness of mitigation measures under CEQA and the level of specificity and efficacy of the CMP, performance standards, and long-term assurances.
559-44	ii. The DEIR's proposed mitigation for impacts to riparian habitat is insufficient and improperly deferred. Mitigation should prioritize avoiding impacts to sensitive habitats like riparian areas and other sensitive natural communities. If impacts are unavoidable, then preservation and enhancement/creation should be considered. It is much more challenging to repair functionality to degraded ecosystems. In-kind mitigation should be undertaken at a minimum of 3:1 given that these habitats support numerous special-status species and high levels of biodiversity, can be important for wildlife connectivity and climate change resilience, and so much of these habitats have already been lost, and 5:1 for habitat restoration or creation with continued monitoring, adaptive management strategies, and well-defined success criteria, to be funded in perpetuity. As mentioned	Although CEQA does not have a required sequencing of mitigation types to prioritize avoiding impacts before providing other types of mitigation, DWR has attempted to avoid special-status species habitat to the extent feasible. Where not feasible, DWR provides for mitigation to replace habitat loss to reduce the potentially significant impacts to a less-than-significant level. Please see response to comment 559-25 in regard to mitigation ratios and the consultation with CDFW, USFWS, and other agencies in determining these ratios. Please also see Common Response 11, Terrestrial Biological Resources and Compensatory Mitigation Plan, which further responds to the comments about mitigation ratios, financial assurances, monitoring, and long-term management. Regarding the recommendation that mitigation be planned in a way that is protective from fragmentation, please see Appendix 3F, Compensatory Mitigation Plan for Special-Status Species and Aquatic Resources, in the Site Design and Development section, which describes how the initial

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	above, multiple scientific studies specifically address the need for higher mitigation ratios (along with long-term monitoring, identified and measurable success criteria, and adaptive management strategies) to improve chances of adequately mitigating impacts to habitats and species (Matthews & Endress, 2008; Mitsch & Wilson, 1996; Moilanen et al., 2009; Stein et al., 2018; Sudol & Ambrose, 2002; Windmiller & Calhoun, 2007; Zedler & Callaway, 1999). Moilanen et al. (2009) found that "very high offset ratios may be needed to guarantee a robustly fair exchange" and that "considerations of uncertainty, correlated success/failure, and time discounting should be included in the determination of the offset ratio to avoid a significant risk that the exchange is unfavorable for conservation in the long run." The preservation of high quality riparian habitat in and near the Project area should be prioritized, the minimum acreage of riparian habitat mitigation should be greater if habitat is being restored or created, and mitigation should be planned in a way that is protective from edge effects and fragmentation to improve the probability of ecologically functional mitigation. Created and restored habitat mitigation ratios should be much higher than preservation mitigation ratios, and they should be coupled with extended years of effective monitoring and adaptive management strategies (Ambrose et al., 2006; Moilanen et al., 2009; Sudol & Ambrose, 2002). Scientists recommend 15-20 years or more of monitoring and adaptive management to determine the success, or lack thereof, of enhanced, restored, or created habitat (Mitsch & Wilson, 1996; Zedler & Callaway, 1999). If higher mitigation ratios are not feasible, the DEIR must provide evidence and analysis supporting that conclusion.	mitigation sites on Bouldin Island are designed to create, expand, and enhance riparian area. The figure titled Bouldin Island Conceptual Design shows a large new patch of valley/foothill riparian at site B1 and an expanded area of riparian vegetation at site B2. Please see response to comment 559-38 in regard to the assessment of edge effects.
559-45	IV. Conclusion We are in the midst of a global extinction crisis, with species	The analysis contained in the EIR adequately assesses and mitigates for the project's impacts on special-status species and provides substantial

