December 2024
State Clearinghouse Number: 2024050834

ANCHOR QEA

Water Reduction Program Agreement Between the Sacramento River Settlement Contractors Nonprofit Mutual Benefit Corporation, Individual Sacramento River Settlement Contractors, and the U.S. Bureau of Reclamation Project

Final Environmental Impact Report

Prepared for Glenn-Colusa Irrigation District

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Final Environmental Impact Report

Prepared for
Glenn-Colusa Irrigation District
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ABBREVIATIONS

ACID	Anderson Cottonwood Irrigation District
Agreement	Water Reduction Program Agreement
CASGEM	California Statewide Groundwater Elevation Monitoring
CCR	California Code of Regulations
CDFW	California Department of Fish and Wildlife
CDWA	Central Delta Water Agency
CDWR	California Department of Water Resources
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CPUC	California Public Utilities Commission
Critical Year	Shasta Critical Year
CVJVIP	Central Valley Joint Venture 2020 Implementation Plan
CVP	Central Valley Project
CVPIA	Central Valley Project Improvement Act
CWA	Clean Water Act
DEIR	Draft Environmental Impact Report
Delta	Sacramento-San Joaquin River Delta
DWR	California Department of Water Resources
EIR	Environmental Impact Report
EIS	Environmental Impact Statement
EO	Executive Order
ESA	Environmentally Sensitive Area
FEIR	Final Environmental Impact Report
FRAQMD	Feather River Air Quality Management District
FWA	Friant Water Authority
GCID	Glenn-Colusa Irrigation District
GDE	groundwater-dependent ecosystem
GGS	giant garter snake
GHG	greenhouse gas
GSA	Groundwater Sustainable Agency
GSP	Groundwater Sustainability Plan
HCP	Habitat Conservation Plan
IDP	Inadvertent Discovery Plan
ISW	interconnected surface water
kWh	kilowatt-hour
LTO	Long-Term Operations

MBTA	Migratory Bird Treaty Act
mi^2	square miles
MMRP	Mitigation and Monitoring Reporting Program
MRZ	mineral resource zone
MW	megawatt
MWh	megawatt-hour
NCCP	Natural Communities Conservation Plan
NEPA	National Environmental Policy Act
NOP	Notice of Preparation
NWR	National Wildlife Refuge
O_3	ozone
OHP	Office of Historic Preservation
OSHA	Occupational Safety and Health Administration/Act
PM	particulate matter
PRC	California Public Resources Code
proposed project	Water Reduction Program Agreement
Reclamation	U.S. Bureau of Reclamation
RWQCB	Regional Water Quality Control Board
SB	Senate Bill
SGMA	Sustainable Groundwater Management Act
SRSC	Sacramento River Settlement Contractors
SRSCNC	Sacramento River Settlement Contractors Nonprofit Mutual Benefit Corporation
SWC	State Water Contractors
SWP	State Water Project
SWRCB	State Water Resources Control Board
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service
Yolo NCCP/HCP	Yolo Habitat Conservation Plan/Natural Communities Conservation Plan

Executive Summary

This *Final Environmental Impact Report* (FEIR) was prepared in compliance with the California Environmental Quality Act (CEQA; California Public Resources Code [PRC] Division 13, Section 21000 et seq.) and CEQA Guidelines (14 California Code of Regulations [CCR] 15000 et seq.) to assist the Glenn-Colusa Irrigation District (GCID) in considering the approval of the proposed Water Reduction Program Agreement[1] (proposed project or Agreement) between the Sacramento River Settlement Contractors Nonprofit Mutual Benefit Corporation (SRSCNC), individual Sacramento River Settlement Contractors[2] (SRSC), and the U.S. Bureau of Reclamation (Reclamation). GCID is preparing this document pursuant to its obligations as a public agency. Under the proposed project, the SRSCNC and individual members of the SRSC would enter into an Agreement with Reclamation to forego a larger percentage of their contract supply in specified drought years under two phases. In addition, the SRSC would engage in drought-resiliency projects to address potential water loss and strengthen the resilience of the SRSC's water system and long-term water delivery capabilities. The proposed project would occur within the SRSC service areas in eight counties: Shasta, Tehama, Glenn, Butte, Sutter, Colusa, Yolo, and Sacramento (Figure ES-1).

The GCID has principal responsibility for making a determination on the proposed project and is the Lead Agency under CEQA (PRC 21151 et seq.) and the CEQA Guidelines for Implementation (14 CCR 15081 et seq.). Under Sections 15088 and 15132 of the CEQA Guidelines, a FEIR consists of the Draft Environmental Impact Report (DEIR); a list of commenters, as well as the verbal and written comments received on the DEIR; responses to comments on environmental issues received on the DEIR; and any information added to the document or any changes made to the text of the DEIR in response to comments. This document contains a description of the proposed project in Chapter 1; copies of all comments received on the DEIR and responses to all comments pertaining to environmental issues in Chapter 2; and a description of all changes made to the DEIR in Chapter 3.

In addition to serving as the support document for discretionary lead agency action, this FEIR also supports the permitting process of all agencies whose discretionary approvals must be obtained for elements of the proposed project. The FEIR is intended to provide decision-makers and the public with the most up-to-date information available regarding the proposed project, required mitigation measures, and alternatives.

[1] Since the release of the DEIR, the name of the proposed Agreement has changed to the Drought Protection Program Agreement. The change to the name does not affect the substance of the Agreement as analyzed in the DEIR; for the avoidance of confusion, the FEIR continues to use the working draft title of Water Reduction Program Agreement. The proposed project is the same agreement that is analyzed in Reclamation's November 2024 Environmental Assessment for the Sacramento River Settlement Contractors Drought Protection Program.

[2] The FEIR refers to "the SRSC" or "contractors" interchangeably.

Project Background

Water supply and usage in California is highly managed through an integrated system of federal, state, and locally owned water projects including dams, reservoirs, pumping plants, and aqueducts to link water supplies (primarily originating north of Sacramento) with demand (primarily located in the middle and southern portions of the state). In the project area, water is supplied to users through contracts with Reclamation, which delivers water from the Central Valley Project (CVP) primarily sourced from the Sacramento and San Joaquin rivers to users who have signed contracts, providing them with access to water for municipal, industrial, and agricultural needs.

The SRSC is composed of 130 agricultural and municipal senior water rights holders that manage water resources for cities, rural communities, and farms, as well as fish and wildlife and their habitats in California's Sacramento Valley. The SRSC are various irrigation districts, reclamation districts, mutual water companies, cities and other public entities, partnerships, corporations, Tribes, and individuals that operate within the Sacramento Valley and hold contracts with Reclamation for surface water. Under these contracts, Reclamation provides surface water from the Sacramento River (stored in Shasta Lake) to the SRSC based on the SRSC's senior water rights; the contacted total is 2.1 million acre-feet. The SRSC also funds environmental improvement projects that support wildlife and their habitat, including habitat enhancement for salmon spawning and rearing, fish screens, and fish food production.

Hydrologic conditions, climatic variability, consumptive use within watersheds, and regulatory requirements for operation of water projects routinely affect water supply in California. This variability makes advanced planning for water shortages necessary and routine. To address river levels and other water management goals and responsibilities, contracts between Reclamation and the SRSC and between Reclamation and other users with water rights (such as the San Joaquin River exchange contractors, North and South of Delta water service contractors, and Central Valley refuge water contractors) provide exceptions for Reclamation to reduce water deliveries due to hydrologic conditions and other conditions outside Reclamation's control. Specific to the SRSC, Reclamation has established Shasta Critical Years (Critical Years) that trigger reductions to the SRSC's contracted volume of surface water. During Critical Years, the SRSC are provided up to 75% of their total contracted water amount, or 1.6 million acre-feet out of the 2.1 million acre-feet total contracted water amount.[3]

Proposed Project

Under the proposed project, the SRSCNC and individual members of the SRSC would enter into a new Agreement with Reclamation to forego a larger percentage of their contracted supply in

[3] In Critical Years, some of the SRSC have the option to: 1) irrigate not in excess of 75% of their irrigable acreages; or 2) divert from the Sacramento River not in excess of 75% of the contracted amount, subject to the installation of measurement equipment.

specified drought years. In addition, the SRSC would receive funding from Reclamation to engage in drought-resiliency projects to address potential water loss and strengthen the resilience of the SRSC's water system and long-term water delivery capabilities.

The term of the Agreement will consist of the following two phases, as indicated:

- Phase 1 (2025 to 2035): The SRSC would reduce contract supply by up 500,000 acre-feet during specified drought years.
- Phase 2 (2036 to 2045): The SRSC would reduce contract supply by up to 100,000 acre-feet during specified drought years.

The amounts reduced under the new Agreement are in addition to existing reductions under existing water agreements. In response to the reduced contract supply, the SRSC are expected to engage in activities in response to water reductions, including groundwater substitution, cropland idling, cropland shifting, conservation, and the implementation of the drought-resiliency projects.

Water reductions would be implemented during specified drought years, which may occur within a series of drier years such as during a multi-year drought sequence. By reducing the amount of water that is released from Shasta Lake and diverted by the SRSC, the proposed project would consequently allow for additional flexibility in Reclamation's management of operation of the CVP during drought conditions.

GCID prepared this FEIR using available technical information and incorporating potential alternatives to the proposed project. As required by CEQA, GCID must evaluate the information in this FEIR, including the DEIR, all comments received during public review, proposed mitigation measures, and potentially feasible alternatives, before deciding whether to approve the proposed project or an alternative.

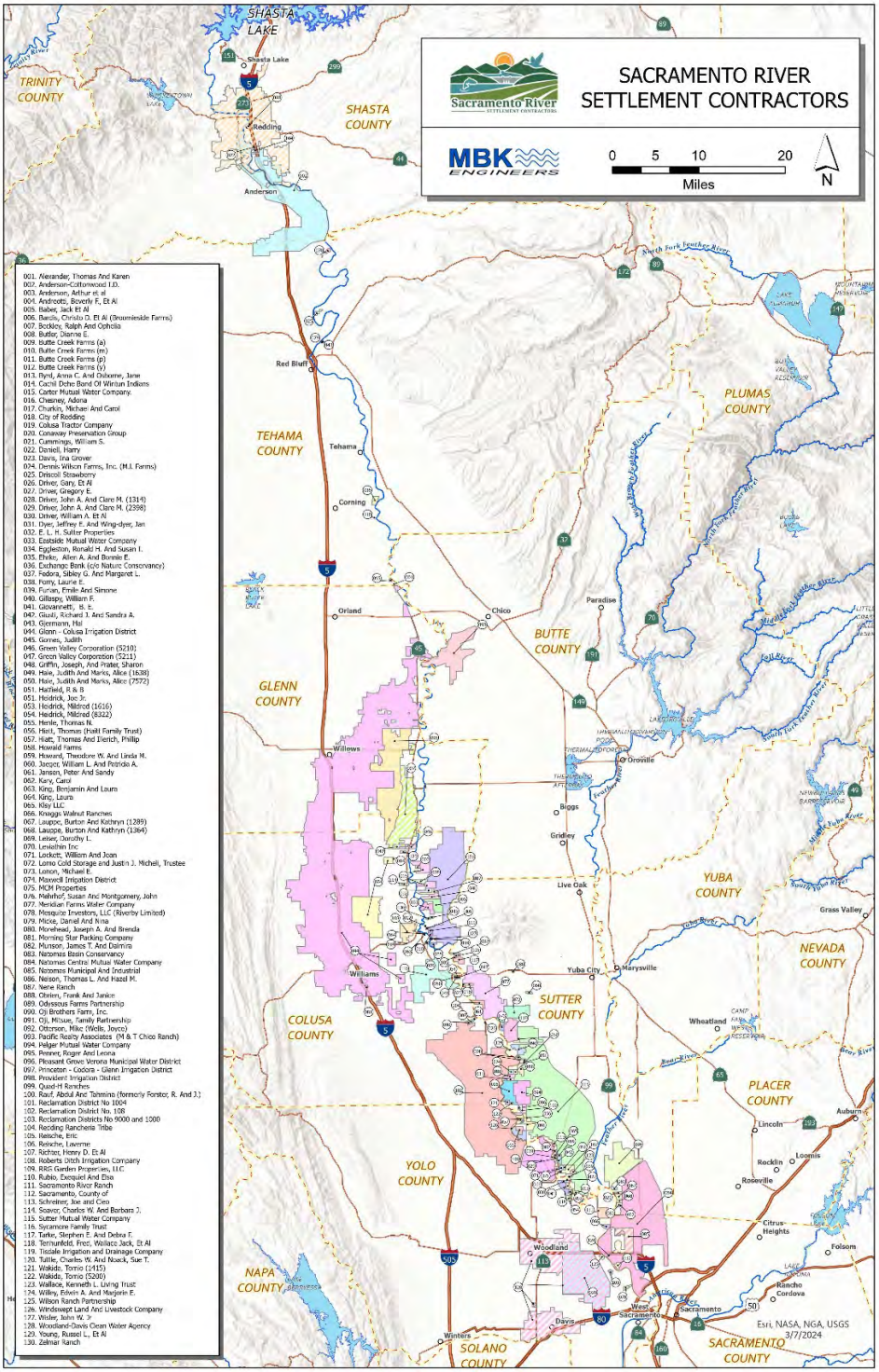
Project Objectives

Pursuant to the CEQA Guidelines and 14 CCR 15124, a "statement of the objectives sought by the proposed project" must be provided as part of the project description in an Environmental Impact Report (EIR). The goal of the proposed project is to approve and facilitate reduced water contract supply to the SRSC during specified drought years to address water shortages at Shasta Lake. Reduced SRSC contract supply allows for Reclamation to respond to shortages in water supplies due to very dry hydrologic conditions, climatic variability, climate change, and regulatory requirements. The proposed project would also develop implementable and supplemental water supplies and

drought-resiliency projects to strengthen the resilience of the SRSC's water systems and long-term water delivery capabilities. The project objectives include the following:

- Approve and facilitate reduced water contract supply to the SRSC during specified drought years to address water shortages at Shasta Lake in accordance with the Agreement and generally meet existing municipal, agricultural, and habitat demands from 2025 to 2045.
- Develop implementable and supplemental drought-resiliency projects to strengthen the resilience of the SRSC's water systems and long-term water delivery capabilities.

Figure ES-1
Project Area



Source: MBK Engineers

Summary of Project Alternatives

The CEQA Guidelines (14 CCR 15126) require that an EIR consider a range of reasonable alternatives to the project or to the location of the project that would feasibly attain most of its basic objectives but would avoid or substantially lessen any of the significant effects of the project. The alternatives considered in the DEIR were the following:

- Alternative 1: No Project Alternative
- Alternative 2: No Groundwater Substitution Alternative

A complete evaluation of these alternatives—including their ability to meet the objectives of the proposed project and their ability to avoid or substantially reduce significant environmental impacts—is provided in Chapter 6 of the DEIR.

Alternative 1: No Project Alternative

The No Project Alternative, which is required for inclusion in an EIR by CEQA, represents what would reasonably be expected to occur in the foreseeable future if the proposed project were not approved. Under the No Project Alternative, the Agreement between the SRSC and Reclamation would not be signed, and water would continue to be managed based on current allocations and management plans. Neither additional reductions during specified drought years nor drought-resiliency projects to address potential water loss and strengthen the resilience of the SRSC's water system and long-term water delivery capabilities would be implemented.

Alternative 2: No Groundwater Substitution Alternative

This alternative would involve accomplishing surface water use reductions through cropland idling, cropland shifting, and conservation activities, without groundwater substitution occurring as a result of the Agreement. Drought-resiliency projects would also be undertaken with this alternative. Although more crop shifting could reduce surface water use, it is assumed that most contractors would idle more cropland without access to the additional water provided by groundwater substitution. Crop shifting and conservation may result in additional reductions but these are too speculative to quantify.

Comments Received

The DEIR was released and distributed on September 20, 2024, for a 45-day review period, which ended on November 4, 2024. The DEIR includes a full analysis and an Executive Summary that summarizes the proposed project, alternatives, and findings.

The DEIR is available at the GCID website at https://www.gcid.net/ and the State Clearinghouse website at https://ceqanet.opr.ca.gov/2024050834/2. Hard copies of the DEIR and technical

appendices are available upon request by contacting GCID by email at ceqapublicomments@gcid.net or by phone at 530-934-8881.

GCID received comment letters on the DEIR from the following organizations:

- AquAlliance, California Sportfishing Protection Alliance, and California Water Impact Network
- Audubon CA, California Association of Resource Conservation Districts, Defenders of Wildlife, Pacific Coast and Central Valley Group, River Partners, and The Nature Conservancy
- Contra Costa Water District
- California Department of Fish and Wildlife (CDFW)
- California Sportfishing Protection Alliance, Defenders of Wildlife, Friends of the River, Golden State Salmon Association, San Francisco Baykeeper, and Restore the Delta
- Central Delta Water Agency
- Feather River Air Quality Management District
- Friant Water Authority
- Grassland Water District and California Waterfowl Association
- Sacramento Metropolitan Air Quality Management District
- State Water Contractors
- Westlands Water District

All comments and responses to comments are presented in Chapter 2 of the FEIR.

Summary of Impacts and Mitigation Measures

Table ES-1 presents a summary of the environmental impacts, proposed mitigation measures, and residual impacts of the proposed project. With incorporation of mitigation measures, the proposed project would result in significant and unavoidable project-level impacts to biological resources. Less-than-significant or no project-level impacts would occur in the following resource areas: aesthetics; agriculture and forestry resources; air quality; cultural resources; energy; geology and soils; greenhouse gas (GHG) emissions; hazards and hazardous materials; hydrology and water quality; land use and planning; mineral resources; noise; population and housing; public services; noise; recreation; transportation; Tribal cultural resources; utilities and service systems; and wildfire. Mitigation measures have been incorporated where available and feasible. With implementation of mitigation, the proposed project would result in in significant and unavoidable cumulative biological resources impacts. Less-than-significant cumulative impacts would occur in the following resource areas: aesthetics; agriculture and forestry resources; air quality; cultural resources; energy; geology and soils; GHG emissions; hazards and hazardous materials; hydrology and water quality; land use and planning; mineral resources; noise; population and housing; public services; noise; recreation; transportation; Tribal cultural resources; utilities and service systems; and wildfire.

Full descriptions of the mitigation measures noted in Table ES-1 are provided in Table ES-2 and incorporate any and all changes identified in the FEIR. The mitigation measures identified in Table ES-2 will be included in the Mitigation Monitoring and Reporting Program that will need to be considered and adopted by GCID as part of the FEIR approval process.

Table ES-1
Summary of Proposed Project Impacts and Mitigation

	Impact Determination	Mitigation Measures	Impact Determination After Mitigation
Aesthetics			
AES-1: Except as provided in Public Resources Code Section 21099, would the project have a substantial adverse effect on a scenic vista?	Less than significant	None	Less than significant
AES-2: Except as provided in Public Resources Code Section 21099, would the project substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a scenic highway?	Less than significant	None	Less than significant
AES-3: Except as provided in Public Resources Code Section 21099, would the project, in non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?	Less than significant	None	Less than significant
AES-4: Except as provided in Public Resources Code Section 21099, would the project create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	Less than significant	None	Less than significant
Would the project result in cumulative impacts on aesthetics?	Not cumulatively considerable		
Agriculture and Forestry Resources			
AGR-1: Would the project convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	Less than significant	None	Less than significant
AGR-2: Would the project conflict with existing zoning for agricultural use, or a Williamson Act contract?	Less than significant	None	Less than significant
AGR-3: Would the project conflict with existing zoning for, or cause rezoning of forest land (as defined in Public Resources Code Section 12220[g]), timberland (as defined by Public Resources Code	Potentially significant	MM-AGR-1	Less than significant

	Impact Determination	Mitigation Measures	Impact Determination After Mitigation
Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104[g])?			
AGR-4: Would the project result in the loss of forest land or conversion of forest land to non-forest use?	Potentially significant	MM-AGR-1	Less than significant
AGR-5: Would the project involve other changes in the existing environment that, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use?	Potentially significant	MM-AGR-1	Less than significant
Would the project result in cumulative impacts on agriculture and forestry resources?	Not cumulatively considerable		
Air Quality			
AIR-1: Would the project conflict with or obstruct implementation of the applicable air quality plan?	Less than significant	MM-AIR-1 MM-AIR-2	Less than significant
AIR-2: Would the project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?	Less than significant	MM-AIR-1 MM-AIR-2	Less than significant
AIR-3: Would the project expose sensitive receptors to substantial pollutant concentrations?	Less than significant	MM-AIR-1 MM-AIR-2	Less than significant
AIR-4: Would the project result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	Less than significant	None	Less than significant
Would the project result in cumulative impacts on air quality?	Not cumulatively considerable		
Biological Resources			
BIO-1: Would the project have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	Potentially significant	MM-BIO-1 MM-BIO-2 MM-BIO-3 MM-BIO-4 MM-BIO-5 MM-BIO-6 MM-BIO-7	Significant and unavoidable

	Impact Determination	Mitigation Measures	Impact Determination After Mitigation
		MM-BIO-8 MM-BIO-9 MM-BIO-10 MM-BIO-11 MM-HYD-1 MM-HYD-2	
BIO-2: Would the project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	Potentially significant	MM-BIO-1 MM-BIO-5 MM-BIO-8 MM-BIO-9 MM-BIO-11 MM-HYD-1 MM-HYD-2	Less than significant
BIO-3: Would the project have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marshes, vernal pools, coastal wetlands, etc.) through direct removal, filling, hydrological interruption, or other means?	Potentially significant	MM-BIO-1 MM-BIO-5 MM-BIO-11 MM-BIO-12 MM-BIO-13 MM-HYD-1 MM-HYD-2	Less than significant
BIO-4: Would the project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	Potentially significant	MM-BIO-1 MM-BIO-3 MM-BIO-4 MM-BIO-5 MM-BIO-8 MM-BIO-9 MM-BIO-10 MM-BIO-11	Significant and unavoidable

	Impact Determination	Mitigation Measures	Impact Determination After Mitigation
BIO-5: Would the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	Potentially significant	MM-BIO-1 MM-BIO-2 MM-BIO-3 MM-BIO-4 MM-BIO-5 MM-BIO-6 MM-BIO-7 MM-BIO-8 MM-BIO-9 MM-BIO-10 MM-BIO-11 MM-BIO-12 MM-BIO-13 MM-HYD-1 MM-HYD-2	Significant and unavoidable
BIO-6: Would the project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	Potentially significant	MM-BIO-1 MM-BIO-2 MM-BIO-3 MM-BIO-4 MM-BIO-5 MM-BIO-6 MM-BIO-7 MM-BIO-8 MM-BIO-9 MM-BIO-10 MM-BIO-11 MM-BIO-12 MM-BIO-13 MM-HYD-1 MM-HYD-2	Significant and unavoidable

	Impact Determination	Mitigation Measures	Impact Determination After Mitigation
Would the project result in cumulative impacts on biological resources?	Cumulatively considerable		
Cultural Resources			
CUL-1: Would the project cause a substantial adverse change in the significance of a historical resource pursuant to Section 15064.5?	Potentially significant	MM-CUL-1 MM-CUL-2 MM-CUL-3 MM-CUL-4	Less than significant
CUL-2: Would the project cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?	Potentially significant	MM-CUL-1 MM-CUL-2 MM-CUL-3 MM-CUL-4	Less than significant
CUL-3: Would the project disturb any human remains, including those interred outside of formal cemeteries?	Potentially significant	MM-CUL-1 MM-CUL-2 MM-CUL-3 MM-CUL-4	Less than significant
Would the project result in cumulative impacts on cultural resources?	Not cumulatively considerable		
Energy			
ENE-1: Would the project result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources during project construction or operation?	Less than significant	MM-AIR-1	Less than significant
ENE-2: Would the project conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	Less than significant	None	Less than significant
Would the project result in cumulative energy impacts?	Not cumulatively considerable		
Geology and Soils			
GEO-1: Would the project directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving: i) rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map, issued by the State Geologist for the area or based on other substantial evidence of	Less than significant	MM-GEO-1 MM-GEO-2 MM-GEO-3	Less than significant

	Impact Determination	Mitigation Measures	Impact Determination After Mitigation
a known fault (refer to Division of Mines and Geology Special Publication 42); ii) strong seismic ground shaking; iii) seismic-related ground failure, including liquefaction; or iv) landslides?			
GEO-2: Would the project result in substantial soil erosion or the loss of topsoil?	Less than significant	MM-HYD-1	Less than significant
GEO-3: Would the project be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	Less than significant	MM-GEO-1 MM-GEO-3	Less than significant
GEO-4: Would the project be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?	Potentially significant	MM-GEO-1 MM-GEO-3	Less than significant
GEO-5: Would the project have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?	No impact	None	No impact
GEO-6: Would the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	Less than significant	None	Less than significant
Would the project result in cumulative impacts on geology and soils?	Not cumulatively considerable		
Greenhouse Gas Emissions			
GHG-1: Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	Less than significant	MM-AIR-1	Less than significant
GHG-2: Would the project conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	Less than significant	MM-AIR-1	Less than significant
Would the project result in cumulative greenhouse gas emissions impacts?	Not cumulatively considerable		
Hazards and Hazardous Materials			
HAZ-1: Would the project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	Potentially significant	MM-HAZ-1 MM-HAZ-2 MM-HYD-1	Less than significant

	Impact Determination	Mitigation Measures	Impact Determination After Mitigation
HAZ-2: Would the project create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	Potentially significant	MM-HAZ-1 MM-HAZ-2 MM-HYD-1	Less than significant
HAZ-3: Would the project emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school?	Less than significant	None	Less than significant
HAZ-4: Would the project be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	Potentially significant	MM-HAZ-3	Less than significant
HAZ-5: For a project located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?	Less than significant	None	Less than significant
HAZ-6: Would the project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	Less than significant	None	Less than significant
HAZ-7: Would the project expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires?	Less than significant	None	Less than significant
Would the project result in cumulative hazards or hazardous materials impacts?	Not cumulatively considerable		
Hydrology and Water Quality			
HYD-1: Would the project violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality?	Potentially significant	MM-HYD-1 MM-HYD-2	Less than significant
HYD-2: Would the project substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the of the basin?	Potentially significant	MM-HYD-2	Less than significant

	Impact Determination	Mitigation Measures	Impact Determination After Mitigation
HYD-3: Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would: i) result in substantial erosion or siltation on or off site; ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on or off site; iii) create or contribute runoff water which would exceed the existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or iv) impede or redirect flood flows?	Potentially significant	MM-HYD-1	Less than significant
HYD-4: Would the project, in flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	No impact	None	No impact
HYD-5: Would the project conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	Potentially significant	MM-HYD-1 MM-HYD-2	Less than significant
Would the project result in cumulative impacts on hydrology and water quality?	Not cumulatively considerable		
Land Use and Planning			
LAN-1: Would the project physically divide an established community?	Less than significant	None	Less than significant
LAN-2: Would the project cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	Less than significant	None	Less than significant
Would the project result in cumulative land use and planning impacts?	Not cumulatively considerable		
Mineral Resources			
MIN-1: Would the project result in the loss of availability of a known mineral resource that would be a value to the region and the residents of the state?	Less than significant	MM-MIN-1	Less than significant
MIN-2: Would the project result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?	No impact	None	No impact
Would the project result in cumulative impacts on mineral resources?	Not cumulatively considerable		

	Impact Determination	Mitigation Measures	Impact Determination After Mitigation
Noise			
NOI-1: Would the project result in generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	Less than significant	MM-NOI-1 MM-NOI-2	Less than significant
NOI-2: Would the project result in generation of excessive groundborne vibration or groundborne noise levels?	Potentially significant	MM-NOI-1 MM-NOI-2 MM-NOI-3	Less than significant
NOI-3: For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	Less than significant	MM-NOI-1 MM-NOI-2 MM-NOI-3	Less than significant
Would the project result in cumulative noise impacts?	Not cumulatively considerable		
Population and Housing			
POP-1: Would the project induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	No impact	None	No impact
POP-2: Would the project displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	No impact	None	No impact
Would the project result in cumulative impacts on population and housing?	Not cumulatively considerable		
Public Services			
PUB-1: Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any	Potentially significant	MM-HYD-1	Less than significant

	Impact Determination	Mitigation Measures	Impact Determination After Mitigation
of the following public services: fire protection, police protection, schools, parks, or other public facilities?			
Would the project result in cumulative impacts on public services?	Not cumulatively considerable		
Recreation			
REC-1: Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	No impact	None	No impact
REC-2: Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	No impact	None	No impact
Would the project result in cumulative impacts on recreation?	Not cumulatively considerable		
Transportation			
TRA-1: Would the project conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities?	Less than significant	None	Less than significant
TRA-2: Would the project conflict or be inconsistent with CEQA Guidelines Section 15064.3(b)?	Less than significant	None	Less than significant
TRA-3: Would the project substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	No impact	None	No impact
TRA-4: Would the project result in inadequate emergency access?	No impact	None	No impact
Would the project result in cumulative impacts on transportation?	Not cumulatively considerable		
Tribal Cultural Resources			
TRI-1: Would the project cause a substantial adverse change in the significance of a Tribal cultural resource, defined in Public Resources Code Section 21074? Would the project would cause a substantial adverse change in the significance of a Tribal cultural resource, defined in Public Resources Code Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American Tribe, and that is: i) Listed or eligible	Potentially significant	MM-CUL-1 MM-CUL-2 MM-CUL-3 MM-CUL-4	Less than significant

	Impact Determination	Mitigation Measures	Impact Determination After Mitigation
for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code Section 5020.1(k); or ii) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American Tribe?			
Would the project result in cumulative impacts on Tribal cultural resources?	Not cumulatively considerable		
Utilities and Service Systems			
UTI-1: Would the project require or result in the relocation or construction of new or expanded water, wastewater treatment or stormwater drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?	Potentially significant	MM-AGR-1 MM-HAZ-3 MM-MIN-1 MM-NOI-1 MM-NOI-2 MM-NOI-3 MM-BIO-1 MM-BIO-2 MM-BIO-3 MM-BIO-4 MM-BIO-5 MM-BIO-6 MM-BIO-7 MM-BIO-8 MM-BIO-9 MM-BIO-12 MM-BIO-13 MM-HYD-1 MM-UTI-1 MM-UTI-2	Less than significant

	Impact Determination	Mitigation Measures	Impact Determination After Mitigation
UTI-2: Would the project have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years?	Less than significant	None	Less than significant
UTI-3: Would the project result in a determination by the wastewater treatment provider, which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	No impact	None	No impact
UTI-4: Would the project generate solid waste in excess of state or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	No impact	None	No impact
UTI-5: Would the project comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	No impact	None	No impact
Would the project result in cumulative impacts on utilities and service systems?	Not cumulatively considerable		
Wildfire			
WIL-1: If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project substantially impair an adopted emergency response plan or emergency evacuation plan?	Less than significant	None	Less than significant
WIL-2: If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	Less than significant	None	Less than significant
WIL-3: If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	Less than significant	None	Less than significant

	Impact Determination	Mitigation Measures	Impact Determination After Mitigation
WIL-4: If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	Less than significant	MM-GEO-2 MM-HYD-1	Less than significant
Would the project result in cumulative wildfire impacts?	Not cumulatively considerable		

Table ES-2
Summary of Mitigation Measures

Name	Mitigation Measure
MM-AGR-1	**Site Drought-Resiliency Projects Outside of Forest Lands.** Drought-resiliency projects will not be sited in forest lands.
MM-AIR-1	**Construction Truck Idling Requirements.** During construction of drought resiliency projects, the SRSC will require construction contractors to minimize heavy-duty construction equipment idling time to 2 minutes where feasible. Currently, the In-Use Off-Road Diesel Vehicle Rule restricts construction equipment idling to 5 minutes. This measure would further reduce the time allowance for idling to 2 minutes to reduce emissions. Exceptions include equipment that needs to idle to perform work, vehicles being serviced, or vehicles in a queue waiting for work consistent with the In-Use Off-Road Diesel Vehicle Rule.
MM-AIR-2	**Dust Reduction Measures.** • During drought-resiliency project construction in non-Agreement Years, the following dust control measures will be implemented as applicable to the drought-resiliency project: - Active construction areas will be watered at least twice daily. - Haul trucks will maintain at least two feet of freeboard. - Trucks hauling soil, sand, and other loose materials will be covered. - Non-toxic binders (e.g., latex acrylic copolymer) will be applied to exposed areas after cut-and-fill operations and hydroseed area. - Inactive storage piles will be covered. • During Agreement Years, a 20-mph speed limit for vehicles driving on unpaved roads or farmland devoid of crops will be established and enforced. Speed limits will be posted and workers will be notified in writing of restrictions. In addition, the following measures will be implemented as applicable to the drought-resiliency project: - Haul trucks will maintain at least two feet of freeboard. - Trucks hauling soil, sand, and other loose materials will be covered. - Non-toxic binders (e.g., latex acrylic copolymer) will be applied to exposed areas after cut-and-fill operations and hydroseed area. - Inactive storage piles will be covered.
MM-BIO-1	**Conduct Desktop Special Status Wildlife Species, Plant Species, and Aquatic Resources Evaluation for Drought-Resiliency Projects.** Prior to implementing a drought-resiliency project that involves grading, vegetation removal, or other form of construction in irrigation and drainage canals or upland areas outside of established agricultural croplands with a history of discing, planting, and maintenance, a qualified biologist will conduct a desktop evaluation of the site using digital web-based aerial photography. The purpose of the desktop evaluation will be to determine the potential for special status wildlife and plant species habitat or aquatic resources subject to regulation by the U.S. Army Corps of Engineers (USACE), Regional Water Quality Control Board (RWQCB), or CDFW to occur on site. A qualified biologist will also perform a review of the USFWS Information for Planning and Consultation, California Natural Diversity Database, California Native Plant Society, and Calflora databases to identify known records or potential for special status plant or wildlife species to occur in the project vicinity. If through this assessment, the biologist determines that potential habitat for special status wildlife or plants or jurisdictional aquatic resources exist, then site-specific survey(s) will be conducted per MM-BIO-2, MM-BIO-3, MM-BIO-4, MM-BIO-5, and MM-BIO-6, as applicable.

Name	Mitigation Measure
MM-BIO-2	**Conduct Special Status Plant Species Surveys and Avoidance for Drought-Resiliency Projects.** If the drought-resiliency project site survey indicates that the project site contains suitable habitat for special status plant species, surveys using USFWS, CDFW, and California Native Plant Society protocols will be conducted by a qualified biologist. If present, special status plant species will be flagged for avoidance. If avoidance is not possible, USFWS and/or CDFW will be consulted to determine the appropriate approach for minimizing impacts to special status plant species and compensating for unavoidable impacts, and the project proponents will implement all necessary minimization and compensation measures.
MM-BIO-3	**Conduct Special Status Wildlife Species Surveys and Avoidance for Drought-Resiliency Projects.** If the drought-resiliency project site survey indicates that the project site provides habitat for special status wildlife, site-specific pre-construction surveys using USFWS and/or CDFW protocols will be conducted by a qualified biologist. If special status wildlife species are actively using an area within the site, work shall not be permitted to occur within 100 feet until the animals have left on their own or, if necessary, are relocated in accordance with MM-BIO-5. Setback areas will be flagged. A qualified biologist shall be present during construction to monitor construction activities.
MM-BIO-4	**Conduct Nesting Bird Species Surveys and Avoidance for Drought-Resiliency Projects.** If the drought-resiliency project site survey indicates that the project site provides habitat for nesting birds that may be affected by construction and construction would occur between March 1 and September 15, pre-construction nesting bird surveys (two site visits at least one week apart) will be conducted by a qualified biologist within 14 days prior to construction to detect the presence of nesting birds. If an active nest is found, then the qualified biologist will establish an appropriate buffer (minimum 100 feet for non-raptors and 250 feet for raptors) based on site-specific factors such as the topography, the type of work to be performed, natural visual and/or auditory barriers between the nest and proposed work area, and the species. If work must be performed within the established buffer zone, a qualified biologist should monitor the nest prior to work activities to determine baseline nesting behaviors. Work shall be permitted to occur within the buffer zone with a qualified biologist present to monitor the work for signs of disturbance, to adjust (increase) the buffer size as needed, and to exercise stop work authority if nest disturbance is observed. No further work may occur within the buffer zone until nesting birds have fledged from nests on their own. Setback areas will be flagged.
MM-BIO-5	**Implement General Biological Resources Protection Measures during Drought-Resiliency Project Construction.** The construction contractor and operations personnel shall implement the following general biological resources protection measures during drought-resiliency project construction: • Limit construction and operations activities to daylight hours to the extent feasible. If nighttime activities are unavoidable, then workers shall direct all lights for nighttime lighting into the work area and shall minimize the lighting of natural habitat areas adjacent to the work area. Light glare shields shall be used to reduce the extent of illumination into sensitive habitats. If the work area is located near surface waters, the lighting shall be shielded such that it does not shine directly into the water. • Vegetation clearing will be limited to only those areas necessary for construction. • Any excavated and stockpiled soils will be placed outside of designated special status species habitat. • Dispose of cleared vegetation and soils at a location that will not create habitat for special status wildlife species. • Dispose of food-related and other garbage in wildlife-proof containers and remove the garbage from the project area daily during construction. Vehicles carrying trash will be required to have loads covered and secured to prevent trash and debris from falling onto roads and adjacent properties. • Store all construction-related vehicles and equipment in the designated staging areas. These areas shall not contain native or sensitive vegetation communities and shall not support sensitive plant or wildlife species.

Name	Mitigation Measure
	• Construction-related vehicles and equipment will not exceed a 20 mile-per-hour speed limit at the construction site, staging areas, or on unpaved roads. • The qualified biologist will provide the contractor with worker environmental awareness training. • Prior to the initiation of work each day, the contractor will inspect construction pipes, culverts, or similar features; construction equipment; or construction debris left overnight in areas that may be occupied by special status species that could occupy such structures prior to being used for construction. • Avoid wildlife entrapment by completely covering or providing escape ramps for all excavated steep-walled holes or trenches more than 1 foot deep at the end of each construction work day. The qualified biologist shall inspect open trenches and holes and shall remove or release any trapped wildlife found in the trenches or holes prior to filling by the construction contractors. Capture and relocation of trapped or injured wildlife listed under the Endangered Species Act or California Endangered Species Act can only be performed by personnel with appropriate state and/or federal permits. Any sightings and any incidental take (mortality) shall be reported to CDFW via email within one working day of the discovery. Notification shall include the date, time, and location (U.S. Geological Survey 7.5-minute quadrangle and/or similar map at a scale that will allow others to find the location in the field) of the incident or of the discovery of an individual special status species that is dead or injured (type of injury shall be included). For each special status species encountered, the biologist shall submit a completed California Natural Diversity Database field survey form (or equivalent) to CDFW no more than 90 days after completing the last field visit to the project site.
MM-BIO-6	**Implement Giant Garter Snake (GGS) Avoidance Measures for Drought-Resiliency Projects.** If the need for a drought-resiliency project site survey is identified as part of MM-BIO-1, and the initial assessment indicates that that the project site provides habitat for GGS, avoidance measures must be implemented to avoid GGS during construction. Construction activities within GGS habitat will be restricted to between May 1 and October 1, to the extent feasible. If work must be conducted within GGS habitat between October 2 and April 30, two GGS pre-construction surveys will be conducted in any area within 200 feet of GGS aquatic habitat by a qualified biologist. The first survey will occur within 15 days prior to onset of construction and the second will occur within 24 hours prior to the onset of construction. The information collected from the first pre-construction survey will serve primarily to alert the biologist and construction crews of the general level of GGS activity at the site and borrow area, and the second survey will serve to minimize potential for take of GGS. If GGS is found in the project area, then to avoid direct impacts on GGS, the following measures will be implemented during construction of the drought-resiliency project: • Temporary fencing will be installed to exclude GGS from the work area. The design of the fence will be approved by the CDFW prior to installation. • Fence installation will be supervised by a qualified biologist. • The qualified biologist will provide the contractor with worker environmental awareness training, including instructing the contractor on how to inspect the exclusion fence. • Prior to the initiation of work each day, the contractor will inspect the exclusion fence to ensure it is functional for the intended purpose. If GGS is observed within the temporary fencing around the construction site, the contractor will stop work and allow the species to leave the site of its own volition or the snake will be captured by a qualified biologist with appropriate collecting/handling permits and relocated to the nearest suitable habitat beyond the influence of the project work area. “Take” of a state or federal special status species is prohibited without appropriate permits from the USFWS and CDFW.

Name	Mitigation Measure
MM-BIO-7	**Obtain Incidental Take Authorization for Take of Listed Species from Drought-Resiliency Project Impacts.** If species avoidance is not expected to be possible through implementation of MM-BIO-1, MM-BIO-3, MM-BIO-4, MM-BIO-5, or MM-BIO-6, USFWS and/or CDFW will be consulted to determine the appropriate approach for minimizing impacts to special status wildlife species and compensating for potential incidental take. Impacts will be compensated for through purchase of mitigation credits at an approved conservation bank and/or on or offsite restoration and enhancement. Incidental take authorization will be obtained for take of listed species resulting from construction of a drought-resiliency project.
MM-BIO-8	**Compensate for Permanent Loss of Special Status Wildlife Species Habitat from Drought-Resiliency Projects.** If it is determined through implementation of MM-BIO-1 and MM-BIO-3 that a drought-resiliency project site includes high-quality foraging or breeding habitat for special status wildlife species and there will be a permanent loss of such habitat resulting from construction, impacts will be compensated for through onsite and/or offsite restoration, enhancement, and/or purchase of mitigation credits at an approved conservation bank. Based on the findings of MM-BIO-3, the qualified biologist will prepare a plan that outlines proposed compensatory mitigation and coordinate with USFWS and CDFW. Compensatory lands will be of similar or better quality than habitat lost, preferably located in the vicinity of the drought-resiliency project site, and be permanently preserved through a conservation easement. The plan will identify conservation actions to ensure that the compensatory lands are managed to provide for the continued existence of the species. The plan will also identify an approach for funding assurance for the long-term management of the conserved land, as relevant.
MM-BIO-9	**Tree Replanting Requirements for Drought-Resiliency Projects.** Avoid native tree removal where practicable through adjustments to the alignment of ditches, pipelines, or other construction features. If protected or heritage native tree removal is not avoidable, local county requirements for replacement would be prescribed at the ratio specified in their general plan. Replanting ratios vary between counties. For trees known to be used by nesting raptors, preservation efforts shall be pursued to the maximum extent possible. Nest tree losses in Habitat Conservation Plan (HCP)-covered areas could be subject to replacement at 15:1 such as in the Natomas Basin HCP.
MM-BIO-10	**Timing Requirements for Discing in Fallow Fields During Agreement Years.** If discing occurs in idled croplands during an Agreement Year, the following will be adhered to: • Between February 15 and September 15, discing will occur when vegetation is on average 12 inches or less in height. • Between September 15 and February 15, discing may occur without vegetation height restriction.
MM-BIO-11	**Maintain Minimum Water Depth in Irrigation and Drainage Canals in Key Areas During Agreement Years.** Certain croplands abut or are immediately adjacent to areas with known important GGS populations that may be in or connected to areas with specific management plans for GGS either for mitigation or as wildlife refuges. Croplands abutting or immediately adjacent to the following areas are considered important GGS populations: • Butte Creek between Upper Butte Basin and Gray Lodge Wildlife areas • Colusa Basin drainage canal between Delevan and Colusa National Wildlife Refuges • Gilsizer Slough • Colusa Drainage Canal • Land side of the Toe Drain along the Sutter Bypass • Willow Slough and Willow Slough Bypass in Yolo County

Name	Mitigation Measure
	• Hunters and Logan Creeks between Sacramento and Delevan National Wildlife Refuges • Lands in the Natomas Basin To the extent practicable, irrigation and drainage canal water depths in areas that are considered important GGS populations will be similar to years when the Agreement is not in effect or, where information on baseline water depths is limited, at least 2 feet deep.
MM-BIO-12	**Conduct Aquatic Resources Surveys and Avoidance for Drought-Resiliency Projects.** If the drought-resiliency project site survey identified in MM-BIO-1 indicates that the project site contains potentially jurisdictional aquatic resources, including wetlands, other waters, and riparian habitat, that may be affected by construction, an aquatic resources delineation to identify and delineate wetlands and other waters shall be conducted. Wetlands and waters identified on site will be flagged as environmentally sensitive areas and avoided to the extent practicable. Permanent impacts to jurisdictional aquatic resources will be mitigated per MM-BIO-13.
MM-BIO-13	**Obtain Required Permits and Implement Wetland Mitigation for Drought-Resiliency Projects.** If impacts to wetlands and waters cannot be avoided, then required permits, potentially including permits from the USACE, RWQCB, and CDFW would be obtained and complied with per MM-BIO-13. Mitigation for project-related permanent impacts to jurisdictional wetlands or other waters will be provided at a minimum 1:1 ratio through onsite and/or offsite restoration, enhancement, and/or purchase of mitigation credits at an approved bank.
MM-HYD-1	**Implement Erosion and Spill Control Measures for Drought-Resiliency Projects.** To ensure that contaminants are not accidentally introduced into irrigation ditches and canals, the following measures will be implemented during construction of drought-resiliency projects: • Use of best management practices (e.g., filter fabric or sandbags) to prevent pollutants from entering drainage channels • Equipment be inspected daily for leaks or spills • Materials for cleanup of spills be available on site • Flammable materials be stored in appropriate containers • Spill prevention kits be in close proximity when using hazardous materials • Spills and leaks be cleaned up immediately and disposed of in accordance with local, state, and federal regulations • Vehicles and equipment be kept clean • Construction personnel to be appropriately trained in spill prevention, hazardous material control, and cleanup of accidental spills For drought-resiliency projects involving over an acre of land disturbance, a National Pollutant Discharge Elimination System Construction Stormwater General Permit will be obtained and a construction Stormwater Pollution Prevention Plan will be prepared.
MM-HYD-2	**Install and Operate Groundwater Wells in Accordance with Groundwater Sustainability Plans (GSPs) and the Sustainable Groundwater Management Act (SGMA) for All Groundwater Pumping Activities Undertaken Under the Agreement.** The installation of any new groundwater wells and the operation of existing and new groundwater wells will be in accordance with targets and requirements set by applicable GSPs managed by Groundwater Sustainability Agencies in the project area, as well as the requirements set forth by SGMA, including the submittal of annual reports regardless of determination status following adoption of a GSP or alternative.
MM-CUL-1	**Conduct California Historical Resources Information System Review and Desktop Evaluation for Drought-Resiliency Projects.** Prior to the start of any drought-resiliency project, a qualified historian/archaeologist will request information regarding cultural resources already recorded in the California Historical Resources Information System to determine whether a drought-resiliency project may be located in an area

Name	Mitigation Measure
	where cultural resources are recorded. If through this review, a cultural resource is identified within resiliency project area or the historian/archaeologist determines through desktop review that the specific project area has potential to contain cultural resources, then implementation of MM-CUL-2 will be required.
MM-CUL-2	**Conduct Pre-Construction Surveys and Establish Buffers for Drought-Resiliency Projects.** If determined required by the qualified historian/archaeologist in MM-CUL-1, a site-specific pre-construction field survey will be conducted by a qualified historian/archeologist prior to the start of construction activities. The pre-construction survey will be designed to identify historic structures, archaeological sites, and potential Tribal cultural resources that may be present at the specific location of the drought-resiliency project that is to be implemented. Reports would be made available to the Office of Historic Preservation (OHP) and Native American Tribes that have requested consultation (if any), and these entities would be afforded an opportunity to comment prior to the start of construction. Any historical or archaeological resources identified during the survey would be recorded and flagged with a 30-foot buffer (or based on topography and access points to protect the find, as determined appropriate by the qualified historian/archeologist).
MM-CUL-3	**Develop and Implement Applicable Monitoring and Mitigation for Drought-Resiliency Project Impacts.** If the pre-construction survey conducted in MM-CUL-2 identifies any historic or archaeological resources and a Tribe(s) has requested consultation, then that Tribe(s) will be notified. If historic structures, archaeological sites, and potential Tribal cultural resources are identified and flagged, but impacts cannot be avoided or adequately minimized, then OHP and Tribes that have requested consultation (if any) will be provided a project-specific monitoring and mitigation plan. Impacts will be mitigated through implementation of this plan, with mitigation expected to include but not be limited to monitoring, resource investigation, documentation, recovery, or preservation as well as interpretive measures.
MM-CUL-4	**Develop Inadvertent Discovery Plan (IDP) to be Implemented if Prehistoric or Historical Archaeological Resources Are Encountered during Drought-Resiliency Project Construction.** A qualified archaeologist will develop an IDP for the proposed project to be provided to onsite personnel involved in drought-resiliency projects that involve excavation below depths routinely disced or disturbed through routine agricultural operations. The IDP will include steps to be taken in the event that cultural resources, any artifact, or an unusual amount of bone, shell, or non-native stone are identified during construction. Work will immediately stop and activities will be relocated to another area beyond 10 meters (30 feet) of the discovery. In the case of potential human remains, the find must be reported to local law enforcement. The IDP will specify steps to notify and consult with the OHP and Tribes. If the resources are found to be significant, they would be avoided or if avoidance is not possible, mitigated in accordance with MM-CUL-3.
MM-GEO-1	**Needed Implementation of Geotechnical Recommendations for Drought-Resiliency Projects.** Recommendations from geotechnical assessments or reports for specific project elements would be implemented as needed, including use of materials and construction techniques specifically addressing potential seismic and geologic hazards.
MM-GEO-2	**Unstable Area Buffer for Drought-Resiliency Projects.** Within a 50-foot-wide buffer around unstable areas regardless of percent slope, no drought-resiliency project construction would occur without approval from an earth sciences/physical sciences professional.
MM-GEO-3	**Adhere to Applicable Seismic Design Parameters for Drought-Resiliency Projects.** Drought-resiliency projects would adhere to all applicable seismic design parameters.
MM-HAZ-1	**Soil Testing in Accordance with Disposal Site Requirements.** To address potential impacts to people and the environment from management of potentially contaminated soils, any excavated soils that would not be reused on site would be tested in accordance with disposal site requirements.

Name	Mitigation Measure
MM-HAZ-2	**Spill Kits.** All heavy construction equipment vehicles would maintain spill kits with oil-absorbent material and tarps to contain minor releases.
MM-HAZ-3	**Site Drought-Resiliency Projects Away from Active Cleanup Sites.** Drought-resiliency projects will be sited away from active cleanup sites.
MM-MIN-1	**Avoid Siting Drought-Resiliency Projects in Mineral Resource Zones.** Site drought-resiliency projects away from areas mapped as mineral resource zones to the extent practicable.
MM-NOI-1	**Notification Requirements to Off-Site Noise-Sensitive Receptors for Drought-Resiliency Projects.** Written notification of project activities would be provided to all off-site noise-sensitive receptors (e.g., residential land uses) located within 500 feet of drought-resiliency project locations. Notification would include anticipated dates and hours during which activities are anticipated to occur and contact information of the project representative, including a daytime telephone number.
MM-NOI-2	**Power Equipment Use and Maintenance Requirements for Drought-Resiliency Projects.** All powered heavy equipment and power tools will be used and maintained according to manufacturer specifications. All diesel- and gasoline-powered equipment will be properly maintained and equipped with noise-reduction intake and exhaust mufflers and engine shrouds, in accordance with manufacturers' recommendations.
MM-NOI-3	**Heavy Equipment Must Operate at Least 25 Feet from Neighboring Structures for Drought-Resiliency Projects.** Drought-resiliency projects involving the use of heavy equipment (such as a large bulldozer) will be sited to occur at least 25 feet from neighboring historical buildings and structures that are extremely susceptible to vibration damage.
MM-UTI-1	**Notify Utility Companies of Drought-Resiliency Projects.** Prior to construction of the drought-resiliency projects, utility companies will be contacted to determine whether the potential for utility line crossing or conflict exists. Notice of construction of the drought-resiliency projects will be provided to utility providers to request additional information on the location, if any, of private cables or utilities.
MM-UTI-2	**Conduct Utility Surveys and Coordinate with Utility Companies for Drought-Resiliency Projects if Needed.** During the design phase for each of the drought-resiliency projects and if coordination with utility companies reveals the potential for utility lines to be in the project area, site-specific utilities surveys will be completed to locate, understand, and avoid conflicts with existing utilities. In addition, all overhead and buried utility lines will be demarcated and avoided unless modifications are required. Modifications will be coordinated with the utility company.

1 Introduction

1.1 Final Environmental Impact Report Purpose and Organization

This *Final Environmental Impact Report* (FEIR) was prepared in compliance with the California Environmental Quality Act (CEQA; Public Resources Code [PRC] Division 13, Section 21000 et seq.) and the CEQA Guidelines (14 California Code of Regulations [CCR] 15000 et seq.) to assist the Glenn-Colusa Irrigation District (GCID) in considering the approval of the proposed Water Reduction Program Agreement[4] (proposed project or Agreement) between the Sacramento River Settlement Contractors Nonprofit Mutual Benefit Corporation (SRSCNC), individual Sacramento River Settlement Contractors[5] (SRSC), and the U.S. Bureau of Reclamation (Reclamation).

1.1.1 FEIR Purpose

The purpose of an Environmental Impact Report (EIR) is to inform decision-makers and the general public of the potential environmental impacts resulting from a project, as well as the mitigation measures or alternatives that would avoid or minimize identified significant impacts. GCID has the principal responsibility for approving the proposed project and, as the CEQA lead agency, is responsible for the preparation and distribution of this FEIR pursuant to PRC 21067. The FEIR will be used by GCID and other responsible agencies in conjunction with all approvals necessary for the implementation of the proposed project.

This document, in conjunction with the Draft Environmental Impact Report (DEIR), collectively constitutes the FEIR. As described in CEQA Guidelines Sections 15089, 15090, and 15132, the lead agency must prepare and consider the information contained in a FEIR before approving a project. Pursuant to CEQA Guidelines Section 15132, a FEIR comprises the following materials:

- The DEIR or a revision of the DEIR
- Comments and recommendations received on the DEIR.
- A list of persons, organizations, and public agencies commenting on the DEIR.

1.1.2 FEIR Organization

Chapter 1 presents background and introductory information for the proposed approval and implementation of the proposed project. Chapter 2 presents information regarding the distribution

[4] Since the release of the DEIR, the name of the proposed Agreement has changed to the Drought Protection Program Agreement. The change to the name does not affect the substance of the Agreement as analyzed in the DEIR; for the avoidance of confusion, the FEIR continues to use the working draft title of Water Reduction Program Agreement. The proposed project is the same agreement that is analyzed in Reclamation's November 2024 Environmental Assessment for the Sacramento River Settlement Contractors Drought Protection Program.

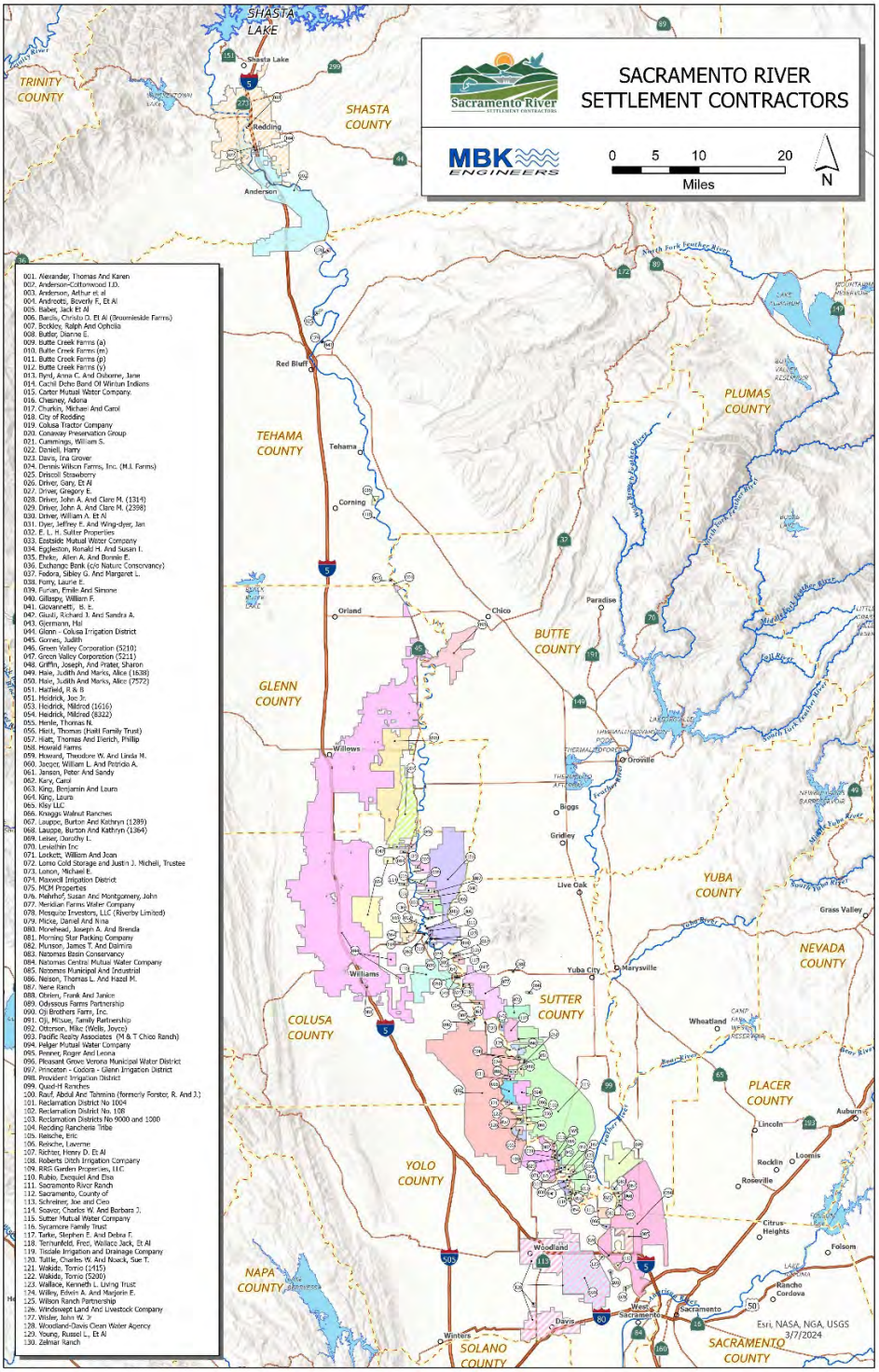
[5] The FEIR refers to "the SRSC" or "contractors" interchangeably.

of comments received on the DEIR as well as the responses to all environmental comments received during the public comment period. Chapter 3 presents a description of modifications to the DEIR.

1.2 Project Overview

Under the proposed project, the SRSCNC and individual members of the SRSC would enter into a new Agreement with Reclamation to forego a larger percentage of their existing contracted water supply in specified drought years and develop drought-resiliency projects. The proposed project would occur within the SRSC service area (Figure 1), which is within the Sacramento Valley in California's Central Valley. Details of the Agreement are presented in Section 1.4.

Figure 1
Project Area



Source: MBK Engineers

1.2.1 Project Background

The federal Central Valley Project (CVP), managed by Reclamation, was authorized in 1935. Recognized as one of the world's largest water supply projects, the CVP covers a complex, multi-purpose network of dams (including the Shasta Dam), reservoirs, canals, hydroelectric powerplants, and other facilities over an area of approximately 400 miles from Redding to Bakersfield (USBR 2024). The CVP draws from two large river basins: the Sacramento and the San Joaquin. CVP water supports a variety of human uses, including municipal uses such as human consumption, toilets and showers, landscaping, car washing, businesses, and industrial processes, and it provides a major source of support for California agriculture, including irrigating more than 3 million acres of land. CVP flows also support fisheries habitat, wetlands and wildlife refuges, and habitat for migrating birds. The CVP is operated in coordination with the State Water Project, which provides much of its water to municipal users in the Bay Area and Southern California along with agriculture in the Central Valley (Congressional Research Service 2024). Water releases from Shasta Lake are also used to control river water flow and temperature downstream of Shasta Lake to support endangered and threatened fish species in accordance with obligations to support ecosystem management within the Sacramento River Basin. These fish species and wildlife that rely on the fish, including bald eagles (*Haliaeetus leucocephalus*) and bears (*Ursidae* spp.), are impacted by critically dry conditions that reduce river flow and increase water temperatures. Chinook salmon are especially sensitive to water temperatures, requiring a set range in water temperatures for eggs and juvenile salmon survival. Water is managed with a set goal of an average daily stream temperature during the temperature management season. However, higher air temperatures and lower water levels in Shasta Reservoir, behind the dam, causes the water to heat up faster, which hampers Reclamation's ability to maintain the water temperatures, especially during drought years (NOAA Fisheries 2015).

The SRSC holds rights to divert water from the Sacramento River and its tributaries that are senior to the CVP. Agreements were reached with Reclamation to protect these senior water rights (SRSC 2024) that allow the SRSC divert their water supplies in accordance with their "Settlement Contracts" with Reclamation. The Settlement Contracts provide the SRSC with the enjoyment and use of the regulated flow of the Sacramento River and the Delta. In return, the SRSC provides reimbursement to the United States for expenditures related to the economical operation of the CVP. The Settlement Contracts also identify how much water contractors can divert during the contract season. By specifying the monthly amount and timing of the SRSC diversions, the contracts allow Reclamation to operate the CVP based on forecasted demand, and contractors are more certain of their water supplies in the summer and during drought conditions. Under existing Settlement Contracts, contractors are entitled to divert 2.1 million acre-feet of water per year from April through October, with some contractors having an alternative year-round schedule. The SRSC are typically entitled to receive and divert 100% of their contracted water quantities in most water-year types.

To address river levels and other water management goals and responsibilities, contracts between Reclamation and the SRSC and between Reclamation and other users with water rights (such as the San Joaquin River exchange contractors, North and South of Delta water service contractors, and Central Valley refuge water contractors) provide exceptions for Reclamation to reduce water deliveries due to hydrologic conditions and other conditions outside Reclamation's control. Specific to the SRSC, Reclamation has established Shasta Critical Years (Critical Years) that trigger contract reductions.

A Critical Year is any year in which either of the following eventualities exists:

- The forecasted full natural inflow to Shasta Lake for the current Water Year, as such forecast is made by Reclamation on or before February 15 and reviewed as frequently thereafter as conditions and information warrant, is equal to or less than 3.2 million acre-feet.
- The total accumulated actual deficiencies below 4.0 million acre-feet in the immediately prior Water Year or series of successive prior Water Years, each of which had inflows of less than 4.0 million acre-feet, together with the forecasted deficiency for the current Water Year, exceed 800,000 acre-feet.

During Critical Years, the SRSC are bound to divert water not in excess of 75% of their contracted water amount, which represents a maximum supply for the SRSC of approximately 1.6 million acre-feet out of the 2.1 million acre-feet total contracted water amount.[6]

1.2.2 Project Objectives

Pursuant to the CEQA Guidelines and 14 CCR 15124, a "statement of the objectives sought by the proposed project" must be provided as part of the project description in an EIR. The goal of the proposed project is to approve and facilitate reduced water contract supply to the SRSC during specified drought years to address water shortages at Shasta Lake. Reduced SRSC contract supply allows for Reclamation to respond to shortages in water supplies due to very dry hydrologic conditions, climatic variability, climate change, and regulatory requirements. The proposed project would also develop implementable and supplemental water supplies and drought-resiliency projects to strengthen the resilience of the SRSC's water systems and long-term water delivery capabilities. The project objectives include the following:

- Approve and facilitate reduced water contract supply to the SRSC during specified drought years to address water shortages at Shasta Lake in accordance with the Agreement and generally meet existing municipal, agricultural, and habitat demands from 2025 to 2045.

[6] In Critical Years, some members of the SRSC have the option to: 1) irrigate not in excess of 75% of their irrigable acreages; or 2) divert from the Sacramento River not in excess of 75% of the contracted amount, subject to the installation of measurement equipment.

- Develop implementable and supplemental drought-resiliency projects to strengthen the resilience of the SRSC's water systems and long-term water delivery capabilities.

1.3 California Environmental Quality Act Baseline

CEQA Guidelines Section 15125 requires that an EIR include a description of the physical environmental conditions in the vicinity of the proposed project as they exist at the time that the Notice of Preparation (NOP) is published, or if no NOP is published, at the time the environmental analysis is commenced, from both a local and regional perspective. These environmental conditions are referred to as the environmental setting. Further, CEQA Guidelines Section 15125(a) states that "the environmental setting normally constitutes the baseline physical conditions by which a Lead Agency determines whether an impact is significant." The CEQA baseline is the set of conditions that prevailed at the time the NOP is circulated. Per CEQA Guidelines Section 15125, the following paragraph describes current conditions at the project site.

At the time of publication of the NOP for the proposed project, the project area is dominated by agriculture, rural land uses, and water resources with more urban and suburban conditions in cities such as Redding. The project setting described in Section 1.4.1 serves as a general description of baseline conditions.

1.3.1 Regional Environmental Setting

California's Central Valley encompasses almost 20,000 square miles in the center of the state (Figure 2). It is bound by the Cascade Range to the north, the Sierra Nevada to the east, the Tehachapi Mountains to the south, and the Coast Ranges and San Francisco Bay to the west. The valley is close to sea level, and its land surface has very low relief. Historically, this area was home to significant fish and wildlife populations but is now a vast agricultural region (USGS 2024).

The Central Valley watershed comprises 60,000 square miles. The northern third of the valley is drained by the Sacramento River, and the southern two-thirds of the valley is drained by the San Joaquin River. The Sacramento and San Joaquin river systems meet to form the Sacramento-San Joaquin River Delta (Delta), a large expanse of interconnected canals, streambeds, sloughs, marshes, and peat islands. The Delta empties into the San Francisco Bay and the Pacific Ocean (Congressional Research Service 2024).

Figure 2
Four Major Regions of the Central Valley

Source: https://ca.water.usgs.gov/projects/central-valley/about-central-valley.html

1.3.2 Project Environmental Setting

The proposed project setting includes the area shown in Figure 1. The gross project area is approximately 560,000 acres, which includes approximately 454,000 acres of irrigable areas, roads, and other land types. The SRSC are various irrigation districts, reclamation districts, mutual water companies, cities and other public entities, partnerships, corporations, Tribes, and individuals that operate within the Sacramento Valley. The Sacramento Valley is the area of the Central Valley that lies north of the Delta and is drained by the Sacramento River.

1.4 Proposed Project

Currently, SRSC-contracted quantities may be reduced by amounts specified in each contract, up to 75% of their contracted amount during Critical Years.[7] Under the proposed project, the SRSCNC and individual members of the SRSC would enter into a new Agreement with Reclamation to forego a larger percentage of their contracted supply in specified drought years under two phases: from 2025 to 2035 and from 2036 to 2045, and to receive funding from Reclamation to develop drought-resiliency projects.

1.4.1 Project Phasing

Water reductions would be implemented during specified drought years, which may occur within a series of drier years such as during a multi-year drought sequence. Under Phase 1 of the Agreement (2025 to 2035), the contractors would collectively incur a reduced contract supply of up to an additional 500,000 acre-feet under their aggregated contracts during certain years (defined as Phase 1 Agreement Years) if the following four conditions are met:

- Reclamation forecasts end-of-April Shasta Lake storage to be less than 3.0 million acre-feet.
- Reclamation forecasts end-of-September Shasta Lake storage to be less than 2.0 million acre-feet.
- Combined actual and forecasted natural inflow to Shasta Lake from October 1 through April 30 is less than 2.5 million acre-feet.
- Reclamation forecasts a Critical Year under the Settlement Contracts.

Under Phase 2 (2036 to 2045), the contractors would agree to collectively incur a reduced contracted supply of up to an additional 100,000 acre-feet under their aggregated contracts during certain years (defined as Phase 2 Agreement Years) if the following two conditions are met:

- Combined actual and forecasted natural inflow to Shasta Lake from October 1 through April 30 is less than 2.5 million acre-feet.
- Reclamation forecasts a Critical Year under the Settlement Contracts.

[7] The reduction requirements for the City of Redding and certain smaller SRSC (short-form contractors) differ slightly from the other SRSC. The City of Redding uses contract supply for municipal water year-round. The short-form SRSC have the option to irrigate "not in excess of 75 percent of its irrigable acreage."

Table 1 presents the total maximum reductions in each phase including existing agreements and the proposed Agreement.

Table 1
Contracted Water Supply Available for the SRSC in Phases 1 and 2 including Existing Contracts and Proposed Agreement

Agreement Year	Total Contracted Water Amount	Maximum Contracted Water Amount in Critical Years	Additional Reductions per Proposed Agreement	Maximum Contracted Water Amounts in Agreement Years[a]
Phase 1 Agreement Year	2,100,000 acre-feet[b]	1,600,000 acre-feet (75% of total)	Up to -500,000 acre-feet	1,100,000 acre-feet (about 50% of total)
Phase 2 Agreement Year			Up to -100,000 acre-feet	1,500,000 acre-feet (about 70% of total)

Notes:

a. Assuming maximum additional reduction under the proposed Agreement occurs in a single year.
b. Contracted water amount rounded based on normal fluctuations.

1.4.2 Project Activities

The contract supply reductions to be implemented in Phases 1 and 2 would be achieved by implementing surface water use reduction activities and drought-resiliency projects. These activities are described in detail in DEIR Sections 2.5.1 and 2.5.2. Activities taken in response to water reductions include cropland idling, cropland shifting, groundwater substitution, and conservation. Conservation activities include deficit irrigation activities. Some clarifying language to explain deficit irrigation activities has been added to Chapter 3 (Section 2.5.1.4 of the DEIR). Deficit irrigation would result in similar impacts to those associated with crop idling, although the impacts would not be as substantial. There would be no changes to the impacts presented in the DEIR and no additional changes to the FEIR are needed as a result of this revision.

Drought-resiliency projects are a broad range of actions intended to strengthen the resilience of the SRSC's water system and long-term water delivery capabilities. The resiliency projects will assist Reclamation and the SRSC with withstanding and recovering from climatic variability in order to support healthy rivers and landscapes (including but not limited to terrestrial ecosystems) and create durable water savings while sustaining a more drought-resilient economy that retains its vitality. Drought-resiliency projects are expected to be constructed and implemented during Phase 1, but it is possible some may still be constructed in Phase 2. It is anticipated that with the implementation of drought-resiliency projects, the need for the activities taken in response to water reductions described in DEIR Section 2.5.1 may be reduced over time. The drought-resiliency projects would not

involve the construction of any new large-scale development such as large structures, large-scale infrastructure, or roadways. DEIR Sections 2.5.2.1 to 2.5.2.9 provide details on possible drought-resiliency projects including piping open ditches or canal; canal lining; canal automation; installation of automated canal gates; on-farm improvements to irrigation systems to improve efficiency; weirs or check structures; pipeline recirculation programs; construction of new groundwater or deep aquifer wells; and conjunctive management programs. The following equipment are expected to be used to construct the proposed drought-resiliency projects as needed:

- Excavators
- Roller-compactors
- Small Cranes
- Dozers
- Backhoe loaders
- Concrete trucks
- Hand-held tools
- Skid steer loaders
- Graders
- Mulchers
- Dump trucks
- Percussion or rotary-drilling machines
- Construction vehicles

1.5 Project Alternatives

CEQA's requirements for an EIR to evaluate alternatives specifically requires that an EIR present a range of reasonable alternatives to a proposed project, or to the location of a project, that could feasibly attain most of the basic project objectives but would avoid or substantially lessen any significant effects of a project. Therefore, alternatives generally have fewer environmental impacts than the proposed project by design. Pursuant to Section 15126.6(e)(2) of the CEQA Guidelines, an EIR must also include an analysis of a No Project Alternative. This section presents brief descriptions of the alternatives to the proposed project that were carried forward for analysis in the DEIR.

Alternative 1: No Project Alternative

The No Project Alternative, which is required for inclusion in an EIR by CEQA, represents what would reasonably be expected to occur in the foreseeable future if the proposed project were not approved. Under the No Project Alternative, the Agreement between the SRSC and Reclamation would not be signed, and water would continue to be managed based on current allocations and management plans. Neither additional reductions during specified drought years nor drought-resiliency projects to address potential water loss and strengthen the resilience of the SRSC's water system and long-term water delivery capabilities would be implemented.

Alternative 2: No Groundwater Substitution Alternative

This alternative would involve accomplishing surface water use reductions through cropland idling, cropland shifting, and conservation activities, without groundwater substitution occurring as a result of the Agreement. Drought-resiliency projects would also be undertaken with this alternative. While more crop shifting could reduce surface water use, it is assumed most contractors would idle more

cropland without access to the additional water provided by groundwater substitution. Crop shifting and conservation may result in additional reductions, but these are too speculative to quantify.

1.5.1 Comparison of Alternatives

Table 2 presents a summary of the alternatives analysis, including significant and unavoidable impacts and resources with significant impacts that can be mitigated to less-than-significant levels.

Table 2
Comparison of Impacts of Alternatives as Compared to the Proposed Project Impacts

Resource Topic	Proposed Project Impact Determination	No Project Alternative Impacts Compared to the Proposed Project	Alternative 1 Impacts Compared to the Proposed Project
Biological Resources	Significant and unavoidable impact	Reduced impacts on terrestrial species and habitats Increased impacts on aquatic species	Increased impacts
Agriculture and Forestry	Less-than-significant impact with mitigation	Reduced impacts	Similar impacts
Cultural Resources	Less-than-significant impact with mitigation	Reduced impacts	Similar impacts
Hazards and Hazardous Materials	Less-than-significant impact with mitigation	Reduced impacts	Similar impacts
Hydrology and Water Quality	Less-than-significant impact with mitigation	Reduced impacts	Similar impacts
Noise	Less-than-significant impact with mitigation	Reduced impacts	Similar impacts
Tribal and Cultural Resources	Less-than-significant impact with mitigation	Reduced impacts	Similar impacts
Utilities and Service Systems	Less-than-significant impact with mitigation	Reduced impacts	Similar impacts
Meets Project Objectives?	Yes	No	Yes

2 DEIR Comments and Responses

2.1 DEIR Report Distribution

The DEIR was released and distributed on September 20, 2024, for a 45-day review period, which ended on November 4, 2024. The DEIR includes a full analysis and an Executive Summary that summarizes the proposed project, alternatives, and findings.

The DEIR is available at the GCID website at https://www.gcid.net/ and the State Clearinghouse website at https://ceqanet.opr.ca.gov/2024050834/2. Hard copies of the DEIR and technical appendices are available upon request by contacting GCID by email at ceqapublicomments@gcid.net or by phone at 530-934-8881.

2.2 Comments on the DEIR

GCID received comment letters on the DEIR from the following organizations:

- AquAlliance, California Sportfishing Protection Alliance, and California Water Impact Network
- Audubon CA, California Association of Resource Conservation Districts, Defenders of Wildlife, Pacific Coast and Central Valley Group, River Partners, and The Nature Conservancy
- Contra Costa Water District
- California Department of Fish and Wildlife (CDFW)
- California Sportfishing Protection Alliance, Defenders of Wildlife, Friends of the River, Golden State Salmon Association, San Francisco Baykeeper, and Restore the Delta
- Central Delta Water Agency
- Feather River Air Quality Management District
- Friant Water Authority
- Grassland Water District and California Waterfowl Association
- Sacramento Metropolitan Air Quality Management District
- State Water Contractors
- Westlands Water District

2.3 Response to Comments on the DEIR

In accordance with Section 15088 of the CEQA Guidelines, GCID has evaluated the comments on environmental issues received from interested parties and has prepared written responses to each comment pertinent to the adequacy of the environmental analyses contained in the DEIR. In addition, where appropriate, the basis for incorporating or not incorporating specific suggestions into the proposed project is provided. In each case, GCID has expended a good-faith effort, supported by reasoned analysis, to respond to comments.

The comment letters are provided in Section 2.5. Each comment letter is followed by tabulated responses prepared by GCID to each substantive comment received. In addition, there were several similar comments that were provided by multiple commentors—specifically on: 1) the project description; 2) groundwater; and 3) separate agreements and obligations. Therefore, three global responses to these comments (Section 2.4) were prepared in addition to the specific responses to comments presented in Section 2.5.

2.4 Global Responses

2.4.1 Global Response 1: Project Description

Several comments were received suggesting that the proposed project is part of a larger project or inadequately defined.

The project description is not vague and provides a level of detail that allows for meaningful assessment of potential impacts consistent with the requirements of CEQA. The federal CVP is managed by Reclamation. CVP water supports a variety of human uses including human consumption, toilets and showers, landscaping, car washing, businesses, and industrial processes, and it provides a major source of support for California agriculture, including irrigating more than 3 million acres of land. CVP flows also support fisheries habitat, wetlands and wildlife refuges, and habitat for terrestrial species, including protected migrating birds and giant garter snake (GGS).

The SRSC divert their water supplies from the CVP in accordance with their "Settlement Contracts" with Reclamation. The Settlement Contracts provide the SRSC with the enjoyment and use of the regulated flow of the Sacramento River and the Delta. In return, the SRSC provide reimbursement to the United States for expenditures related to the economical operation of the CVP. The Settlement Contracts also identify how much water the SRSC can divert during the contract season. By specifying the monthly amount and timing of SRSC diversions, the Settlement Contracts allow Reclamation to operate the CVP based on forecasted demand, and the SRSC are more certain of their water supplies in the summer and during drought conditions. The SRSC are one of many contractors and users of CVP water.

Reclamation currently has the ability to reduce water deliveries to the SRSC and other CVP contractors by set amounts during drought years when there is insufficient water available for all beneficial uses, including Reclamation's demands to meet contracted supplies and other CVP purposes, while also managing releases of water for fish and wildlife purposes, flood control requirements, and power generation. For the SRSC, these shortages are well defined and occur during defined Shasta Critical Years. In addition to the Shasta Critical Year reductions, the SRSC and Reclamation have voluntarily coordinated efforts to further reduce SRSC deliveries during recent past drought years, which serve as baseline conditions.

The proposed project is a new Agreement between the SRSC and Reclamation under which the SRSC would: 1) agree to forego a larger percentage of their contracted water during specified drought years; and 2) receive funding from Reclamation to develop drought-resiliency projects. The DEIR provides details on the types of reasonably foreseeable activities that the SRSC would engage in because of the reduced contracted water supplies (see Section 2.5.1 of the DEIR) and the drought-resiliency projects that would be developed because of the funding (see Section 2.5.2 of the DEIR). Section 3 of the DEIR analyzes the reasonably foreseeable environmental impacts associated with such activities based on all information currently available.

As described in Section 2.5.1 of the DEIR, the SRSC contract supply would be reduced by a maximum of 500,000 acre-feet in a Phase 1 Agreement Year[8] and up to 100,000 acre-feet in a Phase 2 Agreement Year.[9] The activities described in Section 2.5.1 are in response to water reductions—the activities are an anticipated, but not required, response to reduced surface water deliveries under the Agreement. The types of activities the SRSC would undertake in response to this contract supply reduction were identified based on conversations with the SRSC as the most likely to be implemented to respond to these future potential water shortages. Additional details regarding the water supply reductions or response actions that would result from the Agreement are not further specified because they are variable and would occur in the future, and they are unknown at this time. As described in the DEIR, water reduction volumes may vary in different Agreement years depending on hydrologic conditions uses of the water, funding, and other factors that cannot be reliably predicted. Also, Agreement participants and landowners within the SRSC may choose to do a combination of cropland idling, crop shifting, groundwater pumping, and/or conservation when contract reductions occur, which precludes exact certainty; accordingly, these activities are analyzed with the level of detail possible based on current information. These activities could change from Agreement Year to Agreement Year depending on many factors including prior year operations and conditions, crop market prices, and current year operational costs.

Commentors also suggested that the DEIR is inadequate because the exact location and timing of activities related to water reductions are not provided.

[8] Under Phase 1 of the Agreement (2025 to 2035), the contractors would collectively incur a reduced contract supply of up to 500,000 acre-feet under their aggregated contracts during certain years (defined as Phase 1 Agreement Years) if the following four conditions are met:

- Reclamation forecasts end-of-April Shasta Lake storage to be less than 3.0 million acre-feet.
- Reclamation forecasts end-of-September Shasta Lake storage to be less than 2.0 million acre-feet.
- Combined actual and forecasted natural inflow to Shasta Lake from October 1 through April 30 is less than 2.5 million acre-feet.
- Reclamation forecasts a Critical Year under the Settlement Contracts.

[9] Under Phase 2 (2036 to 2045), the contractors would agree to collectively incur a reduced contracted supply of up to 100,000 acre-feet under their aggregated contracts during certain years (defined as Phase 2 Agreement Years) if the following two conditions are met:

- Combined actual and forecasted natural inflow to Shasta Lake from October 1 through April 30 is less than 2.5 million acre-feet.
- Reclamation forecasts a Critical Year under the Settlement Contracts.

CEQA Guidelines do not require that an EIR predict (or speculate) specifically where an activity would occur, or when it would occur, if those details are not reasonably foreseeable based on available evidence. An exact location is not needed to conduct an analysis of potential project impacts in compliance with CEQA. The analysis in the DEIR identified and considered ways that the specific location or the construction or implementation timeframe of a project activity could influence the extent or magnitude of the impact, and then it identified mitigation measures that would be imposed if a project activity were located in areas or during periods where such mitigation would be needed. Individual future activities may still require additional CEQA clearance; however, the DEIR adequately describes what types of activities may occur because of the proposed project and how those activities could affect the environment both individually and cumulatively.

Commenters suggested that activities would exceed the required response to the maximum contract supply reduction.

The DEIR includes Table 6, which shows the maximum annual cropland idling acreage during an Agreement Year with reductions within the SRSC service area in response to reductions of up to 500,000 acre-feet and 100,000 acre-feet for Phases 1 and 2, respectively. It also includes Table 7, which shows the anticipated maximum annual groundwater substitution volumes during an Agreement Year with reductions within the SRSC service area for Phases 1 and 2, based on conversations with the SRSC, who were asked to provide feedback. Because the maximum contract supply reduction under the Agreement would not exceed 500,000 acre-feet in a Phase 1 Year or 100,000 acre-feet in a Phase 2 Year, it should be noted that there would not be a scenario in which both the maximum idling and maximum groundwater substitution amounts shown in these tables would occur, as that would exceed the required response to the maximum contract supply reduction. Instead, it is anticipated that one or a combination of activities undertaken in response to water reductions would be implemented to satisfy the Agreement-required contract supply reductions.

2.4.2 Global Response 2: Groundwater

Comments were received suggesting that the DEIR did not adequately analyze new groundwater wells and understated the extent of groundwater pumping.

As discussed in the DEIR and based on conversations with the SRSC, Agreement participants may choose to pump groundwater in lieu of using surface water supplies during years in which SRSC surface water supplies are reduced pursuant to the Agreement. It should be noted that contractors can choose to pump groundwater from existing wells in any year assuming compliance with basin management objectives identified in applicable Groundwater Sustainability Plans (GSPs) and groundwater management plans, as discussed below. Based on conversations with contractors in which they were asked to provide the most reasonable assumptions for how they would achieve water reductions based on conservatively assuming that the maximum amount of water would be

required to be reduced for the maximum likely duration of time, the DEIR conservatively assumed that up to 167,100 acre-feet and 33,420 acre-feet of groundwater is anticipated to be pumped annually during Agreement Years in Phases 1 and 2 respectively, as presented in Table 7 of the DEIR, and that a maximum of 30 new wells may be constructed (in addition to operating existing wells to pump groundwater during Agreement Years). While the actual number of wells and amount of pumping in an Agreement Year may be less, the DEIR adequately considers and analyzes the reasonably foreseeable impacts of the proposed project based on these conservative assumptions, and potential impacts from constructing new wells and operating (pumping) wells were adequately considered and identified in the DEIR. It also should be noted that the overall level of additional groundwater pumping in Agreement Years is relatively small compared to the total groundwater pumping that occurs within the subbasins where the wells would be operated to pump groundwater under the Agreement. Further, the additional groundwater pumping during Agreement Years (up to 167,100 acre-feet during Phase 1), in lieu of diverting surface water (or in lieu of idling additional acreage), is comparable to the quantity of groundwater substitution pumping by the SRSC that has occurred within recent years, such as during 2021. Thus, the additional pumping would not be a substantial change from the baseline conditions.

Comments were also received related to the location of the wells and secondary effects of pumping (specifically subsidence).

Given the uncertainties regarding water supply and weather conditions throughout the large project area during the term of the Agreement, it would be entirely speculative to try to predict precise volumes of groundwater pumping within a particular SRSC service area or within a specific groundwater subbasin. While the estimated maximum volume of groundwater pumping that could occur under the Agreement is defined in the DEIR, the specific location of pumping, including from existing and new wells, is not known and cannot be known. Some SRSC service areas span multiple subbasins, and it is possible that their groundwater pumping activities could occur in multiple subbasins or within a single subbasin. The location of additional groundwater pumping may depend on several factors, particularly where water demands may exist in a year considering crop water needs, conveyance/operational limitations, climatic conditions, and other considerations.

However, these uncertainties do not mean the potential environmental impacts were not assessed. An exact location is not needed to conduct an analysis of potential project impacts in compliance with CEQA. Existing groundwater conditions, including the number of subbasins, levels of recharge, and hydrological conditions in the project area, are known and were described in the DEIR. The analysis in the DEIR then identified and considered ways that the specific regional conditions (including known effects from past recent droughts and groundwater substitution actions) and pumping locations could result in or influence the extent or magnitude of a potential impact, and

then identified mitigation measures that would be imposed if a project element were in areas or during periods where such mitigation would be needed.

Based on this approach among other findings, the DEIR found that:

- Increased use of groundwater could potentially affect habitats reliant on groundwater resources, and the interception of groundwater by the additional pumping of the aquifer flows during and after pumping until the groundwater aquifer refills could potentially reduce groundwater levels in areas where creeks, streams, or other drainages (interconnected surface waters [ISWs]) are highly influenced by groundwater infiltration.
- Additional groundwater pumping could potentially result in indirect impacts to riparian plant communities (groundwater-dependent ecosystems) from pumping lowering the groundwater table and affecting the relative difference between groundwater and surface water elevation.

The DEIR also included mitigation measure MM-HYD-2, which requires the SRSC to install and operate groundwater wells in accordance with GSPs for all groundwater pumping activities undertaken under the Agreement. Mitigation measure MM-HYD-2 has been revised in the FEIR to include language about compliance with the Sustainable Groundwater Management Act (SGMA) to ensure that groundwater pumping in areas not covered under an existing GSP also complies with SGMA and the requirement to submit annual reports. SGMA requires local Groundwater Sustainability Agencies (GSAs) to develop GSPs or alternatives to GSPs in high- and medium-priority basins sufficient to ensure sustainable groundwater management. SGMA defines sustainable groundwater management as the management and use of groundwater in a manner that can be maintained during the planning and implementation horizon without causing undesirable results, such as lowering groundwater levels and causing land subsidence. SGMA defines undesirable results as:

> "One or more of the following effects caused by groundwater conditions occurring throughout the basin:
>
> 1. Chronic lowering of groundwater levels indicating a significant and unreasonable depletion of supply if continued over the planning and implementation horizon. Overdraft during a period of drought is not sufficient to establish a chronic lowering of groundwater levels if extractions and groundwater recharge are managed as necessary to ensure that reductions in groundwater levels or storage during a period of drought are offset by increases in groundwater levels or storage during other periods.
> 2. Significant and unreasonable reduction of groundwater storage.
> 3. Significant and unreasonable seawater intrusion.
> 4. Significant and unreasonable degraded water quality, including the migration of contaminant plumes that impair water supplies.

5. Significant and unreasonable land subsidence that substantially interferes with surface land uses.
6. Depletion of interconnected surface water that have significant and unreasonable adverse impacts on beneficial uses of the surface water."

SGMA thus establishes a performance standard (management and use of groundwater without causing specific undesirable results) that is incorporated in the EIR's mitigation measure.

GSPs have been submitted to the California Department of Water Resources (CDWR) for all of the subbasins where additional groundwater pumping is proposed to occur under the Agreement. For some areas where a GSP is awaiting approval from the CDWR, counties (such as Colusa County) continue to implement groundwater management plans. Basin management objectives identified in the applicable GSPs and groundwater management plans for the SRSC service areas would be protective by ensuring that undesirable results would be avoided through the adaptive operation of the wells under the Agreement to, for example, shift the location of additional groundwater pumping to an alternate well. Accordingly, there would be no substantial adverse effects to groundwater conditions as a result of the potential additional groundwater pumping under the Agreement.

Comments were also received related to use of new wells in years when SRSC supplies are not reduced pursuant to the Agreement.

There is no evidence that new groundwater wells would be used for pumping in years when surface water supplies are not reduced under the Agreement (non-Agreement Years); in fact, a variety of factors, including the higher costs associated with groundwater pumping than diverting surface waters, suggest that the opposite is true. In addition, potential groundwater pumping in non-Agreement Years would not be caused by the proposed project. Finally, all groundwater pumping, including pumping not related to the proposed project that may occur in non-Agreement Years, must comply with the basin management objectives identified in the applicable GSP and related groundwater management plans.

2.4.3 Global Response 3: Separate Agreements and Obligations

Several commentors requested additional analysis related to the proposed project's effects on other contracted water and other Agreement obligations.

As stated previously, the proposed project is an Agreement between Reclamation and the SRSC, one of the many users of CVP waters, for water reductions during specified drought years and the development of drought-resiliency projects. The reduced deliveries to the SRSC means that there will be more water in Shasta Lake than what would have normally been available for operation of the CVP during years with the same hydrologic conditions as Agreement Years. This Agreement

therefore would help Reclamation improve the operation of the CVP during Agreement Years but is not the sole way Reclamation would manage Shasta Lake operations or the CVP. This Agreement would also not affect other Reclamation agreements or obligations. For example, surface water diversion reduction-related activities within the project area would not alter water availability to National Wildlife Refuges and State Wildlife Areas because these areas are not served by the contracts implicated by this Agreement.

Commenters also suggested that changes to river losses may affect Delta and upstream flow objectives associated with the *Long-Term Operation (LTO) of the Central Valley Project (CVP) and the State Water Project (SWP)* and Endangered Species Act compliance and to water supply made available to south of Delta CVP or SWP contractors. Under critically dry years, insignificantly small amounts of water diverted by the SRSC end up downstream. CVP water allocations would most likely be zero based on recent history when conditions have been similar to those that would trigger the Agreement, and it would be reasonable to assume these conditions would be the same in the future.

2.5 Responses to Individual Comments

This section presents the individual comment letters received on the DEIR with comments coded, followed by GCID's tabulated responses to the coded comments included in the letters.

AQUALLIANCE
DEFENDING NORTHERN CALIFORNIA WATERS

November 4, 2024

Jeff Sutton, General Manager
Glenn-Colusa Irrigation District
P.O. Box 150
Willows, California 95988
ceqapublicomments@gcid.net

Re: Draft Environmental Impact Report for the *Water Reduction Program Agreement Between the Sacramento River Settlement Contractors Nonprofit Mutual Benefit Corporation, Individual Sacramento River Settlement Contractors, and the U.S. Bureau of Reclamation.* State Clearinghouse Number: 2024050834

Dear Mr. Sutton:

AquAlliance, the California Sportfishing Protection Alliance, and the California Water Impact Network (hereinafter "AquAlliance") submit the following comments and questions for the Draft Environmental Impact Report ("DEIR") for the *Water Reduction Program Agreement Between the Sacramento River Settlement Contractors Nonprofit Mutual Benefit Corporation, Individual Sacramento River Settlement Contractors, and the U.S. Bureau of Reclamation* ("Agreement" or "Project"*)* created for Glenn Colusa Irrigation District ("GCID" or "Lead Agency"). The Sacramento River Settlement Contractors are approximately 130 agricultural and municipal senior water rights holders that manage water resources for cities, rural communities, and farms, as well as fish and wildlife and their habitats in California's Sacramento Valley. Members hold senior water rights that are the basis for contracts with the Bureau that identify how much water members can divert from the Sacramento River, which comes from water supplies held in Shasta Lake. (DEIR at ES-3.)

Under the proposed project, the Sacramento River Settlement Contractors Nonprofit Mutual Benefit Corporation ("SRSC") and individual Sacramento River Settlement Contractors would enter into a contract with the Bureau whereby they would agree to forego a substantial percentage of their contracted water supply during drought years (under two phases, one from 2025-2035 and another from 2036-2045). (*Id*.) Phase 1 (2025-2035) would reduce contracted supply by up to 500,000 acre-feet during specified drought years. (*Id*.) Phase 2 (2036-2045) would reduce contracted supply by up to 100,000 acre-feet during specified drought years. (*Id*.) To reduce

contracted water supply, the proposed Project offers incentives to farmers through funding programs to idle cropland, shift cropland to less water-intensive crops, implement drought resiliency projects (*i.e.*, pipes in open ditches and/or canals, canal lining, automated gates in canals, more efficient irrigation systems on farms, and recharge projects), and, most significantly, constructing new groundwater and deep aquifer wells. (*Id*. at 21-24.)

AA-1

The Project could easily be water transfers concealed in another name. Or is it implementing the voluntary settlement agreements contemplated with the State Water Board for the Bay Delta Plan updates? Is the Project possibly a component of the Delta Conveyance project?[1] The project description is so lacking, the DEIR fails to clarify the genesis of the Project. The Project revolves around water in Shasta Dam and the Sacramento River involving Butte, Colusa, Glenn, Nevada, Placer, Plumas, Shasta, Sutter, Tehama, Trinity, Yolo, and Yuba Counties (CDFW letter 6/12/2024 combined with DEIR p. ES-1). AquAlliance has reviewed the DEIR closely and is concerned that the DEIR fails to adequately disclose, analyze, and mitigate the Project's scope and impacts to groundwater, biological resources, and streams among other impacts. As the Lead Agency seeks to comply with the California Environmental Quality Act ("CEQA"), we find it lacking in many regards. The following is a synopsis of the issues:

- The Project description fails to include the whole action as defined in the CEQA Guidelines § 15378. Among other things, the DEIR fails to include exhibits that disclose the Project area including temporary impacted areas such as equipment stage area, spoils areas, adjacent infrastructure development, staging areas and access and haul roads if applicable.
- The DEIR states that the Project's cumulative impacts to hydrology and water quality were not considered (p. ES-14). The failure to evaluate and mitigate cumulative hydrology and water quality impacts by itself makes the DEIR deficient.
- CDFW's extensive June 12, 2024 Notice of Preparation comments on June 12, 2024 appear to have been neglected by GCID, which leaves the impacts analysis on Groundwater Dependent Ecosystems (GDEs"), Interconnected Surface Water ("ISW"), and groundwater substitution pumping inadequate wholly inadequate.
- A cursory discussion of subsidence fails to disclose the alarming trends in the Colusa Subbasin where much of the Project will occur.

The following presents a non-exhaustive accounting of these concerns.

A. <u>The DEIR's Project Description Violates CEQA.</u>

AA-2

The DEIR's description of the project and its purpose is wholly inadequate to enable a full understanding of the proposed project's potentially significant environmental effects and to enable a review of alternatives that could attain most project objectives while reducing environmental impacts. CEQA requires "[a]n accurate, stable, and finite project description is the *sine qua non* of an informative and legally sufficient [D]EIR." (*Cty. of Inyo v. City of L.A.* (1977) 71 Cal.App.3d

[1] Belin, Lety 2013. *Summary of Assurances* Email, dated 2/25/13. The Department of the Interior indicated in the Bay Delta Conservation Plan process 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.

AA2 cont

185, 192.) Indeed, "[o]nly through an accurate view of the project may affected outsiders and public decision-makers balance the proposal's benefit against its environmental cost, consider mitigation measures, assess the advantage of terminating the proposal…and weigh other alternatives in the balance." (*Cty. of Inyo, supra,* 71 Cal.App.3d at 192-193.)

Yet here, the DEIR is unlawfully vague. The DEIR describes the project by saying that: "Under the proposed project, the [Sacramento River Settlement Contractors Nonprofit Mutual Benefit Corporation] and individual members of the [Sacramento River Settlement Contractors] would enter into an Agreement with [the Bureau] to forego a larger percentage of their existing contracted water supply in specified drought years and develop drought-resiliency projects." (DEIR at 10.) Without meaningful further elaboration therein, what constitutes "a larger percentage" is so vague as to be meaningless. (*Cty. of Inyo, supra,* 71 Cal.App.3d at 192-193.) The DEIR also fails to articulate why the project is divided into two phases, nor how each water supply change in each year of each phase was calculated, nor how any of the above is related to the project purposes and objectives.

AA-3

At present, the DEIR is basically a laundry list of general potential impacts and general mitigation measures related thereto; the DEIR fails to provide maps for where the projects associated with the contract would occur; commenters cannot tell where cropland will be idled, where canals will be removed and replaced with piping systems, where unlined canals will be lined, where more efficient irrigation systems will be installed, or new groundwater wells will be constructed and operated (and at what volumes). This violates CEQA. (*Cty. of Inyo, supra,* 71 Cal.App.3d at 192-193; 14 C.C.R. §§ 15124, 15126.) Indeed, with zero certainty or even estimate about which of these activities would occur, where, and to what ends, the DEIR is more like a scoping document than an EIR. (*See, Washoe Meadows Cmty. v. Dep't of Parks & Recreation* (2017) 17 Cal. App. 5th 277, 288 ["Rather than providing inconsistent descriptions of the scope of the project at issue, the DEIR did not describe a project at all. Instead, it presented five different alternatives for addressing the Upper Truckee River's contribution to the discharge of sediment into Lake Tahoe, and indicated that following a period for public comment, one of the alternatives, or a variation thereof, would be selected as the project."]) The DEIR also fails to provide specific procedures and methods that the Bureau will use to account for the timing and volumes of water not being delivered and what the final use of that water will be and how it will be differentiated from non-Agreement waters. As a result, this Agreement, at least as presented in the DEIR, threatens to be used as a Drought-Resiliency Water Laundering Scheme. This likewise violates CEQA. (*Cty. of Inyo, supra,* 71 Cal.App.3d at 192-193.) While these vague descriptions may be adequate to inform a program EIR, the instant EIR purports to be a project level EIR, where far more detail is required. (*C.f. AquAlliance v. United States Bureau of Reclamation*, 287 F. Supp. 3d 969, 1000 (E.D. Cal. 2018)["Plaintiffs' complaint would have more traction if it appeared as though the FEIS/R was intended to be a project-level review"].)

AA-4

Alternatively, if the DEIR intends to be used as a program EIR, that is wholly unclear and not described in the text of the document. While the title of the EIR is the "Water Reduction *Program* Agreement" (emphasis added), nowhere else in the document does the lead agency explain how or whether the EIR will be used as a program EIR. Critically, the DEIR chapter "California Environmental Quality Act Process" exclusively describes the project as a "project" and not as a "program," and never sets forth any

anticipated tiering strategy for using the EIR as a program EIR. If the EIR is intended to be a program EIR, the EIR's description is again wholly lacking.

AA-5

The DEIR in Section 2.5.2 only provides a general description of these nine proposed drought-resiliency projects, a brief listing of the equipment that will be used, and general construction steps. The DEIR doesn't s provide a map of the actual drought-resiliency project locations so the extent and the potential impacts to adjacent structures and/or ecological areas are unknown and unanalyzed.

2.5.2.1 Piping Open Ditches or Canals
2.5.2.2 Canal Lining
2.5.2.3 Canal Automation Through Supervisory Control and Data and Acquisition Systems
2.5.2.4 Automated Gates Installation
2.5.2.5 On-Farm Improvements to Irrigation Systems
2.5.2.6 Weirs or Check Structures
2.5.2.7 Pipeline Recirculation Programs
2.5.2.8 New Groundwater or Deep Aquifer Wells
2.5.2.9 Conjunctive Use Program

AA-6

The first two projects will reduce the seepage of water during conveyance, which can have a significant impact on adjacent ecological resources. The DEIR doesn't name or map the locations of the proposed piping or canal lining projects. (*See* 14 C.C.R. §§ 15124, 15126.) An assessment of the potential for impacts can't be done without identifying and mapping the locations of the proposed piping or canal lining projects on maps of the ecological resource areas. The DEIR states that under Mitigation Measure MM-BIO-1 a desktop special status wildlife species, plant species, and aquatic resources evaluation will be done for the drought-resiliency project. This along with the determination of the amounts of cropland that will be idled implies that the locations of these Agreement projects are known. Further, existing habitat for giant garter snake, as well as other special status species, is very well known and often encompasses the vast majority of the project area.[2] This information should be provided in the DEIR; without it the environmental analysis is deficient. (*Cmtys. for a Better Env't v. City of Richmond* (2010) 184 Cal.App.4th 70, 88; 14 C.C.R. §§ 15003, 15144.)

AA-7

The last two projects, 30 new wells and a conjunctive use program require more environmental analysis than the DEIR provides. The 30 new wells are apparently being constructed at new locations to implement the groundwater substitution pumping program. The DEIR states that the well owner will coordinate the local applicable Groundwater Sustainable Agency (GSA) to ensure that the well locations and related construction activities will be consistent with the targets set by Groundwater Sustainability Plans (GSPs) under the Sustainable Groundwater Management Act (SGMA) and Executive Order (EO) N-3-23, Paragraph 4. However, Paragraph 4 of EO N-3-23 appears to have been rescinded by Paragraph 6 in EO N-3-24.

[2] https://www.fws.gov/species/giant-garter-snake-thamnophis-gigas

AA-8

The conjunctive use program proposed in the DEIR goes beyond the scope and purpose of the Water Reduction Program Agreement. The conjunctive use program will require coordinated operation of surface water, groundwater storage and use, and conveyance facilities (Section 2.5.2.9, pp. 32-33). To implement a conjunctive use program, members of the SRSC will divert surface water in non-Agreement Years to recharge groundwater, and then those members and/or their landowners would pump groundwater in Agreement Years when surface water is reduced. To implement conjunctive use programs, new conveyance systems may be constructed, and the various steps undertaken to apparently construct new pipelines, irrigation ditches and canals (p. 33).

These are potentially massive projects with extensive implications that the DEIR fails to include. The DEIR doesn't: 1) identify where these conjunctive use conveyance structures will be constructed, 2) quantify how much surface water will be diverted in non-Agreement years into groundwater recharge, 3) describe how the recharge will actually reach the aquifer that will be pumped in Agreement years, 4) explain how the groundwater pumping will be coordinated with the Agreement groundwater substitution pumping, 5) describe what impacts the conjunctive use pumping will have on surrounding groundwater pumpers, 6) identify the ecological resources that may be impacted by the conjunctive use program, 7) quantify how much of the recharged water will be dedicated to the health of the aquifer system and not extracted, 8) provide an accounting method for tracking the conjunctive use recharge and production, 9) describe how the conjunctive use pumpers will coordinate with the local GRAs to ensure that the goals and objective of the GSP are being met, and 10) provide the monitoring and mitigation measures needed to ensure that the conjunctive use program doesn't cause an increase in the current adverse groundwater conditions in the subbasin, such as overdraft, subsidence or impaired water quality.

AA-9

The Colusa and Corning GSPs assume that groundwater sustainability of the subbasins will be achieved in part because Central Valley Project and other surface waters will be available for recharge. Water availability for this purpose is not disclosed in the DEIR, nor is the persistent and critical overallocation of existing water resources considered. The DEIR also fails to note that groundwater recharge alters the rights to groundwater[3] and may not be a solution acceptable to users in the Project area. Additionally, the DEIR fails to demonstrate that creating the space for recharge harms groundwater dependent farms and residential property as well as streams and habitat for myriad species. Conjunctive use with recharge has long been the plan of Glenn Colusa Irrigation District and the Bureau of Reclamation – to take over the basin and manipulate it for the benefit of moneyed interests, not the local people or environment.[4],[5] Legal analysis of

[3] Los Angeles v. Glendale (1943) 23 Cal.2d 68, 76-78; Los Angeles v. San Fernando (1975) 14 Cal.3d 199, 258-60; Stevens v. Oakdale Irrigation District (1939) 13 Cal.2d 343, 352-43; Crane v. Stevinson (1936) 5 Cal. 2d 387, 398.
[4] U.S. Bureau of Reclamation, September 2006. Grant Assistance Agreement. "GCID shall define three hypothetical water delivery systems from the State Water Project (Oroville), the Central Valley Project (Shasta) and the Orland Project reservoirs sufficient to provide full and reliable surface water delivery to parties now pumping from the Lower Tuscan Formation. The purpose of this activity is to describe and compare the performance of three alternative ways of furnishing a substitute surface water supply to the current Lower Tuscan Formation groundwater users to eliminate the risks to them of more aggressive pumping from the Formation and to optimize conjunctive management of the Sacramento Valley water resources." (p. 5)

AA-9 cont.

conjunctive use with recharge clarified that "So long as the water was diverted pursuant to a valid water right prior to recharge, the recharged water would be owned by the diverter… The legal right to surface water that is imported and recharged into an aquifer is held by the project proponent… Depending upon the project scope, it could intend to export recharge water out-of-basin."[6] Repeating the mistakes of the Owens, San Fernando, and San Joaquin valleys is not in the best interests of the Colusa Subbasin's communities, businesses, groundwater dependent farms, and the environment.

The final step in implementing the DEIR conjunctive use program asserts that "No operational needs would be necessary as part of implementing conjunctive use program." (p. 33) Without discussing the scope and nature of what operational needs were considered and rejected, and why, the public is unable to ascertain the efficacy of the assertion and the conjunctive use program as a whole. All of the missing information and analysis listed above make the analysis of the conjunctive use program deficient.

AA-10

The DEIR's description of the project's purpose is equally vague: "The purpose of the proposed project is to approve and facilitate reduced water contract supply to the [Sacramento River Settlement Contractors] during specified drought years to address water shortages at Shasta Lake." (DEIR at 14.) The extent and severity of the "shortage" alluded to is not meaningfully described or quantified. The DEIR states that the Bureau "operates Shasta Lake for multiple purposes in accordance with multiple legal obligations, including to meet [Sacramento River Settlement Contractors]-contracted supplies and other [Central Valley Project] water supplies, while also managing releases of water for fish and wildlife purposes, flood control requirements, and power generation." (*Id*.) But the DEIR does not describe which of these activities is being shorted during dry years, by how much, or exactly how the water use avoided would be put to any of these specific uses.

AA-11

Further, and importantly, the DEIR relies on this unlawfully vague project description to dismiss alternatives that could reduce the proposed project's environmental impacts in a matter that deviates from CEQA's mandates. Agencies may not give a project's purpose an artificially narrow definition so as to preliminarily rule out would-be alternatives. (*We Advocate Thorough Environmental Review v. County of Siskiyou* (2022) 78 Cal.App.5th 683, 692; *North Coast Rivers Alliance,* 243 Cal.App.4th at 668-671.) Here, though, the DEIR dismisses the "no cropland idling alternative" because it "would not be capable of preserving sufficient water to address water shortages at Shasta Lake consistent with Reclamation's operational requirements and objectives, which call for up to 500,000 acre-feet during a Phase 1 Agreement Year." (DEIR at 34.) The DEIR does not state that the project's objective is to forgo 500,000 acre-feet per year; it says that the project purpose is to address as-of-yet-unquantified water shortages at Shasta Lake. (*Id.* at 14.) The DEIR treats the 500,000-acre-feet-per-year reduction as the project's purpose without ever

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[5] *Id*. GCID's actual purpose is best expressed using their own words: to "…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;…" (p. 6)

[6] Gosselin, Paul and Valerie Kincaid, 2020. Memo to the Vina Stakeholder Advisory Committee. Re: Legal Implications of Potential Projects and Management Actions. p.3.

explaining how or to what extent that reduction in surface water deliveries would actually affect the Project's unduly vague objective to remediate shortages at Shasta Lake.

AA-12

Finally, the DEIR is seriously deficient without informing the public that the unimpaired runoff of the Sacramento River basin is 21.6 MAF, but the consumptive use claims are an extraordinary 120.6 MAF – 5.6 times more claims than there is available water.[7] The DEIR also fails to inform the public of the CVP's junior claim to water, which is another serious omission.[8] These existing environmental conditions are critical to understanding what the purported project purposes are, how the proposed project may meet them, and what alternatives could feasibly accomplish the same.

B. Facilitating the Installation of new Groundwater and Deep-Aquifer Wells would Needlessly Imperil Already Over-Drafted Groundwater Basins, and the DEIR Fails to Adequately Analyze or Protect Against the Impacts Thereof.

AA -13

CEQA is intended to ensure that environmental interests are protected to the fullest extent feasible and to guarantee that, when making major decisions, government officials have all the relevant information necessary to make informed, well-reasoned decisions. (*Woodward Park Homeowners Assn., Inc. v. City of Fresno* (2007) 150 Cal.App.4th 683, 690-691). CEQA is "to be interpreted to afford the fullest possible protection to the environment within the reasonable scope of the statutory language." (*Mountain Lion Foundation v. Fish & Game Com*. (1997) 16 Cal. 4th 105, 134). Put simply, CEQA requires agencies to "take all action necessary to protect, rehabilitate, and enhance the environmental quality of the state." (Pub. Resources Code, § 21001(a).) Accordingly, prior to approving any discretionary project, an agency must fully disclose and analyze all the project's potentially significant direct, indirect, and cumulative environmental effects and must avoid or minimize such environmental damage where feasible. (14 C.C.R. § 15002(f); *id*. § 15021(a).) (Impacts are significant within the ambit of CEQA where they "have the potential to substantially degrade the quality of the environment," including water quality, or may "substantially reduce the number or restrict the range of an endangered, rare or threatened species." [*Id.* § 15065(a)(1).]) Agencies cannot defer the formulation, review, or finalization of the performance standards specific to the proposed mitigation measures intended to reduce projects' potentially significant environmental impacts. (*Preserve Wild Santee v. City of Santee* (2012) 210 Cal.App.4th 260, 272 [holding EIR improperly deferred formulating mitigation measures because it did not describe specific actions or specify performance standards].) CEQA prohibits deferral of mitigation measures except in narrow circumstances:

> Formulation of mitigation measures shall not be deferred until some future time. The specific details of a mitigation measure, however, may be developed after project approval when it is impractical or infeasible to include those details during the project's environmental review provided that the agency (1) commits itself to

[7] California Water Impact Network, AquAlliance, and California Sportfishing Protection Alliance 2012. Testimony on Water Availability Analysis for Trinity, Sacramento, and San Joaquin River Basins Tributary to the Bay-Delta Estuary.
[8] *Id.*

> the mitigation, (2) adopts specific performance standards the mitigation will achieve, and (3) identifies the type(s) of potential action(s) that can feasibly achieve that performance standard and that will considered, analyzed, and potentially incorporated in the mitigation measure.

(14 C.C.R. § 15126.4(a)(1)(B).)

AA-14

Here, the DEIR fails to meaningfully evaluate or analyze the potentially significant impacts associated with facilitating additional groundwater and deep-aquifer wells in already over-drafted groundwater basins and instead illegally defers both the analysis of those impacts and the formulation of mitigation measures therefor to an undisclosed, later date when local Groundwater Sustainability Agencies ("GSAs") will address these issues. (*See*, *Sundstrom v. Cty. of Mendocino*, (1988) 202 Cal. App. 3d 296, 311 ["CEQA places the burden of environmental investigation on government rather than the public."]) Per the DEIR, only two (2) percent of the wells within the project area have designated an "increasing" trend within the last twenty (20) years, and so any new extractions will only worsen groundwater supplies in 98% of the project area. (DEIR-195.) Yet, the project calls for groundwater substitution of 167,100 acre-feet during Phase 1 and 33,420 acre-feet during Phase 2. (*Id*. at 212.) And the DEIR acknowledges that this could be problematic but seriously downplays and fails to meaningfully describe the impacts: "The potential for adverse drawdown effects would increase as the amount of extracted water increased. Additionally, elements that save water, including conservation activities, cropland idling, and cropland shifting, typically reduce seepage losses, which may return to groundwater supplies and incidentally recharge groundwater." (*Id*. at 213.)

AA-15

The DEIR does state that the contract may "lead to land subsidence" and "would cause a potentially significant impact to groundwater supplies and sustainable groundwater management." (*Id*. at 213-214.)

However, the DEIR opts not to meaningfully evaluate these risks. The DEIR does not provide information identifying where the groundwater substitution pumping would occur, what the maximum quantity of pumping would be at these as-of-yet-undisclosed locations, and what the current and anticipated subbasin conditions will likely be during the duration of the project. This plainly violates CEQA's mandates, and fails to disclose the effects of the project at all. (Pub. Resources Code, § 21001(a); *Berkeley Keep Jets Over the Bay Comm. v. Board of Port Comm'rs* (2001) 91 Cal. App. 4th 1344, 1370; *Sundstrom v. County of Mendocino* (1988) 202 Cal. App. 3d 296, 311 [holding that CEQA places the burden of environmental investigation on government rather than the public, so a public agency cannot rely on its own lack of investigation]; 14 C.C.R. §§ 15151, 15384(a).) Knowing the location and use of future groundwater wells is particularly important not only to understand the environmental impacts, but also to assess consistency with applicable law. For instance, most any new groundwater well will be limited to using extracted groundwater on the overlying parcel. "An overlying right, analogous to that of the riparian owner in a surface stream, is the owner's right to take water from the ground underneath for use on his land within the basin or watershed; it is based on the ownership of the land and is appurtenant thereto." (*California Water Service Co. v. Edward Sidebotham & Son*, 224 Cal.App.2d 715, 725 [emphasis added]("*Cal Water Svc.*").) Does the project only propose that

new wells will be constructed for water use on the overlying parcel? This legal limitation and the related physical impacts are not discussed in the DEIR.

AA-16

Further, the DEIR admits that "Decades of drought in California, increased prolonged periods of drought associated with climate change, and continued demand for agriculture commodities may increase pressure to pump more groundwater in the upcoming decades" (DEIR at 50) but fails in any way to describe how or to what extent the proposed project would exacerbate these ongoing and worsening conditions. (*See Cal. Bldg. Indus. Ass'n v. Bay Area Air Quality Mgmt. Dist.*, (2015) 62 Cal.4th 369, 388 ["CEQA calls upon an agency to evaluate existing conditions in order to assess whether a project could exacerbate hazards that are already present."]) Without this information, it is impossible for the public to meaningfully comment on or participate with this aspect of the DEIR; the DEIR therefore fails as an informational document. (*Laurel Heights Improvement Assn. v. Regents of University of California* (1988) 47 Cal.3d 376, 408.)

AA-17

The DEIR's failure to meaningfully evaluate the project's potential impacts on groundwater resources also undermines its evaluation of potential alternatives. The DEIR rejects a proposed alternative that would eliminate the use of groundwater for irrigation as an option for water reduction activities, and contract users would not withdraw up to 167,100 acre-feet annually in Phase 1 and 33,420 acre-feet annually in Phase 2. (p/ 316.) According to GCID, the alternative "would avoid all impacts associated with groundwater pumping but would likely result in increased crop idling impacts as compared to the proposed project and similar impacts related to crop shifting, conservation, and drought-resiliency projects[,]" including loss of habitat for Giant Garter Snakes and Northwestern Pond Turtles. (p. 311.) As a result, the DEIR concludes that the alternative would result in environmental impacts at least as significant as would the proposed project. (p. 316.) Given that the DEIR at no point evaluates the project's potential groundwater implications in any quantitative or site-specific way, this conclusion is not supported by substantial evidence and is arbitrary and capricious. (14 C.C.R. § 15126.4(a)(1)(B).) Rejecting this alternative without giving any thought to the actual implications of this project on groundwater resources and instead deferring that completely to GSAs that may (or often may not) be ready to meaningfully evaluate the impacts of proposed new wells on compliance with the Sustainable Groundwater Management Act therefore violates CEQA. The proposed project is intended to respond to drought, but somehow ignores any meaningful analysis of one of the main implications of droughts – groundwater depletion.

AA-18

The DEIR fails to describe or account for streamflow losses that will result from additional groundwater pumping. While we discuss this impact, below, in relation to biological impacts, streamflow depletion resulting from groundwater pumping also implicates water supply, water quality, recreation, and navigation. (See, Pud No. 1 v. Wash. Dep't of Ecology, (1994) 511 U.S. 700, 719 ["In many cases, water quantity is closely related to water quality; a sufficient lowering of the water quantity in a body of water could destroy all of its designated uses, be it for drinking water, recreation, navigation or, as here, as a fishery."]) The Bureau's Long Term Water Transfer EIS/EIR discussed this at length:

AA-18 (cont.)

"[W]ater made available from groundwater substitution pumping actions would involve growers using groundwater instead of surface water supplies; and would result in a reduction in stored groundwater. The storage would be filled over time from surface water, which would reduce flow in streams." (Long Term EIS/EIR at ES-27.)

"Decreased streamflows during dry periods could affect CVP and SWP supplies in the near term or longer term. Under dry or critical water years, streamflows are expected to decrease during the months of October through June. When faced with decreased streamflows, the CVP and SWP could choose to decrease Delta exports (affecting supplies to users south of the Delta) or increase releases from storage. Increased releases from storage would vacate storage that could be filled during wet periods, but would affect water supplies in subsequent years if the storage is not refilled." (Long Term EIS/EIR at 3.1-15.)

"Overall, the increased supplies delivered from water transfers would be greater than the decrease in supply because of streamflow depletion; however, the impacts from streamflow depletion may affect water users that are not parties to water transfers. On average, the losses due to groundwater and surface water interaction would result in approximately 15,800 6 AF of water annually compared to the No Action/No Project Alternative, or approximately a loss of 0.3 percent of the supply. This change in water supply is small, but the impacts in a single year could be greater. In a period of multiple dry years (such as 1987-1992), the streamflow depletion causes a 2.8 percent reduction in CVP and SWP supplies, or 71,200 AF. While the impacts to water supplies in the Buyer Service Area as a result of streamflow depletion would be small on average, the greater depletion in some years could have a potentially significant effect on water supply. To reduce these effects, Mitigation Measure WS-1 includes a streamflow depletion factor to be incorporated into transfers to account for the potential water supply impacts to the CVP and SWP." (Long Term EIS/EIR at 3.1-16.)

The present DEIR must be revised and recirculated to analyze and potentially mitigate or avoid these potentially significant effects.

AA-19

Furthermore, the DEIR does not provide any monitoring or reporting methods or procedures to account how much groundwater is being pumped, where, and how it is used to substitute for surface water demand. Without this, it will be impossible to verify that any limitations imposed herein are actually effectuated. It would be possible for private contractors to substitute groundwater for surface water demand during non-Agreement years without reporting that to regulators, thereby undermining the very purpose for which GCID is entering this contract. When approving EIRs, lead agencies must "adopt 'a program for monitoring or reporting on the … measures it has imposed to mitigate or avoid significant environmental effects.'" (*County of Butte v. Department of Water Resources* (2022) 13 Cal. 5th 612, 628.) The DEIR's failure to provide for any mechanism to monitor and report on how much groundwater is actually being pumped and used to substitute for surface water demand and when and where that water will be pumped and used to substitute for surface water demand therefore violates CEQA as well.

AA-20

The DEIR fails to disclose the source or the amount of the funding that fuels the incentives for the SRSC to participate in the Project. Is the Inflation Reduction Act all or part of the funding? CEQA review must be complete before federal funds are allocated. (Pub. Resources Code § 21150.) A recent press release revealed that: "This investment from the Inflation Reduction Act will help Central Valley communities, private organizations and tribes collaborate to improve fish habitat and facilities that support fish populations," said Reclamation Commissioner Camille Calimlim Touton. 'These projects are also expected to contribute to the work and partnership we have with the Sacramento River Settlement Contractors and the State of California to increase river flows and strengthen water supply reliability.'"[9] Whether this is or isn't the source, what amount of money is on the table for the Project and how is it broken down?

C. Specific Details of Idled Land are Undisclosed

AA-21

The SRSC maximum reduction volumes of water made available by the Agreement in Table 6 are apparently based on idling agricultural lands. The DEIR uses rice as the cropland to be idled (Section 2.5.1.1, p. 19). The DEIR calculates the water reduction to the SRSC member of 500,000 afy in Phase 1 and 100,000 afy in Phase 2 using the following analysis:

> *The acreage of cropland idling would be calculated based on total irrigation needs, which consists of both consumptive and non-consumptive uses. For rice in the Sacramento Valley, consumptive uses have ranged from 3.0 to 3.3 acre-feet per acre. Additionally, there are non-consumptive components of irrigation water use, which may consist of soil types that effect groundwater recharge when water passes below the crop root zone, shallow groundwater moving laterally into non-irrigated fields, uncapturable return flows, and other crop cultural practices. For rice, these components may generally require another additional 3.0 to 4.0 acre-feet per acre that is additive to the consumptive use component, which results in a total average water application factor of approximately 6.0 to 7.0 acre-feet per acre for rice. Additionally, there are conveyance losses ranging from 5% to 30% of the water diverted from the SRSC points of diversion to water delivered to landowner lands which will also reduce the water available for crops. Applying a standard water application factor across the SRSC service area to the maximum 500,000 acre-feet reduction in a Phase 1 Agreement Year, and the maximum 100,000 acre-feet reduction in a Phase 2 Agreement Year, would not be consistent with the unique physical characteristics of each SRSC service area. Therefore, Table 6 includes the maximum annual cropland idling acreage that the SRSC would incur as a result of the proposed Agreement, considering that each contractor may have an assumed water application factor that varies between 6 and 7 acre-feet per acre for rice. As noted, it is anticipated that majority, if not all, of the idled croplands would be rice fields.*

Table 6 lists the maximum annual cropland idling acreage ranging from approximately 71,000 to 83,000 acres in Phase 1 and 14,000 to 17,000 acres in Phase 2. However, the maximum acreage may be greater because the actual total irrigation needs for each SRSC service area vary. The

[9] USBR 2024. Press Release e-mail: *Biden-Harris Administration Invests $25 Million from Investing in America Agenda in the Sacramento River Valley*.

AA-21 (cont.)

DEIR doesn't indicate the Agreement maximum contract water reductions listed for each SRSC in Tables 4 and 5 or how the unique physical characteristic will alter the total water needs and change to total acres of cropland that will be idled in each SRSC service area. Therefore, the DEIR is deficient because it doesn't identify how much or where the croplands in each SRSC service area will be idled to obtain the water reduction listed in Tables 4 and 5. (*See San Joaquin Raptor/Wildlife Rescue Ctr. v. City of Stanislaus* (1994) 27 Cal.App.4th 713, 728–29 [since impacted areas "were not adequately identified and described, the FEIR's analysis of the development project's impacts . . . is clearly inadequate."]) The DEIR is also deficient because it doesn't provide a method for accounting for the volume of contract water reduction versus the number of cropland acres idled by each SRSC contractor.

AA-22

Additionally, the page 19 excerpt seeks to justify higher average water use with rice compared to what has been shared in past years. In the critical Shasta 2021 water year, a *Frequently Asked Questions* handout that accompanied the GCID landowner packet stated that "In a critical year, each landowner will receive an allocation of 4.1 acre-feet (ac-ft) per deeded acre, regardless of the type of crop that will be planted."[10] This is a significant contrast to the approximately 6.0 to 7.0 acre-feet per acre for rice claimed above. Is the lead agency inflating Project water use on rice to obtain more financial subsidies?

E. The DEIR Presents the Project's Impacts to Biological Resources Superficially and Relies on Legally Deficient Mitigation Measures to Remediate Impacts Thereto.

AA-23

The California Department of Fish and Wildlife ("CDFW") provided extensive comments on June 12, 2024, to the Notice of Preparation. CDFW's main focus concerned the need for maps and descriptions of groundwater dependent ecosystems ("GDEs") and interconnected surface water ("ISW"), characterization of the current subbasin conditions, including overdraft, sustainable yield, annual water use, local ground water trends, and discussion of how stream depletion is taken into account with the Project's groundwater substitution, including the new wells and potentially combined with any groundwater substitution transfers.

The recommendations from CDFW appear to have not been incorporated into the DEIR, leaving the remaining analysis of the Project's impacts on GDEs, ISW, and groundwater substitution pumping inadequate. The biological impact analysis for BIO-1, Section 3.4.3.4.1 (p 105) seems to ignore the impacts from the proposed 30 new wells while providing no information on the impacts from pumping the existing wells, as recommended by CDFW. DEIR Page 108 states:

> "Would the project have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service? (p.
>
> "Groundwater Substitution Impacts. Groundwater pumping is not expected to have any direct impacts on special status wildlife species. Incrementally increased noise

[1010] GCID 2021. *Frequently Asked Questions (FAQ).* p. 1. Exhibit A.

AA-23 (cont.)

> impacts of groundwater pumping on potentially present special status bird species would be minimal because noise levels from pumps are expected to be low and species can move out of the area during pumping activities.
>
> "Increased use of groundwater to irrigate crops instead of diverting water from the Sacramento River could potentially affect fish and amphibian habitats reliant on groundwater resources. In areas where creeks, streams, or other drainages are highly influenced by groundwater infiltration, the interception of groundwater by the additional pumping of the aquifer could potentially reduce surface flows during and after pumping until the groundwater aquifer refills. Increased subsurface drawdown on groundwater that normally discharges to surface waters nearby would potentially affect fish and amphibian habitats, within riverine, riparian, seasonal wetland, and managed wetland habitats reliant on groundwater resources."
>
> "Direct or indirect impacts to special status plant species are not anticipated due to pumping from established wells within agricultural areas."

It is clear that the DEIR's groundwater substitution biological impacts analysis doesn't provide any information on the relationship between the pumping wells and biological habitats. The analysis is essentially an assemblage of general statements and conclusions without any supporting documentation or evidence to validate the opinions. This lack of supporting documentation is in direct conflict with the information requested by CDFW and makes the DEIR analysis of groundwater substitution pumping impact inadequate under CEQA. (14 C.C.R. § 15126.4(a)(1)(B).). DWR has a groundwater dependent ecosystem GIS system to identify the location of shallow-rooted vegetation or develop a monitoring network to prevent impacts, which should be incorporated and considered. (*See, Sundstrom v. Cty. of Mendocino*, (1988) 202 Cal. App. 3d 296, 311 ["CEQA places the burden of environmental investigation on government rather than the public."])

AA-24

Further, it appears that only desk surveys were conducted for the Project using the California Natural Diversity Database ("CNDDB"), the U.S. Fish and Wildlife Service ("USFWS") Information for Planning and Consultation list of federally listed and proposed endangered, threatened, and candidate species, the California Native Plant Society ("CNPS") online Inventory of Rare and Endangered Vascular Plants of California, and the National Marine Fisheries Service ("NMFS") West Coast Region's species list of endangered and threatened species and critical habitat. More is required. (Pub. Resources Code, § 21001(a); 14 C.C.R. § 15002(f).) Especially where, as here, there are federally threatened species known to be present in and around the project area, reliance only on online resources is insufficient. Without more meaningful, physical investigation of critical habitat areas, GCID cannot ensure that proposed projects associated with this contract will be located away from important, sensitive habitat for Giant Garter Snakes and other vulnerable species.

Finally, the DEIR's proposed mitigation measure to reduce the Project's impacts on biological resources violates CEQA. The DEIR states that "[i]f avoidance is not possible, []FWS and/or CDFW will be consulted to determine the appropriate approach for minimizing impacts to special-status [] species and compensating for unavoidable impacts, and the project proponents will

AA-24 cont.

implement all necessary minimization and compensation measures." (DEIR at 110.) This analysis violates CEQA in several respects. For one, the DEIR does not explain why GCID cannot avoid impacts to special-status species entirely. Further, though, and importantly, CEQA does not permit agencies to defer the actual formulation of proposed mitigation measures in this circumstance. (14 C.C.R. § 15126.4(a)(1)(B).) For instance, conservation measures to prevent jeopardy to GGS were set forth in the USFWS Biological Opinion, which, at a minimum, should be evaluated and incorporated into this document. The BiOp notes that rice fields "in particular" provide cover form predators and habitat for foraging during the active season. (BiOp, at p. 25.) The BiOp further notes that that Project will cause a reduction in rice fields and therefore "likely result in increased stress to snakes due to the loss of areas that provide foraging opportunities, the loss of cover from known predators, and the potential for reduced reproduction and recruitment." (BiOp, at p. 26). Finally, the BiOp underscores the importance of rice fields for cover, stating that "loss of rice lands will increase snake mortality from predation if they are limited to occur in these conveyance canals and ditches." (BiOp, at p.26). The DEIR's reliance on all biological mitigation measure is therefore unlawful.

F. Mitigation Measures

AA-25

The DEIR Relies on Legally Deficient Mitigation Measures for Groundwater Impacts

The DEIR's reliance on SGMA plans in unknown locations is at best vague and can't possibly mitigate significant impacts to groundwater resources. The DEIR also doesn't provide any assessment of how the proposed groundwater substitution pumping affects the groundwater and water balances in each GSP. Complicating these inadequacies, there are only two approved GSPs in the Project area with 77 % of the land not covered by approved Groundwater Sustainability Plans ("GSPs"). (Table 1) In addition, litigation has challenged both the Butte and Colusa GSPs, and the Corning GSP has been severely criticized (see Exhibit B, AquAlliance comments on the revised Corning GSP, incorporated by reference). All three GSPs fail to address subsidence, current groundwater decline, and future stress from existing and planned agricultural expansion and water transfers.

Table 1. (Partially based on DEIR Table 18 p. 194.)

Subbasin	GSP Status	Subbasin Area (sq. miles)	Notes
Anderson*	approved	154.2	Priority medium
Bowman*	no GSP	191.5	Priority very low
Enterprise*	no GSP	95.8	Priority medium
Millville*	no GSP	102.5	Priority very low
S. Battle Creek*	no GSP	52.7	Priority very low
Antelope**	incomplete	29.8	DWR reviewing revised GSP
Bend**	no GSP	35.4	Priority very low
Butte**	approved	416.5	Priority medium
Colusa**	incomplete	1,129.4	DWR reviewing revised GSP; Priority high
Corning**	incomplete	324.0	DWR reviewing revised GSP; Priority high
		2,531.8	

**Shasta and Tehama Counties (referred to as Redding Area in DEIR)*
*** Butte, Colusa, Glenn, and Tehama Counties (referred to as Sacramento Valley in DEIR)*

AA-25 cont.

The efficacy of a mitigation measure in remedying the identified environmental problem must be apparent in the EIR. *Sierra Club v. County of San Diego,* (2014) 231 Cal.App.4th 1152, 1168; *Communities for a Better Env't v. City of Richmond,* (2010) 184 Cal.App.4th 70, 95; *Gray v. County of Madera,* (2008) 167 Cal.App.4th 1099, 1116; *Cleveland Nat'l Forest Found. v. San Diego Ass'n of Gov'ts,* (2017) 17 Cal.App.5th 413, 433.

AA-26

The DEIR relies on a mitigation measure – "MM-HYD-2: Install and Operate Groundwater Wells in Accordance with [Groundwater Sustainability Plans] for All Groundwater Pumping Activities Undertaken Under the Agreement" – that plainly violates CEQA. (*Id*. at 214.) The mitigation measure requires "new groundwater well installation and all groundwater well operation to occur in accordance with targets and requirements set by applicable GSA-managed [Groundwater Sustainability Plans]" and promises that "[c]omplying with GSA requirements would ensure that the appropriate siting, evaluation, and documentation steps are taken" and that "[i]mpacts would be reduced to less than significant with mitigation." (*Id*.) GCID cannot rely on this as-of-yet unspecified and unformulated mitigation measure to avoid its obligation to meaningfully and independently evaluate the project's potential impacts on groundwater. (Pub. Resources Code § 21100 [DEIRs must include a statement [] indicating the reasons for determining that various effects on the environment of a project are not significant and consequently have not been discussed in detail in the environmental impact report"]; *Berkeley Keep Jets Over the Bay Comm. v. Board of Port Comm'rs* (2001) 91 Cal. App. 4th 1344, 1370.)

GCID cannot defer the actual formulation of this mitigation by kicking the can to non-existent and/or unapproved GSAs. (Pub. Resources Code § 21002, 21100; *Sacramento Old City Ass'n v. City Council* (1991) 229 Cal.App.3d 1011, 1027; 14 C.C.R. § 15126.4(a)(1)(B).) GCID's deferral here is particularly problematic because much of the project area includes groundwater subbasins that do not have approved Groundwater Sustainability Plans. (*Cmtys. for a Better Env't v. City of Richmond* (2010) 184 Cal.App.4th 70 ["An EIR is inadequate if '[t]he 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.'"]) Relying on GSAs, that have yet to even obtain approved Groundwater Sustainability Plans for their subbasins, to meaningfully evaluate and mitigate the impacts of GCID's decision here to facilitate the installation and operation of new groundwater and deep-aquifer wells therefore clearly and unequivocally violates CEQA. (14 C.C.R. § 15126.4(a)(1)(B).) Further, a determination that regulatory compliance will be sufficient to prevent significant adverse impacts must be based on a project-specific analysis of potential impacts and the effect of regulatory compliance, all of which is absent from the DEIR (especially and to the extent that SRSC may later call the document a program EIR). (*See, Californians for Alternatives to Toxics v. Department of Food & Agric.* (2005) 136 Cal.App.4th 1; *Ebbets Pass Forest Watch v. Department of Forestry & Fire Protection* (2008) 43 Cal.4th 936, 956.)

G. Subsidence is nominally disclosed

AA-27

Section 3.7.1.8 is entitled *Subsidence and Settlement*, yet there and elsewhere there is no discussion of existing problems let alone any analysis of additional Project impacts. AquAlliance incudes below relevant comments on subsidence we submitted on the Revised 2024 Colusa GSP that is currently under review by DWR and attaches the entire comment letter by reference as Exhibit C. The Colusa Subbasin is 1,129.4 square miles, by far the largest land area in the Project,

yet none of these facts regarding existing subsidence are in the DEIR. The DEIR does disclose that "The project area is mapped as containing soils susceptible to expansion or subsidence." (p. 157) The fact that significant subsidence has occurred and continues to occur throughout the project area is proof positive that applicable land use plans or other regulatory considerations have not prevented significant effects. The DEIR must analyze the actual effects of the project. (*C.f. Ebbets Pass Forest Watch v. Department of Forestry & Fire Protection* (2008) 43 Cal.4th 936, 956.)

AA-27 cont.

AquAlliance 2024 Colusa GSP Comments on Subsidence

a) The Revised GSP indicates that the Focus RMS wells were selected in part because of the ongoing subsidence in the area (see **Figure 5-4 attached as Exhibit 3A**). Maps of the Colusa Subbasin area show categories of measured benchmark subsidence from 2008 to 2017 in the Revised GSP Figure 3-31 (p. 3-77, pdf p. 247 and the October 2018-2019 to October 2022-2023 InSAR measurements also show subsidence in Figure 3-32 (p. 3-78, pdf p. 248).

The Revised GSP states that the subsidence MT would trigger an undesirable result when the cumulative and rate of subsidence minimum thresholds exceed the following (p. 5-56, pdf p. 328):

• *The average cumulative subsidence exceeds two feet over a single PLSS section starting from January 2024, or*

• *The average rate of subsidence in ten or more contiguous PLSS sections, in any configuration, exceeds 0.1 foot per year ft/yr in two consecutive years.*

The Revised GSP's proposed management of subsidence in the Artois and Arbuckle areas is shown in Figures 5-2 and 5-3 (pp. 5-22 and 5-23, pdf pp. 350 and 351). These graphs suggest that the rate of subsidence in these areas will keep exceeding the 0.1 feet/year MT until 2032. The cumulative subsidence since 2015 is estimated to be from 3.0 feet to 3.9 feet by 2042. These graphs also suggest that the setting of the IM elevations in the Focus RMS well areas below the MT elevations could cause the rate of subsidence to be up to -0.3 feet/year.

The Revised GSP also notes that:

While the sensitivity of local infrastructure to inelastic land subsidence is not well understood at this time, the Subbasin has extensive infrastructure consisting of pipelines and open canals (lined and unlined) and drains owned by various surface water suppliers that are used to convey water for urban and agricultural uses. A GSP Study is proposed in Chapter 7 that would evaluate the sensitivity of local infrastructure to potential subsidence in the Subbasin. Should additional information be developed on the vulnerability of this infrastructure to subsidence, these minimum thresholds may be refined. The GSAs will continue monitoring to improve the understanding of the causes of inelastic land subsidence in the Subbasin during GSP implementation. Refinement of minimum thresholds and an improved understanding of subsidence in the Subbasin will be reported in the annual reports and periodic evaluations. (p. 5-47, pdf p. 375)

AA-27 cont.

The Revised GSP infrastructure study for subsidence impacts is described in Chapter 7, 7.1.2.15 - Evaluate Infrastructure Sensitivity to Subsidence (pp. 7-16 and 7-17, pdf pp. 525 and 526).

The study would be a cooperative effort with infrastructure owners and operators of critical infrastructure and land uses, as well as other stakeholders in the Subbasin. The GSAs could, but do not necessarily need to, lead the assessment.

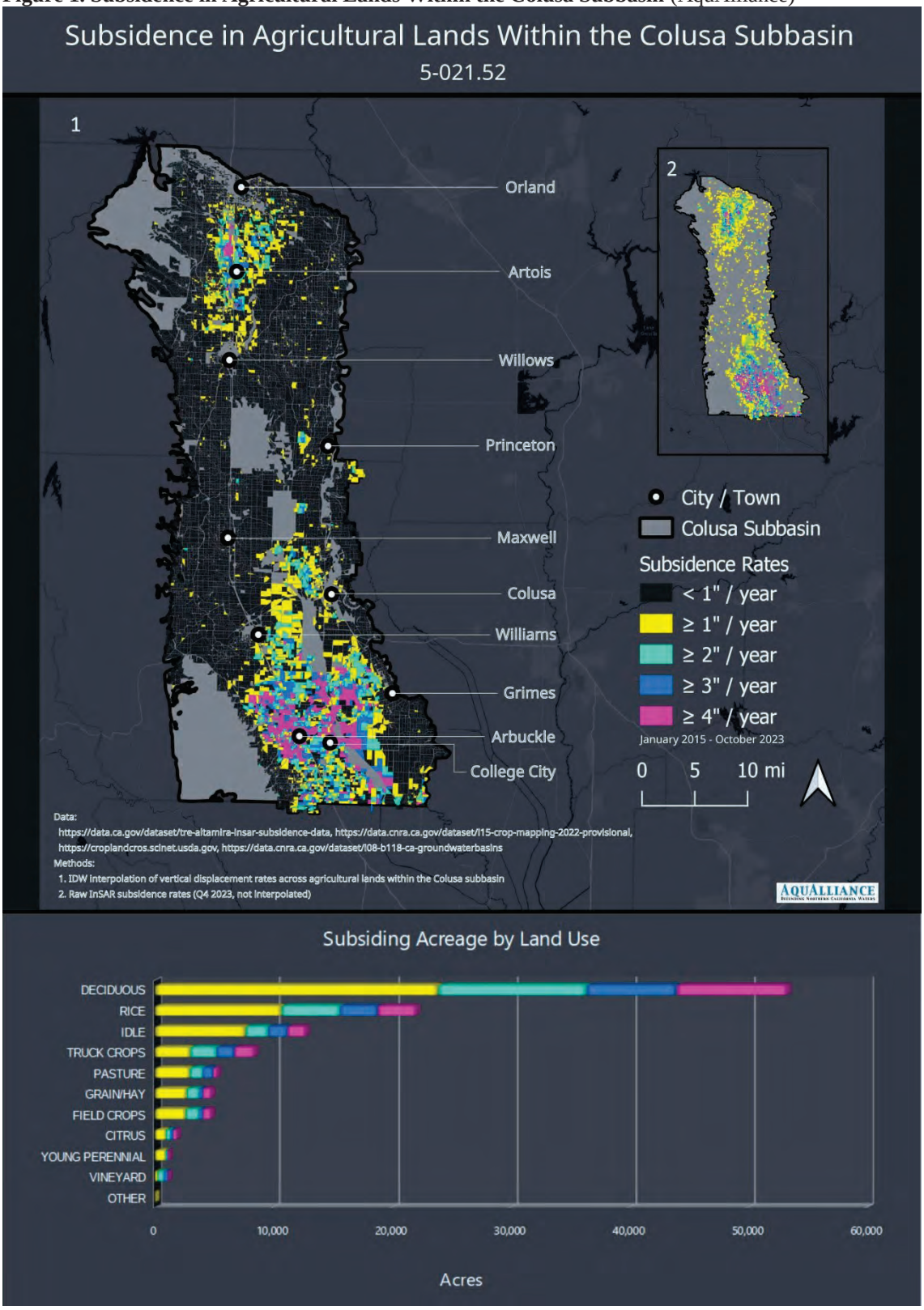
In addition to the sensitivity evaluation, the GSAs and involved entities will form a Critical Infrastructure Working Group to report on suspected impacts to critical infrastructure and land uses suspected to be due to land subsidence caused by groundwater withdrawal, report on progress of PMAs and GSP Study implementation, and provide information vital for refining subsidence sustainable management criteria. The Critical Infrastructure Working Group will meet at least annually at the conclusion of the water year to assess critical infrastructure in the Subbasin. The Critical Infrastructure Working Group will meet more frequently if subsidence conditions warrant additional meetings, as described in Section 5.4.5. The Critical Infrastructure Working Group be open to entities owning or operating critical infrastructure in the Subbasin.[sic]

It is expected that data collection and analysis in this study would be grant-funded, though local funding sources could also be used.

While it is crucial that critical infrastructure in the Subbasin be protected from the impacts of subsidence, those structures aren't the only ones that need protection from pumping induced subsidence and settlement. Local landowners' homes, barns, and wells can also be impacted by subsidence. The Revised GSP should provide procedures for local landowners to register their properties that have been damaged due to subsidence or settlement and the Revised GSP should provide a mechanism for mitigating those impacts, like the Domestic Well Mitigation Program, only done more comprehensively. In addition, the Revised GSP should provide a mechanism for the public to have transparent and readily available electronic file access to the engineering analyses and data that are collected on subsidence, so that they can independently evaluate whether the stress observed in their buildings or wells may be due to subsidence.

b) Figure 2 clearly illustrates the subsidence in the Colusa Subbasin. How does it compare with the GSP material? As one can see in the magenta areas, the land is collapsing at 4 inches per year, or a foot every three years. Knowing the land uses overlying the subsidence paints an interesting picture. What will the GSAs consider doing to stop the actors causing it?

Figure 1. Subsidence in Agricultural Lands Within the Colusa Subbasin (AquAlliance)



AA-28

Similarly, consideration of the data presented and subsequently monitored by and through the Bureau of Reclamation / San Luis Delta-Mendota Water Authority Long Term Water Transfer EIS/EIR (discussed in the cumulative effects section, below) is necessary and plainly reveals widespread active and potential subsidence effects caused by groundwater pumping throughout the project area.

Further, GCID well pumping impacts to local resident Mike Billiou further demonstrate this potential effect. Mr. Billiou documented subsidence on Billiou Well #35 pad (June 2015), GCID owned production wells, and the areas of influence in the vicinity of Billiou Ranch, and an 11 year history of the 4 aquifer levels as reported by State monitoring well 22N01W29N00M.

Figure 2. Subsidence on Billiou Well #35 pad. June 2015 (by Billiou).

Figure 3. GCID owned production wells, and their areas of influence in the vicinity of Hamilton City (by Billiou).

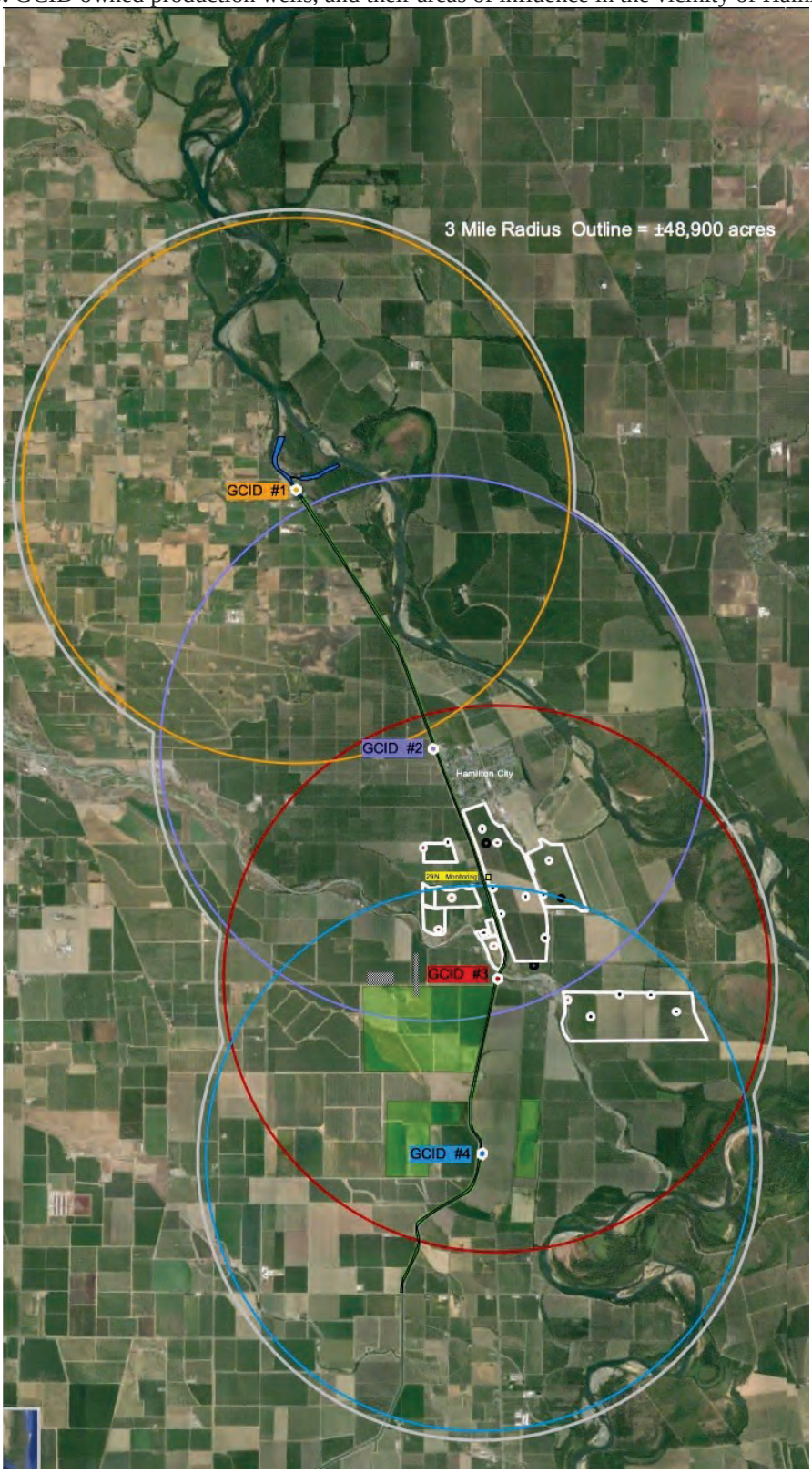
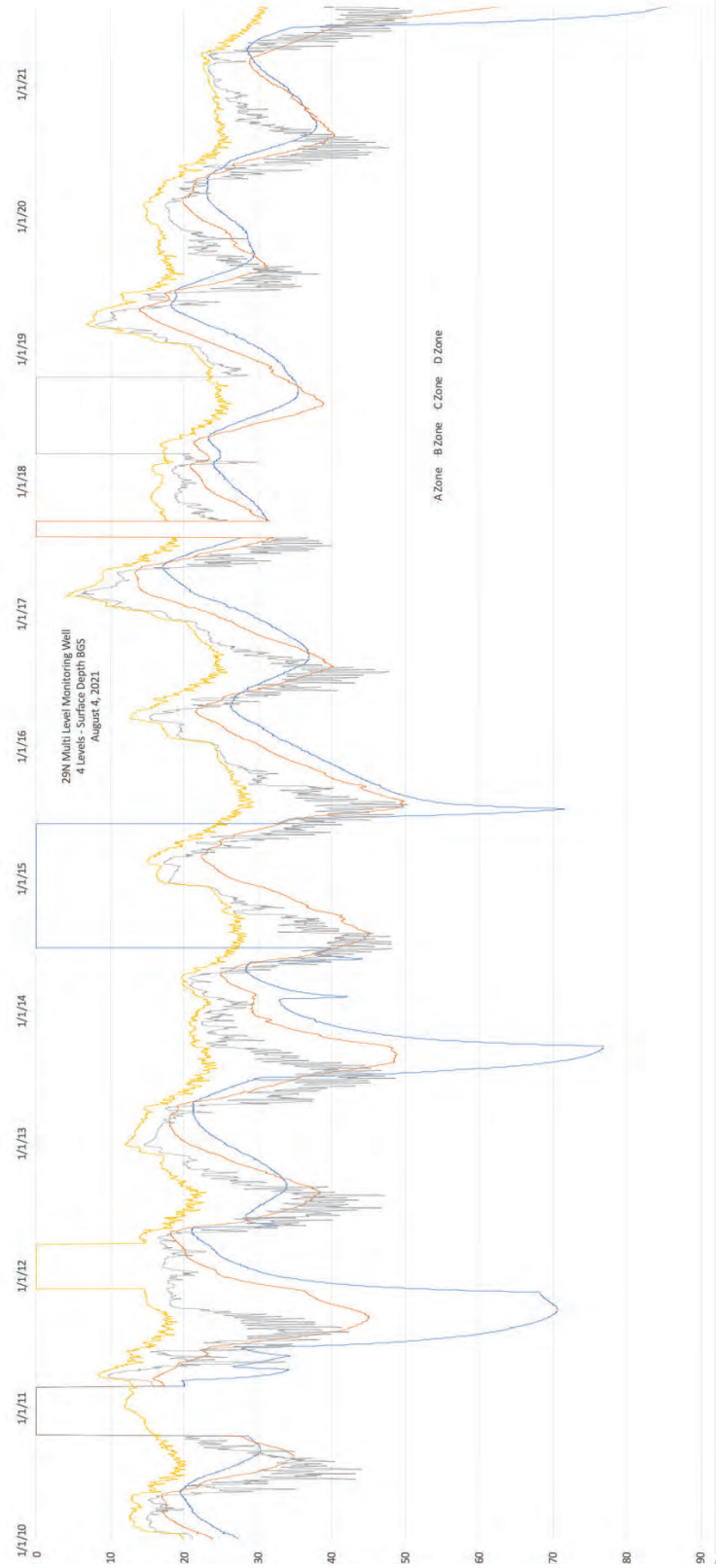


Figure 4. 11 year history of the 4 aquifer levels as reported by State monitoring well 22N01W29N00M.



AA-28 cont.

Reports, maps, and groundwater level data in the area, include: GCID's 2009[11], 2012[12], and 2014[13] aquifer testing and water transfer reports; Butte County's 2013[14] and 2019[15] reports on the ydrogeologic framework in Butte and Glenn Counties; and public websites of the California Department of Water Resources (DWR) for Periodic Groundwater Level Measurements[16], the DWR Water Data Library[17], and CASGEM Online System[18]. The lead agency has all and more of these resources available to it to analyze potential subsidence impacts; its failure to do so is fatal to the DEIR.

AA-29

MM-GEO-1 is wholly inadequate to mitigate subsidence effects, or to suffice as a legally adequate mitigation measure. MM-GEO-1 provides simply that "Recommendations from geotechnical assessments or reports for specific project elements would be implemented as needed, including use of materials and construction techniques specifically addressing potential seismic and geologic hazards." (DEIR at ES-24.)[19] This mitigation measure fails to include any relevant performance standards to ensure subsidence effects would be mitigated to less than significant, nor any analysis of how the prescribe activities themselves would attain any such (nonexistent) performance standards. (*See*, *AquAlliance v. United States Bureau of Reclamation*, 287 F. Supp. 3d 969, 1042-43 (E.D. Cal. 2018) [collecting cases, and noting that "'[a]n EIR is inadequate if [t]he 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.' *CBE v. Richmond*, 184 Cal. App. 4th 70, 92, 108 Cal. Rptr. 3d 478 (internal citations and quotations omitted); *compare Pres. Wild Santee v. City of Santee*, 210 Cal. App. 4th 260, 281-82, 148 Cal. Rptr. 3d 310 (2012) (EIR providing for post-approval formulation of habitat plan to mitigate impacts to butterfly insufficient where EIR failed to include any performance standards or other measures to demonstrate that project's significant effects would be mitigated) *with Rialto*, 208 Cal. App. 4th at 942 (mitigation measure that included specific performance standards sufficient to ensure potential impact would be mitigated).]) The subsidence mitigation measures at issue in *AquAlliance v. United States Bureau of Reclamation* were far more robust than those presented here, yet were still invalidated by the court. (*See id.* at 1042-1049.)

H. Energy Use Impacts Are Missing

AA-30

There is a significant amount of additional energy that will be used with the pumping of groundwater. The DEIR states that the groundwater energy intensity is estimated at 177 kilowatt hours per acre-foot (KWh/af) citing a CPUC 2010 study. This could result an additional 29,500 megawatt-hours (MWh) of electricity use in Phase 1 and 5,900 MWh in Phase 2 (Section 3.6.3.4.1, pgs. 149-150). Appendix G of the 2010 CPUC report shows a broad range of

[11] https://www.buttecounty.net/Portals/26/Tuscan/AppendixA-2.pdf
[12] https://www.countyofglenn.net/resources/reports-water/stony-creek-fan-aquifer-performance-test
[13] https://www.buttecounty.net/wrcdocs/WC/Agenda/140903/WCAgenda140903item4.pdf
[14] https://www.buttecounty.net/Portals/26/Tuscan/LTAFinalReport.pdf
re Type text here
[15] http://www.buttecounty.net/wrcdocs/Reports/SpecialProjects/AEM/AGF-AEM_Report_2019.pd
[16] https://data.ca.gov/dataset/periodic-groundwater-level-measurements
[17] https://wdl.water.ca.gov
[18] https://www.casgem.water.ca.gov/OSS/(S(yhgnbfef15vtjktunxrxiit5))/Default.aspx?ReturnUrl=%2fOSS
[19] MM-GEO-2 and MM-GEO-3 do not pertain directly to ordinary subsidence impacts.

AA-30 cont.

groundwater energy intensity across California (Table G-1, p. G-2) and provides the formulas for calculating the energy requirements (pp. G-10 and G-11). The DEIR fails to provide any reasoning for using the estimate of 177 KWh/af for the proposed groundwater substitution pumping using deep production wells. If one uses the formulas in Appendix B to back calculate the total dynamic head (i.e., the depth to the pumped water) for the 177 KWh/af value, it's approximately 100 feet, far less than the deep aquifers that most likely will be pumped under the groundwater substitution alternative. For example, GCID's production wells range from a maximum screen depth of 710 feet to 1,300 feet.[20] The DEIR should provide specific calculations using the formulas in the CPUC report to document the potential energy use with the production of up to 167,100 af in Phase 1 and 33,420 af in Phase 2.

AA-31

Using an estimate that one megawatt of electricity can supply 1,000 homes , the DEIR 177 KWh/af groundwater energy intensity with the total 29,500 MWh of electricity consumption in Phase1 can be measured by the number of homes the electricity supports. Assuming that this electricity is used continuously over the entire 182 days of groundwater substitution pumping, from April 1 and September 30, then 6.75 MW will be consumed daily (29,500 MWh / (182 days * 24 hours/day). If one megawatt can supply 1,000 homes, then 6.75 MW can supply 6,750 homes per year in Phase 1. For Phase 2, the daily power consumption is 1.35 MW, equivalent to the power needs for 1,350 homes per year. The DEIR should analyze the potential impacts from the increase in the amount of power used by groundwater substitution pumping. This increased demand for electricity will occur during a drought when temperatures are likely higher than normal and the overall demand for electricity is higher than normal. The locations of where the pumping will occur and the stress put on the local electrical grid should be evaluated and mitigation measures proposed.

I. The Alternatives Analysis Is Flawed

AA-32

The DEIR rejects the no groundwater substitution pumping alternative, Alternative 1, because the alternative could result in erosion impacts and release of hazardous material (Section 6.4.4.2, pp. 316-317). This rejection is made even though there are multiple benefits, which apparently won't occur with the groundwater substitution pumping. Mitigation Measure MM-HYD-1 is offered to reduce the potential impacts from erosion with the no groundwater substitution alternative to less than significant, but still Alternative 1 is rejected.

> *Alternative 1 would eliminate the use of groundwater for irrigation as an option for water reduction activities, and contract users would not withdraw an estimated up to 167,100 acre-feet annually in Phase 1 and 33,420 acre-feet annually in Phase 2. Less groundwater would be mixed with surface water, and there would be lower potential for COCs from groundwater to be mixed with surface waters. There would be no changes to existing groundwater pumping in Phase I or Phase 2 of the Agreement; therefore, there would be less depletion of groundwater resources and lower risk of drawdown effects such as subsidence. There would be no risk of*

[20] GCID 2015. *Environmental Impact Report for the Glenn-Colusa Irrigation District Groundwater Supplemental Supply Project*. p. ES-2.

AA-32 cont.

potential conflicts with groundwater management plans because there would be no change in groundwater pumping.

However, similar to the proposed project, Alternative 1 could result in potentially significant impacts to nearby surface water and groundwater due to erosion following cropland idling, as well as from the potential release of hazardous substances during construction of the drought-resiliency projects.
The following mitigation measure would be implemented to reduce Alternative 1's potential impacts on hydrology and water quality:

• MM-HYD-1: Implement Erosion and Spill Control Measures for Drought-Resiliency Projects

Implementation of MM-HYD-1 would include erosion and spill control measures, which would reduce the significance of erosion impacts and potential impacts from accidental spills. With implementation of mitigation, impacts to surface and groundwater water quality would be reduced to less than significant. While impacts associated with groundwater withdrawal would be lower compared to the proposed project, other project activities would still have the potential to impact hydrology and water quality. Alternative 1's impacts would be reduced to less than significant with mitigation consistent with impacts of the proposed project.

AA-33

The DEIR rejects the no groundwater substitution pumping alternative by claiming that without applying this water there would be greater environmental impacts (Section 6.6, p. 322).

Alternative 1 is considered potentially more protective to groundwater resources than the proposed project; however, as discussed in Sections 6.5 and 6.6, it would likely result in increased impacts to GGS and northwestern pond turtle due to increased crop idling as compared to the proposed project. Additional crop idling associated with Alternative 1 would also further reduce water levels in canals and ditches, which could cause riparian and wetland vegetation to prematurely drop leaves before seasonally appropriate or potentially die and temporarily reducing the amount of riparian and wetland habitat available in the project area.

There is clearly a nexus with the federal Bureau of Reclamation, so consultation with the U.S. Fish and Wildlife Service has the potential to craft protective measures for terrestrial species through a biological opinion. Because the project cannot commence before the Bureau finalizes its NEPA and ESA clearance, the project must incorporate any relevant changes to the project that would enable a feasible alternative to be pursued that would reduce or avoid the project's significant effects. The failure to pause this CEQA review and wait for further information from the federal environmental review will only result in the need for supplemental or subsequent CEQA review once such information becomes available..

J. Cumulative Impacts

AA-34

CEQA requires the DEIR's cumulative impacts discussion to include "closely related past . . . projects." (14 C.C.R. 15355.) The Bureau of Reclamation and San Luis Delta Mendota Water

AA-34 (cont.)

Authority Long Term Water Transfer EIS/EIR should be included and analyzed here.[21] Just as the current proposed project entails SRSCs forgoing surface water deliveries from the Bureau of Reclamation, and engaging in groundwater substitution and/or cropland idling to offset the surface water loss, so too did the Long Term Water Transfer project "occur when sellers choose to pump groundwater in lieu of diverting surface water supplies", or would otherwise engage in cropland idling, and/or conservation. (Long Term EIS at ES-7 – ES-8.) Where the same agencies, undertaking the same water management techniques, in the same geographic region are present, the Long Term Water Transfer project plainly fits the CEQA definition of a closely related past project that must be cumulatively considered.

K. Additional Comments and Questions

AA-35

1) When will the Lead Agency's partner, the Bureau of Reclamation, satisfy National Environmental Policy Act requirements for the Project? The state lead agency should have coordinated and consulted at the earliest opportunity. (*See* 14 C.C.R. § 15222.)

AA-36

2) The DEIR must provide details on how the Bureau intends to manage and distribute the non-delivered SRSC water and how the Bureau will account for the water and its distribution.

AA-37

3) The DEIR must explain if the Bureau will transfer any of the non-delivered SRSC water as a groundwater substitution transfer and how the local government agencies and state and federal responsible agencies will participate in the permitting of such transfers.

AA-38

4) The DEIR states that the "[r]educed SRSC contract supply allows for Reclamation to respond to shortages in water supplies due to very dry hydrologic conditions, climatic variability, climate change, and regulatory requirements." (p.14) However, the DEIR fails to state how the Bureau will "address water shortages at Shasta Lake." For example, will any of the non-delivered SRSC water be transferred to non-SRSC water users? If the non-delivered water is transferred to non-SRSC water users, will those transfers be evaluated separately with public notification like other non-Agreement water transfers? Will supplemental CEQA and NEPA review be conducted for the transfers or may some of the transfers use the SWRCB process? Will this EIR be used to exempt any transfers from further analysis and review?

AA-39

5) Table 16, *Summary of Hydrologic Unit Codes Within the Project Area*, omits significant waterways in the project area, many that are crucial to fish, such as:

- Mill Creek
- Deer Creek
- Antelope Creek
- Pine Creek
- Rock Creek
- Thomes Creek
- Stony Creek

[21] https://sldmwa.org/OHTDocs/pdf_documents/Misc%20Reports/032020/Long-term%20Water%20Transfers%20EIS-EIR%20Main%20Document.pdf

In conclusion, for the Project to remotely approach adequacy under CEQA, the DEIR must be revised and recirculated.

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Frequently Asked Questions (FAQ)

2021 Water Supply Announcement

On February 23, 2021, the U.S. Bureau of Reclamation (Reclamation) declared that 2021 has been determined to be a Shasta Critical Year, which occurs when the forecasted inflow to Shasta Lake for a particular water year is equal to or below 3.2 million acre-feet. This means that Sacramento River Settlement Contractors (SRSC), including Glenn-Colusa Irrigation District (GCID), will receive 75% of their annual water supply under the SRSC contracts. The following are a list of frequently asked questions associated with the development, payment, and implementation of water applications.

For additional information or appointments for water application assistance, please contact the GCID office at (530) 934-8881. A list of staff contact information and mobile phone numbers is available on the GCID website at www.gcid.net, under the GCID Home menu tab on the Staff Directory website link.

Critical Year At-a-Glance

How much water do I receive in a critical year, when the District's water supply is reduced to 75%?

In a critical year, each landowner will receive an allocation of 4.1 acre-feet (ac-ft) per deeded acre, regardless of the type of crop that will be planted.

Is there a possibility that the water supply amount will be changed during the season?

No, this is a Shasta Critical Year and there is no chance that it will be changed.

Do I have to complete an application and make a payment before I can receive water?

Yes, water applications and the down payment must be submitted before receiving irrigation water. Application packets were mailed on April 2, 2021. District staff will help you with the application process, and then contact the water operator(s) to inform them that your application is complete.

Is there information available about what I applied for in the last critical year?

A detailed report can be provided to you showing the parcels and crops you applied for in 2020, when we operated under critical year conditions during the application process which was reversed in June. You may contact the District office for this information, and they will make arrangements to get it to you.

Are the water rates different in a critical year?

Yes, the 2021 Critical Year water rate will be $21.79 per acre-foot. There is no fixed charge per irrigated acre levied in Shasta Critical Years.

Water Application Process

When will I receive my water application information?

Application materials were completed for mailing immediately following the Board of Directors meeting on April 1. Water application materials were mailed on April 2, 2021. If you have not received your materials within a few days of this date, please contact the GCID office at (530) 934-8881.

Assistance with Application Submission; COVID-19

As COVID-19 continues to pose a threat to health, GCID requests that landowners and tenants who are able to complete their water applications without assistance either mail the applications to the GCID Post Office Box (P.O. Box 150, Willows, CA 95988) or deposit them in the drop box that has been installed outside the District office's main entrance, rather than returning them in person in order to limit possible exposure. If assistance is needed in completing the water application, please call the GCID office and staff will assist you in preparing your application over the phone. As a reminder, be sure to have your application materials in front of you prior to calling. If it is necessary to receive assistance from office staff in person, please call the GCID office to arrange an appointment.

Kathy Barr: kbarr@gcid.net,
Mary Spooner: mspooner@gcid.net
Cheryl Taylor: ctaylor@gcid.net
Karen Alves: kalves@gcid.net – Water transfers and groundwater commingling

How do I make a payment?

GCID can accept payment by check, cash or electronically through the Automated Clearing House (ACH) process. If you would like to make a payment via ACH, contact the office and a form will be provided for you to supply the information needed to process your payment.

What are the office hours?

The office staff is available by phone and email, Monday through Friday; 8 a.m. to 5 p.m.

Water Transfers

Are there water transfer programs available in 2021?
Yes, the District is developing both crop idling and groundwater transfer programs in 2021. Landowners were requested to express interest in participating in these programs by March 12, 2021.

> *Crop Idling Transfer Program: If you expressed interest in participating in the crop idling transfer program, please contact Karen Alves at the District office to complete the required land idling agreement and other forms between **Monday, April 5 and Monday, April 12.***
>
> *Groundwater Transfer Program: If you expressed interest in participating in the groundwater transfer program, District staff will contact you to complete the required agreement and other forms.*

Critical Year Water Operations

Where is the information on what amount of water (unit duty) is needed to grow specific crops?

The unit duty information is included in the water application packets being mailed and is also listed on the website at www.gcid.net, beneath the Water Supply and Operations menu tab on the Water Applications website link.

Is the Water Management and Conservation Policy different during a critical year?

Yes, due to the reduced water supply it is important to manage and conserve the available water supply in order to be able to deliver the allocated 4.1 ac-ft per deeded acre to landowners. The special critical year water conservation rules were included in water application packets and are also available on the District's website at www.gcid.net, beneath the Water Supply and Operations menu tab on the Water Applications website link.

How do I calculate the amount of water I need to grow a specific crop, such as rice?

Example: A landowner receives an allocation of 410 acre-feet (ac-ft) for 100 deeded acres (4.1 ac -ft/deeded acre x 100 deeded acres) and plans to grow rice. (The unit duty for rice is shown on the "2021 Applied Water Unit Duties for Summer and Winter Crops-75% Water Supply" found in the application packets and on the GCID website at www.gcid.net.) The unit duty for rice is 5.5 ac-ft per irrigable acre. So, the total 410 ac-ft allocation is divided by the 5.5 ac-ft per irrigable acre rice unit water duty for a total of 74.5 acres of rice that can be planted.

How do I make up the difference in water needed to grow rice, or other crops that require more than the 4.1 acre-feet (ac-ft) per deeded acre allocation?

There are several methods that can be used to make up the difference between the allocation and the required unit duty:

1. *The 4.1 ac-ft allocation is based on deeded acres, which includes the entire acreage including houses, buildings, roadways, and other property features. The crop unit duty is based on irrigable acres and that is only the acreage that can actually be planted. Therefore, there is often a discrepancy between the two and allocation remaining between deeded acreage allocation and the required unit duty. This amount can be transferred and used to meet a higher unit duty crop requirement.*

2. *If you irrigate other crops that use less than the 4.1 ac-ft allocation there is a remainder amount that can be applied to higher unit duty crops.*

Example: The landowner has a total of 410 ac-ft allocation for 100 acres and plans to plant 50 acres of rice and 50 acres of tomatoes. The unit duty for rice is 5.5 ac-ft x 50 acres = 275 ac-ft. The unit duty for tomatoes is 2.3 ac-ft x 50 = 115 ac-ft. The total amount of allocation needed to plant 50 acres of rice and 50 acres of tomatoes is 390 ac-ft. This leaves 20 ac-ft that can be applied or transferred elsewhere (410 ac-ft – 390 ac-feet = 20 ac-ft).

3. *You may find other landowners who have additional allocation remaining and that can be transferred to you to make up the deficit on higher unit duty crops. These arrangements are strictly between landowners and water users; the District just needs a copy of the assignment form for its records.*

4. *If you own a groundwater well, you may participate in a District program to commingle the groundwater from your well with your District surface*

water allocation to meet the unit duty requirements for the crops you are irrigating that exceed the 4.1 ac-ft allocation. Groundwater may also be transferred to another District landowner, or you may receive a groundwater transfer from another District landowner.

How do I get more information about the Groundwater Commingling Program?

If you are interested in commingling groundwater, you may contact Karen Alves at the District office, or by email at kalves@gcid.net, to obtain information. District engineering staff will make a site visit to assess the well and meter, and after District approval of the well infrastructure, you will be asked to sign a "Wheeling Agreement for Private Well Water Supply."

General Water Operations

When can I take water on a rice field?

Rice field deliveries can begin on April 2, 2021, if the application and down payment process is complete, and a water order is placed and scheduled with the water operator.

How do I contact my water operator?

There is a list of water operator phone numbers on www.gcid.net under the GCID Home menu tab on the Staff Directory website link, ranging from (530) 518-7120 to 518-7133, depending on which water operator area your field(s) is in. Water users may also call the District office at (530) 934-8881, and staff will direct them to the correct phone number.

What time of day do water orders need to be placed?

Water orders are to be placed with a water operator, at minimum, before 1:30 p.m. on the day prior to needing the water, but service may be subject to an alternative schedule based upon irrigation water availability and conveyance system limitations.

How much notice do I need to give my water operator before turning down or turning off irrigation deliveries?

During a critical year, water operators will be especially responsive to requested irrigation delivery changes and will make every attempt to implement such changes with very little notice, in accordance with District water conservation measures.

With a late start to the irrigation season, will I be able to flood my rice fields when I place a water order or will there by delays based on the number of growers waiting for water?

It may be necessary to rotate deliveries if a lateral or any other portion of the District's conveyance system reaches its maximum capacity, in order to keep flooding fields in the order in which they have been scheduled.

With a late flooding season and a critical year, will I be able to re-flood immediately after chemical applications and draining my fields?

If initial flooding of fields is still taking place, re-flooding can take additional time. Please contact your water operator prior to draining any field(s) and coordinate any scheduled re-flooding with them.

Engineering Department Services

How do I request to have field acreage measured for water application purposes?

Please submit your request to the office staff and they will coordinate with the Engineering Department staff to update the irrigable acreage of your field(s).

How do I get approval to install private infrastructure along District canals?

Please contact the office staff who will coordinate with the District Engineering Department to supply you with a one-page request form. Subject to District approval, an encroachment permit will be issued. Please apply well in advance of the date that you seek to install the encroachment.

May I request a modification or replacement of District infrastructure, such as my field turnout gate, a nearby check structure, etc.?

Yes, please contact the office staff who will coordinate with the District Engineering Department to supply you with a one-page request form. Upon receipt and review of the proposed work application, GCID staff will make a feasibility determination and then follow-up with you. You are encouraged to submit requests well in advance to allow time for planning and scheduling.

Maintenance Department Services

Who do I contact to determine if it is the District's responsibility to clean or maintain a lateral?

You may contact your water operator, one of the maintenance supervisors or the maintenance superintendent.

Acting Maintenance Superintendent, Jeremy Richardson: (530) 685-0189
Willows Maintenance Supervisor, Steve Osa: (530) 518-7151
Williams Maintenance Supervisor: (530) 518-7106

Is it possible to have the District perform private work on my irrigation facilities?

Yes, it is possible, depending upon the District's workload. You may contact the maintenance superintendent or supervisors, listed above, for further details and information about the private work hourly charge rate for District labor and equipment, as well as for material costs.

Who do I contact to report a severe weed problem in a District lateral or drain?

Please contact Abatement and Canal-Roadway Supervisor, Juan Silva, at (530) 518-7104, or the Willows or the Williams Maintenance Supervisor, listed above.

AQUALLIANCE
DEFENDING NORTHERN CALIFORNIA WATERS

June 24, 2024

California Department of Water Resources
Sustainable Groundwater Management Section
1416 9th Street
Sacramento, CA 95814

Re: Revised Corning Subbasin Groundwater Sustainability Plan

To whom it may concern:

AquAlliance, the California Sportfishing Protection Alliance, and the California Water Impact Network (hereinafter AquAlliance) submit the following comments and questions on the Revised Corning Subbasin Groundwater Sustainability Plan ("Revised GSP" or "Revised Plan"). Revisions to the 2022 GSP are necessary since the Plan was deemed "Incomplete" by the California Department of Water Resources ("DWR"). There were serious flaws in the 2022 Plan that appear not to be addressed in the 2024 review process.

A. Public Process

The process used to comment on the 2022 GSP revision was a maze of challenges for the public. Discussion in the GSAs' 2024 meetings stated that written comments were due *Sunday*, April 7th, however, the Legal Notice in the Sacramento Valley Mirror indicated "Comments received prior to and during the public hearing [April 11, 2024] will be considered by the Corning Sub-basin Groundwater Sustainability Agency Committee prior to the adoption of the proposed Amended GSP." The Legal Notice then mentioned the "Final Amended GSP will be located online by April 8, 2024…" The Legal Notice said nothing about comments due on April 7 or if there were any constraints on the type of comments accepted.

Second, the Corning GSA and the Tehama County Flood Control and Conservation District ("TCFCCD") (collectively the "GSAs") failed to reach a decision about a potential moratorium in certain areas of the Corning subbasin that was seriously discussed at the April 4, 2024 meeting. Third, when AquAlliance sent e-mails asking Lisa Hunter, the Plan Manager, when the Revised GSP would be available and what was the comment period, we were provided with the url and informed that the Revised GSP would be released April 8th, the day after one of the comment deadlines disclosed at

public meetings.

In light of the egregiously short time frame for comments to the GSAs, whether one or four days, and a non- existent or very last-minute Revised GSP, major decisions by the GSAs still in flux over Minimum Thresholds and a moratorium on new wells, and the mixed messages about timing, AquAlliance submitted comments to the GSAs on April 7, 2024 and additional written comments on April 10, 2024. We submit the April 10, 2024 comments during DWR's public comment period for consideration in its review process with corrections to adjust to the changed page numbers in the Revised GSP found on the SGMA web site.

In addition, below are expanded and/or revised comments originally submitted to DWR on the original 2022 GSP. The comments are as germane today for the Revised GSP as they were previously, particularly since much of the 2022 GSP will remain in effect. No matter how we refer to the GSP in these comments, either as final, revised, amended, or any other nomenclature, our intention is that the comments and questions here apply to all forms of the GSP that have been approved by the GSAs.

B. Introduction

The goal of the Sustainable Groundwater Management Act (SGMA) is to sustainably manage groundwater resources for long-term reliably and multiple economic, social, and environmental benefits for current and future beneficial uses based on the best available science (Water Code 113). The people of California have a primary interest in the protection, management, and reasonable beneficial use of the water resources of the state, both surface and underground, and in the integrated management of the state's water resources to meet the state's water management goals. Proper management of groundwater resources will help protect communities, farms, and the environment against prolonged dry periods and climate change, while preserving water supplies for existing and potential beneficial use. Failure to manage groundwater to prevent long-term overdraft infringes on overlying and other proprietary rights to groundwater.

California's Water Code specifically established as state policy that *every human being has the right to safe, clean, affordable, and accessible water adequate for human consumption, cooking, and sanitary purposes* (WC 106.3(a)). State agencies, including DWR the State Water Resources Control Board ("SWRCB"), and the State Department of Public Health, are required to *consider this state policy when revising, adopting, or establishing policies, regulations, and grant criteria when those policies, regulations, and criteria are pertinent to the uses of* water (WC 106.3(b)).
The Water Code also creates a state policy *that the use of water for domestic purposes is the highest use of water and that the next highest use is for irrigation* (WC 106). The Groundwater Sustainability Agencies (GSAs) were created by SGMA and are delegated by the state the authority to create and implement a Groundwater Sustainability Plan (GSP), which makes the GSA(s) a political subdivision of the state. Therefore, approval of any SGMA GSP created by a GSA(s) or county agency, which is then approved by the DWR and the SWRCB, must be consistent with the state policies that protect and prioritize the public's right to safe and available supply of groundwater for all beneficial uses.

Implementation of SGMA requires the creation of a GSP that provides for the development and reporting of those data necessary to support sustainable groundwater management, including those data that help describe the basin's geology, the short- and long-term trends of the basin's water balance, and other measures of sustainability, and those data necessary to resolve disputes regarding

sustainable yield, beneficial uses, and water rights. A presumption inherent in SGMA is that sustainable management of a groundwater basin won't repeat or perpetuate the management errors of the past. That the design of the Corning Subbasin Revised GSP sustainability monitoring program requires years of declining groundwater levels before an undesirable result can occur suggests that the past mismanagement practices will persist. The November 2021 Corning Subbasin Final GSP (2022 GSP)[1] failed to meet the SGMA goal of water resource sustainability and protection of the water rights of all beneficial users and uses, and so does the April 2024 Revised GSP.

The proposed sustainable management criteria presented in the Corning Revised GSP fail to demonstrate as required by SGMA that the goal of groundwater sustainability is achievable and will occur within 20 years of GSP adoption for: (1) chronic lowering of groundwater levels, (2) reduction of groundwater storage, (3) degraded water quality, (4) depletions of interconnected surface waters, and (5) inelastic land subsidence. The final Corning 2022 GSP and the Revised GSP fail to protect the beneficial uses for all users of groundwater in the subbasin because of the following:

- The Revised GSP sets the minimum thresholds (MTs) for unreasonable results in the management the groundwater levels at depths that can result in a basin wide average of 22% or more of the domestic wells going dry for sustained periods, if not permanently, Table 6-2 (p. 6-23, pdf p. 439). The estimated dry domestic wells in the Focused well Thiessen Polygon areas can be as high as 63% in the polygon surrounding a RMP well (see column F in attached AquAlliance Exhibits 1-5 and 1-6).
- The Revised GSP estimates that sustainable management of the groundwater levels and groundwater storage with the projected 2070 scenario will allow for a cumulative change in storage of -19,700 acre-feet (AF) (Table 4-15, p. 4-71, pdf p. 350) in the next 50 years, which is contrary to the estimated Historical baseline cumulative surplus from 1974 to 2015 of 290,300 af. (Table 4-2, p. 4-22, pdf p. 301).
- The estimated difference between the Historical average annual and the projected 2070 average annual change in storage is -1,500 acre-feet per year (AFY), or 75,800 AF by 2070 as compared to simulated current conditions (p. 4-17, pdf p. 296).
- The Revised GSP requires for an undesirable result for the Chronic Lowering of Groundwater Levels that either "*10 supply wells becoming dry (after the GSP revision) within a Thiessen Polygon established in the revised GSP, or when water levels at any RMP in the future decline 7.5 ft or more over a five (5) year period."* (Table ES-1, p. ES-26, pdf p. 48). First, the requirement that only groundwater levels after 2024 are valid for determining undesirable results is inconsistent with SGMA, which requires the GSP manage groundwater conditions after January 1, 2015 (WC 10727.2(b)(4)). Second, the threshold for an undesirable result for lowering groundwater is a decline in water level below the Minimum Threshold groundwater elevation, not below the bottom of a well, which likely varies significantly across the subbasin thereby creating an indeterminate threshold elevation.

[1] California Groundwater Basin number 5-021.51, part of the Sacramento Valley Groundwater Basin.

- The current rate of the lowering of groundwater levels in the Corning Subbasin is equal to or exceeds -1.5 feet/year in 17 of the 35 shallow wells (48.6%), and 10 of the 16 deep wells (62.5%) that are active monitoring wells with a historical record of the rate of decline (see column I in attached AquAlliance Exhibits 1E and 1F). This rate of decline is one of the reasons for dividing the subbasin into Focused "zones of concern" (p. 6-12, pdf p. 428). What reasonable groundwater management policy justifies requiring up to 63% of the domestic well owners lose their wells? The high percentage of dry wells is not unique to domestic wells. In fact it occurs in agricultural wells in excess of 20% and one of the highest percentage occurs in a Non-Focused area (AquAlliance 1-5, column I). **Given that the groundwater levels in a majority of subbasin's RMP wells are currently in an undesirable condition, why must another 5 years of undesirable groundwater levels occur before the existing undesirable result can be acknowledged?**
- The Revised GSP *operational flexibility* (OF) for sustainable management, the difference between the depths of the management objectives (MOs) and the MTs, has been reduced by 5 feet for the Thiessen Polygons around the Focused RMP wells (see column N in attached AquAlliance Exhibit 1-3 and 1-4). The OFs in the Subbasin range from 6.6 feet (ft) to 60.1 ft for the shallow RMP wells and 25.3 ft for all but one deep well, which has an OF of 44.7 ft. These OF ranges are sufficient to allow groundwater levels to decline at the current average annual rate of decline in the shallow Focused Thiessen Polygons for 4 to 20 years before the MT threshold is reached, assuming the decline starts at the MO elevation (see column J in attached AquAlliance Exhibits 1-7 and 1-8). In the deep Focused well Thiessen Polygons, the OF decline can continue for 5 to 15 years.
- Although the Revised GSP sets the undesirable result for the Chronic Lowering of Groundwater Levels at the occurrence of 10 dry supply wells or 5 years of 1.5 feet/year or greater, the undesirable reduction in groundwater storage requires the groundwater levels in 20% of the 55 RMP wells (11 wells) drop below the associated MT for 2 consecutive years as measured in the fall of each year (Table ES-1, p. ES-26, pdf p. 48; Section 6.7.2.6, pp. 6-44 and 6-45, pdf pp. 460 and 461). Given the physical connection between groundwater levels and groundwater storage (e.g. a decline in groundwater level means a decrease in groundwater storage) the reasoning and the mathematical calculation that equates 10 dry supply wells, or a five years of groundwater level decline at -1.5 feet/year to 20% of the RMP well elevations being below the associated MT for 2 consecutive years in the fall, seems to be missing. The only reasoning given in Section 6.7.2.6, *Method for Quantitative Measurement of Minimum Thresholds* for reduction in groundwater storage is that *"[t]he undesirable result was set at 20% to balance the interests of beneficial users with the practical aspects of groundwater management under uncertainty."* (p. 6-45, pdf p. 461). There is no reference to a section in the Revised GSP where the interests of the beneficial users are quantified, so that the loss of 10 wells or the 5 years of declining groundwater level threshold can be weighed against the loss of storage in 20% of the subbasin polygons threshold.
- The Revised GSP assumes that sustainable management of the subbasin will allow the annual average groundwater pumping in 2070 at 172,200 acre-feet per year (afy), an increase of 36,300 afy or 26.7% above the Historical baseline of 135,300 afy, with 96% of the increase going to agricultural uses (Tables 4-2 and 4-15, pp. 4-22 and 4-71, pdf pp. 301 and 350).

- The Revised GSP assumes that sustainable management of the subbasin with the 2070 scenario will result in a cumulative annual average net stream gains (groundwater discharge to streams minus streambed recharge seepage) of -49,900 af, which is -86,800 af below the Historical baseline of a +36,900 af, and -32,000 af below the Current baseline of -17,900 af (see attached AquAlliance Exhibit 2-2). The change in stream flow will be a loss in net stream gains of approximately -235% over the Historical baseline, and -179% over the Current baseline.
- The Revised GSP assumes that sustainable management of the subbasin allows for a recalculated Sustainable Yield of 141,000 afy until the 5-year Periodic Evaluation, based on the assumption that the 2022 GSP 2070 simulated Sustainable Yield of 172,200 afy is still valid less the current overdraft of -31,200 afy (p. 4-89, pdf p. 368). The assumption that the simulated 2070 groundwater pumping, combined urban, domestic and agricultural, will be 172,200 afy (Table 4-15, p. 4-71, pdf p. 350) seems to contradict the fact that the recent amounts of groundwater extraction since 2015 has exceeded that value, ranging from 175,000 af (WY 2023) up to 260,000 af (WYs 2016, 2020 and 2021) (Table 4-1, pp. 15 and 16, WY 2023 Corning Subbasin Annual Report). The apparent assumption that the 2070 pumping rate will decline from the present rate also seems to contradict the assumption that there will be an increase in irrigated farmland and a decrease in surface water deliveries (pp. 4-16 and 4-17, pdf pp. 295 and 296).
- The Revised GSP requirement for simultaneous, continuous exceedance of the MT at multiple RMP monitoring wells can result in significant magnitudes and expansive areas of decline in groundwater storage (with the associated decline in groundwater levels), water quality, interconnected surface waters, and possibly surface elevations (inelastic subsidence) as long as one of the monitored stations in the group doesn't continuously exceed the MT. In other words, there is no limit to decline in the beneficial uses of groundwater if measurements in *one* of the monitoring stations within a group is above the MT at least once every 2 years (Table ES-1, ES-26, pdf p. 40).
- The Revised GSP fails to analyze, monitor, or consider the potential impacts to water quality from the proposed allowable changes in groundwater levels and storage, except for one constituent, salinity. Although the final plan calls for coordination in management of water quality with other governmental agencies, the plan doesn't indicate what the MTs are for all the potential contaminants of concern in the Corning subbasin, or what and how GSP management actions will be taken whenever a water quality impact is identified.
- The Revised GSP requires that at least 25% of the 15 RMP water quality network monitoring wells, i.e., 3 wells, must exceed the MT for 2 consecutive years *where it is established that the GSP implementation is the cause of the exceedance to trigger an undesirable resul*t. The justification for requiring water quality exceedance in multiple wells for multiple years isn't clear and seems to allow the expansion of water quality degradation before the Corning GSAs will act to prevent an undesirable result. The requirement that **someone must prove** that the GSP implementation caused the water quality exceedance isn't consistent with the SGMA requirement to protect water quality (Water Codes (WC) 10721(x)(4), 10727.2(d)(2), 10727.2(f), 10727.4(c), (h), and (k)).
- The Revised GSP sets the MT rate of inelastic subsidence that appears to exceed the current conditions while providing no current assessment of the sensitivity of local

infrastructure to subsidence. See the attached amended AquAlliance April 10, 2024 Comment letter on Revised Corning GSP for more details on subsidence.

- The Revised GSP doesn't provide a requirement for frequent monitoring of subsidence benchmarks or monitoring of critical infrastructure, but instead leaves the responsibility of subsidence monitoring and analysis to others with the frequency of reporting dependent on the work schedules and funding of DWR and others (Section 5.5.1, pp. 5-31 and 5-32, pdf pp. 400 and 401).

C. Lack of Accountability for GSP Management Actions and Programs

In Chapter 7 on the GSAs Projects and Management Actions, the Revised GSP provides in the Demand Management Program, Section 7.3.1.1 (p. 7-9, pdf p. 499) and the Domestic Well Mitigation Program, Section 7.3.2.1 (p. 7-13, pdf p.503), along with the Memorandums of Understanding for each program in Appendices 7-G and 7-H (pdf pp. 770 - 798). The resolutions passed by the GSAs in April 2024 that establish these two programs contain the following language:

Appendix 7-G – Demand Management Program (pdf 772)

> *WHEREAS, the GSAs acknowledge that SGMA requires sustainable groundwater management; however, SGMA does not make GSAs responsible for injury from overdraft; and*

Appendix 7-H – Well Mitigation Program (pdf p. 785)

> *WHEREAS, it is acknowledged that SGMA does not require GSAs to develop well mitigation programs; and*
>
> *WHEREAS, the GSAs acknowledge that SGMA requires sustainable groundwater management; however, SGMA does not make GSAs responsible for injury from overdraft, nor does it require or assign any liability to GSAs to provide, ensure, or guarantee any level of water quality or access; and…*

This language appears to be a general hold harmless statement by Corning Subbasin GSAs that they consider themselves to be unaccountable for the actions they undertake to manage the groundwater resources in subbasin. It is unclear if SGMA allows for this wavier of liability to be applied to all groundwater users in a subbasin without their consent. The GSAs apparently believe it does because the Revised GSP includes no accountability statements in the Domestic Well Mitigation Program and then requires that after a domestic well owner files an application, develops the well mitigations, and receives eligibility approval for reimbursement of those mitigations, a Well Owner Agreement must be signed to receive the mitigation funds. This Well Owner Agreement is required to include a provision that the well owner Indemnifies the GSAs (Appendix 7-H, p. 6, pdf p. 789) with the reason for and the scope of the indemnification provision unknown.

This assumption that the Corning Subbasin GSAs aren't responsible for their management actions seems to be contrary to the intent of SGMA, which gives broad authority to a GSA to exercise any powers described in law to achieve a sustainable groundwater subbasin. The powers include, but are not limited to, the provisions of: WCs 10725; 10725.2(a) and (b); 10725.4(c); 10726.6(a)(1) and (a)(2); 10726.8(a) and (d); 10730(a), 10730.6(a), (c) (d) and (e); 10730.8(a); and 10732.2. These statutes allow a GSA to adopt rules, regulation, ordinances and resolutions, to impose permit and groundwater extraction fees, determine spacing requirements on new wells, control the timing and rate of groundwater extractions, the timing and suspension of extractions, bring suit in court to collect delinquent groundwater fees, hold a public hearing to determine if a well owner or operator should cease groundwater extractions until all delinquent fees are paid, and file a notice with the SWRCB when a state entity is not working cooperatively to implement the GSP. The fundamental question is why would the legislature give a local agency GSA these broad governmental authorities as the tools to sustainably manage a groundwater subbasin while at the same time expecting that the local GSA wouldn't be accountable to the well and landowners of the subbasin? Does SGMA assume that the state would be accountable for the actions of the GSAs because of the requirement for DWR to approve the GSP (WC 10733.4), and the SWRCB's authority for state intervention (WC 10735 – 10736.6)?

We recommend that DWR review the validity of the assertion being made by the Corning Subbasin GSAs that they aren't accountable for their management actions, and determine whether the liability and indemnification provisions, procedures and measures in the Domestic Well Mitigation Program, and all other proposed project management actions are consistent with requirements of SGMA and all other applicable state statutes and regulations. We also recommend that in the written report of the SGMA compliance review of the Revised GSP, that DWR provide clear language with governing statues that determine how and by what means the well and landowners in a groundwater subbasin can required to comply with the statutory duties as determined by a GSA while also being required to indemnify the GSA from any and all liability.

D. The 2022 Final Corning GSP and the Revised GSP Fail to Comply with SGMA and the Water Code.

The following sections provide expanded discussions of the deficiencies listed above regarding how the Corning Revised GSP fails to protect the beneficial uses for all users of groundwater in the subbasin.

1. The Corning Revised GSP sets the MTs for unreasonable results in the management of groundwater levels at depths that can result in 20% or more of the domestic wells going dry for sustained periods, if not permanently, Section 6.6.2.2 (pp. 6-19 to 6-32, pdf pp. 435 to 448). This could possibly result in 621 of the 2822 domestic wells in the subbasin going dry, see well count in Table 6-2 (p. 6-23, pdf p. 439).

   The representative monitoring point (RMP) network of wells for measuring groundwater levels includes 37 shallow wells and 21 deep wells, Section 5.2.4 (pp. 5-7 to 5-11, pdf pp. 376 to 380). The RMP wells are subdivided into three regions: stable, slight decline, and declining, based on the historical stability of groundwater levels, Figures 6-3 and 6-4 (pp. 6-

17 and 6-18, pdf pp. 433 and 434, and attached AquAlliance Exhibits 1-1 and 1-2. The Revised GSP also separates the subbasin based on the areas that have experienced in recent years, 2020 to 2022, the most significant groundwater level declines and effects on beneficial users are described as "Focus Areas" (p. ES-24, pdf p. 46), while the other areas are "Outside." Figure 6-1a shows the boundaries of the Focus Areas (p. 6-10, pdf p. 426). For these comments the "Outside" areas will be referred to as "Non-Focus Areas." The Revised GSP MTs for the RMP groundwater level wells are set based on whether the recent historical groundwater levels are within or outside of the Focus areas. Minimum thresholds for the RMP wells were set using one of the two criteria (pp. 6-19 and 6-20, pdf pp. 435 and 436):

a. *Focus Area MTs are set to five (5) feet higher than the published 2022 GSP MTs.*

b. *Outside the Focus Area MTs will remain as published in the 2022 GSP.*

The Focus Area MTs at 5 feet above the 2020 to 2022 dry year elevations assumes that fewer wells will be impacted with an estimate that at least 64 more wells of all types will be protected within the Focus Areas (p. 6-20, pdf p. 436). Both criteria appear to be arbitrary and designed to allow for the groundwater level to decline below elevations that don't account for the impacts to beneficial uses. The reasoning seems to be that for the wells in the Focus Areas that have already been impacted, repeating the impacts can't be undesirable. For the Non- Focus Area wells the MTs will remain unchanged, presumably only for the MTs of the "stable wells." The stable well MTs were set in the 2022 GSP as the *"minimum fall groundwater elevation since 2012 minus 20-foot buffer."* (2022 GSP, Table ES-1, p. ES-22, pdf p. 42). The MTs for both areas will likely subject many domestic well owners to either experience or re- experience their lowest groundwater levels with all the accompanying negative impacts: dry wells, poor water quality, higher pumping cost, damaged pumps, etc. AquAlliance Exhibit 1-2 has a summary at the bottom of the table of the average MOs and MTs depths and depth differences for each of the three classes of RMP monitoring well taken from the 2022 GSP Tables 5-2, 5-7 and 6-2 (pp. 5-8 and 5-9, 5-37, and 6-15 and 6-16, pdf pp. 370-371, 399, 424-425). AquAlliance Exhibits 1-3 and 1-4 compare the MO, MT elevations from the 2022 GSP and the 2024 Revised GSP. The MOs and MTs for the Non-Focus Area RMP wells remain the same as the 2022 GSP, and the IMs remain the same for all wells.

The Non-Focus Area wells appear to come from the declining and slight decline areas of the subbasin, Figures 6-3 and 6-4 (pages 6-17 and 6-18, pdf 433 and 434). The average difference in depth in the shallow declining and slight decline wells between the MO and the lowest groundwater elevation since 2012 (MO – 2012) ranges from 4.1 feet to 4.8 feet (AquAlliance Exhibit 1-2, column O). The difference in the shallow declining and slight decline well elevation from the lowest groundwater levels since 2012 to the MTs (2012 – MT) ranges from 16.5 feet to 23.1 feet (AquAlliance Exhibit 1-2, column P). The shallow declining and slight decline well MTs, presumably the Non-Focus wells, allow for a decline in depth ranging from 5 to 5.9 times greater than the historical decline from the MOs to the 2012 low [(MO- MT)/(MO-2012)]. In other words, shallow Non-Focus area domestic wells that on average experience a historical decline of 4 to 5 feet (MO – 2012) will now be allowed to experience an average maximum decline of 20 to 25 feet, a **500% increase**. This increase in MT depth appears to be significant and unreasonable, and it apparently allows for the **dewatering of 22% of the known domestic wells, or possibly more** (Table 6-2, p.

6-23, pdf p. 439). Note that the estimated number of dry domestic wells varies significantly between polygons. AquAlliance Exhibits 1-5 and 1-6 in column F shows the range from 0% up to 63%. **What reasonable groundwater management policy justifies requiring up to 63% of the domestic well owners lose their wells?** Also note that while the requirement for exceedance of MTs for 2 consecutive years has been dropped for the Chronic Lowering of Groundwater Levels sustainability indicator, it remains for the Reduction in Groundwater Storage, Degradation of Groundwater Quality, and the Depletion of Interconnected Surface (Table ES- 1, page ES-26, pdf 48).

The Corning GSP apparently considers a 500% increase from the average MO-to-MT depths to be a beneficially sustainable management criterion, with the reasoning given in Section 6.7.2.6, *Method for Quantitative Measurement of Minimum Thresholds* for reduction in groundwater storage: *"[t]he undesirable result was set at 20% to balance the interests of beneficial users with the practical aspects of groundwater management under uncertainty."* (pp.6-44 and 6-45, pdf pp. 460 and 461). The Revised GSP appears to say that in the future up to 22% of domestic wells are unworthy of protection regardless of whether a well has or hasn't gone dry since 2012 (during past droughts).

2. The Revised GSP requirements for an undesirable result from the Chronic Lowering of Groundwater Levels don't appear to be directly linked to the MT elevations for that sustainability criteria. An undesirable result from the chronic lowering of groundwater level is triggered when either "*10 supply wells becoming dry (after the GSP revision) within a Thiessen Polygon established in the revised GSP, or when water levels at any RMP in the future decline 7.5 ft or more over a five (5) year period."* (Table ES-1, p. ES-26, pdf p. 48). Neither of these triggers is directly linked to the MT elevation at the RMP well that represents the Thiessen Polygon. The type of well that qualifies as one of the 10 supply wells isn't clearly defined. Are the domestic wells considered supply wells? The Revised GSP generally uses the term supply well when discussing a public water well. The type of wells that qualifies as a supply well should be clearly defined. Why is the minimum set at 10 dry supply wells? Could 9 dry wells be considered significant and unreasonable??

   AquAlliance Exhibits 1-5 and 1-6 are tables based on the hydrographs in Appendix 3-E (pdf 713 – 769) that provide information on the number of wells in each of the RMP Thiessen Polygons, the types of wells, and the estimated number of wells that could go dry at the current rate of groundwater level decline. Most of the RMP wells have 10 or more domestic wells (see column D) in the associated polygon, but three have less. Based on the well impacts estimated from the current rate of decline in groundwater levels, 31 of the Thiessen Polygons will have less than 10 dry domestic wells when the groundwater declines to the MT (see column E). **Does this mean that in those 31 polygons the domestic wells can't have an undesirable result until the groundwater level decline below the MT such that other types of wells become dry to make a total of 10?** Twenty-seven of the polygons don't have a combined total of 10 dry wells at the MT elevations with all the types (see column T). The threshold of 10 dry wells seems arbitrary, and punitive to the domestic well owners that their loss only counts when it occurs with other types of wells. The Revised GSP blatantly ignores the Water Code that states the use of water for domestic purposes is the highest use of water and that the next highest use is for irrigation (WC 106).

   The requirement that only groundwater levels after the 2024 GSP revision are valid for

determining undesirable results is inconsistent with SGMA, which requires the GSP manage groundwater conditions after January 1, 2015 (WC 10727.2(b)(4)). Finally, the threshold for an undesirable result for chronic lowering groundwater is a decline in water level below the Minimum Threshold, not below the bottom of a well, which likely varies significantly across the subbasin thereby creating an indeterminate threshold elevation.

The second threshold for an undesirable result from the chronic lowering of groundwater level is the future decline over 5 years 7.5 feet or more. Again, this trigger has no clear relationship to the MT elevations. Second, if the decline is 7.5 feet or more in less than 5 years, do you have to allow additional decline until the 5 years have passed? The requirement for future declines seems to ignore the fact that the current rate of the lowering of groundwater levels in the Corning Subbasin is equal to or exceeds -1.5 feet/year in 17 of the 35 shallow wells (48.6%), and 10 of the 16 deep wells (62.5%) that are active monitoring wells with a historical record of the rate of decline (see column I in attached AquAlliance Exhibits 1-7 and 1-8). This rate of decline is one of the reasons for dividing the subbasin into Focused "zones of concern" (p. 6-12, pdf p. 428). **Given that the groundwater levels in a majority of subbasin's RMP wells are currently in an undesirable condition, why must another 5 years of undesirable groundwater levels occur before the existing undesirable result can be acknowledged?**

It should be noted that the well counts in AquAlliance Exhibits 1-5 and 1-6 don't match the well counts in Table 6-2 (p. 6-23, pdf p. 439). **This may indicate that the shallow and deep wells have some double counting** because there are 11 pairs of shallow and deep wells that are being actively monitored and another two wells pairs that apparently yet to be constructed (AquAlliance Exhibit 1-9). The shallow and deep wells in each pair have the same number of total wells, but the number of potential dry wells differs because the shallow and deep MT elevations differ (AquAlliance Exhibits 1-3 and 1-4). However, the number of potential dry wells doesn't always increase with a lower MT elevation. For example, shallow well 22N02W011N003M (RGSP pdf p. 719) has a potential for zero dry wells at a MT elevation of 99.3 ft. The deep well of the pair, 22N02W011N002M (RGSP pdf p. 718) has a potential for 42 dry wells at a MT elevation of 74.5 ft. This would be expected, the lower the MT elevation the greater the potential for dry wells. The next pairs of wells in the tables, 22N02W15C004M (RGSP pdf p. 721) and 22N02W15C002M (RGSP pdf p. 720) have the opposite dry well count. The shallow well (RGSP pdf p. 721) has a potential for 42 dry wells at a MT elevation of 84.0 ft, while the deeper well (RGSP pdf p. 720) has zero dry wells at a MT elevation of 57.7 feet. This would be logical if the shallow and deep zones were hydrologically separate, but the Revised GSP describes subbasin's aquifer as:

> *Water supply wells in the Subbasin are installed in coarse-grained sand and gravel layers within a fine-grained sedimentary matrix. There are no regionally extensive fine-grained layers or aquitards that prevent vertical flow of groundwater between geologic formations. This description is consistent with the definition of a principal aquifer in the GSP Regulations: "…systems that store, transmit, and yield significant or economic quantities of groundwater to wells, springs, or surface water systems." For this reason, the Subbasin is best described for the purposes of the GSP as a single*

principal aquifer, comprised of inter-fingered geologic units. (p. ES-9, pdf p. 31)

The reason for the difference in the dry well counts for the RMP well pairs is unclear. We recommend that the Revised GSP provide an explanation and discuss how the differences might influence how and when an undesirable result from dry wells would occur.