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	going extinct at a rate of over 1,000 times the background rate and more than one million species on track to become extinct over the coming decades (Pimm et al., 2014). There is urgency in safeguarding the region's biodiversity and remaining wildlife habitat and connectivity. The DEIR fails to adequately assess and mitigate the Project's impacts to special-status species, sensitive habitats, and wildlife connectivity. In addition, the DEIR fails to provide substantial evidence to support their conclusion that impacts to these biological resources are less than significant after mitigation. The EIR must fully disclose and analyze the Project's potential impacts to sensitive species and habitat and provide effective and enforceable mitigation measures for impacts found to be significant. The Center [for Biological Diversity] urges the DWR to reject the Project.	evidence to support the CEQA conclusions. Please see response to comment 559-7 and Common Response 11, Terrestrial Biological Resources and Compensatory Mitigation Plan, regarding the adequacy of the analysis in Chapter 13, Terrestrial Biological Resources.
559-46	Thank you for the opportunity to submit comments on the Project. Please include the Center [for Biological Diversity] on your notice list for all future updates to the Project and do not hesitate to contact the Center with any questions at the email addresses listed below.	All persons, organizations, or agencies that commented on the Draft EIR will be included on the project notification list.
559-47	References (Provided via OneDrive) Alroy, J. (2015). Current extinction rates of reptiles and amphibians. Proceedings of the National Academy of Sciences of the United States of America, 112(42), 13003–13008. Ambrose, R. F., Callaway, J. C., & Lee, S. F. (2006). An evaluation of compensatory mitigation projects permitted under Clean Water Act Section 401 by the Los Angeles Regional Quality Control Board, 1991-2002. In California State Water Resources Control Board (Issue August). Http://www.waterboards.ca.gov/water_issues/programs/cwa401/docs/mitigation_finalreport _execsum081307.pdf	The commenter provided this list for reference purposes in support of their comments. Those comments are addressed in these responses to the commenter's letter. DWR has reviewed all comments and will consider all comments in its decision-making process.

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559-48	[ATT 1: PDF of references identified in Center for Biological Diversity's comment letter (Alroy 2015 through Chapter 7 of Brehme and Fisher 2020).]	The commenter provided this attachment for reference purposes in support of their comments. Those comments are addressed in these responses to the commenter's letter. DWR has reviewed all comments and will consider all comments in its decision-making process.
559-49	[ATT 2: PDF of references identified in Center for Biological Diversity's comment letter (Brehme et al 2022 through Delaney et al 2010).]	The commenter provided this attachment for reference purposes in support of their comments. Those comments are addressed in these responses to the commenter's letter. DWR has reviewed all comments and will consider all comments in its decision-making process.
559-50	[ATT 3: PDF of references identified in Center for Biological Diversity's comment letter (Dickson et al 2005 through Haddad	The commenter provided this attachment for reference purposes in support of their comments. Those comments are addressed in these

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	et al. 2015).]	responses to the commenter's letter. DWR has reviewed all comments and will consider all comments in its decision-making process.
559-51	[ATT 4: PDF of references identified in Center for Biological Diversity's comment letter (Hayes et al. 2006 through Kociolek et al. 2011).]	The commenter provided this attachment for reference purposes in support of their comments. Those comments are addressed in these responses to the commenter's letter. DWR has reviewed all comments and will consider all comments in its decision-making process.
559-52	[ATT 5: PDF of references identified in Center for Biological Diversity's comment letter (Langton and Clevenger 2021 through Moilanen et al. 2009; missing Marsh et al. 2015 and Mitsch and Wilson 1996).]	The commenter provided this attachment for reference purposes in support of their comments. Those comments are addressed in these responses to the commenter's letter. DWR has reviewed all comments and will consider all comments in its decision-making process.
559-53	[ATT 6: PDF of references identified in Center for Biological Diversity's comment letter (Moyle et al. 2011 through Riparian Habitat Joint Venture 2009; missing Riley et al. 2005 and Riley et al. 2006).]	The commenter provided this attachment for reference purposes in support of their comments. Those comments are addressed in these responses to the commenter's letter. DWR has reviewed all comments and will consider all comments in its decision-making process.
559-54	[ATT 7: PDF of references identified in Center for Biological Diversity's comment letter (Riley et al. 2005 through Shilling 2020; missing Semlitch et al. 2014).]	The commenter provided this attachment for reference purposes in support of their comments. Those comments are addressed in these responses to the commenter's letter. DWR has reviewed all comments and will consider all comments in its decision-making process.
559-55	[ATT 8: PDF of references identified in Center for Biological Diversity's comment letter (Slabbekoorn and Ripmeester 2008 through Suraci et al. 2019).]	The commenter provided this attachment for reference purposes in support of their comments. Those comments are addressed in these responses to the commenter's letter. DWR has reviewed all comments and will consider all comments in its decision-making process.
559-56	[ATT 9: PDF of references identified in Center for Biological Diversity's comment letter (Traill et al. 2009 through Ware et al. 2015).]	The commenter provided this attachment for reference purposes in support of their comments. Those comments are addressed in these responses to the commenter's letter. DWR has reviewed all comments and will consider all comments in its decision-making process.
559-57	[ATT 10: PDF of references identified in Center for Biological Diversity's comment letter (Warren et al. 2011 through Zedler and Callaway 1999; missing Yap et al. 2015).]	The commenter provided this attachment for reference purposes in support of their comments. Those comments are addressed in these responses to the commenter's letter. DWR has reviewed all comments and will consider all comments in its decision-making process.