3. The Revised GSP *operational flexibility* (OF) for sustainable management, the difference between the depths of the management objectives (MOs) and the MTs, has been reduced by 5 feet for the Thiessen Polygons around the Focused RMP wells (see column N in attached AquAlliance Exhibit 1-3 and 1-4). The OFs in the Subbasin range from 6.6 feet to 60.1 feet for the shallow RMP wells and 25.3 feet for all but one deep well, which has an OF of 44.7 feet (see column L in attached AquAlliance Exhibits 1-3 and 1-4). These OF ranges are sufficient to allow groundwater levels to decline at the current average annual rate of decline in the shallow Focused Thiessen Polygons for 4 to 20 years before the MT threshold is reached, assuming the decline starts at the MO elevation (see column J in attached Exhibits 1-7 and 1- 8). In the deep Focused well Thiessen Polygons, the OF decline can continue for 5 to 15 years.

   Although the Revised GSP sets the undesirable result for the chronic lowering of groundwater levels at the occurrence of 10 dry supply wells or 5 years of 1.5 feet/year or greater, without consideration of the relationship to the MT elevation or the duration, the undesirable reduction in groundwater storage requires the groundwater levels in more than 20% of the 55 RMP wells (11 wells) drop below the associated MT for 2 consecutive years as measured in the fall of each year (Table ES-1, p. ES-26, pdf p. 48, Section 6.7.2.6, pp. 6-44 and 6-45, pdf pp. 460 and 461). Given the physical connection between groundwater levels and groundwater storage, that is a decline in groundwater level means a decrease in groundwater storage, the reasoning and the mathematical calculation seem to be missing in the Revised GSP that equates 10 dry supply wells, or five years of groundwater level decline of 7.5 feet or more, an average of -1.5 feet/year, to 20% of the RMP well elevations being below the associated MT for 2 consecutive years in the fall. The only reasoning given in Section 6.7.2.6, *Method for Quantitative Measurement of Minimum Thresholds* for reduction in groundwater storage is that *"[t]he undesirable result was set at 20% to balance the interests of beneficial users with the practical aspects of groundwater management under uncertainty."* (p. 6-45, pdf p. 461) There is no reference to a section in the Revised GSP where the interests of the beneficial users are quantified so that the loss of 10 wells or the 5 years of declining groundwater level threshold can be weighed against the loss of storage in 20% of the subbasin polygons threshold.

4. The Corning Revised GSP does propose to establish a Well Mitigation Program, Section 7.3.2.1 (p. 7-13, pdf p. 503) with various objectives and costs for mitigating up to 150 dry wells at $20,000 each for a total of $3 million (Section 7.3.2.1.7, p. 7-15, pdf p. 505), but the funding source(s) isn't clearly specified. The plan states that this Well Mitigation Program would help identify and avoid impacts to well owners with a more complete inventory of wells and by … *the GSAs providing education and outreach to well owners to deepen or replace wells*, Section 7.3.2.1.2 (pp. 7-13 and 7-14, pdf pp. 503 and 504). The outline for the Well Mitigation Program in Appendix 7-H (pdf pp.783 – 798) gives a general outline of the requirements and information that determines a well owner's eligibility for financial assistance but the criteria haven't been finalized (pdf pp. 785 - 787).

The description of the Well Mitigation Program only commits to taking potential mitigation actions without giving any specifics on how much will be spent each year except that years 1 and 2 startup costs of $300,000 and then $75,000 per year administrative costs after year 3 (pdf p. 787). No specific source of the funding is identified just a combination of GSA fees and assessments, funds generated through implementation of other projects and management actions (e.g., fines and/or penalties), County/state/federal funding, as available, and other sources. The start date for the Well Mitigation Program is no later than January 1, 2026. It is unclear whether mitigation funding will be available for wells that went dry before the start date.

The Well Mitigation Program terms require that after application, eligibility, and mitigation development, are approved, the well owner will need to have an agreement with the GSAs that includes among other things a requirement to indemnify the GSAs. The terms aren't specific about what actions by the GSAs need to be indemnified or why. Depending on the terms of the required indemnification term, the well owner may find the cost of participating in the Well Mitigation Program to be too high.

5. The Corning GSP requires that for an undesirable result from the Reduction in Groundwater Storage that groundwater levels in the fall of the year must be below their minimum groundwater elevation thresholds, MT, for 2 consecutive years in more than 20% of the wells, 11 wells, …*out of the entire network are allowed to drop below the minimum threshold before reaching an undesirable result. This allows for 11 exceedances of the minimum thresholds at the same wells two years in a row before triggering an undesirable result.* Table ES-1 (page ES-26, pdf 48) and Section 6.7.2.6 (p. 6-44, pdf p. 460). The Revised Plan apparently assumes that harm to the "long-term" beneficial uses and users only occurs when there are 2 continuous years of harm across a broad area of the subbasin, which then triggers an undesirable result and the need for the GSAs to take action.

   The Corning GSP provides additional language to the definition of a SGMA undesirable result, noting that this language isn't part of the definition given in the SGMA regulations. The GSP lists the six groundwater conditions from Water Code Section 10721 that can trigger an undesirable result, Section 6.1, (pp. 6-2 to 6-4, pdf pp.418 to 420). The plan then adds the following explanatory text to the definition of undesirable result:

   > *"Significant and unreasonable conditions" is a phrase used to identify conditions that lead to undesirable results but is not specifically defined in the GSP Regulations. This expression is often confused with, or used interchangeably with, undesirable results. However, significant and unreasonable conditions are physical conditions to be avoided (such as declining groundwater levels that may dry up wells); an undesirable result is a quantitative assessment based on minimum thresholds. Defining significant and unreasonable conditions early in the process of developing SMC for each sustainability indicator helps set the framework by which the quantitative SMC metrics are determined.*
   >
   > *Undesirable Results for the chronic lowering of groundwater levels are defined in the Revised GSP. The following section includes a description of the effect of undesirable results on the beneficial uses and users of groundwater. Minimum thresholds, which are quantitative values that represent groundwater conditions at representative monitoring sites that, when exceeded individually or in combination with minimum thresholds at other monitoring sites, may indicate that the basin is experiencing those undesirable results. The*

distinction is important as undesirable results are not defined by exceedances of minimum thresholds, rather those exceedances at one or more representative monitoring sites are the quantitative recognition that conditions are now those previously defined undesirable results.

Apparently, the Corning Revised GSP is making a distinction between a groundwater condition that is undesirable to only a few from a condition that affects many. This seems to be making an arbitrary threshold on the *practical* number of residents that can suffer from a dry or impaired well. For example, the assumption that it is *practical* to allow 22% of domestic wells (Table 6-2, page 6-23, pdf 439) to go dry in the Corning Subbasin, which is a significant and unreasonable condition for **those** residents, but apparently not sufficiently "significant and unreasonable" to the GSAs acting on behalf of all residents of the subbasin so as to trigger an undesirable result and the need for sustainable management action(s). The fact that an undesirable result from the chronic lowering of groundwater levels doesn't use the MT as a trigger suggests that **the MTs for groundwater level are immaterial to the sustainability of the Corning Subbasin**. The GSAs' authority to set the *practical* threshold of how many residences can be made to have a significant and unreasonable condition is unclear. When combined with the 20% requirement for collective MT exceedance in 11 wells for 2 consecutive years for the reduction in groundwater storage to be undesirable , the GSP sustainability management criterion for chronic lowering of groundwater levels may violate Water Codes 106, 106.3(a) and 106.3(b) because it fails to prioritize groundwater for domestic purposes and protect the groundwater in the subbasin to provide an adequate supply of safe, clean and affordable water for human consumption, cooking and sanitary purposes.

6. The Corning GSP doesn't specify how the 20% or more of the RMP wells will be selected, or whether they can be adjacent, discontinuous, or spread across the subbasin. Can there be more than one 20% group? The monitoring plan does split the groundwater level monitoring network into 37 shallow and 21 deep wells (whether less than or greater than 450 feet below the ground surface (bgs)) so that suggests that at least two 20% groups are allowed. There is language in Section 6.4.4.3 (page 6-42, pdf 458) on the Effects on Beneficial Users and Land Uses from undesirable results that:

   The primary detrimental effect on beneficial users from allowing multiple exceedances occurs if more than 1 exceedance happens to be in a small geographic area. Allowing 20% exceedances is reasonable as long as the exceedances are spread out across the Subbasin, and as long as any one well does not regularly exceed its minimum threshold. If the exceedances are clustered in a small area, it will indicate that significant and unreasonable effects are repeatedly impacting the same few stakeholders.

   The Revised GSP requirement for simultaneous, continuous exceedance of the MT at multiple RMP monitoring wells can result in significant magnitudes and expansive areas of decline in groundwater storage (with the associated decline in groundwater levels), water quality, interconnected surface waters, and possibly surface elevations (inelastic subsidence) as long as one of the monitored stations in the group doesn't continuously exceed the MT. In other words, there is no limit to decline in the beneficial uses of groundwater if measurements in *one* of the monitoring stations within a group is above the MT at least once every 2 years (Table ES-1, ES-26, pdf p. 40).

Putting aside the fact that an unreasonable result from the chronic lowering of groundwater levels doesn't trigger on exceeding the MT elevations, the reasons for selecting the 20% well groups raise several questions:

- What are the selection criteria for 20% groups of groundwater level monitoring wells? Are they based on the portion of the subbasin being monitored by these wells, how groundwater production in the subbasin is being managed, where sustainability projects are being implemented, when the groundwater levels wells drop below their MT elevations, or some combination of these and other criteria?
- How many wells are required to make a 20% group? Can it be 8 wells out of the 37 shallow wells, 5 wells from the 21 deep wells, or does it need to be 11 wells from a total of 55 wells, regardless of the well depth?
- How many 20% MT exceedance groups are possible in each aquifer zone, only one, up to 3, or more?
- Can the areas of the subbasin monitored by multiple 20% groups that overlap when the causes of the undesirable results differ?
- Can a well be in multiple 20% groups at the same time?
- Can an undesirable result be declared after 2 years of MT exceedance in the deep aquifer, but not be declared for the overlying shallow aquifer, or vice versa?
- What is the start date of the 2 consecutive year clock? Does it start on the earliest day that any one of the 20% wells exceeds its MT, on the day the last of the 20% well exceeds its MT, or some other intermediate date?
- What happens to the start date of the 2 consecutive year clock if additional RMP wells exceed their MTs after the day that there's a minimum number of wells needed for a 20% group? In other words, does the start date begin anew when a well is added to an existing group?
- Are these additional wells made part of the existing group or does a new group have to be formed once there are enough additional wells to make another 20% group?
- If there are multiple 20% MT exceedance groups, how is the determination of an undesirable result made if the exceedance in any one group is less than 2 years, but the combined duration of the exceedance for all groups is greater than 2 years?
- It is unclear if the wells assigned to a group stay in the same group forever, change when there are fewer than 20% of the wells in the group, or change when the 2 years clock stops.
- What happens when the locations of the first 20% group of wells cover a large portion of the subbasin, and then additional MT exceedance wells are clustered with in the first group's area around a local pumping depression in numbers sufficient to form another 20% group? In other words, can there be subgroups within a large group if the impacts are different and/or the cause of the impact is unique to the subgroup?
- Why does the MT exceedance need to be continuous in 20% of the monitoring wells for 2 years when dewatering of a single domestic or small agricultural well can cause significant harm to the user(s) if it occurs repeatedly each year for only a few months?
- Why is the dewatering of a domestic and/or small agricultural well for less than 2 years considered a beneficially sustainable practice that's in compliance with Water Code Sections 106 and 106.3(a)?
- Why is dewatering of domestic and/or small agricultural wells that might occur

cyclically each summer considered a beneficially sustainable practice, and who is benefitting? Certainly it is not to the small landowner.

7. AquAlliance Exhibits 2-1, 3-1, 4-1 and 5 are modifications of groundwater, land surface, and surface water budgets in the Corning 2022 GSP. These modification of the Corning Subbasin's water budget are still relevant because the Revised GSP didn't update the entire subbasin water budget. The Revised GSP states that:

> *At the 5-year Periodic Evaluation the integrated surface water – groundwater model, SVSim or C2VSim will be updated and calibrated with new information that includes but is not limited to improvements to the conceptual model, the AEM survey, new geology, water level and well information, new water budget inputs, and updates to climate change predictions. The numerical model was not used in the Revised GSP. The 5-year Periodic Evaluation in January 2027 will address current and future water budgets including overdraft based on the updated model.* (p. ES-18, pdf p. 40)
>
> *The Revised GSP provides a new estimate of current groundwater storage change, overdraft, and a basis for future overdraft predictions. The new estimate is not applicable to past overdraft estimates as it relies on recent data that cannot be applied to past conditions.* (p. ES-19, pdf p. 41*).*
>
> *The current, 2030, and 2070 water budgets have increasingly less groundwater discharge to streams and more streambed recharge to groundwater, indicating that progressively lowered groundwater elevations in the future may draw more water from the Subbasin's streams and contribute less groundwater baseflow in return.* (p. ES-18, pdf p. 40)

The Revised GSP estimates the difference between the Historical average annual and the projected 2070 average annual change in storage at -1,500 acre-feet per year (afy), or 75,800 af by 2070 as compared to simulated current conditions (p. 4-17, pdf p. 296).

Exhibits 2-1, 3-1, 4-1 and 5 include columns and rows that calculate the budget component differences between the average values, differences in the component values by water year type, calculated sums and differences for groundwater pumping and storage, stream gains and losses, and the difference between the Historical baseline and the Current baseline with the Projected 2070 water budget. Columns and rows in these exhibits have been labeled for these comments. The following comments AquAlliance submitted for the 2022 GSP, which are in general are still relevant to how the Revised GSP plans to manage the subbasin.

AquAlliance Exhibit 2-1 lists the values and changes in the Historical and projected 2070 groundwater budget components with summaries for groundwater pumping and storage for the overall average, and the three different water year type groups, critically dry and dry (CD/D), below normal and above normal (BN/AN), and wet (W). The Historical baseline average annual groundwater pumping for all year types is 135,900 afy, Exhibit 2-1A (row 20, column C). Historical baseline pumping increased for CD/D water years by 7% to 145,050 afy and deceased for the other two water year types (row 20, columns G through J). For the projected 2070 scenario, the subbasin average groundwater pumping will be increased above the Historical baseline by 36,300 afy, or 26.7%, to 172,200 afy, Exhibit 2-2C (row 68, columns D

and E) and Exhibit 2-1B (row 44, column C). Projected 2070 pumping will increase 37,250 afy during CD/D water years, 38,500 afy for AN/BN years, and 35,300 afy for W years, Exhibit 2-2C (rows 68, columns E through J).

Increases in groundwater pumping for the 2070 scenario also result in changes in groundwater storage. The Historical baseline average annual change in groundwater storage is a positive 6,900 afy, which resulted in a cumulative change in groundwater storage of 290,300 acre-feet (af), Exhibit 2-1A (rows 21 and 22, column C). During Historical CD/D water years, the storage loss is negative at -27,450 afy (row 21, column E). The 2070 scenario annual average change in storage is -300 afy with a cumulative change of -19,700 af over 50 years (rows 45 and 46, column C). While the 2070 annual average change in groundwater storage doesn't seem significant, the loss in storage during CD/D years increases to -41,800 afy, an additional loss over the Historical baseline of -14,350 afy, Exhibit 2-1B (row 45, column E) and Exhibit 2-2C (row 69, column E). The additional loss in storage for the 2070 scenario is approximately 39% of the 37,250 afy increase in CD/D groundwater pumping (-14,350 afy / 37,250 afy = 0.385 = 39%), Exhibit 2-2C (rows 68 and 69, column E). This additional loss in groundwater storage during CD/D water years, or drought years, is important because the change in storage during droughts can be used to establish the depth of the MTs.

8. The additional loss in groundwater storage with the 2070 scenario isn't the only important decrease in the Corning GSP water budget caused by the increase in pumping. The increase in groundwater pumping also causes a significant decline in the interconnected surface water flows. AquAlliance Exhibit 2-2 calculates the change in the net stream gains, i.e., the amount of groundwater discharging to the streams minus the amount of streambed recharge, i.e., surface water seeping to groundwater, based on information from the Revised GSP. Exhibit 2-2 compares the net stream gains for the three river systems, Sacramento River, Stony Creek and Black Butte Lake, and Thomas Creek, and the cumulative sum of all three. Comparisons are made between the Historical and Current baselines, with the projected 2030 and 2070 conditions.

   The results of the net stream gains using the Revised GSP data are consistent with the statement that *[t]he current, 2030, and 2070 water budgets have increasingly less groundwater discharge to streams and more streambed recharge to groundwater, indicating that progressively lowered groundwater elevations in the future may draw more water from the Subbasin's streams and contribute less groundwater baseflow in return.* (page ES-18, pdf 40) In other words, the streams are losing flow from the increase in groundwater production. The Revised GSP in Section 4.1.4 (pp. 4-16 and 4-17, pdf pp. 295 and 296) gives the historical agricultural production at 132,300 afy, the current at 153,000 afy, the projected 2030 production at 159,300 afy and 2070 production at 167,300 afy. The increase in agricultural production is the main source for increase. The urban and domestic production increases from 3,600 afy (Table 4-2, page 4-22, pdf 301) to 4,900 afy (Table 4-15, page 4-71, pdf 350). From the bottom row of Exhibit 2-2, the cumulative differences in net stream gain projected for 2070 is -49,000, which is a -86,800 af difference from the historical net stream gain and -32,000 af from the current condition. The **Corning Subbasin surface waters go from historically gaining to losing because of the agricultural production increasing by +35,000 af from the historical rate and +14,300 af from the current rate. This suggests that the loss of stream flow is greater than twice the increase in agricultural production**. There may be other causes for the increase in stream losses, and those changes can't be ignored and need to be

taken into account when managing the subbasin.

The conclusion that's reached from the change in net stream gains using both the basin-wide and the three itemized surface water body water budgets is that the 2070 scenario predicts significant and unreasonable losses from interconnected surface waters, which should be considered an undesirable result, and a negative impact to the Public Trust. The Revised GSP doesn't quantify or analyze the effects of the interconnected surface water loss on beneficial uses of the surface water. Without the beneficial uses and water availability analyses, the management of the subbasin should maintain the Historical baseline surface water flows. Corning Revised GSP and the management actions should be revised so that the 2070 scenario groundwater production is made sustainable by not causing losses in interconnected surface waters. Future subbasin groundwater management should maintain the flows in the subbasin stream and river to, at a minimum, match the Historical baseline in flow quantity, flow timing and flow location.

9. There is an assumption in the Revised GSP that when streams gain flow from groundwater and the flow changes with the pumping of groundwater, then those streams are interconnected surface waters and subject to SGMA. However, when the groundwater elevation declines below the stream bed, the stream becomes "*disconnected*." The concept of *disconnected*, denotes the opposite of a connected stream which SGMA defines as *….surface water that is hydraulically connected at any point by a continuous saturated zone to the underlying aquifer and the overlying surface water is not completely depleted,* CCR T23, Section 351(o). The Revised GSP goes on to say that:

> *If the groundwater elevation is below the streambed elevation, the stream and groundwater are considered to be disconnected. SGMA does not require that permanently disconnected stream reaches be managed, as pumping would no longer affect those streams. Interconnected surface water impacts prior to SGMA enaction in 2015 do not need to be addressed by the GSP.* (p. ES-14, pdf p. 36)

The Revised GSP classified the hydraulic connection between streams and rivers as either *gaining, losing, or disconnected* depending on the elevation of groundwater relative to the stream (page ES-14, pdf 36). When the water table elevation adjacent to the stream is above the elevation of water in the stream, groundwater can flow into the stream, i.e., *gaining* reach, or accretion. When the water table elevation is below the elevation of the stream, the stream can lose water to groundwater system, resulting in a *losing* reach. While SGMAs definition of a connected stream is partially correct, it misrepresents the facts on how streams and groundwater interconnect and the fact that interconnection can still occur when there is an unsaturated zone beneath the stream; that is not connected by a "continuous saturated zone." The articles listed in footnote 3[3] examine the interconnection between streams and groundwater and more accurately define the concept of a disconnected stream. The following is a brief summary of their work.

Cook and others, 2010,[2] provide a brief paper that discusses *…the most common*

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[2] See these articles about how the disconnection of streams and groundwater results in maximum stream flow losses that spread as the groundwater depression enlarges.

- Brunner P., Cook P. G., and Simmons C. T., 2009, Hydrogeologic controls on disconnection between

misconceptions associated with the term disconnected. They include the following statements found in scientific literature as being …*incorrect as general definitions of disconnected rivers:*

- *in a disconnected system, there is no flow between the river and the aquifer,*
- *pumping under a disconnected stream will not affect streamflow,*
- *a river is disconnected if an unsaturated zone separates the river from the aquifer,*
- *a river is disconnected if the water table is below the streambed*

Cook et al. also note that as …*the groundwater table is lowered sufficiently, an unsaturated zone begins to develop.* As the groundwater level continues to decline, the infiltration rate from the stream is no longer linearly related to the rate of decline in the water table, and the infiltration rate out of the stream transitions from connected to disconnected.
With continued decline in the water table, the unsaturated capillary zone beneath the stream no longer intersects the base of the stream, so that further decline in water table no longer affects the infiltration rate, and the pressure head beneath the base of the stream reaches a constant value. At this point the stream is now considered to be disconnected at that location. *The infiltration rate at disconnected will depend on the thickness and hydraulic conductivity of the clogging layer, and the surface water depth.* However, even *[a]t a site that was believed to be disconnected, the streamflow was generally declining*. That is, the stream is losing water at a constant rate until it becomes dry. A better description of a disconnected stream would be a *losing-disconnected stream*.

It is important to point out that the assertion in SGMA that a disconnected stream is no longer an interconnected surface water feature and groundwater pumping can't affect stream flow is scientifically invalid. As Cook and others, 2010, point out that:

Even though lowering the groundwater table at a specific point under a disconnected system will not increase the infiltration rate directly, it is not correct to assume that additional pumping will not affect a disconnected river on a larger scale. Increased groundwater

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surface water and groundwater, Water Resources Research, v. 45, W01422, pp. 1-13. https://agupubs.onlinelibrary.wiley.com/doi/full/10.1029/2008WR006953

- Brunner P., Cook P.G. and Simmons C.T., 2011, Disconnected Surface Water and Groundwater: From Theory to Practice, Ground Water, v. 49, no. 4, pp. 460-467.
- https://libra.unine.ch/Publications/Philip_Brunner/25762
- Cook P.G., Brunner P., Simmons C.T., Lamontagne S., 2010, What is a Disconnected Stream?, Groundwater 2010, Canberra, October 31, 2010 – November 4, 2010, p. 4.
- https://www.researchgate.net/profile/Philip-Brunner/publication/266251504_What_is_a_Disconnected_Stream/links/54dfa2c80cf29666378b9e57/What-is-a- Disconnected-Stream.pdf
- Fox G.A. and Durnford D.S., 2003, Unsaturated hyporheic zone flow in stream/aquifer conjunctive systems, Advances in Water Resources, v. 26, pp.. 989-1000. http://www.geol.lsu.edu/blanford/NATORBF/5%20Modeling%20Papers%20of%20Groundwater%20Flow%20of%20S tream&Aquifer%20Systems/Fox%20et%20al_Water%20Resources_2003.PDF

pumping will result in a widening of the cone of depression, and this can extend the length over which the river is disconnected (Fox and Durnford, 2003).

A scientifically correct description of groundwater and surface water interactions is critical to understanding the implications for managing the groundwater and surface water resources of the Corning Subbasin, SGMA regulations notwithstanding. The Revised Corning GSP states that the Interconnected Surface Waters Sustainable Management Criteria exclude large areas of the Subbasin where streams, if present, are considered disconnected from groundwater. This exclusion of surface waters in large area of the subbasin is incorrect if any portion of the stream still has surface water flow because managing a subbasin under the "when disconnected there's no impact" assumption can result in significant harm to the stream environment, its wildlife, and its habitats.

Even though a stream is dry at one location it doesn't mean that it is disconnected from the shallow aquifer system. As groundwater levels decline, the point in the stream where it begins to dry out migrates further downstream, and sometimes upstream. As groundwater levels decline to the MT depths, the point in the stream where gaining flow starts will move further downstream, and/or upstream, producing greater lengths of losing stream and more loss of flow. Small changes in groundwater elevation can result in long sections of stream transitioning from gaining to losing. For example, for land surface that has a slope of 1 foot of elevation rise to 500 feet of horizontal distance, every one foot of groundwater decline can cause 500 feet of downstream migration of the losing-to-gaining transition point. The transition from gaining to losing causes the loss in stream flow to increase to a maximum before the stream goes dry. The downstream migration of the losing-to-gaining transition point will decrease the flow of the stream potentially cause significant harm to surface water wildlife, habitats, and water rights. The reduction in net stream flow gain in the Stony and Thomas Creeks with the 2030 and 2070 scenarios, AquAlliance Exhibit 2-2, is clear evidence that the decline in groundwater levels proposed by Corning GSP will likely cause significant harm to the beneficial uses and users of interconnected surface waters.

This is a significant impact to the streams in the Corning Subbasin that increases as the groundwater levels decline from the MO elevations, which increases the length of stream channel that becomes disconnected**. The Corning Revised GSP is incorrect in assuming that when a stream becomes disconnected, actions to management groundwater levels are no longer needed**. Declines in groundwater levels can still cause a significant impact on the stream flows. The GSAs' management actions now proposed in the Corning Revised GSP are insufficient to sustainably protect interconnected stream flows, and the associated wildlife, habitat, and vegetation.

10. If the complete groundwater budget from the 2022 GSP Water Budget is analyzed, the Historical baseline net stream gain is positive for all water year types AquAlliance Exhibit 2-1A (row 23, columns E through J), which is consistent with the abbreviated average budget in AquAlliance Exhibit 2-2. In contrast, the 2070 scenario has a net loss in average annual stream flow of -4,600 afy, AquAlliance Exhibit 2-1B (row 47, column C) with from the Historical baseline of -37,700 afy AquAlliance Exhibit 2-1C (row 70, column C). The Revised GSP projected average net stream gain for 2070 is -49,000 af, AquAlliance Exhibit 2-2, which is still going in the same direction of increased losses to the stream with increases in pumping.

11. This 2070 scenario loss in annual stream flow continues in the CD/D and BN/AN water years with a maximum loss of -11,000 afy, AquAlliance Exhibit 2-1B (row 47, columns E through J). Although the 2070 Wet year has a positive net stream gain of 3,700 afy, it is a -47,200 afy reduction from the Historical baseline wet year gain of 50,900 afy, Exhibits 2-1A and 2-1B (column I, rows 47 versus 23) and Exhibit 2-1C (row 70, column I).

    The 2022 GSP 2070 scenario loss in net stream gain is greater than the increase in groundwater pumping. The 2022 GSP 2070 scenario average annual loss in stream flow relative to the Historical baseline of -37,700 afy is approximately 104% of the 36,300 afy 2070 increase in average annual groundwater production, AquAlliance Exhibit 2-1C (rows 68, 70 and 71, column C). The 2022 GSP 2070 scenario stream flow loss from the Historical baseline continues for the different water year types ranging from -81% to -134% (AquAlliance Exhibit 2-1C rows 70 and 71, columns E to J). Although the Revised GSP doesn't provide the details of the 2022 GSP water budget, the decline in stream flow with increases in groundwater production suggest that the decline in net stream gain will be greater than the increase in groundwater production.

    The Corning Revised GSP planned increase in groundwater pumping with the 2070 scenario appears to result in a loss in surface water flows and likely a loss in average annual groundwater storage with a 50-year project cumulative change in storage of -19,700 af (page 4-17, pdf 296; AquAlliance Exhibit 2-1B (rows 45, 46 and 47, column C). These losses contrast with the Historical baseline where annual average for both water budget components is positive, AquAlliance Exhibit 2-1A (rows 21, 22 and 23, column C). The 2070 loss in surface water flow that exceeds the increase in pumping suggests that **the subbasin may be at a hydraulic and ecological tipping point.** The Corning Revised GSP proposed 2070 management of subbasin raises the several questions about the sustainability of future stream flows:

    - Why is a loss in stream flow that exceeds the increase in groundwater pumping considered a beneficially sustainable management practice?
    - Shouldn't the loss in stream flow caused by an increase in pumping be considered an undesirable result to interconnected surface waters, and a negative impact to the Public Trust?
    - Doesn't SGMA require that the proposed 2070 scenario groundwater production in the Corning Subbasin be reduced below the proposed sustainable yield of 171,800 afy, Section 4.4.6 (page 4-89, pdf 368), to prevent the undesirable results of a significant and unreasonable loss of interconnected surface water flow? Note that the Revised GSP is assuming that the 2070 sustainable yield is 141,000 afy until the 5-year Periodic Evaluation in 2027.
    - Does the additional loss of surface water proposed by the Revised GSP require a water rights diversion and storage permit? If yes, where is the point of diversion, what are the permit conditions, who is the applicant, is it the GSAs?
    - Does SGMA allow a GSP to reduce surface water flows without a full water availability analysis that documents the impacts of the reductions on existing water rights, demonstrates that the minimum surface water flows and by-pass flow requirements will be met, and shows that ecological and Public Trust resources will be protected?

12. AquAlliance Exhibit 5 gives the values for the 2022 GSP Land Surface Budget for the Historical baseline, part A, and the projected 2070 scenario, part B. The values in column C of Exhibit 5A are the same values in the Revised GSP Table 4-3 (page 4-28, pdf 307). The differences between the baseline and the 2070 scenario are given in part C. Overall there is an increase in the total inflow and outflow with the 2070 scenario, AquAlliance Exhibit 5C (rows 26 and 31, columns C through J). However, the direction of change is not the same for each individual water budget component.

    The 2070 scenario inflow for precipitation and applied groundwater both increase over the Historical baseline, but the applied surface water decreases. For the 2070 scenario the total outflow increases with the increases in evapotranspiration and overland flow. These increases in outflow appear to cause the decrease in deep percolation and return flow to streams, AquAlliance Exhibit 5C (rows 27 and 30, columns C through J). The total change in soil and unsaturated zone storage from Historical baseline to the 2070 scenario is negative for the annual average and the BN/AN water year, positive for the CD/D drought water years, and zero for the wet years, AquAlliance Exhibit 5C (row 32, columns C through J). It is unclear if the loss in return flow to streams in the Land Surface Budget, AquAlliance Exhibit 5 (row 30), is a part of the net stream gains component in the Groundwater and Surface Water budgets, AquAlliance Exhibits 2-1, 3-1 and 4-1.

13. The MT elevations are apparently calculated assuming the sustainable yield of 171,800 afy for the 2070 scenario. Although the MT elevations for Chronic Lowering of Groundwater Levels aren't related to the triggering of an undesirable result (see Comment no. 2). The Corning Revised GSP calculates a sustainable yield by subtracting the average annual negative change in annual groundwater storage in the projected 2070 scenario from the average annual groundwater production, Section 4.4.6 (page 4-89, pdf 368).

    The Revised GSP assumes that sustainable management of the subbasin allows for a recalculated Sustainable Yield of 141,000 afy until the 5-year Periodic Evaluation, based on the assumption that the 2022 GSP 2070 simulated Sustainable Yield of 172,200 afy is still valid less the current overdraft of -31,200 afy (p. 4-89, pdf p. 368). The assumption that the simulated 2070 groundwater pumping, combined urban, domestic and agricultural, will be 172,200 afy (Table 4-15, p. 4-71, pdf p. 350) seems to contradict the fact that the recent amounts of groundwater extraction since 2015 has exceeded that value, **ranging from 175,000 af (WY 2023) up to 260,000 af** (WYs 2016, 2020 and 2021) (Table 4-1, pp. 15 and 16, WY 2023 Corning Subbasin Annual Report). The apparent assumption of a reduction in the 2070 pumping rate will decline from present rate also seem to contradict the assumption that there will be an increase in irrigated farmland and a decrease in surface water deliveries (pp. 4-16 and 4-17, pdf pp. 295 and 296).

    As discussed in Comments Nos. 8 and 9, the proposed 2070 scenario management of the subbasin will result in a significant loss in interconnected surface waters while groundwater pumping is allowed to increase presumably up to this sustainable yield. Note that the projected pumping in the 2022 GSP during CD/D water years is greater than the sustainable yield at 182,300 afy, AquAlliance Exhibit 2-1B (row 44, column E), while the Revised GSP only give a combined urban, domestic and agricultural annual pumping average value of 172,200 af, Table 4-15 (page 4-71, pdf 350).

The calculation of the 2070 scenario sustainable yield, using only the change in storage, doesn't address the undesirable loss to interconnected surface waters, or other sustainability indicators. The estimated 2070 scenario loss of interconnected surface waters should be considered an undesirable result for the Corning Subbasin unless beneficial uses and water availability analyses are done to demonstrate that the management actions and the Revised GSP cause no significant and unreasonable impacts on the subbasin's beneficial uses of water, water users, and/or Public Trust resources. The Revised GSP does cite a portion of the description of role of the sustainable yield estimate in SGMA from the 2017 Sustainable Management Criteria Best Management Practices,[4] Section 4.4.6 (page 4-89, pdf 368). The following is the full text from the BMP document with italics and underlines added:

Role of Sustainable Yield Estimates in SGMA

In general, the sustainable yield of a basin is the amount of groundwater that can be withdrawn annually without causing undesirable results. Sustainable yield is referenced in SGMA as part of the estimated basinwide water budget and as the outcome of avoiding undesirable results.

Sustainable yield estimates are part of SGMA's required basinwide water budget. Section 354.18(b)(7) of the GSP Regulations requires that an estimate of the basin's sustainable yield be provided in the GSP (or in the coordination agreement for basins with multiple GSPs). A single value of sustainable yield must be calculated basinwide. This sustainable yield estimate can be helpful for estimating the projects and programs needed to achieve sustainability.

SGMA does not incorporate sustainable yield estimates directly into sustainable management criteria. Basinwide pumping within the sustainable yield estimate is neither a measure of, nor proof of, sustainability. Sustainability under SGMA is only demonstrated by avoiding undesirable results for the six sustainability indicators.[3]

If this description of the role of the sustainable yield estimate in SGMA is followed, then the loss of flows in interconnected surface waters should be accounted for in the yield estimate. The Historical baseline 2022 GSP water budget shows that the net stream gains are always positive for each water year type (AquAlliance Exhibit 2-1A, row 23, columns C through J). Even the Current scenario water years have positive net stream gains, although they are reduced from the Historical baseline (AquAlliance Exhibit 3-1A, row 23, columns C through J), whereas the net gains for the 2070 scenario are all negative, except for wet water years when a positive 3,700 afy gain is estimated, a 93% reduction from the Historical baseline of 50,900 afy for wet water years (AquAlliance Exhibit 2-1A, 2-1B and 2-1C, rows 23, 47 and 70, columns C through J).

The GSP's estimate of the sustainable yield for the Corning Subbasin using only the storage imbalance isn't consistent with the requirements of SGMA because it ignores the undesirable result to interconnected surface waters and other sustainability indicators.

[3] https://water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/Groundwater-Management/Sustainable-Groundwater-Management/Best-Management-Practices-and-Guidance-Documents/Files/BMP-6-Sustainable-Management-Criteria-DRAFT_ay_19.pdf

The definition of sustainable yield in SGMA, WC 10721(w), requires that annual groundwater withdrawals do not cause *an undesirable result*, meaning one or more. All six of the sustainability indicators listed in WC 10721(x) need to be considered when estimating the volume of groundwater that can be sustainably produced, that is, the sustainable yield.

The sustainable yield for the Corning Subbasin should be revised to account for impacts on interconnected surface water flows and the other five sustainability indicators. If [t]*he key to demonstrating a basin is meeting its sustainability goal is by avoiding undesirable results* (page 33 in DWR, 2017, Sustainability BMPs footnote 3)*,* then the GSP must prevent impacts to interconnected surface waters and the other undesirable results.

Without an impact analyses, the Corning Subbasin sustainable yield must result in net stream gains to interconnected surface water that are equal to or greater than the Historical baseline at the start of SGMA. This may require a reduction in groundwater pumping from the Historical baseline if other components of the water budget result in additional losses to surface water flows or other undesirable results. The multiple scenarios of the Corning Subbasin need to be run using the subbasin's groundwater model until a water budget that doesn't result in undesirable results is achieved. The estimated groundwater pumping from that iterative analysis would be the appropriate method for calculating sustainable yield.

The conclusion that's reached from the changes in net stream gains with both the basin-wide and the three itemized surface water body water budgets is that the 2070 scenario predicts **significant and unreasonable losses from interconnected surface waters** which should be considered an undesirable result, and a negative impact to the Public Trust. The Corning Revised GSP doesn't quantify or analyze the effects of the interconnected surface water loss on beneficial uses, users, or the Public Trust. Without the beneficial uses and water availability analyses, the management of the subbasin shouldn't allow degradation of the interconnected surface waters sustainability indicator below levels of the Historical baseline, and, in fact, may need to improve the conditions in the subbasin to correct the management problems that lead to the subbasin's SGMA high-priority status, which triggered the need to develop a GSP for the Corning Subbasin.[4]

14. The apparently arbitrary decisions used in setting the MT depths were discussed above in Comments Nos. 1 and 2. A more appropriate method for establishing the MT depths to prevent undesirable results is to use the historical data of changes in groundwater levels and groundwater storage during periods of extended below-normal water years,(i.e., droughts). The Corning 2022 GSP provides information on the groundwater water budgets for each type of water year with the Historical baseline, Current, and Projected 2070 scenarios in Appendix 4D Tables 4D-6, 4D-14, and 4D-34, respectively (2022 GSP, pdf pp.1001, 1009, and 1029). The cumulative change in groundwater storage for the Historical baseline is plotted in Revised GSP Figure 3-31 (page 3-74, pdf 230). The Revised GSP doesn't provide a plot of the other scenario cumulative change in storage.

    AquAlliance Exhibit 6 is a plot taken from the 2022 GSP of the Current and Projected 2070

[4] Corning Subbasin 5-021.51, high priority with 22.5 priority points, accessed 6.19.2024; https://gis.water.ca.gov/app/bp-dashboard/final/

cumulative changes in groundwater storage based on the groundwater model of the Corning Subbasin. A table is included on the exhibit that lists values for the averages and three water year types for the Historical baseline, Current, and 2070 scenario water budgets (AquAlliance Exhibits 2-1 and 3-1). Lines are drawn on top of the cumulative change graphs that estimate the slope of the annual loss groundwater storage during droughts lasting 3 or more years. The estimated annual loss in storage ranges from -34,375 afy to -57,600 afy. The estimated average annual loss in groundwater storage for the 2070 scenario in CD/D water years falls within this range at -41,800 afy (AquAlliance Exhibit 2-1B, row 45, column E).

The Corning 2022 GSP also provides information on the changes in groundwater level in the subbasin from 2010 to 2015 on Figure 3-22 (page 3-55, pdf 204) and the change in groundwater storage during this time in Table 4D-2 (2022 GSP, pdf p. 997), and in Section 3.2.3 (pp. 3-73 and 3-74, pdf p. 222 and 223). Using the average changes in groundwater levels and the cumulative change in groundwater storage from 2010 to 2015, an estimate can be made of the basin-wide volume of groundwater yielded with each 1-foot decline in groundwater level. The volume in acre-feet per foot (af/f) can then be used to estimate a basin-wide average decline groundwater during consecutive years of drought.

AquAlliance Exhibit 7 provides several tables that list and calculate the average decline in depth of groundwater from 2010 to 2015 taken from the Revised GSP Figure 3-22 (p. 3-54, pdf p. 210) and sorted into the stable, slight decline and declining sub-regions as shown on Figure 6-3 (p. 6-17, pdf p. 433). Note Figure 3-22 doesn't distinguish between shallow and deep groundwaters like Figures 6-3 and 6-4. The decrease in groundwater levels from 2010 to 2015 ranged from -9.2 feet for the stable region to -16.8 for the declining region, with a basin- wide average of -13.75 feet. Using this average decline and the cumulative loss in groundwater storage of -114,600 af calculated from data in 2022 GSP Table 4D-2, a basin-wide average yield of 8,334 af/f is estimated. Using the 207,342 total acres for the Corning Subbasin, Section 2.1.1 (page 2-1, pdf 74), an average specific yield of approximately 4% is calculated for the shallow aquifer system.

If the acreage for the available groundwater is less than the full subbasin area, the specific yield increases to approximately 5.56% and 8.33% for 150,000 and 100,000 acres of available groundwater source area. Using the estimated basin-wide yield of 8,334 af/f, a calculation can be made for the basin-wide average decline in groundwater level that would occur during multiple CD/D water years, i.e., a drought, for both the Historical baseline and the 2070 scenario.

15. The sustainable management of groundwater as envisioned by SGMA likely requires that a temporary groundwater storage surplus be **maintained** to meet the needs of users during droughts and to protect the beneficial uses of streams, wildlife, and groundwater dependent ecosystem (WC 10721(w)). That is, subbasin management actions should provide for storing sufficient groundwater needed to counter the losses from a drought to protect and minimize drought impacts to all beneficial uses and users, and the Public Trust.

    If that is a goal of SGMA, shouldn't the depth of the MTs be set at a depth caused by declining groundwater levels for a reasonable number of continuous years of drought after adjusting for the temporary storage surplus created during normal, above normal, and wet years? Shouldn't a

GSP use a method based on anticipated storage loss during a drought, rather than the arbitrary method of the Corning Revised GSP that set the depths far below the recent historical maximum, which then results in several decades of continuous groundwater level declines and loss in storage before an undesirable result needs to be declared?

The average annual Historical baseline change in groundwater storage for CD/D water years is -27,450 afy, AquAlliance Exhibit 2-1A (row 21, column E). Using the 8,334 af/f basin-wide yield and the Historic baseline change in annual storage, an average annual decline in groundwater level of -3.29 ft is calculated, AquAlliance Exhibit 7. For a drought of 3 consecutive CD/D water years, a cumulative storage loss of -82,350 af would be accompanied by a -9.9 ft decline in groundwater level. For 4 consecutive CD/D water years, the cumulative storage loss would be -109,800 af with a groundwater level decline of -13.2 ft. This estimated decline in groundwater level is consistent with the 2010 -2015 decline of 13.75 ft.

If the change in groundwater storage for CD/D water years with the 2070 scenario of -41,800 afy is used, the decline in groundwater would be approximately -5 feet per drought year. For 3 consecutive 2070 scenario CD/D drought years, the decline would be -15 feet, and for 4 consecutive years the decline would be -20 feet. The -20 feet is consistent with the Corning GSP setting the MT depth for the stable shallow aquifer zone at the [*m*]*inimum fall groundwater elevation since 2012 minus 20-foot buffer*, AquAlliance Exhibit 1-1 (column P). In other words, the Revised GSP MTs are apparently set to allow for 4 years of additional drought after groundwater levels decline to the lowest fall groundwater elevation since 2012. Declaration of an undesirable result from a Reduction in Groundwater Storage wouldn't occur until after another 2 years of continuous drought under the GSP's 2-year exceedance requirement, or 6 years after the lowest historical groundwater level is reached. The decline to the lowest elevation since 2012 may take one or more years based on the elevation difference between the MOs and the 2012 low, AquAlliance Exhibits 1-1 and 1-2 (column O). Therefore, the MTs appear to be set to allow for 7 years of continuous drought at the 2070 scenario rate of storage loss. Setting the MT depths to trigger an undesirable result in the lowering of groundwater level at 7+ years of drought is a questionable management practice that will likely result in significant and unreasonable impacts to shallow domestic wells and interconnected surface waters. Note that the Revised GSP doesn't use the MT elevations to trigger an undesirable result from the Chronic Lowering of Groundwater Levels, Table ES-1, so the undesirable results from a decline in groundwater levels and the reduction in groundwater storage may not trigger at the same elevation or time.

16. A more appropriate method for determining the MT depth would be to use the estimated decline in groundwater levels from an extended period of drought, such as 3 years. The MTs depths would be set at the depth below the MOs that accommodates the decline in groundwater levels during this extended period of drought. From the discussion in Comment No. 14, the MTs for 2070 scenario should be set at no deeper than 15 feet below the MO elevations. The MT depth may need to be less to accommodate the 2 years of MT exceedance requirement. Although, the Revised GSP sets the MT for stable shallow zone RMP wells the [*m*]*inimum fall groundwater elevation since 2012 minus 20-foot buffer,* that doesn't mean that the distance between the MOs and the MTs are uniform. AquAlliance Exhibit 1-1 in column L gives the MO-MT elevation difference for the RMP wells. For the stable RMP wells the MO- MT, the *operational flexibility* (OF), distance ranges from 20 to 60 feet. This suggests that the amount of groundwater storage that can be lost before

triggering an undesirable result varies significantly between the Thiessen Polygons. The requirement that 3 RMP wells and the associated polygons have to decline below the MTs together for 2 consecutive years may result in inconsistent undesirable results.

If instead of variable OF, the Revised GSP proposes that a declaration of an undesirable result for a Reduction in Groundwater Storage can be made only after groundwater levels decline below the MT depth set so as to have the same OF thickness, then the loss of storage that triggers an undesirable results would be the same per unit area. In other words, all of the subbasin would be held to the same standard. An alternative for setting MTs could be done using the current rate of groundwater level decline of -1.5 ft/yr in the Focus Area and setting the MTs at all RMP wells at 7.5 feet below the MOs, then a drought could occur before an undesirable result would be declared with possibly an additional 3 feet of groundwater decline over the next 2 years. If this decline occurs across the subbasin it would result in a total storage loss of approximately 87,500 af (10.5 ft X 8,334 af/f = 87,507 af), which is approximately 75% the 114,600 af historical storage loss from 2010 to 2015, AquAlliance Exhibit 7. This suggests that perhaps **a more appropriate sustainable depth for the MTs should be set at**
7.5 feet below the MOs that allows 3 years of drought storage loss with the assumption that an additional 2 years of drought can occur before an undesirable result is declared.

17. As discussed in Comment Nos. 8, 9 and 12, the 2070 scenario assumption that the Corning Subbasin Revised GSP has a sustainable yield of 171,800 afy (p. 4-89, pdf p. 368) is inappropriate because this volume of pumping results in significant and unreasonable loss to interconnected surface waters, which is a SGMA unreasonable result. The 2070 scenario CD/D water year pumping is estimated at 182,300 afy, which results in greater losses to stream flow than with the average annual 2070 production, AquAlliance Exhibit 2-1B (rows 44 and 47, columns C and E).

    The sustainable yield of the Corning subbasin needs to be recalculated based on beneficial uses and surface water availability analyses so that none of the six SGMA undesirable results occur. Without the beneficial uses and water availability analyses, the Revised GSP should assume that the future pumping volumes are no greater than the Historical baseline. The **sustainable yield pumping may need to be less to accommodate future climate changes**. With a reduction in sustainable yield pumping volume, the annual loss in groundwater storage will likely be reduced. A reduction in CD/D water year storage losses would require recalculation of the proper depth for the MTs below the MOs, which would likely reduce the elevation difference between the MOs and MTs.

18. The Corning Revised GSP identified salinity, nitrate, and arsenic as Contaminants of Concern (COC) for the subbasin, Section 3.2.6.3 (p. 3-93, pdf p. 249). The Revised Plan also identified the locations of historical and current contaminant cleanup sites, Figures 3-37 through 3-40 and Table 3-8 (pp. 3-85 through 3-89, pdf pp. 241 through 245). The COC at the cleanup site include fuels, solvents, herbicides, fumigants, and pesticides, Table 3-8. The Revised GSP states that *…local, state, and federal water quality standards applicable to the Subbasin need to be taken into consideration when setting water quality sustainable management criteria (SMC)*, and that *…existing water quality monitoring programs may be used by the GSA to help collect data during GSP implementation and establish consistency with other programs*, Section 6.8.2 (p. 6-47, pdf p. 463).

Despite the occurrence of multiple COCs in the subbasin, the Revised GSP will track as a sustainable management criterion only one water quality COC, salinity, using Total Dissolved Solids (TDS) concentrations, Section 6.8 (p. 6-48, pdf p. 462). To track salinity, the GSP will rely on a RMP groundwater quality monitoring well network of 15 wells, made up of 11 municipal wells in the City of Corning and Hamilton City, and 4 small water supply wells, Section 5.4.1.6, and Figure 5-8 (pp. 5-27 and 5-28, pdf pp. 396 and 397). Tables 5-3 and 5-4 (pp. 5-21 and 5-25, pdf pp. 390 and 394) list public water supply wells and groundwater quality network wells, but the 15 RMP network salinity water quality wells aren't clearly identified in these tables, except in Figure 5-8 (p. 5-28, pdf p. 397), which has only general well owner identifications. Therefore, the actual wells the GSP will use for the RMP water quality monitoring network aren't clearly identified by name and location. A table is needed that lists the RMP groundwater water quality wells names, well locations, well owners, screened intervals, well types, water quality monitoring frequency, all the COC that will be monitored at each well, the water quality standards for each COC, the monitoring and reporting frequency, and the monitoring and reporting agency.

The SMC for groundwater quality requires that at least 25% of the 15 RMP network water quality monitoring wells, i.e., 3 wells (p. 6-50, pdf p. 468), must exceed the salinity MT for 2 consecutive years *where it is established that the GSP implementation is the cause of the exceedance to trigger an undesirable resul*t, Table ES-1, and Section 6.8.4.1 (pp. ES-26, 6-51 and 6-52, pdf pp. 48, 467 and 468). The justification for requiring water quality exceedance in multiple wells for multiple years isn't clear and seems to allow for the expansion of water quality degradation before the Corning GSAs will act to prevent an undesirable result. Taking action to protect water quality, especially for drinking water supplies, isn't something that is normally delayed until the problem gets widespread and pervasive. In addition, the requirement that someone must prove that the GSP implementation caused the exceedance isn't consistent with the SGMA requirement to protect water quality.

The definition of unreasonable result for water quality degradation includes the migration of contaminant plumes that impair water supplies, WC 10721(x)(4), even when the plumes aren't caused by the GSA's implementation of the GSP. The GSAs can't ignore the water quality impacts just because their past actions didn't cause the problem. The sustainability standard directs the GSAs to prevent the spread of the contaminant(s), regardless of who is to blame for the plume or water quality degradation. Actions by the GSAs shouldn't need to wait for long- term exceedance of a water quality standard at multiple wells across a large portion of the subbasin before actions are taken to mitigate the impact. In addition, groundwater management actions should prevent the migration of contaminant plumes into the Corning Subbasin from adjacent subbasins.

The Revised GSP states that:

> *The GSAs will rely on other agencies to enforce ongoing regulatory programs to monitor and address point source and ambient groundwater quality impacts* (p. ES-23, pdf p. 45).
>
> *The primary non-point source constituents of concern in the Sacramento Valley are salinity and nitrate.* (p. ES-13, pdf p. 35)

> *Elevated salinity in groundwater generally occurs from natural hydrogeologic factors, such as leaching from marine sediments on the Coast Range, and can be related to accumulation and flushing of salts from soil due to irrigation.* (p. ES-14, pdf p 36).

One potential source of salinity that isn't identified is the numerous gas wells that have been drilled in the subbasin. While these wells are potentially a point source, the number of wells creates a region wide issue making them in aggregate a non-point source. AquAlliance Exhibit 8 are two figures taken by screen capture from the SWRCB's GeoTracker website that show the point source contaminant sites and the gas wells from the Well Star/Wells data base. These two figures show that there are numerous gas wells in the Corning Subbasin. Leakage from these wells should be considered a potential source of saline groundwater.

The Revised GSP should describe future management actions that will be taken to prevent the spread of contaminants even before they exceed the water quality standards at one or more of the RMP network wells, and at the other water quality monitoring wells in the Corning Subbasin and adjacent subbasins. The GSP should also address how the Well Mitigation Program will assist domestic wells owners whose wells have become polluted. Assistance such as well head water quality testing and treatment should be part of the Corning GSPs water quality mitigation program.

Although the Corning Revised GSP calls for coordination in management of water quality with other governmental agencies, the plan doesn't indicate the MOs or MTs for all the potential contaminants of concern in the Corning Subbasin, or what GSP management actions will be taken whenever a water quality impact is identified by these coordinating agencies.

What is the role of the GSAs in protecting water quality for all beneficial uses and users? In particular, the protection of domestic water supply must be the primary concern for managing the subbasin, WC 106.3(a). SGMA empowers the GSAs with the authority to control pumping rates and locations throughout the subbasin to protect all beneficial uses and users of groundwater, an authority over groundwater resources that other regulatory agencies don't possess. This is likely the reasoning behind the recent Governor's Executive Order N-7-22.

The Corning Revised GSP should provide a concise description of what projects and management actions the GSAs will be taking to prevent degradation of the subbasin water quality for all potential COCs, describe how the GSAs will remedy in a timely manner any water quality degradation that occurs, and develop a Well Mitigation Program that is fully funded and provides for meaningful assistance to impacted well owners with repair, water quality treatment, and/or well replacement.

19. The Corning Revised GSP sets the MO at zero feet *for inelastic subsidence solely due to lowered groundwater elevations throughout the subbasin, in addition to any measurement error*, Section 6.9.3 (p. 6-61, pdf p. 477). If the InSAR dataset is used with its measurement error of 0.1 ft, then annual subsidence of 0.1 ft or less would not be considered measurable inelastic subsidence.

The MT rate for inelastic subsidence is 0.50 ft over 5 years, Table ES-1(p. ES-26, pdf p. 48) and Sections 6.9.2 (p. 6-54, pdf p. 470). Although the Corning Subbasin has experienced little to no historical inelastic subsidence since the start of monitoring in 2004 (p. 6-54, pdf p. 470), the MT was set …*to maintain consistency with neighboring subbasins,* Section 6.9.2.3 (pp. 6-59 and 6-60, pdf pp. 475 and 476). The neighboring subbasin to the south, Colusa Subbasin, has historically experienced inelastic subsidence and the MT for subsidence for that subbasin is also 0.5 feet over 5 years. Figure 6-1 shows the InSAR land subsidence data for the area at the southern border between the two subbasins surrounding Orland and Hamilton City (p. 6-56, pdf p. 472). A north-south oriented area of subsidence ranging from -0.25 to -0.75 feet occurs just south of Orland. The Corning GSP indicates that groundwater pumping in the Colusa Subbasin near Orland has …*the potential to impact the ability of the Corning Subbasin GSAs to meet the subsidence minimum thresholds*… (p. 6-60, pdf p. 476). Apparently, to be *consistent* with a neighboring subbasin that's experiencing ongoing subsidence, the Corning GSP will use the same MT, so that an undesirable result from subsidence doesn't have to be declared.

The Corning Revised GSP doesn't offer a reasonable explanation for why an MT that allows northward expansion of the Colusa Subbasin subsidence is beneficial to the infrastructure and landowners in the Corning Subbasin. The GSP notes that there's been very little historical long-term subsidence in the Subbasin, and if this doesn't change in the future, then beneficial users and land uses should not be impacted by the subsidence minimum threshold, Section 6.9.2.4 (p. 6-60, pdf p. 476).

While it is probably true that *if* the Corning Subbasin continues to have little or no inelastic subsidence, the MT value will have no effect. However, it might not be true if subsidence begins to occur, especially if it's migrating northward from the Colusa Subbasin, that the 0.50 ft over 5 years MT subsidence rate is a reasonable standard for an area that hasn't experienced inelastic subsidence. Unfortunately, subsidence is taking place in the subbasin. Using IDW interpolation of vertical displacement rates across agricultural lands within the Corning subbasin and raw InSAR subsidence rates (Q4 2023, not interpolated), **AquAlliance's map finds that there is widespread inelastic subsidence occurring in the Corning Subbasin**.[5] There is a significant area with subsidence taking place greater than 0.5 inch per year and scattered areas with subsidence greater that 1-2 inches per year that would over a period of 5 years exceed the current MT. These data are not disclosed in the Corning Subbasin Revised GSPs released to date or the Annual Report for 2023 that was just submitted to DWR in April 2024.

Returning to the Corning Revised GSP in setting the MT the same as the Colusa GSP, there seems to be a stance that if they are 'okay' with this amount of subsidence, then we should be 'okay' too. No actual assessment of the impacts of this level of subsidence on the infrastructures in the Corning Subbasin has been proposed in any version of the GSPs to date.

The Corning Revised GSP takes the approach that:

The undesirable result for subsidence allows for no more than 0.5 foot of cumulative

[5] AquAlliance 2024. *Subsidence in Agricultural Lands Within the Corning Subbasin,* Figure 1 in the attached AquAlliance's April 10, 2024, as amended, comment letter to the Corning Subbasin GSAs.

subsidence in the Subbasin during a 5-year period. This amount of subsidence is not likely to impact beneficial users and land uses such as highways, canals, and pipelines as it is

about equal to the total subsidence in one portion of the Subbasin and no impacts to infrastructure have been reported to date. No other beneficial users or land uses are anticipated to be impacted by subsidence in the Subbasin. Section 6.9.4.3 (p. 6-63, pdf p. 479).

This technical standard of "not likely" to cause an impact to beneficial users and land uses needs some technical justification. The Corning Revised GSP should be revised to provide specific information on the critical infrastructure in the Subbasin that includes: a description of the structures, the entities responsible for maintenance, how much subsidence these structures can tolerate without structural damage, the linkage and/or interdependence of these structures, the alternatives should a structure fail, the estimated costs for repairing structural damage, and the frequency of structural inspections, etc.

Lastly, but crucially, **the Revised GSP fails to disclose the numerous sinkholes within and just outside the subbasin**. The sinkholes were widely discussed by local and state government from August 2021 forward, allowing time to insert this information in the draft, final, and Revised GSPs.[6] [7] This serious omission adds to the conclusion that the Corning Revised GSP and GSAs are not ready to take on the task of managing the subbasin.

In addition to evaluating critical infrastructure, the Revised GSP should address how small areas of subsidence, such as sinkholes, will be managed. Sinkholes, peat decomposition, and natural settlement can all be triggered by declining groundwater levels. The Revised GSP appears to require proof that settlement or subsidence is only due to groundwater pumping, Section 6.9.1 (p. 6-53, pdf p. 469). The GSP doesn't explain how and by whom this determination will be made, in particular, when the subsidence doesn't cover a broad area and affects only a few private structures, like homes. The Revised GSP seems to say that the landowner is responsible for demonstrating to the GSAs that the cause of any local settlement is groundwater decline due to pumping. Even if the landowner was able to prove the cause was declining groundwater levels, the Revised GSP doesn't appear to propose any mitigation program to assist in making structural repairs.

E. Plans to Recharge

The GSP assumes that groundwater sustainability of the Subbasin will be achieved in part because Central Valley Project and other surface waters will be available for recharge. Really? The GSP fails to acknowledge that the demands on the Sacramento River hydrology will change business as usual and dreams for recharge to correct past and current abuse of groundwater. The Delta Flow Criteria developed in 2010 demonstrated the need for more stream and river flows: "Recent Delta flows are

[6] Massa, Rick August 16, 2021 e-mail to Lisa Hunter of Glenn County. "We have learned of orchardists that are experiencing sink holes in their orchards."
[7] "Ms. Hunter also stated that staff was made aware of sink holes developing in the Colusa and Corning subbasins, and that a site visit has been conducted with Department of Water Resources." Glenn Groundwater Authority December 14, 2021 minutes p. 2 (packet pdf p. 8).

insufficient to support native Delta fishes for today's habitats.3 Flow modification is one of the immediate actions available although the links between flows and fish response are often indirect and are not fully resolved. Flow and physical habitat interact in many ways, but they are not interchangeable." The Sacramento River needs to contribute 75 percent inflow to the Delta from November through June, far above what has made it to the Delta in most years.

The GSP also notably fails to clarify that groundwater recharge alters the rights to groundwater and may not be a solution acceptable to Subbasin users. It also fails to demonstrate that creating the space for recharge harms groundwater dependent farms and residential property as well as streams and habitat for myriad species. Conjunctive use with recharge has long been the plan of Glenn Colusa Irrigation District and the Bureau of Reclamation – to take over the basin and manipulate it for the benefit of moneyed interests, not the local people or environment. Communication to the Vina Subbasin's stakeholders clarified that "So long as the water was diverted pursuant to a valid water right prior to recharge, the recharged water would be owned by the diverter… The legal right to surface water that is imported and recharged into an aquifer is held by the project proponent… Depending upon the project scope, it could intend to export recharge water out-of-basin."[8]

Not only repeating, but expanding the mistakes made in the Owens, San Fernando, and San Joaquin valleys is not in the best interests of the Corning Subbasin's communities, businesses, groundwater dependent farms, and the environment – let alone California. Demand management, not water sleight of hand, is essential and must be required immediately!

F. Conclusion

The purpose of a GSP is to facilitate the achievement of a basin's sustainability goal (Water Code § 10727(a)), which is the "implementation of measures targeted to ensure that the applicable basin is operated within its sustainable yield." (Water Code § 10727(u).) Unfortunately, the 2022 GSP allowed and the 2024 Revised GSP continues to allow undesirable results to occur. The Plan asserts that the "[R]evised GSP contains significant updates and additions which will positively contribute to the sustainable management of the Subbasin,"[9] however serious harm to well owners, streams, species, and soil stability will continue. The creation of a domestic well mitigation program isn't expected until January 2026[10] and a demand management program will be further delayed until January 2027.[11] DWR's evaluation letter concluded that "[i]t appear as if the GSAs have no urgency or commitment to implement the necessary projects and management actions to mitigate ongoing and future overdraft" was correct when it was written October 26, 2023, and it is still true eight months later with the Revised GSP. The GSAs are failing under SGMA, but even more importantly, failing the people, the land, and the environment in Tehama and Glenn counties and the region.

For all the reasons discussed in our comments on the Corning Subbasin previously and here, the Plan fails to meet SGMA's goal of water resource sustainability and protection of the water rights of all beneficial users and uses. In accordance with legal requirements to protect the Public Trust, the Plan also fails. It also appears that the GSP will foist the responsibility to demonstrate damage from undesirable results on the unsuspecting public, creating an impossible burden for all but large water

[8] Gosselin, Paul and Valerie Kincaid, 2020. Memo to the Vina Stakeholder Advisory Committee. Re: Legal Implications of Potential Projects and Management Actions. p.3. Exhibit 9.
[9] Revised Corning GSP p. II.
[10] *Id.* p. ES-25.
[11] *Id.* p. 7-18.

districts and growers with deep pockets. The Plan must be rejected by DWR and the SWRCB.

Respectfully submitted,

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california water impact network

June 23, 2024

California Department of Water Resources
Sustainable Groundwater Management Section
1416 9th Street
Sacramento, CA 95814

Re: Comments on Revised Colusa Subbasin Groundwater Sustainability Plan

To whom it may concern:

AquAlliance, the California Sportfishing Protection Alliance, and the California Water Impact Network (hereinafter AquAlliance) submit the following comments and questions on the Revised Colusa Subbasin Groundwater Sustainability Plan ("Revised GSP" or "Plan") to the Colusa Groundwater Authority and the Glenn Groundwater Authority GSAs ("GSAs").

DWR's determination letter on the 2021 GSP found:

- *The GSAs should revise the GSP to provide a reasonable assessment of overdraft conditions using the best available information and describe a reasonable means to mitigate overdraft.*
- *The GSAs must provide a more detailed explanation and justification regarding the selection of the sustainable management criteria for groundwater levels, particularly minimum thresholds and measurable objectives, and quantitatively describe the effects of those criteria on the interests of beneficial uses and users of groundwater.*
- *The GSAs must provide a more detailed explanation and justification regarding the selection of the sustainable management criteria, monitoring method, and projects or management actions related to land subsidence.*[1]

[1] DWR, 2023. *STATEMENT OF FINDINGS REGARDING THE DETERMINATION OF INCOMPLETE STATUS OF THE SACRAMENTO VALLEY – COLUSA SUBBASIN GROUNDWATER SUSTAINABILITY PLAN*. pp. 1-4. https://sgma.water.ca.gov/portal/gsp/comments/92

Serious flaws remain in the Plan that require significant changes to the document, without which the public and policymakers are truly left in the dark and dangerous consequences will continue. Our previous comments on the 2021 Colusa GSP are still relevant to the entire revised document. Our October 21, 2021, comments are included in the Revised GSP in Appendix 2B-2 (pdf pp. 719 to 775), and our April 22, 2022, comments can be found at the DWR SGMA Portal under the 5.021.52 Colusa Public Comments.[2]

The following is a synopsis of the comments we're submitting on the changes in the 2024 Revised Colusa Subbasin GSP.

- The GSAs' assertion that they have no accountability or liability for the success of the management actions in the Revised GSP is inconsistent with the intent of Sustainable Groundwater Management Act (SGMA).[3]

- The approach taken in the Revised GSP to measure and manage subsidence fails to consider the impacts to structures of local landowners and provides no management actions to identify and financially reimburse landowners for the costs of repairs, like the Domestic Well Mitigation Program.

- The failure of the Revised GSP to provide an adequate assessment of the current impairments to the quality of the groundwater in the Colusa Subbasin, which includes inserting a no accountability statement that the GSAs aren't required *…to provide, ensure, or guarantee any level of water quality…* to groundwater.

- The use of different sustainability criteria for areas with existing undesirable effects, Focused areas, versus those that are yet to be undesirable, Unfocused areas.

- The design, application and eligibility procedures, and time frame of the Domestic Well Mitigation Program for reimbursement of the costs to mitigate impacts from the GSAs' management of the Subbasin groundwaters.

- The design and uncertainty in the measures to implement a Demand Management Program that is timely and effective at mitigating the current overdraft in the Subbasin.

- The lack of commitment in the Revised GSP for Management Actions that address the known challenges to reaching a sustainable management of the Colusa Subbasin.

- The lack of disclosure and the deficit of information on the historic and current impacts to third parties, including the environment, which hide painful realities in the Colusa Subbasin.

- The assumption that groundwater sustainability of the Subbasin will be achieved in part because Central Valley Project and other surface waters will be available for

[2] *Id.*
[3] Water Code § 10725 - 10726.9, Powers and Authorities.

recharge, while failing to note that groundwater recharge can alter the rights to groundwater and may not be a solution acceptable to all Subbasin users.

- The assumption that local ordinances will in any way protect the population and environment of Glenn and Colusa counties from transfers and expanded conjunctive use.

A. Lack of Accountability for GSP Management Actions and Programs

In Chapter 6, the Projects and Management Actions in the Revised GSP provided in the Demand Management Program, Section 6.3.6.7 (p. 6-58, pdf p. 443) and the Domestic Well Mitigation Program, Section 6.3.7.7 (p. 6-66, pdf p. 451), along with the Memorandums of Understanding for each program in Appendices 6E, 6F and 6G (pdf pp. 2860 to 2888), the following language for what the GSAs consider their legal authority for permit processes and regulatory control.

> *Under SGMA, the GSAs have groundwater management authorities, including the authority to adopt and enforce ordinances and measures to manage groundwater extraction towards sustainability. However, the GSAs do not have the authority to modify or otherwise change groundwater rights. Additionally, neither SGMA nor the MOU make the GSAs responsible for injury from overdraft (i.e., the GSAs do not extract groundwater), nor do they require or assign any liability to GSAs to provide, ensure, or guarantee any level of water quality or access. It is anticipated that the GSAs will likely have the primary and only regulatory control over the Program, although Program implementation may be coordinated, in part, with Glenn and Colusa Counties and their authorities with respect to land use and well permitting.*

This language appears to be a general hold harmless statement by Colusa Subbasin GSAs that they consider themselves to be unaccountable for the actions they undertake to manage the groundwater resources in the subbasin. It is unclear if SGMA allows for this wavier of liability to be applied to all groundwater users in a subbasin without their consent. The GSAs apparently believe it does because the Revised GSP includes the assertion of no accountability statements into the Domestic Well Mitigation Program and then requires that after the a domestic well owner pays for an inspection, files an application with a $100 fee, develops the well mitigations, and receives eligibility approval for reimbursement of those mitigations, a Well Owner Agreement must be signed to receive the mitigation funds. This Well Owner Agreement is required to include a provision that the well owner indemnifies the GSAs (Appendix 6F, p. 7, pdf p. 2878) with the scope of the indemnification provisions not yet defined.

This assumption that the Colusa Subbasin GSAs aren't responsible for their management actions seems to be contrary to the intent of SGMA, which gives broad authority to a GSA to exercise any powers described in law to achieve a sustainable groundwater Subbasin. The powers include, but are not limited to, the provisions of: Water Codes 10725; 10725.2(a) and (b); 10725.4(c); 10726.6(a)(1) and (a)(2); 10726.8(a) and (d); 10730(a), 10730.6(a), (c) (d) and (e); 10730.8(a); and 10732.2. These statutes allow a GSA to adopt rules, regulation, ordinances and resolutions, to impose permit and groundwater extraction fees, determine spacing requirements on new wells, control the timing and rate of groundwater extractions, the timing and suspension of extractions,

bring suit in court to collect delinquent groundwater fees, hold a public hearing to determine if a well owner or operator should cease groundwater extractions until all delinquent fees are paid, and file a notice with the State Water Resources Control Board (SWRCB) when a state entity is not working cooperatively to implement the GSP. The fundamental question is why would the legislature give a GSA these broad local agency governmental authorities as the tools to sustainably manage a groundwater subbasin while at the same time expecting that the local agency, GSA, wouldn't be accountable to the well and landowners of the subbasin? Does SGMA assume that the state would be accountable for the actions of the GSAs because of the requirement for DWR to approve the GSP (WC 10733.4), and the SWRCB's authority for state intervention (WC 10735 – 10736.6)?

We recommend that DWR review the validity of the assertion being made by the Colusa Subbasin GSAs that they aren't accountable for their management actions, and determine whether the liability and indemnification provisions, procedures and measures in the Domestic Well Mitigation Program and Demand Management Program, and all other proposed project management actions are consistent with requirements of SGMA and all other applicable state statutes and regulations. We also recommend that in the written report of the SGMA compliance review of the Revised GSP, that DWR provide clear language with governing statues that determine how and by what means a well owner and landowners in a groundwater subbasin can be required to comply with the statutory duties as determined by a GSA while also being required to indemnify the GSA from any and all liability.

B. Public Process

There was an egregiously short time frame for comments to the GSAs on the revised GSP from the April 16th release late in the day to adoption by the GSAs on April 19th, but AquAlliance submitted written comments before the GSA meeting April 19, 2024 (now posted on the DWR web site). Anything in those comments that seem confusing is due to the fact we were trying review almost 700 pages in three days. It wasn't helpful that there were complications with downloading the document from the Glenn County web site we were provided. Fortunately the Colusa County web site accommodated the download without barriers from third-party entities.

C. Subsidence

a) The Revised GSP indicates that the Focus RMS wells were selected in part because of the ongoing subsidence in the area (see **Figure 5-4 attached as Exhibit 3A**). Maps of the Colusa Subbasin area show categories of measured benchmark subsidence from 2008 to 2017 in the Revised GSP Figure 3-31 (p. 3-77, pdf p. 247 and the October 2018-2019 to October 2022-2023 InSAR measurements also show subsidence in Figure 3-32 (p. 3-78, pdf p. 248).

The Revised GSP states that the subsidence MT would trigger an undesirable result when the cumulative and rate of subsidence minimum thresholds exceed the following (p. 5-56, pdf p. 328):

> • *The average cumulative subsidence exceeds two feet over a single PLSS section starting from January 2024, or*

> *• The average rate of subsidence in ten or more contiguous PLSS sections, in any configuration, exceeds 0.1 foot per year ft/yr in two consecutive years.*

The Revised GSP's proposed management of subsidence in the Artois and Arbuckle areas is shown in Figures 5-2 and 5-3 (pp. 5-22 and 5-23, pdf pp. 350 and 351). These graphs suggest that the rate of subsidence in these areas will keep exceeding the 0.1 feet/year MT until 2032. The cumulative subsidence since 2015 is estimated to be from 3.0 feet to 3.9 feet by 2042. These graphs also suggest that the setting of the IM elevations in the Focus RMS well areas below the MT elevations could cause the rate of subsidence to be up to -0.3 feet/year.

The Revised GSP also notes that:

> *While the sensitivity of local infrastructure to inelastic land subsidence is not well understood at this time, the Subbasin has extensive infrastructure consisting of pipelines and open canals (lined and unlined) and drains owned by various surface water suppliers that are used to convey water for urban and agricultural uses. A GSP Study is proposed in Chapter 7 that would evaluate the sensitivity of local infrastructure to potential subsidence in the Subbasin. Should additional information be developed on the vulnerability of this infrastructure to subsidence, these minimum thresholds may be refined. The GSAs will continue monitoring to improve the understanding of the causes of inelastic land subsidence in the Subbasin during GSP implementation. Refinement of minimum thresholds and an improved understanding of subsidence in the Subbasin will be reported in the annual reports and periodic evaluations.* (p. 5-47, pdf p. 375)

The Revised GSP infrastructure study for subsidence impacts is described in Chapter 7, 7.1.2.15 - Evaluate Infrastructure Sensitivity to Subsidence (pp. 7-16 and 7-17, pdf pp. 525 and 526).

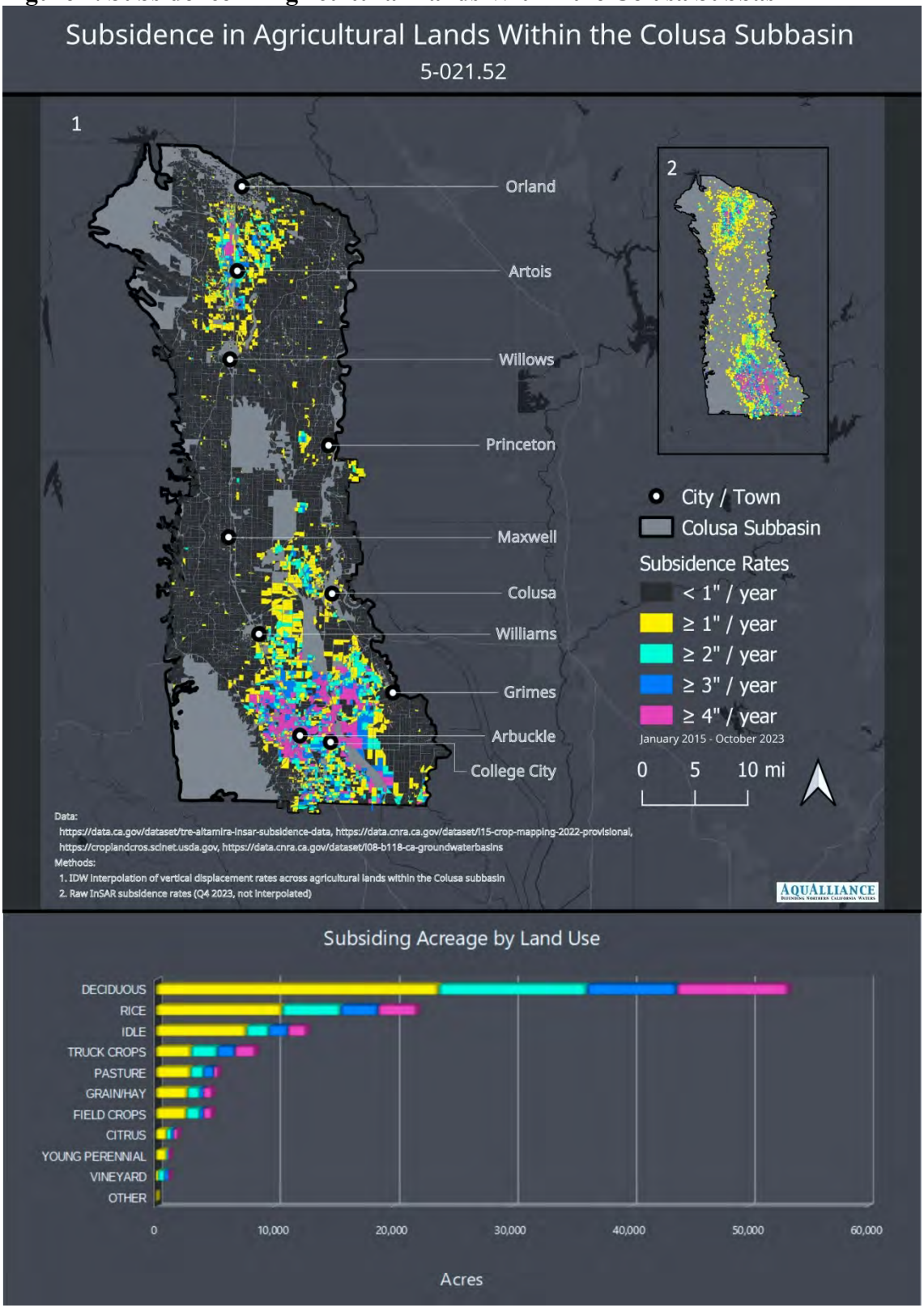
> *The study would be a cooperative effort with infrastructure owners and operators of critical infrastructure and land uses, as well as other stakeholders in the Subbasin. The GSAs could, but do not necessarily need to, lead the assessment.*
>
> *In addition to the sensitivity evaluation, the GSAs and involved entities will form a Critical Infrastructure Working Group to report on suspected impacts to critical infrastructure and land uses suspected to be due to land subsidence caused by groundwater withdrawal, report on progress of PMAs and GSP Study implementation, and provide information vital for refining subsidence sustainable management criteria. The Critical Infrastructure Working Group will meet at least annually at the conclusion of the water year to assess critical infrastructure in the Subbasin. The Critical Infrastructure Working Group will meet more frequently if subsidence conditions warrant additional meetings, as described in Section 5.4.5. The Critical Infrastructure Working Group be open to entities owning or operating critical infrastructure in the Subbasin.*[sic]

It is expected that data collection and analysis in this study would be grant-funded, though local funding sources could also be used.

While it is crucial that critical infrastructure in the Subbasin be protected from the impacts of subsidence, those structures aren't the only ones that need protection from pumping induced subsidence and settlement. Local landowners' homes, barns, and wells can also be impacted by subsidence. The Revised GSP should provide procedures for local landowners to register their properties that have been damaged due to subsidence or settlement and the Revised GSP should provide a mechanism for mitigating those impacts, like the Domestic Well Mitigation Program, only done more comprehensively. In addition, the Revised GSP should provide a mechanism for the public to have transparent and readily available electronic file access to the engineering analyses and data that are collected on subsidence, so that they can independently evaluate whether the stress observed in their buildings or wells may be due to subsidence.

b) Figure 1 clearly illustrates the subsidence in the Colusa Subbasin. How does it compare with the GSP material? As one can see in the magenta areas, the land is collapsing at 4 inches per year, or a foot every three years. Knowing the land uses overlying the subsidence paints an interesting picture. What will the GSAs consider doing to stop the actors causing it?

Figure 1. Subsidence in Agricultural Lands Within the Colusa Subbasin



D. Water Quality

The Revised GSP's groundwater quality monitoring network focuses on salinity. Monitoring of other water quality parameters that might affect the beneficial uses of groundwater is left to other regulatory agencies, such as local Environmental Health Agencies, the California Department of Toxic Substance Control, the State Water Resources Control Board (SWRCB), and the Central Valley Regional Water Quality Control Board, whose policies include the Basin Plan Amendment for the Salt and Nitrate Control Program and the Irrigated Lands Regulatory Program (pp. 5-14 and 5-15, pdf pp. 342 and 343).

The Revised GSP states that the

> *[g]roundwater quality in the Subbasin is generally good, with local exceedances of water quality objectives for some constituents. The sole groundwater quality concern not addressed by the existing groundwater quality regulatory programs is mobilization of saline water from deeper parts of the aquifer along faults, other geologic structures, or other naturally-occurring zones with high salinity as a result of GSP projects and management actions and other groundwater development. Sustainable management criteria for salinity have been established to supplement existing regulatory programs.* (p. 5-15, pdf p. 343)

The potential causes of degraded water quality may be:

> • *Mobilization of saline water from deeper parts of the aquifer along faults, other geologic structures, or other naturally-occurring zones with high salinity as a result of GSP projects and management actions and other groundwater development*
>
> • *Mobilization of poor quality water, including contaminant plumes, monitored under existing regulatory programs as the result of GSP projects and management actions and other groundwater development*
>
> • *Mobilization of naturally-occurring constituents in soils, the unsaturated zone, or the aquifer matrix as the results of projects involving direct groundwater recharge*
>
> • *Direct groundwater recharge using water with constituent concentrations exceeding applicable water quality objectives or historical concentrations for the same constituents in groundwater.* (p. 5-16, pdf p. 344))

The groundwater quality monitoring network consists of "[2]5 monitoring sites RMS to monitor for groundwater quality degradation due to increasing salinity concentrations, either via migration of deep brackish to saline waters into the freshwater aquifer system or recharge from agricultural runoff." (p. 4-35, pdf p. 324) The Revised GSP groundwater quality monitoring program relies "[o]n existing monitoring and reporting carried out by the regulated community within the Subbasin when and where possible to address water quality concerns. The CGA and GGA will conduct supplemental water quality monitoring using existing wells or new

monitoring wells constructed for that purpose when and where necessary to fill data gaps and to develop and implement projects and management actions." (p. 5-15, pdf p. 343)

"The undesirable result for degraded water quality is considered to occur during GSP implementation when 25 percent of representative monitoring sites (i.e., 6 of 25 wells) exceed their minimum thresholds for two consecutive years. The six sites must be the same subset of sites, not any combination of six sites. The subset of sites is not predetermined; rather, it is delineated only as sites collectively exceed their minimum threshold values." ((pp. 5-15 and 5-16, pdf pp. 343 and 344)

The Revised GSP provides two water quality maps, Figure 3-17, *Base of Fresh Water* based on total dissolved solids (TDS) concentration of 2,000 mg/L (p. 3-37, pdf p. 207), and Figure 3-30 with three maps of the historical TDS concentrations in three depth intervals, less than 200 feet, 200 to 700 feet, and greater than 700 feet deep (p. 3-69, pdf p. 239).

The Revised GSP doesn't provide information as required by CCR § 354.28 with "[k]nown groundwater quality issues that may affect the supply and beneficial uses of groundwater, including a description and map of the location of known groundwater contamination sites and plumes." The information on known groundwater contamination sites is readily available from the SWRCB's Geotracker[4] website. In addition to known contaminated sites, the Geotracker site allows for the display of the known oil and gas wells using WellSTAR. A set of screen capture maps taken from Geotracker on April 16, 2024, are attached as **Exhibits 1A through 1F along with Revised GSP Figure 4-3 attached as Exhibit 2**, which shows the groundwater quality monitoring network (p. 4-17, pdf p. 307).

The attached **Exhibits 1A through 1F are taken of the Geotracker website** show that there are a number of known contaminated sites and oil and gas wells throughout the Subbasin. **The Revised GSP doesn't provide an analysis of whether the monitoring network shown in Figure 4-3 is adequate to collect sufficient data to demonstrate short-term, seasonal, and long-term trends in groundwater for known contaminants for each applicable principal aquifer to determine groundwater quality trends for water quality indicators to address known water quality issues (CCR § 354.34(a), (c)(4)).**

Although the management of the business operations and any contaminant site cleanups are overseen by other regulatory agencies, the GSA should demonstrate in the Revised GSP that they have sufficient knowledge of the groundwater quality issues and problems in the Subbasin. The GSAs must ensure that any water quality data gaps are filled and the Project and Management Actions do not result in the degradation of water quality or impact the beneficial uses of groundwater. The fact that the Revised GSP lacks the basic descriptions and maps of known contaminated sites as required by SGMA suggests that the groundwater quality monitoring network isn't adequate to comply with minimal requirements of SGMA.

[4] https://geotracker.waterboards.ca.gov/map/?CMD=runreport&myaddress=Sacramento

E. Additional Areas of Concern

Focus/Unfocused Areas

a) **Attached are two maps** from the Revised GSP that show the general outline of the Focus RMS wells area overlain on the historical June 2015 to June 2023 cumulative vertical subsidence, **Figure 5-4, Exhibit 3A** (p. 5-33, pdf p. 361), and both the Focus and Non-Focus RMS wells with the well identifications**, modified Figure 4-6, Exhibit 3B** (p. 4-34, pdf p. 323). Apparently, the GSAs have determined that "undesirable results" have occurred in the Subbasin, because the Revised GSP now breaks the Representative Monitoring Site (RMS) wells into two groups based on the occurrence of undesirable results.

> Page ES-15, pdf p. 96:
> *The GSAs grouped the RMS wells into two categories for developing sustainable management criteria:*
>
> *• Focus RMS wells: Those RMS wells that are in close proximity to areas where undesirable results have occurred with respect to chronic lowering of groundwater levels (and reduction of groundwater storage, by proxy) and/or land subsidence.*
>
> *• Non-Focus RMS wells: All other RMS wells within the Subbasin that are not in close proximity to areas where undesirable results have occurred with respect to chronic lowering of groundwater levels (and reduction of groundwater storage, by proxy) and/or land subsidence.*
>
> Page 4-35, pdf p. 324:
> *When developing the sustainable management criteria for the RMS wells, the GSAs grouped the RMS wells into two categories:*
>
> *• Focus RMS wells: Those RMS wells that are in close proximity to areas where undesirable results have occurred with respect to chronic lowering of groundwater levels (and reduction of groundwater storage, by proxy). Focus RMS wells include those RMS wells within 3 miles of dry wells reported since 2015 (based on data from DWR's dry well reporting system[17]) and/or within (or adjacent to) public land survey system (PLSS) sections (1 square mile or 640 acres) where the total vertical displacement from June 2015 to June 2023 exceeded 1 foot (based on InSAR data). In total, 18 RMS wells were identified as Focus RMS wells. Those wells are described in greater detail in Chapter 5.*
>
> *• Non-Focus RMS wells: All other RMS wells within the Subbasin that are not in close proximity to areas where undesirable results have occurred with respect to chronic lowering of groundwater levels (and reduction of groundwater storage, by proxy), based on analysis using the same criteria. In total, 30 RMS wells were identified as Non-Focus RMS wells. Those wells are described in greater detail in Chapter 5.*

Page 5-9, pdf p. 337:
The minimum thresholds described in Section 5.4.1.1 are defined for groundwater level RMS wells grouped into two categories:

• Focus RMS wells: Those RMS wells that are in close proximity to areas where undesirable results have occurred with respect to chronic lowering of groundwater levels (and reduction of groundwater storage, by proxy). Focus RMS wells include those RMS wells within 3 miles of dry wells reported since 2015 (based on data from DWR's dry well reporting system[18]) and/or within (or adjacent to) PLSS sections (1 square mile or 640 acres) where the total vertical displacement from June 2015 to June 2023 exceeded 1 foot (based on InSAR data). These criteria were used to represent undesirable results that have already occurred with respect to drinking water well impacts and subsidence, and that are considered the most likely to occur in the future if groundwater sustainability is not achieved and maintained in the Subbasin. In total, 18 RMS wells were identified as Focus RMS wells, nine of which are located in the Orland-Artois area, and nine of which are located in the Arbuckle-College City area.

• Non-Focus RMS wells: All other RMS wells within the Subbasin that are not in close proximity to areas where undesirable results have occurred with respect to chronic lowering of groundwater levels (and reduction of groundwater storage, by proxy), based on analysis using the same criteria. In total, 30 RMS wells were identified as Non-Focus RMS wells.

b) The Revised GSP creates a new category of RMS monitoring wells for the areas (polygons?) that have already experienced undesirable results. This new category of wells is called the Focus RMS wells. As of January 2024, there are 18 out of the original 48 RMS wells, or 37.5%, that are now in the Focus RMS well group. It is unclear from **Figure 5-4, attached Exhibit 3A** (p. 5- 33, pdf p. 361), whether the Focused area around these Focus RMS wells included the entire Thiessen polygon area represented by the well. Figure 5-4 shows the areas of dry wells and subsidence, which apparently define the Focus areas. The boundary of these Focus areas doesn't appear to follow the Thiessen polygon boundaries (**see the polygons in the attached Exhibit 4, Figure 6-1** - Change in Groundwater Storage in the Primary Aquifer – Spring 2021 through Spring 2022, in the Colusa Subbasin GSP Water Year 2022 Annual Report, p. 34, pdf p. 39). If the entire polygon isn't considered part of the Focus area, then what are the sustainable management criteria for the area outside of the Focus area but still in the RMS well polygon? **In other words, what are the Management Objectives, Minimum Thresholds, and Interim Milestones (MOs, MTs, and IMs) for these excluded areas?**

c) The Revised GSP modifies the MOs, MT and IMs based on whether the RMS well is in a Focused or Un-Focused area. **Attached Exhibit 5** is a modification of Table 5-3 that lists and compares the MO and MT sustainability criteria from the 2021 GSP with Revised 2024 GSP. **Attached Exhibit 6** is another modification of Table 5-3 that lists the IMs and compares the 2021 GSP IMs to the Revised 2024 GSP IMs, and includes a count of the

number of domestic wells that the Revised GSP anticipates will be impacted by the revised 2024 GSP sustainability criteria.

Minimum Thresholds

The Revised GSP continues to follow the original GSP's requirement that multiple RMS wells must exceed the minimum thresholds (MTs) before an undesirable result can occur, except for subsidence (see Table ES-4, pp. ES-21 and ES-22, pdf pp. 102 and 103). For subsidence, the MT is a cumulative subsidence of 2 feet from January 2024, regardless of the amount of subsidence that occurred before 2024, **see attached Figures 5-2, Exhibit 3C, and Figure 5-3, Exhibit 3D, for graphs of historical subsidence in Artois and Arbuckle** (pp. 5-22 and 5-23, pdf pp. 350 and 351).

The Colusa Subbasin occupies an area of 723,823 acres, or approximately 1,131 sq. miles or PLSS sections (page ES-4, pdf p. 85). The Revised GSP has selected 48 RMS wells for monitoring changes in groundwater levels (**see attached Exhibit 3B, Figure 4-6**, p. 4-34, pdf p. 323). The Revised GSP requires that for an undesirable result to occur from the chronic lowering of groundwater levels, six or more of the 48 RMS wells must exceed their MTs for two (2) consecutive Fall measurements (seasonal lows). The number of wells required to simultaneously exceed the MT values varies with the sustainability criteria (see Table ES-4, pp. ES-21 and ES-22, pdf pp. 102 and 103).

The Revised GSP notes that with the implementation of the GSP monitoring program:

> [*a] number of wells included within the groundwater monitoring network have not been consistently monitored every spring and fall, including eleven of the 48 RMS wells (23%) in 2023. Data availability has been impaired mainly due to access issues, although three of the wells have not been monitored in five or more years as of early 2024. The GSAs have actively reached out to DWR to coordinate more closely on groundwater monitoring efforts with the goal of increasing the consistency of monitoring.*
>
> *Limitations in data availability may impact the GSAs' ability to monitor groundwater conditions with sufficient resolution (spatially and temporally) to meaningfully inform groundwater management decisions in the Subbasin, particularly in areas experiencing undesirable results. The adequacy of the monitoring network will be evaluated during the 2027 GSP periodic evaluation. It is anticipated that groundwater monitoring network wells with severe data gaps will be prioritized for replacement at that time with alternate sites that are routinely monitored and that have more recent data.* (p. 4-14, p. pdf 303)

The Revised GSP doesn't appear to address how the missing monitoring data have or will affect the determination of undesirable results. For example, if one or more of the RMS wells isn't monitored in the Fall, does that prevent the determination of an undesirable result in the RMS well's Thiessen polygon area? Shouldn't the GSAs have a contingency plan for measuring an adjacent well when the intended RMS well is unavailable? The

average area represented by each RMS well is approximately 15,080 acres or 23.56 square miles. Surely there is another well in the area that could be monitored. Note that information appears to be missing in the Revised GSP on the areas of each Thiessen polygon. The fact that three (3) of the RMS wells haven't been monitored for five (5) or more years suggests that the GSAs are failing to implement an adequate GSP monitoring program.

Minimum Objectives/Minimum Thresholds/Interim Milestones

The Revised GSP changed the MOs and MTs for the 18 Focus RMS groundwater monitoring wells by setting the revised MT at the 2020-2022 minimum groundwater elevation at that RMS well, Exhibit 5 (from Table ES-4, pp. ES-21 and ES-22, pdf pp. 102 and 103). The revised MO values appear to be set slightly higher than the original MOs (see Revised GSP Table 5-3, pp. 5-36 and 5-37, pdf pp. 364 and 365) and the original GSP Table 5-2 (pp. 5-24 and 5-25, pdf pp. 288 and 289) Exhibit 5 summarizes the MT and MO (2021) GSP to (2024) GSP changes.

The Revised GSP values for the Focus RMS well MT were generally set at an elevation higher than the original MTs, but the MTs in two of the wells were set slightly lower: wells 14N03W14Q003M and 22N03W24E002M. The MT in the 14N03W14Q003M well has gone from an original elevation of -89 feet to a revised elevation of -120.6 feet (31.6 feet lower; see attached hydrograph **Exhibit 7A**, pdf p. 2307) while the MO has risen from an elevation of -13 feet to +53.5 feet. The MT in the 22N03W24E002M well has gone from an original elevation of +122 feet to a revised elevation of +119.9 feet (2.1 feet lower; **see attached hydrograph, Exhibit 7B,** pdf p. 2341) while the MO has risen from an elevation of +176 feet to +179.4 feet. The apparent reason for lowering the MT is that the 2020-2022 groundwater level was lower than the original MT elevation.

Interim Milestones

Another change in the sustainability threshold elevation for the Focus RMS wells is the change in the 2027 Interim Milestone (IM) elevations. In the original GSP, the 2027 IM elevations for all the RMS wells were set equal to the MO elevations. For the Revised GSP, that condition still applies only to the Non-Focused RMS wells (see Table 2 in Appendix 5E, pp. 7 and 8, pdf pp. 2716 and 2717). For the revised Focus RMS well, the IM elevations are now set …"*below MTs to allow some additional decline prior to GSP implementation; 2032 IMs are for WSE to have recovered to MTs. Focus area wells had 2027 IMs that ranged from 6.3 to 15.7 FT below 2020-2022 lows, with a median value of 11.5 FT below and a mean value of 12.1 FT below. The median annual rate of decline was 2.2 FT per year and the mean rate was 2.4 FT per year."* (Appendix 5E, pp. 6, pdf 2715) For example, the IM for Focus RMS well 22N03W24E002M has been lowered from the original elevation of +176 feet, to the revised IM elevation of +110.6 feet (65.4 feet lower; **see attached hydrograph Exhibit 7B**, pdf p. 2341). **Attached Exhibit 6** is a modified Table 5-3 that compares the (2024) IMs to the (2021) IMs, the differences and an assessment of whether the IM is above or below the MT elevation.

This lowering of the IM elevations for the Focus RMS wells to an elevation far below the original IM elevation, which is significantly different from that of the Non-Focus RMS wells,

suggests that the Revised GSP isn't intent on correcting the conditions that caused the existing undesirable results, but instead on continuing those conditions or making them worse. Allowing the decline in the groundwater elevations within the Focus RMS well areas seems to ignore the deficiencies that DWR identified in the 2021 GSP and may possibly result in an expansion of the area of undesirable results. The Focus RMS well IM elevations being set below the lowest historic elevation may result in continued subsidence and an increase in the number of dry wells. This is alarming!

Domestic Well Mitigation Program

In the October 26, 2023 DWR letter that found the Colusa GSP incomplete, the 2021 GSP was deficient in its reasoning for setting MTs that allow at least 20 percent of the subbasin's domestic wells, 700 wells, to be dewatered (p. 12, pdf p. 40). The DWR staff report stated that:

> *The GSAs have proposed minimum thresholds that will allow at least 20 percent of the Subbasin's 3,500 domestic wells[63] (700 wells) to be dewatered. The GSAs have not explained how it was determined the current and projected well outages in the Subbasin are not considered an undesirable result, even though those conditions appear to meet the definition of an undesirable result provided in the GSP (i.e., "sustained groundwater levels are too low to reasonably satisfy beneficial uses and users within the Subbasin"). Department staff conclude the GSAs must reevaluate and clearly define and provide its rationale for when undesirable results occur in the Subbasin, based on a thorough consideration of the interests of beneficial uses and users of groundwater, as required by the GSP Regulations (see Corrective Action 2a).*

Corrective Action 2a requires, in part, that the revised GSP:

> *Refine the description of undesirable results to clearly describe the significant and unreasonable conditions the GSA is managing the Subbasin to avoid. This must include a quantitative description of the negative effects to beneficial uses and users that would be experienced at undesirable result conditions.[75] The GSA should fully disclose and describe and explain its rationale for determining the number of wells that may be dewatered and the level of impacts to groundwater dependent ecosystems that may occur without rising to significant and unreasonable levels constituting undesirable results. Lastly, the GSA should explain how potential alternate supplies of water or well mitigation will be considered by the GSA during its management of the Subbasin in a project or management action as part of the GSP. Department staff also encourage the GSAs to review the Department's April 2023 guidance document titled Considerations for Identifying and Addressing Drinking Water Well Impacts.*

In response to DWR's concerns about the dewatering of domestic wells, the Revised GSP proposes to establish a Domestic Well Mitigation Program (Section 6.3.7 p. 6-61, pdf p. 446). This program is supposed to start no later than January 2026. The Revised GSP isn't clear on what mitigation the GSAs will undertake until then, if any, for domestic wells that have gone dry or will go dry and whether cessation of pumping would be considered before the program starts

in January 2026 (Table 6-19, p. 6- 63, pdf p. 448). There is some information in the Domestic Well Impact histograms in Appendix A of the Revised GSP's Appendix 5E (pdf pp. 2730 through 2778) that shows the number of domestic wells per ten-foot depth intervals relative to the revised MT and IM elevations. The legend in these histograms shows the number of wells that have depths shallower than the listed 2024 threshold depth.

For example, the Focus RMS well 22N03W24E002M shows that a high percentage of the 932 domestic wells in the Thiessen polygon around that well are shallower than the revised MT elevation of 119.9 feet, **Exhibit 8** (p. A-49, pdf p. 2778). However, the number of wells that will be impacted by the revised 2024 MT is set at zero (n = 0). At the revised IM elevation of 110.6 feet, the number of wells that might be impacted is 9 (n = 9). At the lowest elevation cited in the graph, 69.9 feet, the number of wells that might be impacted is 50 (n = 50). ***Setting the number of wells impacted by the revised MT at zero suggests that the Revised GSP doesn't consider the wells that have been impacted prior to January 2024 as being eligible for the mitigation program***. In fact, the description of the Domestic Well Mitigation Program states that the Program's mitigation may benefit up to an estimated 166 drinking water wells during the GSP implementation period, presumably from now until 2042 (p. 6-67, pdf p. 452). **Given the number of wells, 932, in the area surrounding just one Focus RMS well, 22N03W24E002M, and the fact that most of those wells appear to be shallower than the revised MT and IM, it seems that the Revised GSP plan to mitigate only 166 domestic wells from now until 2042 is insufficient to mitigate the known and potential loss of domestic wells due to the GSA's management of the Subbasin.**

Attached Exhibit 6 provides a modification of Revised GSP Table 5-3 with tabulation of the potential impacts to domestic wells in each of the 48 RMS well Thiessen polygons based on the revised MTs and IMs. The table compares the potential impacts from the 2021 GSP sustainability criteria with the revised 2024 criteria. The number of domestic wells that might be impacted are taken from the legends of the Appendix A of Appendix 5E histograms. The page number for the histogram for each RMS well is listed in column A. Exhibit 5 shows that even though the MT elevations for all but two of the 48 RMS wells increased with the 2024 GSP revision, see column E in Exhibit 5, the IM elevations for the Focus RMS all declined, highlighted values in column H of Exhibit 6, making all of the Focus well IMs below the MTs, highlighted values in column I. The consequences of lowering the Focus well IMs elevations below the MTs is that **approximately 74 out of an estimated 102 domestic well are predicted to be dewatered** by the revised IM sustainability criteria are in the Focus well Thiessen polygons! This is in contrast to zero Focus wells being impacted by the revised MT elevations.

The reasoning for setting the revised IMs at the Focus RMS wells is explained in the Interim Milestones Section 5.4.1.4 (pp. 5-42 and 5-43, pdf pp. 370 and 371) as:

> *The GSAs recognize that different groundwater conditions have occurred historically at the Focus and Non-Focus RMS wells, and that those differences persist under current conditions. Recognizing these differences, the GSAs have defined separate interim milestones for the Focus and Non-Focus RMS wells to provide a realistic, achievable glidepath from current groundwater conditions to the measurable*

objectives at each RMS well. The interim milestones for chronic lowering of groundwater levels are described below and shown in Table 5-3.

Undesirable results have occurred in areas around the Focus RMS wells, particularly during the 2020-2022 period. Although groundwater level data in 2023 shows varying levels of recovery throughout most of the Subbasin (i.e., higher groundwater levels compared to 2020-2022), groundwater levels at the Focus RMS wells remain generally below their measurable objectives.

The GSAs understand that it will take time for groundwater conditions in the Subbasin to stabilize at the measurable objectives at all RMS wells, particularly the Focus RMS wells, while PMAs are being developed and implemented to address overdraft, groundwater level decline, and subsidence. Notably, the GSAs have committed to actively refining and implementing a demand management program (should undesirable results persist beyond January 2027) alongside other PMA efforts, ensuring that there is a backstop and a means of mitigating overdraft and addressing undesirable results in the Subbasin if there are delays or challenges to implementing other planned PMAs.

The GSAs have determined that these interim milestones provide a realistic, achievable glidepath from current groundwater conditions to the measurable objectives. If groundwater levels reach the 2027 interim milestones, the GSAs acknowledge that there may be an additional 67 drinking water well impacts that would need to be mitigated under the domestic well mitigation program (Table 5-4). However, it is noted that the groundwater levels at most Focus RMS wells recovered above the minimum threshold in 2023, and the GSAs do not intend or plan to draw groundwater levels down to the 2027 interim milestones. Rather, these interim milestones have been established recognizing that persistent groundwater level decline has occurred for many years at these RMS wells, and while the GSAs are working diligently to develop and implement PMAs – including demand management – to address groundwater level decline, it is possible that drought conditions may return and lead to groundwater level declines again before PMAs – including demand management – are fully implemented.

The Revised GSP Table 5-4 (p. 5-38, pdf p. 366) provides a count of the domestic wells that will be impacted if groundwater levels fall below the 2020-2022 levels with 99 wells impacted at the MTs and an additional 67 wells when at the IMs for a total of 166 wells. **Exhibit 6** suggests that the number of impacted wells based on the Appendix A of Appendix 5E histograms may be slightly higher at 176 (102 at the MTs plus 87 at the IMs minus the 13 at the Non-Focus IMs).

What is important to understand is that the reasoning being used in the Revised GSP to set the Focus RMS well Thiessen polygons revised IMs is that the undesirable results from the overdraft can continue at least until 2027 because the baseline for groundwater levels has been reset to the lowest levels in the years 2020-2022, not the SGMA start date for mitigating undesirable results of January 1, 2015 (WC 10727.2(b)(4)). The Revised GSP does

say that should the overdraft continue beyond 2027, then a "Demand Management Program" would be implemented, Section 6.3.2 (pp. 6-53 to 6-60, pp. pdf 438 through 445). However, this effectively ignores the GSAs' failure to date to manage the subbasin to the 2021 sustainability criteria, which has now resulted in groundwater levels in 18 of the 48 Thiessen polygons becoming undesirable.

There is an alternative source for information about the risk of domestic wells going dry at DWR's Dry Domestic Well Susceptibility GIS within Groundwater Basins Dashboard,[5] a web-based interactive mapping tool. DWR describes this web-based search tool as:

> *This dashboard and the underlying analysis provide a density map of domestic wells that are susceptible to going dry if recent groundwater trends continue. The map can be used to evaluate the relative density distribution within groundwater basins. However, the map should not be used to estimate the absolute number of domestic wells that are susceptible to going dry for any area or groundwater level scenario. While the applied groundwater level scenario is based on best available datasets, the scenario is hypothetical, and is chosen to resolve regional differences in the density of domestic wells that are susceptible to going dry. Available groundwater level data are interpolated and projected to domestic wells locations…..*

The Dry Domestic Well Susceptibility Dashboard provides information on the domestic wells in each Public Land Survey System (PLSS) Section including the number of wells, and the estimated number of wells susceptible to going dry. Attached Exhibit 9A is a table that lists the statistics for the PLSS sections surrounding the City of Orland that includes the RMS wells, 22N03W24E002M or 22N02W30H003M, and the sections where DWR has estimated have an 80 to 90 percentile risk of dewatering. Attached Exhibits 9B is a screen captures of these sections and Exhibits 9C and 9D are two figures with the dry well susceptibility statistics. Even though the susceptibility statistics are rough estimates of the risk from future conditions, the sum of number of susceptible wells in just the twelve higher risk sections around the City of Orland is 286 domestic wells. This value is significantly greater than the 166 domestic wells the Revised GSP is planning to mitigate for the entire Colusa Subbasin.

In addition to the disparity in the potential dry well count, the Revised GSP appears to establish criteria for the Focus RMS well Thiessen polygons that result in zero domestic wells having an undesirable result when the groundwater level declines to the polygon's 2024 MT. The Attached Exhibit 6 is a modification of Revised GSP Table 5-3 that has data on the number of domestic wells that may be impacted based on the histogram in Appendix A of Appendix 5E. Column K in Exhibit 6 lists the number of wells that could be impacted when the groundwater level declines to the 2024 MTs, and column L the wells for the 2024 IMs. Note the differences between the Non-Focus and Focus RMS wells. The Revised GSP apparently has established criteria that result in 102 domestic wells going dry at the MTs with all of them being within the Non-Focus

[5] https://www.arcgis.com/apps/dashboards/f876cfa53ce3466c8b3778e7f4adb50e

RMS well Thiessen polygons. For the Focus RMS well Thiessen polygons the Revised GSP is designed so that no wells go dry at the MTs but up to 74 additional wells are expected to go dry should groundwater levels decline to the IM elevations.

The IM elevations for the Focus RMS wells appears to be set to effectively remove the current stigma of being an undesirable result because the revised 2024 MT is now at the lowest elevation in 2020-2022, and the 2027 IMs are set at a lower elevation. Exhibit 6 shows that for the Focus RMS wells the IM elevations are set at elevation ranging from approximately 14 to 179 feet below the 2021(2027) IM, column H, and approximately 6 to 26 feet below the revised 2024 MT elevations, column J. The reasoning for Focus RMS well IMs being lower than the respective MTs is apparently because the elevation is set as the elevation below the minimum threshold determined by the last 20-year rate of groundwater elevation change, Table 5-4 (p. 5- 38, p. pdf 366). The Revised GSP description of the calculation of the Focus RMS well IMs as:

> *Recognizing uncertainties in hydrology and water supplies between now and 2027, and recognizing the GSAs' commitment to demand management, the GSAs have defined the interim milestones for the Focus RMS wells as follows:*
>
> - *2027: A level below the minimum threshold determined by the last 20-year rate of groundwater elevation change at the RMS well (i.e., minimum threshold – 5 years x (2004- 2023 average feet/year)). If 20 years of data is not available at the RMS well, the 2027 interim milestone is calculated using the average 20-year rate of groundwater change for surrounding RMS wells.*
>
> - *2032: Interim milestone is equal to the minimum threshold*
>
> - *2037: Interim milestone is 50% between the minimum threshold and the measurable objective (p. 5-43, p. pdf 371).*

Apparently the Revised GSP sustainable management criteria for the Focus areas assumes that the groundwater levels won't rise to the Focus MOs before 2042.

The disparity between the Revised GSP Non-Focus and Focus RMS well Thiessen polygons as well as DWR's Dry Domestic Well Dashboard estimates of potential dry domestic wells heightens our concerns that the Revised GSP still isn't providing a clearly reasoned justification for how the revised MTs and IMs will protect the beneficial uses of domestic well owners and failing that provide reasonable actions to fully mitigate the dewatered wells in the Colusa Subbasin that go dry before the start of the Domestic Well Mitigation Program in 2026. We recommend in keeping with requirements of DWR's Corrective Action 2 that the GSP clearly: (1) explain the analysis and reasoning that was used to calculate the number of wells that might be dewatered by the Revised MTs and IMs (p. A-2 through A-49 in Appendix A of Appendix 5E; pdf pp. 2730 through 2778); (2) compare the Revised GSP dry well count to DWR's dry well susceptibility well count; (3) clearly explain why the wells that are shallower than the revised

MTs elevations shouldn't be part of the Domestic Well Mitigation Program; and (4) explain the reasoning for not mitigating wells that go dry before 2026.

Demand Management Program

The description of the mitigation actions of Demand Management Program includes voluntary and adaptive mandatory measures. The voluntary measure can start to be implemented now but the adaptive mandatory measures to arrest the overdraft don't need to be established until 2027. In the list of actions needed for the *implementation considerations and protocol for phased adaptive implementation measures* is a task called *[d]etermination of an appropriate transition period from current to sustainable conditions (prior to 2042), considering uncertainties of the basin setting and of the timelines for other projects.* **This suggests that even with a fully functioning Demand Management Program in 2027 the overdraft conditions in the Focus Thiessen polygons can continue perhaps until 2042, especially when the Focus IMs are considered.**

In addition to the uncertainty that the Demand Management Program will be developed and/or the Domestic Well Mitigation Program will assist those that have lost a well due to the GSAs' management efforts, the Memorandum of Understanding for each program in Appendices 6E and 6F (pdf pp. 2860 through 2882) contain conditions that appears to be designed to create hold harmless agreements for the GSAs with language like:

> *The Parties agree that neither SGMA nor this MOU make the GSAs responsible for injury from overdraft (i.e., the GSAs do not extract groundwater), nor do they require or assign any liability to the GSAs to provide, ensure, or guarantee any level of water quality or access.* (Appendix 6E, p. 6, pdf p. 2866, and Appendix 6F, p. 5, pdf p. 2876)

> *The Parties agree that, under SGMA, GSAs do not have the authority to modify or otherwise change groundwater rights. Additionally, the Parties agree that neither SGMA nor this MOU make the GSAs responsible for injury from overdraft (i.e., the GSAs do not extract groundwater), nor do they require or assign any liability to GSAs to provide, ensure, or guarantee any level of water quality or access.* (Appendix 6E, p. 4, pdf p. 2864).

This disclaimer language calls into question whether the GSAs will actually manage the Colusa Subbasin to halt the overdraft and the resultant declining groundwater levels or just continue with things as usual given the belief that there is no liability from their actions. **This raises a procedural question about DWR's approval of the Revised GSP. Should DWR approve the Revised GSP with these mitigation programs as described does that mean that the State of California agrees that the apparent hold harmless language in the Colusa GSP is valid and legally binding on the groundwater users in the Colusa Subbasin? If this is the case, does that mean the State of California through DWR and/or the SWRCB will assume liability for the GSAs' management actions?**

F. Management Actions

The Revised Plan speaks somewhat confidently in parts, such as: "The GSAs' extensive portfolio of additional PMAs will be informed by continued monitoring of groundwater conditions and implemented, as needed, to achieve and maintain long-term sustainable groundwater management." (p.6-3) However, what follows are some acknowledgements of the serious conditions in the Colusa Subbasin.

- The model is inadequate.[6]
- "Based on analyses of observed changes in groundwater levels and estimated changes in groundwater storage, the GSAs have estimated the current overdraft in the Subbasin the [sic] be approximately 62 taf/year over the 2016-2021 period (see Section 3.3.6)."[7]
    - DWR reached *very different* conclusions: "Since the GSP submittal, annual report data submitted to the Department demonstrates that groundwater storage within the Subbasin has ***dramatically decreased***, deviating from the values reported in the GSP for the historical and projected water budgets. Specifically, the overdraft reported for water year (WY) 2021 (which represents change between October 1, 2020, and September 30, 2021) was -418,000 acre-feet and -377,170 acre-feet for WY 2022.[45] Combined, these values represent a ***loss of storage of over 795,000 acre-feet in just a two-year period, which is more than double the anticipated overdraft predicted over the 50-year implementation horizon***. Department staff recognize WY 2021 and WY 2022 were critically dry years; however, the magnitude of the loss of storage observed during these two years is significantly greater than the average value provided in the historical water budget of -166,000 acre-feet for the previous critically dry water year types, indicating that overdraft is increasing.[468] " [emphases added]
- "In addition to overdraft concerns, recognize that undesirable results have occurred or may occur in the future with regard to groundwater the GSAs also level decline and subsidence." [sic] (p. 6-3)

Sadly, the energy and commitment to address the known challenges are lacking – in the 2021 GSP as well as the Revised GSP (which uses a majority of the 2021 GSP text). The Revised GSP may contend that "The GSAs have expressed a clear and firm commitment to develop and implement these Programs on a clear and specific timeline to address and prevent overdraft, groundwater level decline, and subsidence and to mitigate potential undesirable results for drinking water well users during the GSP implementation period," but will delay domestic well mitigation until it writes a plan by January 2026 and demand management implementation until January 2027 ***if*** it is still needed and they have a program in place. The "clear and firm

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[6] "Although water budget estimates developed using the C2VSimFG-Colusa model do not indicate that appreciable changes in groundwater storage will occur, on average, over the simulated current and future conditions scenarios (Table 3-12), the GSAs recognize that persistent groundwater level decline and groundwater storage reduction have occurred in parts of the Subbasin in recent years that may not be fully represented in the C2VSimFG-Colusa model assumptions, calibration, and results. The GSAs recognize that these conditions are indicative of overdraft concerns in the Subbasin." p. 6-3.

[7] *Id.*

[8] DWR, 2023. *Sustainable Groundwater Management Program Groundwater Sustainability Plan Assessment Staff Report* [Colusa Subbasin]. pp. 8.

commitment" is just big talk for a Subbasin with people and the environment in deep trouble as AquAlliance demonstrates in these comments. Future plans, programs, monitoring, reporting, "preparing to implement," "evaluation of groundwater conditions," "overdraft concerns," mean nothing when "In particular, the GSAs have identified declining groundwater levels over the past 15 to 20 years in the Orland-Artois and Arbuckle- College City areas." (p. 6-3) Who do the GSAs, power brokers in the Subbasin, local government, and the State of California think they are fooling?!

Close Data and Reporting Gaps

The Revised GSP discusses the existing data gaps and uncertainties in multiple sections, 3.1.12, 4.2.1.4, 4.2.2.4, 4.2.3.4, 4.2.4.4 among others and provides multiple plans for further evaluation and to address data gaps. One data gap document that doesn't appear to be included in the Revised GSP is a November 2022 work plan submitted as Appendix D with the April 2023 2021-2022 Annual Report titled: *Colusa Subbasin Hydrogeologic Investigation Work Plan* prepared by Davids Engineering and West Yost. The stated purpose of this hydrogeologic investigation work plan (Work Plan) was to support the planning and implementation of five hydrogeologic investigations that are needed to fill the data gaps identified in the GSP and advance the projects and management actions. The Work Plan included three figures, **attached as Exhibits 10A, 10B and 10C**, a table, **attached as Exhibit 10D** that lists ten proposed shallow groundwater monitoring sites to fill the data gaps in domestic groundwater supply, interconnected streams and groundwater dependent ecosystems. While the Revised GSP has extensive discussions of the data gap needs, it doesn't appear to incorporate the recommendations of this 2022 Hydrogeological Investigation Work Plan. **We recommend that DWR evaluate the recommendations in the November 2022 Work Plan and require that them be implemented, where appropriate.**

In addition to the data gaps identified in the Revised GSP and the November 2022 Hydrogeological Investigation Work Plan, the Revised GSP doesn't address inconsistencies in the reporting and analysis of groundwater levels taken in the Groundwater Level RMS monitoring wells and the Interconnected Stream and Groundwater Dependent Ecosystem RMS monitoring wells.

The Colusa Subbasin GSAs have submitted three Annual Reports for WY 2012, WY 2022, and WY 2023. Table 1-1 in each annual report is a summary of the spring and fall groundwater level measurements in the 48 RMS network wells. In each year there are monitoring wells that apparently can't be monitored, or at least no measurements were reported in at least one season. In WY 2021, 6 RMS wells are unreported, in WY 2022, 18 wells, and in WY 2023, 10 wells. In the WY 2023 Annual Report, a footnote 4 of Table 1-2 states that 3 of the RMS well haven't been monitored in the last 5 years or more, but the adequacy of these wells and all other RMS wells will only be evaluated as part of the 2027 GSP evaluation. The lack of reporting of the other RMS wells is apparently due to accessibility issues and well pumping, 2023 report Table 1-2,k footnote 3. **One would assume that the consistent inability to take measurements in any RMS well would significantly impact the validity of the GSP RMS well monitoring network, especially because each of the RMS wells represents the groundwater conditions across the entire Thiessen polygon.**

We recommend that DWR require that the Revised GSP identify one or more alternative RMS monitoring wells within each Theissen polygon that can be a substitute well for groundwater elevation measurements whenever there are any accessibility issues with the primary RMS wells. We also recommend that DWR require that a correlation be established between the primary RMS wells and any alternative monitoring wells so that an estimate of groundwater elevation at the primary RMS well can be made whenever it's inaccessible. We also recommend that RMS wells that consistently can't be monitored be replaced today, not in 2027.

In addition, the primary RMS wells being inaccessible, groundwater level measurements for the Interconnected Surface Water (ISW) RMS wells have only been reported in one year, the Annual Report for Water Year 2023. In the WY 2023 Annual Report, the seasonal highs and lows for the twelve ISW RMS wells are presented in a separate table, Table 6-4 (p. 44). In the Annual Reports eight of the twelve ISW RMS wells are the same as the Groundwater Level RMS wells, so those groundwater level measurements were provided, just not analyzed relative to the ISW sustainability criteria. The failure to report and analyze the ISW RMS well measurements means that the GSAs aren't tracking impacts to surface waters and groundwater dependent ecosystems. For example, **attached Exhibit 11** has three hydrographs taken from DWR's CASGEM website for three monitoring wells in the northern portion of the Subbasin just east of the City of Orland. Two of the wells are part of the GSP RMS monitoring networks, 22N03W24E002M is one of the 48 Groundwater Level RMS wells, and 22N03W24E003M is one of the 12 ISW RMS wells. The approximate elevations of the MOs, MTs, and IMs are drawn on the hydrographs of these two RMS wells. What is particularly important to note is that the failure to report the ISW RMS well elevations in WY 2021 and WY 2022, years with the lowest historical groundwater levels, resulted in a failure to acknowledge that the shallow groundwater levels decline below the MT elevation. The reporting of only the WY 2023 ISW elevations, which were near or above the MO, gives a false accounting of the shallow groundwater conditions at this location.

We recommend that DWR require that the Annual Reports for the Colusa GSP include the monitoring well measurements take for ISW and Groundwater Dependent Ecosystems be reported, analyzed and summarized for compliance with the sustainability management criteria.

<u>Lack of Impact Disclosure</u>
There is such a deficit of information regarding the painful realities in the Colusa Subbasin. The historic and current impacts to third parties, including the environment, are absent. The public and the regulatory agencies deserve to have a consolidated presentation of the negative impacts from lax oversight in the Subbasin from January 2015 forward:

1. How many domestic wells have been repaired, replaced, or abandoned? Where?
2. How many agricultural wells have been repaired, replaced, or abandoned? Where?
3. How many new wells have been installed, omitting replacement wells? Where?
4. Where are sink holes located? Why are sink holes not discussed in the Plan?
5. How many complaints have been received regarding sink holes and subsidence? Where?

6. Where are written responses by Colusa or Glenn counties and/or the GSAs to complaints of sink holes and subsidence?
7. Has any assistance been given to landowners with sink holes and/or subsidence damage?
8. Will the GSA compensate well owners who have had to replace or repair wells since January 1, 2015?[9]
9. How many residents and/or small farmers have lost their land and how is it tracked?
10. What are the environmental impacts?

The Revised GSP is noticeably silent on the economic consequences of injured third parties not cooperatively agreeing on harm and compensation.

Recharge

The Plan assumes that groundwater sustainability of the Subbasin will be achieved in part because Central Valley Project and other surface waters will be available for recharge. Really? The GSP fails to acknowledge that the demands on the Sacramento River hydrology will change business as usual and dreams for recharge to correct past and current abuse of groundwater. The Delta Flow Criteria developed in 2010 demonstrated the need for more stream and river flows: "Recent Delta flows are insufficient to support native Delta fishes for today's habitats.[3] Flow modification is one of the immediate actions available although the links between flows and fish response are often indirect and are not fully resolved. Flow and physical habitat interact in many ways, but they are not interchangeable."[10] The Sacramento River needs to contribute 75 percent inflow to the Delta from November through June, far above what has made it to the Delta in most years.[11]

The GSP also fails to note that groundwater recharge alters the rights to groundwater[12] and may not be a solution acceptable to Subbasin users. It also fails to demonstrate that creating the space for recharge harms groundwater dependent farms and residential property as well as streams and habitat for myriad species. Conjunctive use with recharge has long been the plan of Glenn Colusa Irrigation District and the Bureau of Reclamation – to take over the basin and manipulate it for the benefit of moneyed interests, not the local people or environment.[13], [14] Communication

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[9] Cantor, Alida, et al., 2018. UC Berkeley School of Law. *Navigating Groundwater-Surface Water Interactions under the Sustainable Groundwater Management Act*. "While this obligation may sound far-reaching, SGMA qualifies it by setting a temporal baseline. 'The plan may, but is not required to, address undesirable results that occurred before, and have not been corrected by, January 1, 2015. … [A] groundwater sustainability agency has discretion as to whether to set measurable objectives and the timeframes for achieving any objectives for undesirable results that occurred before, and have not been corrected by, January 1, 2015.'51 In other words, SGMA limits the scope of GSAs' legal responsibilities— at least under SGMA itself—to addressing post-2014 impacts—but does not limit GSA's authority to address earlier impacts (see Section IV. C of this report for further discussion of this topic)." p. 13. https://www.law.berkeley.edu/research/clee/research/wheeler/gw-sw/

[10] SWRCB, 2020. *Development of Flow Criteria for the Sacramento-San Joaquin Delta Ecosystem*. p. 5.

[11] *Id.*

[12] Los Angeles v. Glendale (1943) 23 Cal.2d 68, 76-78; Los Angeles v. San Fernando (1975) 14 Cal.3d 199, 258-60; Stevens v. Oakdale Irrigation District (1939) 13 Cal.2d 343, 352-43; Crane v. Stevinson (1936) 5 Cal. 2d 387, 398.

[13] U.S. Bureau of Reclamation, September 2006. Grant Assistance Agreement. "GCID shall define three hypothetical water delivery systems from the State Water Project (Oroville), the Central Valley Project (Shasta) and the Orland Project reservoirs sufficient to provide full and reliable surface water delivery to parties now pumping from the Lower Tuscan Formation. The purpose of this activity is to describe and compare the performance of three

to the Vina Subbasin's stakeholders clarified that "So long as the water was diverted pursuant to a valid water right prior to recharge, the recharged water would be owned by the diverter… The legal right to surface water that is imported and recharged into an aquifer is held by the project proponent… Depending upon the project scope, it could intend to export recharge water out-of-basin."[15]

Not only repeating, but expanding the mistakes made in the Owens, San Fernando, and San Joaquin valleys is not in the best interests of the Colusa Subbasin's communities, businesses, groundwater dependent farms, and the environment. **Demand management, not water sleight of hand, is essential and must be required immediately!**

G. Water Transfers and Conjunctive Use

The Colusa GSAs must not assume that local ordinances will in any way protect the population and environment of Glenn and Colusa counties from transfers and expanded conjunctive use. Historic facts and current proposals by DWR funded think tanks belie this:

- Water transfers are not protective of the public or the environment. Transfers implement the dreams of the California's Department of Water Resources, the U.S. Bureau of Reclamation, and State Water Project and Central Valley Project water sellers who have demonstrated over decades that their interests are not the same as the public's interest. Once the state recognized that they were considerably short on water after former Governor and President Ronald Reagan protected North Coast rivers with Wild and Scenic status, it began trolling for other water sources.
    - Some of the Butte GSA entities in Butte County sold surface water from Oroville Reservoir to the 1994 Drought Water Bank.[16] This led to an increase in groundwater withdrawals used for irrigating rice, called groundwater substitution transfers. Until the time of the water transfers, groundwater levels had sustained the normal demands of domestic and agricultural users in the region. The 1994 extractions, however, caused the water levels to suddenly fall in shallow domestic wells, water quality to deteriorate in the wells serving the town of Durham,

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alternative ways of furnishing a substitute surface water supply to the current Lower Tuscan Formation groundwater users to eliminate the risks to them of more aggressive pumping from the Formation and to optimize conjunctive management of the Sacramento Valley water resources." (p. 5)

[14] *Id.* GCID's actual purpose is best expressed using their own words: to "…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;…" (p. 6)

[15] Gosselin, Paul and Valerie Kincaid, 2020. Memo to the Vina Stakeholder Advisory Committee. *Re: Legal Implications of Potential Projects and Management Actions*. p.3.

[16] Thomas, Gregory, 2001. Designing Successful Groundwater Banking Programs in the Central Valley: Lessons From Experience. "The Butte County/Basin districts that increased groundwater pumping during the 1991 State Drought Water Bank included: Western Canal Water District, the Joint Water Districts Board (Richvale Irrigation District, Biggs-West Gridley Water District, Butte Water District, and Sutter Extension Water District) Ramirez Water District, Cordua Irrigation District, Hallwood Irrigation Company, and Browns Valley Irrigation District." p. 30. "Participants in the 1994 State Drought Water Bank were Richvale Irrigation District, Western Canal Water District, Browns Valley Irrigation District, Cordua Irrigation District, and Ramirez Water District." p. 30.

irrigation wells to fail on several orchards, and one farm to enter bankruptcy because it didn't recover from the loss of its crop. Harmed farmers and residents were told to, "Go hire an attorney."

- State and federal water agencies kept exploring how to manipulate groundwater systems during the 1990s to set up conjunctive use programs. CalFed was one such effort. **"**Potential projects at Stony Creek, Butte Basin, and the Cache-Putah Basin (Conaway Ranch) were eliminated because these aquifers are generally full. *Using these aquifers conjunctively would require initial extraction followed by active or passive recharge*. These may prove to be attractive projects in the future if potential third-party impacts are addressed adequately."[17] (emphasis added)
- Additional CalFed material recognized that conjunctive use will require an extra 100 feet of aquifer drawdown and "may be an issue." [18]
- Glenn Colusa ID received close to $3,000,000 of public money to study the Stony Creek Fan Conjunctive Water Management Program and Regional Integration of the Lower Tuscan Groundwater formation project. "GCID shall define three hypothetical water delivery systems from the State Water Project (Oroville), the Central Valley Project (Shasta) and the Orland Project reservoirs sufficient to provide full and reliable surface water delivery to parties now pumping from the Lower Tuscan Formation. The purpose of this activity is to describe and compare the performance of three alternative ways of furnishing a substitute surface water supply to the current Lower Tuscan Formation groundwater users to eliminate the risks to them of more aggressive pumping from the Formation and to optimize conjunctive management of the Sacramento Valley water resources."[19]
- Glenn Colusa ID, Western Canal WD, and Richvale ID actively planned to implement conjunctive use schemes: "Ultimately the project evaluated the effects of exercising both the northern Sacramento Valley's deep aquifer system, which is presently relatively undeveloped, and the shallower, regional aquifer, which is more heavily pumped for both domestic and agricultural needs."[20] "The project could be operated to obtain additional annual yield through classic conjunctive use, or the program could be operated on a longer cycle like a classic water bank."[21] The potential change in water rights for overlying landowners is not disclosed.

- Think tanks are already encouraging the California Legislature to override local ordinances. "Once GSAs establish sustainability plans that address undesirable impacts of pumping, it should be possible to ease the coarser restrictions on this practice found in

[17] CalFed Bay Delta Program, 1999. *Conjunctive Use Assessment*. p. 6.
[18] CalFed Bay Delta Program. Groundwater Storage Attribute Matrices, Appendix B. p. B-5.
[19] U.S. Bureau of Reclamation, *2006. Grant Assistance Agreement.* p. 5.

[20] Glenn Colusa ID, et al, 2012. *Feasibility Investigation of Re-Operation of Shasta and Oroville Reservoirs in Conjunction with Sacramento Valley Groundwater Systems to Augment Water Supply and Environmental Flows in the Sacramento and Feather Rivers*. p. ii.
[21] Natural Heritage Institute, 2005. *Regional Integration of the Lower Tuscan Groundwater Formation into the Sacramento Valley Surface Water System Through Conjunctive Water Management.* p. 3.

> most county ordinances—which effectively preclude trades if they entail water leaving the county. If counties with restrictive groundwater export ordinances fail to amend their laws to conform to SGMA*, the legislature should consider preempting local laws that discriminate against out-of-county uses or place undue burdens on groundwater and groundwater-substitution transfers* that would not jeopardize sustainable groundwater management of the source aquifer."[22] (emphasis added)

Sustainability is not found in the Colusa GSP, let alone *equitable* sustainability for all residents, farms, businesses, and the environment. The Colusa and Butte GSAs are dominated by large, local as well as non-residential landowners, many of whom have sought to play in the lucrative water market already to the detriment of their neighbors, streams, rivers, and species. Sadly, SGMA opened this door further: "Non-residential landowners and future banking partners may find it in their common interest to interpret the legislative intent (74)[23] and lax definitions of safe yield and overdraft provided in the Act (75)[24] based on the opinion in *Los Angeles v. San Fernando*, which encourages drawing down basins to create additional storage space and prevent water "wasting.[76]"[25] Thus, in addition to exports, it is foreseeable that future GSAs will encourage drawdown of the aquifer to satisfy massive crop thirst as a drought continues, which will then create extra storage space for imported waters to "recharge" the Basin.

As a result of the GSP's failure to curb demand, future water exchanges, and banking, local residents and long-time groundwater dependent farmers will bear the additional cost of digging deeper wells just to maintain their straws in the aquifer. They will increasingly compete with each other over a diminishing percolated supply while banked supplies increase. Unless the Colusa GSP is radically altered, losing overlying rights to groundwater with years of water banking and recharge could be the death blow for the NorthState, as it was to people in the San Fernando Valley.

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[22] Ayres, Andrew, et al., 2021. *Improving California's Water Market: How Water Trading and Banking Can Support Groundwater Management*. p. 34.

[23] Keats, Adam et al., 2016. *Not All Water Stored Underground is Groundwater: Aquifer Privatization and California's 2014 Groundwater Sustainable Management Act*. Footnote: *2014 Act, § 10720.1(g) (It is the intent of the Legislature "[t]o increase groundwater storage and remove impediments to recharge.").* p. 106.

[24] *Id. Footnote: 2014 ACT, § 10721(v) ("Sustainable yield" is defined as "the maximum quantity of water, calculated over a base period representative of long-term conditions in the basin and including any temporary surplus, that can be withdrawn annually from a groundwater supply without causing an undesirable result."); 2014 ACT, § 10735(a) ("Condition of long-term overdraft" means the condition of a groundwater basin where the average annual amount of water extracted for a long-term period, generally 10 years or more, exceeds the long term average annual supply of water to the basin, plus any temporary surplus. Overdraft during a period of drought is not sufficient to establish a condition of long-term overdraft if extractions and recharge are managed as necessary to ensure that reductions in groundwater levels or storage during a period of drought are offset by increases in groundwater levels or storage during other periods.").*

[25] *Id. Los Angeles v. San Fernando 14 Cal. 3d 199, 280 (1975) ("We agree with plaintiff that if a ground basin's lack of storage space will cause a limitation of extractions to safe yield to result in a probable waste of water, the amount of water which if withdrawn would create the storage space necessary to avoid the waste and not adversely affect the basin's safe yield is a temporary surplus available for appropriation to beneficial use. Accordingly, overdraft occurs only if extractions from the basin exceed its safe yield plus any such temporary surplus.").*

H. Conclusion

The purpose of a GSP is to facilitate the achievement of a basin's sustainability goal (Water Code § 10727(a)), which is the "implementation of measures targeted to ensure that the applicable basin is operated within its sustainable yield." (Water Code § 10727(u).) Unfortunately, the 2021 GSP allowed and the Revised GSP here continues to allow undesirable results to occur. The Plan asserts that, "[t]he GSAs have a clear and direct strategy for addressing overdraft, groundwater level decline, and subsidence in the Subbasin, and a plan for adapting and responding to any future changes to groundwater conditions," yet there isn't even a thought about addressing the impacts to the Colusa Subbasin since 2015. The Revised GSP seeks more delay to implement actions and to reset the baseline for subsidence. The creation of a domestic well mitigation program isn't expected until January 2026 and a demand management program will be further delayed until January 2027 "if undesirable results are still occurring in the Subbasin." (p. 6-2) DWR's conclusion that "The GSAs do not appear to have an urgency to implement the necessary projects and management actions to mitigate overdraft and Department staff are concerned that continued overdraft will exacerbate the current problems the basin is experiencing, which include dry wells and worsening land subsidence" was correct when it was written October 16, 2023, and it is still true eight months later with the Revised GSP. The GSAs are failing under SGMA, but even more importantly, failing the people, the land, and the environment in Colusa and Glenn counties and the region.

Respectfully submitted,

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2.5.1 Responses to AquAlliance, California Sportfishing Protection Alliance, and California Water Impact Network Comments

Comment Code	Response
AA-1	Thank you for your comment. The responses to your specific CEQA comments follow with initial statements addressed here. The proposed project does not facilitate water transfers, does not deprive the Delta of any inflow that would be otherwise available, and is not part of the Delta Conveyance Project. Regarding the completeness of the Project Description, please refer to Global Response 1. The DEIR includes a vicinity map that shows the location of SRSC[10] service areas (Figures ES-1 and 1). As disclosed in the DEIR, various water reduction activities and drought-resiliency projects would occur throughout the SRSC service area; however, their specific locations and the locations of temporarily impacted areas such as equipment staging areas, access routes, and haul roads are unknown at this time. The DEIR (page ES-14) does not state that the cumulative impacts to hydrology and water quality were not considered; it states that the analysis found that cumulative impacts would not be cumulatively considerable. All NOP comments were carefully considered as part of developing the DEIR. As discussed in Global Responses 2 and 3 and specifically in the following responses to comments, the subjects of subsidence, GDEs, ISW, and groundwater substitution were all considered in the analysis, and as the responses substantiate, environmental impacts were adequately addressed in the DEIR.
AA-2	Please refer to Global Response 1. Contrary to the comment, the project description is not vague, and it provides a level of detail that allows for meaningful assessment of potential impacts consistent with the requirements of CEQA. As disclosed in the DEIR, through existing contracts and agreements, Reclamation can reduce water deliveries to the SRSC and other contractors by set amounts. For the SRSC, this occurs during pre-defined "Shasta Critical Years." These existing water reductions are baseline conditions. The proposed project is an Agreement between the SRSC and Reclamation under which the SRSC would agree to forego a larger percentage of their contracted water during specified drought years and to develop drought-resiliency projects. The precise quantities of existing reductions and project reductions are quantified and presented in Table 3 of the DEIR. The following objectives presented in the DEIR are directly linked to the core objectives of the Agreement: • *"Approve and facilitate reduced water contract supply to the SRSC during specified drought years to address water shortages at Shasta Lake in accordance with the Agreement and generally meet existing municipal, agricultural, and habitat demands from 2025 to 2045.* • *Develop implementable and supplemental drought-resiliency projects to strengthen the resilience of the SRSC's water systems and long-term water delivery capabilities."*
AA-3	Contrary to the comment, the project description is consistent with 14 CCR 15124. The proposed project is an Agreement between the SRSC and Reclamation to forego a larger percentage of their existing contracted water supply in specified drought years and to develop drought-resiliency projects. The DEIR provides details on what types of activities the SRSC would engage in because of the reduced contracted water supplies (Section 2.5.1) and what drought-resiliency projects would be

[10] For ease of reading, the FEIR refers to "the SRSC" or "contractors" interchangeably.

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	developed (Section 2.5.2). Section 3 analyzes the reasonably foreseeable environmental impacts associated with such activities based on all information currently available. As the document discloses, additional details regarding the water supply reductions or response actions that would result from the Agreement are not further specified because they are variable, would occur in the future, and are unknown at this time. Therefore, Agreement participants may choose to do a combination of cropland idling, crop shifting, groundwater pumping, and/or conservation, which precludes exact certainty; accordingly, these activities are analyzed with the level of detail possible based on current information. CEQA Guidelines do not require that an EIR predict (or speculate) specifically where an activity would occur, or when it would occur, if those details are not reasonably foreseeable based on available evidence. The answers to such questions require speculation, which CEQA discourages (see CEQA Guidelines Section 15145).
AA-4	The DEIR correctly describes the action as a project and defines the project as an Agreement. The DEIR is not a Program EIR. The DEIR also provides adequate information on the mechanisms of the Agreement to provide for an assessment of the likely direct and indirect physical effects to the environment that would result. As described in Section 2.4 of the DEIR, the Agreement reductions are triggered by specified conditions during drought years, which may occur within a series of drier years such as during a multiyear drought sequence and requires up to the water reductions quantified in Table 3 of the DEIR. Contract supply reductions made available through use reduction activities would remain in and contribute to storage volumes in Shasta Lake to meet carryover targets. The SRSC's use of their contract supplies is tracked monthly by Reclamation and provided on water account records they provide to each SRSC. These monthly quantities are based on measured diversions, most of which would meet the accuracy, frequency, and telemetry requirements of SWRCB under the SRSC's water rights. Annual water right reports are available publicly on SWRCB's website. The monthly quantities by the largest SRSC are posted online in Reclamation's Table 28, available on its website. This clarifying information has been added to the FEIR. CEQA requires that an EIR disclose, analyze, and mitigate the reasonably foreseeable environmental impacts of the project. The EIR complies with this mandate by accurately forecasting what circumstances may arise under the Agreement and disclosing the environmental impacts of those potential circumstances.
AA-5	Please refer to the response to comment AA-3. The CEQA Guidelines do not require that an EIR predict (or speculate) specifically where an activity would occur, or when it would occur, if those details are not reasonably foreseeable. The answers to such questions require speculation, which CEQA discourages (see CEQA Guidelines Section 15145). The DEIR, however, provides sufficient information on the scope of the proposed drought-resiliency projects to present a meaningful analysis of impacts, propose mitigation, and consider potentially feasible alternatives. Specific comments regarding drought-resiliency projects are addressed in the following responses.
AA-6	Sections 2.5.2.1 to 2.5.2.9 of the DEIR provide details on proposed drought-resiliency projects expected to be implemented as part of the proposed Agreement. Because specific resiliency projects have not yet been identified, details regarding design, scope, and locations remain undefined at this time, and it would be speculative to present such information. However, an assessment of potential impacts was completed consistent with 14 CCR 15124 and 15126. An exact location is not needed to conduct an analysis of potential project impacts in compliance with CEQA. The analysis in the DEIR identified and considered ways that the specific location or construction time frame could influence the extent or magnitude of the impact and then identified mitigation measures that would be

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	imposed if a project element were located in areas or during periods where such mitigation would be needed. For example, the DEIR discloses that migratory birds nest throughout the project area and that if a project element were to be implemented or constructed in a specific area with active nesting, an impact would occur. Therefore, the DEIR includes mitigation measure MM-BIO-1, which requires the SRSC to conduct a desktop analysis so that the potential for nesting birds' habitat at specific site locations, once defined, is fully evaluated. If a specific site location offers habitat for nesting birds, pre-constructing surveys, timing restrictions, setbacks, and/or monitoring would occur as part of mitigation measure MM-BIO-4. The 13 biological resources mitigation measures have been proposed to mitigate potential impacts in a variety of settings and different times of the year because specific locations and construction time frames are unknown as of 2024. No additional analysis or information is required.
AA-7	References to Paragraph 4 of EO N-3-23 have been removed and replaced by references to Paragraph 6 of EO N-3-24 in the FEIR. However, such changes do not affect the analysis nor the finding of the DEIR. The details provided on DEIR pages 27 and 28 represent the information that is currently available regarding proposed new wells as supplied by the SRSC. The DEIR analyzes the impacts of up to 30 new wells; the number of wells that may be installed could be less. The CEQA Guidelines do not require that an EIR predict (or speculate) specifically where an activity would occur, or when it would occur, if those details are not reasonably foreseeable. The answers to such questions require speculation, which CEQA discourages (see CEQA Guidelines Section 15145). New wells undertaken by public SRSC or subject to separate discretionary approval may require separate CEQA review in the future. They would also require adherence to basin management objectives identified in applicable GSPs and recognition from the local GSA that the well is consistent with the adopted and approved GSP.
AA-8	The details provided on pages 32 and 33 of the DEIR represent the information that is currently available regarding the proposed drought-resiliency project conjunctive use program as supplied by the SRSC. The intent of the conjunctive use program described in the DEIR is simply to provide surface water to additional areas in the SRSC service area and within existing water rights places of use that have historically been reliant on groundwater. The SRSC would use the conjunctive use program to supply these historically groundwater-reliant areas with surface water in most years; in Shasta Critical and Agreement Years, these areas would rely on groundwater as they have historically. The conjunctive use program would therefore reduce the amount of groundwater pumping as compared to baseline conditions because groundwater pumping would no longer be needed in most years. Beyond the scope of this limited type of conjunctive use program, any new expanded conjunctive use programs may require separate CEQA review as well as adherence to basin management objectives identified in applicable GSPs and recognition from the local GSA that the program is consistent with the adopted and approved GSP, including accounting, monitoring, modeling, etc. It should be noted that individual members of the SRSC already do some level of coordinated operation of surface water, groundwater storage and use, and conveyance facilities. Many of the SRSC are also part of the GSAs. The SRSC divert surface water in all years, including non-Agreement Years, for agricultural and/or maintenance and improvement uses, during which incidental groundwater recharge may occur, as they do every year with or without this Agreement.
AA-9	The Agreement is not relevant to the Colusa and Corning GSPs relative to groundwater recharge projects. The water reductions proposed under the Agreement occur in critical drought years when surface water would likely not otherwise be available for groundwater recharge. Moreover,

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	groundwater recharge by the SRSC with SRSC contract surface water deliveries occurs incidentally. In addition, based on project modeling, an Agreement Year is only anticipated to occur on average once every 10 years during each phase. Therefore, groundwater recharge in the SRSC service area is not anticipated to be significantly impacted during Agreement Years. The SRSC who choose to pursue a new drought-resiliency project conjunctive use program under the Agreement would do so as described in the DEIR to supply historically groundwater-reliant areas with surface water in most years. In Shasta Critical and Agreement Years, historically groundwater-reliant areas would rely on groundwater as they have historically. GCID is not expected to pursue a conjunctive use drought-resiliency project contrary to the comment's assertions. As explained in the DEIR, in non-Critical and non-Agreement Years, the SRSC would be expected to primarily divert surface water. It is reasonable to assume that this would result in less groundwater pumping compared to baseline conditions. This comment presents the opinion of the commentor and does not relate to the proposed project. As presented in the DEIR, the project is an Agreement to facilitate reduced water contract supply to the SRSC during specified drought years to address shortages at Shasta Lake and to develop drought-resiliency projects. The assertation of a "takeover" and manipulation is opinion and not supported by any facts presented in the DEIR. Nothing in the Agreement would alter or change underlying water rights, and the cited legal authorities do not suggest or compel a different conclusion. Regarding the comment's reference numbers 4, 5, and 6, the cited documents and quoted language relate to a different project that has no relationship to the Water Reduction Program Agreement for the proposed project. GCID is not currently proposing a drought-resiliency conjunctive use program as part of its participation in the Agreement. Regarding the reference to "No operational needs would be necessary as part of implementing conjunctive use program" (p. 33), that sentence was taken from a list of steps necessary to implement drought-resiliency projects for conjunctive use programs. The sentence has been changed in the FEIR to clarify the anticipated operational activities associated with implementing conjunctive use. As described in response to comment AA-8, any new expanded conjunctive use programs, including operations from implementing conjunctive use programs, may require separate CEQA review as well as adherence to basin management objectives identified in applicable GSPs.
AA-10	Please refer to Global Response 1. The project purpose is not vague. The surface water diversion reductions occur in years when there is insufficient water available for all beneficial uses, including Reclamation's demands to meet contracted supplies and other CVP purposes, while also managing releases of water for fish and wildlife purposes, flood control requirements, and power generation. These shortage conditions are well defined as Shasta Critical Years and were evident during recent past drought events, which serve as baseline conditions. The "extent and severity" of the shortage conditions to be addressed by the Agreement are not specified because they would occur in the future. The Agreement does not specify how the water in Shasta Lake would be put to use within Reclamation's pre-existing discretion (i.e., baseline condition) beyond the intent to meet carryover storage targets. Reclamation would manage water during Agreement Years in accordance with its legal authorities and operational obligations and based on real-time conditions that may be changing over the length of the Agreement.
AA-11	Please refer to Global Response 1 and responses to comments AA-6 and AA-10. The project description is not vague, and the purpose is not artificially narrow. The purpose is stated in Section 2.3: "*The purpose of the proposed project is to approve and facilitate reduced water contract*

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	supply to the SRSC during specified drought years to address water shortages at Shasta Lake. Reduced SRSC contract supply allows for Reclamation to respond to shortages in water supplies due to very dry hydrologic conditions, climatic variability, climate change, and regulatory requirements. The proposed project would also develop implementable and supplemental water supplies and drought-resiliency projects to strengthen the resilience of the SRSC's water systems and long-term water delivery capabilities." The maximum water reduction volumes agreed upon in Phases 1 and 2 were based on negotiations between the SRSC and Reclamation and are the core of the Agreement. An increased maximum water reduction would not be agreeable to the SRSC, and reduced maximum water reduction levels would not be agreeable to Reclamation. As discussed in the DEIR, the "no cropland idling" alternative is not feasible because the SRSC would not be able to meet agreed-upon surface water reduction amounts in the time frame provided by the Agreement without cropland idling. Further, cropland idling would not require additional groundwater pumping, which is a primary concern of the commenter.
AA-12	This comment is beyond the scope of the DEIR. As stated previously, the proposed project is an Agreement between Reclamation and the SRSC, one of the many users of CVP waters, for surface water diversion reductions during specified drought years and the development of drought-resiliency projects. As noted in the DEIR, the proposed project would help Reclamation improve the operation of the CVP during Agreement Years. Under the Agreement, water that would normally have been diverted by the SRSC would remain in Shasta Lake. This means that there may be more water than what would have normally been available for operation of the CVP during Agreement Years. Additionally, under the No Project Alternative, there would be insignificantly small amounts of water diverted by the SRSC that would end up downstream, so the action of forgoing surface water diversions by the SRSC would not significantly affect downstream supplies of water as compared to baseline conditions.
AA-13	Comment noted. No response required.
AA-14	See Global Response 2. Contrary to the comment, the DEIR is not deferring analysis or mitigation. The DEIR identified potential impacts from groundwater pumping, as noted in the comment, and is proposing mitigation in the form of compliance with applicable GSA-managed GSPs or, where there are no GSPs, in accordance with SGMA, which provide for regional oversight of groundwater subbasin management, for all groundwater pumping activities undertaken under the Agreement. There is no evidence that new groundwater or deep-aquifer wells would be used for pumping during non-Agreement Years; in fact, a variety of factors, including the higher costs associated with groundwater pumping than diverting surface waters, suggest that the opposite is true. In addition, potential pumping in non-Agreement Years would not be caused by this project. Finally, all groundwater pumping, including pumping not related to the proposed project that may occur in non-Agreement Years, must comply with basin management objectives identified in applicable GSPs and groundwater management plans or, where there are no GSPs, in accordance with SGMA. As presented in the DEIR, Agreement participants may choose to do a combination of cropland idling, crop shifting, groundwater pumping, and/or conservation, which precludes exact certainty regarding how much water would be pumped from groundwater wells or where groundwater would be pumped. While the maximum annual volume of groundwater that might be pumped is 167,100 acre-feet and the maximum number of new wells that would be constructed as a result of the Agreement is 30 wells, the actual number of wells and amount of groundwater pumping in an

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	Agreement Year may be less. Accordingly, the EIR analyzes the reasonably foreseeable impacts of the proposed project conservatively based on currently available information. It is true that conservation efforts may nominally reduce some level of seepage and incidental groundwater recharge. They may also reduce loss due to evaporation. Nonetheless, water conservation efforts are well supported. The overall level of surface water supplied to the SRSC would be reduced during Agreement Years based on Agreement reductions and the existing contracts summarized in Table 3 of the DEIR. The Agreement does not preclude any regional oversight or compliance associated with applicable GSA-managed GSPs or, where there are no GSPs, in accordance with SGMA. The proposed project allows the SRSC to have greater certainty during Agreement Years to manage available surface water. No edits are necessary.
AA-15	The DEIR analyzes the direct and reasonably foreseeable indirect impacts of the proposed project based on currently available information. The exact location of proposed new wells is still unknown at this time, and the SRSC may choose not to install wells contemplated in the DEIR. The DEIR describes the maximum amount of groundwater pumping to ensure the maximum extent of impacts are identified. The resultant analysis is not contrary to CEQA. As previously discussed, the CEQA Guidelines do not require that an EIR predict (or speculate) specifically where an activity would occur, or when it would occur. The answers to such questions require speculation, which CEQA discourages (see CEQA Guidelines Section 15145). Regarding new groundwater well locations, new wells would be constructed for water use on the overlying parcel or elsewhere, as permitted, and must comply with basin management objectives identified in applicable GSP and groundwater management plans or, where there are no GSPs, in accordance with SGMA. No edits are required.
AA-16	The DEIR specifically states on page 213 that "*groundwater in the project area occurs at various levels. While recent droughts, ending in 2023, have caused the driest hydrologic period on record in portions of the project area, causing impacts to monitored groundwater levels, 2023 and 2024 were more wet, included full water supply and reservoir storage recovery, and generally have seen recovery of these impacts. However, groundwater substitution activities could contribute to accelerated depletion of groundwater resources. The potential for adverse drawdown effects would increase as the amount of extracted water increased.*" Therefore, the DEIR does consider how increased periods of droughts combined with increased groundwater pumping as a result of the Agreement would result in accelerated depletion of groundwater resources. No changes are required.
AA-17	As mentioned in previous comments, the location of wells (both existing and proposed new wells) and quantities and timing of potential groundwater pumping as part of the Agreement is speculative at this time and modeling groundwater depletion is not feasible. Therefore, quantifying impacts is not possible. Under Alternative 1 (No Groundwater Substitution Alternative) it is assumed most SRSC would idle more cropland. Section 6.4.4.2 states that under Alternative 1, "*there would be less depletion of groundwater resources and lower risk of drawdown effects such as subsidence, there would be no risk of potential conflicts with groundwater management plans because there would be no change in groundwater pumping…but similar to the proposed project, Alternative 1 could result in potentially significant impacts to nearby surface water and groundwater due to erosion following cropland idling.*" The DEIR goes on to conclude that "*while impacts associated with groundwater withdrawal would be lower compared to the proposed project, other project activities would still have the potential to impact hydrology and water quality.*" Therefore, impacts to hydrology and water quality are assumed to be similar to the proposed project. As mentioned in the comment, with additional cropland idling due to no groundwater substitution, additional impacts to biological

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	resources may occur. Therefore, Alternative 1 may result in environmental impacts that would be at least as significant as those of the proposed project. Under CEQA, an EIR is required to evaluate impacts capable of avoiding or reducing one or more of the project's significant impacts. The DEIR reasonably concluded the alternative would be environmentally inferior to the proposed project based on factual grounds, including Alternative 1's potential for similar hydrologic impacts and greater impacts to biological resources, including species protected under the federal and state Endangered Species Acts. No edits are necessary.
AA-18	This referenced language is from Reclamation's Long-Term Water Transfers EIS/EIR, which addresses water transfers over a much larger project area, for potentially longer time periods, and for many more users. Water transfers are not relevant to the proposed project. However, issues raised in the comment that are potentially relevant to the proposed project, including the effects of groundwater pumping on streamflow depletion, water supply, water quality, recreation, and navigation are addressed in the following text. As the comment points out, potential streamflow losses that could result from project-related groundwater pumping are discussed in the DEIR: "*In areas where creeks, streams, or other drainages are highly influenced by groundwater infiltration, the interception of groundwater by the additional pumping of the aquifer could potentially reduce surface flows during and after pumping until the groundwater aquifer refills. Increased subsurface drawdown on groundwater that normally discharges to surface waters nearby would potentially affect fish and amphibian habitats, within riverine, riparian, seasonal wetland, and managed wetland habitats reliant on groundwater resources.*" While impacts as a result of streamflow depletion may occur, they would be reduced to less than significant levels with implementation of mitigation measure MM-HYD-2 and would only occur locally and temporarily as the additional groundwater pumping would only occur during Agreement Years, which were assumed to occur an average of once every 10 years per Agreement phase in the DEIR. The FEIR has been revised to include language regarding this aspect of the Agreement. Impacts to water supply, water quality, recreation, and navigation as a result of additional groundwater pumping would not be substantial enough to be considered significant for the same reason as discussed above for streamflow depletion. Additionally, because Reclamation would manage the water made available as a result of the Agreement for storage in Shasta Lake, while also managing releases of water for fish and wildlife purposes, flood control requirements, and power generation, the overall impact of the Agreement on surface water quality, quantity, recreational, and navigational uses as a result of increased groundwater pumping would not be significant. The DEIR adequately analyses the scope and scale of the proposed project under review, and recirculation is not required.
AA-19	Please refer to the responses to comments AA-12 and AA-14; the exact amount, timing, and location of groundwater pumping is not known at this time. The DEIR conservatively presents the maximum amount of groundwater pumping that could happen under the Agreement during an Agreement Year. GCID and the SRSC have agreed to provide an annual report to CDFW and USFWS regarding crop idling during Agreement Years. GCID would also include a report on groundwater substitution if and when an Agreement Year occurs under the proposed project. This text has been added to the FEIR to clarify the process. Additionally, as stated in the comment, GCID will adopt an MMRP once the FEIR is approved and will be responsible for implementation of mitigation measures. The MMRP will ensure that mitigation measures necessary to reduce environmental impacts are implemented and effective.

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AA-20	GCID is required to respond to "significant environmental points raised in the review and consultation process" (CEQA Guidelines Section 15132). Questions about the source or amount of funding are not significant environmental points, absent some clear explanation of how they are relevant to environmental concerns, which is not provided in the comment. The DEIR identifies that the Agreement will result in funding for drought-resiliency projects and analyzes the potential environmental impacts of construction and operation of these projects. The CEQA process will be complete before the funds are received and the Agreement is signed. The specific source and amount of federal funds is not relevant to the DEIR's consideration of the proposed project's potential to result in significant impacts or its consideration of alternatives or mitigation measures.
AA-21	As discussed previously, the SRSC would have several activities at their disposal to respond to reduced surface water deliveries. Which activities are used in which locations would depend on a variety of factors, some of which cannot be predicted with certainty, including water supply, meteorological conditions, prior year operations, and market pricing. These activities were identified based on conversations with the SRSC in which they were asked to provide the most reasonable assumptions for how they would respond to reduced surface water deliveries under the Agreement based on conservative assumptions that the maximum amount of surface water deliveries would be reduced for the maximum likely duration of time. Environmental impacts were then assessed using conservative assumptions to ensure the full potential for environmental impacts were analyzed. CEQA does not require speculative assumptions. It requires an analysis of reasonably foreseeable environmental impacts based on the information at hand at the time of the analysis. The levels analyzed in the DEIR represent the most likely realistic conditions based on all available evidence, including direct input from the SRSC regarding their specific properties and facilities and actual practices during past drought events. Please refer to the response to comment AA-6, which addresses the need to identify the exact location of the drought-resiliency projects. The DEIR describes the methodology that was used to determine how reduced contract supplies could translate to idled cropland acres. Section 2.5.1.1 of the DEIR describes how the average assumed water application rate (acre-foot per acre) as shown in Tables 4 and 5 was calculated for planning purposes. Please see Global Response 1. The comment misapprehends the role of crop idling; crop idling is an anticipated, but not required, response to reduced surface water deliveries under the Agreement. The DEIR is not required to monitor specific amounts of water reductions and cropland acreage that is idled. The EIR is required to analyze and disclose the reasonably foreseeable environmental impacts of the Agreement.
AA-22	The ratio of acre-foot per acre of water used to irrigate rice fields varies across the SRSC service area as described in the DEIR. Contrary to the commenter's assertion, the acre-foot per acre used on rice is not inflated. While GCID allocated its landowners 4.1 acre-feet per acre in the Shasta Critical Year 2021, that does not necessarily mean that 1 acre of rice was able to be produced using only 4.1 acre-feet of water. GCID allocates amounts to all landowners based on available supplies; therefore, during drought years this may be less than a given crop requires. A variety of crops are grown within GCID's service area, and crop needs may vary even among the same type of crop depending on the variety, field, location, and operational practices among other considerations. Growers considered overall allocations based on the 4.1 acre-foot per acre ratio and made decisions on which fields to irrigate, what crops to plant, and which fields to fallow during that year, as they do every year.

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AA-23	Please see Global Responses 2 and 3. All NOP comments were carefully considered as part of developing the DEIR, and the analysis of groundwater pumping is adequate under CEQA. The DEIR does not map any resources as the study area is approximately 560,000 acres in size. The DEIR has been revised to include information on current subbasin conditions in Section 3.10.1. Please refer to the responses to comments AA-6 and AA-15; the exact amount and location of groundwater pumping is not known at this time. The DEIR presents the maximum amount of groundwater pumping that could happen from both existing and new wells combined. Please refer to the response to comment AA-18 for a discussion on streamflow depletion. As stated in that response, while impacts to biological resources as a result of streamflow depletion may occur, these would only occur locally and temporarily as the Agreement would only be in effect during Agreement Years, which are anticipated to occur an average of once every 10 years. The DEIR has been revised to include language regarding this aspect of the Agreement. Moreover, groundwater pumping is subject to regulation under SGMA, which requires adherence to basin management objectives identified in applicable GSPs and that local agencies consider and protect GDEs when managing groundwater resources in their subbasins or, where there are no GSPs, groundwater pumping would be conducted in accordance with SGMA. It is reasonable to assume that compliance with local GSPs or, where there are no GSPs, in accordance with SGMA would further ensure that adverse impacts to GDEs are minimized. For these reasons, with mitigation measure MM-HYD-2, impacts would not be significant (i.e., substantial and adverse).
AA-24	Please refer to the response to comment AA-6 for a discussion on why a site-specific assessment is not feasible at this time. Because the project area is very vast (approximately 560,000 acres) and the specific locations of crops to be idled and drought-resiliency projects (including new wells) are unknown at this time, a site-specific assessment is not feasible. As previously discussed, the DEIR includes mitigation measure MM-BIO-1, which requires the SRSC to conduct a desktop analysis at specific site locations, once defined, so that the potential for special status species occurrence is fully evaluated and reflects conditions at the time that actual project activities are proposed to be conducted. If the potential for a special status species exists within the specific site location, additional surveys, setbacks, timing restrictions, and/or monitoring would occur as required by other biological resources mitigation measures. The 13 biological resources mitigation measures have been proposed to ensure adequate mitigation of potential impacts in a variety of settings because specific locations and construction timing are unknown as of 2024. No additional analysis or information is required. The USFWS Biological Opinion referenced in this comment does not apply to this project. In addition, the language that is stated in the comment is similar to language disclosing the environmental effects of cropland idling on GGS (*Thamnophis gigas*) and northwestern pond turtle (*Actinemys marmorata*) in the DEIR. The DEIR says: "*GGS and northwestern pond turtle use ditches and canals in the project area. The movement and dispersal of GGS would be affected by the reduction of water within major irrigation and drainage canals and from the dewatering of smaller drains and conveyance infrastructure through their lack of use for irrigation. The loss of water in ditches and canals could result in a lack of connectivity between natural wetland habitats that could be used by GGS, which are known to use the canals and ditches between rice fields as aquatic movement corridors. Without aquatic movement corridors, GGS would be limited to the locations where permanent water exists. Populations could become isolated and genetic diversity would decrease in years in which aquatic movement corridors are limited due to lack of water in certain irrigation ditches and canals. Maintaining connectivity between extant GGS habitat would require the continued availability of suitable water-filled canals that link the wetland reserves in core habitat zones. Therefore, crop idling could have negative and potentially significant impacts to GGS within irrigation ditches and canals that provide suitable habitat for this*

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	species." Therefore, not only is this comment unrelated to the proposed project but also the DEIR does analyze impacts of cropland idling on special status species. As explained in the DEIR, the proposed project cannot fully avoid potential impacts to GGS, as it may result in water reductions that require idling and dry drainage canals. Because the water reductions would necessarily occur in extremely dry years, there is no available water to ensure avoidance in Agreement Years. The biological resources mitigation measures are not improperly deferred. The measure referenced in this comment requires avoidance and, if avoidance is not possible, implementation of all measures deemed appropriate by the species agencies to fully mitigate for impacts to habitat. When a public agency has evaluated the potentially significant impacts of a project, identified measures that would mitigate those impacts, and committed to mitigating those impacts, the agency may defer precisely how mitigation would be achieved under the identified measures pending further study.
AA-25	Information has been added to the FEIR regarding the GSPs within the project area. Also, please refer to Global Response 2. However, given the uncertainties regarding water supply and weather conditions throughout the large project area during the term of the Agreement, it would be entirely speculative to try to predict precise volumes of groundwater pumping within specific GSPs. For instance, while the estimated maximum volume of groundwater pumping that could occur within each of the largest SRSC service areas is known at this time, the specific location of pumping, including distribution between existing and new wells, is not known. Some SRSC service areas span multiple subbasins, and it is possible that their groundwater pumping activities could occur in multiple subbasins or within a single subbasin. There could also be groundwater pumping by individual landowners within the SRSC service area depending on surface water allocations, crop demand, timing, and location, all of which are unknown at this time. As discussed in Global Response 2, mitigation measure MM-HYD-2 has been revised to include language about compliance with SGMA to ensure that groundwater pumping in areas not covered under an existing GSP also complies with SGMA and the requirement to submit annual reports. Reliance on SGMA as a mitigation measure is sufficient to address any groundwater-related impacts. Basin Prioritization is a technical process that utilizes the best available data and information to classify California's groundwater basins into one of four categories: high, medium, low, or very low priority. The technical process is based on components that are identified in the California Water Code Section 10933(b). Each basin's priority determines which provisions of CASGEM and SGMA apply. Project-related pumping (predicted to occur very infrequently) in low- or very low-priority basins would not be expected to significantly deplete groundwater or otherwise result in undesirable results as defined by SGMA. Regarding high- and medium-priority basins, on January 18, 2024, DWR completed the initial GSP reviews for all basins that were required to submit GSPs. GSAs are required to begin implementing their GSPs upon their submittal to DWR. If a basin's GSP is approved, plan implementation continues, and the GSA has 20 years to achieve sustainability within the basin. Basins deemed incomplete have 180 days to rectify the deficiencies in their GSPs that precluded approval and resubmit a revised plan. DWR evaluates the resubmitted GSPs, and basins are determined to be either approved or inadequate. Basins that are determined to be inadequate are referred to the SWRCB for possible state intervention. This iterative process would ensure that GSP implementation is on track and likely to lead to basin sustainability. Finally, regardless of determination status, basins are required to submit annual reports following adoption of a GSP or Alternative. Periodic evaluations are also due at least every 5 years for approved basins.[11] With all these processes in place, and given

[11] https://water.ca.gov/Programs/Groundwater-Management/Basin-Prioritization and https://water.ca.gov/Programs/Groundwater-Management/SGMA-Groundwater-Management/Groundwater-Sustainability-Plans

Comment Code	Response
	the performance standards set forth in SGMA, adherence to basin management objectives identified in applicable with GSPs (where applicable) and with SGMA more generally is a sufficient mitigation measure to address groundwater pumping impacts resulting from implementation of the proposed Agreement. The comment expresses the commenter's opinion about the adequacy of the GSPs but does not demonstrate that GSPs would be inadequate to prevent substantial adverse changes to groundwater conditions as a result of groundwater pumping under the Agreement.
AA-26	Contrary to the comment, the DEIR is not deferring analysis or mitigation. As discussed in Global Response 2, mitigation measure MM-HYD-2 has been revised to include language about compliance with SGMA to ensure that groundwater pumping in areas not covered under an existing GSP also comply with SGMA and the requirement to submit annual reports. Reliance on SGMA as a mitigation measure is sufficient to address any groundwater-related impacts. As described in the response to comment AA-25, GSAs are required to begin implementing their GSPs upon their submittal to DWR, not when DWR approves their GSP. The SRSC would comply with all GSPs, even if they have not been approved by DWR yet, as well as all SGMA requirements, including the requirement to submit annual reports in areas not covered under a GSP.
AA-27	The comments on subsidence are not specific to the proposed Agreement. The comments discuss the Colusa Subbasin GSP, which is one of many subbasins within the project area. The goal of the DEIR is to disclose effects of the Agreement on subsidence, not to discuss the GSPs' effects on the environment. The anecdotal evidence from Mike Billiou cited in comment AA-28 is not sufficient to demonstrate that the Agreement would have an impact on subsidence, including because the referenced pumping occurred prior to the implementation of SGMA. It is reasonable to assume that future pumping conducted in compliance with applicable GSA-managed GSPs or, where there are no GSPs, in accordance with SGMA would be successful in avoiding undesirable results, including subsidence that would adversely affect infrastructure or existing land uses. Section 3.7.1.8 of the DEIR describes existing conditions within the project area and the potential for certain areas within the project to contain soils susceptible to expansion or subsidence. While soils susceptible to expansion and subsidence exist within the project area, based on a 2018 DWR study on subsidence (2018)[12] completed from 2008 to 2018, of 73 stations sampled within the project area, only two showed subsidence of over 1 foot. All other sampled stations showed subsidence of less than 1 foot over the period of the survey. The majority of the SRSC service areas do not experience significant subsidence due to the availability of surface water to meet demands and sufficient incidental recharging of the groundwater system from surface water use and diversions. Further, to result in significant subsidence impacts, groundwater depletion would typically need to be sustained over multiple years. Water reductions under the Agreement are expected to occur an average of once per each 10-year Agreement phase, limiting the potential for groundwater to be depleted over a sustained period of time. Finally, to further reduce any less-than-significant impact on subsidence, even though mitigation is not required, a reference to previously-identified mitigation measure MM-HYD-2 was added to GEO-3 (Section 3.7.3.4.3). As noted in the response to comment AA-25, compliance with applicable GSA-managed GSPs or, where there are no GSPs, in accordance with SGMA more generally would further reduce potential for overpumping of groundwater that would trigger subsidence. The text has been revised in the FEIR to integrate additional information on subsidence in Section 3.7.1.8 and a discussion of potential impacts in Section 3.7.3.4.3, as well as added reference to the previously

[12] GPS Survey of the Sacramento Valley Subsidence Network - 2017 GPS Survey of the Sacramento Valley Subsidence Network Report - California Open Data

Comment Code	Response
	identified mitigation measure MM-HYD-2 to further reduce potential impacts even though mitigation is not required. Regarding the proposed drought-resiliency projects, as discussed in Section 3.7.3.4.4, some of these projects may involve "*construction of structures that could potentially be located on expansive soils and could therefore be impacted by settlement or subsidence, cracking, or lift once constructed. If these projects are sited near property or residences, impacts from settlement or subsidence, cracking, or lift could result in risks to property or life….Because construction of drought-resiliency projects on expansive soils could create substantial risks to life or property project, impacts related to siting on expansive soils could be potentially significant*." The authors of the comment letter opine that mitigation measure MM-GEO-1 (As-Needed Implementation of Geotechnical Recommendations for Drought-Resiliency Projects) and mitigation measure MM-GEO-3 (Adhere to Applicable Seismic Design Parameters for Drought-Resiliency Projects) are inadequate to mitigate subsidence effects. The goals of mitigation measures MM-GEO-1 and MM-GEO-3 are to reduce the impacts of the Agreement, and specifically the drought-resiliency projects, from settlement or subsidence, cracking, or lift that could result in risks to property or life, not to solely mitigate for subsidence effects. Implementation of these mitigation measures, particularly mitigation measure MM-GEO-3, achieves these objectives of reducing risks to property or life and therefore are adequate under CEQA.
AA-28	Please refer to the response to comment AA-27.
AA-29	Please refer to the response to comment AA-27.
AA-30	Table G-1 (Energy Intensity for Each Hydrologic Region by Water Year) in the CPUC report details the "energy intensity" for each hydrological region in California, essentially showing how much energy is required to deliver a unit of water within each specific geographic water source area, allowing for comparisons of water management efficiency across the state. Table G-1 lists the energy intensity by region over a 5-year period. The 177-kWh per acre-foot value was selected because it is the most recent value provided for the Sacramento River Region in Table G-1 and therefore was the most appropriate to use. This clarifying text has been added to the FEIR. The comment incorrectly states the relationship between the depth of a well, screened depth, and depth to groundwater. Depth to standing water is unrelated to the depth of the well; even a very deep well could be screened and pump water from a depth of 100 feet or less.
AA-31	As noted in the DEIR, groundwater pumping energy intensity was estimated at about 177 kWh per acre-foot. If groundwater is pumped at the maximum levels identified in the DEIR, up to 29,500 MWh of electricity would be required annually during a Phase 1 Agreement Year and up to 5,900 MWh of electricity would be required annually during a Phase 2 Agreement Year. It is unknown where the commenter sourced the 1 MW per 1,000 homes ratio. The number of homes that 1 MW would power is based on the location and actual energy demands of the people living in the homes and therefore varies greatly in different geographies. The question this comment refers to in the DEIR is: *Would the project result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?* As noted, the 29,500 MWh annual maximum during a Phase 1 Agreement Year and 5,900 MWh annual maximum during a Phase 2 Agreement Year represent about 0.1% or less of the total electricity consumption in the project area and would be offset somewhat by the disuse of surface water pumping stations during these years. In addition, these demands are not expected to occur often or in concurrent years. No changes are required.

Comment Code	Response
AA-32	Alternative 1 (the No Groundwater Substitution Alternative) was not rejected because the alternative could result in erosion impacts and release of hazardous materials. In fact, it was not rejected at all. As an alternative carried forward for analysis, the alternative will be considered throughout the FEIR with the ultimate determination based on the Findings of Fact. Based on the DEIR, the analysis found Alternative 1 is considered potentially more protective to groundwater resources than the proposed project; however, it would likely result in increased impacts to GGS and northwestern pond turtle due to increased crop idling as compared to the proposed project. Additional crop idling associated with Alternative 1 would also further reduce water levels in canals and ditches, which could cause riparian and wetland vegetation to prematurely drop leaves before seasonally appropriate or potentially die, temporarily reducing the amount of riparian and wetland habitat available in the project area. No edits are necessary.
AA-33	Please refer to the response to comment AA-32 regarding Alternative 1 (the No Groundwater Substitution Alternative). The commentor is incorrect; as an alternative carried forward for analysis, the alternative is considered throughout the FEIR with the ultimate determination regarding which alternative to approve based on the Findings of Fact. GCID has coordinated with Reclamation, USFWS, and CDFW throughout preparation of the DEIR. The intent of this coordination was to ensure that the DEIR analysis and mitigation would be sufficiently developed at the time the DEIR was released. While implementation of the Agreement cannot be completed until the NEPA compliance process, which includes compliance with the Endangered Species Act, is complete, there is no reason that the CEQA and NEPA review processes cannot occur concurrently. If there are any updates from the Endangered Species Act consultation or NEPA review process that are relevant to the scope and analysis in the DEIR, they would be captured in the future. No edits are necessary.
AA-34	The Long-Term Water Transfers EIS/EIR is included under the "Long-Term and Short-Term Water Transfers" row on page 286 of the DEIR. Therefore, the cumulative effects of this project in combination with the proposed Agreement have been evaluated. No edits are necessary.
AA-35	Reclamation prepared an Environmental Assessment that covers the proposed Agreement, which was published on November 26, 2024. No edits are necessary.
AA-36	Please refer to the response to comment AA-3. The CEQA Guidelines do not require that an EIR predict (or speculate) specifically where an activity would occur, or when it would occur. The answers to such questions require speculation, which CEQA discourages (see CEQA Guidelines Section 15145).
AA-37	Please refer to the response to comment AA-3. The CEQA Guidelines do not require that an EIR predict (or speculate) specifically where an activity would occur, or when it would occur. The answers to such questions require speculation, which CEQA discourages (see CEQA Guidelines Section 15145).
AA-38	The purpose of the Agreement is to facilitate cold water pool management in Shasta Lake. Transfers are not proposed as part of the project. It is possible that if Reclamation were to determine in any given year that some portion of the forgone water is not needed for Shasta Lake management, it could be released for use within the SRSC service area, or the SRSC could arrange for the water to be transferred to other water users, consistent with the contracts. Because no transfers are proposed as part of the proposed project, this issue is outside the scope of the EIR analysis. Any transfers would be subject to their own approval process with separate CEQA compliance.

Comment Code	Response
AA-39	The FEIR has been revised to include the waterways listed in the comment.

Sent via e-mail

November 4, 2024

Jeff Sutton
General Manager
Glenn Colusa Irrigation District
P.O. Box 150
Willows, CA 95988

SUBJECT: Comments on the Draft Environmental Impact Report for the Water Reduction Program Agreement Between the Sacramento River Settlement Contractors Nonprofit Mutual Benefit Corporation, Individual Sacramento River Settlement Contractors, and the U.S. Bureau of Reclamation

Dear Mr. Sutton,

On behalf of the undersigned organizations, we write to provide comments on the Draft Environmental Impact Report (DEIR) for the Water Reduction Program Agreement (Agreement) between the Sacramento River Settlement Contractors and the U.S. Bureau of Reclamation. As partners, our mission is to work collaboratively to protect, restore, and enhance habitats for birds, in accordance with conservation actions identified in the CVJV 2020 Implementation Plan (CVJV Plan). The CVJV Plan provides a cohesive vision for bird conservation in the Central Valley within the context of the entire Pacific Flyway and sets quantitative habitat objectives based on best available science to ensure resilient, sustainable populations of migrant and resident birds in California, a critical area that has lost over 90 percent of its wetlands.

In reviewing the DEIR, we had several comments pertaining to the DEIR Biological Resources Section 3.4.

Aud-1

In DEIR Section 3.4.1, the environmental setting should include the five refuges of the Sacramento National Wildlife Refuge Complex (Sacramento, Delevan, Colusa, Sutter, and Sacramento River National Wildlife Refuges; Refuges) representing approximately 36,000 acres that, while not part of the Agreement, are adjacent to the project area. In addition, there are

thousands of acres of privately owned wetlands within and adjacent to the project area, the majority of which are protected by U.S Fish and Wildlife Service and Natural Resource Conservation Service Conservation Easements (Easements). The Refuges and Conservation Easements were largely established to protect wetlands and associated habitats for migratory birds and threatened and endangered species.

DEIR Sections 3.4.1.1 and 3.4.3.4.4 acknowledge that the project area is located within the Pacific Flyway and is a stopover for waterfowl and other birds during migration. The DEIR should also specify that together, the public and private wetlands and ricelands in and around the project area represent the most important wintering area for migratory waterfowl in the Pacific Flyway supporting approximately 3-4 million ducks and over 2 million geese annually. In addition, the wetlands and ricelands of the project area are extremely important to migrating and wintering shorebirds, supporting hundreds of thousands of birds, and recognized as a site of international significance by the Western Hemisphere Shorebird Reserve Network. As a result, the CVJV Plan has prioritized and set objectives for the protection, restoration and enhancement of wetlands and riparian habitat and the protection and enhancement of ricelands within and around the project area.

Aud-2 In reviewing the DEIR, it is unclear how the Agreement would impact Refuge water supplies provided under separate contracts as mitigation in accordance with the Central Valley Project Improvement Act (CVPIA). While not part of the Agreement and outside of the project area, there are repeated paragraphs in Sections 3.4.3.4.2 and 3.4.3.4.3 that create confusion, broadly stating that surface water delivery from the Sacramento River Settlement Contractors (SRSC) members to National Wildlife Refuges and Wildlife Management Areas would be reduced during Agreement Years and has the potential to affect wetland and riparian habitats. (DEIR pp. 156 and 159). It is unclear why Refuge water deliveries would be reduced during Agreement years if Refuges are not party to the Agreement. *See* CVPIA §3406(d). We request that the statements in DEIR Sections 3.4.3.3.2 and 3.4.3.4.3 regarding surface water deliveries to Refuges be clarified to assert that Refuge water supplies and deliveries provided under the CVPIA would not be impacted by the Agreement.

Aud-3 Similarly, it is unclear how the Agreement would impact the availability and delivery of surface water to the thousands of acres of privately owned wetlands protected with Easements within and around the project area. We suggest clarifying any potential impacts to surface water supply and delivery to these properties.

Aud-4 In DEIR Section 2.5.1.1, it is estimated that up to 83,333 acres of rice fields could be idled in the project area. The CVJV Plan currently estimates that up to 74% of the nutritional needs of wintering waterfowl in the Sacramento Valley are met by agriculture, primarily rice. Rice cultivation also provides critical brood water and molting habitat in the late spring and summer months for local duck species, especially mallards, which are significantly below their long-term breeding survey average in California. As a result, the CVJV plan has set a 10-year objective of protecting 54,000 acres of rice with conservation easements and enhancing 350,000 acres of rice annually by winter-flooding. While Section 3.4.3.4.4 alludes to a reduction in rice foraging habitat for migrating waterfowl, no analysis was completed to see how such a large reduction in rice acreage might reduce carrying capacity for millions of wintering and migrating waterfowl. Similarly, no analysis was completed to see how this significant reduction in rice acreage might impact wintering and migrating shorebirds or wintering State Threatened Greater Sandhill

Cranes. We suggest completing an analysis of the impacts of rice idling on foraging habitat and carrying capacity of migratory waterfowl, shorebirds and other waterbirds.

Aud-5 DEIR Section 3.4.3.1 states that migratory waterfowl may nest in idled rice fields with volunteering vegetation and that their nests my be impacted by discing activities to control the vegetation. We believe there is great opportunity to improve habitat for waterfowl and other ground nesting birds on fallow rice fields. Delayed discing of fallow rice fields and planting cover crops, as described in "Rice Fallowing and Wildlife: Minimizing Impacts and Increasing Opportunity for Wildlife Due to Rice Fallowing and Rotation in the Sacramento Valley" (Point Blue Conservation Science 2024), is encouraged and would help meet CVJV Plan objectives of 177,000 acres of nesting waterfowl habitat, including 54,000 acres in the rice growing region in the Sacramento Valley.

Aud-6 DEIR Section 3.16.1 speaks to recreation in the project area. Sacramento National Wildlife Refuge Complex provides wildlife dependent recreation such as hunting, fishing, wildlife observation, wildlife photography, and environmental education with over 20,000 hunter visits and 200,000 wildlife observation visits per year. Similarly, ricelands and private wetlands throughout the project area also provide thousands of hunting and wildlife observation opportunities for outdoor enthusiasts. These recreation opportunities are largely dependent on abundant migratory bird populations that depend on ricelands and public/private wetlands. It is important to note, that these recreation visits are largely from outside the project area and represent a significant economic input into local economies during the winter months.

Aud-7 Finally, the document "Rice Fallowing and Wildlife: Minimizing Impacts and Increasing Opportunity for Wildlife Due to Rice Fallowing and Rotation in the Sacramento Valley" provides recommendations on 1) strategically fallowing rice across the landscape and 2) creating a mosaic of fallowed rice fields that are managed in various ways to meet the needs of migratory birds and sensitive species. We urge all parties to the Agreement to review this document and incorporate relevant management actions into the proposed project. To this end, the CVJV would be happy to meet with project proponents and discuss opportunities to enhance wildlife habitats and minimize impacts of idling rice.

Thank you for the opportunity to review the Draft EIR and for considering our collective comments. We are dedicated to maintaining healthy migratory bird populations in the project area and are available to discuss any questions you might have regarding our comments.

Sincerely,

Audubon California
Mike Lynes
Director of Public Policy

California Association of Resource Conservation Districts
Nancy Wahl-Scheurich
Executive Director

Defenders of Wildlife
Ashley Overhouse
Water Policy Advisor

Point Blue
Catherine Hickey
Director, Pacific Coast and Central Valley Group

River Partners
Julie Rentner
President

The Nature Conservancy
Jeanne Brantigan
Senior Project Director

Cc: Kark Stock, Regional Director, U.S. Bureau of Reclamation
Samantha Arthur, Deputy Secretary for Water, California Natural Resources Agency

2.5.2 Response to Audubon CA, California Association of Resource Conservation Districts, Defenders of Wildlife, Pacific Coast and Central Valley Group, River Partners, and The Nature Conservancy Comments

Comment Code	Response
Aud-1	The DEIR does acknowledge that there are habitat refuges and wetlands in and adjacent to the project area. The following text has been added to the FEIR to provide additional information as requested: "*The Sacramento National Wildlife Refuge Complex (Sacramento, Delevan, Colusa, Sutter, and Sacramento River National Wildlife Refuges) representing approximately 36,000 acres partially overlaps with the project area (Colusa and Sutter Wildlife Refuges) but is mostly adjacent to the project area. The Refuges and Conservation Easements were largely established to protect wetlands and associated habitats for migratory birds and threatened and endangered species. In addition, there are thousands of acres of privately owned wetlands within and adjacent to the project area, the majority of which are protected by U.S. Fish and Wildlife Service and Natural Resource Conservation Service Conservation Easements.*" Sections 3.4.1.2.3 and 3.4.1.1.3 of the DEIR state that "*a wide diversity of wetlands form a mosaic in preserve areas providing annual and perennial herbaceous vegetation as well as scrub shrub to mature riparian trees that are important for both resident and migratory waterfowl in the Pacific Flyway*" and "*in particular, the practice of flooding rice fields in winter to allow rice stubble to rot, instead of burning rice stubble in the fall, provides a wide variety of ducks and geese an opportunity to loaf or forage in rice fields in winter and important foraging habitat for shorebirds. Fallow rice fields also provide important habitat for geese, cranes, large herons, and egrets, and can also provide breeding habitat* for *waterfowl such as mallards (*Anas platyrhynchos*) and gadwall (*Mareca strepera*).*" Therefore, the DEIR already sufficiently addresses the use of rice fields by migratory birds. Sections 3.4.1.2.3 and 3.4.1.3.4 of the DEIR clarify that wetlands are also important habitat for migratory birds. Reference to the Central Valley Joint Venture 2020 Implementation Plan has been added to the FEIR in Section 3.4.3.4.6.
Aud-2	The NWRs that make up the Sacramento NWR Complex or the Gray Lodge State Wildlife Area are allocated water under separate refuge contracts under the CVPIA. The CVPIA Refuge Water Supply Program that oversees refuge water allocations is a "related project" that is not part of the proposed project. Surface water diversion reduction-related activities within the project area would not alter water availability to NWRs and State Wildlife Areas because these areas are not served by the contracts implicated by this Agreement and are outside the scope of this analysis. Statements in DEIR Sections 3.4.3.3.2 and 3.4.3.4.3 are regarding surface water deliveries to refuges that are not NWRs or State Wildlife Areas. This distinction has been clarified in the FEIR.
Aud-3	The DEIR includes language in Section 3.4.3.4.3 (BIO-3) that specifically speaks to the availability and delivery of surface water to wetlands near the project area. The DEIR states: "*Changes in water availability within feeder canals could reduce the amount of emergent wetland habitat and banks side vegetation that grows adjacent to rice field areas. After idling ceases, emergent vegetation would be expected to recover and re-establish….Increased groundwater substitution could potentially result in the reduction of available groundwater within the root zones of jurisdictional wetlands or waters adjacent to pumping locations. Vegetation within wetlands generally have more shallow root systems than riparian vegetation, and as such vegetation in the upper soils profile are not likely to be impacted by lowering the groundwater table from wells that draw at elevations of below 50 feet.*" It should be noted that the

Comment Code	Response
	Agreement would only be in effect during Agreement Years, which are anticipated to occur an average of once every 10 years. Additionally, the DEIR conservatively evaluates the worst-case scenario in which the maximum water reductions of up to 500,000 acre-feet are required under the Agreement. The DEIR goes on to say that "*because impacts would be temporary and emergent wetland vegetation would re-establish once idling ceases, impacts would be less than significant.*" The DEIR found that "*water drawdown that reaches upper levels of the soil surface have the potential to impact wetland vegetation survival*" and required implementation of mitigation measure MM-HYD-2 (requiring all new groundwater well installations and all groundwater well operations to occur in accordance with basin management objectives identified in applicable GSA-managed GSPs or, where there are no GSPs, in accordance with SGMA) "*to ensure that the appropriate siting, evaluation, and documentation steps are taken and significant impacts to groundwater-dependent wetlands and waters are avoided.*" Therefore, the DEIR already addresses the issue raised by the commentor. No edits are necessary.
Aud-4	As the DEIR discloses, additional details regarding the water supply reductions or response actions that would result from by the Agreement are not further specified because they are variable, would occur in the future, and are unknown at this time. Therefore, Agreement participants may choose to do a combination of cropland idling, crop shifting, groundwater pumping, and/or conservation to meet contract supply reductions during an Agreement Year. The Agreement would only be in effect during Agreement Years, which are anticipated to occur an average of once every 10 years. The DEIR conservatively evaluates the worst-case scenario in which the maximum surface water reductions of up to 500,000 acre-feet are required under the Agreement, but reductions could be lower than this or not occur at all. These variables preclude exact certainty to complete the type of analysis suggested by the commenter. CEQA Guidelines do not require that an EIR predict (or speculate) specifically where an activity would occur, or when it would occur, if those details are not reasonably foreseeable based on available evidence. The DEIR does address the issue raised by the commentor. In Section 3.4.3.4.4, the DEIR states: "*The lack of water in ditches that would result from idling agricultural fields could reduce the size of or eliminate local migratory corridors for wildlife. As discussed under Impact BIO-1, the project area is along the Pacific Flyway, an established air route of waterfowl and other birds migrating between wintering grounds in Central and South America and nesting grounds in Pacific Coast states and provinces of North America. The large project area is currently used for stopover by waterfowl during migration. With crop idling and the reduction of grain spoilage, stopover areas with feed sources for migrating wildlife would be reduced….Local wildlife species and migratory birds are found throughout the project area within existing habitats throughout the year. Interrupted water connections from water reduction activities…have the potential to interfere substantially with the movement of native resident or migratory wildlife species or with established native resident or migratory wildlife corridors or impede the use of native wildlife nursery site. Impacts would be considered potentially significant*." The DEIR also discusses how the implementation of mitigation measures MM-BIO-1, MM-BIO-3, MM-BIO-4, MM-BIO-5, MM-BIO-8, MM-BIO-9, MM-BIO-10, and MM-BIO-11 would reduce impacts to less than significant with mitigation. No edits are necessary.
Aud-5	The DEIR, Section 3.4.3.4.1, already states that "*if present, nests could be impacted by any discing practices used to managed weeds while the fields are idled during the growing season*." The DEIR also includes mitigation measure MM-BIO-10 (Timing Requirements for Discing in Fallow Fields During Agreement Years) that specifically limits discing during an Agreement Year to occur between February 15 and September 15. This mitigation measure is aligned with the specified *Rice Fallowing and Wildlife: Minimizing Impacts and Increasing Opportunity for Wildlife Due to Rice Fallowing and Rotation in the Sacramento Valley* report that specifies that tillage should be delayed until late winter. Therefore, the DEIR already addresses this issue and no edits are necessary.

Comment Code	Response
Aud-6	The SRSC deliver water to agricultural lands, cities, refuges, and other private lands. While recreational opportunities on these lands exist, as described in the DEIR, the proposed project would not result in increased use of these recreational facilities such that substantial physical deterioration would occur nor require construction or expansion of recreational facilities. Water deliveries to refuges would not be affected by the project. For these reasons, there would be no impacts to recreation or recreational facilities. No edits are necessary.
Aud-7	The recommendation to strategically fallow rice across the landscape and create a mosaic of fallowed rice fields would not be practicable because the SRSC do not control how landowners will choose to manage the reduced water supply. For these reasons, it is not possible to guarantee that a mosaic of fallowed rice lands could be created with the Agreement in place. The DEIR included mitigation measure MM-BIO-11 to require to the extent practicable that minimum water depths be maintained in drainage canals in key areas during Agreement Years. No edits are necessary.

CONTRA COSTA WATER DISTRICT

November 4, 2024

Jeff Sutton, General Manager
Glenn-Colusa Irrigation District
P.O. Box 150
Willows, California 95988
Via email to: cegapublicomments@gcid.net

Subject: Contra Costa Water District Comments on September 2024 Draft Environmental Impact Report for Water Reduction Program Agreement Between the Sacramento River Settlement Contractors Nonprofit Mutual Benefit Corporation, Individual Sacramento River Settlement Contractors, and the U.S. Bureau of Reclamation

Dear Mr. Sutton:

Thank you for the opportunity to provide comments on the September 2024 Draft Environmental Impact Report (DEIR) for the Water Reduction Program Agreement Between the Sacramento River Settlement Contractors Nonprofit Mutual Benefit Corporation (SRSCNC), Individual Sacramento River Settlement Contractors (SRSCs), and the U.S. Bureau of Reclamation (Reclamation) (Program).

Contra Costa Water District (CCWD) is a Central Valley Project (CVP) contractor and relies on the CVP for approximately 80-90% of its water supply. CCWD diverts from surface waters in the Sacramento-San Joaquin Delta (Delta) under its CVP contract and under local water rights to serve water to over 520,000 people and industry in central and eastern Contra Costa County. As acknowledged in the DEIR, the Sacramento Valley project area can be characterized as a flow-through system in which most of the water that is not consumed returns to the river or percolates into groundwater. Since the Sacramento River flows into and through the Delta, water management actions taken that affect river flow and water quality will necessarily affect Delta flow and water quality.

As described in the Draft EIR, the Program is intended to reduce diversions of CVP contract supply during specific drought years to reduce water shortages in Shasta Lake. By reducing the amount of water that is released from Shasta Lake and diverted by the SRSCs, the Program intends to provide flexibility for Reclamation's management of the CVP during drought conditions. CCWD appreciates the cooperation of the SRSCs to reduce their water use during droughts; during such years, CCWD's CVP contract supply may be limited to just the amount of water necessary to meet critical public health and safety needs, which occurred in 2015, 2021, and 2022. We recognize the need to protect water supplies and fisheries during these critical periods and appreciate the SRSCs taking action to that effect.

The Program includes groundwater substitution of up to 167,100 acre-feet of water in Phase 1 and 33,420 acre-feet of water in Phase 2, which is over one-third of the reduced water diversions. The specific methods used to implement the groundwater substitution will dictate to what degree the action affects nearby streamflow. Additionally, the reduced diversions in response to crop idling and crop shifting will necessarily change the timing and quantity of return flows to the river.

CCWD-1

Further, the Program appears to be a component of Reclamation's Long-Term Operations (LTO) of the CVP and State Water Project (SWP) for portions of critically dry years. The LTO also includes actions to support the Healthy Rivers and Landscapes Program, also known as the Voluntary Agreements (VAs), which includes additional water reduction activities on the Sacramento River in other water years. The reoperation of Shasta Lake in response to this Program is presumably analyzed in Reclamation's environmental documents. However, it is unclear if those documents analyzed the amount of groundwater substitution and changes to returns flows that are the likely results of this Program.

Therefore, CCWD requests that GCID work with Reclamation to establish and convene a group of interested parties to review accounting assumptions and analyze the combined effect of these projects. The goal would be to bring expertise from other water users and consultants together to reach a common understanding of how the Program, together with the LTO, VAs and various other projects, when combined, will affect flow and water quality in the Sacramento River and Delta as well as storage in Shasta Reservoir.

If you have any questions, please contact me at (925) 525-5445 or dsereno@ccwater.com. We look forward to working with GCID, Reclamation, and other water agencies to further analyze the Program in conjunction with other related activities.

Sincerely,

Deanna Sereno
Science and Policy Manager

DS/LS

cc (via email):
Karl Stock, Reclamation
Adam Nickels, Reclamation

2.5.3 Response to Contra Costa Water District Comment

Comment Code	Response
CCWD-1	Please refer to Global Response 1. The Agreement is a separate project that would exists separate of the LTO project. Thank you for your suggestion regarding the establishment of a working group as part of the CEQA process for this document. GCID appreciates your interest in ensuring robust public engagement. The CEQA public review process is specifically designed to provide ample opportunity for stakeholders to review and comment on the DEIR. Given the structured nature of the CEQA public review process, GCID believes it sufficiently addresses the need for stakeholder participation and feedback. Therefore, GCID does not intend to establish a separate working group.

State of California – Natural Resources Agency
DEPARTMENT OF FISH AND WILDLIFE
North Central Region
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GAVIN NEWSOM, Governor
CHARLTON H. BONHAM, Director

November 4, 2024

Jeff Sutton
General Manager
Glenn-Colusa Irrigation District
P.O. Box 150
Willows, CA 95988
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Subject: WATER REDUCTION PROGRAM AGREEMENT BETWEEN THE SACRAMENTO RIVER SETTLEMENT CONTRACTORS NONPROFIT MUTUAL BENEFIT CORPORATION, INDIVIDUAL SACRAMENTO RIVER SETTLEMENT CONTRACTORS, AND THE U.S. BUREAU OF RECLAMATION
DRAFT ENVIRONMENTAL IMPACT REPORT (DEIR)
SCH No. 2024050834

Dear Jeff Sutton:

The California Department of Fish and Wildlife (CDFW) received and reviewed the Notice of Availability of a DEIR from Glenn-Colusa Irrigation District (GCID) for the Water Reduction Program Agreement Between the Sacramento River Settlement Contractors Nonprofit Mutual Benefit Corporation, Individual Sacramento River Settlement Contractors, and the U.S. Bureau Of Reclamation (Project) pursuant the California Environmental Quality Act (CEQA) statute and guidelines.[1]

Thank you for the opportunity to provide comments and recommendations regarding those activities involved in the Project that may affect California fish, wildlife, native plants, and their habitat. Likewise, we appreciate the opportunity to provide comments regarding those aspects of the Project that CDFW, by law, may need to exercise its own regulatory authority under the Fish and Game Code.

CDFW ROLE

CDFW is California's Trustee Agency for fish and wildlife resources and holds those resources in trust by statute for all the people of the State (Fish & G. Code, §§ 711.7, subd. (a) & 1802; Pub. Resources Code, § 21070; CEQA Guidelines § 15386, subd. (a).) CDFW, in its trustee capacity, has jurisdiction over the conservation, protection, and

[1] CEQA is codified in the California Public Resources Code in section 21000 et seq. The "CEQA Guidelines" are found in Title 14 of the California Code of Regulations, commencing with section 15000.

management of fish, wildlife, native plants, and habitat necessary for biologically sustainable populations of those species. (Fish & G. Code, § 1802.) Similarly for purposes of CEQA, CDFW provides, as available, biological expertise during public agency environmental review efforts, focusing specifically on projects and related activities that have the potential to adversely affect fish and wildlife resources.

CDFW may also act as a Responsible Agency under CEQA. (Pub. Resources Code, § 21069; CEQA Guidelines, § 15381.) CDFW expects that it may need to exercise regulatory authority as provided by the Fish and Game Code. As proposed, for example, the Project may be subject to CDFW's lake and streambed alteration regulatory authority. (Fish & G. Code, § 1600 et seq.) Likewise, to the extent implementation of the Project as proposed may result in "take" as defined by State law of any species protected under the California Endangered Species Act (CESA) (Fish & G. Code, § 2050 et seq.), the project proponent may seek related take authorization as provided by the Fish and Game Code.

PROJECT DESCRIPTION SUMMARY

The Project spans Butte, Colusa, Glenn, Nevada, Placer, Plumas, Shasta, Sutter, Tehama, Trinity, and Yuba Counties, and involves water from Shasta Lake and the Sacramento River. The Project consists of an agreement between Sacramento River Settlement Contractors (SRSC) Corporation, individual SRSCs, and the U.S. Bureau of Reclamation (Reclamation) to implement a drought mitigation, voluntary water conservation, and water purchase program.

The agreement would involve SRSC and individual SRSCs foregoing a larger percentage of their contract supply in specified drought years in two phases: Phase 1, 2025 to 2035, and Phase 2, 2036 to 2045.

Under Phase 1 of the Agreement (2025 to 2035), the contractors would collectively incur a reduced contract supply of up to 500,000 acre-feet under their aggregated contracts during certain years (defined as Phase 1 Agreement Years) if the following four conditions are met:

- Reclamation forecasts end-of-April Shasta Lake storage to be less than 3.0 million acre-feet.
- Reclamation forecasts end-of-September Shasta Lake storage to be less than 2.0 million acre-feet.
- Combined actual and forecasted natural inflow to Shasta Lake from October 1 through April 30 is less than 2.5 million acre-feet.
- Reclamation forecasts a Critical Year under the Settlement Contracts.

Under Phase 2 (2036 to 2045), the contractors would agree to collectively incur a reduced contracted supply of up to 100,000 acre-feet under their aggregated contracts during

certain years (defined as Phase 2 Agreement Years) if the following two conditions are met:

- Combined actual and forecasted natural inflow to Shasta Lake from October 1 through April 30 is less than 2.5 million acre-feet.

- Reclamation forecasts a Critical Year under the Settlement Contracts.

Reduced contract supply would be accomplished through various actions by SRSC including groundwater substitution, cropland idling and shifting, conservation, and through implementing drought-resiliency projects. By reducing the amount of water that is released from Shasta Lake and diverted by the SRSC, the project would consequently allow for more water to be available to Reclamation to manage its operation of the Central Valley Project. In addition, SRSC will engage in drought-resiliency projects to address potential agricultural loss due to reduced contract supply.

COMMENTS AND RECOMMENDATIONS

CDFW offers the comments and recommendations below to assist GCID in adequately identifying and, where appropriate, mitigating the Project's significant, or potentially significant, direct and indirect impacts on fish and wildlife (biological) resources. Editorial comments or other suggestions may also be included to improve the document. Based on the Project's avoidance of significant impacts on biological resources, CDFW concludes that an Environmental Impact Report is appropriate for the Project.

COMMENT 1: Crop Idling and Shifting Impacts

Issue: Crop idling may result in the growth of ruderal plant species that could provide nesting and foraging habitat for special status species. Crop idling and shifting may also reduce the quantity of or change the timing of diversions in Canals and ditches, and inundation quantity and timing in rice fields within the Project Area. This may impact aquatic and riparian species that rely on canals, ditches, and rice fields for habitat and/or connectivity corridors, including western pond turtle (WPT; *Actinemys marmorata*) and the State and federally-threatened Giant Garter Snake (GGS; *Thamnophis gigas*). GGS is listed as a threated species under CESA and as such it is afforded full protection under the act. It is unlawful to take a State-listed endangered or threatened species (Fish & G. Code §2050 et seq.). Take is defined as "hunt, pursue, catch, capture or kill or attempt to hunt, pursue, catch, capture or kill" (Fish & G. Code §86). CESA take authorization should be obtained if any activities associated with the Project have the potential to result in take of a State-listed plant or wildlife species. See *Comment 5: Giant Garter Snake* for additional recommendations.

CDFW-1

Recommendation: CDFW appreciates MM-BIO-11, which is intended to address impacts to canal, ditch, and rice fields as a result of crop idling and fallowing. In addition to this mitigation measure, CDFW recommends GCID conduct surveys for special-status species in rice fields, canals, and ditches subject to impacts from crop idling or shifting. CDFW recommends that prior to initiation of any idling or shifting Project Activities, a Qualified

CDFW-1 cont.

Biologist conduct surveys to identify special-status species and associated habitat to inform where to prioritize and/or avoid idling or shifting Project Activities. Surveys should be conducted within the footprint of idling or shifting activities, and immediately adjacent potential habitat. CDFW recommends GCID and the Qualified Biologist review survey protocols for special-status species available at https://wildlife.ca.gov/Conservation/Survey-Protocols. CDFW also recommends that GCID incentivize rice farmers to plant non-irrigated cover crops on at least 10% of their acreage when drought conditions are met and crop idling transfers are likely. Cover crops greatly increase biodiversity by providing improved nesting and foraging habitat for wildlife while also increasing soil quality. Furthermore, CDFW recommends that GCID require landowners to leave all vegetation (planted cover crops or volunteer vegetation) undisturbed from April 1 – July 15 when crop idling transfers occur.

COMMENT 2: Impacts to Winter-Flooded Rice and Managed Wetland Habitats

CDFW-2

Issue: 90% to 95% of historical wetlands have been lost in the Central Valley due to historical land conversions. Efforts to meet international migratory flyway goals and regional wetland habitat goals by restoring and managing wetland habitats within the Sacramento basin remain challenged by limited resources and climate change. It is estimated that harvested rice fields provide 75% of the food energy available to waterfowl in the Sacramento planning region which incorporates the proposed Project Area and areas to the east of it. Reductions of planted acres through the Project's proposed cropland idling and crop shifting will further reduce the amount of winter-flooded rice available during critically dry years and exacerbate issues associated with lower acreages and quality of wetland habitat that depend on water drained off rice fields for fall flooding.

Recommendation: The DEIR should include an assessment of winter-flooded rice and managed wetland habitat lost due to the reductions of water supply as a result of Project implementation. CDFW appreciates MM-BIO-10 which is intended to benefit nesting birds and MM-BIO-11 which is intended to address impacts to canal, ditch, and rice fields as a result of crop idling and fallowing. In addition to these measures, CDFW recommends the DEIR analyze the impacts of rice idling on dependent managed wetlands and consider avoidance and mitigation actions that minimize the loss of habitat for migratory waterbird species.

COMMENT 3: Groundwater Substitution Impacts on Groundwater Dependent Ecosystems

CDFW-3

Issue: Ecological communities or species that depend on groundwater emerging from aquifers or on groundwater occurring near the ground surface are collectively known as groundwater dependent ecosystems (GDEs) (23 Cal. Code Regs. § 351(m)). These GDEs include seeps and springs; wetlands and lakes; rivers, streams, and estuaries; and terrestrial vegetation. Groundwater substitution activities have the potential to affect groundwater hydrology due to increased groundwater extraction and reduced groundwater recharge. Correlating effects could be temporary and/or long-term declines in groundwater levels, reduction of groundwater storage, depletions of interconnected surface water

(ISW), land subsidence, and degraded water quality. These effects have the potential to adversely impact GDEs and the species therein in basins where groundwater substitution occurs, including ISW GDEs that support several Sacramento Valley listed aquatic species. The DEIR does not discuss nor evaluate potential impacts to GDEs or ISWs as a result of groundwater substitution activities. Further, the DEIR does not map GDEs relative to potential Project locations.

CDFW-3 cont.

Recommendation: The DEIR should include a thorough assessment of water resources in the Project vicinity, including mapping of GDEs and ISWs and identification of special status species therein. The analysis of Project impacts should assess potential localized declines in groundwater levels and associated reduction in shallow groundwater availability for GDEs and changes in rates of groundwater accretions to or depletions from ISWs, and how these impacts may affect special status species. Mitigation measures should be proposed, if warranted, to prevent groundwater-related Project impacts from adversely affecting special status and public trust resources.

COMMENT 4: Sustainable Groundwater Management Impacts

CDFW-4

Issue 3.1: The groundwater hydrology section of the DEIR's Environmental Setting is not sufficiently specific in its description of current groundwater conditions in each Project Area subbasin, which can vary widely.

The DEIR acknowledges that among monitoring wells within the Project Area, from 1998 - 2018, approximately 98% demonstrated a neutral or decreasing trend. The DEIR then goes on to say that though the recent drought from 2021-2022 was the driest hydrologic period on record in portions of the Project Area and led to substantial declines in groundwater levels, following wetter conditions during 2023 and 2024, those portions of the Project Area "generally have seen recovery of these impacts."

DWR's 2024 Semi-Annual Update on California Groundwater Conditions instead states that during 2023, groundwater levels only partially rebounded from the drought years, and while 2024 helped stabilize groundwater levels, it will likely require several more wet years, focused efforts to increase recharge, and reduced pumping to recover from drought and accumulated depletions (DWR, 2024). According to DWR's California Groundwater Live, approximately 35% of wells located in the Sacramento River Hydrologic Unit are at below normal levels, well below normal levels, or all-time low levels. When reviewing the seasonal change in groundwater levels from Spring 2024 in the Sacramento River Hydrologic Unit, over a one-year period approximately 96% of wells have experienced no significant change or a decrease in groundwater levels; over a three-year period, approximately 93% of wells have experienced no change or a decrease in groundwater levels. (DWR, n.d.)

Recommendation 3.1: CDFW recommends that the DEIR include additional information about subbasin-specific groundwater conditions, leveraging the most recent annual reporting for each of the subbasins underlying the Project Area to include statistics on groundwater levels relative to Groundwater Sustainability Plan (GSP) measurable

CDFW-4 cont.

objectives and minimum thresholds. This will provide a more accurate context for characterizing potential impacts of groundwater substitution to sustainable groundwater management, including impacts to environmental beneficial uses and users of groundwater.

Issue 3.2: As part of Project groundwater substitution activities, a total of 167,100 acre-feet and 33,420 acre-feet of additional, annual groundwater pumping is anticipated in Phases 1 and 2, respectively. The DEIR states that the potential for adverse drawdown effects increases with the amount of groundwater extracted. Additionally, other conservation activities such as cropland idling and reducing seepage losses will have a compounding effect through the simultaneous reduction in groundwater recharge.

CDFW-5

Accordingly, the DEIR includes MM-HYD-2: install and operate groundwater wells in accordance with GSPs for all groundwater pumping activities undertaken under the agreement. While CDFW appreciates the inclusion of this measure, more information is needed to thoroughly assess the Project's installation and operation of additional groundwater wells in the context of each subbasin's GSP and in light of potential impacts to Public Trust resources.

For instance, the Colusa Subbasin GSP, over which the Project Area spans, was originally deemed incomplete by the Department of Water Resources, largely due to groundwater overdraft and land subsidence within the subbasin. In the Revised Colusa GSP, which was resubmitted in September 2024 and has yet to be approved, average annual overdraft from 2016 to 2021 was estimated to be 62,000 acre-feet per year (Colusa Groundwater Authority). The Revised Colusa GSP includes a proposal to plan and implement a demand management program, as well as projects meant to incentivize increased surface water use in lieu of continued or increased groundwater pumping. It is unclear how the increased groundwater pumping during Project years will impact overall progress toward groundwater sustainability as defined in each GSP for subbasin wide metrics such as reduction of groundwater storage, even with implementation of measure MM-HYD-2.

Recommendation 3.2: Though the DEIR describes the approximate maximum contract water reduction for each SRSC during Phases 1 and 2 of the agreement, it is unclear what portion of each SRSC's water reduction will be attributable to increased groundwater pumping. CDFW recommends specifying for each SRSC the estimated volume of water reduction that will come from increased groundwater use, as well as listing each SRSC's corresponding subbasin.

The DEIR should include a discussion of each subbasin GSP's estimated annual overdraft, sustainable yield, and how those values compare to the proposed increased groundwater use attributable to this Project. Additionally, the DEIR should more clearly describe how the volume and rates of groundwater pumping as a result of the Project will be adaptively managed and operated based on local GSA monitoring and management of groundwater withdrawals.

COMMENT 5: Drought-Resiliency Project Impacts

CDFW-6

Issue: Drought-resiliency projects may involve piping open ditches or canals, lining canals, canal automation, installation of automated gates, on-farm improvements to irrigation systems, installation of weirs or check damn structures, pipeline recirculation programs, installation of new groundwater or deep aquifer wells, and implementation of a conjunctive use program. Impacts associated with these types of projects include temporary and permanent habitat disturbance and fragmentation. The DEIR does not provide details on design, scope, and locations of these proposed projects; therefore, it is difficult to fully evaluate the potential impacts to fish and wildlife associated with these projects and mitigation measures that may be required.

Recommendation: CDFW recognizes and appreciates the mitigation measures outlined in the Biological Resources section of the DEIR. While mitigation measures related to GGS are presented in MM-BIO-6, CDFW recommends avoidance measures be outlined for all special-status species that may occur within the Project Area. These measures should consider CESA threatened Swainson's hawk (*Buteo swainsoni*), fully protected white-tailed kite (*Elanus leucurus*), CESA threatened tricolored blackbird (*Agelaius tricolor*), CESA candidate burrowing owl (*Athene cunicularia*), and WPT. CDFW recommends these measures be detailed and made publicly available as design plans and project locations are finalized for specific, on-the-ground, drought-resiliency projects. If, upon finalization of drought-resiliency projects, impacts to listed species are unavoidable and project implementation may result in "take" under CESA (Fish & G. Code, § 2050 et seq.), the project proponent should seek related take authorization as provided by the Fish and Game Code.

COMMENT 6: Giant Garter Snake (GGS)

Issue: The DEIR indicates there is suitable GGS habitat present within the Project Area. Alteration of GGS habitat as described in the DEIR within areas such as canals, drainage ditches, and flooded rice fields, all of which contain suitable habitat for GGS, may cause "take" of the state threatened species.

CDFW-7

Recommendation: In order for CDFW to evaluate Project impacts and provide recommendations for appropriate avoidance measures, the DEIR should incorporate a more in-depth evaluation of GGS habitat that may be impacted by Project Activities. Due to the presence of GGS habitat within the Project Area, CDFW recommends GCID Implement GGS avoidance measures in areas of suitable GGS habitat subject to impacts from crop idling and shifting and drought-resiliency projects. CDFW recommends GCID review the U.S. Fish and Wildlife Service's (USFWS) Guidelines for Permits Specific to the Giant Garter Snake available at https://www.fws.gov/sites/default/files/documents/survey-protocols-for-the-giant-garter-snake.pdf. CDFW recommends that avoidance measures for Project Activities that may impact GGS include:

Secure a Qualified Biologist
GCID should retain a Qualified Biologist(s), who is approved by CDFW prior to implementing Project Activities, and who will be responsible for evaluating GGS habitat before initiating crop idling or shifting or drought-resiliency Project Activities. The Qualified Biologist should be knowledgeable and experienced in the biology and natural history of GGS. The Qualified Biologist should be authorized to stop Project Activities, if necessary to protect GGS. If directed by the Qualified Biologist, GCID should take appropriate actions to ensure Project Activities are safely suspended and notify CDFW.

CDFW-7 cont.

Establish Environmentally Sensitive Areas
With the expertise of a Qualified Biologist, GCID should establish Environmentally Sensitive Areas (ESAs) in the Project Area to minimize the disturbance of GGS habitat from idling, shifting, or drought-resiliency activities. All potential GGS habitat that can be reasonably avoided during construction activities should be identified as ESAs and should be marked by the Qualified Biologist. GCID should erect ESA fencing, as directed by the Qualified Biologist, 200 feet from the edge of potential aquatic GGS habitat. The Qualified Biologist should also identify and flag all potential small mammal burrows within the Project Area as ESAs. ESAs should be demarked by tying high visibility poly wire to stakes placed every 6 feet along the ESA boundary. The high visibility poly wire should be raised at least 4 feet above grade. The high visibility wire and stakes should be marked with high visibility flagging or markers. All construction personnel should avoid ESAs during all phases of construction. GCID should avoid ESAs when identifying all staging areas, spoils disposal areas, borrow pits, and construction equipment access routes. The Qualified Biologist should inspect ESA fencing before the start of each workday and GCID should maintain the fencing until the completion of the Project. GCID should remove all fencing material upon completion of the Project.

Work Window
CDFW recommends all activity within GGS upland and aquatic habitat, including activity within 200 feet of aquatic habitat, occur between May 1 and October 1. This is the active period for GGS and direct impacts are lessened because snakes are more active. More danger is posed to snakes during their inactive period, because they are occupying underground burrows or crevices and are more susceptible to direct impacts, especially during excavation. There is still potential for take during the active season. GGS use burrows while shedding, digesting, birthing, hiding, or during inclement weather, at which time they are not as mobile and may not readily move even when disturbed.

Pre-Construction Surveys
No more than 24 hours prior to the start of vegetation clearing or construction activities in any area within 200 feet of potential GGS aquatic habitat (i.e., those activities related to drought-resiliency projects), the Qualified Biologist should conduct pre-construction surveys for GGS that include surveying of burrows, soil cracks, and crevices that may be suitable for use by GGS. Burrows, soil cracks, and crevices should be flagged for avoidance. Surveys shall be repeated if Project Activities within 200 feet of potential GGS aquatic habitat are paused for 14 or more consecutive days.

COMMENT 7: Lake and Streambed Alteration Notification for Project Activities

Issue: The DEIR describes a variety of potential activities that involve modifications to canals, ditches, and surface water levels. CDFW believes activities associated with this Project may require notification for a Streambed Alteration Agreement.

CDFW-8 Section 1602 of the Fish and Game Code requires an entity to notify CDFW prior to commencing any activity that may do one or more of the following:

a. Substantially divert or obstruct the natural flow of any river, stream, or lake;

b. Substantially change or use any material from the bed, channel or bank of any river, stream, or lake; or

c. Deposit debris, waste or other materials where it may pass into any river, stream or lake.

Please note that "any river, stream or lake" includes those that are episodic (i.e., those that are dry for periods of time) as well as those that are perennial (i.e., those that flow year-round). This includes ephemeral streams and watercourses with a subsurface flow. It may also apply to work undertaken within the flood plain of a body of water.

If upon review of an entity's notification, CDFW determines that the Project Activities may substantially adversely affect an existing fish or wildlife resource, a Lake and Streambed Alteration (LSA) Agreement will be issued which will include reasonable measures necessary to protect the resource. CDFW's issuance of an LSA Agreement is a "project" subject to CEQA (see Pub. Resources Code 21065). To facilitate issuance of an LSA Agreement, if one is necessary, the environmental document should fully identify the potential impacts to the lake, stream, or riparian resources, and provide adequate avoidance, mitigation, and monitoring and reporting commitments. Early consultation with CDFW is recommended, since modification of the project may avoid or reduce impacts to fish and wildlife resources. LSA Notifications must be submitted online through CDFW's Environmental Permit Information Management System (EPIMS). For more information about EPIMS, please visit https://wildlife.ca.gov/Conservation/Environmental-Review/EPIMS. More information about LSA Notifications, paper forms and fees may be found at https://www.wildlife.ca.gov/Conservation/Environmental-Review/LSA.

CDFW-8 cont.

Recommendation: CDFW recommends that GCID notify pursuant to Section 1602 of the Fish and Game Code as early as possible to determine if LSAs are needed for any Project Activities.

COMMENT 8: No Net Loss of Wetland Habitat

CDFW-9

Issue: Potential impacts to riparian habitats and sensitive natural communities (i.e., managed wetlands) within and around the Project Area are addressed in Section 3.3.4.2. However, there is no mention of state or federal policies related to "no net loss" of wetland habitat and further analysis and discussion is needed.

Recommendation: In addition to federally owned and managed wildlife refuges occurring within the Project Area, there are a significant number of privately owned wetlands that rely on the tailwater of SRSC for their existence. The DEIR should include mention of both federal and state "no net loss" policies for wetland habitat applicable to federal and state agencies respectively.

COMMENT 9: Cumulative Impacts

CDFW-10

Issue: Because the DEIR does not provide specific project locations nor does it quantify the number of potential project sites, locations, or activities within the larger Project Area, the Analysis of Cumulative Impacts is not adequate.

Recommendation: Prior to implementing any facet of the Project, GCID should consider the Project's likely cumulative impacts to biological and hydrological resources by characterizing and quantifying anticipated Project Activities and their potential collective and cumulative impacts to vegetation and habitat reduction.

ENVIRONMENTAL DATA

CDFW-11

CEQA requires that information developed in environmental impact reports and negative declarations be incorporated into a database which may be used to make subsequent or supplemental environmental determinations (Pub. Resources Code, § 21003, subd. (e).) Accordingly, please report any special-status species and natural communities detected during Project surveys to the California Natural Diversity Database (CNDDB). The CNNDB field survey form can be found at the following link: https://www.wildlife.ca.gov/Data/CNDDB/Submitting-Data. The completed form can be submitted online or mailed electronically to CNDDB at the following email address: CNDDB@wildlife.ca.gov.

FILING FEES

CDFW-12

The Project, as proposed, would have an impact on fish and/or wildlife, and assessment of filing fees is necessary. Fees are payable upon filing of the Notice of Determination by the Lead Agency and serve to help defray the cost of environmental review by CDFW. Payment of the fee is required in order for the underlying project approval to be operative,

CDFW-12 cont.

vested, and final. (Cal. Code Regs, tit. 14, § 753.5; Fish & G. Code, § 711.4; Pub. Resources Code, § 21089.)

CONCLUSION

Pursuant to Public Resources Code § 21092 and § 21092.2, CDFW requests written notification of proposed actions and pending decisions regarding the proposed project. Written notifications shall be directed to: California Department of Fish and Wildlife North Central Region, 1701 Nimbus Road, Rancho Cordova, CA 95670 or emailed to R2CEQA@wildlife.ca.gov.

CDFW appreciates the opportunity to comment on the DEIR for the Water Reduction Program Agreement Between the Sacramento River Settlement Contractors Nonprofit Mutual Benefit Corporation, Individual Sacramento River Settlement Contractors, and the U.S. Bureau Of Reclamation to assist GCID in identifying and mitigating Project impacts on biological resources. CDFW personnel are available for consultation regarding biological resources and strategies to minimize and/or mitigate impacts. Questions regarding this letter or further coordination should be directed to Alyssa Obester, Senior Environmental Scientist (Specialist) at alyssa.obester@wildlife.ca.gov.

Sincerely,

DocuSigned by:
Morgan Kilgour
C3A86764C0AD4F6...

Morgan Kilgour
Regional Manager

ec: Briana Seapy, Senior Environmental Scientist (Supervisory)
Alyssa Obester, Senior Environmental Scientist (Specialist)
Brian Olson, Senior Environmental Scientist (Supervisory)
Jennifer Garcia, Environmental Program Manager
Kristal Davis-Fadtke, Environmental Program Manager
Department of Fish and Wildlife

Office of Planning and Research, State Clearinghouse, Sacramento

References

Colusa Groundwater Authority & Glenn Groundwater Authority. 2024. Colusa Subbasin Groundwater Sustainability Plan, Revised Report.

Department of Water Resources. 2024. California's Groundwater Conditions: Semi-Annual Update, October 2024.

Department of Water Resources. California's Groundwater Live. https://sgma.water.ca.gov/CalGWLive/.

2.5.4 Responses to California Department of Fish and Wildlife (CDFW) Comments

Comment Code	Response
CDFW-1	The DEIR discusses the impact of potentially allowing the growth of volunteer plant species while croplands are idled. In Section 3.4.3.4.1 (BIO-1), the DEIR states: "*If the fields are not disced while idled, they could support a ruderal weed plant community that provides nesting and foraging habitat for special status passerines (i.e., perching birds), MBTA passerines, and raptors. Fallow lands often support pioneer plant species such as thistles that may provide habitat for rodents or other special status raptor food sources. Migratory waterfowl nest in fallow fields and, with an increase in idled croplands, there could be an increase in migratory waterfowl nesting on lands adjacent to waterways and wetlands, which could potentially include project areas. If present, nests could be impacted by any discing practices used to manage weeds while the fields are idled during the growing season.*" Mitigation measure MM-BIO-10 includes a timing requirement for discing in fallow fields during Agreement Years, reducing the impact to nesting birds to less than significant with mitigation. The DEIR also discusses impacts of the Agreement on species that rely on water availability in irrigation canals and ditches. The DEIR states that "*GGS and northwestern pond turtle use ditches and canals in the project area. The movement and dispersal of GGS would be affected by the reduction of water within major irrigation and drainage canals and from the dewatering of smaller drains and conveyance infrastructure through their lack of use for irrigation. The loss of water in ditches and canals could result in a lack of connectivity between natural wetland habitats that could be used by GGS, which are known to use the canals and ditches between rice fields as aquatic movement corridors.*" As discussed in the comment, the DEIR includes mitigation measure MM-BIO-11, which is intended to minimize impacts to GGS in canals and ditches. Regarding the suggestion to conduct surveys on the fields to be idled, this would include surveying over as much as 80,000 acres of land during an Agreement Year after Reclamation confirms the contract supply reductions required (April 15) and before crop idling occurs, which is not anticipated to be a long period of time because rice planting typically occurs in May. While GCID understands the importance of monitoring and data collection, conducting comprehensive field surveys across such an extensive area presents significant logistical and resource challenges, making it infeasible. In addition, it should be noted that growers idle and shift crops as part of normal agricultural operations under baseline conditions. Regarding cover crops, GCID recognizes the potential benefits of cover crops, including soil health and habitat values. However, the decision to incorporate cover crops depends on the feasibility for individual farmers, including the financial feasibility, and neither GCID nor the SRSC have control over these factors. Therefore, it is also infeasible to guarantee that at least 10% of idled fields be planted with non-irrigated cover crops. Finally, regarding leaving vegetation undisturbed on idled fields from April 1 to July 15, this recommendation is not a feasible mitigation measure. Landowners must retain the ability to manage vegetation on their fields to address issues such as weed control, pest management, and fire risk, which are critical to maintain the long-term viability of their operations. More specifically on the topic of wildfire, as mentioned in Section 3.20.3.4.2 (WIL-2) of the DEIR, cropland idling could result in bare land with very low potential for vegetation to grow, actually acting as a barrier against propagation of wildland fires that would be more susceptible to occur during Agreement Years. Therefore, this recommendation could result in other environmental impacts and is not included in the FEIR. No edits are necessary. Note the comment refers to "crop idling transfers." No transfers are proposed under the Agreement.

Comment Code	Response
CDFW-2	As discussed in the response to comment Aud-1, Sections 3.4.1.2.3 and 3.4.1.1.3 of the DEIR acknowledge that "*a wide diversity of wetlands form a mosaic in preserve areas providing annual and perennial herbaceous vegetation as well as scrub shrub to mature riparian trees that are important for both resident and migratory waterfowl in the Pacific Flyway"* and "*in particular, the practice of flooding rice fields in winter to allow rice stubble to rot, instead of burning rice stubble in the fall, provides a wide variety of ducks and geese an opportunity to loaf or forage in rice fields in winter and important foraging habitat for shorebirds. Fallow rice fields also provide important habitat for geese, cranes, large herons, and egrets, and can also provide breeding habitat* for *waterfowl such as mallards (*Anas platyrhynchos*) and gadwall (*Mareca strepera*)*." The DEIR further states in Section 3.4.3.4.4 (BIO-4): "*Crop idling could result in impacts to resident native wildlife species. Irrigation ditches and canals and associated vegetation in the project area provide movement corridors for a variety of resident native wildlife species that occupy agricultural areas, including many common species of birds, reptiles, and amphibians. The lack of water in ditches that would result from idling agricultural fields could reduce the size of or eliminate local migratory corridors for wildlife. As discussed under Impact BIO-1, the project area is along the Pacific Flyway, an established air route of waterfowl and other birds migrating between wintering grounds in Central and South America and nesting grounds in Pacific Coast states and provinces of North America. The large project area is currently used for stopover by waterfowl during migration. With crop idling and the reduction of grain spoilage, stopover areas with feed sources for migrating wildlife would be reduced.*" The DEIR includes mitigation measures MM-BIO-10 (Timing Requirements for Drought-Resiliency Projects) and MM-BIO-11 (Maintain Minimum Water Depth in Irrigation and Drainage Canals in Key Areas During Agreement Years). With implementation of these mitigation measures, impacts regarding the loss of habitat for migratory waterbird species would be reduced to less than significant. Therefore, the DEIR already sufficiently addresses the use of rice fields by migratory birds. No edits are necessary.
CDFW-3	Please refer to Global Response 2 and the responses to comments AA-1 and AA-23.
CDFW-4	Please refer to the responses to comments AA-6, AA-7, AA-12, and AA-20. Section 3.10.1.2 has been updated in the FEIR to include Table A, which details a description of each groundwater basin and current groundwater conditions for each subbasin within the project area.
CDFW-5	Please refer to the responses to comments AA-23 and AA-25. Project-related changes in groundwater and related effects are not expected to be substantial, and mitigation measure HYD-2 requires compliance with applicable GSA-managed GSPs or, where there are no GSPs, in accordance with SGMA. For these reasons, it is reasonable to assume that the project will not have a substantial adverse impact on overall progress toward groundwater sustainability as defined in each GSP.
CDFW-6	The DEIR includes mitigation measures MM-BIO-1, MM-BIO-3, MM-BIO-4, MM-BIO-5, MM-BIO-7, and MM-BIO-8, which apply to all special status wildlife species, including CESA threatened Swainson's hawk (*Buteo swainsoni*), fully protected white-tailed kite (*Elanus leucurus*), CESA threatened tricolored blackbird (*Agelaius tricolor*), CESA candidate burrowing owl (*Athene cunicularia*), and northwestern pond turtle. As required by CEQA, GCID will prepare an MMRP that identifies the responsible party and timing to implement mitigation. As the lead agency, GCID will be responsible for ensuring that all mitigation measures are complied with. All drought-resiliency project proponents would be responsible to obtain necessary federal, state, and local permits and approvals in accordance with mitigation measure MM-BIO-13. Specific to the Fish and Game Code, if, upon finalization of drought-resiliency project details, CESA-listed species avoidance is not expected to be possible through implementation of mitigation measures MM-BIO-1,

Comment Code	Response
	MM-BIO-3, MM-BIO-4, MM-BIO-5, or MM-BIO-6, CDFW would be consulted to determine the appropriate approach for minimizing impacts to special status wildlife species and compensating for potential incidental take in accordance with mitigation measure MM-BIO-7. Incidental take authorization would be obtained for take of listed species resulting from construction of a drought-resiliency project. No edits are necessary.
CDFW-7	Mitigation measures MM-BIO-3, MM-BIO-4, and MM-BIO-6 include retaining a qualified biologist to conduct site-specific special status species surveys, including surveys of GGS, if the desktop surveys conducted as part of mitigation measure MM-BIO-1 indicates the potential for any special status species to be present at the drought-resiliency project sites. For the drought-resiliency projects, mitigation measures MM-BIO-3, MM-BIO-4, and MM-BIO-6 include flagged setbacks (MM-BIO-3 and MM-BIO-4) or temporary fencing (MM-BIO-6) for special status species, which is consistent with demarking ESAs. For cropland idling and shifting, as mentioned in response to comment CDFW-1, site-specific assessments for special status species including GGS is neither needed nor feasible, due to the size of the potential cropland idling and shifting activities. For that reason, it is not possible to establish ESAs for GGS during cropland idling and shifting activities. The DEIR includes mitigation measure MM-BIO-11, which is intended to minimize GGS impacts in canals and ditches. A work window for GGS is already proposed for drought-resiliency projects as part of mitigation measure MM-BIO-6 to the extent practicable; however, implementation of a "work window" for surface water reduction activities is not feasible. Once the SRSC's surface water supply gets reduced during an Agreement Year, each SRSC would notify various landowners within their service area and surface water deliveries would be reduced, resulting in cropland idling or shifting. The timing of cropland idling and shifting activities would be variable because differing conditions throughout the valley influence crop planting and harvesting time. Therefore, implementation of a "work window" for surface water reduction activities is not a feasible mitigation measure for the proposed project. No edits are necessary.
CDFW-7	Please refer to the response to comment CDFW-6 for a discussion of pre-construction surveys for drought-resiliency projects. A qualified biologist, trained to survey various species and habitats, would conduct surveys using USFWS and/or CDFW protocols for all special status species. The mitigation measures were developed to be comprehensive of all species. No edits are necessary.
CDFW-8	In accordance with mitigation measure MM-BIO-13, drought-resiliency projects that would affect waters and riparian areas within CDFW's jurisdiction would require notification to CDFW under Fish and Game Code Section 1602. Specifically, mitigation measure MM-BIO-13 states that "*if it is determined through implementation of MM-BIO-1 and MM-BIO-12 that drought-resiliency project impacts to jurisdictional wetlands or other waters cannot be avoided, then required permits, potentially including permits from the USACE, RWQCB, and CDFW will be obtained.*" Therefore, this mitigation measure addresses this comment and no edits are necessary.
CDFW-9	Information on federal and state no net loss policies for wetlands has been added to Section 3.10.2 (Hydrology and Water Quality, Applicable Regulations) in the FEIR.
CDFW-10	Because no specific resiliency projects have been proposed, details regarding design, scope, and locations remain undefined at this time and it would be speculative to present such information. However, an assessment of potential impacts was completed consistent with 14 CCR 15124 and 15126. The analysis in the DEIR identified and considered ways that the specific location or construction time frame could influence the extent or magnitude of the impact, and then it identified mitigation measures that would be imposed if a proposed project element were located in areas or during periods where such mitigation would be needed. Like all CEQA documents that consider

Comment Code	Response
	future activities, individual future activities may still require additional or separate CEQA clearance; however, the DEIR adequately describes what types of activities may occur because of the Agreement and how those activities could affect the environment, including biological and hydrological resources impacts, both individually and cumulatively. No edits are required.
CDFW-11	In accordance with Public Resources Code Section 21003 and mitigation measure MM-BIO-5 in the DEIR, any special status species and natural communities detected during drought-resiliency project surveys or construction would be reported in the California Natural Diversity Database. No edits are required.

CENTRAL DELTA WATER AGENCY

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November 21, 2024
******REVISED DRAFT******

Via Email Only to:
ceqapublicomments@gcid.net

Re: ***Water Reduction Program Agreement Between the Sacramento River Settlement Contractors (SRSC) Nonprofit Mutual Benefit Corporation, Individual Sacramento River Settlement Contractors, and the U.S. Bureau of Reclamation (USBR)***

The DEIR is legally deficient and sadly reflects an unlawful effort by USBR to circumvent the law to foster exports of water which is not surplus to the present and future water needs in the counties and watersheds of origin. The DEIR fails to present or incorporate the limitations on the water rights for the CVP and SWP and the public official fiduciary duties as trustees of the public trust thereby failing to set forth an honest and good faith analysis of impacts and alternatives.

Water Rights

CDWA-1

At the outset, the Central Delta Water Agency (CDWA) would like to reiterate its formal position regarding transfers: That no transfer of water for export from the Delta Watershed be allowed unless D-1641 requirements, without temporary urgency changes, are and will be met. Approval of any such transfers should require adequate evaluation, monitoring and accounting of a) the actual timing and amount diverted and b) that such amount is truly surplus to the present and future needs within the Delta Watershed including the needs of fish and wildlife and the need to secure groundwater sustainability.

The SWP and CVP operate under appropriative rights. The rights are limited by CA Water Code Sections 11460 et. seq. & 12200 et. seq. The water to be diverted, stored and rediverted is the same water that is subject to prior vested riparian and pre-1914 water rights, numerous post 1914 permits and licenses including permits of the federal CVP and obligations required by State and Federal statutes. Much of the water needed to meet present and future needs within the Delta watershed, the needs for development in the counties of origin and the needs outside such areas but within the scope of Water Code 11460 is **not subject to definitive quantification**.

Much of the proposed water reduction is to come from reduced exercise of riparian water on riparian land to which such rights are appurtenant. Such rights cannot be used on other than the land to which such rights are appurtenant. The riparian right does not include the right to store such water.

The appropriative rights of the SWP and CVP are post-1914 rights based on STATE filings pursuant to the Water Commission Act of 2013. Such filings are limited to unappropriated water.

Unappropriated water is defined as:

> "all waters flowing in any river, stream, canyon, ravine or other natural channel, excepting so far as such waters have been or are being applied to useful and beneficial purpose upon, or in so far as such waters are or may be reasonably needed for useful, and beneficial purposes upon lands riparian thereto, or otherwise appropriated, is and are declared to be public waters of the State of California and subject to appropriation in accordance with the provisions of this act." (emphasis added) (Stats. 1913 c 586, section 11) (See Water Code Section 1201 and Stats. 1943, c.368)

CDWA-1 cont.

The exception of the water for beneficial use on riparian lands and prior appropriation recognizes the public interest and public trust need for priority protection of the present and future uses within the watersheds and counties from which water would be exported. Such water is not unappropriated and not subject to state allocation of permits and licenses, including those of the SWP and CVP. There is no right to store the riparian water since it may be reasonably needed for useful and beneficial purposes upon lands to which it is appurtenant.

The SWP and CVP permits and licenses are based on an assignment of state filings which incorporate the exclusion of any water needed for development in the counties from which the water originates.

Water Code Section 15505, Stats. 1943, c.370 provides:

> "No priority under this part shall be released nor assignment made of any application that will, in the judgment of the board, deprive the county in which the water covered by the application originates of any such water necessary for the development of the county."

Water code section 10505.5, Stats. 1969, c.1359 provides:

> "Every application heretofore or hereafter made and filed pursuant to Section 10500, and held by the State Water Resources Control Board, shall be amended to provide, and any permit hereafter issued pursuant to such an application, and any license issued pursuant to such a permit, shall provide, that the application, permit, or license shall not authorize the use of any water outside of the county of origin which is necessary for the development of the county."

Water Code Section 10504 provides:

> "All applications made and filed pursuant to Section 10500 shall be transferred to the State Water Resources Control Board and held by the board for the purposes of this part. The board may release from priority or assign any portion of any application filed under this part when the release or assignment is for the development not in conflict with such general or coordinated plan or with water quality objectives established pursuant law. The assignee of any such application whether heretofore or hereafter assigned, is subject to all the requirements of diligence as provided in Part 2 (commencing with Section 1200) of Division 2 of this code. "Assignee" as used herein includes, but is not limited, state agencies, commissions and departments, and the United States of America or any of its departments or agencies."

CDWA-1 cont.

With or without unlawful storage, the riparian sourced water cannot be applied to other than the appurtenant land. If the riparian sourced water is exported from the Delta, which would be unlawful, the provision for the future development of the counties would be for all the counties in the Delta watershed.

To the extent that the water reduction program is intended for or results in greater exports from the Delta there would be a violation of Water Code 11460 et seq. and 12200 et seq.

Alternatives which comply with law should in good faith be included and analyzed. This would help in determining whether the plan is in the best public interest and whether the analysis can meet NEPA requirements.

Furthermore, hydrology is variable, forecasting is difficult and water system operation compliance with regulatory and legal requirements is uncertain. Compliance with priorities is greatly dependent upon the good faith actions of public officials, as trustees of the public trust who operate and regulate the water system.

The SWP and CVP have coordinated their operations and have been unable to provide sufficient water to meet water quality standards if there are multiple dry years. It is not in the best public interest for the State and United States to fund the project described in the DEIR which is competing for water already appropriated to serve the SWP and CVP contractors.

What is clear is that the coordinated water plan for California planned for the SWP and CVP development of millions of acre feet of additional surplus water from the Delta watershed and North Coast of California by the year 2000. Such has not occurred. What is also clear is that the SWP and CVP have not met the water quality standards which are conditions of their permits, and such action was sanctioned through the grant of temporary urgency changes and exercise of emergency powers. If the SWP and CVP have sufficient water to comply but were allowed to circumvent the requirements then there is an apparent violation of law and breach of the public trust that should not be repeated. If the Project water supply is insufficient, it is not in the best

public interest to permit a new publicly funded project competing for the same water planned for and needed by the SWP and CVP.

As part of a pattern and practice of mismanaging Delta water quality in order to facilitate the export of water outside of the watershed, the USBR has routinely applied for, and the State Water Resources Control Board (SWRCB) has routinely approved Temporary Urgency Change petitions to relieve the projects of their statutory obligations to maintain water quality standards in the Delta. This practice contravenes both the Watershed protection act (Wat. Code, § 11460 et seq.) and the Delta Protection Act. (Id. § 12200 et seq.) and arguably the Clean Water Act.

Purchased surface water allocations should not be accounted for in such a fashion as to facilitate the transfer of water outside the watershed without a demonstration that such actions will not impact project obligations to meet D-1641 or applicable water standards through a series of dry years comparable to that of the drought of record from 1929-1934. That is to say, the water accounted for in this action should not be exported from the watershed or accounted for to facilitate greater exports outside the watershed without a demonstration that all current and future water needs within the watershed will be met. The instant document does not sufficiently demonstrate that the diversions being purchased will not result in the Projects continued violation of their legal obligations to maintain water quality in the delta, nor does it sufficiently demonstrate that the proposed actions do not stand to cause significant impacts to the environment, Legal Users of Water within the Delta Watershed and overlying groundwater basins, Groundwater Dependent Ecosystems (GDEs), other endangered species and Public Trust resources.

CDWA-1 cont.

The analysis provided in the document begs many questions, but one in particular goes unanswered: **Can releases from Shasta be reduced even if Water Quality Standards in the Delta, currently those prescribed in D-1641 and the controlling biological opinions, are not being met?**

In Sum, the DEIR is an attempt to reform and reclassify the underlying rights of the projects and the SRSC in a way that benefits both parties to the detriment of other vested water right holders in the watershed and the public. Whatever the underlying rights of the SRSC are they cannot be transmuted into some amorphous species of water right via contractual obligation with the USBR or any state entity. The infirmities in supply of the SWP and CVP are theirs alone to shoulder, and contracting with third parties affords them no special standing or character.

Water Reduction Activities

Section 2.5 of the DEIR outlines the Methods for Accomplishing Water Reductions. The title of this section is potentially misleading, as some of the actions outlined herein could potentially result in **increased** use of water. The DEIR lacks any methods for the definitive accounting monitoring or measurement to ensure that contract supply reductions would result in real reductions in use and correspondingly provide any certainty or accuracy that the actions taken by SRSC would correspond to any perceived contributions to storage volumes in Shasta Lake. Nor does the document account or attempt to quantify potential impacts to land development, related business, county tax revenue, Legal Users of Water within the Delta Watershed and overlying groundwater basins, Groundwater Dependent Ecosystems (GDEs), other endangered species and

CDWA-2

Public Trust resources, etc.

Cropland Idling

The DEIR is deficient in the analysis provided in section 2.5.1.1. The document contemplates SRSC idling up to 83,333 acres of crops in phase 1 and up to 16,667 in phase 2. The assumed savings per acre is 6.0 -7.0 acre feet per acre as displayed in table 6 of the DEIR. This figure is insufficiently explained above on page 19 of the document as a combination of consumptive and cultural uses:

> *For rice in the Sacramento Valley, consumptive uses have ranged from 3.0 to 3.3 acre-feet per acre.... May generally require another additional 3.0 to 4.0 acre-feet per acre that is additive to the consumptive use component, which results in a total average water application factor of approximately 6.0 to 7.0 acre-feet per acre for rice.*

CDWA-3

For starters, the DEIR provides no basis for the calculations or figures, these figures may have been plucked from thin air or were the result of an intensive study, the reader is left only to suppose. Perhaps more concerning is the fact that consumptive use of crops varies from year to year based on a variety of circumstances including, planting dates, soil characteristics, hydrology, precipitation, localized weather patterns. An acre of rice on one side of the road, drain or valley does not consistently use an equivalent amount of water as a juxtaposed acre of rice. In addition, it is improper to assume that the cropland would not consume any water. The reason this land is utilized to produce crops is because it is fertile ground. The ground will certainly vegetate with wild or uncontrolled growth if it is not managed. This will result in unaccounted water use and potentially undermine any savings that would occur based on the figures provided in the DEIR. Furthermore, the DEIR does not consider the potential impacts idling such large quantities of cropland may have on Legal Users of Water within the Delta Watershed and overlying groundwater basins, Groundwater Dependent Ecosystems (GDEs), other endangered species and Public Trust resources. Indeed, the additional 3.0-4.0 acre feet of water applied in excess of that which is consumptively used would result in increased return flows and accretions to nearby river, streams and even groundwater basins in addition to providing critical habitat and ecosystem services and benefits.

Cropland Shifting

CDWA-4

The DEIR is deficient in the analysis provided in section 2.5.1.2. Many of the deficiencies in this section are similar to the prior section on cropland idling. There is not attempt to outline or describe how surface diversion reductions would be accurately calculated or correspond to any perceived contributions to storage volumes in Shasta Lake.

Groundwater Substitution

CDWA-5

The DEIR is deficient in the analysis provided in section 2.5.1.3. Many of the deficiencies in this section are similar to those outlined above in cropland idling and shifting. The DEIR outlines the quantities of water to be shifted from surface demand to groundwater demand in Table 7 on page 20 of the document. Phase 1 provides 167,100 acre feet and phase 2 33,420 acre feet. Of note,

CDWA-5 cont.

this is not a proposed reduction in water use. This action stands to increase the amount of water use in a given year and has the potential to exacerbate stressors to an already impacted groundwater basin. Additional reliance on groundwater has the potential to further decrease streamflow, water quality, and impacts to GDEs

Conservation

CDWA-6

The DEIR is deficient in the analysis provided in section 2.5.1.4. The DEIR provides no quantities of water to be conserved, nor does it describe the actions by which water is to be conserved. The only action described in the DEIR is on page 20 and states, "While the SRSC already implements water conservation actions, the SRSC would further implement water conservation actions, such as sending notices to landowners and water users to conserve water during Agreement Years." CA Water Code Section 1011 governs conservation under appropriated water rights. Under this code section the quantification of the water to be conserved must be substantiated through reporting. Subsection (a) states "….Failure to file the reports shall deprive the user of water of the benefits of this section." The DEIR should provide the basis for quantification of conserved water under this agreement. CDWA asserts that undelivered water, or water that is unavailable, due to curtailment or otherwise should not consider conserved water.

Drought-Resiliency Projects

CDWA-7

The information provided regarding Drought-Resiliency Projects is insufficient to conduct any meaningful analysis of the potential impacts to Legal Users of Water within the Delta Watershed and overlying groundwater basins, Groundwater Dependent Ecosystems (GDEs), other endangered species and Public Trust resources.

Applicable Regulations

SB 88

The DEIR is deficient in the analysis provided in section 3.2.2. *Section 3.2.2.1 State Regulations* analyzes the proposed projects consistency with State Regulations. The Document is deficient in that it does not discuss compliance with the water measurement and reporting regulation (often called SB 88) imposed by the SWRCB. In general, those who divert more than 10 acre-feet per year are required to measure and report their diversions under the regulation. This regulation is

CDWA-8

not mentioned in the document.

Accurate accounting and measurement is a basic underpinning of the proposed actions. To accurately account for the benefits and impacts of the proposed project it is critical to know the actual quantities of water to be saved and stored. An inability to accurately quantify savings makes the proposed benefits speculative at best. It does not appear that any consideration was given to this regulation. Furthermore, a review and analysis of Glenn Colusa Irrigation District's (GCID) annual Reports of Licensee appears to demonstrate that GCID does not currently consider or comply with SB 88 regulations in their active operation and past management of their diversions.

CDWA-9

Public Trust

> Once the state has approved an appropriation, the public trust imposes a duty of continuing supervision over the taking and use of the appropriated water. In exercising its sovereign power to allocate water resources in the public interest, the state is not confined by past allocation decisions which may be incorrect in light of current knowledge or inconsistent with current needs. **National Audubon Society v. Superior Court 33 Cal. 3d 419 (1983)**

CDWA-9 cont.

The DEIR does not give adequate consideration to the Public Trust. Regardless of historical appropriations, allocations and hydrology the above holding in *National Audubon* is clear. The State and its trustees are under a continuing obligation to account for the public interest in determining allocations of water. As described in the opening of these comments the Appropriative rights of the projects and their contractual constraints in relation thereto are subject to such an obligation. Additionally described above is the pattern and practice of the Trustees at the USBR and the SWRCB habitually and continually violating this trust for the benefit of project operators and contractors to the detriment of the California's Public Trust resources. We are experiencing a second consecutive closure of commercial and recreational Salmon fishing, Delta Smelt are on the verge of extinction, White Sturgeon are being considered for listing under ESA, and various other aquatic and terrestrial species in the watershed are currently listed as threatened or endangered. Our Public Trust resources have been pillaged and pilfered for political expediency and gain. The CDWA views this proposal as an extension of the pattern and practices that have produced a perpetual drought within our watershed, resulted in the collapse of the aquatic ecosystem in the Bay- Delta Estuary and impacted and infringed on the vested water rights of diverters with our agency and throughout the Delta Watershed. Payment of public dollars to persuade private parties to engage in practices that will result in benefits to themselves and selected others at the cost of the general public should no longer be tolerated in the administration of water rights in California.

Thank you for considering these comments and concerns.

Brett G. Baker
Attorney for the CDWA

2.5.5 Responses to Central Delta Water Agency Comments

Comment Code	Response
CDWA-1	The proposed project does not include or facilitate water transfers. Please refer to the response to comment AA-38 for a discussion on transfers. Because the comment omits any significant environmental issues, no additional response is warranted (CEQA Guidelines Section 15088). The preparers direct the commenter to Global Responses 1 and 3 and the responses to comments AA-17 and AA-23, which relate to the commenter's general concerns, and Section 3 of the DEIR, which fully analyzes the potential impacts to the environment due to implementation of the proposed project. The proposed project would not alter any water rights.
CDWA-2	The comment does not provide any specifics or evidence related to the claim that the proposed project would not result in any real water reductions. The reduced contract supplies to the SRSC can be verified through Reclamation and SRSC data. Please refer to Global Response 2 and the response to comment AA-23 regarding potential impacts to groundwater basins, GDEs, and endangered species. No edit is required.
CDWA-3	Regarding the assumed water savings, please refer to the response to comment AA-21. The 6 to 7 acre-feet per acre of water savings was identified based on feedback from the SRSC from their recent experience with idled crops in the project area (baseline conditions reported in the DEIR). The 6 to 7 acre-feet per acre savings is intentionally a range to accommodate the local variations throughout the SRSC service area. The DEIR is not required to monitor specific amounts of water reductions and cropland acreage that is idled. The EIR is required to analyze and disclose the reasonably foreseeable environmental impacts of the Agreement. Please see Global Responses 1, 2, and 3. Contrary to the comment, the DEIR does address revegetation of idled cropland. As discussed in the DEIR (Section 3.9.3.4.7), "*cropland idling would result in bare land with very low potential for vegetation to grow*." However, as mentioned in Section 3.4.3.4.1, "*while croplands are idled, volunteer plant species (usually ruderal weeds) could establish*." Any volunteer plant species growing on idled land are shallowly rooted and would not reach the groundwater 20 or 30 feet below the surface and therefore would not impact groundwater availability or downstream water availability, nor would there be an impact to GDEs as a result of the growth of volunteer plant species. Please refer to Global Response 2 and the response to comment AA-23 regarding groundwater basins, GDEs, and endangered species.
CDWA-4	Please see responses to comments AA-11 and CDWA-3.
CDWA-5	Please refer to Global Response 2 and the response to comment AA-23.
CDWA-6	As mentioned in the DEIR, "*Agreement participants may choose to do a combination of cropland idling, crop shifting, groundwater pumping and/or conservation.*" The exact amount of water conservation that would be undertaken by the SRSC was unknown at the time of publication of the DEIR. The CEQA Guidelines do not require that an EIR predict (or speculate) specifically when or how much of an activity would occur if those details are not reasonably foreseeable. The answers to such questions require speculation, which CEQA discourages (see CEQA Guidelines Section 15145). The DEIR, however, provides sufficient information on the scope of the proposed water reduction activities to present a meaningful analysis of impacts.

Comment Code	Response
CDWA-7	The DEIR includes analysis of the impacts of drought-resiliency projects on groundwater. Specifically, Section 3.10.3.4.2 states that "*construction of the drought-resiliency projects would not affect groundwater recharge or lead to groundwater subsidence. Operation of the drought-resiliency projects, including new groundwater or deep aquifer wells and conjunctive use programs would have a direct significant impact to groundwater recharge, similar to the impact described above for water reduction activities. Groundwater substitution activities could contribute to accelerated depletion of groundwater resources. The potential for adverse drawdown effects would increase as the amount of extracted water increased. Other drought-resiliency projects, including piping open ditches or canals, canal lining, canal automation through SCADA, automated gates installation, on-farm improvements to irrigation systems, weirs or check structures, and pipeline recirculation programs, would all constitute elements that save surface water, but typically reduce seepage losses and hinder groundwater recharge, which would contribute to diminish groundwater supplies and the potential for significant impacts*." Regarding the effects of the drought-resiliency projects on overlying groundwater basins, GDEs, and endangered species, please refer to Global Response 2 and Section 3.4.3.4.1 of the DEIR, which adequately assesses the potential impact to overlying groundwater basins, GDEs, and endangered species.
CDWA-8	Please refer to the response to comment AA-4 regarding measured diversions. The DEIR does not mention SB 88 because the proposed project would not increase water diversions; it is proposing contract supply reductions. Therefore, this regulation is not applicable to the proposed project and does not need to be cited in the DEIR. The SRSC remain subject to compliance with all applicable water measurement and reporting obligations.
CDWA-9	The proposed project protects public trust resources by reducing the amount of water that is released for diversion in extremely dry years, which would allow Reclamation the additional flexibility in operating the CVP, including contributing to temperature management for fish benefits. Project mitigation measures will ensure that any adverse effects to public trust resources are avoided or mitigated. Please refer to the response to comment AA-38 for a discussion on transfers and Section 3 of the DEIR, which fully analyzes the potential environmental impacts of the proposed project.

November 4, 2024

Mr. Jeff Sutton
General Manager
Glenn Colusa Irrigation District
P.O. Box 150
Willows, CA 95988

Submitted electronically

RE: Draft Environmental Impact Report for the Water Reduction Program Agreement Between the Sacramento River Settlement Contractors Nonprofit Mutual Benefit Corporation, Individual Sacramento River Settlement Contractors, and the U.S. Bureau of Reclamation

Dear Mr. Sutton,

This letter is submitted as the comments of California Sportfishing Protection Alliance, Defenders of Wildlife, Friends of the River, Golden State Salmon Association, San Francisco Baykeeper and Restore the Delta, regarding Glenn Colusa Irrigation District's September 2024 Draft Environmental Impact Report (DEIR) for the Water Reduction Program Agreement (Agreement) Between the Sacramento River Settlement Contractors Nonprofit Mutual Benefit Corporation, Individual Sacramento River Settlement Contractors (SRSC), and the U.S. Bureau of Reclamation (Reclamation).

CSPA -1 Given the limited public distribution of this document and short time provided for review, our brief DEIR comments will only focus on some of our highest priority concerns, and we reserve the right to raise additional issues.[1]

Introduction

In summary, the Agreement proposes that SRSC would agree to reduce their annual water use by "up to" 500,000 acre-feet below their contractually obligated amount in certain defined critically dry years, over the "Phase 1" period of the next ten years. In the "Phase 2" period of years 11-

CSPA -1 [1] It is important to note that the publication notices of the Notice of Preparation and DEIR for this important document were sent to only one nonprofit organization, no environmental justice organizations, and only two tribal governments. The lack of public notification of this document was facially inadequate. "Informed public participation" is one of the core tenets of CEQA, and that tenet was not met here.

20, the SRSC would agree to reduce their annual water use by "up to" 100,000 acre-feet below their contractually obligated amount in the same conditions defined for Phase 1. Under such conditions, the SRSC will respond to limited water supply largely by fallowing acreage planted to rice and/or by substituting groundwater supplies for surface water supplies.

CSPA -2

The proposed project responds to a critical problem: allocations to SRSC tap out the Central Valley Project (CVP) and State Water Project system in sequential dry years, making it impossible to manage Shasta Reservoir to protect salmonids in the Sacramento River. (This problem is reflective of a larger problem, which is the overallocation of Sacramento River Basin flows for consumptive uses in general, and the resulting reduction of flows to support fish and wildlife beneficial uses in both the Sacramento River and the San Francisco Bay estuary).

While reducing contract delivery amounts is a sound approach to solving the problem, it is clear from our initial review that major improvements to the proposed project are needed to achieve the necessary solution to the problem.

Further, based on our review, the DEIR for the Agreement does not comply with the requirements set forth in the California Environmental Quality Act (CEQA). *See* 13 California Public Resources Code [PRC] 21000 *et seq*.; 14 California Code of Regulations [CCR] 15000 *et seq*. Therefore, **the DEIR must be revised and recirculated for additional public review.** *See* Cal. Code Regs., tit. 14, §§ 15088.5(a)(1)-(3), 15090.

General Concerns

CSPA -3

1. **The Agreement is fundamentally flawed because it would restrict the ability of the Bureau of Reclamation and other regulatory agencies to effectively respond to sequential dry-year hydrology under climate change.**

Overall, the Agreement's structure is premised on a reactive policy whose response only begins once a crisis situation at Shasta Reservoir has already been reached. It anticipates reducing Reclamation's existing contractual obligations to the SRSC only during severe dry conditions, most notably where "Combined actual and forecasted natural inflow to Shasta Lake from October 1 through April 30 is less than 2.5 million acre-feet."[2] The DEIR describes how in the 1922-2003 period of record such conditions occurred on average .66 times over any given ten-year period, and a maximum of 4 times in any given ten-year period.

By taking effect only in extreme conditions, this reactive policy undercuts agency efforts to anticipate and be more resilient during the longer and more severe droughts that are becoming more frequent under a changing climate regime. A better approach, both for a reliable farm economy and better conditions for aquatic resources in the Sacramento River, would be to amortize water supply shortages over a longer time period. Dry year sequences in 2013-2015 and 2020-2022 have demonstrated the need to implement reductions in deliveries to SRSC in the *first* dry year (e.g., 2013 and 2020 water years) in order to better ensure compliance with state and federal water quality standards and endangered species protections in subsequent dry years

[2] Agreement Draft Environmental Impact Report (DEIR), p. 15. *See also* additional triggers, *id*.

as well as mitigate the devastating impacts to fish and wildlife from the inequitable allocation of supplies to consumptive use rather than instream use during these successive years.

The proposed solution does not sufficiently address the fundamental overallocation of water resources to SRSC, and will perpetuate the significant impacts to the Sacramento River, larger watershed and the San Francisco Bay estuary. While improved regulatory protections are likely necessary to fully remedy this fundamental problem, to the extent the proposed project relies on a non-regulatory approach, a better model is the 1965 Principles of Agreement between East Bay Municipal Utility District (EBMUD) and senior diverter Woodbridge Irrigation District, which reduces Mokelumne River deliveries to Woodbridge by 35% when annual Mokelumne inflow to EBMUD's Pardee Reservoir is less than 375,000 acre-feet, about 50% of the watershed's annual average. This arrangement limits Woodbridge's largely agricultural diversions in about half of Mokelumne River Dry water years as well as Critically Dry water years but avoids more severe cutbacks in the most extreme Critically Dry years.[3]

CSPA -4

2. The Agreement gives the SRSCs unprecedented leverage in determining future CVP allocations.

The Agreement does not provide or articulate any objective criteria for how *much* shortage the SRSC would accept. This discretion left to the SRSC in turn gives them an unprecedented amount of leverage in Reclamation's process of setting water allocations for CVP deliveries during Dry and Critically Dry years.

Specific Comments

1. The DEIR fails to provide an accurate and stable project description.

The proposal in the Agreement, and therefore the "project description" in the DEIR, is exceedingly vague and therefore not compliant with CEQA's requirements.

CSPA -5

It is black letter law that, "[a]n accurate, stable and finite project description is the sine qua non of an informative and legally sufficient EIR." *County of Inyo v. City of Los Angeles,* 71 Cal. App. 3d 185, 193 (1977). CEQA requires that a DEIR identify a preferred alternative. *Washoe Meadows Community v. Department of Parks and Recreation*, 17 Cal.App.5th 277, 285-87 (2017). That preferred alternative must give a clear explanation of the nature and scope of the proposed project, otherwise it "is fundamentally inadequate and misleading." *See Communities for a Better Environment v. City of Richmond*, 184 Cal.App.4th 70, 84-85 (2010).

Here, the Agreement proposes, for the next ten years, the possibility of SRSCs taking "up to" 500,000 acre-feet per year (AFY) below the obligated Shasta Critical year allocations (which is currently 75 percent of full contract amounts).[4] The DEIR provides no definition or quantification of *how* conditions would determine *how much less* the SRSC would take. This is

[3] For more detailed comments on the impacts of water operations on fish and wildlife, please *see also* enclosed comments submitted by nonprofit organizations in the LTO process, most notably on the Department of Water Resource's DEIR and Reclamation's DEIS.
[4] DEIR, p. 14.

critical information that directly pertains to the nature and scope of the proposed project, and therefore this DEIR is "inadequate and misleading." *Id.*

CSPA -5 cont.

Additionally, the DEIR proposes that after 10 years, the SRSC would take reductions of "up to" 100,000 cubic feet per section (cfs).[5] Here again, the DEIR provides no definition or quantification of the criteria for the extent of reductions or even what the decision-making process for determining the extent of reductions would be. It is also not clear if the DEIR assumes that the change after 10 years in the potential reductions in deliveries is coincident with the expected initiation of operations at the proposed Sites Reservoir; if that is an assumption in the analysis, the cumulative effects section of the DEIR must make that clear.

CSPA -6

Another aspect in which the project description is incomplete is that the DEIR does not disclose the breakdown in either baseline or proposed future SRSC deliveries between locally delivered water and water sold for transfer. A review of Reclamation's Table 28 (SRSC deliveries) for 2003-2023[6] shows that only in 2013 did local deliveries exceed 1.7 million AFY. In each year since 2013, local deliveries have been less than 1.6 million AFY, even in non-critical Shasta years.[7] Presumably, water allocated by Reclamation to the SRSC, beyond locally delivered water, was either sold on the transfer market or else was not delivered to SRSC at all.

The breakdown between locally delivered and transferred water over the period of the proposed project is important because that reduction in the quantity of water delivered locally is an essential determinant of necessary or likely mitigation measures, such as the amount of acreage fallowed, or the amount of groundwater pumped to substitute for surface water, or the extent of infrastructure improvements to achieve water conservation. Contrariwise, reductions in the amount of water transferred could serve mitigation functions in lieu of local mitigation measures.

2. The DEIR may be inconsistent with documents for related actions.

CSPA -7

The DEIR's project description may not be consistent with other critically related documents in the update to the coordinated Long-Term Operations of the Central Valley Project and State Water Project (LTO Process). In Reclamation's recent Draft Environmental Impact Statement (DEIS) for the LTO Process, "Bin 3" years incorporated a series of voluntary actions that the SRSC would take.[8] While it appears those are similar here in the DEIR, the document must be revised and recirculated to confirm those are consistent and whether they will be part of the larger "Drought Toolkit" referenced in the DEIS[9] in order to have a stable and accurate project description. *See, e.g.*, *San Joaquin Raptor Rescue Center v. County of Merced*, 149 Cal.App.4th 645, 655-56 (2007) (holding that the project description was inconsistent as to whether the project would increase mining production and violated CEQA, in part based on statements in public hearings on the CEQA document that demonstrated such inconsistencies); *Communities*

[5] *Id*.
[6] *See* annual figures for Table 28 at: https://www.usbr.gov/mp/cvo/deliv.html.
[7] *Id*.
[8] Bureau of Reclamation Draft Environmental Impact Statement (DEIS) for the coordinated Long-Term Operations of the Central Valley Project and State Water Project, Appendix E, p. E-79 to E-129. Available online: https://www.usbr.gov/mp/nepa/nepa_project_details.php?Project_ID=54661
[9] DEIS, Appendix E, p. E-129.

for a Better Environment, 184 Cal.App.4th at 83-84 (holding project description violated CEQA because of inconsistent statements whether the objectives of the project were to increase processing of heavier crudes at the refinery, relying in part on contradictory statements made by Chevron in a 10-K filing).

CSPA -7 cont.

As we have documented in commenting on Reclamation's LTO DEIS, clarification of these processes would benefit not only species protection efforts but the SRSC themselves in minimizing supply uncertainties given defined hydrological conditions. More detailed comments regarding concerns on the Drought Toolkit and other problematic elements in the LTO Process are enclosed.

3. The DEIR does not include a reasonable range of project alternatives.

CSPA -8

The alternatives considered in the DEIR do not provide a reasonable range, nor do they provide sufficient information for the public to understand the impacts of the proposed project.

CEQA requires that a reasonable range of alternatives to the proposed project be considered in the environmental review process, including a no project alternative. Cal. Pub. Res. Code §§ 21002, 21061, 21100; tit. 14, Cal. Code Regs. ("CEQA Guidelines") § 15126.6. "While the lead agency may ultimately determine that the potentially feasible alternatives are not actually feasible due to other considerations, *the actual infeasibility of a potential alternative does not preclude the inclusion of that alternative among the reasonable range of alternatives*." (*Watsonville Pilots Assn. v. City of Watsonville* (2010) 183 Cal.App.4th 1059, 1087 (emphasis added); see also, *Banning Ranch Conservancy v. City of Newport Beach* (2017) 2 Cal.5th 918, 936-937; *Habitat and Watershed Caretakers v. City of Santa Cruz* (2013) 213 Cal.App.4th 1277, 1300-1306 ("no feasible water alternatives considered").)

CSPA -9

The DEIR appropriately evaluates an alternative in which no groundwater substitutions would be allowed as mitigation for reduced availability of surface water. Reliance on groundwater substitution is already unacceptable in the context of water transfers. Further reliance on groundwater substitution would make a problematic situation worse and would threaten the achievement of the goals of groundwater sustainability plans (GSPs) for affected subbasins. In addition, the California Department of Water Resources has deemed the GSPs for the Red Bluff, Corning, and Colusa subbasins incomplete. Creating additional pressure on already stressed affected subbasins, particularly in Critically Dry years when depletions of groundwater are already likely to be most severe, would be at cross purposes with the Sustainable Groundwater Management Act.

However, the No Groundwater Substitution Alternative, which otherwise should be adopted as part of the project, does not of itself provide a sufficient range of alternatives.

CSPA -10

The DEIR improperly dismisses, due to "feasibility" concerns, the "Decreased Contract Supply Reductions" alternative.[10] The DEIR states that the "Decreased Contract Supply Reductions" alternative was not "carried forward for full analysis" because "decreased contract supply

[10] DEIR, p. 308.

reduction alternatives would not be capable of preserving sufficient water to address water shortages at Shasta Lake consistent with Reclamation's operational requirements and objectives."[11]

CSPA -10 cont.

First, it is not known what volumes of reductions in deliveries to SRSC are even proposed to need to achieve storage goals in Shasta Reservoir. Second, the DEIR does not analyze alternative distribution of additional shortages to SRSC, by increasing the frequency of Shasta critical years or by increasing the extent of default deficiencies to SRSC in Shasta critical years, or both. A reasonable and feasible alternative, as discussed further above, should evaluate a combination of increasing the frequency of Shasta critical years and the default percentage of reductions to SRSC in Shasta critical years.

More expansively, modeling and analysis of Alternative 3 in Reclamation's DEIS for the LTO process, cited above, suggests another reasonable and feasible alternative.[12] DEIS Alternative 3 would prioritize achievement of water storage requirements in Shasta Reservoir *over* allocation of water supplies; as the DEIS shows, this would help Reclamation achieve one of the project's objectives here, "address water shortages at Shasta Lake consistent with Reclamation's operational requirements and objectives."[13]

Finally, we recommend an alternative that accounts for the frequency and volume of water transfers, and reduces those aspects appropriately. *See also* discussion above.

4. The DEIR does not adequately assess impacts to migratory birds, waterfowl and other sensitive species that depend on wetland and adjoining rice habitat.

CSPA -11

The DEIR does not adequately assess the potential impacts this Agreement will have to migratory birds, waterfowl and other sensitive species that rely on wetland and adjoining rice habitat in the Sacramento Valley. While it is reasonable and prudent to plan for reduced water supply availability for the SRSCs, in light of anticipated climate change induced hydrologic alteration and likely changes in regulatory requirements to avoid ecosystem collapse, this Agreement does not contain enough detail to truly plan for those impacts, let alone propose feasible mitigation as required by CEQA, the Central Valley Project Improvement Act (CVPIA) and the California Endangered Species Act (CESA).[14]

CSPA -12

First and foremost, the environmental setting as described in DEIR section 3.4.1 is incorrect and must be revised to include the five refuges of the Sacramento National Wildlife Refuge Complex (Sacramento, Delevan, Colusa, Sutter, and Sacramento River National Wildlife Refuges). Collectively, the Sacramento National Wildlife Refuge Complex represents approximately 36,000 acres that, while not part of the Agreement, are all adjacent to the project area. In addition, there are thousands of acres of privately owned wetlands within and adjacent to the project area, the majority of which are protected by U.S Fish and Wildlife Service and Natural

[11] *Id.*
[12] DEIS, Appendix E, p. E-163.
[13] DEIR, p. 308.
[14] For more details, please see California Department of Fish and Wildlife's comments on the Notice of Preparation as well as section below pertaining to the CVPIA.

CSPA -12 cont.

Resources Conservation Service Conservation Easements (Easements). The Sacramento National Wildlife Refuge Complex and Conservation Easements were largely established to protect wetlands and associated habitats for migratory birds and threatened and endangered species.

CSPA -13

Furthermore, the DEIR mischaracterizes the important habitat the project area provides and does not acknowledge or provide for the "balancing requirements" under the CVPIA or properly assesses this potentially significant impact as required under CEQA. The CVPIA requires balancing competing demands of limited water supply, agriculture and the requirements of fish and wildlife. Here, in sections 3.4.1.1 and 3.4.3.4.4, the DEIR acknowledges that the project area is located within the Pacific Flyway and is a stopover for waterfowl and other birds during migration. However, the DEIR should also specify that together, the public and private wetlands and ricelands in and around the project area, represent the most important wintering area for migratory waterfowl in the Pacific Flyway, supporting approximately 3-4 million ducks and over 2 million geese annually. In addition, the wetlands and ricelands of the project area are important to migrating and wintering shorebirds, supporting hundreds of thousands of birds, and recognized as a site of international significance by the Western Hemisphere Shorebird Reserve Network.[15]

CSPA -14

Additionally, the DEIR does not adequately assess the impact that idling up to 83,333 acres of rice fields will have on the nearby refuges and the resident species.[16] The Central Valley Joint Venture (CVJV) 2020 Plan currently estimates that up to 74 percent of the nutritional needs of wintering waterfowl in the Sacramento Valley are met by agriculture, primarily rice.[17] While DEIR section 3.4.3.4.4 alludes to a reduction in rice foraging habitat for migrating waterfowl, no analysis was completed to see how the proposed reduction in rice acreage might affect carrying capacity for wintering and migrating waterfowl or how implementation of the proposed project might be designed to avoid or feasibly mitigate such impacts. Similarly, the DEIR does not allude to any analysis completed to determine how the proposed reduction in rice acreage might impact wintering and migrating shorebirds or wintering Greater Sandhill Cranes, listed as threatened under CESA, or again how implementation of the proposed project might be designed to avoid or feasibly mitigate such impacts.

CSPA -15

We recommend that project proponents complete an analysis of the impacts of rice idling on the foraging habitat and carrying capacity of migratory waterfowl, shorebirds and other waterbirds, identify specific implementation criteria and actions to avoid or mitigate such impacts, and revise the DEIR to acknowledge and comply with the legal requirements of the CVPIA.

---

[15] As a result, the Central Valley Joint Venture 2020 Plan (CVJV Plan) has prioritized and set objectives for the protection, restoration and enhancement of wetlands and riparian habitat and the protection and enhancement of ricelands within and around the project area. *See* Central Valley Joint Venture. 2020. Central Valley Joint Venture 2020 Implementation Plan (CVJV Plan). Sacramento, CA: U.S. Fish and Wildlife Service. Available online: https://www.centralvalleyjointventure.org/wp-content/uploads/2024/05/CVJV_2020_Implementation_Plan.pdf

[16] DEIR, pp. 19 and 176.

[17] CVJV Plan, Table 7.8, p. 107. The CVJV Plan has set a 10-year objective of protecting 54,000 acres of rice with conservation easements and enhancing 350,000 acres of rice annually by winter-flooding.

CSPA -16

5. The DEIR does not consider compliance and consistency with the Central Valley Project Improvement Act's refuge water supply mandate.

In reviewing the DEIR, it was unclear how the Agreement would impact National Wildlife Refuge water supplies provided under separate contracts as mitigation in accordance with the CVPIA, Pub. L. No. 102-575. In fact, the CVPIA is not even included in the DEIR as one of the applicable laws for this Agreement.[18] While not part of the Agreement and outside of the project area, there are repeated paragraphs in sections 3.4.3.4.2 and 3.4.3.4.3 that create confusion, broadly stating that surface water delivery from SRSC members to National Wildlife Refuges and Wildlife Management Areas would be reduced during Agreement Years. This conclusion, if implemented, has the potential to affect wetland and riparian habitats.[19]

CSPA -17

It is unclear why Refuge water deliveries would be reduced during Agreement years if Refuges are not party to the Agreement. The CVPIA unambiguously requires Reclamation to provide a minimum of 75 percent Level 2 refuge supply, even during critically dry years. CVPIA §3406(d) states: "In support of the objectives of the Central Valley Habitat Joint Venture and in furtherance of the purposes of this title, the Secretary *shall provide*, either directly or through contractual agreements with other appropriate parties, *firm water supplies* of suitable quality to maintain and improve wetland habitat areas . . ." (emphasis added). These requirements are mandatory, not discretionary. *Westlands Water Dist. v. Nat. Res. Def. Council*, 43 F.3d 457, 460 (9th Cir. 1994) ("Section 3406(d)(1) directs the Secretary '[u]pon enactment of this title' to deliver a specified amount of water to wetlands within the Central Valley. . . . The phrase means that implementation is triggered by enactment. . . . Congress did not give the Secretary discretion over when he may carry out his duties under these sections."). The Level 2 refuge allocation, which is set forth in §3406(d)(1), can be reduced by no more than 25 percent even in critically dry years. CVPIA §3406(d)(4). Reductions of Level 2 water allocations beyond 25 percent, such as the reductions that the SRSC and Reclamation are proposing as part of their "Water Shortage Agreement," would be unlawful.

The statements in DEIR Sections 3.4.3.3.2 and 3.4.3.4.3 regarding surface water deliveries to Refuges should be clarified to ensure that Refuge water supplies and deliveries provided under the CVPIA would not be impacted by the Agreement.

Conclusion

CSPA -18

Based on these concerns, we urge you to revise and recirculate the DEIR to include:

- A stable and complete project description that, moreover, is consistent with the updated LTO process documents.
- Analysis of additional project alternatives as described above.
- Analysis of project impacts to wintering and migratory birds, including sensitive and listed species, and development of criteria and actions to avoid or feasibly mitigate these impacts.

[18] DEIR, p. 94.
[19] DEIR, pp. 156 and 159.

CSPA -18 cont.

- Revised language that ensures that this Agreement will comply with the Central Valley Project Improvement Act and that its proposed reduction in deliveries does not apply to National Wildlife Refuges or State Wildlife Management Areas.

CSPA -19

We also urge the project proponents to consult additional Tribes, communities and interested parties that will be impacted by this Agreement, as well as hold another public workshop as required by CEQA to facilitate public participation, considering that only two entities commented on the Notice of Preparation.

We appreciate the opportunity to review the Draft Environmental Impact Report. Thank you for your consideration of these comments.

Sincerely,

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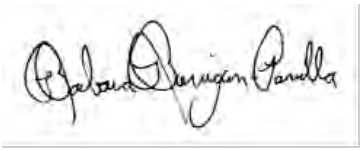

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Enclosed: Comparison of Long-Term Operations Alternatives compared to the No Action Alternative
Defenders Letter to Agencies Refuge Water Deliveries – April 2023
NGO LTO Draft Proposed Action Comment Letter Part 1 – July 2023
NGO LTO Draft Proposed Action Comment Letter Part 2 – August 2023
NGO Comments to USFWS re draft LTO Biological Opinion – July 2024
NGO Comments to DWR's re LTO DEIR – August 2024
NGO Comments to BOR's re LTO DEIS – September 2024

NGO Comments to BOR re Fall X2 Memo – September 2024
NGO Comments to USFWS re draft LTO ITS – September 2024
NGO Comments to NMFS re draft LTO ITS – October 2024

CC: Karl Stock, U.S. Bureau of Reclamation
Jennifer Quan, National Marine Fisheries Service
Paul Souza, U.S. Fish and Wildlife Service
Karla Nemeth, California Department of Water Resources
Charlton Bonham, California Department of Fish and Wildlife

Table: Comparison of Long-Term Operations (LTO) alternatives to the No Action Alternative (NAA) as presented in the Federal Draft EIS.

The percentage values show the change from the NAA for each variable as presented in the U.S. Bureau of Reclamation's Draft Environmental Impact Statement for Long-Term Operation of the Central Valley Project and State Water Project (referenced in the "Located" column). Alternative 2 (all variants) represent the federal Proposed Project. Green highlighting represents the superior environmental outcome among alternatives. Yellow represents no improvement from NAA. Red represents environmental outcomes worse than the NAA .

Variable	Year Type	Alternative								Located
		NAA	Alt1	Alt2+TUCP -VA	Alt2-TUCP -VA	Alt2-TUCP +DeltaVA	Alt2-TUCP +AllVA	Alt 3	Alt 4	
Winter-run Temperature Dependent Egg Mortality (TDM)	Critical	0%	13%	-53%	-34%	-35%	-35%	-56%	-9%	Table L.2-2 (Lines of Evidence Attachment L.2)
	All	0%	26%	-63%	-50%	-51%	-50%	-66%	-29%	
Winter-run temperatures at Hamilton City during adult migration (May)	All	0%	0%	1%	1%	1%	1%	-1%	1%	L.1-8 (Lines of Evidence Attachment L.1)
Winter-run temperatures associated with disease in adults (May)	All	0%	-41%	-22%	-19%	-21%	-19%	-31%	-10%	Table L.1-12 (Lines of Evidence Attachment L.1)
Winter-run temperatures during adult holding (May)	Critical	0%	-25%	-19%	-13%	-19%	-19%	-25%	-19%	Table L.1-16 (Lines of Evidence Attachment L.1)
	All	0%	-30%	-28%	-28%	-27%	-27%	-30%	-14%	
Winter-run Juvenile Production Index	Wet	0%	Not analyzed	-0.3%	-0.3%	-0.3%	-0.3%	Not analyzed	Not analyzed	Table L.3-5 (Lines of Evidence Attachment L.3)
	Above Normal	0%	Not analyzed	-2%	-2%	-2%	-6%	Not analyzed	Not analyzed	
	Below Normal	0%	Not analyzed	-4%	-4%	-3%	-5%	Not analyzed	Not analyzed	
	Dry	0%	Not analyzed	-8%	-8%	-6%	-12%	Not analyzed	Not analyzed	
	Critical	0%	Not analyzed	-23%	-11%	-14%	-18%	Not analyzed	Not analyzed	
Winter-run through-Delta survival STARS model	All	0%	-2%	0%	0%	0%	1%	2%	0%	Table I.5-4 (Lines of Evidence Attachment I.5)
Winter-run IOS model*	Wet	0%	-15.04%	6.95%	0.59%	-0.68%	-0.61%	22.38%	2.28%	Table F.5-12 (Appendix F, Modeling Attachment F.5)
	Above Normal	0%	-13.33%	5.76%	1.45%	0.06%	1.50%	20.63%	1.26%	
	Below Normal	0%	-11.84%	11.75%	4.26%	0.19%	3.02%	27.28%	6.03%	
	Dry	0%	-15.05%	9.99%	4.92%	2.24%	3.15%	21.15%	2.29%	
	Critical	0%	-14.48%	9.25%	0.19%	0.22%	1.74%	16.87%	3.05%	
Winter-run through-Delta survival -- Delta Passage Model	All	0%	-2.64%	0.16%	0.35%	0.49%	1.43%	6.19%	-0.07%	Table I.6-6. (Appendix AB-I, Attachment I.6)
Spring-run through-Delta survival -- Delta Passage Model	All	0%	-0.34%	-0.32%	0.58%	0.93%	2.86%	7.37%	-0.41%	
Fall-run through-Delta survival -- Delta Passage Model	All	0%	0.97%	-0.45%	0.56%	0.86%	2.46%	6.19%	-0.51%	
Late-fall-run through-Delta survival -- Delta Passage Model	All	0%	-4.00%	0.45%	0.18%	0.11%	0.27%	3.71%	0.24%	
Delta Smelt Life Cycle Model -- US FWS (Mean population growth rates)	All	0%	-25%	-2%	-3%	1%	1%	23%	-3%	Table F.4-5 (Lines of Evidence Attachment F.4)
	Drier years	0%	-20%	1%	0%	3%	3%	21%	-2%	
	Wetter Years	0%	-34%	-8%	-8%	-5%	-4%	23%	-7%	
Delta Smelt Life Cycle Model -- Maunder and Deriso*	All	0%	-23.00%	0.00%	0.00%	0.00%	0.00%	28.00%	0.00%	Table F.1-6. (Appendix F, Attchment F.1)
Longfin Smelt Abundance -- Delta Outflow Model	Wet	0%	-8%	-3%	-3%	-2%	-1%	40%	-3%	Table J.1-3 (Lines of Evidence Attachment J.1)
	Above Normal	0%	-10%	-2%	-3%	0%	3%	32%	-3%	
	Below Normal	0%	-8%	-1%	-2%	1%	4%	23%	-1%	
	Dry	0%	-8%	0%	-1%	0%	3%	22%	-1%	
	Critical	0%	-5%	0%	2%	2%	4%	19%	0%	
Longfin Smelt Juvenile Entrainment Mortality	Wet	0%	197%	173%	173%	103%	98%	-92%	158%	Table I.4-2 (Lines of Evidence Attachment I.4)
	Above Normal	0%	295%	181%	181%	37%	33%	-80%	185%	
	Below Normal	0%	134%	75%	82%	31%	22%	-73%	86%	
	Dry	0%	63%	43%	43%	8%	-4%	-69%	45%	
	Critical	0%	35%	29%	23%	29%	24%	-47%	23%	
White Sturgeon -- Delta Outflow*	Wet	0%	-1%	-2%	-2%	-1%	-1%	36%	-2%	Table J.2-5 (Lines of Evidence Attachment J.2)
	Above Normal	0%	-12%	-8%	-6%	-3%	2%	24%	-6%	

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April 24, 2023

Mr. Ernest Conant, Regional Director
U.S. Bureau of Reclamation
2800 Cottage Way
Sacramento, CA 95825

Mr. Paul Souza, Regional Director
U.S. Fish and Wildlife Service
2800 Cottage Way
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Via email: econant@usbr.gov; paul_souza@fws.gov

RE: Proposal to Reduce Refuge Water Deliveries as Proposed Action in CVP LTO Consultation Would Hurt Numerous Species and Violate Federal Law

Dear Mr. Conant and Mr. Souza:

Publicly available documents released by the U.S. Bureau of Reclamation regarding the reinitiation of consultation on the coordinated long-term operations of the Central Valley Project (CVP) and State Water Project (SWP) indicate that Reclamation is considering "Reductions to CVPIA Level 2 Refuge Deliveries" as part of its proposed action.[1] Such a change in Reclamation policy would have devastating consequences. Reclamation's refuge water deliveries are critical for the survival of the Central Valley's migratory waterfowl and other bird species. Such a reduction would also be unlawful, contrary to Congress's clearly expressed mandate in the Central Valley Project Improvement Act (CVPIA), Pub. L. No. 102-575,[2] and harmful to other sensitive species that rely on CVPIA-protected wetlands. It is essential that Reclamation and the U.S. Fish and Wildlife Service (FWS) reject any such proposal to reduce CVPIA Level 2 refuge deliveries.

The CVPIA makes clear that Congress's purpose in dedicating a permanent water supply for refuges was to provide an "ecologically equivalent habitat" to replace what was destroyed when the CVP was constructed and continued to be operated primarily for the purpose of providing water to agricultural users, including settlement and exchange contractors. CVPIA § 3406(a)(3). The CVPIA's mandate includes providing both "Level 2" and "Level 4" water, which together represent the water necessary to fulfil the CVPIA's requirements for wildlife refuges. Failing to provide adequate water

[1] *See* Bureau of Reclamation, "LTO Modeling Update" (March 2023), slide 32, which lists "Reductions to CVPIA Level 2 Refuge Deliveries" under "Ongoing Discussions." A copy of the presentation is attached to this letter as Exhibit A.
[2] Allocations for wildlife refuges are explicitly required under the CVPIA. *See* CVPIA §3406(d); *see also Tehama-Colusa Canal Auth. v. U.S. Dep't of the Interior*, 721 F.3d 1086, 1091 (9th Cir. 2013) (the CVPIA "reallocated priorities for use of CVP water"). Reclamation must operate the CVP consistent with the requirements of the CVPIA, including minimum allocations of water for refuges. CVPIA §3406(b). And all CVP contracts must be administered consistent with the intent and purposes of CVPIA, including its refuge provisions. *Id.* §3404(c)(2).

supply to national wildlife refuges and other CVPIA-protected wetlands would violate decades of public policy, but such a failure is completely avoidable—the actual amount of water needed for refuges remains a small portion of what is delivered to other CVP users and a tiny portion of the overall amounts managed by the CVP system. In 2023, for example, Reclamation has allocated around 420,000 acre-feet of CVP water to be delivered to refuges, in contrast to the approximately 2,100,000 acre-feet allocated to the Sacramento River Settlement Contractors and the 6,500,000 acre-feet of total CVP water allocated.[3] There is no excuse for Reclamation's failure to provide adequate allocations to these refuges, and a new policy of reducing already minimal Level 2 allocations would further degrade a system that CVPIA was designed to protect and restore.

The CVPIA unambiguously requires Reclamation to provide a minimum of 75% Level 2 refuge supply, even during critically dry years. CVPIA §3406(d) states: "In support of the objectives of the Central Valley Habitat Joint Venture and in furtherance of the purposes of this title, the Secretary *shall provide*, either directly or through contractual agreements with other appropriate parties, *firm water supplies* of suitable quality to maintain and improve wetland habitat areas . . ." (emphasis added). These requirements are mandatory, not discretionary. *Westlands Water Dist. v. Nat. Res. Def. Council*, 43 F.3d 457, 460 (9th Cir. 1994) ("Section 3406(d)(1) directs the Secretary '[u]pon enactment of this title' to deliver a specified amount of water to wetlands within the Central Valley. . . . The phrase means that implementation is triggered by enactment. . . . Congress did not give the Secretary discretion over when he may carry out his duties under these sections."). The Level 2 refuge allocation, which is set forth in §3406(d)(1), can be reduced by no more than 25%, even in critically dry years. CVPIA §3406(d)(4). Reductions of Level 2 water allocations beyond 25%, such as the reductions that Reclamation is apparently discussing as part of reinitiation, are unlawful. This is particularly troubling given Reclamation's arbitrary and unlawful decision to issue an allocation that reduced Level 2 deliveries in the Sacramento Valley last year down to a mere 18%, which caused major harms as well as imposed unnecessary and unjustified additional financial burdens on the limited CVP Restoration Fund as agencies attempted to mitigate these harms. It must be remembered that Level 2 is only part of the congressional mandate for protecting wetlands and refuges, and last year's reductions were aggravated by Reclamation's repeated failure to meet its separate legal obligation to carry out the full Level 4 mandate in CVPIA.

The Central Valley's wildlife refuges provide the last few pockets of crucial habitat for migratory birds and other sensitive species that have been declining since the construction of the CVP, particularly in light of recent droughts in California. The Central Valley has already lost over 95% of its historic wetlands. Without adequate water supply for wildlife refuges, these sensitive species will suffer tremendously. Specifically, the CVPIA-protected refuge areas are critical to ensuring survival of a range of species that depend on these wetland habitats. They provide essential habitat for the survival of millions of migratory waterfowl, shorebirds, and other birds each year, as well as other species, including the threatened giant garter snake, which is endemic to the Central Valley. Adequate water supply for these refuges is necessary to prevent wildlife die-offs in the Central Valley similar to recent events in the Klamath Basin (where tens of thousands of birds died of avian botulism due to inadequate water and overcrowding in summer 2020) and similarly

[3] *See* Bureau of Reclamation, Central Valley Project (CVP) Water Quantities for Delivery 2023, available at https://www.usbr.gov/mp/cvp-water/docs/cvp-water-quantities-for-delivery-2023.pdf (accessed April 13, 2023).

devastating events in the Central Valley in the 1970s. Large-scale die-offs of waterfowl species do not just harm the Central Valley ecosystem—such harms to species also jeopardize the United States's ability to comply with international migratory bird treaties and Pacific Flyway partnerships.

We therefore strongly urge Reclamation to reject any proposal to reduce the nondiscretionary Level 2 refuge water allocations. Any Proposed Action that includes such unwarranted reductions would render the entire effort legally flawed and subject to immediate challenge. At a minimum, adoption of such a proposal would be arbitrary, capricious, and unlawful. *See Tehama-Colusa Canal Auth.*, 721 F.3d at 1093 (the Administrative Procedure Act provides a mechanism for plaintiffs to challenge violations of the CVPIA). Additionally, dewatering refuge areas in the Central Valley may violate the Endangered Species Act (ESA), including applicable biological opinions for the ESA-listed giant garter snake.[4] Accordingly, we urge Reclamation and FWS to reject any proposal to include refuge water supply reductions that conflict with the requirements of the CVPIA in any proposal for the reinitiation of consultation or in any other Reclamation policy or operations plan going forward.

Sincerely,

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CC: Camille Touton, Commissioner, U.S. Bureau of Reclamation

Carter Brown, Associate Solicitor, Office of the Solicitor, U.S. Department of the Interior

Martha Williams, Director, U.S. Fish and Wildlife Service

Gary Gold, Deputy Assistant Secretary for Water and Science

Charlton Bonham, Director, California Department of Fish and Wildlife

[4] *See, e.g.*, Fish and Wildlife Service Memorandum to Reclamation re: Reinitiation of Programmatic Formal Consultation for Bureau of Reclamation's Proposed Central Valley Project Long Term Water Transfers (2015-2024) with Potential Effects on the Giant Garter Snake within Sacramento Valley, California, June 4, 2015, at 8, 12-14 (programmatic biological opinion restricting transfers of water that might adversely affect habitat for giant garter snakes, and prohibiting transfers from "[a]reas with known priority snake populations").

By email to: kstock@usbr.gov

September 18, 2024

Karl Stock, Regional Director
US Bureau of Reclamation

RE: PROPOSED OFF-RAMP FROM DELTA SMELT SUMMER-FALL HABITAT ACTION IN OCTOBER 2024

Dear Mr. Stock,

This letter is submitted as the comments of Friends of the River, San Francisco Baykeeper, Defenders of Wildlife, Restore the Delta, the California Sportfishing Protection Alliance and the Golden State Salmon Association on the draft U.S. Bureau of Reclamation (Reclamation) memorandum from Dave Mooney to Kristin White (and the accompanying memorandum from you to Paul Souza) regarding the modification of the Delta Smelt Summer-Fall Habitat Action proposed by the California Department of Water Resources (DWR), which would implement an off-ramp from compliance with the Fall X2 action in October 2024. We appreciate the opportunity to comment prior to Reclamation's making a final decision on this proposed modification.

In summary, the proposed modification:

- **Fails to demonstrate that it will provide equal or better protection than maintaining Fall X2 = or < 80 km in September and October**
- **Is inconsistent in its justification for the proposed modification**
- **Overlooks the best available science supporting the Summer-Fall Habitat Action**
- **Overlooks the urgent need to augment existing protections for Delta Smelt and promote recovery rather than choose between potential actions and settles for minimal protections**

- **Fails to address the fact that augmenting outflow earlier in the summer would have been the best adaptive management action to provide additional benefits for the species based on the best available science**

Reclamation's memo offers three conflicting and inconsistent reasons to modify the Summer-Fall Habitat Action.

First, Reclamation cites new information indicating that:

"Delta outflow in the summer, rather than fall, is the better predictor of delta smelt survival. The best information we have available to us suggests that high summer flows help align different habitat needs of delta smelt habitat while also increasing food subsidies, supporting delta smelt growth and survival..." P. 1 of the September 11, 2024 "Proposed Alternative Action Implementation of the Summer-Fall Habitat Action for Water Year 2024" appendix to Reclamation's memoranda (p. 8 in the pdf).

We agree that augmenting summer outflow may be an essential action to improve the survival and recovery of Delta Smelt populations. Indeed, the new studies confirm what has been already identified as a promising direction in numerous studies over the past decade. For instance, eight years ago the State of California included summer outflow augmentation in its 2016 Delta Smelt Resiliency Strategy (CNRA 2016). Information regarding the value of summer outflow was known to Reclamation and DWR prior to the summer of 2024 and could have formed the basis for a summer outflow augmentation this summer. In fact, the only logical adaptive management actions for the agencies to develop and implement that respond specifically to the new and previous summer outflow studies would have been an action to augment summer outflow in addition to augmenting fall outflow in 2024. Reclamation and DWR did not pursue such an action, and as a result the best opportunity for truly informative and beneficial adaptive management focusing on the most promising area of improvement in WY 2024 has already been missed.

Second, Reclamation's memo goes on to state that "The same things happen if flows are high enough in the fall, but the response of delta smelt lessens because temperatures cool into more appropriate ranges and the prey subsidy is reduced as prey populations seasonally senesce. This newer information means the species benefits originally anticipated for the Fall X2 action are unlikely to translate to improved delta smelt population growth rate." P. 1 of the September 11, 2024 "Proposed Alternative Action Implementation of the Summer-Fall Habitat Action for Water Year 2024" appendix to Reclamation's memoranda (p. 8 in the pdf).

Reclamation's reasoning regarding the fall outflow action is both faulty and inconsistent with its own findings elsewhere and with the scientific literature. Finding that summer outflow may be a better predictor of Delta Smelt survival is not the same as separately finding that fall outflow is not also an important tool to provide benefits for and prevent extinction of this most endangered species of the San Francisco Bay-Delta estuary. The scientific literature includes numerous

studies confirming the benefits of fall outflow. Increased outflow during October and November is consistent with lower temperatures (Bashevkin and Mahardja 2022) and increased transport of *Pseudodiaptomus forbesi* – a key Delta Smelt prey species– from fresh/very low salinity waters to the low salinity zone inhabited by juvenile Delta Smelt (Hassrick et al. 2023; Lee et al. 2023; Kimmerer et al. 2018). These positive effects on Delta Smelt habitat in the low salinity zone are increasingly apparent as low salinity habitat moves further to the west, and X2 is less than 80km (*see* e.g., Hassrick et al. 2023 at Figure 3). Polansky et al (2021) found that "recruitment was most influenced by temperature, the approximate location of the 2-ppt isohaline during the previous fall, and adult food" (emphasis added). These findings are supported by numerous other modeling analyses and empirical observations (*see*, for instance, Brown et al 2014; Rose and Kimmerer 2013a,b; Feyrer et al 2007).

Indeed, the proponents of the modification have explicitly acknowledged the benefits of enhancing fall outflow. Only two weeks ago, DWR, Reclamation, the US Fish and Wildlife Service and the California Department of Fish and Wildlife specifically stated in their August 30, 2024, joint response to the August 21, 2014, letter from Westlands Water District and other water agencies requesting suspension of the Fall X2 action:

"The available science demonstrates that the Fall X2 action provides some important benefits to Delta smelt, such as increased food abundance and favorable water temperatures. The question of whether these benefits translate to more Delta smelt the following year has only recently been brought to light through a new USFWS life cycle model. The life cycle model analysis shows that summer flows are more important drivers of Delta Smelt abundance. This does not mean the Fall X2 action will not have some population benefits, especially given that it is expected to expand habitat in Suisun Bay. This is the one area in the upper estuary that had suitable water temperatures during the heatwave in July 2024." (DWR et al 2024 at p. 2). This argument rightfully calls into question the premise for the proposed modification.

Third, Reclamation's memo claims that its analysis "demonstrates that the proposed modification described above for the 2024 Summer- Fall Habitat Action implementation provides similar or better protection than the Fall X2 action described in the 2019 Proposed Action." P. 1 of the memorandum from Karl Stock to Paul Souza (p. 7 in the pdf). This is patently false, as the memo itself makes clear.

Reclamation's memo states that: "A with and without comparison of implementing the Fall X2 action in October allows for DWR and Reclamation to test action performance with respect to delta smelt abundance, growth, and habitat conditions between 2023 and 2024 operations." P. 2 of the September 11, 2024 "Proposed Alternative Action Implementation of the Summer-Fall Habitat Action for Water Year 2024" appendix to Reclamation's memoranda (p. 9 in the pdf). In other words, DWR and Reclamation do not know whether the proposed 2024 modification will perform better than the 2023 Summer-Fall Habitat Action, and therefore cannot claim that it will provide similar or better protection. Furthermore, the memo acknowledges that operation of the

Suisun Marsh Salinity Control Gates (SMSCG) in late summer may "potentially [lead] to positive bioenergetic effects on delta smelt." (*Ibid*). That is to say, the same uncertainties that Reclamation cites regarding the population level effects of fall outflow apply equally or more to SMSCG operation, whose inclusion is the primary justification for modifying the Summer-Fall Habitat Action.

We have supported conducting alternative SMSCG operations in the past and continue to do so, because doing so may provide additional benefits to Delta Smelt at a time when the species desperately needs all the help it can get. But Reclamation's memo provides absolutely no evidence that alternative SMSCG operation can substitute for full implementation of the Summer-Fall Habitat Action, rather than add value by supplementing the benefits of the latter.

Furthermore, the scientific literature documenting the benefits of fall outflow have generally evaluated the September-November period. Reclamation's memo provides no basis for finding that limiting fall outflow augmentation to September will or can possibly provide similar or better protection than augmenting fall outflow for the entire fall period based on the analyses in the studies cited above (for instance, see Polansky et al 2021 or Bashevkin and Mahardja 2022).

Based on the extensive record of empirical and modeling studies cited above, it is highly likely that implementing the proposed modification instead of the Summer-Fall Habitat Action as intended will adversely impact Delta Smelt, including decreased food availability in Suisun Bay (including Suisun Marsh).

Reclamation's memo offers up a set of false dichotomies: either enhance summer outflow or fall outflow (but not both); either enhance fall outflow and operate the SMSCG beneficially in September only or enhance fall outflow and do not operate the SMSCG beneficially for the September-October period (but do not do both through October). These false dichotomies overlook three overriding facts. First, the situation of Delta Smelt is dire, and its record low population levels call for strong interventions by the state and federal agencies responsible for preventing its extinction. Second, there is no one single factor or action that is likely by itself to reverse the trend toward extinction and support recovery. Delta Smelt cannot be saved by an either/or strategy based on false choices. At this point, a both/and approach is the only one that can work. Third, contemplating adaptive management experiments is highly questionable given that Delta Smelt are nearly undetectable in the wild. It is just as likely that this experiment will facilitate the extinction of wild Delta Smelt as it is to generate useful information. Experimentation needs to focus on increasing overall protections and restoring the species, not limiting protections and increasing the already high risk of extinction.

We urge you to do the following:

- **Reject the proposed modification and implement the Summer-Fall Habitat Action as intended through October 2024.**

- **Consider whether alternative operations of the SMSCG should be continued in conjunction with full implementation of the Summer-Fall Habitat Action.**
- **Plan for and implement an experimental summer (i.e., July-August) outflow augmentation beginning in WY 2025 and subsequent years, in addition to any Summer-Fall Habitat Action that may be triggered.**
- **Ensure that environmental NGOs and other parties have greater opportunity to participate (and support for participation) in the analysis and design of adaptive management activities going forward.**

Again, we appreciate that Reclamation has provided the opportunity to comment before the proposed modification is adopted. We look forward to working with you to increase overall protection for endangered Delta Smelt.

Sincerely,

Jann Dorman
Friends of the River

Eric Buescher
San Francisco Baykeeper

Ashley Overhouse
Defenders of Wildlife

Barbara Barrigan-Parrilla
Restore the Delta

Chris Shutes
California Sportfishing Protection Alliance

Scott Artis
Golden State Salmon Association

Cc: Kristin White, Dave Mooney, US Bureau of Reclamation
Paul Souza, US Fish and Wildlife Service
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September 9, 2024

Mr. Karl Stock
Bureau of Reclamation, Bay-Delta Office
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Sacramento, CA 95814–2536

Sent via email to sha-MPR-BDO@usbr.gov

RE: 2024 DEIS Regarding the Reinitiation of Consultation on Long-Term Operations of the Central Valley Project and State Water Project

Dear Mr. Stock:

This letter is submitted as the comments of the California Sportfishing Protection Alliance, California Water Impact Network, Friends of the River, Golden State Salmon Association, Institute for Fisheries Resources, Pacific Coast Federation of Fishermen's Associations, Restore the Delta, San Francisco Baykeeper, Save California Salmon, and Water Climate Trust regarding the 2024 Draft Environmental Impact Statement ("DEIS") regarding the reinitiation of consultation on long-term operations of the Central Valley Project ("CVP") and State Water Project ("SWP"). These comments address both the Bureau of Reclamation's ("BOR" or "Reclamation") compliance with the National Environmental Policy Act ("NEPA") and compliance with the Endangered Species Act ("ESA"). These comments are being transmitted to the National Marine Fisheries Service ("NMFS") and U.S. Fish and Wildlife Service ("USFWS") and should be included in all three agencies' administrative records.

In summary:

- The DEIS Purpose and Need statement must be modified to:
  - make clear that meeting water supply contract commitments is a secondary project purpose after compliance with the ESA,
  - emphasize the need to strengthen ESA protections, and
  - ensure that alternatives that reduce water diversions or deliveries are not precluded by definition.
- Reclamation's use of the 2020 Record of Decision as the environmental baseline is misleading and inappropriate.
- Apart from Alternative 3, all the DEIS alternatives, including the Proposed Action, are as bad as or worse than the No Action Alternative ("NAA"), and would jeopardize the continued existence of listed species, in violation of the Endangered Species Act ("ESA"). This is according to Reclamation's own analysis in the DEIS.[1]
- Reclamation's own analysis in the DEIS does not appear to have informed the agency's findings or selection of the preferred alternative. Indeed, the quantitative results of the analyses are not reflected in the main body of the DEIS. Instead, the results of the analyses – which clearly show that all the alternatives except Alternative 3 will result in continued decline and extinction of listed species – need to be disclosed in a clear and accessible form.
- The potential adverse impacts of the Proposed Action and other alternatives (except Alternative 3) are actually likely to be far worse than indicated in the DEIS. There are serious problems with the DEIS's analysis, including, but not limited to:
  - a deeply flawed and unreliable analysis of temperature effects on juvenile Chinook Salmon;
  - a failure to acknowledge or incorporate into its modeling analysis the best available science from recent studies on the effect of river flows on survival of different runs of Chinook Salmon upstream, into and through the Delta;
  - a failure to consider both the current unsustainable levels of entrainment-related mortality of larval and juvenile Longfin Smelt and the increase in mortality for these life stages expected under the Proposed Action; and
  - a failure to consider the current status of the San Francisco Bay estuary's White Sturgeon population or to properly analyze the Proposed Action's effect on this species and the threatened Green Sturgeon DPS.
- The Voluntary Agreements are not reasonably certain to occur, and therefore the VAs should not be included as a component of the alternatives in the DEIS. In addition, the purported magnitude and benefits of VA-associated flows are incorrectly described, and, even if implemented, the VAs would be likely to be short-term in duration.

[1] Given the short time window to review this extensive document and engage in the larger reconsultation process, we have attached, and incorporate by reference, more detailed comments previously submitted to the Bureau on the Proposed Action. *See* Attachments 1 and 2.

- The DEIS also overlooks the fact that the US Environmental Protection Agency is investigating a Title 6 complaint against the State Water Resources Control Board over its improper consideration of the VAs in the Bay-Delta Water Quality Control Plan update.
- The DEIS's treatment of drought management relies in large part on a voluntary, largely qualitative Drought Toolkit without current authorization or funding for its implementation. Because this Toolkit is not reasonably certain to occur, the DEIS must be revised to identify specific actions that Reclamation will commit to mitigate the highly foreseeable and largely avoidable conditions of drought and avoid the reliance on temporary urgency changes that have characterized drought management in the past fifteen years.
- Although the DEIS purports to address the long-term operations of both the CVP and the SWP, the DEIS's Proposed Action does not match up with the Proposed Project in the California Department of Water Resources 2024 Draft Environmental Impact Report for the SWP. Both documents and their preferred alternatives are deeply flawed and must be revised to comply with state and federal law.
- Alternative 3 is the only alternative that adequately protects endangered species as required by law and should have been identified as the Preferred Alternative. It is also the only alternative that significantly reduces greenhouse gas emissions of the CVP, and therefore supports meeting state and federal climate policy targets. The DEIS is also deficient in failing to provide an adequate range of alternatives, i.e., one that includes more than one alternative that actually achieves the necessary level of protection for endangered species. In contrast, Alternatives 1 and 4 are properly rejected as noncompliant with ESA requirements.
- The DEIS improperly assumes that groundwater impacts of implementing Alternative 3 will be large and unmitigated, rather than understanding that implementation of and compliance with the Sustainable Groundwater Management Act will prohibit such impacts. The DEIS also overlooks the immense water savings potential of water conservation measures to offset water supply impacts.
- The DEIS fails to include an adequate historical analysis of Indian Tribal Assets and cultural resources, and the Proposed Action fails to mitigate impacts to water quality of federally reserved rights or to fishery resources protected by tribally reserved fishing rights, and to take necessary actions to preserve and protect cultural resources.
- The DEIS fails to adequately analyze or mitigate for the impacts of the Proposed Action on environmental justice communities in the Delta, including increased exposure to bioaccumulating toxins in subsistence fisheries and loss of access and increased economic costs associated with the increased occurrence of Harmful Algal Blooms and other water quality impacts. The DEIS also fails to address Justice 40 criteria.
- The DEIS violates NEPA both by including the proposed Sites Reservoir and Delta Conveyance Project at the programmatic level, even though these projects are not

reasonably certain to occur, and by failing to include them in the DEIR's analysis of potential cumulative impacts.

- The DEIS improperly excludes consideration of how impacts to the Trinity River system should be mitigated.

These findings are discussed in detail below, as well as numerous other concerns we have identified regarding the adequacy of the DEIS.

In 2021, the Biden Administration appropriately reinitiated consultation in order to **significantly revise and replace** the Trump Administration's highly flawed and insufficiently protective 2019 biological opinions ("2019 BOs"). The 2019 BOs were subject to political interference and scientific misconduct, and violated federal law.

In addition, we note that reinitiation of consultation was required as a matter of law because operations of the CVP and SWP have repeatedly exceeded the incidental take limits set in those biological opinions over the past several years. These exceedances include the incidental take limit in the 2019 NMFS BO regarding egg-to-fry survival of winter-run Chinook salmon. Most recently, the CVP and SWP exceeded the incidental take limits in the 2019 NMFS BO for salvage of protected steelhead and winter-run Chinook Salmon. (50 C.F.R. § 402.16; *see also* Defenders et al. Letter to BOR, DWR, USFWS, CDFW and NMFS on ITL exceedance March 2024, Attachment 5).

Given the alarming declines in the abundance of spring-run Chinook salmon, the complete closure of the salmon fishery in 2023 and 2024 due to low abundance of fall-run Chinook salmon, the Service's listing of Longfin Smelt under the Endangered Species Act (ESA) and its finding that existing regulatory mechanisms are inadequate to prevent extinction of this species[2], it is clear that significant changes in water project operations are necessary and appropriate to comply with State and Federal law.

Unfortunately, review of the DEIS shows that those significant revisions have not occurred. As we go into more detail below, Reclamation must revise and recirculate the DEIS.

I. The DEIS Purpose and Need Statement Must be Revised.

We appreciate the fact that Reclamation has not included the unlawful Purpose and Need statement that was used in the prior consultation. Regrettably, the Purpose and Need statement still fails to comply with federal law and must be revised.

[2] *See Endangered and Threatened Wildlife and Plants; Endangered Species Status for the San Francisco Bay-Delta Distinct Population segment of the Longfin Smelt*, 89 Fed. Reg. 61209 (July 30, 2024). Available online: https://www.regulations.gov/ by searching for Docket No. FWS–R8–ES–2022–0082; *see also* 50 CFR 17.11(h).

First, as we noted in our Notice of Preparation ("NOP") comments, we appreciate that Reclamation's proposed Purpose and Need statement does not include the unlawful directive to "maximize water deliveries" that was included in the Trump Administration's unlawful section 7 consultation. The prior consultation's Purpose and Need was contrary to state and federal law, and that project purpose was a primary reason why threatened and endangered fish species are facing potential extinction in recent years, as water project operators maximized water deliveries instead of preserving water in storage to meet water supply and environmental obligations if the next year was dry. Under the 1992 Central Valley Project Improvement Act ("CVPIA"), protecting fish and wildlife. This program specifically has a goal to double the natural production of anadromous fishes (AFRP 2001), including sturgeon, smelt, steelhead, and all four runs of Central Valley Chinook Salmon, which are the backbone of the State's salmon fishery that supports thousands of fishing jobs in California, Oregon, and parts of Washington. We appreciate that Reclamation specifically references CVPIA in the Purpose and Need statement. (DEIS, Chapter 2, p. 2-1).[3]

However, the DEIS's Purpose and Need statement still retains the description that one of the "purposes" is operating the CVP and SWP in a manner that "Satisfies Reclamation contractual obligations and agreements." (DEIS, Chapter 2, p. 2-1). The CVP and SWP's obligations to fulfill the terms and conditions of water supply contracts are subservient to Reclamation's obligation to ensure that the coordinated operations of the CVP and SWP comply with the ESA. The Purpose and Need statement must be revised to make clear that meeting water supply contracts is a secondary project purpose after compliance with the ESA[4].

In addition, we strongly encourage Reclamation to revise the Purpose and Need statement to more explicitly recognize that protections for ESA-listed species must be *strengthened* to avoid jeopardizing the continued existence and recovery of the species.

[3] However, we are still concerned about the DEIS's larger treatment of CVPIA legal obligations. The Proposed Action is still expected to reduce congressionally mandated CVPIA Level 2 water deliveries to wildlife refuges, yet there is no analysis for how those reductions will impact listed species on those wetland refuges (e.g., Giant Garter Snake), no indication for how CVPIA Level 4 deliveries will be treated under the Proposed Action and there is no listed mitigation for those impacts or an explanation for how Reclamation still intends to satisfy its legal obligations under CVPIA. We urge Reclamation to consider clarifying these issues in the revised and recirculated DEIS.

[3] The legality of the Trump Administration's 2019 Salmon BiOp was also challenged in the U.S. District Court of California, Eastern District in two parallel cases: *PCFFA*, *et al*. *vs. Raimondo*, *et al*. (No. 1:20-cv-00431) in which several of the signatories to these comments participated, and the *California Natural Resources Agency, et al. vs. Raimondo, et al.* (No. 1:20-cv-00426), two cases which led directly to the Biden Administration calling for ESA Sec. 7 reconsultation to which this DEIS is related.

[4] The legality of the Trump Administration's 2019 Salmon BiOp was also challenged in the U.S. District Court of California, Eastern District in two parallel cases: PCFFA, *et al*. vs. Raimondo, *et al*. (No. 1:20-cv-00431) in which several of the signatories to these comments participated, and the California Natural Resources Agency, et al. vs. Raimondo, *et al.* (No. 1:20-cv-00426), two cases which led directly to the Biden Administration calling for ESA Sec. 7 reconsultation to which this DEIS is related.

The best available science continues to demonstrate that substantially greater protections for affected endangered species are required. Necessary protections include actions that will likely reduce water diversions, as the Secretary of the Interior concluded in 2016 (US Department of Interior 2016), actions which were not included as part of the prior, unlawful consultation. The State of California, as well as the Plaintiffs in *PCFFA v. Raimondo* (including the Court testimony provided by Dr. Jonathan Rosenfield in 2020 and 2021), have demonstrated that significantly improved protections beyond those included in the 2020 Record of Decision are necessary to ensure that the operations of the CVP and SWP do not jeopardize listed species and violate state and federal law.

Finally, we remind Reclamation that the Purpose and Need statement cannot be interpreted to exclude consideration of alternatives that would reduce water deliveries, water allocations and/or water diversions by the CVP and SWP and its contractors. Coordinated operations of the CVP and SWP that reduce water diversions are consistent with Reclamation's legal obligations, and defining the Purpose and Need so narrowly as to exclude these reasonable alternatives is unlawful. *See, e.g., Environmental Protection Information Center v. U.S. Forest Service*, 234 Fed. Appx. 440 (9th Cir. 2007). As discussed below, adverse impacts on water contractors from rebalancing Project water allocations can be minimized or mitigated in a variety of ways, many of which signatories to these comments could support. Extinctions, on the other hand, are permanent and cannot be mitigated.

II. The DEIS Applies an Inappropriate Environmental Baseline.

The DEIS improperly identifies the No Action Alternative as continued operations pursuant to the 2020 Record of Decision. (DEIS, Executive Summary, p. 0-2; *see also* Appendix E). However, Reclamation is not implementing the operations exactly as authorized in the Record of Decision; rather, the coordinated operations of the CVP and SWP are currently governed by the Interim Operations Plan approved by the federal court, which differs from the operations in the Record of Decision in key ways.[5] Reclamation has operated under an Interim Operations Plan since 2022. Because the 2020 Record of Decision is not the current management direction, it is inappropriate and misleading to use it as the environmental baseline. *See, e.g.*, Council on Environmental Quality, Forty Most Asked Questions Concerning CEQ's National Environmental Policy Act Regulations, 46 Fed. Reg. 18026 (March 23, 1981) ("In these cases 'no action' is 'no change' from current management direction or level of management intensity."); *accord*, 43 C.F.R. §46.30 (definition of No Action Alternative).

Moreover, coordinated operations of the CVP and SWP have violated and are continuing to violate the terms of the 2019 Biological Opinions and Record of Decision. These violations include: (1) exceeding the incidental take statement for Central Valley Steelhead on the

[5] In addition, the SWP's operations are also governed by its CESA incidental take permit, which is not explicitly accounted for under this proposed No Action Alternative.

American River in 2021 and 2022; (2) exceeding the incidental take statement for winter-run Chinook Salmon in 2022, 2023 and 2024; (3) exceeding the incidental take statement for Central Valley Steelhead at the Project pumps in 2024; and (4) violating D-1641 water quality objectives that were part of the proposed action in 2021, 2022, and 2023 in a manner that causes additional impacts to listed species that were not considered in the 2019 biological opinions or Record of Decision. (50 C.F.R. § 402.16; *see also* Defenders et al. Letter to BOR, DWR, USFWS, CDFW and NMFS on ITL exceedance March 2024, Attachment 5).

Continued operations under the 2020 Record of Decision would jeopardize listed species in violation of the ESA.[6] As a result, and because BOR is not currently implementing the Record of Decision, **using the coordinated operations of the CVP and SWP pursuant to the 2020 Record of Decision as the environmental baseline would subvert the purposes of NEPA and would be plainly misleading to the public and decisionmakers**.

III. The DEIS's Proposed Action is Legally Deficient.

The Proposed Action, otherwise referred to hereinafter as the Preferred Alternative or Alternative 2, is legally deficient under NEPA as well as the federal and state ESAs. **According to the DEIS's own analysis, the Proposed Action would jeopardize the continued existence of listed species, in violation of the ESA and NEPA**. Indeed, this is true of all the alternatives except Alternative 3. In a recent rule, the Council on Environmental Quality opined,

> "[NEPA] establishes a framework for agencies to ground decisions in science, *by requiring professional and scientific integrity, and recognizes that the public may have important ideas and information on how Federal actions can occur in a manner that reduces potential harms* and enhances ecological, social, and economic well-being. *See, e.g.*, 42 U.S.C. 4332." (*See* Council on Environmental Quality, National Environmental Policy Act Implementing Regulations Revisions Phase 2, 89 Fed. Reg. 35442 (July 1, 2024) (emphasis added)).

The DEIS at issue here does not meet the intent of that rule. The potential adverse impacts from the Proposed Action are even worse than predicted, given flaws in the DEIS's analysis of impacts to listed species.

The entire analysis of effects of temperature on juvenile Chinook Salmon is deeply flawed and unreliable. The DEIS also overlooks the best available science from recent studies on the effect of river flows on survival of different runs of Chinook Salmon upstream, into and through the

[6] Plaintiffs in *PCFFA v. Raimondo* demonstrated that water project operations under the Interim Operations Plan have and would violate certain aspects of the incidental take statement in the 2019 biological opinions and would jeopardize listed species.

Delta, and fails to use that information to update its modeling analyses. In addition, the DEIS fails to acknowledge that its own modeling shows winter-run Chinook Salmon juvenile production would decrease relative to the No Action alternative, and temperature impacts to migrating adults would increase under the Proposed Action. The DEIS fails to acknowledge the beneficial effects of enhancing fall outflows for Delta Smelt or to acknowledge the findings of its own Delta Smelt Lifecycle Model analysis that Delta Smelt will go extinct under the Proposed Action. The DEIS likewise fails to disclose what its own analysis of Longfin Smelt clearly shows: that the species will go extinct under the Proposed Action (as well as the alternatives other than Alternative 3) and that in contrast Alternative 3 is highly beneficial for the species. Furthermore, the DEIS fails to consider both the current unsustainable levels of entrainment-related mortality of larval and juvenile Longfin Smelt and the increase in mortality for these life stages expected under the Proposed Action. Additionally, the DEIS fails to adequately consider the current status of White Sturgeon or the Proposed Action's effect on the species, or to use appropriate methodology to address the non-linear flow-recruitment relationship for this species. Similarly, the DEIS fails to adequately consider expected negative impacts to threatened Green Sturgeon under the Proposed Action.

A. The DEIS's Proposed Action has Unreasonable Impacts to Listed Species.

The DEIS fails to apply the best available science to analysis of impacts to endangered species and other biological outcomes. Its interpretation of modeling results fails to disclose the significance of impacts to listed species. To the extent that the analyses adequately compare the NAA with alternatives, the DEIS demonstrates that Alternative 3 – the modified natural hydrograph – performs far better than the Proposed Action (also known as Alternative 2) and its variants. Furthermore, the analyses reveal that incorporating the Voluntary Agreements (VAs) into Alternative 2 does little or nothing to improve protections for endangered species, and in some cases the VAs would exacerbate negative outcomes. Indeed, **several analyses reveal that the Proposed Action/Alternative 2 variants are worse for listed species than the NAA. Thus, operations proposed under the Proposed Action are not consistent with NEPA or the federal or state Endangered Species Acts and cannot be the preferred alternative.**

The DEIS fails to adequately describe or disclose the context for the proposed changes in CVP operations and revision of the Biological Opinions, which violates one of the purposes of a DEIS under NEPA. (40 C.F.R. §§ 1502.1 (b)-(c); *see also Columbia Basin Land Protection v. Schlesinger,* 643 F.2d 585, 594 (9th Cir. 1981) (A DEIS must ensure "full disclosure of the environmental consequences of a project.")) Fish and wildlife populations of San Francisco Bay and its watershed are experiencing an ecological crisis that has led to listing of six native fish species under state and/or federal Endangered Species Acts (SWRCB 2010, 2017, 2018; CDFW

2010).[7] Declining production of Central Valley Chinook Salmon has led to closure of California's ocean fishery for the past two years and severe constraints on Tribal fisheries, and has also contributed to food shortages for federally listed Southern Resident Killer Whales in the Pacific Ocean. The U.S. Environmental Protection Agency ("EPA") recently stated the problem succinctly:

> "Currently, six fish species (Delta smelt, longfin smelt, green sturgeon, Sacramento River winter-run Chinook salmon, Central Valley spring-run Chinook salmon, Central Valley steelhead) are listed or proposed as threatened or endangered under the Endangered Species Act. …The Bay-Delta and its watersheds have also experienced increased frequency of harmful algal blooms (HABs) affecting aquatic life and human health. … EPA reiterates that swift action is needed to address the imperiled state of the Delta and the species, communities, and economies that depend on this ecosystem for survival." USEPA 2024 enclosure at 1 and 2 (Pages 4-5 of the PDF).

The conservation status of these imperiled species continues to deteriorate. For example, in its recent evaluation of endangered winter-run Chinook Salmon, NOAA-Fisheries' Southwest Fisheries Science Center stated:

> "Until additional [winter-run Chinook Salmon] populations are established, the ESU will remain in the "High" biological extinction risk category. The overall viability of the ESU has continued to decline since the 2015 viability assessment (Johnson and Lindley 2016), with the single spawning population on the mainstem Sacramento River no longer at a low/moderate risk of extinction (Table 5.4)." (SWFSC 2023).

Longfin Smelt were recently listed as "endangered" by the U.S. Fish and Wildlife Service (USFWS 2024a). Moreover, the State of California recently declared California White Sturgeon as a candidate for listing under the California ESA, listing as threatened (CDFW 2024). Candidate species receive full protection under CESA immediate upon listing, making White Sturgeon the seventh native fish species protected under state and/or federal ESAs.

It is well-understood that water management, including particularly operations of the CVP and SWP, is a principal driver in the demise of native fish and wildlife species and water quality in the Bay-Delta estuary and its Central Valley watershed (SWRCB 2010, 2017, 2018; CDFW 2010). Again, the U.S. EPA is clear on this point, stating:

[7] In June 2024, the California Fish and Game Commission made California White Sturgeon, whose only known spawning population is in the San Francisco Bay watershed, a "candidate" for California endangered species act listing as threatened. Candidate species receive full protection under the California Endangered Species Act (CESA), making White Sturgeon the seventh native fish species protected under state and/or federal ESAs.

> "[Several] State Water Board reports in which the State Water Board compiled and analyzed a significant amount of comprehensive scientific information, recognize that substantially more flow is needed in the Delta and Sacramento-San Joaquin watersheds to support aquatic life. …Scientific consensus indicates that native fish population abundance is positively associated with flow volumes (e.g., Jassby et al. 1995, Sommer et al.1997, Mac Nally et al. 2010, Tamburello et al. 2019) and that largescale increases in both flow and habitat restoration are needed to recover and protect these and other native species. … Restoration of higher flow volumes may address key drivers of HABs, including increased stream temperature and water residence time (Kudela et al. 2023; Berg & Sutula 2015, Lehman et al. 2013)." USEPA 2024 enclosure at 1 and 2 (Pages 4-5 of the PDF).

Furthermore, it is clear that existing regulations are not adequate to halt the decline of native species and water quality. For example, USFWS recently concluded that listing of Longfin Smelt was necessary because:

> "Despite efforts such as those identified above [including existing requirements for the protection of other state and federal endangered species], the current condition of the estuary and continued threats facing the estuary and Bay-Delta longfin smelt, such as reduced freshwater inflow, severe declines in population size, and disruptions to the DPS's food resources have not been ameliorated." (USFWS 2024a).

Specifically, the 2019 Biological Opinions are inadequate to protect the endangered species from further harm from combined operations of the SWP and CVP. Indeed, by its own terms the NMFS 2019 Biological Opinions has failed to adequately protect endangered species[8] For example, in 2022, Reclamation exceeded even the excessively high incidental take limit of the 2019 NMFS BO regarding winter-run Chinook Salmon egg to fry survival, which is only triggered after three years in a row of exceedingly low egg to fry survival. Most recently in 2024, the incidental take limits for salvage were exceeded for both winter-run Chinook Salmon and Central Valley Steelhead. (50 C.F.R. § 402.16; *see also* Defenders et al. Letter to BOR, DWR, USFWS, CDFW and NMFS on ITL exceedance March 2024, Attachment 5).

The DEIS fails to transparently disclose this crucial context and thus denies decision makers and the public information needed to evaluate proposed changes to CVP operations and alternatives. *See* 40 C.F.R. § 1502.14 ("consider a reasonable range of alternatives that will foster *informed decision making*") (emphasis added). Analyses that indicate "no change" from existing conditions do not necessarily indicate compliance with federal or state ESA requirements.

[8] This failure comes despite court-ordered changes to the Biological Opinions that were intended to improve protections.

Because of the dire plight of the ESA-listed species, operational proposals that do not significantly improve status quo conditions are likely to lead to extinction and are thus inconsistent with state and federal Endangered Species Acts.

Reclamation's Proposed Action would jeopardize the continued existence of listed species, in violation of state and federal ESA requirements. The baseline for the Proposed Action is measurably worse for imperiled fish species than the conditions that preceded the 2019 Biological Opinion (i.e., the 2008/2009 Biological Opinions) and those conditions were known to be inadequate to protect the Bay estuary and watershed's endangered fish species (*See* US Department of Interior 2016). Similarly, SWP operations authorized under the state's 2020 CESA incidental Take Permit are less protective than those that preceded that update. These project impacts are not adequately mitigated. As described below, combined CVP/SWP operations under the Proposed Action would exacerbate the risk of extinction for six native Bay-Delta fish species and one marine mammal that are protected under the ESA compared to baseline conditions that are leading to extinction. As a result, the Proposed Action is wholly inadequate for use by the USFWS and NMFS in their consideration of incidental take permits under the ESA.[9]

Comments on the analyses for different species, their scientific basis, and the adequacy of the interpretation in the DEIS are below.

1. Chinook Salmon.

The DEIS frequently fails to apply the best available science to analysis of impacts of the Proposed Action to Chinook Salmon in general, and the listed winter-run and spring-run in particular. The interpretation of modeling results fails to disclose the significance of impacts to the endangered species or fisheries. To the extent that the analyses adequately compare the NAA with alternatives, the DEIS demonstrates that Alternative 3 performs better than all other alternatives, including the Proposed Action (Alternative 2b and its variants). Furthermore, the analyses reveal that incorporating the Voluntary Agreements (VAs) into Alternative 2 does little or nothing to improve protections for winter-run Chinook Salmon or spring-run Chinook salmon, and in some cases the VAs would exacerbate negative outcomes that are driving these ESA-listed species to extinction.

Several of the DEIS's analyses clearly indicate that the Proposed Action will continue the trend towards extinction for listed salmonids or even exacerbate their decline. For example, the

[9] We would also like to highlight that despite NMFS and USFWS agreeing on the Proposed Action as the "coordinated" alternative to base their Biological Opinions on, both NMFS and USFWS have used different versions of the Proposed Action in each of their incomplete, draft Opinions as of September 9, 2024 and the BOR has subsequently released a third version of the Proposed Action "Alternative 2B" in the DEIS at issue here. Therefore, there are three versions of the proposed, supposedly coordinated, operations to be reviewed for environmental compliance both under NEPA and the state and federal ESAs.

"CVPIA SIT winter-run life-cycle model" (DEIS Appendix F, Modeling Attachment F, at 2) predicts that Alternative 2 variants will result in population growth rates that are as low or lower than the NAA in most cases. (DEIS, Table F.2-9). Addition of the VAs to Alternative 2 leads to the worst population declines (Table F.2-10). Alternative 3 is the only set of operational criteria expected to produce population growth over the model's 19-year study period. (DEIS, Table F.2-10). In addition, the DEIS's Oncorhynchus Bayesian Analysis (OBAN) model finds that all Alternative 2 variants and the NAA have a high probability of extinction for winter-run Chinook Salmon. As the DEIS appendix reports[10]:

> "Under all Alternative 2 components and the NAA, median abundances dropped to below the quasi-extinction threshold within 10 years and to a value of less than 1.0 within 14 years. Median abundance was less than 9.0 for the remainder of the time series across all Alternative 2 components and the NAA. The pattern in abundance across components was due to low levels of egg to fry survival and delta survival throughout the model. In all components the median egg to fry survival was less than the median historical estimated egg to fry survival (median = 0.212, 95% Credible Interval (0.083, 0.501)) and the median delta survival (median = 1.23 x 10-2, 95% Credible Interval 5.60 x 10-3, 3.39 x 10-2)) . The historical estimated survival rates were estimated from escapements in 1967 – 2011, which was a period of winter-run Chinook population decline. Thus, median survival rates that are below the historical values would result in modeled abundance declines over the 98-year time series." (DEIS, Appendix F, Modeling Attachment F.6 Oncorhynchus Bayesian Analysis Model at F.6-21).

Similarly, the DEIS's modeling of spring-run Chinook Salmon population dynamics shows that Alternative 2 will result in the same mean population growth rate as the NAA (Appendix F, Modeling Attachment F.3 Tables F.3-5 and F.3-6). The status quo is not a good outcome for spring-run Chinook Salmon as this unique population is severely imperiled and its abundance and productivity continue to decline precipitously under current operations. Referring to spring-run Chinook Salmon, the NOAA-Fisheries Regional Administrator was recently quoted as saying: "We are running out of options. We want this species to thrive in the wild, but right now we are worried about losing them." (CDFW 2023a). Furthermore, the DEIS fails to disclose that spring-run Chinook Salmon viability is now even further impaired by catastrophic wildfires that burned through their few remaining watersheds in 2024; the destruction of forests threatens to degrade habitats used for holding, spawning, incubation, and early rearing (see, for instance, https://www.latimes.com/environment/story/2024-08-06/park-fire-threatens-critical-california-salmon-habitat#:~:text=California's%20spring%2Drun%20Chinook%20salmon,that%20provide%20criti

[10] Reference to OBAN (or other models) does not indicate that we believe the model represents the best available science. Here the reference simply indicates that this model provides no evidence that the Proposed Action is likely to prevent further jeopardy to endangered species or that it is a meaningful improvement over the NAA.

cal%20spawning%20habitat). It is in this context that the DEIS must interpret its modeling results; they reveal that spring-run Chinook Salmon will continue to decline under the Proposed Action as they are doing under the unacceptable status quo.

Below we critique and interpret other analyses in the DEIS that deal with specific stressors and salmonid life-stages. Collectively, these results reinforce the finding of the life cycle modeling – operations under the Proposed Action will produce biological outcomes for listed salmonids that are worse or only marginally better than the NAA.

Temperature Impacts

The DEIS (Appendix AB-L Attachment L.1 Table L.1-1 at L-3)) and BA (Table 5-1 at 5-4) assume temperature thresholds for Chinook Salmon that are incorrect according to the best available science. [11] In addition, the DEIS fails to disclose the time-step for its temperature metrics and modeled results (*e.g.,* whether they represent daily averages, daily maxima, multi-day averages, or multi-day averages of maximum temperatures). The absolute effect of the results in the DEIS are difficult to interpret without such specifics.

With respect to egg incubation, the best available science reveals that temperature dependent egg mortality (TDM) increases rapidly at daily average temperatures above 53.5ºF (Martin et al. 2016, 2020). The Martin studies demonstrate this temperature threshold using field data, laboratory studies, and computer models. They collectively and convincingly explain (a) the mechanisms driving TDM in winter-run Chinook Salmon; (b) why earlier, laboratory studies consistently overestimated the upper temperature threshold for Central Valley Chinook Salmon eggs, and (c) the temperature tolerances for teleost fishes in general. Furthermore, Martin et al.'s results are consistent with recent literature reviews specific to Chinook Salmon in the Central Valley (Myrick and Cech 2004; SEP 2019) and well-documented syntheses of range-wide temperature tolerances (US EPA 2003). Thus, there is no justification for the assumption that temperatures above 53.5ºF are suitable for Chinook Salmon or for relying on old, laboratory-based studies (*e.g.,* Slater 1963) as a basis for temperature sensitivity of Chinook Salmon eggs. Indeed, SEP (2019, Table 36 at 137) identifies daily average temperatures 53.6°F to 55.9°F as "stressful" and temperatures greater than or equal to 56ºF as "detrimental" to incubating Chinook Salmon eggs.[12] The optimal temperature range for Steelhead eggs is even lower than the upper end of the optimal range for Chinook Salmon (Myrick and Cech 2004; SEP 2019).

Similarly, the DEIS and BA assertions about temperature ranges suitable for juvenile Chinook Salmon rearing, migration, and smoltification (metamorphosis from freshwater to ocean-going

[11] The dissolved oxygen threshold presented in BA Table 5.1 is also incorrect, as the best available science indicates that 5 mg/L of DO is detrimental for all life stages of Chinook Salmon and Steelhead (SEP 2019 at 110, 121, 126, 139, 151). The DEIS should be corrected to reflect this fact. Because effects of alternatives on DO are not analyzed in the DEIS, we make no further comment on this error.

[12] As defined by the SEP (2019 at p. 103), detrimental conditions are: "[a]ssociated with a significant level of harm at the individual or population level."

juveniles) are entirely incorrect. Far from being "optimal," 68°F (20°C) as a 7-day average of daily *maxima* (7DADM) is the boundary between "stressful" and "detrimental" conditions for Chinook Salmon juveniles in river channel environments where food is typically limiting (Table 1; SEP 2019).[13] [14] Although the time step of results for the DEIS and BA are not clearly stated, we suspect that they report daily average or monthly average temperature results. Because averages are less than maxima, even daily average temperatures of 68°F represent even higher maximum temperatures. **The DEIS's failure to apply the correct numeric temperature threshold (and associated time-step) for harm to juvenile Chinook Salmon biases its analysis of absolute effects of temperature on juvenile Chinook Salmon survival, rendering them deeply flawed and unreliable.**

Table 1: Temperature thresholds for Central Valley salmonids identified in a recent literature review (SEP 2019). The upper three rows apply to fall-run and spring-run Chinook Salmon (which are believed to have the same temperature requirements as other Chinook Salmon runs) in river channel environments, where food is usually limited. The lower 7 rows apply to Central Valley Steelhead (*O. mykiss*). Copied from SEP 2019 (Table 42).

[13] Juvenile Chinook Salmon optimal temperatures are higher in inundated floodplain habitats because of the *ad libitum* availability of food (SEP 2019), but the 68°F 7DADM threshold for detrimental conditions still applies (Table 1).

14 Despite a wealth of recent "performance based" studies of different Chinook Salmon juvenile responses to temperature, there is no convincing evidence that juveniles of the different Chinook Salmon runs differ materially in their temperature tolerances. The authors of several of those studies state:

> "Performance-based studies, such as this one, typically evaluate only short-term, peak physiologic performance, in a controlled setting and free of ecological stress, and therefore may not reflect true capacity to tolerate high temperatures in a natural setting. In identifying temperature thresholds, including site-specific targets, it is critical to also consider how factors in the ecological setting (e.g., diet, competition, predators, disease, duration, and habitat quality) impact fish response to temperature.
>
> ... Further, directly equating the results of performance-based, site-specific tests to the thresholds in EPA 2003 would be inappropriate; such tests typically do not incorporate ecological factors to the extent of EPA 2003." (Zillig et al. 2020).

Their caveat regarding US EPA 2003 would also apply to Myrick and Cech 2004 and SEP 2019, which considered empirical field results and ecological analyses in addition to laboratory studies in identifying key thermal thresholds.

Table 42
Temperature Objectives for Chinook Salmon and *O. mykiss* Juvenile Rearing, Migration, and Smoltification

Habitat Type	Temporal Extent	Condition	Range (Metric)
Channel	Fall-run: Last week of January to second week of June	Supportive	6°C to 16°C (42.8°F to 60.8°F) (7DADM)
		Stressful	16°C to 20°C (60.8°F to 68°F) (7DADM)
		Detrimental	> 20°C (> 68°F) (7DADM)
Floodplain – Short Inundation	Spring-run: Last week of December to second week of June	Supportive	10°C to 18°C (50°F to 64.4°F) (7DADM)
		Stressful	18°C to 20°C (64.4°F to 68°F) (7DADM)
		Detrimental	> 20°C (> 68°F) (7DADM)
Mainstem	*O. mykiss*: January to December (year-round)	Supportive	15°C to 19°C (59°F to 66.2°F) (Daily Average)
			16.5°C to 21.5°C (61.7°F to 70.7°F) (7DADM)
		Stressful	20°C to 25°C (68°F to 77°F) (Daily Average)
			21.5°C to 26.5°C (70.7°F to 79.7°F) (7DADM)
		Detrimental	> 25°C (> 77°F) (Daily Average)
			26.5°C (79.7°F) (7DADM)
			> 27.5°C (> 81.5°F) (Instantaneous)

Prolonged exposure to average daily maximum temperatures above 60.8°F (16°C) is sub-optimal for Central Valley juvenile Chinook Salmon when food is limited (Table 1; US EPA 2003; SEP 2019). Increases in temperature between 60.8°F and 68°F are associated with decreasing performance. Based on numerous review papers, US EPA (2003) identified several negative impacts on juvenile Chinook Salmon of temperatures less than 68°F (20°C) and this is consistent with field studies from the Central Valley that found steady declines in survival above ~60.8°F (~ 16°C; Kjelson and Brandes 1989). Recent studies also indicate that negative effects on juvenile Chinook Salmon increase in severity as temperatures approach 68°F (20°C). For example, Nobriga et al. (2021) conclude:

> "[s]urvival was nearly zero for two smolt release groups exposed to water temperatures closest to 20°C and two others exposed to slightly warmer water. Qualitatively, this abrupt decline in survival coincides with declining swimming capacity and increasing predation risk. This synthesis… reinforces earlier studies that similarly indicated young Chinook Salmon must emigrate through the Delta before water temperature reaches 20°C."

Similarly, Lehman et al. (2017) (at their Figure 3) showed that performance of Chinook Salmon declined at temperatures above 18°C. Furthermore, Munsch et al. (2019) found that cold water in the lower rivers and estuarine habitats promotes juvenile rearing such that size and duration of freshwater rearing increased measurably for every 1°C decrease in April water temperatures.

There is no suggestion in the relevant literature that 68°F is a suitable temperature for Chinook Salmon or Steelhead smoltification, as asserted by the DEIS. In fact, USEPA (2003) indicates that smoltification for both species may be impaired at temperatures above 53.6°F (12°C). Richter and Kolmes (2005) indicate that Steelhead smoltification may be inhibited at

temperatures as low as 11°C to 14°C (51.8°F to 57.2°F). (*See also* USEPA (1999)). Myrick and Cech (2005) cautioned that smolting Steelhead in the Central Valley must experience temperatures less than 51.8°F (11°C) to successfully complete this metamorphosis.

Finally, the DEIS thresholds of 37.9-68ºF for adult Chinook Salmon migration are also not supported by the best available science. USEPA (2003) identifies constant temperatures in this range (greater than 64.4-68ºF (>18 - 20°C)) as associated with "high" risk of disease outbreaks. Even the DEIS alternative temperature "index value" of 59.9ºF is too high to reflect suitable conditions. SEP (2019 Table 19 at 108) finds daily average temperatures 57.2°F to 66.2°F (14°C to 19°C) are "stressful" to migrating adult Chinook Salmon and Steelhead, and temperatures above 66.2ºF are detrimental.

The temperature thresholds applied in the DEIS affect the veracity of analysis for each of the Chinook Salmon runs (and Steelhead). The net result of these erroneous temperature thresholds is to underestimate and misrepresent the impacts of the Proposed Action and alternatives to each Chinook Salmon run. For example, Tables L.1-3 through 1-8 and Tables L.1-9 through 1-14 (Appendix AB-L, Attachment L.1 Sacramento River Water Temperature Analysis) are likely to underestimate the frequency of impacts to adult Chinook Salmon from high water temperatures because the DEIS's definitions of "optimal" or suitable temperatures are egregiously high.

In another example of how incorrect temperature thresholds obscure the effects of the Proposed Action and its alternatives, the DEIS analysis that purports to show how alternatives increase or decrease the number of month-water year type combinations with favorable and unfavorable temperature results (DEIS Appendix O Table O-32) is very likely to be incorrect in absolute terms. The table's defined range for temperatures "favorable" for juvenile growth, migration, and smoltification (55.4°F–68°F) is distinctly unfavorable for Chinook Salmon and Steelhead, with the high end of the range being well above the upper optimal thresholds for those two species identified[15].[16] **As a result, the DEIS does not disclose how frequently project alternatives cause warm water temperatures that are harmful to juvenile Chinook Salmon and Steelhead.**

[16] As elsewhere in the DEIS, this analysis is further confused by the failure to provide temporal units for the temperature thresholds. The table title implies that it reflects monthly average temperatures in or out of its (incorrect) temperature range. Chinook Salmon temperature thresholds are typically expressed as daily averages or 7DADM (USEPA 2003) because these are timesteps that are relevant to the species' biology. Monthly average temperatures have little value for evaluating absolute impacts of project operations as they almost certainly incorporate daily average and daily maximum temperatures (and associated impacts) that are much higher. Even if daily average (or maximum) temperatures cannot be calculated using existing models, the DEIS must acknowledge the implications of using monthly average outputs to evaluate impacts that occur at a daily (or shorter) timestep.

Furthermore, the low end of the range in Table O-32 is much higher than the minimum optimal temperature for juvenile Chinook Salmon (it is also inconsistent with the optimal range identified in Appendix AB-L.1). As a result, operations that result in temperatures colder than the DEIS's (incorrect) lower temperature bound would be scored as "unfavorable" in Table O-32 when in fact they have no detrimental effect on juvenile Chinook Salmon. This is likely to be the case for some of the "unfavorable" results alleged in Table O-32, including those for "Below Keswick Dam" and "Red Bluff Diversion Dam" (compare Table O-32 to Appendix AB-L.1 Table L.1-4). Similarly, the results relating to temperature impacts for migrating juveniles (Appendix AB-L.1 Table L.1-30) are uninformative and misleading. For example, it is highly unlikely that river temperatures at Red Bluff are in excess of 68°F in December of all year types as the table portrays. Instead, it is likely that this analysis shows that temperatures will be below 55.4°F in December; however, that water temperature is not known to have significant negative effects on juvenile Chinook Salmon.

The temperature standards used to assess project alternatives in the DEIS must be based on the best available science. The errors in analysis and interpretation of temperature impacts caused by the DEIS's use of erroneous temperature indicators must be corrected. In that vein, the DEIS must also indicate the temporal units of index temperatures and its modeled temperature results. The revised DEIS then must be recirculated for public review.

To the extent that comparisons between alternatives using the temperature thresholds above still represent the relative impacts of the Proposed Action, it is clear that Alternative 3 is the superior alternative. The NAA frequently generates the worst temperature outcomes of the alternatives considered. Most variants of Alternative 2 represent little to no improvement over the inadequate NAA.

Results for TDM are key to evaluating performance of alternatives relative to the 2019 Biological Opinion, which failed to maintain even its own wholly inadequate requirements regarding egg and fry survival. The sheer number of studies of egg temperature tolerance thresholds (*reviewed in* Myrick and Cech 2004; Richter and Kolmes 2005; SEP 2019) illustrates the unquestionable importance for Central Valley Chinook Salmon of preventing high levels of TDM. For this reason, tables comparing TDM under all alternatives should appear in the main body of the EIS and/or in the Appendix dedicated to fish impacts. The figures related to TDM in DEIS Chapter 12 (Figures 12-28, 12-29, and 12-30) are not informative and fail to disclose that Alternative 3 will result in TDM that is less than half of that expected under the NAA (Appendix AB-L attachment L.2[17]Table L.2-2). TDM in Critical years, during which high levels of TDM

have occurred in the past, and on average across all years, is lowest for Alternative 3.[18] Of the Alternative 2 variants, the version without VAs and with TUCPs performed best. Other Alternative 2 variants performed remarkably worse (each is projected to produce >50% TDM in Critical years and >10% TDM on average); there is no evidence that Alternative 2 variants adequately mitigate temperature impacts of the NAA. Alternative 1 displayed the worst performance, increasing TDM over the unacceptable status quo in all drier years and causing high levels of TDM even in Wet and Below Normal years when TDM is generally low. Alternative 4 was the second worst scenario among the alternatives.

As described above, the DEIS fails to use the best available science with respect to adult migration temperature thresholds.[19] Thus, Tables L.1-3 through L.1-8 (Appendix AB attachment L.1) do not provide reliable information about the magnitude of temperature impacts on migrating adult Chinook Salmon. Furthermore, the analysis ignores the fact that winter-run Chinook Salmon migration is not evenly distributed across the January-June period. According to the BA, over 90% of winter-run have migrated past Red Bluff by the first week of June, and only 10% of the annual run migrates past this location in January (BA Appendix AB-C Table C-1). **A revised DEIS should indicate the relative impact of temperature exceedances on winter-run Chinook Salmon (and other species) in different months, as weighted by the portion of the population expected to be exposed to these temperatures.**

To the extent that this analysis provides relevant information on relative impacts across the different alternatives, we note that Alternative 3 outperforms all other alternatives in May of Wet years, eliminating temperature impacts at Hamilton City; this alternative also performs best (lower temperatures) in May across all years (Table L.1-8). Projected increases in temperature impacts in June (of any water year type) are unlikely to occur because almost all winter-run Chinook Salmon are upstream of Hamilton City (and even upstream of Red Bluff) by June; thus, the results that combine "all" months within year-types at Hamilton City are erroneous and misleading.

Similarly, although the DEIS arbitrarily uses 59.9°F as an indicator of suitable temperatures for Chinook Salmon adults, the relative differences between alternatives may provide some useful information. Again, temperatures in different months and locations are differentially important to winter-run Chinook Salmon; no temperature impacts are projected under any alternative far

[18] The DEIS estimates TDM based on two different models – the "Anderson Model" and the "Martin Model," based on Martin et al. 2016, 2020. As noted above, the model developed by Martin et al. is the gold-standard for estimating temperature impacts on incubating Chinook Salmon. There is no reason to present the "Anderson" alternative, especially since it produces qualitatively similar results. For the sake of clarity and scientific accuracy, the final EIS should omit reference to the "Anderson Model" estimates.

[19] This impact is not hypothetical. Reclamation's operations of Shasta in April-May 2021 led to 6% pre-spawning mortality of winter-run Chinook Salmon upstream of Red Bluff (CDFW 2021, "Discussion" tab, Row 5, available from https://www.calfish.org/ProgramsData/ConservationandManagement/CDFWUpperSacRiverBasinSalmonidMonitoring/tabid/357/Agg2208_SelectTab/4/Default.aspx)

upstream at Keswick and temperatures downstream of Red Bluff are not relevant to winter-run Chinook Salmon in June. At Red Bluff, Alternative 1 performs best (Table L.1-12). Alternative 3 performs second best in May, when most winter-run Chinook Salmon would be exposed to high temperatures expected under the NAA at this location.[20]

With respect to holding temperatures for winter-run Chinook Salmon adults, the temperature range used for analysis appears to match that supported by the best available science (SEP 2019 Table 26 at p. 120); therefore, the DEIS's results for this analysis may reflect absolute as well as relative impacts of the Proposed Action and Alternatives. The analysis indicates that Alternative 3 produces the most suitable temperatures in Critical years and (along with Alternative 1) across all years (Table L.1-16). Of the Alternative 2 variants, Alt2wTUCPwoVA produces the best holding temperatures on average, but it is only the third best alternative.

JPI Calculation

The DEIS attempts to predict the annual production of juvenile winter-run Chinook Salmon that migrate past Red Bluff each year – a "juvenile production index" ("JPI"). The JPI is used to determine allowable take limits, such as winter-run Chinook Salmon loss limits at the CVP and SWP export facilities in the south Delta. However, the statistical prediction of JPI developed in the DEIS is not peer-reviewed, not credible, and not based in the best available science.

First, the model does not do a good job of predicting the data from which it was developed, and it is not tested against data from other years. (DEIS, Appendix AB-L attachment L.3, Winter-run Chinook Salmon Juvenile Production Index Model, Figure L.3-2). Thus, there is no evidence that this model is a reasonably good predictor of egg-to-to fry survival rates, which is the key to JPI calculation.

Second, the model underestimates the importance of high water temperature, one of the most important drivers of poor Chinook Salmon egg, larval, and fry survival. The DEIS reports that the one temperature variable included in the JPI predictive model, mean water temperature at Highway 44 during winter-run Chinook Salmon incubation and emergence, was not well supported statistically. (DEIS, Appendix AB-L). As a result, the model downplays or ignores the known effect of temperature impacts on winter-run Chinook Salmon egg-to-fry survival.

A wealth of published studies makes the unassailable case that water temperature is a key factor in reproductive success of Chinook Salmon (*e.g.*, USEPA 1999, 2003; Myrick and Cech 2004; Richter and Kolmes 2005; Martin et al. 2016, 2021). In fact, the DEIS uses models of TDM as its only means of estimating egg-fry-survival. (Appendix AB-L Attachment L.2 Egg-to-fry Survival and Temperature-Dependent Mortality). The DEIS states: "The Martin et al. (2017) or Anderson

[20] It is not clear what the data/units are for values in the "NAA" column represent given that the Table is said to reflect "Percent (difference in percent relative to NAA) of months…" This should be clarified in a revised DEIS.

et al. (2022) models can be used to predict egg-to-fry survival for winter-run Chinook salmon as a function of temperature-dependent egg mortality, background mortality, and density-dependent mortality." (DEIS, Appendix AB-L Attachment L.2 Egg-to-fry Survival and Temperature-Dependent Mortality at L.2-1). Furthermore, the State Water Resources Control Board ("State Water Board" or "SWRCB") states:

> "Exposure of Chinook salmon and steelhead populations to elevated water temperature is a major factor contributing to their decline (see Section 3.4; Myrick and Cech 2001). Reductions in cold water storage impede reservoirs from meeting their downstream water temperature requirements, especially during critically dry years (NMFS 2009a, 2014a)." (SWRCB 2017 at p. 4-18).

Moreover, the draft NMFS BiOp lists water temperature and storage, egg Incubation and emergence temperature as a "primary stressor" for the listed Chinook Salmon runs, and Central Valley Steelhead (Draft NMFS Biological Opinion Table C, p. 4). Elsewhere, it reports a "high" weight of evidence that TDM is a "high" magnitude stressor for winter-run Chinook Salmon eggs that occurs with "medium" frequency affecting a "large" portion of the population (Draft NMFS BiOp, Table KK at p. 71).

Failure to include a variable that effectively captures the effect of high water temperature on Chinook Salmon egg, larvae, and fry success in the final JPI predictive model likely reflects inadequacy of candidate variables chosen to represent temperature effects rather than a lack of such an effect. Each of the temperature variables assumes a linear effect of temperature on winter-run Chinook Salmon JPI, but the effect of temperature on Chinook Salmon eggs, larvae, and fry is non-linear (Myrick and Cech 2004; Martin et al. 2017). Below a critical threshold, temperature has no effect on egg survival (water that is too cold for egg development is not a concern for winter-run) and above that threshold, increases in temperature and exposure time produce very rapid increases in mortality. Thus, the candidate variables (average temperature during key incubation period, "Temp_SAC_I" and cumulative degrees per day above 11.67C during incubation period at Hwy 44 "CD_above_11.67_I") would not be expected to correlate with JPI in a linear fashion. For example, the average temperature indicator ("Temp_Sac_I") assumes that every increment of temperature has the same effect on egg, larvae, and juvenile success – this is not true. Similarly, the cumulative temperature variable ("CD_above_11.67_I") assumes that repeated small temperature exceedances (e.g., 0.2^{o}C exceedance per day for 30 days) have the same effect on egg success as large exceedances over a short term (e.g., 6^{o}C exceedance for one day) – this is not the case. Also, the "CD_above_11.67_I "variable would begin to increase before the critical temperature threshold had been exceeded for the bulk of the winter-run Chinook Salmon eggs. Because the vast majority of winter-run spawning occurs well-upstream of Highway 44 and water warms as it flows downstream in the summer, temperatures equal to and a little above 11.67^{o}C at Highway 44 correspond to *optimal* temperatures upstream, where the vast majority of eggs are incubating. This kind of flawed construction of candidate

variable explains in part the DEIS's failure to detect significant temperature effects on JPI. But this failure is not an excuse for the DEIS to reject the overwhelming body of literature showing negative effects of high water temperature on incubating Chinook Salmon eggs and the subsequent size of the juvenile cohort.

Moreover, the flow variables included in the DEIS's statistical model of JPI are not independent of river temperature.[21] Winter-run survival is likely to be good during high flow years exactly because there is ample cold water behind Shasta Dam, in addition to any other benefits provided by river flow. Shasta releases are liable to be low in years when coldwater pool is limited, resulting in high TDM and poor JPIs. High summer Sacramento River flows are most likely in years when reservoir releases are not constrained by coldwater pool management. As an example, the data set used to create the DEIS's JPI model includes 2014, 2015, 2021, and 2022, years when the Bureau and DWR requested and received waivers from Delta flow standards (also referred to as Temporary Urgency Change Orders) with the explicit intent of preserving cold water upstream behind Shasta Dam for the benefit of winter-run Chinook Salmon[22]. Despite those waivers, temperature impacts on winter-run Chinook Salmon eggs were extraordinarily high and egg-to-fry survival exceptionally low during most of those years (DEIS, BA, Appendix AB, Chapter 5 Table 5-13 at 5-45 and 5-46). In other words, reservoir releases and flows in the incubation habitat of winter-run Chinook Salmon eggs were artificially low in those years in which temperature impacts were expected to be, and eventually were, high. The relatively strong negative correlation between both discharge and mean flow at Red Bluff and the two temperature variables demonstrates that the JPI model's flow variables represent temperature effects, at least in part. (DEIS, Appendix L.3 Table L.3-2 at p. L.3-4.)

Finally, TDM does not necessarily correlate with JPI in a linear fashion. Instead, TDM constrains JPI -- high or low reproductive success (egg-to-fry survival) are possible when TDM is low, but only low egg-to-fry survival rates (and relatively low JPIs) are possible when TDM is high. The mechanism is clear: eggs that die due to exposure to high temperature do not contribute to juvenile production. This does not mean that TDM is unimportant (even at moderate levels), it simply means that TDM and the forces that produce it should not be expected to show up in the kind of statistical modeling attempted in the DEIS.

The DEIS must be revised and recirculated without the current JPI model. Either a new, valid predictor of JPI that accurately reflects the known role of river temperature on

[21] By contrast, within the range of winter-run Chinook Salmon spawning, river temperatures are not significantly affected by reservoir release volume; Danner and Daniels (2020) found that reservoir release temperature dominates the effect of river flow rate on river temperatures in the winter-run Chinook Salmon spawning reach.
[22] For example, see SWRCB orders in 2014, 2015, and 2022 specifically referencing preservation of upstream coldwater storage at:
http://www.waterboards.ca.gov/waterrights/board_decisions/adopted_orders/orders/2014/wro2014_0029.pdf;
https://www.waterboards.ca.gov/drought/docs/tucp/2015/tucp_order020315.pdf; and
https://www.waterboards.ca.gov/waterrights/board_decisions/adopted_orders/orders/2022/wro2022_0095.pdf

survival of Chinook Salmon egg, larvae, and fry must be developed or the revised DEIS must omit such a predictor and rely on estimates of TDM to gage the effect of alternatives on juvenile production. The revised DEIS should analyze the effects of alternative operations on winter-run Chinook Salmon using a version of the NMFS winter-run Life Cycle Model (https://oceanview.pfeg.noaa.gov/wrlcm/) updated to incorporate the best available science regarding the effects of river flow on winter-run juvenile survival (including Michel 2018; Henderson et al. 2019; Hance et al. 2021; Hassrick et al. 2022).

If, despite the flaws described above, the DEIS's JPI estimate represents the relative effects of operational alternatives, then this model predicts that all Alternative 2 variants will produce lower numbers of juvenile winter-run Chinook Salmon passing Red Bluff than the NAA (*See* Table 2 below). Furthermore, the Alternative 2 variant that includes watershed-wide VAs ("Alt2woTUCPAllVA") performs worse than other Alternative 2 variants in the vast majority of years. **If the final EIS maintains use of the DEIS's JPI prediction model, then it must disclose the negative impact to winter-run Chinook Salmon population viability of reduced juvenile production expected under the Proposed Action relative to the current, unacceptable status quo, the NAA.**

Table 2: Predicted juvenile winter-run Chinook Salmon production indices for variants of Alternative 2 relative to the NAA. Copied from Appendix AB-L, Shasta Coldwater Pool Management Attachment L.3 "Winter-run Chinook Salmon Juvenile Production Index Model".

Table L.3-5. JPI observed and mean predicted values under BA scenarios from 2002 to 2022 by water year type.

Water Year Type	Observed JPI	NAA	EXP1	EXP3	Alt2 wTUCP woVA	Alt2 woTUCP woVA	Alt2 woTUCP DeltaVA	Alt2 woTUCP AllVA
Above Normal	6,652,583	4,166,909	938,222	1,767,935	4,064,905	4,064,717	4,080,225	3,927,614
Below Normal	3,743,451	2,903,175	898,043	1,595,262	2,792,077	2,792,278	2,814,852	2,761,983
Critical	799,585	1,413,014	221,555	1,326,659	1,084,428	1,250,915	1,215,117	1,163,048
Dry	3,820,593	1,903,154	211,001	1,055,059	1,750,491	1,751,186	1,788,049	1,675,850
Wet	4,776,674	2,874,042	1,311,624	1,344,053	2,864,663	2,864,578	2,864,874	2,864,352

In-stream flow effect on survival

The DEIS fails to acknowledge findings of recent peer-reviewed literature which reveals the positive effect of river flow into the Delta on habitat use in, and survival beyond, the Delta (Michel 2018; Munsch et al. 2020). Similarly, the DEIS fails to disclose the effect of flow on juvenile Chinook Salmon as they migrate downriver from Red Bluff to the Delta, despite recent peer-reviewed research that shows that flow is the dominant variable affecting in-stream migration success (Henderson et al. 2019; Sturrock et al. 2019; Friedman 2019; Notch et al.

2020; Hassrick et al. 2022)). **The DEIS must be updated to incorporate the findings of these recent studies and others that represent the best available science on the effect of river flow upstream and into and through the Delta on survival of each run of Central Valley Chinook Salmon.**

Through-Delta Survival Impacts

The DEIS states: "The survival of juveniles in the Sacramento River downstream of Red Bluff Diversion Dam is addressed primarily under the outmigration cues stressor while the survival of juveniles in the Delta is addressed primarily by entrainment risk." (BA, Appendix AB Chapter 5 –Winter-Run Chinook Salmon at 5-56). This is misleading. Whereas entrainment of listed Chinook Salmon at the CVP and SWP pumps is an important indicator of the impact of water exports, it is far from the only impact of CVP/SWP operation on through-Delta survival. Citing the U.S. Department of Interior, the State Water Board notes: "More important than direct entrainment effects, however, may be the indirect effects caused by export operations increasing the amount of time salmon spend in channelized habitats where predation is high (USDOI 2010, 29)." (SWRCB 2017 at p. 3-47). In fact, the DEIS employs several models to estimate through-Delta survival of Chinook Salmon that incorporate flow, including the STARS model and Delta Passage Model (*see below*), particle tracking models, the CVPIA SIT models for winter-run Chinook Salmon and spring-run Chinook Salmon, the Interactive Object-oriented Simulation (IOS) Model, etc.

STARS Model

The DEIS employs the Survival, Travel Time, and Routing Simulation ("STARS") model to evaluate the effect of flows in Delta channels on the routing and ultimate success of migrating Chinook Salmon juveniles. The results of Perry et al. (2018), upon which the STARS model is based, have been largely corroborated for other runs of Chinook Salmon migrating in different seasons (Hance et al. 2021). The STARS model should be updated to incorporate the more recent results from Hance et al. Also, the DEIS should acknowledge that the STARS model is relevant to routing and survival of Chinook Salmon smolt only, not fry that rear in the Delta before migrating to the ocean. Munsch et al. (2020) document the effect of flow on occupancy and density of wild-spawned Chinook Salmon fry in shallow tidal rearing habitats in the Delta. **The DEIS must be revised to analyze the effect of different operational alternatives on juvenile Chinook Salmon survival in-river, to the Delta. In addition, the DEIS should investigate how each operational alternative affects use of shallow tidal habitats by emigrating fry Chinook Salmon; this is especially relevant given that mitigation for combined project operations has emphasized restoration of this type of "habitat."**

Using the STARS model, the DEIS compares through-Delta survival of Chinook Salmon smolt from December-April under each of the project alternatives. (DEIS, Appendix AB-I, Attachment I.5 Table I.5-3). This time-period is most relevant to winter-run Chinook Salmon smolt

migration. It is not clear why the model was not applied in *each month* that Chinook Salmon smolt migrate so that readers could easily understand impacts to other runs, including the listed spring-run Chinook Salmon and economically, ecologically, and culturally important fall-run Chinook Salmon. **The DEIS must be revised so that the STARS model is used to investigate the success of migrating smolt of each Central Valley Chinook Salmon run.**

In each month studied, the DEIS projects that the greatest modeled increase in survival of winter-run smolt will occur under operations specified in Alternative 3. Effects of other alternatives vary from month to month, and the DEIS does not summarize them. However, it is clear that Alternative 1 performs worse than the other runs (with through-Delta survival declining 7.6% in December and 2.6% in January versus NAA). Alternative 4 is nearly identical to the NAA. The Alternative 2 variants are barely different from NAA in most cases, with each variant expected to result in survival less than or equal to the NAA in at least one month. Table I.5-4 presents a different view of the same output from the STARS model, this time binning the data by categories of Sacramento and San Joaquin inflow to the Delta. Not surprisingly, Alternative 3 is again the superior operational approach, with through-Delta survival exceeding that of other operational alternatives in nearly every "inflow group" combination (DEIS, DEIS, Appendix AB-I, Attachment I.5 Figure I.5-4). Figure 1.5-10 clearly displays the substantial effect of increasing river flow on through-Delta survival under all alternatives. The BA's "takeaways" do not disclose these results, focusing instead on the range of Delta survivals estimated for the NAA and the Alternative 2 variants alone. **The DEIS must be revised to disclose that Alternative 3 is expected to result in higher Delta survival than any of the Alternative 2 variants and that the latter are only marginally different and sometimes worse than the NAA.**

Delta Passage Model

The DEIS also applies the Delta Passage Model (DPM) to study through-Delta survival. As elsewhere in the DEIS and BA where different models are used to analyze the same outcomes, the DEIS must identify the purpose of applying different models and the specific benefits and shortcomings of the models applied. Otherwise, application of different models to the same phenomenon generates confusion and obscures the best available science.

Like the STARS model, DPM relies on data from tagged smolt to estimate routing and survival of smolt through the Delta; neither model addresses survival probabilities of smaller fish that migrate into and attempt to rear in the Delta. Because they are weaker swimmers than smolt, and because they reside in the Delta longer, Chinook Salmon fry and parr are likely to be more susceptible to differences in Delta hydrodynamics caused by operational alternatives for the CVP/SWP. **The DEIS should be revised to acknowledge that survival of the very large portion of juvenile Chinook Salmon that enter the Delta as fry or parr is not modeled by either the STARS model or DPM.**

Figures depicting survival under the alternatives analyzed (*e.g.*, Appendix AB-I, Attachment I.6 Delta Passage Model: A Simulation Model of Chinook Salmon Survival, Routing, and Travel Time in the Sacramento–San Joaquin Delta Figures I.6-12 & 6-14) obscure actual differences between the alternatives by depicting variance that has nothing to do with the alternatives. River flow conditions that effect through-Delta survival of Chinook Salmon (and other fish) are affected by underlying annual hydrology. Within a water year-type, the wettest years may be many-fold wetter than the driest years. This variance in underlying conditions will affect river flows in each alternative, but much of the resulting variance in annual hydrology within water year types has nothing to do with the alternatives themselves. Each alternative will experience the same underlying (unimpaired) hydrology in each year. Thus, plotting the variance (box and whiskers) of survival outcomes for each alternative expands the y-axis and tends to make the alternatives look similar, or even indistinguishable, and it implies that the relative differences between alternatives in any given year is uncertain because they are "variable". But this is not the case. Studying the *differences* between alternatives would focus the analyses on the variation that results from the alternatives themselves. **The DEIS must be revised to visualize differences between alternatives by plotting the average *differences* and variation in *differences*, rather than average outcome and variation in those outcomes for each alternative.**

Because the DEIS uses STARS only to evaluate winter-run Chinook Salmon smolt survival through the Delta, we are left with the DPM results to evaluate survival for the other runs. Table I.6-6 (Appendix AB-I, Attachment I.6**)** corroborates the STARS model projections for winter-run Chinook Salmon smolt under each alternative relative to the NAA. Alternative 3 displays substantially higher survival for smolt of each run than any of the other alternatives; winter-run smolt survival is projected to increase by up to 7.73 percent relative to the NAA and improvements are substantial in every year type. Depending on year-type, survival of listed spring-run Chinook Salmon smolt is expected to increase by 5.16-9.31 percent under Alternative 3 operations versus the NAA. Each of the Alternative 2 variants results in worse survival for spring-run Chinook Salmon smolts than the NAA in at least one water year type. Alternative 1 results in declines in winter-run Chinook Salmon smolt survival compared to the NAA in all water year types and in all but Critical years for spring-run Chinook Salmon smolt.

Alternative 3 is also projected to result in substantial increases in survival of fall-run and late-fall run smolts, relative to the NAA. In fact, survival for these runs under Alternative 3 is superior to all other alternatives, in the vast majority of years. By contrast, Alternative 1 results in survival worse than the NAA in all water year types for late-fall run Chinook Salmon. Three of the Alternative 2 variants (wTUCPwoVA; woTUCPwoVA; woTUCP; DeltaVA) result in fall-run smolt survival that is worse than the NAA in most years. **The DEIS must disclose the likely negative effects on Central Valley and marine Chinook Salmon fisheries of the reduced fall-run and late-fall run smolt survival in some water year types under certain operational alternatives.**

2. Delta Smelt.

The DEIS applies the USFWS Delta Smelt Life Cycle Model (Delta Smelt LCM) to analyze CVP operational alternatives. This model represents the best available science. However, as applied in the DEIS, the Delta Smelt LCM does not consider supplemental fall outflow (the "Fall X2" action) to be a benefit to Delta Smelt, despite the fact that many papers (including research that informs the Delta Smelt LCM) indicate that fall outflow has a significant positive effect on Delta Smelt abundance, probably via its effect on larval recruitment (USFWS 2008; Rose et al. 2013a,b; Polansky et al. 2021; CSAMP 2024). Other research demonstrates that increased fall Delta outflow corresponds to improved habitat for Delta Smelt, including increased availability of *Pseudodiaptomus forbesi,* the principal prey for sub-adult Delta Smelt (Hassrick et al. 2023; Kimmerer et al. 2018) and reduced temperatures in October (Bashevkin and Mahardja 2022).

The DEIS fails to apply the peer-reviewed Delta Smelt life cycle by Rose et al. (2013a,b), which uses an individual based-mechanistic approach to analyze Delta Smelt population response to management alternatives. However, another recent study (Compass 2024) used the Rose et al. (2013a.b) model and showed positive population growth for Delta Smelt when fall outflow was set to month-specific locations < 80Km following Wet and Above Normal year-types. The Compass (2024) results also indicated that Delta Smelt populations would have declined more rapidly than observed over the 1994-2014 period if fall outflow had been set to month-specific locations of > 80 km in those same year-types (Compass 2024, Table 8 at p. 25). **Because research continues to indicate that supplemental fall outflow may have a beneficial effect on Delta Smelt, the DEIS should consider the sensitivity of the Delta Smelt population to differences in fall outflow among the modeled operational alternatives.**

The Delta Smelt LCM analysis clearly demonstrates that Alternative 3 substantially outperforms all other alternatives with respect to estimated future population growth rates (DEIS, Figure 1; Attachment F.4**,** Table F.4-5 and Figure F.4-9). In fact, Alternative 3 is the only alternative that produces positive Delta Smelt population growth rates on average. Negative average population growth rates shown in all other alternatives are consistent with inviable populations and extinction (McElhaney et al. 2002). Alternative 2 variants produce negative growth rates that are, on average, nearly indistinguishable from or worse than the NAA and empirical growth rates that have led to the near disappearance of this once abundant endemic fish species. Furthermore, all Alternative 2 variants perform worse than NAA or empirical results in Wet and Above Normal Years. The DEIS provides some insight into this result, explaining:

> "Meanwhile, NAA and the PA components may have produced lower λ [population growth rate] than the empirical data during wetter years because of the lower June-August Delta Outflow values and more negative OMR values for some months. NAA and the PA components did not produce higher λ despite

> OMR restrictions that should reduce entrainment of Delta smelt. This may be due to the apparent trade-off between OMR flow and summer Delta outflow that somehow occurred between PA components and the empirical data." (DEIS, Appendix F, Attachment F.4 Delta Smelt Life Cycle Model with Entrainment at F.4-21).

This demonstrates that Alternative 2 is not consistent with requirements of the ESA (especially given that Alternative 3 and non-alternative scenarios ("EXP1" and "EXP3") demonstrate that operations that result in positive population growth are possible). Alternative 1 performs far worse than the NAA (Figure 1 below; *see also* DEIS, Attachment F.4 at Table F.4-5).

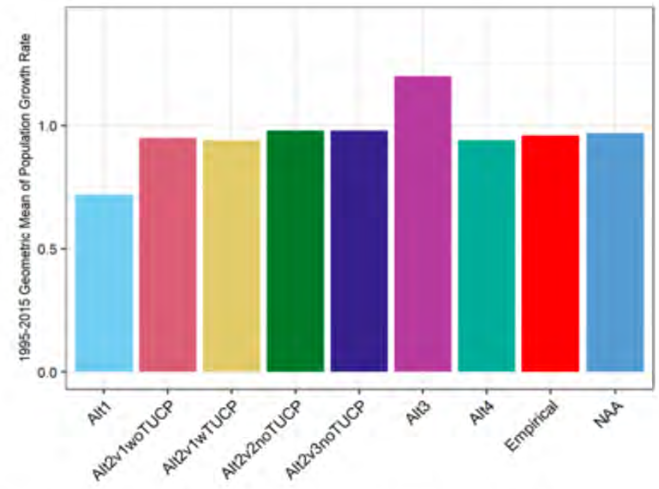


Figure 12-4. Mean population growth rates aggregated across the years. Bar plot demonstrating the geometric mean of population growth rate (lambda) from 1995 to 2015 for the various alternatives.

> **Figure 1:** Graphic showing mean Delta Smelt population growth rates projected under each project alternative across years, as compared to empirical estimates of Delta Smelt population growth from 1995-2015. Population growth rates of 1.0 represent a stable population (no growth or decline, on average); growth rates less than 1.0 indicate long-term decline in population abundance over time. Persistent negative growth rates eventually lead to population extirpation.

Other DEIS analyses are consistent with the finding that the Proposed Action will not improve conditions for Delta Smelt relative to the unacceptable NAA and that conditions under the Proposed Action may be worse than the NAA at times. For example, another Delta Smelt population model shows that the No Action Alternative is worse than the baseline, that Alternative 2 variants are roughly equivalent to or worse than the NAA, and that Alternative 3 vastly outperforms the other alternatives (Appendix F Attachment F.1 Tables F.1-5 and F.1-6). Similarly, the DEIS analysis of summer and fall Delta outflow and habitat concludes:

> "… HSI [habitat suitability index] values across the Alternative 2 components were similar to those of the NAA at all levels of spatial organization (Delta, summer and fall habitat subregions together, individual subregions; Table K.1-7, Table K.1-8). For the Delta and summer and fall habitat subregions, percent differences were slightly negative; for each subregion, percent changes generally ranged between -3 to 2, except in the Confluence during the critical water year and in some of the Suisun Bay subregions during the wet, below normal, and critical water year types (Table K.1-7, Table K.1-8)." (DEIS, Appendix K, Attachment K.1at p. K.1-42).

The DEIS must acknowledge and emphasize the clear implications of its Delta Smelt Life Cycle Model analysis. This species will go extinct under the No Action Alternative and may go extinct more rapidly under the Proposed Action. Meanwhile, alternative operational scenarios exist that could potentially prevent extinction and enable recovery.

3. Longfin Smelt.

As with other listed fish species in San Francisco Bay Delta and its watershed, operations that do not improve conditions relative to the status quo for this estuary's Longfin Smelt population are inconsistent with the requirements of the ESA. The USFWS recently observed that Bay-Delta Longfin Smelt DPS "...has plausibly been declining for over 50 years and that decline is presently at circa 3–4 orders of magnitude below initial observations." (USFWS 2024b at p. 36). In its final listing decision, USFWS found that despite numerous efforts regarding conservation and regulation of the San Francisco Bay estuary and its resources, including the 2019 Biological Opinions, 2020 CESA ITP, and existing water quality requirements, "…the current condition of the estuary and continued threats facing the estuary and Bay-Delta longfin smelt, such as reduced freshwater inflow, severe declines in population size, and disruptions to the DPS's food resources, have not been ameliorated" (USFWS 2024a; *see also,* Federal Register Vol. 87, No. 194 [Friday, October 7, 2022] at pp. 60957-60974). Furthermore, USFWS's analysis revealed that: "[f]orecasts of population size using vital rates estimated by the model indicate that it is likely that Longfin Smelt population sizes will dip below recoverable levels within a decade if these recent levels of reproduction and survival continue" and "[b]ased on the meta-analysis, the mean quasi-extinction value for the population is 33% (25%, 41%) over 20 years and rises to 50% (42%, 58%) in 30 years…" (USFWS 2024b at p. 195 and p. 115) (emphasis added).

Despite the extremely precarious state of the Longfin Smelt population, the proposed combined operations of the CVP and SWP analyzed in the DEIS would not only fail to improve conditions for the Bay-Delta Longfin Smelt population, often they would make those conditions worse.

Delta Outflow model

The DEIS employs flawed modeling to estimate the impacts of the Proposed Action and fails to disclose the harm to Longfin Smelt revealed by its modeled results. The DEIS employs a novel statistical approach, which has not been peer-reviewed, to combine multiple models of Longfin Smelt population dynamics[23] into a single predictive model. This model indicates that the Longfin Smelt population is likely to decline versus the unacceptable NAA in all years for Alternative 1 and almost all years for Alternative 4 (DEIS, Appendix AB-J, Winter and Spring

[23] These models are not likely to produce credible estimates of absolute abundance or abundance index values for this population. First, the modeling relies on incorrect assumptions about the nature of the Longfin Smelt-flow abundance relationship. Specifically, the models incorporate different Longfin Smelt flow-abundance relationships during multi-year periods that it identifies as "ecological regimes," citing Nobriga and Rosenfield (2016) as the source of these different categories. In fact, Nobriga and Rosenfield provide no support for the "ecological regimes" used in the DEIS' modeling approach and neither does Thomson et al. (2010 at 1439-140 and Figure 6 at 1442).

Second, the modeling employs non-traditional approaches. For example, the DEIS generates multiple models whose "distributions were combined as a weighted average across models" in a process called "stacking". The DEIS explains (at Appendix AB-J Attachment J.1 at J.1-2):

> "Compared to more traditional model averaging approaches, stacking differs in terms of how model weights are assigned. *Instead of calculating model weights based on the relative predictive ability for each individual model—where the best model for prediction would be given the highest weight—the model weights estimated through stacking minimize the LOO mean squared error of the resulting averaged posterior predictive distribution across models*. In other words, stacking was used to estimate the optimal linear combination of model weights for averaging predictive distributions across the model set (Yao et al. 2018).
> Hence, *the model with the largest stacking weight does not necessarily have the highest predictive score compared to other models in the set*." (emphasis added).

Thus, the DEIS's predictions of Longfin Smelt response to different operational alternatives is based on a weighted average of multiple models, where the weights applied do not correspond to the predictive ability of the relevant model. Furthermore, the final "stacked" model includes models where the flow variable is measured from December-May Delta outflow (as per CDFW 2010; *see also*, Nobriga and Rosenfield 2016) and other models where outflow is measured from March-May. This means that flow during the months of March, April, and May are differentially represented in the final model – the DEIS provides no explanation of, or justification for, this emphasis on March-May flows.

Third, the models rely on randomization procedures, used to generate "probability distributions" for the modeled results. (DEIS Appendix 6B at 6B-395 thru 6B-403). These randomizations confound variability from multiple sources, including those that have nothing to do with the effect of project alternatives. These "probability distributions" for model predictions are then inappropriately compared to the differences in means for several water year types across different alternatives; these water year-types include such as variation in abundance over the entire Longfin Smelt data series. The resulting analysis is used to imply that differences between alternatives are small compared to the variability in population estimates – this is highly misleading.

These overwrought statistical machinations obscure very simple facts – (1) Delta outflow is the only *known* variable affecting changes in Longfin Smelt abundance from year to year that is affected by combined CVP/SWP operations (USFWS 2024b and sources cited therein), and (2) the effect of Delta outflow on the Longfin Smelt population is most likely due to its relationship with recruitment of young-of-year fish, a relationship that has not changed in five decades of sampling data (Nobriga and Rosenfield 2016).

Pulses and Delta Outflow Attachment J.1 Table J.1-3). Three of the four Alternative 2 variants are estimated to result in Longfin Smelt abundance less than or equal to the NAA in the vast majority of years. **Only Alternative 3 is expected to produce substantial increases in the Longfin Smelt population overall and it accomplishes this in every water year type.** Figure 2 below illustrates the mean difference between each alternative and the NAA by water year type.

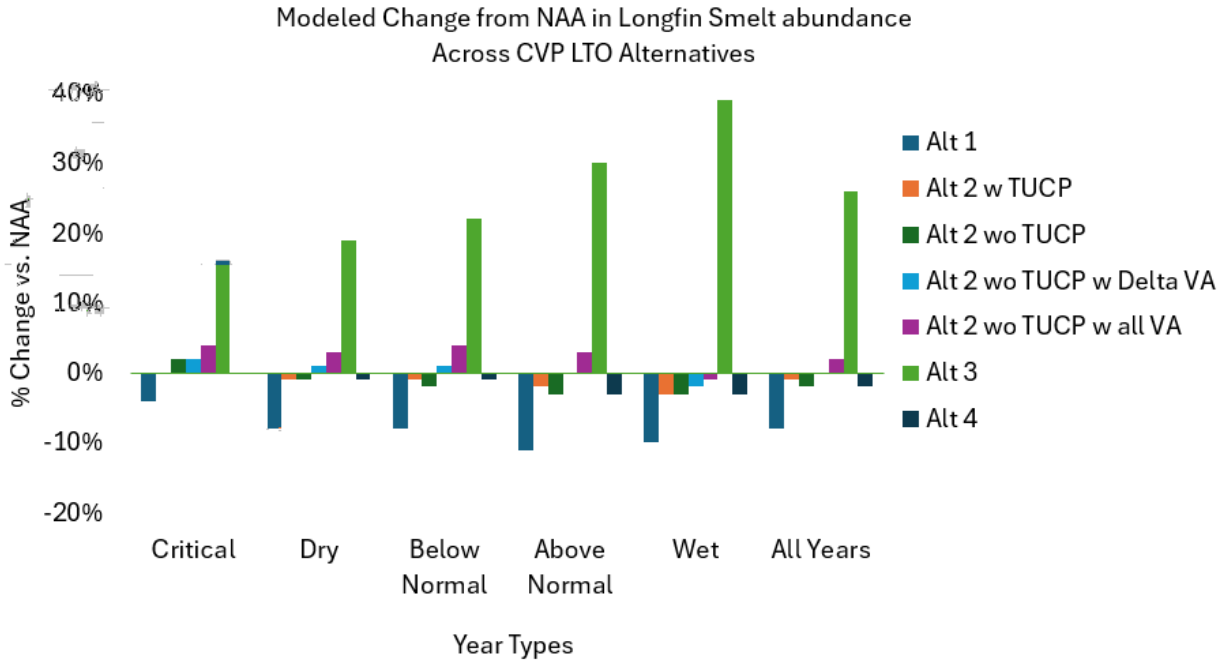


Figure 2: The mean percentage difference between estimated annual Longfin Smelt Fall Midwater Trawl abundance indices and the NAA in each water-year type. Positive values indicate that an alternative is expected to produce more Longfin Smelt in a given water year type than the NAA, on average. Source data from DEIS Appendix AB-J attachment J.1, provided by the U.S. Bureau of Reclamation.

Moreover, a proper comparison of alternatives (i.e., comparing the *differences* in predicted annual Longfin Smelt abundance indices among alternatives) shows that the relative performance of different alternatives is very consistent. The fact that the Longfin Smelt population displays high variance (and that the 3-4 order of magnitude decline over time adds to this variance) does not mean that there is any uncertainty regarding the relative performance of Alternative 3 as compared to NAA. Notwithstanding the DEIS's statistically inappropriate efforts to minimize the different effects of the alternatives by comparing them to the variance within alternatives (*e.g.*, as in DEIS Appendix AB-J attachment J, Figure J.1-2), Alternative 3 is superior to the NAA in *every year* modeled (Figure 3). The other alternatives are barely different

from the NAA during drier years (Figure 2) and when the estimated population is low (Figure 3), and their performance decreases relative to NAA as conditions become wetter and/or as the estimated annual population index increases. Under the NAA and all alternatives other than Alternative 3, the Bay-Delta Longfin Smelt population is likely to continue to decline to extirpation in the near future. Such an outcome is inconsistent with the requirements of both state and federal Endangered Species Acts.

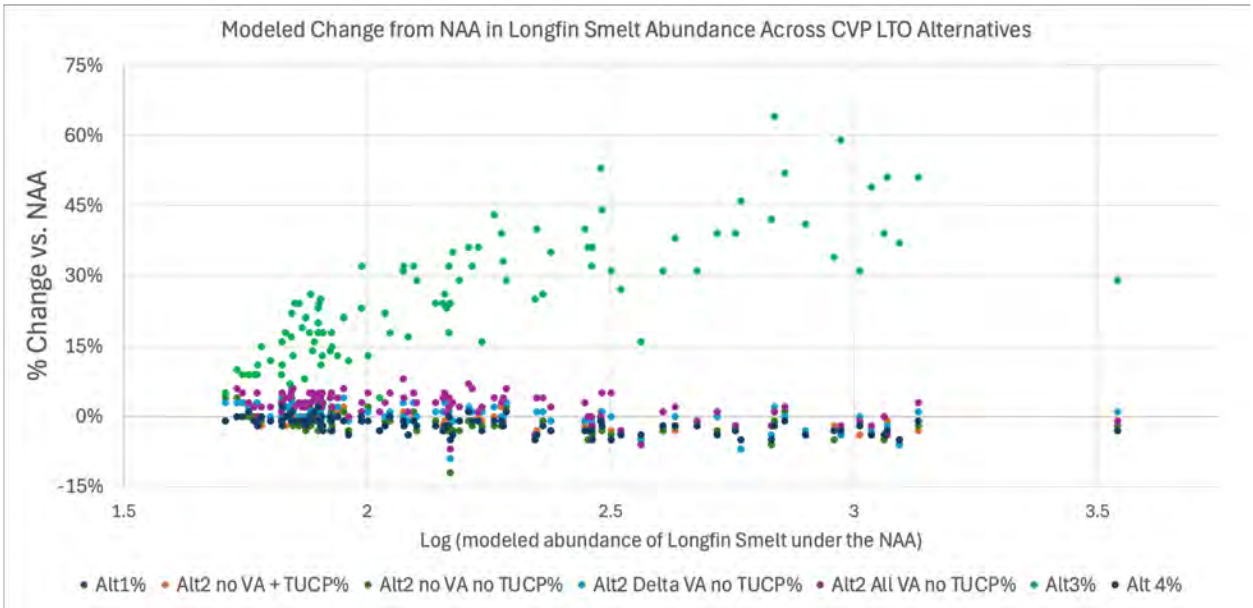


Figure 3: The percentage difference between the estimated annual Longfin Smelt Fall Midwater Trawl abundance index and the NAA in each year as a function of the modeled log(FMWT index) for the NAA (i.e., each year is represented by points for each alternative arranged vertically). Positive values indicate that an alternative is expected to produce more Longfin Smelt in a given year than the NAA. The positive effect of Alternative 3 operations increases, in absolute and relative terms, as the estimated FMWT abundance index increases. Performance of other alternatives tend to decrease relative to the NAA as the estimated FMWT abundance index increases.

Furthermore, these results likely underestimate the true impact on Longfin Smelt of combined proposed project operations, particularly for alternatives that allow for TUCOs, because the modeling assumes that requirements of the Bay-Delta Water Quality Control Plan and D-1641 and federal biological opinions will be enforced in all years. This has not been the case historically (*See, e.g.*, Reis et al. 2019).

The DEIS must disclose that the NAA is likely to lead to extinction of the Bay-Delta Longfin Smelt population in the near future. The results of the Longfin Smelt-Delta Outflow analysis must be depicted in a way that informs readers of the likely catastrophic outcomes of the Proposed Action and Alternatives 1 and 4, which all perform similarly to the NAA. The DEIS must disclose the sizeable potential benefits of Alternative 3 operations relative to the NAA. These disclosures should be made in transparent text and visually, through comparison of the *differences* in predicted Longfin Smelt abundance in each year that arise from differences among alternatives. Natural variance in projected Longfin Smelt abundance that has nothing to do with differences among alternatives (e.g., variance across years within a water-year type) is irrelevant to evaluation of the Proposed Action.

Entrainment Mortality model – juvenile

The DEIS's projected response of Longfin Smelt abundance to changes in Delta Outflow does not account for the massive increases in entrainment mortality of Longfin Smelt juveniles predicted to result from implementation of the Proposed Action (Table 3). Again, Alternative 3 is the environmentally superior alternative in all water year types. Salvage under the Proposed Action is expected to increase substantially in the vast majority of years under every variant of Alternative 2. In fact, salvage (and related mortality) increase so much in wetter years, that the Proposed Action would invert the established pattern in which Longfin Smelt were at greatest risk of entrainment in Dry and Critical years (Grimaldo et al. 2009; Rosenfield 2010); rather, entrainment-related mortality is now predicted to be greatest in wetter years. This continues a shift from the historical condition (under the 2008/2009 biological opinions) that began with huge increases in expected Longfin Smelt juvenile entrainment (up to 576% higher salvage in Wet years) under the 2019 biological opinion and 2020 ITP (*see, for example* CDWR 2019 Table 4.4-13 and Figure 4.4-56 at 4-185. The anticipated increases in entrainment-related mortality of Longfin Smelt may change entrainment from a potential episodic impact on the population (Rosenfield 2010) to a chronic threat to Longfin Smelt population viability.

Table 3: Predicted salvage of juvenile Longfin Smelt under the NAA and operational alternatives considered in the DEIS, by water year type. Copied from Appendix AB-I attachment I.4.

Table I.4-2. April – May predicted Longfin Smelt salvage by water year type (WYT) for modeled scenarios. Values are rounded to the nearest integer.

WYT	NAA	Alt1	Alt2 wTUCP woVA	Alt2 woTUCP woVA	Alt2 woTUCP DeltaVA	Alt2 woTUCP AllVA	Alt3	Alt4
Wet	1359	4,032 (197%)	3,712 (173%)	3,706 (173%)	2,764 (103%)	2,697 (98%)	109 (-92%)	3,508 (158%)
Above Normal	1335	5,280 (295%)	3,754 (181%)	3,757 (181%)	1,829 (37%)	1,779 (33%)	265 (-80%)	3,813 (185%)
Below Normal	1451	3,388 (134%)	2,537 (75%)	2,647 (82%)	1,901 (31%)	1,763 (22%)	395 (-73%)	2,700 (86%)
Dry	1464	2,390 (63%)	2,090 (43%)	2,091 (43%)	1,578 (8%)	1,403 (-4%)	449 (-69%)	2,124 (45%)
Critical	905	1,226 (35%)	1,168 (29%)	1,110 (23%)	1,170 (29%)	1,126 (24%)	477 (-47%)	1,114 (23%)

The DEIS must be revised to disclose the potential harm to Longfin Smelt viability caused by the high rates of Longfin Smelt mortality from entrainment that are expected under the NAA relative to historical conditions. Furthermore, the DEIS must disclose that mortality due to this mechanism is likely to increase several-fold under the Proposed Action.

Entrainment Mortality model – larvae

The DEIS fails to adequately analyze entrainment of larval Longfin Smelt or to disclose the impact of entrainment-related larval mortality on the Longfin Smelt population as a whole. The state of California acknowledges that larval Longfin Smelt are more vulnerable to entrainment-related mortality than juveniles (CDWR 2019 at 6-96). Yet it fails to adequately address the major increases in larval entrainment expected under the NAA with respect to the previous baseline (2008/2009 biological opinions) or under the Proposed Action.

Instead, the DEIS relies on findings of Kimmerer and Gross (2022) to assert that larval entrainment will average 1.5% of the population (DEIS, BA, Chapter 10 at p. 10-51). No rationale is provided which would explain why chronic loss of 1.5% of this one life stage via this one mechanism does not represent a significant impact to the population. Kimmerer and Gross (2022) underestimate the likely magnitude of larval entrainment in several ways. First, that paper studied larval Longfin Smelt exposure to entrainment based on data from 2009-2020. But the rules that governed Delta flows, exports, and entrainment risk during that period (the 2008/2009 operational baseline) have now changed in ways that are expected to increase entrainment-related mortality of larval Longfin Smelt (CDWR 2019 Table 4.4-8a at 4-173 shows estimated increases in entrainment of particles that serve as proxies for larval fish). Second, they assumed that larval Longfin Smelt were only susceptible to entrainment for approximately 7-13 days post hatching, but recent data reveal that many larval Longfin Smelt remain in low salinity habitats, which are often within the area affected by water exports, for 100-150 days (Lewis et al. 2019 at

p. 9 and at pp. 48-83 of the PDF). Third, Kimmerer and Gross (2002) estimated direct entrainment only during January-March, but the DEIS and BA show that Longfin Smelt larvae are present in March-June (Biological Assessment Appendix AB, Chapter 10 Figure 10-3), although the BA's estimate of larval Longfin Smelt relative abundance after March is understated. Larvae remain in the upper estuary through at least May (SWRCB 2010 Table 2 at p. 45; CDFW 2010) and likely into June (CDFW 2010; Rosenfield 2010; Lewis et al. 2019 at p. 9 of the PDF). Thus, to compare estimated changes in Longfin Smelt larval entrainment mortality in the DEIS, one must look at particle entrainment estimates for March-June.

In general, we disagree that Longfin Smelt larval entrainment risk is completely captured by studying neutrally buoyant particles, as Longfin Smelt larvae do exhibit behavior with respect to depth (Kimmerer, *personal communication*). Nevertheless, the only means of estimating the distribution of Longfin Smelt larvae with respect to the alternatives are modeling studies of neutrally buoyant particles injected where Longfin Smelt are believed to spawn (Sacramento River (Appendix AB-I, Attachment I.8 Particle Tracking Fate Modeling of Larval Smelt Entrainment Table I.8-42), West Delta Table (I.8-45), and Suisun Bay (Table I.8-46)). These tables consistently show that the number of particles entrained (or, for fish, killed) in the export facilities decreases substantially (up to 100%) in every inflow-combination bin[24] under Alternative 3; no other alternative shows this magnitude or consistency of reduced entrainment. Alternative 1 typically showed the greatest increases in particle entrainment. Entrainment under the Alternative 2 variant that includes all VAs is expected to increase in more year-type bins than it decreases, and the increases are generally of higher magnitude than the decreases. These increases are on top of massive increases in particle entrainment predicted to occur under the NAA versus the previous baseline (2008/2009 Biological opinions). According to modeling by DWR, particle entrainment rates increased by over 200-300% in some water year types during April and May under the state's proposed operations in 2019, which is today's baseline, as compared to the previous baseline (CDWR 2019 Table 4.4-8a at p. 4-173).

The DEIS must disclose the potential effect of larval entrainment under the NAA (which is not adequately represented by Kimmerer and Gross (2022)). It must also disclose how predicted increases in larval entrainment under some hydrological conditions are expected to impact components of viability (i.e., abundance and productivity) for the Bay-Delta's endangered Longfin Smelt population.

[24] The DEIS's reliance on qualitative bins of Sacramento*San Joaquin inflow is generally uninformative as there is no indication how often these bins occur over the modelled time period or how their frequency is expected to differ across alternatives (which modify flow levels in the two rivers). The DEIS should categorize years by a measure of unimpaired flow, which will allow for apples-to-apples comparisons of outcomes based on the frequency of year types that is consistent among alternatives.

4. White Sturgeon.

In response to a petition from some of our organizations (Baykeeper et al. 2023), the California Fish and Game Commission recently declared California White Sturgeon to be a candidate for listing under the state Endangered Species Act (CESA). This means that this population receives full protection under CESA until CDFW completes a status review. White Sturgeon harvest is now prohibited. A parallel federal petition is pending. It is thus appropriate for the DEIS to analyze potential impacts of proposed combined project operations on White Sturgeon, and to minimize and fully mitigate those impacts that are expected to result from those operations.

The only known spawning population of White Sturgeon in California is found in the San Francisco Bay watershed. Most spawning occurs in the Sacramento River, although NMFS (17388 Federal Register/Vol. 70, No. 65 citing Beamesderfer et al. 2004), CDFW (2015), and Heublein et al. (2017) indicate that White Sturgeon may spawn in the Feather River. Spawning has also been detected in recent years in the San Joaquin River mainstem, though reproductive success has not been confirmed (Jackson et al. 2016). The California White Sturgeon population is declining and imperiled. CDFW states "Annual recruitment of white sturgeon in California appears to have decreased since the early 1980s." (2015 at p. 224). Similarly, Blackburn et al. observed that "Few age-0 and age-1 White Sturgeon have been sampled since 1998, and only two strong year-classes (2006 and 2011) have been documented in the last 19 years [through 2016]"; they concluded, "[c]ontinued poor recruitment has the potential to put the population at risk." (2019 at pp. 897-898). In 2022 and 2023, large numbers of White Sturgeon were killed by a harmful algal bloom in San Francisco Bay, which further degraded the viability of this imperiled fish (CDFW 2023b).

One of the main threats to California White Sturgeon is the diversion of fresh water from major Central Valley rivers where they spawn, incubate, and rear as larvae (or did so historically), and diversion from the Delta, which is habitat for juveniles, sub-adults, and adults. Above certain flow thresholds, recruitment of juvenile White Sturgeon is positively correlated with high river flows and Delta outflow during spring and early summer months (Israel et al. 2009; CDFW 2015, 2023b; SWRCB 2017; *see also* AFRP 2001; Moyle 2002; Willis et al. 2022). Below the flow threshold, recruitment of White Sturgeon is very low or non-existent. As UC Davis Professor, Dr. Andrew Rypel, recently explained: "Most of our native fishes rely on those high-flow years for recruitment, and white sturgeon are the extreme example of that. They only recruit on the highest of flow years." (https://mavensnotebook.com/2024/07/11/feature-a-bigger-older-fish-gasping-for-more-water-white-sturgeon-slipping-away/). The connection between White Sturgeon reproductive success and high river flows is also known from other watersheds (Parsley and Beckman 1994). Successful cohort formation for California White Sturgeon, which corresponds to years of high spring-summer river flows into and out of the Delta (Moyle 2002; Fish 2010; CDFW 2015 citing Kohlhorst et al. 1991 and Schaffter and Kohlhorst 1999; SWRCB 2017). Chronically low river flows and reductions in freshwater inflow to San Francisco Bay

(also referred to as Delta outflow) resulting from water diversion and storage operations, have been implicated in the decline of California White Sturgeon (CDFW 2015; Jackson et al. 2016; SWRCB 2017; Baykeeper et al. 2023).

The State Water Board analyzed the relationship between recruitment of juvenile White Sturgeon and average freshwater Delta outflow in March-July (SWRCB 2017). That analysis found that recruitment of juvenile White Sturgeon was much less likely to occur when March-July average flows were below certain thresholds (*see* Figures 3.6-2 and 3.6-3 of SWRCB 2017 at pp. 3-65) and that monthly average Delta outflows > 37,000 cfs during this period were necessary to protect the public trust benefits of California White Sturgeon. From 1980-1999, average March-July Delta outflows >37,000 cfs occurred 30 percent of the time (6 out of 20 years). Since 1999, flows of this magnitude have occurred only 17.4 percent of the time (4 out of 23 years). Reis et al. (2019 Table 5 at 12) show that the frequency of wet and above average hydrology (as they measured it) experienced by White Sturgeon in the Bay's watershed is reduced by water diversions and storage, including operations of the CVP and SWP. Furthermore, Baykeeper et al. (2023) showed that recruitment of YOY White Sturgeon was very low or zero when Sacramento River flows ("SAC" + "YOLO" variables in Dayflow) average < 30,000 cfs between April and July.

The DEIS's analysis of White Sturgeon response to alternative operations of the CVP Appendix AB-J, Winter and Spring Pulses and Delta Outflow Attachment J.2 is flawed. Specifically, the DEIS's method for calculating Delta Outflow impacts of the Proposed Action on White Sturgeon (DEIS Appendix 6B at 6B-408) assumes that the relationship between production of White Sturgeon juveniles and Delta outflow is log-linear across the range of inflows. However, because it is highly unlikely that White Sturgeon reproduce successfully in drier year types, projected effects of alternative operations in those year types are erroneous and reveal flaws in the analysis that would tend to understate the true impact of the Proposed Action. Because the DEIS applies a log-linear regression across the range of flows, it estimates that water project operations will affect production of juvenile White Sturgeon across the range of flows. Ignoring the non-linear nature of the flow-juvenile production relationship also means that the DEIS's regression relationship is lower magnitude ("flatter") than the actual relationship, thus it likely underestimates the effect of high flows on juvenile production. As a result, the DEIS's analysis likely underestimates the Proposed Action's negative effects on White Sturgeon production in wetter years, relative to the baseline. The same problem is likely to apply to the DEIS's analysis of Green Sturgeon (DEIS, Appendix AB, Chapter 8).

Despite these flaws in estimation of the Proposed Action's effects on the Bay's imperiled White Sturgeon population, it is likely that the analysis reflects the relative impact of proposed operations with respect to the No Action Alternative. Except for Alternative 3, all project alternatives (and Proposed Action variants) perform worse than the NAA in Wet years, when the bulk of White Sturgeon juvenile production is expected to occur (Table J.2-5). A relatively small

amount of White Sturgeon recruitment is expected in some "Above Normal" water years. Although the variant of the Proposed Action that includes all VAs is expected to perform slightly better than the NAA under these conditions, the overall expected change under this variant is still negative with respect to the NAA when the effects in Wet Years and Above Normal years are considered together (This is especially true because "Wet" years are expected to occur more frequently than "Above Normal" years). Again, no recruitment of Age 0 juvenile White Sturgeon is expected in years that are drier than "Above Normal," but even if it did, Table J.2-5 demonstrates that all alternatives except for Alternative 3 are worse for White Sturgeon than the NAA, on average.[25] By contrast, Alternative 3 is expected to produce significant proportional increases in White Sturgeon production as compared to the NAA. Because of the population modeling errors described above, the DEIS probably underestimates the differences (positive and negative) between the alternatives and the NAA.

The DEIS must be revised to disclose the precarious and deteriorating conservation status of White Sturgeon under the NAA and the likely negative effects of the Proposed Action on both White Sturgeon and the threatened Green Sturgeon DPS. Furthermore, the DEIS's methodology should be revised to account for the non-linear nature of the flow-recruitment relationship for White Sturgeon and Green Sturgeon, where the effect of flow changes materializes only in the wetter end of the hydrological spectrum.

B. The Proposed Action is Fundamentally Flawed Because it includes The Proposed Voluntary Agreements.

The Proposed Action is deficient in relying on the proposed Voluntary Agreements ("VAs") because – in addition to the Proposed Action's adverse impacts to listed species discussed in the previous section – the VAs are not reasonably certain to occur, the purported magnitude and benefits of VA-associated flows are incorrectly described, and, even if implemented, the VAs would be likely to be short-term in duration. **Because of these flaws, reliance on the VA proposal is unlawful, and the VAs should not be included as a component of the alternatives in the DEIS**.

1. The Voluntary Agreements are not reasonably certain to occur.

The Proposed Action in the DEIS assumes a set of fully developed and executed VAs that have been analyzed and accepted by the State Water Board. These assumptions are highly questionable. In fact, the VAs are not reasonably certain to occur. *See, e.g., Nat'l Wildlife Fed'n, v. Nat'l Marine Fisheries Serv.*, 524 F.3d 917, 936 & n.17 (9th Cir. 2008). The VA proposal has

[25] The same general pattern applies to the DEIS's analysis of Green Sturgeon – Alternative 2 variants perform worse than the NAA (Appendix AB, Chapter 8 – Green Sturgeon Table 8-10). Alternatives 1, 3, and 4 were not analyzed in the Green Sturgeon appendix.

been in development for more than a decade and proponents have still not produced a complete proposal as of September 2024. *See* Voluntary Agreement Timeline, Attachment 4. Given this track record, there is no reason to assume that the VA effort will ever produce a complete package.

Even if a complete package is eventually produced, it could be years in the future. Missing elements include, but are not limited to, a final funding agreement, enforcement agreements, a detailed proposal for tribal engagement in decision-making, a detailed operations plan for the Delta, SMART biological goals and objectives, and technical details such as "which reservoirs may be reoperated, which fields will be fallowed, when reservoirs can refill, and when groundwater substitution will occur, have not been fully specified." *See* SWRCB 2023 at p. G3a-1.

Further, it is not certain that the State Water Board will approve the VA proposal. The Board's most recent description of its plan for updating Bay-Delta water quality standards (SWRCB 2023) describes "Proposed Plan Amendments" that do not include the VAs – the VAs are described as an alternative to the Proposed Plan Amendments. Furthermore, the proposed VAs are any final VA proposal. The proposed Bay-Delta VA is more complicated than any previous effort to manage a discretionary block of environmental water anywhere in the nation. The attached *Building Blocks* white paper documents significant challenges that have faced 18 other efforts to do so – most of which are located in California.[26] Compared to all of the other similar projects across the nation, the VA proposal is broader in geographic scope, broader in terms of the species and beneficial uses it would address, and broader in terms of the complexity of the water management systems involved. Yet, all previous environmental block of water efforts in California, despite the fact that they were far less complex than the Bay-Delta VA proposal, have encountered major implementation challenges. In some cases, those challenges have dramatically reduced or even eliminated entirely anticipated environmental benefits.

The problems faced by previous environmental blocks of water have included a failure to purchase anticipated environmental water, accounting issues related to the program's environmental baseline, inadequate funding, unanticipated impacts caused by changes in project operations, and more. All of these problems apply to the Bay-Delta VA proposal, clearly demonstrating that the anticipated VA environmental benefits are not reasonably certain to occur.

Beyond the challenges identified in the *Building Blocks* report, the VA proposal also contains numerous additional flaws that reduce the likelihood of anticipated environmental flows and benefits:

[26] *Building Blocks – Tools and Lessons for Designing a Block of Water for the Environment*. Barry Nelson, Defenders of Wildlife. June 2022.

- The VA accounting proposal clearly allows future increases in demand, or the development of new storage or conveyance facilities, to reduce environmental water over time. As currently proposed, the VAs would provide no protection for current environmental flows that are greater than current regulatory minimums. Future water diversions could capture these unregulated flows, effectively reducing environmental flows and harming listed species. (*See* Alternative 6a in SWRCB, Draft Staff Report, pp. 7.2-15 and 7.2-16). Given current proposals for large scale new diversions related to the Delta tunnel, Sites reservoir and other proposed new storage facilities, it is highly likely that these additional diversions, which are allowed under the VAs, will significantly reduce environmental flows during the term of the final Biological Opinions.
- Given the current focus on wet season diversions to rechange groundwater basins, related to the implementation of the Sustainable Groundwater Management Act, the above flaw in the VA accounting proposal, which does not protect existing environmental flows, could allow anticipated environmental water to be reduced significantly during the term of the final Biological Opinions.
- The flows promised in the American River VA could be provided in as few as 3 of the 8 years of the VA's initial term. In no case would VA environmental flows be provided in more than 6 of the 8 years. (*See* Global Agreement to the Healthy Rivers and Landscapes Program in the Bay-Delta, March 29, 2024 Draft, Appendix 1, Sec. 1.1.1).
- Alternative 2a includes the use of Temporary Urgency Change Petitions (TUCPs) and Temporary Urgency Change Orders during future droughts. *See* p. E-67. Repeated approval of these TUCPs has allowed Board, CESA and related ESA flow requirements to be waived in 6 of the past 10 years. This is particularly important, given the impacts on Delta Smelt, winter run and spring run Chinook salmon, white sturgeon and other listed species, as well as fall run Chinook salmon, during droughts. TUCPs in the future could reduce environmental flows to a level below that assumed in the DEIS. As a result, the total environmental flows in the VA package and the DEIS's Proposed Action, including existing regulatory flow requirements, are unlikely to occur.
- The VA proposal has no adequate enforcement mechanism, in the likely event that this effort fails to produce anticipated environmental water. For example, the VAs do not require annual, much less real-time or seasonal, accounting of flows – so there is no way to ensure that the pledged water arrives as promised or when it is needed by imperiled fish and wildlife.
- The VA proposal relies heavily on long-term modelling, not real-time, real-world conditions, to account for environmental water. Given the experiences with the Environmental Water Account, a modelling approach is inadequate to ensure that environmental water is provided as anticipated.

- The current VA proposal would not begin a comprehensive evaluation of the implementation of the VA program until year 6. As a result, even if the VAs were to fail comprehensively, that failure might not be adequately detected, reported, summarized and analyzed until year 6 or later.

For all of these reasons, even if the State Water Board were to approve the VAs, the amount of environmental water that is described in the VA proposal – and which is uncritically repeated in the DEIS – is not reasonably certain to occur. The fundamental problems above are not adequately analyzed in the DEIS.

Even if the VA proposal were eventually to be finalized, approved and implemented, the uncertainties regarding the final VA proposal and the implementation challenges that have faced all other similar "environmental block of water" efforts clearly demonstrate that the final "on the ground" benefits and/or impacts of the VAs cannot be adequately evaluated at this time.

2. The description in the DEIS of the Voluntary Agreement proposal for Delta flows is misleading.

The DEIS includes a table describing the claimed new environmental water to be provided by the CVP and SWP. (*See* Appendix AB, p. 3-68, Table 3-12). That table also summarizes the "Total VA Outflow by All VA Parties." However, the State Water Board's analysis indicates that the VAs are likely to result in *lower* Delta outflows in Wet years than would have occurred under that agency's baseline, which incorporates the 2008/2009 Biological Opinion RPAs rather than the invalid 2019 BiOp. (*See* SWRCB 2023 Chapter 9 Table 9.5-41. As discussed more below, the). The VAs could decrease environmental flows during critical dry years, particularly relative to the current the 2024 Interim Operations Plan, which is being implemented at the direction of the federal court. This could be the case even if the VAs were to provide all of the water they currently promise – and as discussed above, this is far from certain. Thus, the portrayal in the DEIS of potential flow improvements under the VA proposal is misleading.

3. The DEIS appears to incorrectly assume that all anticipated Voluntary Agreement environmental flows would benefit listed species.

The DEIS appears to assume that flows provided by VA early implementation will be managed to improve spring outflow to benefit listed species. (*See* Appendix AB, p. 3-67). Yet the VA proposal appears to "count," as a VA flow contribution environmental water that is not diverted by the CVP and SWP Delta pumps as a result of causes that are unrelated to environmental protection, such as regular or unscheduled maintenance, pump/canal/storage failures or capacity limitations, or lack of demand. Even if these unplanned changes in operations provide an environmental benefit (and there is no requirement or guarantee that they will), flows bypassed under these circumstances already represent a significant portion of current Delta outflows (Reis

et al. 2019) and therefore may not be additive to the baseline. The assumption implicit in the DEIS – that all of the anticipated VA water, even if it is all actually provided, would be managed to achieve maximum benefits for listed species – is not reasonable.

4. The approach included in the DEIS means the VA flows are likely to be in place for only two years.

Alternative 2c includes an "early implementation" proposal for the VAs, including two years of export reductions by the CVP and SWP. (*See* Appendix AB, p. 3-68, Table 3-12). The DEIS further states that, after this early implementation period,

> "Reclamation and DWR will operate consistent with the VAs only if (a) the State Water Board incorporates the VAs, as proposed by the VA parties, into the WQCP, and (b) the VA parties execute the agreements contemplated by the VAs,
>
> or
>
> Reclamation and DWR will operate as described by the Proposed Action but without any of the actions contemplated for 'early implementation' or the VAs if (i) the State Water Board does not incorporate the VAs, as proposed by the VA parties, into the WQCP, or (ii) the VA parties do not execute the agreements contemplated by the VAs." (*See* Appendix AB, p. 3-69.)

As discussed above, the DEIS overlooks the fact that the VA process has already been underway for 13 years, yet it still has not resulted in a complete proposal. Further, the VA process has failed to meet at least 8 self-imposed deadlines during this period. *See* VA Timeline Fact Sheet, Attachment 4. Additionally, both NMFS and EPA have concluded, in letters to the State Water Board discussed elsewhere, that the VAs are not adequate to protect beneficial uses. Given this record, it is likely that the VA process will continue to struggle - intentionally or not - to produce a complete package. It is also possible that, even if a complete VA package is completed, the State Water Board may not approve it.

In the event that the Board has not approved the VAs as a part of an update to the Bay-Delta Water Quality Control Plan, the initial two-year CVP and SWP Delta export reductions would end. In this case, the early implementation component of the Proposed Action would expire, without a clear and comprehensive replacement.

This scenario suggests that it is possible, perhaps likely, that the early implementation actions in Alternative 2c would expire after two years and that the full implementation of VAs anticipated by Alternative 2d would never happen. This could lead to yet another multi-year reconsultation period, during which time listed species would suffer from the lack of comprehensive, scientifically based and legally sufficient long-term Biological Opinions. This could

unnecessarily allow listed species to continue to decline, possibly to extinction. The DEIS does not adequately analyze this extinction risk.

5. The DEIS does not adequately describe and analyze the VA's status, elements, potential benefits or potential impacts.

The VAs are, as discussed elsewhere in this document, incomplete after more than a decade of discussions. Further, the VA documents that have been released are deeply flawed and potentially damaging. For example, as discussed above, the VA accounting approach could set the stage for large new diversions that would reduce current environmental flows. In addition, many current VA proposals are ambiguous or confusing.

The DEIS discussion of alternatives, including the discussions of Alternatives 2c and 2d, (*See* DEIS, Appendix E, p. E-67) fails to adequately describe the VAs, including the concerns discussed in this document regarding flaws, unreliability and potential impacts, as well as the incomplete, ambiguous, and confusing nature of the components of the VAs that have been released to date. Therefore, separate from our concern that the VAs are not reasonably likely to occur, the document fails to adequately describe and analyze the VA package as it exists today.

It is also important to note that the VA process is currently being legally challenged. On August 23, 2023, the U.S. Environmental Protection Agency accepted for investigation a Title VI complaint filed by Buena Vista Rancheria, Shingle Springs Band of Miwok Indians, Winnemem Wintu Tribe, Little Manila Rising, and Restore the Delta (known as the Delta Tribal Environmental Coalition, or DTEC)) against the State Water Board for alleged discrimination in the management of California water. At the center of this complaint are the VAs, because they were produced in an inequitable and discriminatory processes that excluded Native American Tribes, communities of color, and the general public from participating in water quality governance. In the Title VI complaint, DTEC has publicly called for the suspension of the VAs in the current Bay-Delta Plan update and for a robust public participation policy to ensure a publicly accessible and inclusive process for formulation of any state-sponsored alternative to a regulatory update to the Bay-Delta Plan.

IV. The DEIS Fails to Include a Plan for Droughts that Does Not Violate Minimum Water Quality Objectives.

The DEIS's treatment of drought management is highly problematic. To begin with, the DEIS fails to clarify whether, how, and under what criteria shortage provisions will be imposed on Sacramento River Settlement Contractors, as is needed to comply with the CVPIA's rebalancing of project purpose to include environmental protection and restoration. Furthermore, the DEIS fails to identify specific actions that Reclamation will commit to mitigate the highly foreseeable

and largely avoidable conditions of drought and avoid the reliance on temporary urgency changes that have characterized drought management in the past fifteen years, with devastating consequences for protected species. Instead, the DEIS offers up the Drought Toolkit. **The voluntary, largely qualitative nature of the Drought Toolkit and the lack of authorization or funding for its implementation makes it difficult to assume that it is reasonably likely to occur, and therefore reliance on the Drought Toolkit in the DEIS is unlawful**.

In contrast to the 2019 Biological Opinions, which scarcely mentioned droughts and drought operations of the CVP and SWP, the DEIS explicitly contemplates drought operations in the analysis of various operations under the alternatives it analyzes. The DEIS frames some of its discussion of drought in the broader context of overall operations and some of its discussion of drought specifically in terms of drought operations.

The DEIS proposes under Alternative 2 that future drought operations will differ from previous drought operations through changes in governance. This is most extensively shown in discussion of governance for Shasta Reservoir operations and in discussion of Alternative 2 Sacramento River/Shasta operations. (DEIS, Appendix E, pp. E-127 and E-67 ff).

The DEIS also evaluates prospective changes to Delta operations during droughts by modeling a series of sensitivity analyses of Alternative 2 without "Temporary Urgency Change Petitions" (TUCPs)[27] for Delta operations. (*See* first mention of TUCPs in DEIS, without even description of the acronym, p. 0-24). Yet while there is extensive reporting of *model output* with and without TUCPs, the DEIS does not introduce narrative context of the practice or the issue of TUCPs in the analysis of Alternative 2, leaving the reader to divine or wonder what the importance of the modeling analyses may be. Equally frustrating, the DEIS does not describe whether the preferred alternative will or will not rely during droughts on temporary urgency changes to Bay-Delta water quality requirements, or what the decision-making process will entail or rely on, both as a default and as it happens.

The analyses of Shasta operations and TUCPs during droughts are necessarily interrelated. In the last decade, the Sacramento River downstream of Shasta/Keswick reservoirs and Delta water quality have been the parts of the CVP and SWP system that most gravely broke during droughts, causing disastrous effects on fisheries. On a practical level, the Board granted TUCPs for Delta operations largely to enable BOR to "conserve" storage in Shasta Reservoir, even if that storage did not wind up being actually used for the ostensible purpose of maintaining the coldwater pool.[28]

[27] Please note that Temporary Urgency Change Petitions ("TUCPs"), once approved and finalized by the State Water Resources Control Board ("State Water Board") become Temporary Urgency Change Orders ("TUCOs"). In these comments, TUCPs and TUCOs are referenced and should be considered interchangeable.
[28] The DEIS uses the term "preserve storage" rather than "conserve storage."

A. Shasta Reservoir Operations.

1. Governance.

The DEIS's approaches to governance in the Proposed Action are problematic. Alternative 2 proposes "three main coordination forums" for operations of Shasta Reservoir. These include the Shasta Operations Team ("SHOT"), "consisting of Agency subdirectors and managers [who] will serve as the management and policy group for decisions related to Shasta Reservoir operations. The team will develop a charter to describe membership and process." (DEIS, Appendix E, p. E-128). The SHOT coordinates with the systemwide managers forum, the Water Operations Management Team ("WOMT"). *Id*.

Underneath the SHOT is the Sacramento River Temperature and Flow Technical Group ("SRG"), a technical team. The SRG consists of representatives from BOR, DWR, USFWS, CDFW, NMFS Central Valley Office, NMFS Southwest Fisheries Science Center, the SWRCB, Western Area Power Administration, the Yurok Tribe, the Hoopa Tribe and the SRS Contractors. (DEIS, Appendix E, p. E-129).

The third "coordination forum" for Shasta operations consists of the "Meet and Confer Group." This group consists of SRS Contractors, BOR, and NMFS, with others by invitation. Its purpose is to meet during dry years "to determine if there is any role for the SRS Contractors in connection with Reclamation's operational decision-making for Shasta Reservoir annual operations in those years. … Any mutually agreeable operations resulting from meet and confer discussions must be consistent with the terms of the SRS Contracts and may also be subject to other regulatory approvals." *Id*. The Meet and Confer Group is established as a result of the "Sacramento River Settlement Contractors Resolution," which is afford its own subsection under that title. (DEIS, Appendix E, p. E-84). Key elements of the resolution include consistency with the SRS Contracts, payment for water deliveries voluntarily foregone, and consideration of changes in timing (not volume) of water deliveries.

One of the main problems with the proposed governance framework is the apparent limited decision space in which the "coordination forums" may operate. As suggested by the definition of the Meet and Confer Group, any reductions in deliveries to the SRS Contractors beyond those specified in their contracts is limited to voluntary actions, and those would likely require payment. *See id.*[29] It is unreasonable to assume, therefore, that any necessary actions to protect listed species that have any water supply cost will emerge from this process.

[29] It is also important to note that Alternative 3 proposes a different governance framework that prioritizes inclusion of Native American Tribes and delegates the ultimate decision-making authority for water operational decisions with the fisheries agencies, NMFS and USFWS, "if the issue is not resolved in the management team process." (*See* DEIS, Appendix E, p. E-169).

2. Shasta Storage Framework and "bins" of different storage conditions.

Reclamation must disclose how Alternative 2 will ensure that adequate cold water is stored behind Shasta Dam in the winter and spring to provide suitable incubation conditions for listed salmonids and in the fall to create a reasonable likelihood that coldwater storage will be adequate in the following calendar year. The DEIS proposes, for Alternative 2, a "Water Temperature and Storage Framework" for Shasta operations that places water years in different "bins," or classifications of water years. Bins are defined by predicted end-of-April (EOA) Shasta storage. (DEIS, Appendix E, p. E-72).

The DEIS states that:

- 80 percent of years are "Bin 1" water years, in which "hydrologic conditions are generally good and water resources are available to meet demands." (DEIS, Appendix E, p. E-73).
- 11.5 percent of years are "Bin 2" water years, in which "hydrologic conditions are more limited than in Bin 1 and adequate water resources are not available to meet all demands." (DEIS, Appendix E, p. E-76).
- 8.5 percent of years are "Bin 3" water years, in which "critically dry conditions exist, the system is stressed and water resources are not available to meet all demands." (DEIS, Appendix E, p. E-79).

Within each Bin, there are two "categories: standard (Bin A) and drought protection (Bin B)." (DEIS, Appendix E, p. E-72). "The A Bins are years when the expected demand from the reservoir is lower meaning it's likely to result in better drought protection should the following year be dry. The B-bins are intended to increase the priority of storage conservation to address the risk that the ensuing year could be a drought." *Id*.

Table 4. Breakdown of Alternative 2 Proposed Shasta Reservoir Bins By Expected End of April (EOA) and End of September (EOS) Shasta Storage

Bin	EOA Storage Target	EOS Storage Target
1A	≥ 3.7 MAF	≥ 3.0 MAF
1B	≥ 3.7 MAF	≥ 2.4 MAF
2A	≥ 3.0 MAF	≥ 2.2 MAF
2B	≥ 3.0 MAF	≥ 2.0 MAF
3A	< 3.0 MAF	≥ 2.0 MAF
3B	< 3.0 MAF	< 2.0 MAF

(DEIS, Chapter E, pp. E-73 through E-82)

The DEIS does not disclose how Reclamation will achieve its Bin 1 frequency target. The assignment of 80 percent of all water years to "Bin 1" without committing to take actions that will actually ensure such a high frequency of such Bin 1 years is a strong demonstration of BOR

's ongoing denial of the need to proactively address drought in the first Dry or Critically Dry year. Absent the appropriate precautionary actions such assignment fails to understand and respond to the fact that a second sequential Dry or Critically Dry year places the combined CVP and SWP in crisis. The assignment of 80 percent of years to Bin 1 without accompanying significant changes to allocation policy perpetuates a system of crisis management rather than promoting crisis avoidance. It perpetuates an allocation of excessive (but predictable) risk to fisheries and the aquatic ecosystem to enable imprudent and, over the long-term, excessive allocations of water. Finally, without a set of specific actions that will protect coldwater pool such that Bin 1 conditions are achieved in 80% of years, it is not reasonably likely that such conditions will actually occur with the intended frequency. This failure to ensure the frequency of Bin 1 conditions renders speculative the DEIS's analysis of the Proposed Action's effect on river temperatures and reservoir discharge during the spawning, incubation, and rearing season of listed salmonids. A more precautionary approach is warranted, particularly in light of the historical fact that Dry or Critically Dry years frequently come back-to-back or in pairs.

It is good that the DEIS assigns EOA and EOS storage numbers to each of the bins and "categories." However, the numbers are weighted too heavily to increase water supply, and they will not protect listed species. Consider the contrasting approach applying principles that require achievement of water storage requirements in Shasta Reservoir before allocation of water supplies in Alternative 3. By contrast, Alternative 3 requires achievement of water storage requirements in Shasta Reservoir before allocation of water supplies. (DEIS, Appendix E, p. E-163).

The DEIS's description of Alternative 2 contains inconsistent, unexplained, and at times conflicting explanations of whether, how, and when BOR might impose involuntary delivery shortages on SRS Contractors. As noted above, the Central Valley Project Improvement Act of 1992 rebalanced the project purposes of the CVP to include environmental protection and restoration. It is unlikely that either endangered species can be protected or the CVP's specific environmental mandates (such as anadromous fish doubling or refuge water supplies) be achieved without changes to the SRS Contracts under drought conditions. It is notable that the DEIS mentions contractual (25 percent) shortages to SRS Contractors only in the context of Bin 3 water years, or only 8.5 percent of all years (DEIS, Appendix E, p. E-80). Aside from the discussion of Governance and specifically the Meet and Confer Group, it is unclear whether, and if so how, BOR would address deliveries to SRS Contractors outside the voluntary framework of this "coordination forum" and its contemplated voluntary reductions, payments in lieu of deliveries, and so forth. (*See* DEIS, Appendix E, p. E-129, as discussed above). Clarification of these criteria would benefit not only species protection efforts but the SRS Contractors themselves in minimizing their supply uncertainties given defined hydrological conditions.

The DEIS prominently features discussion of fidelity to the SRS Contracts, as discussed above. (DEIS, Appendix E, p. E-84, E-124). However, the DEIS also describes Bin 3B as follows:

"During Bin 3B years, defined as having an EOA storage below 3.0 MAF and a projected EOS storage less than 2.0 MAF … available water supply for diversion under the SRS Contractors is limited to between 75% and 50% of total contract quantities, or approximately 1.5 - 1.1 MAF." (DEIS, Appendix E, p. E-80). Since the SRS Contracts limit deficiencies to 25 percent in defined "critical" years, this suggests some kind of action by BOR to involuntarily limit deliveries to SRS contractors beyond the level defined in the contracts.[30] The DEIS continues: "This reduced volume of available water will be applied to all SRS Contractors collectively and individual contractor reductions may vary based on agreements and transfers between different SRS Contractors. In these years, previously described SRS Contractor voluntary actions under their resolution may not be possible due to the very limited supply." (DEIS, Appendix E, pp. E-80 to E-81).

That seems clear. But the DEIS follows with discussion of a scenario in which there is not agreement on allocations to SRS Contractors, in which the decision point and the ultimate decision maker are anything but clear:

> "In situations where appropriate fall and winter flows were discussed and tradeoffs were evaluated but there was not agreement on the implemented flow regime from the SRS Contractors, SRS Contractors propose alternative methods to meet obligations to senior water right holders under the SRS Contracts with the SHOT should the following year be a 3B year. Should a similar disagreement occur during a Bin 3B year after the Bin has been designated, flows in disagreement will not affect the determination on volume of available water. Under these conditions, the likelihood of storage below 2.0 MAF will increase."
>
> (DEIS, Appendix E, p. E-81).

A revised and recirculated DEIS needs to make unequivocally clear:

- how BOR will ensure that reservoir storage conditions consistent with Bin 1 will be achieved in at least 80% of years
- whether BOR will impose involuntary water delivery shortages on SRS Contractors, pursuant to the CVPIA and endangered species needs;
- if so, under what conditions BOR will impose water delivery shortages on SRS Contractors; and

[30] *See* Defenders of Wildlife letter to the Bureau of Reclamation and U.S. Fish and Wildlife Service, "Proposal to Reduce Refuge Water Deliveries as Proposed Action in CVP LTO Consultation Would Hurt Numerous Species and Violate Federal Law", April 24, 2023. Defenders never received a response. Therefore, we remain concerned the Proposed Action will also in turn involuntarily short mandatory water deliveries to wildlife refuges, as required by Congress in the CVPIA.

- what the decision-making process for the imposition water delivery shortages on SRS Contractors will be.

The extremely limited conditions under which the DEIS contemplates shortages to SRS Contractors is a fundamental flaw in program designed to protect listed species. The level of deliveries to SRS Contractors is unsustainable. It causes a crisis in the overall CVP and SWP system each time there are two or more sequential Dry or Critically Dry years. A more sustainable model is allocations to senior agricultural diverters on the Mokelumne River, who take a 35 percent reduction in water deliveries in every "dry" (and not just critically dry) year. Again, clarification of these reduction procedures would benefit not only species protection and CVPIA implementation but the SRS Contractors themselves by minimizing their future water supply uncertainties.

B. Delta Operations and the Serial Use of Temporary Urgency Change Petitions (TUCPs).

1. Background.

Over the past decade, BOR and DWR repeatedly, consistently, and successfully sought to waive or weaken numerous water quality objectives, including minimum required Delta outflow, which are the basis of an incorporated into requirements of both the 2008/2009 and the 2019 biological opinions. BOR and DWR also failed repeatedly to meet upstream water temperature requirements of both the Biological Opinions and the Basin Plan. These failures to meet ESA requirements occurred despite the fact that existing ESA requirements and the water quality and temperature objectives they incorporate are widely acknowledged to be insufficiently protective (*see*, CDFW 2010; (*See*, *e.g.,* SWRCB 2010, 2017, 2018). In addition to inadequate Sacramento River Temperature Management Plans (required under water rights decision 90-5 and 91-1) and associated management of Shasta Reservoir, Temporary Urgency Change Petitions (TUCPs) for Delta operations have been the principal artifice of this serial weakening of environmental protections during sequential Dry and Critically Dry years and also Wet years.

TUCPs submitted by DWR and BOR were approved by the SWRCB in six out of ten years in the last decade: 2014, 2015, 2016, 2021, 2022, and 2023. These changes to water project operations were not previously analyzed as part of the environmental documentation for the Biological Opinions or in the SWRCB's 1995 Bay-Delta Water Quality Control Plan and Water Right Decision 1641. (*See, e.g.,* Water Rights Order 2014-0029 (September 24, 2014)[31]; Water Rights

[31] Available online at:
http://www.waterboards.ca.gov/waterrights/board_decisions/adopted_orders/orders/2014/wro2014_0029.pdf

order dated February 3, 2015[32]; April 6, 2015, Revised Order[33]; July 3, 2015, order conditionally approving petition for temporary urgency change[34]). For instance, in 2015 the waivers of water quality standards reduced Delta outflows and increased water deliveries by approximately 800,000 acre-feet.

These waivers of required operations contributed to devastating impacts to winter-run Chinook Salmon, spring-run Chinook Salmon, fall-run Chinook Salmon, Delta Smelt, Longfin Smelt, and other native fish species, including:

- Greater than 95 percent mortality of endangered winter-run Chinook Salmon eggs and juveniles above Red Bluff Diversion Dam in 2014 and 2015, including temperature dependent mortality of 77 percent in 2014 and 85 percent in 2015 due to lethal and chronically adverse water temperatures below Keswick Dam.
- Greater than 95 percent mortality of fall-run Chinook Salmon eggs and juveniles that spawned in the mainstem Sacramento River above Red Bluff Diversion Dam in 2014.
- Total closures of California fall-run Chinook fisheries in 2023 and 2024 for lack of abundance of returning adult spawners due to high TDM rate impacts on the eggs and juveniles of 2020, 2021 and 2023 year-classes.
- Record low abundance indices for Delta Smelt in the 2014 and 2021-23 Fall Midwater Trawl and 2015 and 2021 Spring Kodiak Trawl surveys.
- Near record low abundance of Longfin Smelt in the 2014 Fall Midwater Trawl survey and a new record low abundance in the 2015 Fall Midwater Trawl survey.
- Negative impacts on the survival of juvenile Delta Smelt in June through August of 2021, on the recruitment and post-larval survival of Delta Smelt in 2022, and on the recruitment of Delta Smelt in 2023.
- Negative impacts on the spawning and recruitment of Longfin Smelt in June and July of 2021 and on abundance of Longfin Smelt in 2022 and 2023.
- Lower survival and recruitment of several other estuarine species in 2021, 2022, and 2023.
- Increases in the abundance of nonnative species like Black Bass in the Delta; and,
- Increases in the abundance of toxic cyanobacteria in the genus *Microcystis* that result in harmful algal blooms in the Delta (*see* Lehman et al. 2022 and SWRCB 2021).

[32] Available online at: https://www.waterboards.ca.gov/drought/docs/tucp/2015/tucp_order020315.pdf
[33] Available online at: http://www.waterboards.ca.gov/waterrights/water_issues/programs/drought/docs/tucp/2015/tucp_order040615.pdf
[34] Available online at: http://www.waterboards.ca.gov/waterrights/water_issues/programs/drought/docs/tucp/2015/tucp_order070315.pdf

(*See, e.g.,* Water Rights Order 2014-0029; Water Rights order dated February 3, 2015; April 6, 2015 Revised Order; July 3, 2015 order conditionally approving petition for temporary urgency change; Protest to TUCP filed by the NRDC dated February 13, 2015[35]; March 24, 2015 Petition for Temporary Urgency Change, Attachment A[36]; Feb 15, 2022 Order Denying in Part and Granting in Part Petitions for Reconsideration of the Executive Director's Approvals of the 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 the June 10, 2021, Sacramento River Temperature Management Plan[37]; March 18, 2022 Temporary Urgency Change Petition for April 1, 2022 through June 30, 2022[38]; and February 13, 2023 Temporary Urgency Change Petition for February 1, 2023 through March 31, 2023[39].)

2. Application of TUCPs in Droughts under Alternative 2.

As mentioned above, the DEIS is unclear about the role (if any) of TUCPs for Delta operations in droughts or sequential dry years. The DEIS, under the heading **"**3.5.10 Drought," states the TUCPs would have no role under Alternative 3: "Similar to Alternative 2, however Alternative 3 prohibits the use of a TUCP." (DEIS, p. 3-66). Leaving aside the unclear syntax, this appears to suggest that Alternative 3, which prohibits the use of TUCPs, is different from Alternative 2 in this respect, and thus that there would be some role for TUCPs under Alternative 2. This language should be clarified.

In a similar vein, the discussion of drought actions under Bin 2B states:

> "Reclamation will consider water supply (CVP allocation) reductions and, through coordination with the SHOT, will identify moderate system-wide tradeoffs and potential transfer modifications and with the goal of meeting both of these goals. Moderate system wide tradeoffs generally include, but are not limited to, rebalancing between other CVP reservoirs with moderate impacts to other parts of the system, transfer timing modifications, situation-specific adjustments to Delta water quality standards under D-1641 to address developing drought conditions and other actions from the drought toolkit." (DEIS, Appendix E, p. E-77).

[35] Available online at: http://www.waterboards.ca.gov/waterrights/water_issues/programs/drought/comments_tucp2015/docs/nrdc_obegi021315.pdf
[36] Available online at: http://www.waterboards.ca.gov/waterrights/water_issues/programs/drought/docs/tucp/2015/apr2015_req032415.pdf
[37] Available at: https://www.waterboards.ca.gov/waterrights/board_decisions/adopted_orders/orders/2022/wro2022_0095.pdf
[38] Available at: https://www.waterboards.ca.gov/waterrights/water_issues/programs/applications/transfers_tu_notices/2022/20220318_tucp.pdf
[39] Available at: https://www.waterboards.ca.gov/drought/tucp/docs/2023/20230213_tucp.pdf

And the discussion of drought actions under Bin 3B similarly states:

> "Reclamation, through Chinook salmon coordination with the SHOT, will identify moderate and heavy system-wide tradeoffs with the goal of conserving storage and meeting minimal temperature objectives. Moderate system wide tradeoffs generally include, but are not limited to, rebalancing between other CVP reservoirs with moderate impacts to other parts of the system, transfer timing modifications, situation-specific adjustments to Delta water quality standards under D-1641 to address developing drought conditions and other actions from the drought toolkit." (DEIS, Appendix E, p. E-80).

If there is a mechanism other than TUCPs that could accomplish such "situation-specific adjustments to Delta water quality standards," the DEIS fails to describe them.

In discussing Alternative 1, the DEIS states: "Reclamation and DWR would not apply for TUCPs to preserve storage in upstream reservoirs beyond water required to maintain public health and safety." (DEIS, p. 3-42). It is unclear then what the purpose of a TUCP would be, or how BOR would parse the purposes of a TUCP. It is also unclear whether this limitation would apply to Alternative 2. Among other things, the distinction between a TUCP to "preserve storage in upstream reservoirs" and a TUCP to benefit water supply is rarely self-evident. As discussed earlier, previous TUCPs to preserve storage have used the preserved storage to maintain or increase deliveries instead of maintaining adequate temperature conditions, among other things.

Rather than reducing deliveries to the SRS contractors, most of the alternatives in the DEIS (other than Alternative 3) contemplate harmful actions such as reducing the minimum flow from Keswick Reservoir in winter below the 3250 cfs minimum. (DEIS, p. 3-44). This would dewater fall-run Chinook Salmon redds and degrade habitat for winter-run Chinook Salmon juveniles that remain in the upper reaches of the Sacramento River downstream of Keswick Dam. The DEIS also contemplates reducing summer flows in the Sacramento River at Wilkins Slough from the required 5000 cfs to allow BOR to meet SRS Contracts (*See, e.g.,* DEIS, Appendix E on Bin 3 years, p. E-79: "As a default, Reclamation will target a minimum flow of 3,400 cfs [at Wilkins Slough] under these conditions."). Such reductions would degrade the migration corridor for Chinook Salmon and other species that under existing (non-drought) conditions is almost always already impaired by high water temperatures and lack of adequate flow during summer months.

The overarching problem with TUCPs, and the other rob-Peter-to-pay-Paul options that the DEIS proposes, to "preserve storage" in Shasta or other reservoirs is not simply that they have limited storage benefit. It is that they are founded on recovering storage depleted by unsustainable water deliveries, generally in the first Dry or Critically Dry year. TUCPs are also ineffective because they are a band aid on a wound that was created at least a year previously. Conserving (or "preserving") storage with TUCPs does not fail because it doesn't save enough water. It is a

failed strategy because it acts too late, after the time when increased storage could have made a difference.

Droughts are a normal part of the California climate, and consecutive dry years can be planned for as readily as single ones. California law identifies TUCPs as limited to urgencies that cannot otherwise be avoided through the exercise of due diligence. *See* Wat. Code § 1435, subd. (c). Unfortunately, the DEIS fails to adequately exercise due diligence by identifying the specific measures to mitigate the highly foreseeable and largely avoidable conditions of drought and the bad management decisions that have been made in the past in response to drought. The DEIS's treatment of the Drought Toolkit is a case in point.

C. Drought Toolkit.

Part of the proposed mitigation for impacts of the CVP and SWP during drought conditions is the voluntary "Drought Toolkit," which would provide a coordination process to implement drought relief actions. However, the measures in the Toolkit are described generally and are not compared side-by-side from one alternative to another. It is also unclear whether the Drought Toolkit is a menu of potential actions or a prescribed protocol for actions in response to drought, or some combination.

DEIS Section E.3.9 ("Drought") states that the "Drought Toolkit" was a requirement of the 2020 Record of Decision for the 2019 BOs. It further states that BOR and DWR completed the latest version of the drought toolkit in 2022. However, the section **does not describe the contents of the drought toolkit.** (DEIS, Appendix E, p. E-58).

Some aspects of the Drought Toolkit seem to be part of Alternatives 1 and 4; but even there, there is no comprehensive inventory of required measures, only a general reference. For example, regarding Alternative 1, the DEIS states: "… Reclamation and DWR would implement elements of a drought toolkit …" (DEIS, Appendix E, p. E-66). The DEIS says "**a** drought toolkit." It does not say which "elements" such a toolkit contains, which elements BOR and DWR would select, or how BOR and DWR would select such elements.

Moreover, the description of any existing Drought Toolkit would still not address the relationship between such measures and Alternative 2.

Regarding Alternative 2, the DEIS states: "Reclamation is proposing to change the balance between risks of flood control releases for Shasta Reservoir and place a higher priority on maintaining storage for drought protection. The strategy is framed around a framework adapted from the multi-year drought sequence experienced in Victoria, Australia." (DEIS, Appendix D, p. D-8). However, this priority, repeated in several places in the DEIS (*see also* DEIS, Appendix E, p. E-71), is stated only in general terms as a policy, not as a series of specific measures.

Moreover, it does not address the relative priority of maintaining storage in relation to water supply.

DEIS Table D-5, "Summary of Alternative 2 Avoidance and Minimization Measures for Fish and Aquatic Resources," states regarding drought:

> "Avoidance Measure: … Drought Operations Priority Framework."
>
> "Geography & Listed Species Impacted: … Sacramento River (salmonids and sturgeon); Bay-Delta (salmonids, sturgeon, and smelt)"
>
> "Impact: "Reclamation will develop a Drought Emergency Plan that establishes system priorities and seeks to provide Winter-run Chinook salmon spawning water temperatures.
>
> "The measure may increase or decrease the water temperatures by decreasing Sacramento River flows into the Delta; however, increasing Shasta Reservoir storage may provide for more suitable water temperatures in the following year. The measure may also impact outmigration by decreasing Sacramento River flows into the Delta."
>
> (DEIS, Appendix D, Table D-5, pp. D-20, D-24, D-25).

Here again, the measure described seems to suggest, in the absence of other mechanisms, that BOR and DWR will request TUCPs in "decreasing Sacramento River flows into the Delta." *Id.*

The voluntary, largely qualitative nature of the Drought Toolkit and the lack of authorization or funding for its implementation makes it difficult to assume that it is reasonably likely to occur, and therefore reliance on the Drought Toolkit in the DEIS is unlawful.

Droughts are a normal part of the California climate. About forty percent of the last one hundred water years have been part of drought sequences. BOR and DWR must plan for consecutive dry years. This requires laying down to water supply some of the bets that have previously placed inordinate and devasting risk on listed species.

However, as contemplated in the DEIS, involuntary shortages to SRS Contractors are exclusively limited to a triage situation. Until unsustainable levels of water deliveries are met head-on, the CVP and SWP will always be one year away from a potential fisheries disaster. The listed species covered in the forthcoming BOs cannot survive many, if any, more such disasters.

The Drought Toolkit contemplated in the DEIS fails the requirements of NEPA for disclosure and analysis. It also appears to be likely to result in the same mismanagement and resort to TUCPs as experienced in recent years. Indeed, the Newsom Administration recently revised

emergency drought executive orders so as to continue maximizing water exports while loosening drought restrictions for both rural and urban communities receiving CVP and SWP water. TUCPs for river and Delta management would undermine and alter the function of the drought toolkit if they continue to be used at all times as part of Delta management.

V. The Proposed Action Does Not Match the State's Proposed Project.

The Proposed Action in Reclamation's DEIS does not currently match the State's Proposed Project in the Draft Environmental Impact Report ("DEIR"), published in May 2024. We are concerned that this will lead to several inconsistencies in implementing the coordinated project operations, and also deny the public an informed opportunity to review *coordinated* project operations that fully disclose environmental impacts. (40 C.F.R. §§ 1502.1 (b)-(c); *see also Columbia Basin Land Protection v. Schlesinger,* 643 F.2d 585, 594 (9th Cir. 1981) (A DEIS must ensure "full disclosure of the environmental consequences of a project."))

The DEIS states,

> "A Sub-Alternative, '2B', is derived from Alternative 2, but includes components developed by CDFW and DWR during DWR's current Incidental Take Permit application process for the SWP. Alternative 2b is anticipated to result in changes on Delta exports from more restrictive QWEST criteria. Alternative 2B also includes an extension of the CCF operation period to December 1 through March 31 from mid-December through mid-March, effectively increasing the operation of the SWP by one month. These components were not available in time to be included in quantitative modeling.
>
> Reclamation has identified Alternative 2B as the preferred alternative. Alternative 2B best meets the Purpose and Need, including the goals of E.O.13990 because NMFS and USFWS reached consensus on an alternative for Reclamation to submit for consultation. Alternative 2B incorporates the Delta criteria proposed in DWR's ITP for the Delta facilities of the SWP to harmonize operations of the CVP and SWP." (DEIS, Executive Summary, pp. 0-3 and 0-4).[40]

"Alternative 2B" is different in important ways from DWR's Proposed Project. The Proposed Project includes and assumes implementation of all Voluntary Agreements, as well as potential

[40] Once again, we remind Reclamation that NMFS and USFWS have used an old version of Alternative 2 for analysis under their Biological Opinions, and therefore "Alternative 2B" is not used or agreed upon by the fisheries agencies.

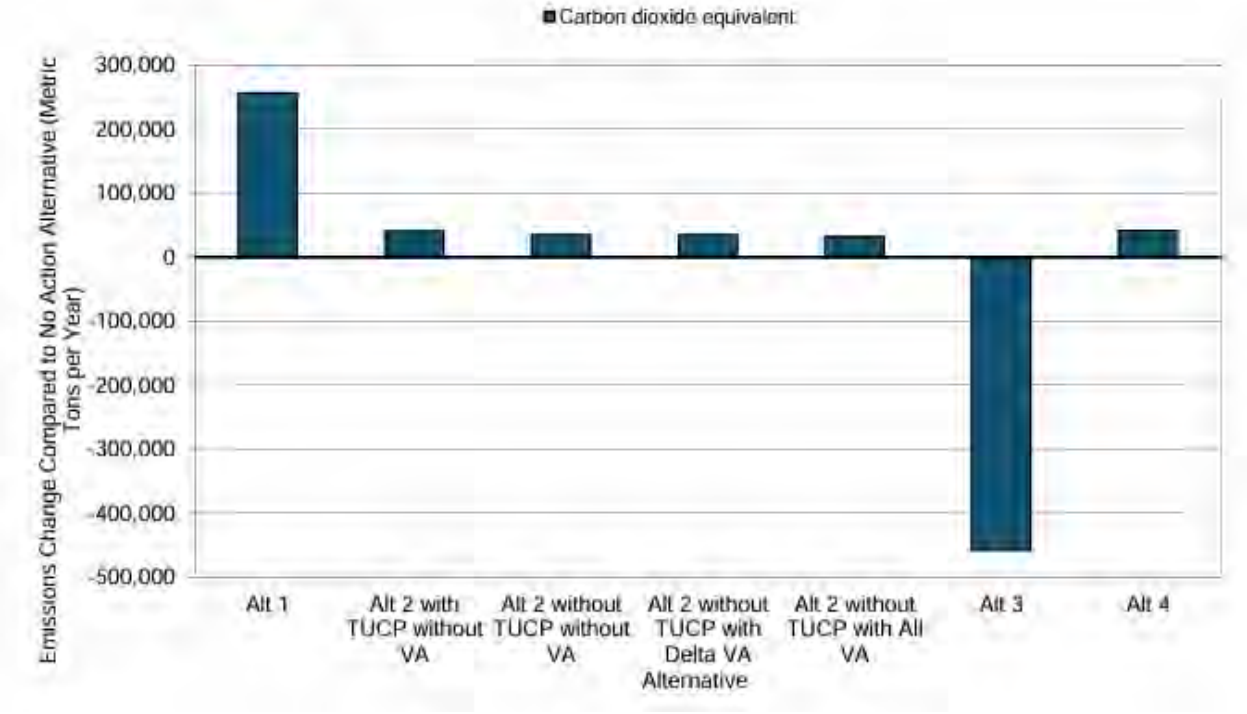
application of TUCPs.[41] The combination of both of these actions is not analyzed or addressed by Reclamation in the DEIS in any of the Alternative 2 variants.

The DEIS purports to analyze long-term operations of the CVP and the SWP, yet each project has a different preferred alternative – and in each case that preferred alternative fails to comply with federal and state law. Reclamation must revise and recirculate the DEIS to address how the state and federal preferred alternatives will be coordinated – and, as stated above, revise the preferred alternative to meet the requirements of the ESA.

VI. The DEIS Fails to Properly Analyze the Effects of Climate Change.

California state law required statewide Greenhouse Gas (GHG) emissions to be reduced to 1990 levels by 2020 (this goal was met), and 2015 Executive Order EO-B30-15 sets a goal of reducing GHG emissions 40% below 1990 levels by 2030 (DEIS, Appendix M, p. M-6). Section 10 and Appendix M of the DEIS describe the GHG emissions of the alternatives, yet fails to disclose if the 1990 emissions of the SWP and CVP were different than the baseline. Table M-2 shows CVP energy use is similar or greater than NAA under all alternatives except Alternative 3, which would have a 39% reduction in energy use. SWP energy use is greater than NAA under all alternatives except Alternative 3, which would have a 47% reduction in energy use. This reduction in energy use would result in reduced emissions--Alternative 3 is the only alternative that significantly reduces the GHG emissions of the CVP and SWP. Figure 10-6 (reproduced below) specifically shows that Alternative 3 would result in a reduction of almost half a million metric tons of CO_2-equivalent per year. This is a 14% reduction; the other alternatives would increase emissions.

[41] For more detail, please *see* NGO comment letter re DWR's SWP LTO DEIR July 2024 (attached).



VII. Alternative 3 Should Be the Preferred Alternative and, therefore, the Proposed Action.

Reclamation should adopt Alternative 3 as the Proposed Action. and compare it to other alternatives. Alternative 3 is the only alternative that adequately protects endangered species as required by law. Because the DEIS does not contain a reasonable range of alternatives that are designed to achieve that threshold, Reclamation should adopt Alternative 3 as the Proposed Action and compare it to other alternatives that might similarly and feasibly provide an adequate level of protection, Reclamation should develop additional adequate alternatives and compare them to Alternative 3.

In performing this revised alternatives analysis, Reclamation should assume implementation of the Sustainable Groundwater Management Act ("SGMA") and evaluate a broad array of water conservation mitigation measures. This would provide a more accurate analysis of the actual water supply impacts of implementing Alternative 3, which are wildly overstated in the DEIS.

A. Alternative 3 Should Be the Preferred Alternative Because It Is the Only Alternative That Meets the Legal Requirements of the ESA and NEPA.

NEPA regulations state that "[t]he environmentally preferable alternative will best promote the national environmental policy expressed in section 101 of NEPA by maximizing environmental benefits." (40 C.F.R. § 1502.14). **The *only* alternative that adequately protects endangered species as required under the state and federal ESAs - indeed, the only alternative that provides significant measurable benefits to endangered species at all – is Alternative 3, which is therefore the "environmentally preferrable alternative."** *Id.* This alternative was designed to prioritize listed species' needs, with appropriate attention to achieving temperature requirements and the magnitude and timing of Delta outflow necessary to support viable populations. It performs these tasks far better than the other alternatives and the NAA. For more detail, please see Section III of these comments, specifically the detailed discussions of the impacts of the Proposed Action to listed species compared to Alternative 3. It should also be noted that Alternative 3 is the only alternative that significantly reduces the greenhouse gas emissions of the CVP and SWP.

B. Even With the Inclusion of Alternative 3, the DEIS Still Fails to Analyze a Reasonable Range of Alternatives.

NEPA requires that Reclamation consider a reasonable range of alternatives. (*See* 42 U.S.C. § 4332; 40 C.F.R. §§ 1502.14, 1508.25(b); *see also, Kootenai Tribe of Idaho v. Veneman*, 313 F.3d 1094,1122-1123 (9th Cir. 2002) (and cases cited therein)).As we have established in previous comments and litigation, and in more detail above, the coordinated operations of the CVP and SWP under the 2020 Record of Decision are jeopardizing ESA-listed species. Evaluation of alternatives cannot exclude alternatives that result in significant reductions in water deliveries to, water diversions by, and water allocations for the contractors of the SWP and CVP or include alternatives which would violate the ESA by allowing for the continued decline and eventual extinction of listed species. In light of these facts, and in order to evaluate a reasonable range of alternatives thus requires modeling and analysis of one or more alternatives that prevent the extinction and support the recovery of listed species, and which include actions such as reductions in water diversions by senior water rights settlement/exchange contractors greater than the reductions provided for in the existing contracts. The DEIS has made a start through the development of Alternative 3, and we are grateful that the Bureau worked with a number of the undersigned organizations to inform this Alternative.

However, in the DEIS, Alternative 3 is the <u>only</u> alternative in the DEIS whose implementation would lawfully mitigate the harmful impacts of Project Operations under the ("NAA"). NEPA requires the Bureau to "rigorously explore and objectively evaluate" a range of alternatives to

proposed federal actions. This requirement is intended to prevent an EIS from becoming "a foreordained formality." *City of New York v. Dep't of Transp.*, 715 F.2d 732, 743 (2nd Cir. 1983); *see also Davis v. Mineta*, 302 F.3d 1104 (10th Cir. 2002). Without additional consideration and analysis in the DEIS for Alternative 3, the DEIS's ambiguous and deeply flawed Proposed Action risks becoming a "foreordained formality." *Id.*

The range of alternatives is considered the heart of the environmental impact statement (CITE). The DEIS is deeply flawed because it does not include a range of reasonable alternatives in violation of NEPA. As established in other sections of this comment letter (*see* Section II and Section V), the Proposed Action and Alternatives 1 and 4 perform largely the same as or worse than the NAA. The NAA is the implementation of the 2020 Record of Decision, which is itself legally and biologically inadequate. Furthermore, as established above, the Proposed Action is missing critical information, and its information and analyses are flawed, which impacts the legitimacy of its results and conclusions.

The revised and recirculated DEIS should include additional alternatives similar to Alternative 3 in that they are primarily designed to protect endangered species and remedy the harmful effects of water storage, diversion and export associated with operations of the CVP and SWP.

C. The DEIS Must Incorporate SGMA Into its Analysis of Groundwater Impacts.

As the DEIS notes, the model used to project groundwater pumping changes does not include the Sustainable Groundwater Management Act ("SGMA"). (*See* Cal. Water Code § 10720 (2020)). On page 6-5, the DEIS states:

> "The C2VSimFG model does not directly simulate limitations to groundwater levels and pumping that may be imposed as part of SGMA. The model assumes that groundwater will be used to supplement water supply if surface water supplies are decreased in order to meet demands. Conversely, if surface water supplies are increased, the C2VSimFG model will decrease groundwater pumping. The model, therefore, may over predict increases in groundwater pumping, decreases in groundwater levels, increases in loss of surface water to groundwater, and subsidence. If groundwater supply is unable to be increased beyond a certain level (based on the GSP for the area) then the current demand level may not be able to be supported."

This omission matters because the DEIS proceeds to evaluate impacts and mitigation measures based on the model's output. It is particularly problematic for Alternative 3, which would reduce surface water deliveries substantially.

Estuarine species need significantly more Delta outflow, as discussed in detail in Section III of these comments. It is likely that any alternative that meets the needs of listed species for adequate flow into, through, and out of the Delta will necessarily result in significantly lower water deliveries. Table H-54 shows that Alternatives 1 and 4 maintain or increase deliveries, while Alternative 2 results in delivery reductions that are only 6-11 percent. On the other hand, Alternative 3, the only one that meets many of the listed species' needs for improved environmental conditions, does so in large part by reallocating water diversions to necessary flow augmentations, thereby substantially affecting water deliveries.

Reduced deliveries to CVP and SWP contractors projected under Alternative 3 are not representative of all water users and do not reflect all of the SWP and CVP contractors' water supplies. For example, Table F.2.4-12 shows a 1.1 MAF reduction in south of Delta agricultural contract deliveries under Alternative 3. This is similar to the 0.9 MAF reduction in Delta supply to the San Joaquin Valley expected under the SWRCB's 65% of unimpaired flow scenario (SWRCB 2023 at 6-54). That scenario represented a 31 percent reduction of Delta supplies but only represented a 5 percent reduction of total San Joaquin Valley supply. In addition, the DEIS at F.1-1-2 states "CVP south of Delta service contractor demands are reflected as full contract obligation." Given that many south of Delta water contractors do not typically receive their full demands, the characterization of impacts to south of Delta water supply is overstated.

The DEIS incorrectly assumes that water delivery reductions projected to result from Alternative 3 cannot be mitigated. The "Potential Mitigation Measures" column of Table H-54 in the DEIS was not populated because:

> "These reductions in water supply deliveries and water made available for diversion would not be able to be replaced reliably from other sources, such as water transfers or groundwater pumping. Water transfers are included in the No Action Alternative and would not be available to further offset the reduced water supply deliveries generated by Alternatives 2 and 3. Reliance on groundwater pumping to offset these reductions would not be feasible given the potential for numerous environmental effects generated by additional groundwater pumping in an area with declining groundwater levels and the limits on the availability of groundwater supplies with the implementation of the Sustainable Groundwater Management Act (see Appendix I, Groundwater Technical Appendix, for more information). Given the environmental and technological limits on the implementation of other potential options to offset this impact, *no feasible mitigation has been identified to reduce the severity of these reductions*." (DEIS, Appendix H, p. H-56) (emphasis added).

In other words, the DEIS, based on the model, assumes that reductions in deliveries would be replaced by groundwater pumping (DEIS 17-3, Appendix I, pp. 188-202). The DEIS ignores that fact that SGMA **is** the minimization and mitigation measure for potential groundwater impacts

under proposed CVP/SWP operations or its alternatives. Effective Groundwater Sustainability Plans (GSPs) will identify and promote strategies to refill groundwater aquifers, when feasible, and restrict pumping to ensure aquifer levels can be maintained in California's evolving climate. Only by overlooking the status of SGMA implementation can the DEIS conclude, "No avoidance and minimization measures or additional mitigation measures have been identified for groundwater." (DEIS, p. 6-19). GSPs have already been completed, and deficient GSPs have been identified and are in the process of being revised or subject to state control. The DEIS fails to disclose these facts and their obvious implications. **Reclamation must revise the DEIS to properly include the future implementation of and compliance with GSPs and other requirements of the Sustainable Groundwater Management Act, specifically revising the modeling results and subsequent analysis of impacts related to Alternative 3.**

D. The DEIS Must Seriously Evaluate Water Conservation and Other Mitigation Measures Available to Offset Water Supply Impacts of Alternative 3.

The DEIS's failure to disclose the role of SGMA in preventing groundwater impacts is matched by its failure to acknowledge the huge potential for water conservation to mitigate impacts of reduced surface water supplies in California. Numerous studies in recent years have identified millions of acre-feet of potential reductions in water use in California. As the Water Board notes,

> "On the basis of a review of previous efficiency studies, Pacific Institute and Natural Resources Defense Council (2014) estimated that agricultural water use could be reduced by 5.6 million to 6.6 MAF/yr, or by about 17 to 22 percent, while maintaining productivity and total irrigated acreage." (SWRCB 2023, p. 6-95).

In addition to SGMA, measures identified in these reports should be considered feasible mitigation for Alternative 3. NEPA requires the Bureau to take a "hard look" at mitigation measures. *Coal. for Canyon Pres. v. Slater*, 33 F. Supp. 2d 1276, 1280 (D. Mont. 1999) (An agency's "perfunctory description of mitigating measures is inconsistent with the 'hard look' it is required to render under NEPA.") **Reclamation must revise the DEIS to properly include the future implementation of water conservation measures and other water management actions, specifically revising the modeling results and subsequent analysis of impacts of Alternative 3.**

E. There are Clerical Errors and Unclear Descriptions of Alternative 3 that Require Correction.

Section E.6.1.3 of the DEIS describes water temperature management under Alternative 3, and Section 7 covers Alternative 4. These sections have the following possible typographical errors in section numbering that should be reviewed and revised:

- The DEIS refers to "Delta outflow requirements described in Section E.7.1.1, Water Temperature Management, from December through May…" (DEIS, p. E-163). It is likely this should refer to section E.6.4.2. Section E.7.1.1. contains no description of Delta outflow requirements.
- The DEIS on p. E-163 also states that "Reclamation would not make water available for delivery until operational plans show the targets in 7.1.1 and 7.1.2 are likely to be met or exceeded." However, Sections 7.1.1 and 7.1.2 contain targets that appear to be inconsistent with targets in Section E.6.1.3. For example, Section 7.1.1 contains a 2.0 MAF EOS target, while Section E.6.1.3 contains a 2.2 MAF target. Section 7.1.2 contains fall-winter instream flows under Alternative 4, and EOS targets between 2.4 and 3.2 TAF that control Keswick releases; however, Section 6 specifies Alternative 3's approach of releasing 45-55% of unimpaired inflows in order to achieve Delta outflow criteria.
- F.2-1-1 must be corrected – it displays an error where a reference source was not found for a figure number.

These references to Section 7 in Section 6 should be corrected. We would also recommend that Reclamation compare the summary of Alternative 3 callouts on F.1-1-53 and the callout tables in Section F.1-2. The Section E.6 summary appears to be incorrect and incomplete compared to the callout summary in Section F.1-1.7 and should be revised for accuracy. In addition, Section E.6 fails to mention the lower pass-through of unimpaired flow when storage requirements are not likely to be met (described on F.1-1-53).

The DEIS states in several places (e.g., E-63, E-167, F.1-1-18, F.1-2-7) that all the alternatives except NAA assume that San Luis Reservoir 130 TAF to 1,102 TAF of increased CVP capacity. However, the October to April exceedance graphs on pages F.2-1-288 to F.2-1-294 show the Alternative 3 line reaching peak storage at the same capacity as NAA. This apparent inconsistency between the Alternative 3 description (including increased San Luis Reservoir storage) and the modeling (not including the increased storage) must be corrected when the DEIS is revised and recirculated.

Additionally, there are many document clarity issues. In general, paragraphs in the main body of the DEIS summarizing results must do more than reiterate the range of model outputs for each alternative and state that each alternative has potential adverse and potential beneficial impacts.

For example, the paragraph describing impacts of the Proposed Action on Delta Smelt (DEIS at 12-53) is unintelligible:

> Alternative 2 is expected to have little to negligible impacts to larvae resulting from increased and decreased entrainment of larvae (Neutrally buoyant particle fate by inflow bin entrained at exports: 45% hihi – 90% hilo; neutrally buoyant particle fate by OMR bins entrained at exports 56% at -2,000 cfs – 79% at -5,000 cfs). For rearing habitat, there are expected minor adverse to minor beneficial impacts on juveniles (Habitat Suitability Index (HSI) without temperature threshold of non-critically dry water year types and critically dry water year type: 0.513 – 0.65 and 0.402 – 0.424 and HSI with temperature threshold: 0.203 – 0.525 and 0.129 – 0.137). For population abundance, there are expected adverse to beneficial impacts on the population growth rate (LCME: Geometric mean of predicted population growth rate of wet and above normal water year types and below normal, dry, and critically dry water year types: 1.24 (Wet and Above Normal) – 1.28 (Wet and Above Normal), 0.74 (Below Normal, Dry, and Critically Dry,) 0.74 – 0.77 (Below Normal, Dry, and Critically Dry), Figure 12-4). Alternative 2 includes Old and Middle River Flow Management which adjusts exports to minimize entrainment of fish and protection of critical habitat.

Providing such an unprioritized list of the range of effects of each alternatives in different water year types on different life stages of different fish, with no context, is not informative.This and the description of the effect of other Alternatives on Delta Smelt bury the lead: The NAA and all alternatives except Alternative 3 are expected to result in continued rapid declines of Delta Smelt, but Alternative 3 is expected to result in mean population growth of this highly imperiled species (Figure 12-4). **The DEIS must be revised so that each of the alternatives are compared clearly, concisely, and accurately, and the ultimate result of such effects are acknowledged.**

VIII. DEIS Alternatives 1 and 4 are Properly Rejected.

A. Alternative 1 Demonstrates the Need for an updated Bay-Delta Plan and Substantive ESA Protections.

DEIS Alternative 1, also referred to as the Water Quality Control Plan Alternative, operates the CVP and SWP to meet the current Bay-Delta Water Quality Control Plan (i.e., D-1641 and WRO 90-5). However, it does not contain any operational restrictions from the 2008, 2009, or 2019 Biological Opinions. Biological Opinions. (DEIS, Appendix E, pp. E-59-E-60). According to BOR, this allows for evaluation of the effectiveness of "non-flow measures." *Id.* at p. E-60.

Not surprisingly, given that (a) the Delta ecosystem is in crisis, *see, e.g.,* SWRCB 2010, 2017, 2018, 2023; USEPA 2024; CDFW 2010; USFWS 2024a, and (b) the current regulatory minimum flows required by the Bay-Delta Water Quality Control Plan are woefully inadequate to protect fish and wildlife, especially endangered fish, *see, e.g.,* CDFW 2010; SWRCB 2010, 2018, 2023; USEPA 2024, the results of adopting Alternative 1 would be catastrophic for endangered fish and would not comply with the Endangered Species Act. Alternative 1 would eliminate or reduce a host of standards and requirements that are necessary (though insufficient) to reverse the downward trend toward extirpation and extinction for the listed fish species of San Francisco Bay, the Delta, and their watershed.

Initially, the same problems with temperature and other modelling described above (*see e.g.,* § III.A.1 re Chinook Salmon Temperature analysis) apply to the analysis of Alternative 1. However, given the additional negative impacts this alternative would cause as compared to the NAA, the Proposed Project, and Alternative 3, even the flawed analysis contained in the DEIS demonstrates that Alternative 1 is quantitatively and qualitatively worse than the other alternatives and the NAA.

Moreover, the results are clear: mean population growth for Delta Smelt is far worse under Alternative 1 than the NAA (Figure 1, *supra*; Attachment F.4 Table F.4-5); change in Longfin Smelt abundance is markedly worse under Alternative 1 than under the NAA (Figure 2, *supra*, Source data from DEIS Appendix AB-J attachment J.1, provided by BOR); and Longfin Smelt salvage is predicted to be substantially higher under Alternative 1 than under the NAA and would be materially higher than the Proposed Project alternatives (Table 3, *supra*; Appendix AB-I attachment I.4). Similarly, TDM of winter-run Chinook Salmon eggs would be markedly higher under Alternative 1 than under the NAA (Appendix AB-L attachment L.2 Table L.2-2) and life-cycle modeling indicates that abundance of this unique salmon population will drop precipitously (Appendix F Attachment F.5 Table F.5-12)

In short, Alternative 1 demonstrates: (a) a new substantially more protective Bay-Delta Water Quality Control Plan is urgently needed; (b) non-flow measures do not protect, restore, or support endangered fish populations; and (c) ESA protections are necessary and vital to avoid continued loss and harm to the Bay-Delta's endangered fish. Alternative 1 is correctly rejected as it does not comply with the ESA.

B. Alternative 4 is Both Under-analyzed and Properly Rejected.

DEIS Alternative 4, where it is analyzed, is relatively similar to Alternative 2, generally worse than the NAA, and far less protective than Alternative 3. (*See e.g.,* Figure 1, *supra*; Figure 2, *supra*; Figure 3, *supra*, and Table 3). Additionally, as in the rest of the analyses in the DEIS, the problems with temperature and other modelling described above (*see e.g.,* § III.A.1 re Chinook

Salmon temperature analysis) apply to the analysis of Alternative 4 where it was performed. However, given the relative negative impacts this alternative would cause as compared to the NAA and Alternative 3, even the flawed analyses contained in the DEIS demonstrate that Alternative 4 is insufficient to protect endangered species.

IX. The DEIS Lacks Proper Analysis of Severe Impacts to Indian Trust Assets and Cultural Resources.

Indian Trust Assets ("ITAs") and cultural resources are invaluable to the Native American tribes in California. The DEIS discussion and analysis of the impacts to ITAs and cultural resources requires further development. Chapter 7: Indian Trust Assets fails to adequately analyze the ITAs that are within the study area. Chapter 8: Cultural Resources fails to adequately discuss Native American history in California and the BOR must adhere to all federal policies and guidelines meant to protect cultural resources. Ultimately, the No Action Alternative and action alternatives fail to propose mitigation measures in the analysis of each topic.

The analysis of both Indian Trust Assets and cultural resources relies on the No Action Alternative. These comments have highlighted the improper reliance on the 2020 Record of Decision and 2019 Biological Opinions and therefore the analysis of impacts under the No Action Alternative needs to be reevaluated. Given the status of current operations, further analysis is required for the No Action Alternative and its potential impacts to ITAs and cultural resources in order to comply with federal law. The analysis for the action alternatives should also be reexamined as they are based on changes from the No Action Alternative.

A. The DEIS Must Adequately Analyze the Impacts to Indian Trust Assets.

The DEIS states, "the U.S. Government's trust responsibility for Indian resources requires BOR and other agencies to take measures to protect and maintain trust resources. These responsibilities include takings reasonable actions to *preserve and restore* tribal resources." (DEIS, Indian Trust Assets, p. 7.1; Appendix J, p. J-4)(emphasis added). ITAs can include land, minerals, federally reserved hunting and fishing rights, federally reserved water rights, and in-stream flows associated with trust land. (DEIS, Indian Trust Assets, p. 7.1).

1. Federal reserved rights

Federal reserved rights, as established by *Winters v. United States*, 207 U.S. 564 (1908), applies to certain federal lands, including tribal reservations. Several tribes in California have established federally reserved water rights. Under *Winters*, federally reserved rights are not based upon

actual uses and therefore cannot be lost through non-use. Once quantified, it is possible for the place of use and nature of use to be changed. (*Winters v. U.S.*,1908). The DEIS incorrectly makes the claim that "[t]here are no ITAs in the rivers in the Central Valley that would be affected by the project." (DEIS, Appendix J, p. J-8). The DEIS further states that impacts on existing ITAs would be considered adverse if the action interfered with a federally reserved right or degrades the water quality there is a federally reserved right. (DEIS, Appendix J, p. J-7)

An example of one tribe that has ITAs in the Central Valley is the Cachil [42] Band of Wintun Indians of the Colusa Indian Community ("Cachil [43] Band"). The Cachil [44] Band's traditional homelands are within the Sacramento River Basin and was formally recognized in 1941.[45] In the adopted Constitution and By-Laws, the tribe's jurisdiction is noted as extending to all lands then within the confines of the Colusa Rancheria and Reservation, and to land that would be added.[46] The original 80-acre Reservation was located along the Sacramento River and subsequently another 410 acres were added.[47] The tribe also draws drinking water from groundwater, which is also protected under *Winters*. Additionally, the Kletsel Dehe Wintun Nation that live on the Cortina Reservation also use groundwater as a water supply. (Yates 1989) Accordingly, the Cachil Dehe Band and Kletsel Dehe Wintun Nation should have ITAs identified within the study area of the Proposed Action.

The changes in operations of the CVP and SWP would directly impact the Sacramento River and may change groundwater resources in the Central Valley. (DEIS, Groundwater, p. 6-1) Therefore, it can be assumed that the Proposed Action has potential to impact ITAs that exist in the Central Valley.

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[45] U.S. Dep't of the Interior, Office of Indian Affairs. "Constitution and By-laws for the Cachil Dehe Band of Wintun Indians of the Colusa Indian Community" (Nov. 23. 1941) https://tile.loc.gov/storage-services/service/ll/llscd/42038591/42038591.pdf; *See also,* U.S. Dep't of the Interior, Office of Indian Affairs. "Corporate Charter of the Cachil Dehe Band of Wintun Indians of the Colusa Indian Community" (Nov. 23. 1941) https://maint.loc.gov/law/help/american-indian-consts/PDF/42038471.pdf.

[46] U.S. Dep't of the Interior, Office of Indian Affairs. "Constitution and By-laws for the Cachil Dehe Band of Wintun Indians of the Colusa Indian Community" (Nov. 23. 1941) https://tile.loc.gov/storage-services/service/ll/llscd/42038591/42038591.pdf.

[47] Colusa Indian Community Council. "Heritage." (2013) https://www.colusa-nsn.gov/government/heritage.; *See also*, J. Paul Getty Trust & Getty Research Institute. *Getty Thesaurus of Geographic Names*. "Colusa Rancheria (Indian reservation (Native American reservation))." (2004). https://www.getty.edu/vow/TGNFullDisplay?find=Washington&place=national+capital&nation=&english=Y&subjectid=9226953.

Appendix J, Table J-2 Impact Summary shows that under all alternatives, including the No Action Alternative, there are "no anticipated changes expected" for "potential chances in quality of water used by a federally recognized tribe." (DEIS, Appendix J, pp. J-12-14). However, this analysis is based on the incorrect conclusion that there are not ITAs in the Central Valley. There are at least two federally recognized tribes obtaining their water via groundwater and BOR has a federal responsibility to protect and preserve those water sources. **The BOR must adopt an alternative which analyzes and provides mitigation measures for the impacts to water quality of federally reserved water in the Central Valley.**

2. Tribally reserved fishing rights

Tribally reserved fishing rights are established for tribes in the Klamath River Basin. This is significant because the CVP and SWP are connected to the Klamath River via the Trinity River diversion. The tribally reserved fishing rights are significant for the tribes in the Klamath River Basin because salmon are an important cultural resource. Many of California's tribes have ceremonies and traditions centered around salmon and it is an important cultural resource. Ensuring healthy salmon populations is vital for protecting and preserving tribal cultural resources.

The Preferred Alternative would have adverse effects on spawning and incubating Southern Oregon/Northern California Coast Coho Salmon. (DEIS, Appendix J-9) It is well known that salmon populations are suffering. Returns have been so low that the salmon fishing season has been closed for the second year in a row. Mismanagement of water resources, more frequent drought, less predictable precipitation patterns, loss of adequate habitat, and many other factors are contributing to the drastic population decline of recent years. Federal and state agencies must avoid taking any actions that could contribute to the population decline. **Alternative 3 must be the preferred alternative because it will benefit salmon and provide healthy habitat in the form of high flows and better water quality.**

3. Tribal lands

There are many tribes listed in Table J.1 and the study area encompasses land occupied by more than 40 distinct Native American "cultural groups." (DEIS, Appendix J, p. J-4; Cultural Resources, p. 8-1). Through erosion or degradation, the No Action Alternative may potentially impact the land or sites of religious or cultural importance to federally listed tribes, quality of water used by tribes, and salmonoid populations. (DEIS, Indian Trust Assets, p. 7-3). The Proposed Action has potential for increased erosion as compared to the No Action Alternative. (DEIS, Appendix J, p. J-12)

The CVP and SWP has impacted traditional homelands of both federally listed and non-listed tribes since their construction. Over time operation has impacted the traditional homelands of many tribes throughout California and continued operation would still impact tribal lands and tribal resources.

As noted above, the federal government is required to take measures to protect, maintain, preserve and restore tribal resources. (DEIS, Indian Trust Assets, p. 7-1). However, for ITAs the DEIS, states that "no avoidance and minimization or additional mitigation measures have been identified." (DEIS, Indian Trust Assets, p. 7-3). **The BOR must prioritize an alternative that recognizes its duty to protect Indian Trust Assets that exist within the study area.**

B. The DEIS Discussion on Cultural Resources is Insufficient and Must Thoroughly Analyze the Impacts to Cultural Resources and Provide Mitigation Measures.

1. Chapter 8: Cultural Resources requires extended discussion of California's history as it relates to Native Americans.

When discussing the Indigenous people that have lived on the land that is now California, it is necessary that the appropriate language is used to describe them. While the term "Indian" is used in the titles of some federal regulations and policies, it should be avoided in all other contexts. In the second paragraph of 8.1 Affected Environment, "Indian" is used out of the context of any federal regulation or policy and therefore must be changed. Additionally, the people that resided on the land prior to the continent being named North America, should be called Indigenous people, not "prehistoric people." (DEIS, Appendix K, p. K-2).

Furthermore, there is a lot of missing information related to Native American's and California history in the description of the Affected Environment. (DEIS, Cultural Resources, p. 8-1). NEPA regulations require an EIS contain analysis of "…possible conflicts between the proposed action and the objectives of Federal, regional, State, Tribal, and local plans, polices and controls for the area concerned." 40 C.F.R. § 1502.16(s)(4). That has not occurred here. The timeline of the affected environment skips from 8,000 years ago to 1769. (DEIS, Cultural Resources, p. 8-1). Millenia of Indigenous occupation of present-day California is excluded from this discussion that is meant to focus on the cultural resources of these specific people. The tribal histories that are provided in Appendix K provides much needed context, even in an abbreviated form. The primary description of the history of the area fails to recognize the significance of Indigenous

people in California prior to the invasion of European colonizers and more of the historical discussion in Appendix K must be included.

The description of the events that transpired after the 1769 invasion of Europeans fails to account for the extensive harm that was inflicted on Native American people, their culture, and their cultural resources. The DEIS stats that the period after 1769 was characterized by "the establishment [of] military presidios, development of large tracts of land owned by the missions and *subjugation of the local Indian population for labor*." *Id.* (emphasis added) However, the local tribes suffered much more than subjugation for labor. The mission system that was established by the Spanish colonizers resulted in enslavement, indoctrination, removal from traditional lands, destruction of culture (ceremonies, cultural resources, language, etc.), and the introduction of fatal diseases all of which contributed to the catastrophic loss of life for Indigenous Californians. The growing population of settlers contributed to further loss of tribal lands and populations due to relocation and extermination policies promulgated by the state and federal governments.

The DEIS states that the "study area encompasses lands occupied by more than 40 distinct Native American cultural groups." (DEIS, Cultural Resources, p. 8-1). Appendix K provides the ethnographic context for 20 tribes whose traditional homelands are included in the study area. (DEIS, Appendix K, p. K-4). Some of the brief descriptions of those 20 tribes include the importance of local waterways to the tribe, its culture, and its traditions. (DEIS, Appendix K, pp. K-4–8). In most of the descriptions, many of the tribes are known to have lived near rivers or other bodies of water, therefore there are likely many village sites with cultural resources nearby that exist along the waterways that are and will be impacted by the CVP and SWP. *Id.* so many Native people within the study area, it is unrealistic that the project would not greatly impact cultural resources of those tribes. **The BOR must adopt an alternative that incorporates complete historical analysis to protect cultural resources that exist near any and all impacted waterways within the study area.**

2. The DEIS fails to consider all national policies regarding all types of cultural resources.

The DEIS claims that because there is no ground disturbance involved in the Action Alternatives, the potential impacts would come from inundations or exposure of buried archaeological historic properties in a way that would cause damage or destruction to those properties. (DEIS, Cultural Resources, p. 8-2).

Under the National Historic Preservation Act ("NHPA"),[48] the BOR must comply with Section 106 which includes,

> "…identifying consulting and interested parties, delineating and area of potential effects, identifying historic properties withing the area of potential effects, and assessing effects on any identified historic properties, and resolving adverse effects through consultations with the State Historic Preservation Officer, Indian tribes, and other consulting parties." (DEIS, Cultural Resources, p. 8-2).

As such, the BOR must conduct tribal consultation with the tribes within the study area and the tribes listed in Appendix J Table J-1, all of whom can be classified as interested parties.

There are several federal policies and memoranda that detail what is necessary for adequate government to government consultation between federal agencies and tribes.[49] The BOR must adhere to these policies, in addition to NHPA, in its development of the DEIS and should disclose whether that consultation with federally listed tribes has or has not occurred.

According to the DEIS, the No Action Alternative and condition changes due to climate change are predicted to result in more frequent shorter-duration, high-rainfall events and less snowpack in the winter and early spring. (DEIS, Cultural Resources, p. 8-2). Ultimately, the changing climate has the potential to decrease reservoir levels which could affect areas that were previously inundated. As a result, cultural resources may become exposed. *Id.* Despite the known potential impact to cultural resources, the DEIS states that there are "[n]o avoidance and minimization measures or mitigation measures" that have been identified for cultural resources. (DEIS, Cultural Resources, p. 8-3). With the knowledge that climate change has the potential to affect cultural resources in this manner, there should be mitigation measures proposed. However, there are none in the No Action Alternative or any of the action alternatives. The DEIS must use an alternative that incorporates mitigation measures for these irreplaceable resources that have the potential to be impacted.

The DEIS states that the No Action Alternative is not expected to affect historic properties. *Id.* Cultural resources are not only classified as "historic properties." In a 1993 study of Environmental Impact Statements and Environmental Assessments, when the documents defined

[48] National Historic Preservation Act, 36 CFR § 800.
[49] *See* Executive Order 13175, Consultation and Coordination with Indian Tribal Governments, 65 FR 67249 (Nov. 6, 2000); Presidential Memorandum on Tribal Consultation (Nov. 5, 2009); Memorandum on Tribal Consultation and Strengthening Nation-to-Nation Relationships (Jan. 26, 2021); Memorandum on Uniform Standards for Tribal Consultation (Nov. 30, 2022); Dept. of Interior, *Dept. Manual*, "Department of the Interior Policy on Consultation with Indian Tribes," 512 DM 4 (Nov. 30, 2022).

cultural resources directly or implicitly, it was found that a "cultural resources is generally understood to mean a piece of real or personal property that is eligible for consideration under another statute dealing with historic preservation, archaeology, or Native American graves" (King 1998).

In addition to NHPA which applies to historical properties, the Archaeological Resources Protection Act ("ARPA") prohibits the excavation, removal, or damage of archaeological resources on federal public lands of Native American tribal lands. (*See* Archaeological Resources Protection Act, 16 U.S.C. §§ 470aa *et seq.*). With the potential that cultural resources may be exposed by the change in reservoir levels or erosion, precautions and mitigation measures must be implemented to protect the cultural resources that are protected under ARPA.

The Native American Graves Protection and Repatriation Act ("NAGPRA") applies to "Native American cultural items" rather than specific locations and requires federal agencies to return any discovered items to the federally listed tribe that the items come from. (*See* Native American Graves Protection and Repatriation Act, 43 CFR § 10 *et seq.*). Similar to the discussion on ARPA there is the potential for cultural items protected under NAGPRA (human remains, funerary objects, sacred objects, objects of cultural patrimony) to be exposed with the continuation of operations or under the Proposed Alternative, there must be mitigation measures put in place to prevent violations of NAGPRA in future operations.

Lastly, the American Indian Religious Freedom Act ("AIRFA") states that the federal government must protect the inherent rights of Native American tribes to the free exercise of their traditional religions. (*See* American Indian Religious Freedom Act, 42 U.S.C. § 1996). AIRFA is an important policy to consider because traditional Native American religious and ceremonial practices are frequently tied to a location or an aspect of the environment, like a waterway, and are essentially place-based cultural resources. For example, the Yurok Tribe's creation stories include the Klamath River, and the river is an integral part of Yurok culture that includes use of canoes on the river to gather cultural food and materials, and travel for ceremonial purposes. *Id.* Protection of flows and clean water are a necessity for the Yurok people and their religion and must be protected as an inherent right. Additionally, the Hoopa and Karuk Tribe's culture and traditional stories emphasize the important and intimate relationship of the people, salmon, and the Klamath River. *Id.* AIRFA also requires BOR to consult with federally listed tribes when a proposed action might affect traditional religious practices (King 2000).

The DEIS discussion and analysis recognizes the potential for impacts to cultural resources, therefore, Reclamation must revise the DEIS to include mitigation measures to ensure protection and preservation of all cultural resources. The No Action Alternative and Proposed Action are currently insufficient because they fail to provide mitigation measures

for cultural resources. The BOR must prioritize an alternative that provides mitigation measures for impacts to cultural resources.

X. The Proposed Action has Unreasonable Impacts to Environmental Justice Communities and Exacerbates Public Health Issues.

The coordinated operations of the SWP and CVP have extensive and significant environmental impacts that are contributing to the degradation of ecosystems that communities otherwise rely on as a source of drinking water, nutrition, recreation and leisure among other uses. Since the previous update to the operations plan in 2019, beneficial uses of water for communities remain impaired. The DEIS fails to acknowledge significant impacts to environmental justice communities, worsening disparate impacts.

Reductions in freshwater flow have caused a cascade of ecological impacts in the Bay-Delta, including altered salinity levels, higher water temperatures, changes to water circulation patterns, increased concentration of pollutants, alteration of dissolved oxygen and other water quality parameters, disruption of fish migratory routes and nursery conditions, and habitat loss. Poorly managed releases from upstream dams and reduced inflows, coupled with diversions and export of water, also alter peak, base, and pulse flows to which aquatic species are adapted.

The changes to stream hydrology and water quality caused by reduced flows have caused fish populations to plummet. According to the State Water Board, the best available science demonstrates that current flow conditions, if not corrected, will result in permanent impairment to the Bay-Delta's native fish and wildlife populations as well as other public trust resources.

A. Reduced Freshwater Flows Impact Environmental Justice Communities in the Delta.

The DEIS fails to analyze the adverse effects of reduced freshwater flows on environmental justice communities in the Delta, including the potential for increase in reverse flows, worsening salinity, and changes to residence time, creating inadequate conditions for the river's ecosystems and subsistence fishing species that Delta communities rely on. In the "In the Your Delta, Your Voice" report prepared by DWR, 90 percent of Delta Environmental Justice respondents disclosed that they rely on Delta fish to feed their families on a nearly costless basis. (DWR 2021). The Delta is home to a large population of underrepresented and economically disadvantaged communities who traditionally rely on fisheries for cultural ceremonies, cultural preservation, consumption, sports, and leisure. The DEIS's "Potential Disproportionate Economic Effects on Minority or Low-Income Populations" does not evaluate public health impacts or the financial burden communities face from declining fish populations and reduced

subsistence fishing opportunities, nor does it attempt to quantify to what extent proposed alternatives would exacerbate already-existing hardships.

Coordinated project operations increase the presence of water contaminants. As explained earlier in these comments, the Bureau has not developed a plan through the Proposed Action that does not continue to violate water quality standards. Therefore, under the Proposed Action, there is an increased presence of contaminants, such as selenium, mercury, and cyanotoxins. In turn, this could lead to a number of human health impacts.

First, the increase of those contaminants could increase food web pathways to humans relying on subsistence fishing. Nitrogen, a key nutrient in the formation of HABs, could also contribute to the formation of methylmercury. The bioaccumulation of methylmercury in fish tissue derived from the consumption of contaminated lower trophic species could reduce spawning success and reduce fertility in fish and could also contribute to a variety of human health risks. As described earlier in comment Section III, the Proposed Action has the potential to worsen already devastating fishery conditions and thus threaten public health in communities that have limited access to healthcare. An increased threat from consuming contaminated fish has the potential of going undocumented because of the lack of resources. **The DEIS lacks an analysis of the potential impact to communities from increased bioaccumulation of toxins in fish, and we urge Reclamation to add this analysis in the revised and recirculated DEIS.**

B. Risk of Harmful Algal Blooms and Associated Economic Impacts Are Increased.

Additionally, under all four variants of the Proposed Action, the occurrence of Harmful Algal Blooms (HABs) will be more frequent and extensive, creating hazardous conditions and exacerbating air and water pollution in already-impacted communities. The World Health Organization considers cyanobacterial toxins to be “among the most toxic naturally occurring compounds.” (Chorus and Welker 2021). The DEIS recognizes the occurrence of HABs “throughout the southern and central Delta, including in Discovery Bay, at several locations along the San Joaquin River, and at locations along the Stockton waterfront.” However, there is no mention of how the Proposed Action would impact the existing public health issue of exposure to cyanotoxins by drinking, swimming, or bathing in affected waters, eating contaminated fish or shellfish, or inhaling aerosolized particles. As noted extensively in comment Section III and in other sections, the Proposed Action will reduce freshwater flows into the Delta, which would worsen conditions and these associated public health concerns. Steps necessary to mitigate, reduce, and eliminate HABs in the Delta must be integrated into the operations of the SWP and CVP.

Increased salinity and presence of HABs would increase water treatment cost and potentially impose water rate hikes to cover those rising costs. Increased water rate hikes would

disproportionately impact environmental justice ratepayers in communities affected by these adverse changes in local drinking and surface water quality.

Communities struggle with access to safe water and access to Delta waterway commons. The SWP and CVP have exploited Delta exports, and communities have been left with degraded water quality, worsening environmental and public health stressors that impair public access to waterways. Proposed operations must demonstrate methods to remedy the ecological conditions that result in disparate impacts that restrict environmental justice and tribal communities from utilizing public trust resources. In addition, agricultural labor in the Delta is impacted by changes to Delta water quality for irrigation. Worsening water quality directly harms crop production and variety, leading to reductions in the agricultural workforce, which is comprised of numerous environmental justice community members.

The DEIS fails to properly evaluate worsening salinity, HABs proliferation, and other water quality conditions, and does not recognize the potential impacts to public health and economic impacts to environmental justice communities. Proposed alternatives resulting in the degradation of water quality, which is every Alternative other than Alternative 3, are not lawful under the federal Clean Water Act, the state Porter-Cologne Water Quality Control Act, and State Water Board Resolution 68-16.

C. Justice 40 Criteria Are Not Addressed

In April, 2023, President Biden signed Executive Order 14096 to expand the nation's commitment to environmental justice, broadening the scope of his earlier signed Executive Order 14008 in regard to tackling the climate crisis. In regard to its climate change analysis and lack of Justice 40 criteria examination, the DEIS fails to meet the requirements of the Justice 40 initiative.

The overall goal of Justice 40 is that 40 percent of the overall benefits of certain Federal climate, clean energy, affordable and sustainable housing, and other investments flow to disadvantaged communities that are marginalized by underinvestment and overburdened by pollution. A Justice 40 covered program is defined as a "Federal government program that falls in the scope of the Justice40 Initiative because it includes investments that can benefit disadvantaged communities across one or more of the following seven areas: climate change, clean energy and energy efficiency, clean transit, affordable and sustainable housing, training and workforce development, remediation and reduction of legacy pollution, and the development of critical clean water and wastewater infrastructure."
https://www.whitehouse.gov/environmentaljustice/justice40/

Specifically, BOR has listed that Watershed Projects fall under Justice 40 guidelines and lists five other program areas that dovetail with proposed operations of the CVP. These additional program areas include Authorized Rural Water Projects; IRA - Domestic Water Supply Projects; Native American Affairs Program; Other Water Infrastructure Activities; Tribal Water Rights

Settlements; and WaterSMART. Additionally, Justice 40 specifically calls for agencies to conduct abundant outreach using the Climate and Economic Justice tool to disadvantaged and impacted communities to participate in and evaluate covered projects. To date, no such abundant outreach has been conducted by BOR regarding long term operations of the CVP.
The DEIS ignores any discussion of coordinated CVP operations as a Watershed Project and only Alternative 3 reduces GHG emissions. Instead, BOR has chosen a preferred alternative that fails to meet the criteria of Executive Order 14008. The DEIS also fails to delineate how 40 percent of the benefits of the Long Term Operations Plan assist impacted tribes and environmental justice communities located in the Bay-Delta watershed and tributaries. Almost all environmental and economic benefits from the LTO are directed away from these communities, yet declining fisheries, the proliferation of harmful algal blooms, and degraded water quality will all worsen within the watershed with implementation of Alternative 2.

For all these reasons, the DEIS's evaluation of impacts to environmental justice communities is inadequate and must be revised in the updated recirculated document.

XI. The DEIS's Analysis Cannot Include Potential New Infrastructure that is Speculative and Not Reasonably Certain to Occur.

As we noted in scoping comments submitted in 2022, the DEIS should not include potential new infrastructure that is speculative and not reasonably certain to occur.[50] Here, this specifically applies to the Delta Conveyance Project and the proposed Sites Reservoir, due to their operational complexity and inadequate temporal scope of this ESA section 7 consultation. Unfortunately, the DEIS includes both of these proposed projects and applies a "programmatic" approach. (DEIS, Chapter 3, p. 3-59.) This is beyond the mandatory NEPA inclusion in the cumulative impacts analysis. (*e.g.,* DEIS, Appendix Z). Just like with the inclusion of the VAs, the DEIS is therefore legally deficient due to the inclusion of these projects.

Additionally, the DEIS fails to consider the cumulative impacts of such projects on the listed species or their habitat, in violation of NEPA. (40 C.F.R. § 1502.16(a); 1501.3(d)(2)(vi) ("Agencies shall analyze the intensity of effects considering . . . The degree to which the action may adversely affect an endangered or threatened species or its habitat, including habitat that has been determined to be critical under the Endangered Species Act of 1973.)

Nothing in these comments in any way waives any of our organizations' rights to comment on the Delta Conveyance Project in any other forum.

[50] Both of these projects require a substantial increase in funding, are still in the midst of environmental review and will face legal challenges – rendering the prospect of these projects speculative and inappropriate to include in DEIS analysis beyond the cumulative impacts analysis.

Reclamation should limit the inclusion of the Delta Conveyance Project and Sites to the cumulative impacts analysis in the revised and recirculated DEIS.

XII. The DEIS Suffers from Additional Important Defects.

A. The DEIS Generally Fails to Meet the Intent of the New NEPA Rules Published July 1, 2024.

While we have appreciated the opportunity to engage in the reconsultation process, we want to note that this document was particularly complex, long and challenging to review, especially within a short time frame. With over 400 pages of the DEIS, almost 19,000 pages of related Appendices and Attachments, "informed" review was close to impossible to achieve for most stakeholders.

Additionally, this document was also challenging on a most basic level to analyze due to a lack of fundamental analytical conclusions. NEPA regulations state,

> "Agencies shall write environmental impact statements in *plain language* and should use, as relevant, *appropriate visual aids or charts so that decision makers and the public can readily understand such statements*. Agencies should employ writers of *clear prose* or editors to write, review, or edit statements, which shall be based upon the analysis and supporting data from the natural and social sciences and the environmental design arts." (40 C.F.R. § 1502.7) (emphasis added).

As detailed more in Section III of these comments and in other sections, there was a lack of clarity, direct comparative analysis and conclusion about actual impacts of the Proposed Action and other alternatives on the Bay-Delta Estuary, Cultural Resources, Environmental Justice communities and more. We do not believe the intent of this NEPA regulation was met here and encourage Reclamation to revise and recirculate the DEIS accordingly.

B. Water year "Bin" types Should Not be Used to Compare Between Alternatives.

In order to evaluate Delta hydrodynamics, nine inflow combinations of high, medium, and low NAA Delta inflows were created ("inflow bins") as well as OMR intervals ("OMR bins"), described in Attachment I.3. These bins are used to compare the alternatives in numerous places (e.g., DEIS pp. 12-53 through 12-56). We are concerned that these bins are not weighted for frequency, and therefore impacts within each bin cannot be compared between alternatives. For example, one alternative may have a different proportion of months in a bin than another alternative. Table I.3-5 shows up to 30 percent of the OMR data were excluded for this analysis.

In a revised and recirculated DEIS, the Bureau should scrap the OMR and "hi-lo" bin comparisons and compare outcomes of Alternatives by water year-types or some other categorization that is not affected by the Alternatives themselves.

C. Consideration of Mitigating Impacts to the Trinity River are Improperly Excluded.

The DEIS fails to include any mitigation measures to protect state and federally threatened Coho Salmon or the vitally important commercial, recreational and tribal species fall- and spring-run Chinook in the Trinity River. Instead, the DEIS defers action on the Trinity River until completion of a subsequent Biological Assessment (BA), Biological Opinion (BO) and possible Supplemental EIS (SEIS) for the Trinity River (DEIS at 0-52).[51] Inadequate temperature requirements, inadequate Trinity Lake carryover storage, and the impact from the Voluntary Agreements on Trinity Lake coldwater storage are all issues that require immediate mitigation in this DEIS, and should not be deferred to a later date.

1. Existing temperature problems for Trinity River salmon.

The problem with the approach in the DEIS is that current operational conditions and targets for the Trinity River already impact Coho Salmon and Chinook Salmon in the Trinity River and are included in most alternatives. The 56°F North Coast Basin Plan temperature objective for the Trinity River (https://www.waterboards.ca.gov/northcoast/water_issues/programs/basin_plan/180710/BPChapter3WaterQualityObjectives.pdf), along with the 56°F temperature requirement in Water Right Order 90-5 is outdated, not based in the best available science, and is inadequate to prevent high levels of Temperature Dependent Mortality (TDM) for salmon eggs. As described above, the best available science recognizes that Chinook Salmon incubating eggs require temperatures no greater than 53.5°F (Martin et al. 2016, 2020). Coho Salmon require weekly mean incubation temperatures no greater than 50°F and 7-day average of daily *maxima* no greater than 55.4ºF (Richter and Kolmes 2005). In 2021, a significant portion of Coho Salmon eggs at the Trinity

[51] "*The alternatives in this EIS, including the No Action Alternative, incorporate the continued implementation of the 2000 Trinity River Mainstem Fishery Record of Decision (2000 Trinity ROD) and the 2017 Long-Term Plan to Protect Adult Salmon in the Lower Klamath River Record of Decision. Changes or impacts described for resources associated with the Trinity Reservoir levels and Trinity River flows have been previously analyzed under the environmental compliance that led to those two Records of Decision.*

Reclamation is separately and concurrently coordinating with the Hoopa Valley Tribe and the Yurok Tribe as joint leads (40 CFR part 1501) on Trinity River-specific considerations to develop potential Trinity River-specific alternatives for an updated operation for releases to the Trinity River and diversions from the Trinity River Basin to the Central Valley. Reclamation also is developing a biological assessment for listed species that are specific to the Trinity River Division and plans to request formal consultation with the appropriate federal resource agencies. Reclamation expects to update the analysis presented in this document to reflect changes in Trinity River Division operations if there are different impacts as a result of decision on the Trinity River Division."

River hatchery were impacted by temperatures well below 56°F, but greater than 50°F (Figure 4).

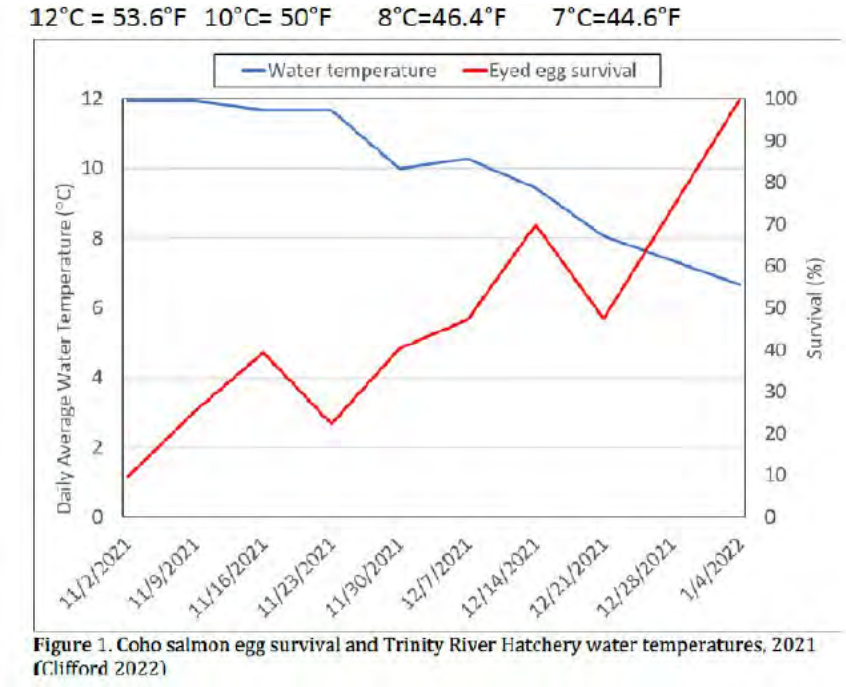

Figure 1. Coho salmon egg survival and Trinity River Hatchery water temperatures, 2021 (Clifford 2022)

Figure 4: Coho Salmon egg survival and Trinity River hatchery water temperatures, 2021 (Clifford 2022). Copied from Memorandum to SWRCB, From: Justin Ly, April 27, 2022, re: Comments on Reclamation's draft Sac River Temperature Management Plan. Accessed at: https://ftp.waterboards.ca.gov/Hearing%20Documents%2FParties'%20Hearings%20Exhibits%2FPacific%20Coast%20Federation%20of%20Fisherman%20Association%20Exhibit%2FPCFFA-50%20Justin%20Ly%20to%20SWRCB%202022.pdf

Also, the Bureau does not recognize the summer 60°F North Coast Basin Plan temperature objective to protect migrating and holding state-threatened Spring Chinook as a requirement.[52] According to the SWRCB[53], the 56°F temperature requirement for the Trinity River only applies when BOR is actively diverting water from the Trinity River for temperature control on the

[52] *See* 2/23/11 letter from Paul Fujitani, Chief of CVP Ops to Brian Person, Chairman Trinity Management Council. Accessed at: https://www.waterboards.ca.gov/waterrights/water_issues/programs/bay_delta/california_waterfix/exhibits/docs/PCFFA&IGFR/part2/pcffa_114.pdf

[53] *See* SWRCB's October 23, 2023, response to complaint by Michael Palmer. Accessed at: https://ftp.waterboards.ca.gov/Hearing%20Documents%2FParties'%20Hearings%20Exhibits%2FPacific%20Coast%20Federation%20of%20Fisherman%20Association%20Exhibit%2FPCFFA-49%20SWRCB%20to%20Palmer%20Ltr%202023.10.23_TrinityExceedancesResponse%5B74%5D.pdf

Sacramento River. Therefore, when the Bureau is not actively diverting water to the Sacramento River for temperature control, but for other purposes such as water supply, hydropower or Delta water quality, there are *no* temperature protections for the Trinity River whatsoever.

2. Inadequate coldwater carryover storage in Trinity Lake.

The NMFS 2000 Biological Opinion[54] for the Trinity River, includes a minimum carryover storage in Trinity Reservoir on September 30 of 600,000 AF and requires reconsultation if storage falls below that level. However, numerous other analyses have found that a 600,000 AF minimum carryover storage is itself inadequate. A 2012 report by Reclamation found that September 30 carryover storage requirement of less than 750,000 AF is "problematic" in meeting state and federal Trinity River temperature objectives protective of the fishery.[55]

In 1992 Balance Hydrologics found that a minimum carryover storage of 900,000 AF was necessary to meet Basin Plan temperature objectives.[56]

Analyses completed for Trinity County for the Trinity Record of Decision by Kamman Hydrologics indicated that September 30 Trinity Reservoir carryover storage of at least 1.2 million AF on September 30 is necessary to meet Basin Plan temperature objectives at the beginning of a simulated 1928-1934 drought.[57] During the recent drought, Trinity Reservoir storage fell well below levels necessary to maintain temperatures during a historic multi-year drought such as 1928-1934.

Furthermore, BOR's Mid-Pacific office also produced a preliminary technical memorandum on the problem of excessive heating of Trinity Dam water releases[58] when they pass through the shallow 7-mile-long Lewiston Reservoir. While Trinity Dam releases are often 43°- 44°F, summer heating in Lewiston Reservoir can be severe unless approximately 1,300- 1,800 cfs is being released from Trinity Dam. Given that Trinity River summer base flows are only 450 cfs,

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[54] National Marine Fisheries Service (2000), Biological Opinion for the Trinity River Record of Decision, accessed at: https://www.trrp.net/library/document/?id=1240

[55] See Bender MD (2012) Trinity Reservoir Carryover Storage Cold Water Pool Sensitivity Analysis. Technical Memorandum No. 86-68220-12-06, U.S. Bureau of Reclamation, Technical Service Center, Denver, CO. Accessed at: http://odp.trrp.net/Data/Documents/Details.aspx?document=1813

[56] See Balance Hydrologics (6/26/1992) "The Need for Standards for Minimum Carryover Storage in Trinity Reservoir" Accessed at:https://www.waterboards.ca.gov/waterrights/water_issues/programs/bay_delta/california_waterfix/exhibits/docs/PCFFA&IGFR/part2/pcffa_116.pdf

[57] Memorandum from Greg Kamman to Tom Stokely and Mike Deas on Carryover Storage Analysis Simulated (1928-34) Period, 5/22/1998. Accessed at: https://www.waterboards.ca.gov/waterrights/water_issues/programs/bay_delta/california_waterfix/exhibits/docs/PCFFA&IGFR/part2/pcffa_117.pdf

[58] See USBR (2012) Lewiston Temperature Management Intermediate Technical Memorandum, Lewiston Reservoir, Trinity County, California. Report by U. S. Bureau of Reclamation, Mid-Pacific Region, Sacramento, CA. accessed at http://odp.trrp.net/Data/Documents/Details.aspx?document=1814

water must be diverted to the Sacramento River to keep the Trinity River cold enough to meet Basin Plan temperature objectives. However, during severe drought or under certain operational circumstances, there may not be adequate water to provide base fishery flows and to divert water to the Sacramento River to keep the Trinity River cold. Several structural solutions have been identified in Reclamation's preliminary technical memorandum; however, a full feasibility study and environmental document would need to be prepared to select a solution and no such plans exist at this time.

Full temperature protection through a water right hearing for the Trinity River was promised in SWRCB Water Quality Order 89-1859 and WRO 90-5.60 That promise has yet to be fulfilled over 30 years later, and the Trinity River's salmon remain at high risk of TDM. Mitigation is required.

3. The Voluntary Agreements negatively impact Trinity Lake coldwater storage.

The Proposed Action includes the proposed Voluntary Agreements (VAs). The DEIS does not disclose that the VAs adversely impact storage at Trinity Lake. This is a new negative of CVP operations that can only be mitigated through new mitigation measure included as part of the Biological Opinion, not deferred to a later date for an as-yet undefined process.

The impact on Trinity coldwater storage from the VAs can be found in SWRCB 2023 Appendix G3a, figures G3a-72 and G3a-73 on page G3a-8061 as copied below.

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[59] WQO 89-18, p. 17: "*Finding: The State Board should conduct water right proceedings to consider whether the Bureau's permits should be modified to establish temperature limitations or other conditions to assure adequate water quality for protection of the fishery in the Trinity River.* Accessed at: https://www.waterboards.ca.gov/board_decisions/adopted_orders/water_quality/1989/wq1989_18.pdf
We direct the Division of Water Rights to initiate proceedings to consider whether the Bureau's permits should be modified to set conditions relating to temperatures in the Trinity River."

[60] WRO 90-5, p 31: "*We have already announced our intention to conduct a water right proceeding to consider whether the Bureau's Trinity River water rights should be modified to establish temperature limitations and other controls on water quality to protect the fishery in the Trinity River. See Order No. WQ 89-18*." Accessed at: https://www.waterboards.ca.gov/waterrights/board_decisions/adopted_orders/orders/1990/wro90-05.pdf

[61] See SWRCB Appendix G3a "Sacramento Water Allocation Model Methods and Results for Proposed Voluntary Agreements." Accessed at: https://www.waterboards.ca.gov/waterrights/water_issues/programs/bay_delta/docs/2023/staff-report/app-g3a.pdf

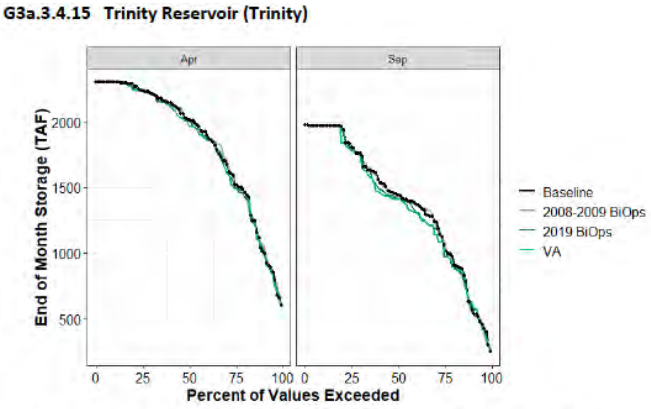

Figure G3a-72. Trinity Reservoir End of April and End of September Storage (TAF) Percent Exceedance Plot

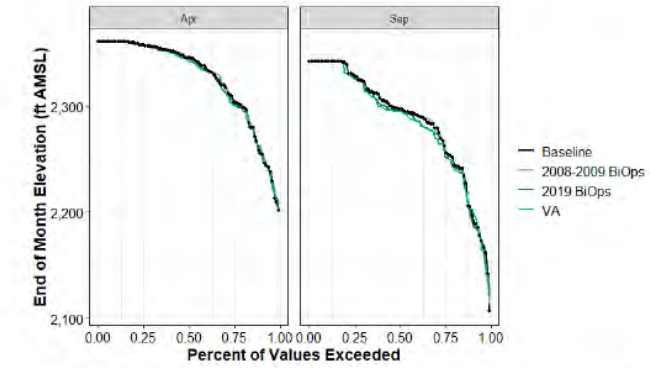

Figure G3a-73. Trinity Reservoir End of April and End of September Elevation (ft AMSL) Percent Exceedance Plot

This impact is significant because coldwater storage in Trinity Lake is already impaired due to excessive water deliveries and climate change. **Mitigation for the Proposed Project's temperature impacts on Trinity Lake is required until completion of the separate Trinity River BA, BO and SEIS**.

4. Interim mitigation measure to prevent harm to Trinity River salmon prior to completion of a separate Trinity BA, BO and SEIS.

As discussed above, Trinity River Coho Salmon, spring-run Chinook Salmon and fall-run Chinook Salmon are at high risk from TDM. A significant proportion of Trinity River Hatchery eyed eggs perished in 2021, despite compliance with the (inadequate and outdated) 56°F requirement in WRO 90-5. Trinity River fall-run Chinook Salmon and spring-run Chinook Salmon eggs will perish even given full compliance with the 56°F requirement of WRO 90-5 and North Coast Basin Plan temperature objectives. The Trinity Lake carryover storage requirement in the 2000 NMFS Biological Opinion for the Trinity River is grossly inadequate, even according to BOR's own scientists. The VAs will further deplete Trinity Lake

carryover storage and coldwater by diversion to the Sacramento River basin to meet Bay-Delta water quality requirements.

Therefore, interim mitigation measures/Reasonable and Prudent Measures to protect the Trinity River should be incorporated into all alternatives until superseded by a subsequent Trinity BA, BO and SEIS, as follows:

1. Trinity Lake carryover storage should never be allowed to go below 750,000 AF at the end of September.
2. The Bureau should be required to operate to meet a 60°F North Coast Basin Plan temperature objective at Douglas City from July 1 to September 15.
3. The Bureau should be required to operate to meet a 53.5°F temperature requirement at Douglas City from September 15 until October 1.
4. The Bureau should be required to operate to meet a 53.5°F temperature requirement at the North Fork confluence from October 1 through October 30.
5. The Bureau should be required to operate to meet a 50°F temperature requirement at Lewiston Dam November 1 through December 31 to protect threatened Coho Salmon.
6. The Bureau shall provide enough egg chillers at the Trinity River Hatchery to keep all Chinook Salmon and Coho Salmon eggs alive in the event temperatures in items 3-5 above cannot be met.
7. The Bureau shall bypass the Trinity Dam Powerplant as necessary to meet the temperatures in items 3-5 above.
8. The Bureau shall petition the SWRCB to request a hearing to provide full temperature protection for the Trinity River in their state water permits, as promised by the SWRCB in Water Quality Order 89-18 and Water Right Order 90-5. The Bureau shall pay all costs of such water right hearing.

XIII. Conclusion.

Reclamation must revise and recirculate the DEIS. NEPA Regulations require, "If the agency determines that a draft statement is so inadequate as to preclude meaningful analysis, the agency shall prepare and publish a supplemental draft of the appropriate portion." 40 C.F.R. § 1502.9(b).

First, in addition to the deficiencies listed in the opening summary and discussed in detail above, the DEIS is missing critical information, including, but not limited to:

- Failure to identify or analyze all potential combinations of Alternative 2 which includes TUCPs and all VAs.
- Failure to use the NMFS Winter-run Lifecycle Model to assess likely effects on the listed species from the Proposed Action.
- Failure to use the proper temperature thresholds for assessing Proposed Action impacts to various salmonid life stages.

- Failure to disclose the impact of high river temperatures on the winter-run juvenile production impact.
- Failure to disclose the precarious state of the listed species, including the Bay's White Sturgeon population (which recently gained CESA protection as a "candidate" for listing), and that the status quo for these species is decline, not stasis. Thus, the DEIS fails to disclose that outcomes from any alternative that are not significantly different from the NAA represents an impact that is not consistent with ESA requirements.

Proper inclusion of these important elements and others listed in our comments will qualify as a "substantial change" to the Proposed Action and therefore require revision and recirculation to all Interested Parties and the public in order "to allow outside reviewers to give meaningful consideration to the environmental issues involved." (*State of California v. Block,* 690 F.2d 753, 770 (9th Cir. 1982; *see also Marsh v. Oregon Natural Resources Council,* 490 U.S. 360, 372 (1989); *Friends of the Clearwater v. Dombeck,* 222 F.3d 552, 557-558 (9th Cir. 2000).)

Additionally, it is also quite likely the Voluntary Agreements in their current form may not be finalized, let alone be implemented. But more certain and importantly, the update to the State Water Board's Bay-Delta Water Quality Control Plan will be finalized within the next year. This would qualify as "substantial new circumstances or information about the significance of adverse effects that bear on the analysis." This would also legally trigger revision and recirculation of the DEIS under NEPA.

As we stated in our scoping comments,

> "The question in this section 7 consultation is not whether a new operations plan is as protective of listed species as water operations under the environmental baseline, but rather whether, ***based on the best scientific and commercial information available, and in light of baseline conditions (including climate change), proposed Water Project operations will jeopardize the continued existence of the species or destroy or adversely modify its critical habitat***. *See Nat'l Wildlife Fed'n v. Nat'l Marine Fisheries Serv.*, 524 F.3d 917, 926 (9th Cir. 2008). In fact, courts have previously held that even stating that protections will increase as compared to the status quo is not sufficient to demonstrate that the action will not jeopardize listed species without more analysis and explanation, because even under increased protections an action can jeopardize a species that has severely declined. *See, e.g., Aluminum Co. of Am. v. Adm'r, Bonneville Power Admin.*, 175 F.3d 1156, 1162 n.6 (9th Cir. 1999) (given imperiled status of the species, minor improvements in survival compared to prior operations may be insufficient to avoid jeopardy); *Turtle Island Restoration Network v. U.S. Dep't of Commerce*, 878 F.3d 725, 737 (9th Cir. 2017) (even small additional harms can jeopardize the species when population is declining under baseline conditions); *S. Yuba River Citizens League v. Nat'l Marine Fisheries Serv.*, 723 F.Supp.2d 1247, 1267 (E.D. Cal. 2010) ("[A]lthough the

> BiOp properly concludes that the project … will partially reduce the impact of prior stressors, this is itself insufficient."); *Nat. Res. Def. Council v. Kempthorne*, 506 F.Supp.2d 322, 371–72 (E.D. Cal. 2007). Rather than simply performing comparative modeling in this consultation, life cycle models and/or other analyses should be used to demonstrate ***whether alternatives would achieve positive population growth of ESA-listed species sufficient to avoid jeopardizing the continued existence and recovery of the species***." (emphasis added).

The DEIS's own analysis demonstrates that all the alternatives, except Alternative 3, are insufficient to avoid jeopardizing the continued existence and recovery of listed species. This does not satisfy requirements under NEPA or the ESA. The DEIS also does not satisfy other federal policy requirements such as Justice 40, climate analysis requirements promulgated by the Council on Environmental Quality and the federal government's duties to protect tribal trust resources. Therefore, it must be revised and recirculated to include the correct and new information noted in our comments.

We look forward to continuing to engage in the reconsultation process. Thank you for consideration of our views.

Sincerely,

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Friends of the River

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San Francisco Baykeeper

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Chris Shutes
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Kori Cordero, Tribal Advisor, USEPA Region IX
Karla Nemeth, Executive Director, California Department of Water Resources
Charlton Bonham, Executive Director, California Department of Fish and Wildlife
Gary Bobker, Keiko Mertz, Friends of the River
Ashley Overhouse, Defenders of Wildlife

Attachments:

1. NGO LTO Draft Proposed Action Comment Letter Part 1 – July 2023
2. NGO LTO Draft Proposed Action Comment Letter Part 2 – August 2023
3. NGO Bay Delta Plan Phase II Draft Staff Report Comments – January 2024
4. NGO SWP LTO DEIR Comment Letter – July 2024
5. Voluntary Agreement Timeline Fact Sheet – July 2024
6. Defenders et al. Letter to Agencies on ITL Exceedance – April 2024
7. Defenders Letter to Agencies Refuge Water Deliveries – April 2023
8. NRDC et al. BOR LTO Scoping Comment Letter – March 2022

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August 5, 2024

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Submittal by email

RE: Comments on the Draft Environmental Impact Report for Operations of the State Water Project

Dear Mr. Wilkinson,

This letter is submitted as the comments of San Francisco Baykeeper, Friends of the River, Golden State Salmon Association, California Sportfishing Protection Alliance, and Restore the Delta on the Department of Water Resources ("DWR") May 2024 Draft Environmental Impact Report ("DEIR") regarding Operations of the State Water Project ("SWP"). Unfortunately, as discussed in detail on the pages that follow, the DEIR fails to comply with requirements of the California Environmental Quality Act ("CEQA"), and recirculation of a revised DEIR is required to comply with CEQA. In particular, the DEIR:

- Fails to provide an accurate and consistent project description;
- Fails to consider a reasonable range of alternatives;
- Fails to adequately analyze the effects of implementing the addendum to the Coordinated Operating Agreement, notwithstanding DWR's Notice of Preparation;
- Fails to adequately disclose likely environmental impacts during droughts, including by failing to consider the effects of climate change;
- Fails to consider the whole of the action under CEQA, because it fails to analyze the effects of coordinated operations of the SWP and CVP upstream of the Delta;
- Fails to adequately analyze environmental impacts and fails to disclose the significant adverse impacts of the Proposed Project; and
- Fails to adequately consider cumulative impacts.

DWR must substantially revise the DEIR to comply with CEQA, and DWR must recirculate the revised DEIR for public comment. *See* Cal. Code Regs., tit. 14, §§ 15088.5(a)(1)-(3), 15090.

Finally, DWR's preferred alternative in the DEIR plainly would jeopardize the continued existence of species listed under the California Endangered Species Act ("CESA"), in violation of CESA's requirements. As we noted in CEQA comments on the existing ITP, the changes in SWP operations authorized in 2020 are expected to exacerbate the problems that led to CESA listing of four fish species that are native to the San Francisco Bay Delta estuary ("estuary") and its watershed[1]. Those project impacts were not fully mitigated, as required under CESA. In many ways, DWR's new preferred alternative for SWP operations makes those problems worse and is likely to increase the risk of extinction for five native Delta fish species that are protected under CESA[2]. The baseline for the Proposed Project is measurably worse for imperiled fish species than the conditions that preceded the 2020 update. The DEIR's baseline conditions are expected to produce declines in imperiled species, and conditions under the preferred project are projected to be worse for these species than the baseline. Indeed, the DEIR's baseline includes the 2019 biological opinions authorized by the Trump administration (2019 BiOps), despite the fact that the state successfully challenged the 2019 BiOps in court as inadequate to protect endangered species. The DEIR is wholly inadequate for use by DFW in its consideration of an incidental take permit under CESA.

These issues are discussed in further detail on the pages that follow.

1 Our January 6, 2020 comment letter is available at the link provided below and incorporated by reference.
2 In 2020, four CESA listed fish species were negatively affected by the change in SWP operations: winter-run Chinook Salmon, spring-run Chinook Salmon, Delta Smelt, and Longfin Smelt. On June 19, 2024, the California Fish and Game Commission voted unanimously to make California White Sturgeon, which spawn only in the estuary's watershed, a candidate for CESA listing CESA candidate species enjoy full protection under CESA until the California Department of Fish and Wildlife completes a status review. (https://wildlife.ca.gov/News/Archive/fish-and-game-commission-approves-white-sturgeon-as-a-candidate-species-for-listing-as-threatened#:~:text=2022%2D2024%20News%20Releases&text=The%20California%20Fish%20and%20Game,that%20listing%20may%20be%20warranted).

I. The DEIR Violates CEQA Because it Fails to Provide an Accurate and Stable Project Description.

The DEIR violates CEQA because it fails to provide an accurate and stable description of the project. First, DWR's project description excludes a critical component of SWP operations, Oroville Reservoir operations and immediate downstream impacts to the Feather River. Second, the DEIR violates CEQA because the DEIR incorporates the proposed Voluntary Agreements ("VA" or "VAs"), which are not reasonably certain to occur, rendering the project unstable, and as a result the DEIR is fundamentally misleading and does not accurately assess potential environmental impacts from the project.[3]

It is black letter law that, "[a]n accurate, stable and finite project description is the sine qua non of an informative and legally sufficient EIR." *County of Inyo v. City of Los Angeles,* 71 Cal. App. 3d 185, 193 (1977). CEQA requires that a DEIR identify a preferred alternative. *Washoe Meadows Community v. Department of Parks and Recreation*, 17 Cal.App.5th 277, 285-87 (2017). That preferred alternative must give a clear explanation of the nature and scope of the Proposed Project, otherwise it "is fundamentally inadequate and misleading." *See Communities for a Better Environment v. City of Richmond*, 184 Cal.App.4th 70, 84-85 (2010).

DWR has violated these requirements here.

A. Exclusion of Upstream Operations

First, DWR's Proposed Project in the DEIR erroneously excludes upstream operations of Oroville reservoir and related facilities. DEIR at pp. 2-17 at Table 2-3 and 2-18, 3-17, and 3-18. Therefore, the Proposed Project description is not accurate as required by CEQA. The DEIR goes as far as to admit that Oroville operations are critical to project operations, describing the connection between upstream operations, Delta conditions and SWP exports,

> "The principal facilities of the SWP are Oroville Reservoir and related facilities, and San Luis Dam and related facilities, facilities in the Delta, the Suisun Marsh Salinity Control Gates (SMSCG), the California Aqueduct including its terminal reservoirs, and the North and South Bay Aqueducts…. Water stored in the Oroville facilities, along with water available in the Delta (consistent with applicable regulations) is captured in the Delta and conveyed through several facilities to SWP contractors. *As such, changes to SWP operations at these facilities may result in changes to surface water hydrology in the lower Sacramento River, downstream from the Feather River confluence, the Delta and Suisun Bay, and exports from the Delta to south-of-Delta SWP water users*."

DEIR at 4-1 (emphasis added).

[3] Please note that while some of the documents in the LTO process adopt the new, misleading branding for the Voluntary Agreements, "the Healthy Rivers and Landscapes [HRL]", we will continue to refer to this critical element of operations under the federal Proposed Action and state Proposed Project as the "Voluntary Agreements" (VA or VAs) for ease of reading, consistency and transparency for all involved parties.

A court compared this requirement to similar provisions in the National Environmental Policy Act (NEPA), recognizing "that an accurate description of the project is necessary in order to decide what kind of environmental impact statement need be prepared [internal citations omitted]." *County of Inyo v. City of Los Angeles*, 71 Cal.App.3d 185, 192 (1977). There has never been a CEQA analysis of the SWP's water supply operations for Oroville Dam and the Feather River, and there is none in the DEIR at issue here. There is no baseline analysis in for this operation. There is no quantification of the operation. There is no analysis of how this operation has changed or could reasonably be expected to change in the future. Thus, the DEIR does not have an accurate project description.

As a result, the DEIR also cannot disclose the environmental impacts of changes to the water supply operations of Oroville Reservoir and changes to the Feather River downstream of Oroville Dam. CEQA requires that the DEIR analyze the effects of the whole project on the environment. *See* CEQA Guidelines § 15378 (definition of "project" means "the whole of an action"). The definition of a project is broadly construed in order to maximize protection of the environment. *Nelson v. County of Kern*, 190 Cal.App.4th 252, 271 (2010). Additionally, the entire project being proposed must be described in the EIR, and the project description must not minimize project impacts. *City of Santee v. County of San Diego*, 214 CA3d 1438, 1450 (1989). Without inclusion of upstream operations, the DEIR also violates CEQA because it fails to analyze the whole of the action.

The DEIR must be revised to provide an accurate, consistent and stable project description that is the project that DWR intends to implement, and thereafter recirculated for public comment.

B. Incorporation and Improper Reliance on Voluntary Agreements

Moreover, the DEIR violates CEQA because its description of the project is inaccurate and potentially unstable due to its incorporation of the Voluntary Agreements.

1. The Voluntary Agreements are not reasonably certain to occur.

The Voluntary Agreements are not reasonably certain to occur. *See, e.g., Nat'l Wildlife Fed'n, v. Nat'l Marine Fisheries Serv.*, 524 F.3d 917, 936 & n.17 (9th Cir. 2008).[4] The VA proposal has been in development for more than a decade and proponents have still not produced a complete proposal as of July 2024. *See* Voluntary Agreement Timeline, Attachment 4. Given this track record, there is no reason to assume that the VA effort will ever actually produce a complete package. Missing elements include, but are not limited to, a final Funding Agreement, enforcement agreements, and technical details such as "which reservoirs may be reoperated,

[4] For purposes of interpreting statutory intent, the federal Endangered Species Act can be used to compare for CESA. *San Bernardino Valley Audubon Society v. City of Moreno Valley* (App. 4 Dist. 1996) 44 Cal.App.4th 593.

which fields will be fallowed, when reservoirs can refill, and when groundwater substitution will occur, have not been fully specified." *See* SWRCB Draft Staff Report at p. G3a-1.

Further, it is not certain that the State Water Board will approve the VA proposal. The proposed Bay-Delta VA is more complicated than any previous "block of water" effort anywhere in the nation. The *Building Blocks* white paper (accessible in the link we provide below) documents significant challenges that have faced 18 other efforts to create environmental blocks of water – most of which are located in California.[5] The problems faced by previous environmental blocks of water included a failure to purchase anticipated environmental water, accounting issues related to the program's environmental baseline, unanticipated impacts caused by changes in project operations and more. Here, the Bay-Delta VA proposal is broader in geographic scope, broader in terms of the species and beneficial uses it would address, and broader in terms of the complexity of the water management systems involved. All of these problems make the anticipated VA environmental flows even less likely to occur.

The VA proposal also contains numerous additional flaws that reduce the likelihood of anticipated environmental flows:

- The VA accounting proposal clearly allows future increases in demand, or the development of new storage or conveyance facilities, to reduce environmental water over time. This problem is exacerbated by the fact that the VAs would provide no protection for current environmental flows that are greater than current regulatory minimums. Future water diversions could capture these unregulated flows, effectively reducing environmental flows and harming listed species.
- Given the current focus on wet season diversions to recharge groundwater basins, this flaw in the VA accounting proposal could allow anticipated environmental water to be reduced significantly during the term of the final Incidental Take Statement.
- The flows promised in the American River VA could be provided in as few as 3 of the 8 years of the VA's initial term. In no case would VA environmental flows be provided in more than 6 of the 8 years.
- The Proposed Project does not exclude the use of Temporary Urgency Change Petitions ("TUCPs") and Temporary Urgency Change Orders during future droughts. The VA proposal contemplates continued use of TUCPs. Approval of these TUCPs have allowed State Water Board flow requirements to be waived. This is particularly important, given the impacts on Delta Smelt and other listed species during droughts. TUCPs in the future would reduce environmental flows to a level below that assumed in the Proposed Project. As a result, the total environmental flows in the VA package, including existing regulatory flow requirements, are unlikely to occur.

[5] *Building Blocks – Tools and Lessons for Designing a Block of Water for the Environment*. Barry Nelson, Defenders of Wildlife. June 2022.

- The VA proposal has no adequate enforcement mechanism, in the likely event that it fails to produce anticipated environmental water. For example, the VAs do not require annual, much less real-time or seasonal, accounting of flows – so there is no way to ensure that the pledged water arrives as promised or when it is needed by imperiled fish and wildlife.
- Finally, it is important to note that VA proposal is currently undergoing legal review. A Civil Rights Petition was filed by a coalition of Tribal and Environmental Justice organizations on December 16, 2022, and is currently pending before the U.S. Environmental Protection Agency.[6] The Petition articulates several legal issues with the VAs. Additionally, "[t]he Legislature finds and declares that California Native American tribes traditionally and culturally affiliated with a geographic area may have expertise concerning their tribal cultural resources. *See* Cal. Pub. Res. Code § 21080.3.1 (West). There is a question as to whether the Voluntary Agreements have met the Tribal consultation requirements under CEQA.[7]

For all of these reasons, even if the State Water Board were to approve the VAs, the amount of environmental water that is described in the VA proposal – and which is uncritically repeated in the Proposed Project – is not reasonably certain to occur. [8] Therefore, reliance on the VA proposal is unlawful, jeopardizing years of collaboration and collective work by all agencies involved in the reconsultation process.

2. The Project Description is misleading and potentially unstable by assuming VA flows would be realized and would benefit the environment.

The Proposed Project erroneously relies on "early implementation" actions by DWR and BOR, based on the proposed VAs, to allegedly contribute to Delta outflow in the spring. Reliance on the proposed VAs is highly problematic for the listed fish species (all of which suffer from reduced river flows into and through the Delta) because even if it were fully implemented, the VA fails to provide anything even remotely close to adequate Delta outflows, based on the best available scientific evidence. Therefore, this increases the likelihood the DEIR project description will fundamentally change, rendering the project unstable. An "unstable project

[6] The Petition can be accessed here: https://www.restorethedelta.org/wp-content/uploads/2022-12-16-Bay-Delta-Complaint-and-Petition.pdf

[7] We strongly encourage the Department of Water Resources and the other agencies in the reconsultation process to proactively reach out to Tribal entities and interests so they can properly inform DWR's decision-making.

[8] In addition to failing to provide an accurate project description, the failure to ensure that these operational requirements will be achieved appears to violate CEQA's requirements that mitigation measures must be fully enforceable through permit conditions, agreements, or other legally-binding instruments. Cal. Code Regs., tit. 14, § 15126.4(a)(2). This proportional share approach clearly would violate CESA, since it does not ensure that these measures are successfully implemented, nor does it prevent the coordinated operations of the CVP and SWP from jeopardizing the continued existence of CESA-listed fish species. *Id*. §§ 783.4(a)(2), (b), (c). Because the SWP is operated by the State of California, which has a duty to conserve listed species, CESA's general requirement of rough proportionality does not apply. Cal. Fish and Game Code §§ 2052, 2052.1.

description draws a red herring across the path of public input." *Save Our Capitol! v. Dep't of Gen. Servs.*, 87 Cal.App.5th 655, 674 (2023).

In fact, NMFS has determined that "(t)he flow commitments identified in the VA Term Sheet would not provide a significant divergence in average flow relative to the baseline." NMFS also stated that "[W]e are highly uncertain that the VAs as currently proposed will provide for the reasonable protection of fish and wildlife beneficial uses."[9] The U.S. Environmental Protection Agency has also concluded that "VA flow assets provide only minimal benefits," and that "EPA is concerned that the total volume and timing of Delta inflow and outflow provided under the proposed VA alternative relative to baseline is not large enough to adequately restore and protect aquatic ecosystems." Finally, the EPA concluded that "(D)uring critical dry years the proposed VA alternative will result in a decrease of flows from baseline."[10]

Based on this information from other agencies, the DEIR project description at issue here is misleading. The DEIR states in Chapter 2, Section 2.3.5.2 "Early Voluntary Agreement Implementation" that,

> "Early implementation Spring Delta outflow actions will be achieved through either . . . . Implementation of Condition of Approval 8.17 of DWR's 2020 Incidental Take Permit (2020 ITP) . . . [or] . . . Actions to generate flow volumes that are on average equivalent to implementation of the 2020 ITP Condition of Approval 8.17. *If this latter approach is pursued, DWR and CDFW will meet and confer on the final operational plan that considers hydrology and accounting methods, and DWR will obtain CDFW approval of the operational plan prior to April 1st. This flow volume will be through cuts to SWP export of unstored water. DWR will not be required to restrict exports at the Banks Pumping Plant below its minimum health and safety exports of 600 cfs to meet the low volumes.*" DEIR at p. 2-33 (emphasis added).

Not only is this second "option" for implementing Delta outflows missing critical information and deferring analysis of the final "operational plan" at issue in this DEIR, but DWR is assuming that the VA flows will be realized and sufficient to meet operational requirements (and all applicable environmental compliance requirements, as well). This is a fundamental mischaracterization of not just the Voluntary Agreements, but also presuming that two different state agencies will approve the foundational flows that are implicated here in this action.

Furthermore, the State Water Board's analysis indicates that the VAs are supposed to be *additive* to the ITP flow regime, rather than just contribute to the ITP flows, and more importantly, the VAs are likely to result in *lower* Delta outflows than would have occurred under that agency's baseline, which incorporates the 2008/2009 Biological Opinion RPAs rather than the invalid 2019 BiOp. *See* SWRCB Phase II Bay Delta Plan Draft Staff Report, pp. 9-13 and 9-14. Like in *Save Our Capitol!*, a project description is unstable and misleading "when it significantly

[9] Cathy Marcinkevage, Assistant Regional Administrator, National Marine Fisheries Service to the State Water Resources Control Board, Jan. 19, 2024.
[10] Thomas Torres, Director, Water Division, EPA Region 9 to State Water Resources Control Board, Jan. 19, 2024.

changed the project description . . .in the final EIR to the detriment of public participation and informed decision-making on the project's most controversial aspect." 87 Cal.App.5th 655, 678 (2023). Here, the flows, and specifically the amount of Delta outflow, are easily the "most controversial aspect" of the project description. As discussed more in attached comment letters, the VAs could decrease environmental flows during critical dry years, particularly relative to the current the 2024 Interim Operations Plan, which is being implemented at the direction of the federal court. Thus, the DEIR's portrayal of potential flow improvements under the VA proposal is misleading and could dramatically change in the FEIR and final implementation of the coordinated project operations. This thwarts true "public participation and informed decision-making", in violation of CEQA. *Id.*

The DEIR's Proposed Project also appears to incorrectly assume that all anticipated Voluntary Agreement environmental flows would benefit listed species by providing Delta outflow. *See* DEIR at pp. 2-31, 9-30. Yet the VA proposal appears to "count" as a VA contribution to flow water that is <u>not</u> diverted due to causes that are unrelated to environmental protection – such as regular or unscheduled maintenance, pump/canal/storage capacity limitations, or lack of demand. Even if it provides an environmental benefit (and there is no requirement that it must), flows bypassed under these circumstances are a significant portion of current Delta outflows and would not be additive to the baseline (Reis et al. 2019). The assumption implicit in the Proposed Project – that all of the anticipated VA water would be managed to achieve maximum benefits for listed species – is not a reasonable assumption.

These wholly inconsistent descriptions of the Proposed Project due their misleading characterization of the Voluntary Agreements are grossly misleading to the public and decisionmakers in violation of CEQA. *See, e.g*., *San Joaquin Raptor Rescue Center v. County of Merced*, 149 Cal.App.4th 645, 655-56 (2007) (holding that the project description was inconsistent as to whether the project would increase mining production and violated CEQA, in part based on statements in public hearings on the CEQA document that demonstrated such inconsistencies); *Communities for a Better Environment*, 184 Cal.App.4th at 83-84 (holding project description violated CEQA because of inconsistent statements whether the objectives of the project were to increase processing of heavier crudes at the refinery, relying in part on contradictory statements made by Chevron in a 10-K filing).

Therefore, the DEIR is wholly inaccurate due to missing upstream operations from the second largest reservoir in the state, and improper reliance on the Voluntary Agreements, the DEIR violates CEQA. DWR must revise the DEIR and recirculate to address these fundamental flaws and allow true public participation and informed-decision-making.

II. <u>The DEIR Violates CEQA because it Fails to Consider a Reasonable Range of Alternatives.</u>

CEQA requires that a reasonable range of alternatives to the Proposed Project be considered in the environmental review process, including a no project alternative. Cal. Pub. Res. Code §§

21002, 21061, 21100; tit. 14, Cal. Code Regs. ("CEQA Guidelines") § 15126.6. "While the lead agency may ultimately determine that the potentially feasible alternatives are not actually feasible due to other considerations, the actual infeasibility of a potential alternative does not preclude the inclusion of that alternative among the reasonable range of alternatives." (*Watsonville Pilots Assn. v. City of Watsonville* (2010) 183 Cal.App.4th 1059, 1087; see also, *Banning Ranch Conservancy v. City of Newport Beach* (2017) 2 Cal.5th 918, 936-937; *Habitat and Watershed Caretakers v. City of Santa Cruz* (2013) 213 Cal.App.4th 1277, 1300-1306 (no feasible water alternatives considered").)

The alternatives considered in the DEIR do not provide a reasonable range, nor do they provide sufficient information for public to understand the impacts of the Proposed Project. The fundamental purpose of the DEIR is to ensure compliance with the law in operation of the project, specifically the California Endangered Species Act. Yet none of the alternatives considered would have decreased diversions or increased Delta outflow in a way that would protect endangered species. Instead, DWR rejects these as "infeasible" without analysis of the impacts of alternatives that would comply with CESA. This is inconsistent with CEQA.

DWR acknowledges that it chose not to consider alternatives which would have increased Delta outflow because such alternatives may reduce water deliveries from DWR. *See* DEIR at 11-5. The DEIR says that such alternatives "would not allow DWR to store, divert, and convey water in accordance with DWR's existing water rights to deliver water pursuant to water contracts and agreements up to full contract quantities." DEIR at 11-5. DWR then explains that the "feasibility of this alternative is questionable because this alternative would require operation of facilities that are outside of the geographic scope of the Proposed Project and are subject to different regulatory requirements and operational control." DEIR at 11-5. This does not comply with CEQA or CESA.

First, it is an admission that compliance with CESA cannot be achieved consistent with water deliveries that are up to full contract quantities. Second, it chooses not to provide information to the public or to analyze alternatives because of the existence of water rights. But CESA and CEQA are not subservient to the water rights of the State Water Contractors—CESA requires protection of endangered species, and CEQA requires full analysis of the impacts of the long-term operations of the State Water Project, not just analysis of the limited range of conduct DWR has proposed. Third, DWR asserts that analyzing a full range of alternatives, including ones that meet the demands of CESA, require analysis of the project as a whole (both Oroville operations and interaction with the federal operations of the Central Valley Project). Again, CESA and CEQA require this analysis in order to provide complete and accurate information about the impacts of the project.

The DEIR states that the objective of the Proposed Project is the continued operation of the SWP consistent with applicable laws, including CESA, contractual obligations, and agreements. DEIR at 2-1.

The best available science demonstrates that existing protections to limit diversions from the Delta need to be strengthened to comply with CESA. [SWRCB 2017 SED, SWRCB 2023 SED, EPA 2024 comments on Phase 2 SED, Baykeeper et al. 2024 comments on Phase 2 SED.] Yet the DEIR fails to consider any alternatives that would increase protections for endangered species by reducing water exports from the Delta as compared to the baseline. This is a failure to consider alternatives that would comply with CESA.

In addition, the DEIR fails to provide a reasonable range of alternatives because it fails to include any alternative that would require increased winter-spring Delta outflows, despite the findings of numerous state and federal agencies that such measures are necessary to protect native species and their habitats.

The No Project Alternative would continue the status quo operations of the Project based on the 2020 ITP, the 2019 BiOps as modified by the Interim Operations Plan for the CVP and SWP operations as of June 16, 2023. DEIR at 11-7. This is the same as "baseline conditions" for the Project. *Id.* Because the No Project Alternative and baseline conditions are the same, DWR concludes in the DEIR that there would be no change, and this would be "similar to the Proposed Project." DEIR at 11-8.

Alternative 1 adopts the Proposed Project with a few changes – keeping the CCF increased diversion period December 15-March 15 instead of expanding it, and modifying spring Delta outflow to "deploy" flows from the "Voluntary Agreement program" to limit those flows to May, rather than to allow them in March, April, or May. *See* DEIR at 11-8. "All other components of the Proposed Project are included in Alternative 1." DEIR at 11-9. Figures 11-1 to 11-16 show that there is effectively no change between baseline conditions, the Proposed Project, and Alternative 1. *See* DEIR at 11-10 to 11-19.

Similarly, the tables of projected salvage and take at the South Delta Export Facility for various fish species demonstrates the lack of variation between the Proposed Project and the various alternatives. *See* DEIR Table 11-5 (mean modeled salvage due to Proposed Project and Alternatives 1-3 are nearly identical for juvenile Winter-run Chinook Salmon); Table 11-6 (same for Spring-run Chinook Salmon); Table 11-9 (same for Steelhead); Table 11-10 (same for Green Sturgeon); Table 11-11 (same for White Sturgeon).

The March – May Delta Outflow (Table 11-24), March – June Delta Outflow (Table 11-25), February – June Delta Outflow (Table 11-26), April – June Delta Outflow (Table 11-27) all show the same: effectively no difference between the Delta outflow under the Proposed Project and each of the Alternatives. DEIR at 11-29 to 11-32. Ultimately, DWR concludes that, "for listed species, the effects of Alternative 1 generally would be similar to those for the Proposed Project." DEIR at 11-33.

Alternative 2 is, like Alternative 1, nearly indistinguishable from the Proposed Project. As DWR describes them, the "relative incremental changes . . . due to Alternative 2 as compared to Baseline Conditions are similar to those described under the Proposed Project." DEIR at 11-45. Figures 11-27 to 11-35 demonstrate the near identity between the Proposed Project and

Alternative 2. As DWR concludes: "overall long-term average Delta outflow, exports, or other hydrologic conditions would be similar under Alternative 2 and the Proposed Project. Because differences in these long-term average hydrologic variables would be minimal, impacts on all other resources under Alternative 2 would be expected to be the same as described for the Proposed Project." DEIR at 11-58.

Alternative 3 is, like the other alternatives, essentially the same as the Proposed Project. Again, DWR describes the "relative incremental changes in surface water hydrology due to Alternative 3 as compared to the Baseline Conditions are similar to those described under the Proposed Project." DEIR at 11-58. Figures 11-45 to 11-57 show the overlap between the Proposed Project and Alternative 3. In sum, "the impacts of the Proposed Project and Alternative 3 are essentially equivalent." DEIR at 11-76.

Despite the lack of difference in the impacts of the Proposed Project and the Alternatives analyzed by DWR, DWR concludes that it has both analyzed a reasonable range of alternatives and identifies an "environmentally superior" alternative. Yet neither DWR's analysis of the limited range of alternatives nor its selection of Alternative 3 as the environmentally superior alternative meet the requirements of CEQA.

DWR asserts that Alternative 3 is "environmentally superior" because it would "provide the same benefits" during the spring as the Proposed Project while limiting diversions from December to March to baseline conditions. DEIR at 11-76. The purported benefits from Alternative 3 are focused on a "potentially" lower entrainment risk due to the choice not to expand the period during which winter diversions can occur.

First, none of the alternatives included in the DEIR would strengthen protections for endangered fish and wildlife compared to today. The DEIR excludes consideration of any alternatives that provide increased restrictions on Delta exports. Increased protections for endangered fish and wildlife in the Bay-Delta is necessary to meet the requirements of state and federal law including CESA. In 2008 the Supreme Court upheld the failure to consider a reduced export alternative in the final EIR for CALFED, stating that,

> "Bay–Delta ecosystem restoration to protect endangered species is mandated by both state and federal endangered species laws, and for this reason water exports from the Bay–Delta ultimately must be subordinated to environmental considerations. The CALFED Program is premised on the theory, as yet unproven, that it is possible to restore the Bay–Delta's ecological health while maintaining and perhaps increasing Bay–Delta water exports through the CVP and SWP. If practical experience demonstrates that the theory is unsound, Bay–Delta water exports may need to be capped or reduced."

(*In re Bay-Delta Programmatic Environmental Impact Report Coordinated Proceedings* (2008) 43 Cal.4th 1143, 1168.) Practical experience has now plainly demonstrated that theory is unsound; indeed, the DEIR (and recent federal biological opinions from NMFS and US FWS) demonstrate that the Proposed Project and alternatives are likely to result in continued declines in

the survival and abundance of CESA-listed fish species in the Bay-Delta watershed. Thus, the failure to consider an alternative in this DEIR that reduces water diversions from the Delta in order to improve environmental conditions for fish and wildlife violates CEQA.

Second, numerous state and federal agencies have identified the need to increase winter-spring outflow to protect fish and wildlife, including endangered species. In contrast, the DEIR fails to even consider any alternatives that would increase winter-spring outflow, and only the no action alternative would maintain existing outflow. Despite the repeated recognition of the need to increase Delta outflow in the winter and spring months, none of the alternatives in the DEIR would increase Delta outflow in the winter and spring months.

Third, such alternatives exist, were proposed during the NOP by various commenters, and similar alternatives were analyzed in the federal Biological Opinions recently published by NMFS and FWS.

DWR's failure to consider one or more alternatives that increase Delta outflow from January to June is even more problematic because, as discussed infra, the DEIR's conclusion that the reduction in Delta outflow would not cause a significant impact is clearly erroneous and is the result of statistical manipulation in contravention of sound science.

The impact of DWR's failure to analyze an adequate range of alternatives is compounded in this instance because (a) it failed to consider a reasonable range of alternatives in analyzing the 2020 ITP, and (b) the current baseline conditions are inadequate to actually protect endangered fish species. As a result, DWR limits its CEQA analysis to a baseline that is not protective and was identified largely based on a lack of informed CEQA and CESA analysis leading up to the 2020 ITP and a series of alternatives that do not materially differ from that baseline and none of which would improve conditions from the baseline. Only by using a cramped analysis which excludes relevant information and legally required alternatives can DWR justify its conclusion that continuing to divert more and more water between December and June will not continue to cause increasing harms to the endangered species put on the brink of extinction by the lack of freshwater flow during those months.

Because the DEIR fails to consider a reasonable range of alternatives in violation of CEQA, it must be revised and recirculated.

III. The DEIR Violates CEQA Because it Fails to Analyze the Effects of the 2018 Addendum to the Coordinated Operating Agreement.

For the 2020 ITP, DWR failed to analyze the 2018 Addendum to the 1986 Coordinated Operations Agreement which governs combined operation of the SWP and CVP. This meant analysis of the 2020 ITP ignored the potential adverse effects of implementing the Addendum to the Coordinated Operating Agreement at Lake Oroville and other areas upstream of the Delta, and rather than evaluating these potential effects, included the Addendum to the Coordinated Operating Agreement in the environmental baseline. See 2019 DEIR at 4-2; *see* 2019 DEIR, Modeling Appendix at B-5.

The DEIR again makes this error, omitting needed information for the public, DWR, and CDFW to understand the overall impacts of the Proposed Project and the Alternatives. Having failed to previously analyze the impacts of the 2018 Addendum to the COA, DWR again incorporates the COA into its baseline. DEIR at 4A-1-12 (defining the COA as "Same as the Baseline Conditions").

Federal assessments of the COA Addendum showed storage declines in Lake Oroville as a result. But the DEIR (improperly) fails to analyze or consider operations at Lake Oroville. And there is a reasonable scientific basis and a fair argument to believe that implementation of the COA Addendum would cause significant adverse environmental impacts under CEQA. *See* Bureau of Reclamation, Environmental Assessment, Addendum to the Coordinated Operating Agreement, Central Valley Project/State Water Project, December 2018 (explaining storage impacts at Lake Oroville)[11]; *see also* NRDC et al. 2019 Comments at pp. 11-13 (section III, explaining Feather River impacts due to Lake Oroville storage changes), and at Exhibit 1 (CDFW's modeled impacts).

DWR has a duty to analyze and disclose the effects of the 2018 Addendum to the COA, including these significant adverse effects. DWR has not complied done so, either in the DEIR or previously. DWR must revise the DEIR to analyze the effects of implementing the 2018 Addendum to the COA in connection with the impacts of the Proposed Project as well as a reasonable range of alternatives.

By failing to disclose and analyze upstream impacts, incorporating changes to the COA into the baseline, and then comparing the Proposed Project to that unanalyzed baseline, DWR conceals the scope of overall impacts of its actions from 2018 to the present that have reduced protection for endangered fish.

IV. The DEIR Fails to Adequately Analyze and Disclose the Significant Adverse Environmental Impacts that the Proposed Project is Likely to Cause during Droughts.

The DEIR fails to analyze or disclose the adverse environmental effects of water project operations during droughts. As discussed below, the DEIR's proposed Spring Outflow and Delta Smelt Summer-Fall Habitat measures fall far short of outflows necessary to protect Delta smelt, Longfin smelt, and estuarine habitat in all years, and fail to augment flows at all in Critically Dry Years. But the DEIR's inadequacy is not limited to its proposed measures, because it also utterly

[11] This document is available online at: https://www.usbr.gov/mp/nepa/includes/documentShow.php?Doc_ID=36503 (last visited August 5, 2024). It is hereby incorporated by reference.

fails to consider drought conditions – and the management responses to drought – that were experienced in the real world in recent years. The DEIR acknowledges that in its analysis:

> "Actual exports in 2014, 2015, and 2021 were outside the modeled range. Export data during these years represent operations under stressed water supply conditions. DWR and Reclamation filed Temporary Urgency Change Petitions (TUCPs) to temporarily modify requirements in their water rights permits in response to the drought conditions in 2014, 2015, and 2021. As noted in Appendix 4A, Attachment 8, "Model Limitations," CalSim 3 results differ from real-time operations under stressed water supply conditions." DEIR at 4-7.

Absent the adoption of regulatory and/or management regimes that are more protective than the DEIR's preferred alternative, it is more than reasonably foreseeable – it is a virtual certainty – that numerous operational and other protective measures for fish and wildlife (such as water temperature standards, Old and Middle River flow restrictions, and Delta outflow requirements), including measures considered and assumed in the DEIR, will not be implemented during future droughts. Thus, the DEIR fails to disclose the likely adverse impacts that will result from less protective operations during droughts, and it fails to identify in any detail mitigation measures that could credibly or sufficiently reduce or avoid these impacts.

Over the past decade, DWR and Reclamation have repeatedly, consistently, and successfully sought to waive or weaken numerous water quality objectives (including minimum Delta outflow) and ESA requirements under both the 2008 and 2009 and the 2019 biological opinions and failed to meet water temperature standards – despite the fact that existing water quality objectives, ESA requirements, and water temperature management regimes are widely acknowledged to be insufficiently protective (*see*, for instance, SWRCB 2010, 2017). TUCPs submitted by DWR and Reclamation were approved by the SWRCB in in six out of 10 years in the last decade: 2014, 2015, 2016, 2021, 2022, and 2023. These changes to water project operations were not previously analyzed as part of the environmental documentation for the biological opinions or in the SWRCB's 1995 Bay-Delta Water Quality Control Plan and Water Right Decision 1641. *See, e.g.,* Water Rights Order 2014-0029 (September 24, 2014)[12]; Water Rights order dated February 3, 2015[13]; April 6, 2015 Revised Order[14]; July 3, 2015 order conditionally approving petition for temporary urgency change[15]. (For instance, in 2015 the waivers of water quality standards reduced Delta outflows and increased water deliveries by approximately 800,000 acre feet).

[12] Available online at: http://www.waterboards.ca.gov/waterrights/board_decisions/adopted_orders/orders/2014/wro2014_0029.pdf
[13] Available online at: https://www.waterboards.ca.gov/drought/docs/tucp/2015/tucp_order020315.pdf
[14] Available online at: http://www.waterboards.ca.gov/waterrights/water_issues/programs/drought/docs/tucp/2015/tucp_order040615.pdf
[15] Available online at: http://www.waterboards.ca.gov/waterrights/water_issues/programs/drought/docs/tucp/2015/tucp_order070315.pdf

These waivers of required operations contributed to devastating impacts to winter-run Chinook salmon, spring-run Chinook salmon, Delta smelt, Longfin smelt, and other native fish species, including:

- Greater than 95% mortality of endangered winter-run Chinook salmon eggs and juveniles above Red Bluff Diversion Dam in 2014 and 2015, including temperature dependent mortality of 77% in 2014 and 85% in 2015 due to lethal and chronically adverse water temperatures below Keswick Dam;
- Greater than 95% mortality of fall-run Chinook salmon eggs and juveniles that spawned in the mainstem Sacramento River above Red Bluff Diversion Dam in 2014;
- Record low abundance indices for Delta smelt in the 2014 and 2021-23 Fall Midwater Trawl and 2015 and 2021 Spring Kodiak Trawl surveys;
- Near record low abundance of Longfin smelt in the 2014 Fall Midwater Trawl survey and a new record low abundance in the 2015 Fall Midwater Trawl survey;
- Negative impacts on the survival of juvenile Delta smelt in June through August of 2021, on the recruitment and post-larval survival of Delta smelt in 2022, and on the recruitment of Delta smelt in 2023;
- Negative impacts on the spawning and recruitment of Longfin smelt in June and July of 2021 and on abundance of Longfin smelt in 2022 and 2023;
- Lower survival and recruitment of several other estuarine species in 2021, 2022, and 2023;
- Increases in the abundance of nonnative species like Black bass in the Delta; and,
- Increases in the abundance of toxic cyanobacteria in the genus *Microcystis* that result in harmful algal blooms in the Delta (*see* Lehman et al 2022 and SWRCB 2021).

See, e.g., Water Rights Order 2014-0029; Water Rights order dated February 3, 2015; April 6, 2015 Revised Order; July 3, 2015 order conditionally approving petition for temporary urgency change; Protest to TUCP filed by the NRDC dated February 13, 2015[16]; March 24, 2015 Petition for Temporary Urgency Change, Attachment A[17]; Feb 15, 2022 Order Denying in Part and Granting in Part Petitions for Reconsideration of the Executive Director's Approvals of the 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 the June 10, 2021, Sacramento River Temperature Management Plan[18]; March 18, 2022 Temporary Urgency Change Petition for April 1, 2022

[16] Available online at:
http://www.waterboards.ca.gov/waterrights/water_issues/programs/drought/comments_tucp2015/docs/nrdc_obegi021315.pdf
[17] Available online at:
http://www.waterboards.ca.gov/waterrights/water_issues/programs/drought/docs/tucp/2015/apr2015_req032415.pdf
[18] Available at:
https://www.waterboards.ca.gov/waterrights/board_decisions/adopted_orders/orders/2022/wro2022_0095.pdf

through June 30, 2022[19]; and February 13, 2023 Temporary Urgency Change Petition for February 1, 2023 through March 31, 2023[20].

DWR's sole proposed mitigation for impacts of the SWP during drought conditions is the Voluntary Drought Toolkit, which would provide "a coordination process to implement drought relief actions." DEIR Appendix 2a, Attachment 6 at 3. However, the measures in the Toolkit are described qualitatively and not included in the DEIR's modeling of project operations. Furthermore, as discussed {above}, there is no reason to assume that the Toolkit's measures are likely to occur, given that there is currently no authorization or funding for its implementation.

Droughts are a normal part of the California climate, and consecutive dry years can be planned for as readily as single ones. California law identifies TUCPs as limited to urgencies that cannot otherwise be avoided through the exercise of due diligence. *See* Wat. Code § 1435, subd. (c). DWR has failed to exercise such due diligence by failing to analyze the impacts of TUC Orders in drought years and failing to specify and analyze the impact of potential mitigation measures such as the proposed Drought Toolkit or alternative approaches.

It should be noted that the problem of TUCPs and their adverse impact on endangered species is not solely limited to drought years. For instance, the most recent TUC Order was issued on February 21, 2023[21]. By January of 2023, multiple atmospheric rivers were hitting the Sierra Nevada and Central Valley, leading to significant flood events.[22] Water year 2022-2023 ultimately was determined to be a wet year. Clearly, TUCPs and the potential damage from them are not limited to drought years. Therefore, the analysis of TUCPs must also include non-drought years, particularly including years at the end of droughts.

Indeed, DWR's failure to perform due diligence extends to its failure to analyze in the DEIR that that climate change will likely reduce Lake Oroville reservoir storage during droughts to levels far below the minimum water storage ever observed historically, which DWR admits is likely to result in changes to water project operations during future droughts that includes not meeting minimum flow conditions and violating salinity standards. These and similar operational responses are likely to cause significant adverse effects on fish and wildlife, including adverse water temperatures in the Feather River and the significant adverse effects observed in 2014-2015. However, these reasonably foreseeable adverse effects are not considered in the DEIR. In addition, the DEIR's analysis and modeling improperly assumes that the proposed operational measures would be implemented in future droughts, when the text indicates otherwise. *See* CEQA Guidelines § 15126.4(a)(2).

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[19] Available at: https://www.waterboards.ca.gov/waterrights/water_issues/programs/applications/transfers_tu_notices/2022/20220318_tucp.pdf

[20] Available at: https://www.waterboards.ca.gov/drought/tucp/docs/2023/20230213_tucp.pdf

[21] Available at: https://www.waterboards.ca.gov/drought/tucp/docs/2023/20230221-final-tuco.pdf

[22] Matthew Cappucci, "California is not Done: Three More Atmospheric Rivers are on the Way," *The Washington Post*, January 6, 2023. Available at https://www.washingtonpost.com/weather/2023/01/06/california-atmospheric-river-forecast-flooding/

Because waivers of protective operations in future drought conditions are reasonably foreseeable, and because such waivers are likely to result in significant adverse impacts that are not disclosed in the DEIR, DWR must identify feasible mitigation measures to reduce or avoid these significant impacts. CEQA Guidelines §§ 15126, 15126.4. DWR must recirculate a revised DEIR that includes such mitigation measures. CEQA Guidelines § 15088.5(a)(1)-(3).

V. The DEIR Fails to Accurately Assess Environmental Impacts, and the DEIR Fails to Disclose Significant Environmental Impacts of the Proposed Project.

CEQA requires that the DEIR accurately assess potential environmental impacts from the Proposed Project and alternatives, using credible methods of analysis. *See, e.g.*, Cal. Code Regs., tit. 14, § 15151; *Laurel Heights Improvement Assn. v. Regents of University of Cal*., 47 Cal.3d 376, 409 (1988). The DEIR fundamentally fails this essential function, and it fails to disclose environmental impacts that are significant. The DEIR must be revised and recirculated.

A. The Flawed Modeling in the DEIR, including Baseline Modeling, Results in Inaccurate Assessment of Environmental Impacts.

First, as discussed *supra*, the CalSim modeling in the DEIR is deeply flawed[23]. Because this CalSim modeling is used as an essential input to the biological models and analyses that are used to assess potential environmental impacts, the flawed hydrological modeling infects the DEIR's assessment of environmental impacts, leading the DEIR to report misleading and erroneous conclusions regarding significant impacts.

Second, the CalSim modeling fails to account for reasonably foreseeable waivers of protective measures including OMR and Delta outflow requirements. *See* Section IV, *supra*. In six of the 10 the years between 2014 and 2023, DWR and Reclamation applied for and received waivers from existing water quality standards (D-1641) via Temporary Urgency Change Orders (TUCOs). There is no question that these waivers of Delta outflow requirements contributed to significant adverse impacts on fish species in the Delta, yet the DEIR fails to consider and incorporate the effects of reduced Delta inflow, outflow, and/or Old and Middle River flows resulting from

[23] Furthermore, we reiterate our concern that impacts of the project baseline were never properly modeled. Specifically, the previous environmental documentation failed to model the more negative OMR conditions authorized by the project description (see NRDC et al. 2020 at 19). More negative OMR would likely increase entrainment and reduce survival and abundance of fish species including Delta smelt, Longfin smelt, winter-run Chinook salmon, spring-run Chinook salmon, fall-run Chinook salmon, and Central Valley Steelhead. These modeling flaws significantly underestimated the environmental impacts of the current baseline when it was originally analyzed, resulting in biased and inaccurate assessment of environmental impacts of the project, which is now the baseline for the Proposed Project. If this modeling error has not been corrected in the current DEIR, then it will fail to reveal differences between modeling of the previous project (and associated outcomes) and the baseline as presented here. As a result, the DEIR fails to disclose the incremental impact of the baseline versus operations prior to 2020, and comparisons of this baseline to the Proposed Project and Alternatives do not reflect the true impact of the Proposed Project on the biological resources of the of the estuary and its watershed.

future waivers of water quality standards. In addition, the DEIR fails to account for waivers of Old and Middle River flow requirements under previous BiOps (*see* Section IV, above, and Reis et al. 2019).

Furthermore, the DEIR fails to disclose the effects of actual implementation of the Proposed Project's already inadequate safeguards for threatened and endangered fishes. For example, in 2024 combined operations of the CVP and SWP resulted in substantial exceedances of mortality ("loss") limits for endangered winter-run Chinook Salmon and federally threatened Central Valley Steelhead that exceeded the incidental take limits identified in the NMFS 2019 biological opinion (NMFS 2019; NMFS 2024b. Reclamation 2024a). Unpermitted take of these protected species continued for weeks and exports frequently exceeded levels identified as protective by NMFS biologists (WOMT 2024). As a result, the DEIR fails to analyze and disclose likely significant environmental impacts and overstates the impact of the Proposed Project on water supplies.

Finally, the Proposed Project continues to ratchet up negative effects on imperiled fish, fisheries, and water quality, while erroneously concluding that the incremental effects are "small" and "not significant" under CEQA. The environmental analysis ignores that baseline operations of the CVP and SWP are devastating for imperiled fish, fisheries, and water quality in the Delta. As described in our previous comments (NRDC et al. 2020), current SWP operations (the "baseline" of the current DEIR) degraded conditions from the previous baseline, which reflected operational requirements of the 2008/2009 federal biological opinions, the 2009 state incidental take permit, and requirements of the Bay-Delta Water Quality Control Plan (D-1641) (hereafter: "the 2008/2009 operational baseline"). The 2008/2009 operational baseline was already understood to cause significant adverse impacts on fish and wildlife in the Delta caused by upstream water temperatures for spawning and egg incubation, water operations in the Delta on rearing habitat, and effects of water operations on migration habitat for covered fish species (USDOI 2016; SWRCB 2010, 2017)[24]. The 2019 DEIR, which analyzed the current baseline, found that it would increase entrainment, reduce survival of salmon migrating into and through the Delta, and reduce winter-spring Delta outflow and abundance of various imperiled species as compared to the 2008/2009 operational baseline. Nevertheless, the 2019 DEIR erroneously concluded that these impacts would be less than significant. The Proposed Project will exacerbate many of these negative effects relative to current project operations. Thus, the DEIR shows that the Proposed Project will worsen environmental conditions relative to an environmental baseline that was degraded relative to the 2008/2009 operational baseline which was understood to cause significant impacts. Continuing to degrade environmental conditions and the conservation status of fish populations that are already trending towards extinction is not consistent with the DEIR's repeated findings of "no significant effect", nor is it consistent with federal or state endangered species acts. At a minimum, DWR must provide a reasoned explanation for the different

[24] *See* Department of Water Resources, Bay Delta Conservation Plan / California WaterFix, Final Environmental Impact Report / Environmental Impact Statement, December 2016, at ES-67 to ES-68; *id*., Chapter 11, at 11-273 to 11-275.

conclusions regarding significance, and it has not done so here. The DEIR must be revised and recirculated.

B. The DEIR's conclusions that the project will not cause significant impacts to fish is clearly erroneous and is not based on credible analyses.

In addition to the inaccurate modeling preventing accurate assessment of impacts, the analyses that are presented are scientifically flawed and, in many cases, not credible. Nevertheless, these analyses show that the Proposed Project will cause significant impacts which the DEIR fails to acknowledge or disclose. We describe some of these impacts in detail below.

1. Longfin Smelt

The U.S. Fish and Wildlife Service ("USFWS") recently observed that Bay-Delta Longfin Smelt DPS "...has plausibly been declining for over 50 years and that decline is presently at circa 3–4 orders of magnitude below initial observations" (USFWS 2024 at 36). In its final listing decision[25], USFWS found that despite numerous efforts regarding conservation and regulation of the San Francisco Bay estuary and its resources, including the 2019 Biological Opinions, 2020 CESA ITP, and existing water quality requirements, "…the current condition of the estuary and continued threats facing the estuary and Bay-Delta longfin smelt, such as reduced freshwater inflow, severe declines in population size, and disruptions to the DPS's food resources, have not been ameliorated" (*see also*, Federal Register Vol. 87, No. 194 (Friday, October 7, 2022) at pp. 60957-60974). Furthermore, USFWS analysis revealed that: "Forecasts of population size using vital rates estimated by the model indicate that it is likely that Longfin Smelt population sizes will dip below recoverable levels within a decade if these recent levels of reproduction and survival continue" (USFWS 2024 at 195). Therefore, any alternative that does not improve conditions relative to the status quo for the San Francisco Bay estuary's Longfin Smelt population is inconsistent with the requirements of the ESA. Despite this finding, the proposed combined operations of the SWP and CVP analyzed in the DEIR would not only fail to improve conditions for the imperiled Longfin Smelt, they would make those conditions worse.

The DEIR acknowledges that the Proposed Project's effects on Delta Outflow will result in reduced Longfin Smelt abundance relative to the baseline (which is already inadequate to ameliorate the threats to this population, according to USFWS 2024). Furthermore, the DEIR's projected decline in Longfin Smelt abundance does not account for the massive increases in entrainment mortality for Longfin Smelt juveniles that the DEIR also predicts will result from implementation of the Proposed Project. And, these results are likely to underestimate the true impact of combined CVP/SWP proposed operations on Longfin Smelt because the modeling

[25] Federal Register Number 2024-16380, Document ID FWS-R8-ES-2022-0082-0031, available at: https://www.regulations.gov/document/FWS-R8-ES-2022-0082-0031

assumes that requirements of the Bay-Delta Water Quality Control Plan (D-1641) and federal biological opinions will be enforced in all years, which has not been the case historically.

Reduced Delta Outflows under the Proposed Project will harm Longfin Smelt

The DEIR employs flawed modeling to estimate the impacts of the Proposed Project and misrepresents the harm to Longfin Smelt represented by its modeled results

To investigate the potential for the Proposed Project and Alternatives to affect the Bay-Delta Longfin Smelt population via their effect on Delta outflow, the DEIR employs a novel statistical approach, which has not been peer-reviewed, to develop multiple models[26]. These models indicate that the Longfin Smelt population is likely to decline under the Proposed Project (DEIR Tables 6-26 & 6-27 at 102). In addition, the modeling predicts that Longfin Smelt abundance indices are likely to be lower more frequently under the Proposed Project than under the baseline in the majority of years (DEIR Tables 6-29 & 6.30 at 103).

[26] The modeling that produced these results is not credible. First, the modeling relies on incorrect assumptions about the nature of the Longfin Smelt-flow abundance relationship. Specifically, the models incorporate different Longfin Smelt flow-abundance relationships during different time periods that it identifies as "ecological regimes," citing Nobriga and Rosenfield (2016) as the source of these different categories. In fact, Nobriga and Rosenfield provide no support for the "ecological regimes" used in the DEIR's modeling approach and neither does Thomson et al. (2010 at 1439-140 and Figure 6 at 1442).

Second, the DEIR's modeling employs unorthodox and non-traditional approaches. For example, the DEIR generates different predictions of Longfin Smelt population response to the Proposed Project for each fish sampling program. Each of these predictive models relies on multiple models whose "distributions were combined as a weighted average across models" in a process called "stacking". The DEIR explains (at Appendix 6B p. 6B-396): "…the model with the largest stacking weight does not necessarily have the highest predictive score compared to other models in the set" and "[c]ompared to more traditional model averaging approaches, stacking differs in terms of how model weights are assigned. *Instead of calculating model weights based on the relative predictive ability for each individual model—where the best model for prediction would be given the highest weight*—the model weights estimated through stacking minimize the LOO mean squared error of the resulting averaged posterior predictive distribution across models. In other words, stacking was used to estimate the optimal linear combination of model weights…" (emphasis added). Thus, the DEIR's predictions of Longfin Smelt response to different operational alternatives is based on a weighted average of multiple models, where the weights did reflect their predictive ability. Furthermore, the final "stacked" model includes models where the flow variable is measured from December-May Delta outflow (as per CDFW 2010; *see also*, Nobriga and Rosenfield 2016) and others where flow is measured from March-May outflow. This means that flow during March-May is differentially represented in the final model – the DEIR provides no explanation of, or justification for, why this would be the case.

Third, the models rely on randomization procedures, used to generate "probability distributions" for the modeled results (DEIR Appendix 6B at 6B-395 thru 6B-403). These randomizations confound variability from multiple sources, including those that have nothing to do with the effect of project alternatives such as variation in abundance over the entire Longfin Smelt data series. These "probability distributions" for model predictions are then inappropriately compared to the differences in means for several water year types across different alternatives to suggest that differences between alternatives are "very small" compared to the variability (DEIR at 6-100).

These overwrought statistical machinations obscure very simple facts – (1) Delta outflow is the only *known* variable affecting changes in Longfin Smelt abundance from year to year that is affected by combined CVP/SWP operations (USFWS 2024 and sources cited therein), and (2) the effect of Delta outflow on the Longfin Smelt population is most likely due to its relationship with recruitment of young-of-year fish, a relationship that has not changed in five decades of sampling data (Nobriga and Rosenfield 2016).

The DEIR claims that the negative effects of the Proposed Project will be "very small" relative to the high variability of predicted abundances generated by the DEIR's population model (DEIR at 6-100). In 2019, CDWR attempted to dismiss the negative effects of its then-Proposed Project (which is now the baseline) using the same excuse[27]. This explanation is erroneous and misleading for several reasons. First, the DEIR's own modeling shows Longfin Smelt will be negatively affected by the Proposed Project's effect on Delta outflow relative to the status quo, even after ignoring other negative effects (e.g., increased entrainment mortality, *see below*). Second, status quo conditions under current operations have already been found inadequate to protect the imperiled Longfin Smelt population; even if the negative impact of the Proposed Project relative to the baseline is "very small", it cannot be consistent with CESA. Third, the large variability of predicted abundance is due, in large part, to the artificial variance generated by the DEIR's population abundance model (*see* FN 3). As we commented previously (NRDC et al. 2020), comparing the average outcomes among alternatives with their overall variance improperly obscures the differences between alternatives. A valid comparison of the impacts on Longfin Smelt of SWP operational alternatives would analyze the average of annual *differences among alternatives* in projected abundance relative to the variance in those annual *differences*. Because the best available science continues to show that Longfin Smelt abundance increases in response to increased winter-spring Delta outflow (Rosenfield and Baxter 2007; Rosenfield 2010; Thomson et al. 2010; Nobriga and Rosenfield 2016; USFWS 2024), operations that produce higher winter-spring Delta outflow in a given year *will* outperform alternative operations that result in lower winter-spring Delta outflows. There will be little variance in this result. Most of the additional variance in estimated abundance referred to by the DEIR (e.g., as depicted in Figures 6-53 through 6-55) is not relevant to comparison of operational alternatives.

Increased entrainment-related mortality of juveniles under the Proposed Project will harm Longfin Smelt

The DEIR shows very large increases in entrainment-related mortality of Longfin Smelt relative to current operations are likely under the Proposed Project. Still, the DEIR dismisses entrainment-related mortality under the Proposed Project as "small." The DEIR's modeling of this impact is severely flawed because it likely underestimates the impact of entrainment by an order of magnitude or more.

Furthermore, any impact of increased entrainment due to changes in CVP/SWP combined operations is likely to be additive to the effects of changes in Delta outflow – yet the DEIR fails to disclose the additive effect of these separate impacts. The DEIR (at 6-96) acknowledges that there will be "large relative increases in entrainment under the Proposed Project relative to the Baseline Conditions scenario," yet, it ignores this stress on the population. Although no model linking Longfin Smelt entrainment-related mortality with overall population dynamics has yet been developed, if this (or any) mortality source increases dramatically as the result of changed

[27] Reductions in Delta outflow resulting from CDWR's previously proposed (now current) operations were predicted to cause a reduction in the Longfin Smelt population, in every year type, up to 11% (DEIR 2019 "Part III revisions to the DEIR" Table 4.4-9 at 4-179).

project operations, it must have a negative effect on overall abundance at some point. The DEIR projects very substantial increases – between 8% and 73.8%, depending on water year type – in salvage of juvenile Longfin Smelt from Proposed Project operations relative to the baseline (DEIR at Table 6-22 and Figure 6-52).

The DEIR's explanation that entrainment mortality is likely to represent a "very small percentage of the population" is not convincing and its analysis is flawed in various ways. DEIR Table 6-23 (at 6-97) purports to show that entrainment of the Longfin Smelt population was small, relative to estimates of total abundance, in the years 1995-2015. Entrainment estimates are based on equations derived from Grimaldo et al. 2009; however, that paper measured "salvage," not entrainment[28]. "Salvage" of small fish at the CVP/SWP south Delta export pumps is generally only a small fraction of mortality due to entrainment because the salvage operations are inefficient. For each "salvaged" fish, many more fish are either drawn into the export pumps or consumed by predators in canals that lead to the pumps and salvage facilities (Grimaldo et al. 2009). The DEIR applies a static multiplier (20.3) to convert estimated "salvage" into entrainment loss (see footnote Table 6-23). This expansion of salvage to entrainment-mortality does not represent the best available science and is arbitrary and capricious. Castillo et al. (2012) concluded that entrainment loss prior to salvage of Delta Smelt (which are similar in size, shape, and swimming ability to Longfin Smelt) was the largest source of entrainment-related mortality and that the percentage of fish killed following entrainment, but prior to salvage, changed from month to month. In three separate months of their study, pre-screen loss amounted to 94.3%, 99.1%, and 99.9% of Delta Smelt in the SWP's south Delta export infrastructure[29]. To convert "salvage" to entrainment loss under these circumstances would require expansion by factors of 16.5, 110.1, and 999, respectively. Thus, the DEIR's assumption that entrainment-related loss is consistently 20.3 times salvage (Table 6-23) is not supported and is likely to be far too low most of the time. And, these results likely seriously underestimate entrainment losses as the modeling does not account for waivers of Bay-Delta water quality requirements via TUCOs, and/or relaxation of requirements in federal biological opinions and this ITP, both of which have occurred frequently in the past.

The DEIR's estimate of entrainment-related mortality impacts of the baseline and the Proposed Project are further flawed because they are based, in part, on patterns of entrainment that occurred under more restrictive regulatory regimes. Table 6-23 presents salvage and population estimates from 1995-2015. During the final third of that period (2009-2015), water exports were

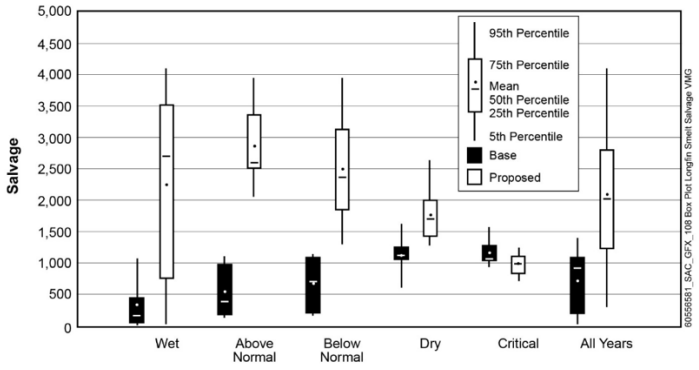
[28] Grimaldo et al. (2009 at 1256) report: "In this paper, we use salvage as an index of entrainment. Actual entrainment losses at the SWP and CVP are unknown because fish are not sampled continuously and because the louvers are less than 100% effective (Brown et al. 1996; Puckett et al. 1996; Bowen et al. 1998). Louver efficiency varies by species, life stage, and probably facility (Bowen et al. 1998, 2004), but for the purposes of this paper we assume that louver efficiencies are constant within and among years. *The SWP salvage data also do not include additional fish losses in the Clifton Court Forebay as a result of predation before reaching the louvers (Gingras 1997) or within the holding tanks themselves (Liston et al. 1994)*." (emphasis added)

[29] Given these results, it is highly likely that some entrainment-related mortality occurs, even in years when "salvage" is zero.

constrained by protections found in the 2008/2009 biological opinions (USFWS 2008; NMFS 2009). Recent research indicates that those constraints reduced entrainment impacts for Delta Smelt (Smith et al. 2021) and they are more likely than not to also have reduced entrainment for Longfin Smelt. However, those operating rules have now been replaced by operations analyzed in CDWR's 2019 DEIR (as revised). CDWR previously projected massive increases in Longfin Smelt juvenile entrainment resulting from current project operations when compared to the prior baseline (the 2008/2009 baseline; CDFW 2019 "Part III revisions to the DEIR" Table 4.4-13 and Figure 4.4-56 at 4-185; *see below*). Thus, juvenile salvage rates (CDFW 2019 Table 6-23) were expected to increase several-fold under current SWP operations. Under the Proposed Project, rates of entrainment-related mortality are expected to increase yet again.

Table 4.4-13. Mean Annual Longfin Smelt April–May Salvage, from the Regression including Mean Old and Middle River Flows (Grimaldo et al. 2009), Grouped by Water Year Type

Water Year Type	Existing	Proposed Project	Proposed Project vs. Existing
Wet	333	2,251	1,918 (576%)
Above Normal	551	2,863	2,311 (419%)
Below Normal	670	2,494	1,824 (272%)
Dry	1,130	1,761	631 (56%)
Critical	1,171	991	-180 (-15%)



Note: Plot only includes mean responses and does not consider model uncertainty.

Figure 4.4-56. Box Plot of Longfin Smelt April–May Salvage, from the Regression Including Mean Old and Middle River Flows (Grimaldo et al. 2009), Grouped by Water Year Type

Increased entrainment-related mortality of larvae under the Proposed Project will harm Longfin Smelt

The DEIR fails to adequately analyze entrainment of larval Longfin Smelt or to disclose the impact of entrainment-related larval mortality on the Longfin Smelt population as a whole. The DEIR acknowledges that larval Longfin Smelt are more vulnerable to entrainment-related mortality than juveniles (CDFW 2019 at 6-96). Yet it fails to analyze entrainment in several months in which larvae are abundant near the south Delta export facilities; the risk of larval entrainment increases dramatically in two of those months (April-May) due to proposed operations.

Instead, the DEIR relies on findings of Kimmerer and Gross (2022) to assert that larval entrainment will average 1.5% of the population. (No rationale is provided which would explain why chronic loss of 1.5% of this one life stage via this one mechanism does not represent a significant impact to the population). Kimmerer and Gross (2022) underestimate the likely

magnitude of larval entrainment in several ways. First, that paper studied larval Longfin Smelt exposure to entrainment based on data from 2009-2020. But the rules that governed entrainment risk during that period (the 2008/2009 operational baseline) have now changed in ways that are expected to increase entrainment-related mortality of larval Longfin Smelt (*see above*; CDWR 2019 Table 4.4-8a at 4-173 shows estimated increases in entrainment of particles that serve as proxies for larval fish). Second, they assumed that larval Longfin Smelt were only susceptible to entrainment for approximately 7-13 days post hatching, but recent data reveal that larval many Longfin Smelt remain in low salinity habitats, which are often within the area affected by water exports, for 100-150 days (Lewis et al. 2019 at 9 and at 48-83 of the PDF). Third, Kimmerer and Gross (2002) estimated direct entrainment only during January-March (and the DEIR models entrainment of particles as a proxy for larval entrainment only during these months; Tables 6-24 and 6-25); but larvae remain in the upper estuary through at least May (SWRCB 2010 Table 2 at 45; CDFW 2010) and likely into June (CDFW 2010; Rosenfield 2010; Lewis et al. 2019 at 9 of the PDF). Omitting estimates of larval entrainment in April and May fails to disclose significant Longfin Smelt mortality that is likely to occur under the Proposed Project because (a) larval entrainment mortality occurs in months beyond what is estimated in the DEIR, (b) the salinity field usually moves east during April and May, increasing X2 and drawing rearing larvae closer to the export facilities (X2 is expected to increase under the Proposed Project relative to the baseline in most water year type during April and May (DEIR Appendix 4C at Table 4C-5-1-1c)), and (c) Old and Middle River flows are projected to become much more negative in April and May under the Proposed Project (Table 4B-2-8-1c), increasing the risk of larval entrainment.

Furthermore, the 2019 DEIR (CDFW 2019) also failed to analyze the effect of project operations (the current baseline) on entrainment of larval Longfin Smelt in April and May. Larval entrainment would be expected to increase significantly between the 2008/2009 operatoinal baseline and the SWP operations analyzed in CDFW 2019 – OMR flows became much more negative in April and May of the 2019 project, as evidenced by massive increase in juvenile entrainment expected under that project (*see above*) and increases in entrainment of particles meant to serve as proxies for larval entrainment during those months (CDWR 2019 Table 4.4-8a at 4-173). Because both X2 and negative OMR flows increase under the Proposed Project, larval Longfin Smelt entrainment will again increase substantially.

The proposed "Larval and Juvenile Longfin Smelt Protection" action is not reasonably certain to prevent entrainment-mortality. This action is only triggered when Longfin Smelt larvae are detected at two specific sampling locations. But fish sampling programs can fail to detect target fish, even when those fish are in the vicinity and susceptible to entrainment. This is especially likely when abundance of a target fish species is low, which is exactly the condition when preventing entrainment-mortality is most critical. For instance, Delta Smelt have been entrained on days when sampling designed to detect Delta Smelt failed to find any of these fish at stations near to the south Delta Export facilities. Specifically, on days in 2013 when Kodiak Trawl sampling detected no Delta Smelt at sampling stations nearest the south Delta water export facilities (January 7, February 4-6, March 4, and April 29-May 2), large numbers of Delta Smelt

were salvaged (16, 11, 4, and 284 fish, respectively; Figure 1). This indicates that Longfin Smelt larvae and juveniles are susceptible to entrainment-mortality, even when sampling programs fail to detect them close to the export facilities.

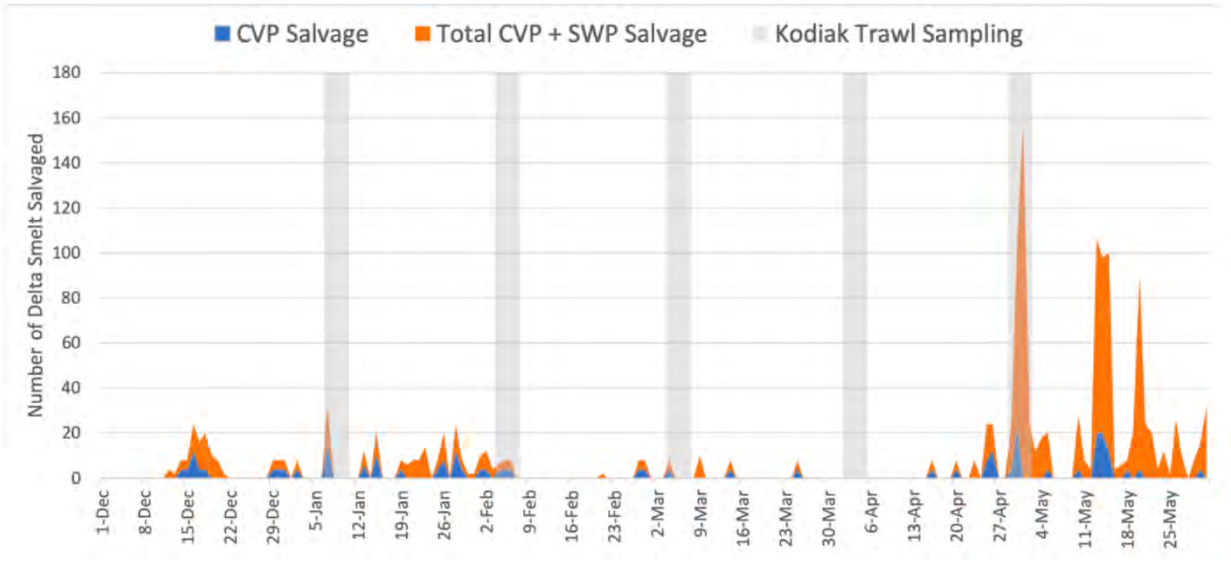


Figure 1: Reported CVP daily salvage of Delta Smelt (blue) and combined daily CVP/SWP salvage (orange), December 2012-May 2015. The USFWS's Kodiak Trawl detected no Delta Smelt and sampling stations nearest the export facilities during this period. On days when the Kodiak Trawl was sampling but detected no Delta Smelt (grey bars: January 7, February 4-6, March 4, and April 29-May 2), Delta Smelt were salvaged at both CVP and SWP water export facilities.

Entrainment-related mortality of larvae and juvenile Longfin Smelt represents a significant threat to the persistence of this population and its ability to recover, at least episodically (Rosenfield 2010). In fact, each previous Incidental Take Permit for SWP operations has included actions intended to limit this source of mortality, as does the current ITP; clearly CDFW considers Longfin Smelt entrainment mortality to be a problem that must be avoided and fully mitigated in a CESA permit. The very large proportional changes in entrainment projected for the Proposed Project, on top of massive increases in entrainment mortality expected under current operations relative to the 2008/2009 baseline, are likely to have measurable impacts on overall population dynamics. The final DEIR must:

- correct its flawed estimates of entrainment-related mortality,
- apply estimates of the likely conversion between juvenile salvage and entrainment loss that are based in the best available science (or at least study a range of such values),
- acknowledge that some entrainment is likely to occur even when Longfin Smelt "salvage" is zero,
- estimate larval entrainment impacts in April and May (at least)

- disclose the cumulative impact on larval and juvenile Longfin Smelt entrainment due to operational changes to those that persisted under the 2008/2009 BiOps
- and analyze the combined impact of reduced Delta outflows and increasing larval and juvenile Longfin Smelt entrainment-related mortality on overall population dynamics and viability.

2. Delta Smelt

Delta Smelt are now one of the most endangered species on Earth. They are found only infrequently in the wild and none have been caught in the fall midwater trawl since 2017 (although a few fish are still detected every year in other sampling programs and/or at the CVP/SWP export facilities). Given its dire plight, operational proposals that do not significantly improve status quo conditions are likely to lead to extinction of Delta Smelt in the wild (Smith et al. 2021) and are thus inconsistent with state and federal endangered species acts. The DEIR's comparisons to the status quo conditions do not disclose the harm to Delta Smelt that is likely from proposed operations. Relatedly, Delta Smelt life cycle modeling results presented in the 2024 CVP LTO draft EIS (federal DEIS 2024) in support of the forthcoming federal biological opinions, which is not utilized or presented in the DEIR, indicates that the nearly identical federal preferred alternative will result in continued declines in abundance of Delta Smelt (federal DEIS Figure 12-4 at 12-55). This result is not consistent with the DEIR's finding of no significant impact. One of the other modeled operational alternatives in the federal DEIS was expected to result in population growth; however, the DEIR does not consider this alternative or any alternative with similar environmental benefits (i.e., the DEIR does not consider an adequate range of alternatives).

The Proposed Project reinforces status quo conditions or makes them worse for Delta Smelt – it is not consistent with state or federal Endangered Species Acts. The DEIR finding that unmitigated negative impacts of Project Operations to critically endangered Delta Smelt are not significant is not consistent with CEQA.

Reduced Delta outflow under the Proposed Project will harm Delta Smelt
Numerous recent studies indicate that Delta Smelt population growth is positively correlated with Delta outflow during certain months and seasons (USFWS 2016, CDFW 2016, Polanski et al. 2020, CSAMP 2024). Reporting on results of the USFWS's Delta Smelt Life Cycle Model (Delta Smelt LCM), Polanski et al. (2020 at 358) states:

> "… the following relationships were observed: (a) recruitment was most influenced by temperature, the approximate location of the 2-ppt isohaline during the previous fall, and adult food (note also the export-inflow ratio had high evidence of support based on the models summarized in Table C.2); (b) post-larval survival by outflow and turbidity; (c) juvenile survival by turbidity (Secchi depth) and temperature; and (d) sub-adult survival by turbidity in the south Delta

> (south Secchi depth), a spatially localized hydrodynamics flow measure in the Old and Middle River corridor (OMR), and adult striped bass (*Morone saxatilis*)." (emphasis added)

Post-larval survival is positively associated with Delta outflow during June-August ("summer Delta outflow"; *see also* CSAMP 2024). Summer Delta outflow under the Proposed Project is expected to decrease in all water year types relative to baseline conditions (DEIR Appendix 4c Table 4C-3-10-1c at 189 of the PDF). Therefore, according to the best available science, the Proposed Project would be expected to harm Delta Smelt.

Recruitment of larval Delta Smelt is negatively associated with X2 (positively associated with Delta outflow) in the previous fall ("Fall X2"; USFWS 2008; Polansky et al. 2020; CSAMP 2024). The Proposed Project would reduce fall Delta outflow in Wet years, Below Normal years, and Dry years (DEIR Appendix 4c Table 4C-3-10-1c at 189 of the PDF), increasing fall X2 in those year types (DEIR Appendix 4c Table 4C-5-1-1c at p. 3 of the PDF). This decrease in fall Delta outflow is in addition to the decrease that was expected to result from current operations relative to the 2008/2009 operational baseline (CDWR 2019 Figure 4.4-27 at 4-14). As a result, it is more likely than not that the Proposed Project will harm Delta Smelt recruitment and post-larval survival.

The Proposed Project's "Summer Fall Habitat" action will not mitigate for the expected negative effects of flow changes described above. The DEIR makes clear that additional fall flow promised as part of the 2019 ITP, is not reasonably likely to occur under the Proposed Project, stating:

> "One of the actions required by the 2020 ITP (Condition of Approval 8.19) includes release of 100 TAF for Delta Outflow during June through September of wet and above-normal water years, or October immediately following the end of that water year. However, if conditions are appropriate and it is approved by CDFW, DWR may defer and redeploy the additional 100 TAF Delta Outflow to supplement Delta Outflow in the following water year during the March through September period, or the October immediately following the end of that water year. The additional 100 TAF is not required to be deployed if the following water year is a critically dry water year."

DEIR at 2-34 (emphasis added).

The Proposed Project suggests that: "DWR and Reclamation will consider food subsidy measures to augment the SFHA." (DEIR at 2-50). However, in addition to not being reasonably certain to occur, the effect of food subsidies that the DEIR describes are hypothetical and uncertain. Indeed, Hammock et al. (2019) indicate that Delta Smelt foraging success is improved by the physical context (proximity to marsh habitat) more than by prey abundance.

Increased entrainment-related mortality under the Proposed Project will harm Delta Smelt

The negative effect of entrainment-related mortality on Delta Smelt is well documented (USFWS 2008; 2019; Castillo et al. 2012). Recently, Smith et al. (2021 at 1021) concluded:

> "In a population in which recruitment success rates cannot sustain the population, no additional mortality is sustainable; there is no surplus production. Given average environmental conditions, no level of predicted delta smelt entrainment mortality, including that associated with zero net OMR, led to a high probability of population growth. No additional mortality can be sustained by the population, but that does not mean that entrainment mortality of 0 will result in its recovery".

Nonetheless, OMR flows are expected to become much more negative (flow toward the export pumps) in April and May under the Proposed Project, increasing the likelihood of larval and juvenile Delta Smelt entrainment mortality. The DEIR acknowledges (at 6-43):

> "The [particle tracking model] analysis suggests the potential for appreciable relative increases in larval and early juvenile Delta Smelt entrainment at CCF in April and May under the Proposed Project scenario compared to the Baseline Conditions scenario (Table 6-4). This reflects greater differences in OMR flows during this time-period ..."

DEIR Table 6.4 reveals that modeled entrainment of particles (which serve as a modeling proxy for Delta Smelt) would increase by 26%-216% in May (and this likely underestimates the increase in entrainment during drought conditions when Bay-Delta water quality requirements are waived under Temporary Urgency Change Orders). These findings are not consistent with conserving and eventually recovering Delta Smelt in the wild.

Given changes in combined CVP/SWP project operations since 2019, it is likely that entrainment of larval and juvenile Delta Smelt now has significant impact on overall Delta Smelt population dynamics, but the DEIR inappropriately dismisses the significance of those impacts. Using data from 1994 through 2015, Polansky et al (2020) found strong evidence that OMR/entrainment was a major factor in the survival of sub-adult Delta Smelt. Smith et al. (2021) found that hydrodynamic management resulted in lower entrainment mortality in the period 2007-2015. However, constraints on negative OMR have weakened substantially compared to the periods studied by Polansky et al. and Smith et al. And the Proposed Project would again weaken requirements for OMR flow that are designed to minimize entrainment mortality.

During the OMR management season, OMR will be limited to no more negative than -5,000 cfs. The Proposed Project's Adult Delta Smelt "turbidity bridge" trigger will require reduction of negative OMR to -3,500 cfs for 10 days. This is less protective than the baseline operations, which required reduction of OMR to no less than -2000 cfs for 5 days (DEIR Appendix 4A attachment 2 at 4A-2-7). Both the default OMR limit and the new proposed threshold following initiation of the "turbidity bridge" action are arbitrary and capricious. The DEIR fails to

demonstrate that these OMR thresholds are adequately protective of Delta Smelt or any of the other species for which entrainment is a concern. CDWR previously admitted that OMR flows of -5,000 cfs represented "the inflection point at which entrainment tends to sharply increase." CDFW 2019 at 4-123. In fact, the 2008 USFWS BiOp RPA restricted use of the -5,000 cfs limit to a "low-entrainment risk" scenario. Under a "high-entrainment risk scenario," OMR flow was limited to fourteen-day moving averages no more negative than - 3,500 cfs or -2,000 cfs (USFWS 2008 at p. 353–54) depending on actual salvage of Delta Smelt. The Proposed Project does not include any limit on actual entrainment of Delta Smelt adults and, because they are now so far, any entrainment of adult would represent a severe negative impact (Smith et al. 2021) that should be avoided at all costs. The DEIR should be revised to analyze whether impacts that are likely to occur as a result of weakening the "turbidity bridge" element and other OMR thresholds are adequately protective of Delta Smelt and other fish populations and whether these impacts can be fully mitigated or avoided.

The negative effects on Delta Smelt of continued weakening of OMR constraints under the Proposed Project are large and obvious. As noted above, entrainment of particles meant to serve as proxies for Delta Smelt entrainment were projected to increase dramatically (by 26% to 321% depending on the water year type) during April and May under the 2019 project (which is now the baseline) relative to the 2008/2009 BiOp baseline (CDWR 2019 Table 4.4-8a at 4-173). The Proposed Project threatens to increase Delta Smelt entrainment again during these months. As a result of these consecutive changes in the project operations, entrainment of larval and juvenile Delta Smelt is expected to have increased many-fold compared to conditions studied by Polansky et al. (2020) and Smith et al. (2021). It is now likely that entrainment of larval and juvenile Delta Smelt is a serious threat to Delta Smelt persistence. The draft DEIR should be revised to reflect this reality and project operations should be modified to avoid this impact, especially given the grave status of Delta Smelt and the consequences of additional entrainment-related mortality.

3. White Sturgeon

In response to a petition from some of our organizations (Baykeeper et al. 2023), the California Fish and Game Commission recently declared California White Sturgeon to be a candidate for listing under the state Endangered Species Act (CESA)[30]. This means that this population receives full protection under CESA until CDFW completes a status review. White Sturgeon harvest is now prohibited and what had been a valuable fishery is now closed. It is appropriate for the DEIR to analyze potential impacts of proposed CVP/SWP combined operations on White Sturgeon, and to minimize and fully mitigate those impacts that are expected to result from those operations. Table 6-1 of the DEIR should be revised to properly reflect the "candidate" status of California White Sturgeon that are affected by project operations

[30] A federal petition to list the San Francisco Bay estuary watershed population of White Sturgeon is pending.

The only known spawning population of White Sturgeon in California is found in the San Francisco Bay watershed. Most spawning occurs in the Sacramento River although NMFS (17388 Federal Register/Vol. 70, No. 65 citing Beamesderfer et al. 2004), CDFW 2015, and Heublein et al. (2017) indicate that White Sturgeon may spawn in the Feather River. Spawning has also been detected in recent years in the San Joaquin River mainstem, though reproductive success has not been confirmed (Jackson et al. 2016). The California White Sturgeon population is declining and imperiled. CDFW (2015 at p. 224) states "Annual recruitment of white sturgeon in California appears to have decreased since the early 1980s." Similarly, Blackburn et al. (2019 at pp. 897-898) observed that "Few age-0 and age-1 White Sturgeon have been sampled since 1998, and only two strong year-classes (2006 and 2011) have been documented in the last 19 years [through 2016]"; they concluded, "[c]ontinued poor recruitment has the potential to put the population at risk." In 2022 and 2023, large numbers of White Sturgeon were killed by a harmful algal bloom in San Francisco Bay, which further degraded the viability of this imperiled fish (CDFW 2023)

Recruitment of juvenile White Sturgeon is positively correlated with high river flows and Delta outflow during spring and early summer months (Israel et al. 2009; CDFW 2015, 2023; SWRCB 2017; *see also* AFRP 2001; Moyle 2002; Willis et al. 2022). The connection between White Sturgeon reproductive success and high river flows is also known from other watersheds (Parsley and Beckman 1994). One of the main threats to California White Sturgeon is the diversion of fresh water from major Central Valley rivers where they spawn, incubate, and rear as larvae (or did so historically), and diversion from the Delta, which is habitat for juveniles, sub-adults, and adults. Chronically low river flows and reductions in freshwater inflow to San Francisco Bay (Delta outflow) resulting from water diversion and storage operations have been implicated in the decline of California White Sturgeon (CDFW 2015; Jackson et al. 2016; SWRCB 2017; Baykeeper et al. 2023). As a result, successful cohort formation is infrequent for California White Sturgeon, corresponding to years of high spring-summer river flows into and out of the Delta (Moyle 2002; Fish 2010; CDFW 2015 citing Kohlhorst et al. 1991 and Schaffter and Kohlhorst 1999; SWRCB 2017).

The SWRCB analyzed the relationship between recruitment of juvenile White Sturgeon and average freshwater Delta outflow in March-July (SWRCB 2017). That analysis found that recruitment of juvenile White Sturgeon was much less likely to occur when March-July average flows were below certain thresholds (see Figures 3.6-2 and 3.6-3 of SWRCB 2017 at pp. 3-65) and determined that monthly average Delta outflows > 37,000 cfs during this period were necessary to protect the public trust benefits of California White Sturgeon. From 1980-1999, average March-July Delta outflows >37,000 cfs occurred 30% of the time (6 out of 20 years). Since 1999, flows of this magnitude have occurred only 17.4% of the time (4 out of 23 years). Reis et al. (2019 Table 5 at 12) show that the frequency of wet and above average hydrology (as they measured it) experienced by White Sturgeon in the Bay's watershed is reduced by water diversions and storage, including operations of the SWP.

Furthermore, Baykeeper et al (2023) showed that recruitment of YOY White Sturgeon was very low or zero when Sacramento River flows ("SAC" + "YOLO" variables in Dayflow) average < 30,000 cfs between April and July (Figure 2).

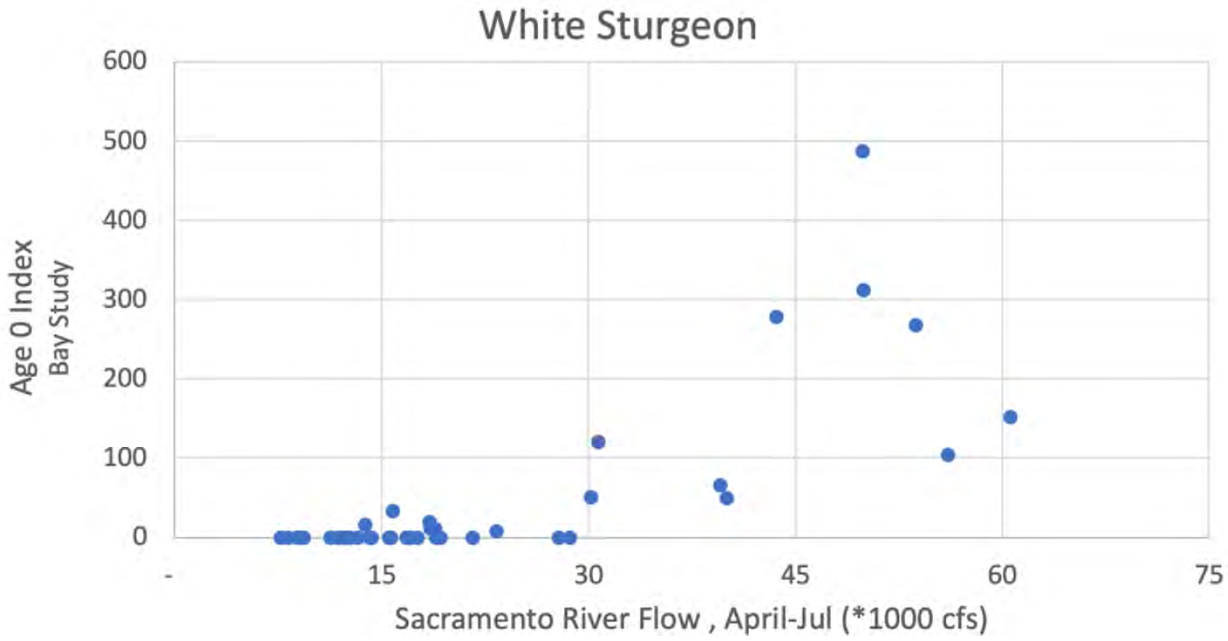


Figure 2: Relationship of spring-summer Sacramento River flow (= "SAC" + "YOLO" variables in Dayflow; https://data.cnra.ca.gov/dataset/dayflow) and an index of California White Sturgeon juvenile recruitment (source: Age 0 California White Sturgeon Index, CDFW//Interagency Ecological Program's Bay Study Otter Trawl).

Reduced River Flows and Delta Outflows under the Proposed Project will harm White Sturgeon

The DEIR reveals that the Proposed Project will have negative effects on the Bay's White Sturgeon population. Based on a linear regression of the White Sturgeon year class index (Age 0 + Age 1 fish), the DEIR projects declines in Wet and Above Normal year types (DEIR Tables 6-80 at 6-208 and 6-81 at 6-209). Projected impacts in Dry years are likely to be erroneous because juvenile White Sturgeon production generally occurs only in wetter years (Figure 2; Willis et al. 2022)[31]. Project operations that exacerbate one of the major forces driving the long-term decline

[31] Projections for change in drier year types reveal flaws in the analysis that would tend to understate the true impact of the Proposed Project. The DEIR's method for calculating Delta Outflow impacts of the Proposed Project on White Sturgeon (DEIR Appendix 6B at 6B-408) assumes that the relationship between production of White Sturgeon juveniles and Delta outflow is log-linear across the range of inflows. Figure 2 reveals that young-of-year (Age 0) White Sturgeon are almost never produced when Sacramento River flows are below a certain level and the recruitment-flow relationship is non-linear (a pattern sometimes referred to as a "hockey stick"). Because the DEIR applies a log-linear regression across the range of flows, it estimates that project operations will affect production of juvenile White Sturgeon across the range of flows. But this is unlikely and the analysis is flawed. Ignoring the non-linear nature of the flow-juvenile production relationship also means that the DEIR's regression is lower magnitude

of a fish that is already imperiled and protected under CESA is a significant impact on the environment, and contrary to CESA. The DEIR must be revised to disclose and address this impact.

Failure to analyze or disclose effects of the Proposed Project as a whole
Despite the strong evidence that White Sturgeon population viability (i.e., population abundance, productivity, spatial distribution) benefits from a relatively high frequency of relatively high river flows into and through the Delta, the DEIR fails to analyze or disclose the likely negative effects of the SWP's Oroville reservoir operations (including reduction of April-July flows and radical alteration of the timing of those flows) on White Sturgeon reproductive success in the Feather River.

Moreover, the DEIR fails to disclose effects of the Proposed Project on entrainment of White Sturgeon at the CVP's south Delta water export facilities. CVP and SWP operations are coordinated and their combined effect on Delta hydrodynamics results in entrainment of White Sturgeon at both facilities. Ignoring an effect of the Proposed Project on entrainment of White Sturgeon at the CVP represents a failure to consider the effects of the whole project and a failure to properly evaluate cumulative effects.

Entrainment-related mortality under the Proposed Project will harm White Sturgeon
The DEIR shows that average annual entrainment mortality of White Sturgeon juveniles will increase in most year-types (Table 6-79 at 6-207). The DEIR's analysis regarding the potential impact of entrainment on the Bay's White Sturgeon population is flawed because its calculation of average entrainment includes years where White Sturgeon juvenile abundance is very low or zero – i.e., the plurality of years in which reproduction is unsuccessful. In many years, hundreds of White Sturgeon are salvaged – in 2023, almost one thousand White Sturgeon juveniles appeared in salvage. And, as discussed above (*see* discussion of Longfin Smelt), entrainment-related mortality is likely to be higher than salvage; the DEIR does not disclose this impact Nevertheless, the DEIR states (at 206) "salvage as assessed with the salvage-density method … would be expected to be low under the Proposed Project and Baseline Conditions, with limited differences anticipated between the scenarios based on modeled exports … and generally similar entrainment risk." Despite this unsupported assertion, the DEIR's analysis of impacts to White Sturgeon focusses only on entrainment-related impacts to White Sturgeon at CVP/SWP export facilities. The proposed "White Sturgeon Protection Measures" (DEIR Section 2.3.4) amount to convening a technical team to develop studies related to entrainment. DWR proposes to consider relevant data to inform "take reduction measures" by 2027 and "[i]n the interim, DWR and CDFW will develop information that will form the basis of an operational assessment in the

("flatter") than the actual relationship, thus it likely underestimates production of juveniles at high flows. As a result, the DEIR's analysis is likely to underestimate the Proposed Project's effects on White Sturgeon production in wetter years, relative to the baseline.

event of elevated entrainment risk that may lead to the implementation of a measure to reduce take at the SWP" (DEIR at 2-31).

Although we support scientific research into factors that may reduce take of White Sturgeon at the export pumps, (a) those studies do nothing to minimize or fully mitigate the take that occurs now and will occur under the Proposed Project, and (b) the impacts DWR proposes to study are not the only major impacts to the White Sturgeon population from current or proposed operations. Conserving this species and the options to recover it requires applying the best *available* science. At this time, the science clearly indicates that White Sturgeon are harmed by operations that reduce flows into or through the Delta when those flows would exceed certain thresholds.

4. Chinook Salmon -- spring-run

The viability of spring-run Chinook Salmon is extremely precarious (Lindley et al. 2007; NMFS 2014) and NMFS now considers the species to be at "high" risk of extinction (SWFSC 2023). Spring-run Chinook Salmon abundance and productivity are low and declining. They are also at high risk from localized catastrophic events (fire, volcanic activity, disease outbreaks, chemical spills) because of their constricted geographic range[32]. Elevated genetic influence from hatchery-reared fish and degraded life-history diversity also undermines the viability of this species.

Failure to analyze or disclose effects of the Proposed Project as a whole
The DEIR's failure to analyze or disclose impacts of Oroville Reservoir operations on state and federally threatened Central Valley spring-run Chinook Salmon is a significant omission. Operations of Oroville are intimately and inextricably connected to SWP export operations in the Delta. The Feather River hosts a persistent population of wild-spawning spring-run Chinook salmon, which is affected by operations of Oroville Reservoir (NMFS 2014 at 40-42). The federal ESA recovery plan for Central Valley salmonids recommends many actions necessary to recover Central Valley spring-run Chinook salmon that implicate Oroville operations, including "Manage releases from Oroville Dam with instream flow schedules and criteria to provide suitable water temperatures for all life stages, reduce stranding and isolation, protect incubating eggs from being dewatered, and promote habitat availability" (NMFS 2014 at 241-252). By omitting any analysis of the Proposed Project (or the baseline) on Oroville operations, the DEIR fails to analyze or disclose the totality of SWP operational impacts on spring-run Chinook Salmon.

[32] As this is written, two of the few remaining wild Central Valley spring-run Chinook Salmon populations are at grave risk from wildfires that are ravaging their watersheds (KQED 2024 at https://www.kqed.org/news/11998224/park-fire-jeopardizes-californias-iconic-spring-run-chinook-salmon).

Entrainment-related mortality under the Proposed Project will harm threatened spring-run Chinook Salmon

Entrainment-related loss impairs the viability of imperiled Chinook Salmon (Kimmerer 2008). The DEIR anticipates that the Proposed Project will dramatically increase entrainment-related mortality of spring-run Chinook Salmon. Loss of juvenile spring-run Chinook Salmon in the SWP export infrastructure is expected to increase by 7%-48% under the Proposed Project versus the baseline (DEIR Table 6-67 at 6-165). The DEIR acknowledges (at 6-175), "[t]here is greater potential for negative effects on spring-run Chinook Salmon under the Proposed Project relative to Baseline Conditions as a result of spring (April/May) Entrainment…" Moreover, the baseline was estimated to produce very large increases in mortality of spring-run Chinook Salmon as compared to operations under the 2008/2009 biological opinions (CDWR 2019 Table 5.3-15 l. at 5-174). The DEIR fails to disclose this impact of the Proposed Project or its baseline on spring-run Chinook Salmon. Furthermore, the DEIR fails to analyze or disclose the effects of the Proposed Project on spring-run Chinook Salmon entrainment-related loss in the CVP export infrastructure, despite the fact that coordinated operations of the two water projects produces environmental conditions (e.g., OMR) that affect entrainment rates at both facilities.

Project impacts on through-Delta survival under the Proposed Project will harm spring-run Chinook Salmon

River flow and diversion patterns affect through-Delta survival of juvenile Chinook Salmon (SWRCB 2017; Perry et al. 2018; Michel 2018; Hance 2022; Notch et al. 2020). NMFS has repeatedly warned that, "[s]mall reductions across multiple life stages can be sufficient to cause the extirpation of a population," and in the WaterFix biological opinion[33] concluded that a 1% reduction in survival observed in the Delta Passage Model "can impact the population to a greater degree," and that a "1% to 2% mean reduction in survival is a notable reduction for an endangered species, especially if it occurs on a consistent (i.e., annual) basis."

Reducing the negative effects of CVP/SWP operations (exports and reservoir releases) on Chinook Salmon migration through the Delta is essential to ensuring the viability of imperiled populations and preserving opportunities to recover them. NMFS recovery plan for endangered Central Valley salmonids identifies a suite of actions needed to achieve minimum through-Delta survival objectives of "… 57% for winter-run, 54% for spring-run, and 59% for steelhead originating from the Sacramento River; and 38% for spring-run and 51% for steelhead originating from the San Joaquin River" (NMFS 2014 Table 5-4 at 127). Among the actions necessary to achieve these targets NMFS (2014) calls for: minimizing the frequency, magnitude, and duration of reverse flows in Old and Middle River to reduce the likelihood that fish will be diverted from the San Joaquin or Sacramento rivers into the southern or central Delta (at 133); augmenting flows and curtailing exports during critical migration periods (April- May) (at 135); and other actions to reduce mortality from entrainment and salvage.

[33] National Marine Fisheries Service, Final Biological Opinion, California WaterFix Project, NMFS Consultation No. WCR-2016-5506.

The DEIR claims that the Proposed Project will have little effect on survival of spring-run Chinook Salmon smolts migrating through the Delta relative to the baseline[34]. The DEIR fails to disclose that baseline through-Delta survival for spring-run Chinook Salmon smolt was previously estimated to be ~35% at best and just over 15% during Critical years (CDWR 2019 Figure 4.4-75 at 4-218), always far less than the NMFS (2014) target for through-Delta survival of this run (54%). The DEIR does not disclose that its baseline produced lower survival than the baseline modeled with requirements of the 2008/2009 biological opinions (CDWR 2019 at 4-218). Thus, the Proposed Project maintains through-Delta survival rates that are inconsistent with viability of, and limit possibilities to recover, this population.

The analysis also reveals that CDWR does not know how efficient its Bioacoustic Fence mitigation will be (the DEIR models two assumptions regarding efficiency) and that the effect of this proposed mitigation is inconsistent (sometimes positive, sometimes negative as compared to no mitigation). Regardless of the assumptions made in the DEIR regarding efficiency of this mitigation, the effect of this mitigation is never meaningfully positive (DEIR Tables 6-37 through 6-46).

Restoring spring-run Chinook Salmon populations to the San Joaquin Valley is essential to the recovery of Central Valley spring-run (NMFS 2014; SWFSC 2023). Through-Delta survival of juvenile spring-run Chinook Salmon from the San Joaquin River is nearly identical in every year type under the Proposed Project compared to the baseline (DEIR Table 6-69 at 6-171). Median survival is expected to be <20%, approximately half of the NMFS (2014) minimum survival target for spring-run from the San Joaquin Valley. The DEIR does not reveal that through-Delta survival under the Proposed Project would foreclose opportunities to recover spring-run Chinook Salmon.

These results indicate that the Proposed Project is not consistent with protection and eventual recovery of spring-run Chinook Salmon, contrary to the requirements of federal and state endangered species acts. The DEIR fails to disclose this impact.

[34] The presentation of DEIR's analyses of through-Delta survival of Chinook Salmon juveniles obfuscates and fails to acknowledge significant impacts of the Proposed Project. Multiple-models are applied to analyze this issue, including physical modeling (e.g., velocity) at various locations and different biological models of overall migration success. The DEIR does not explain the relevance or relative merits of these models. With respect to modeling through-Delta survival of Chinook salmon smolt, the STARS model (Perry et al. 2018) is considered to be the best available science and our critique of project impacts is based on those modeled outputs. Modeling results are presented by month (rather than as annual averages) and sometimes within month estimates are provided based on different assumptions about mitigation efficacy. This cumbersome and confused presentation of results is a significant barrier for the general public to understand project impacts.

5. Chinook Salmon – winter-run

The viability of winter-run Chinook Salmon is extremely precarious (Lindley et al. 2007; NMFS 2014 and NMFS now considers the species to be at "high" risk of extinction (SWFSC 2023). Winter-run Chinook Salmon abundance and productivity are low and declining. Winter-run are also at high risk from localized catastrophic events (fire, volcanic activity, disease outbreaks, chemical spills) because of their extremely constricted geographic range. Elevated genetic influence from hatchery-reared fish and degraded life-history diversity also undermines the viability of this species.

The decline in winter-run Chinook Salmon viability has continued despite existing safeguards including water quality requirements, provisions of the 2019 biological opinions, the 2020 CESA ITP, and the Bay-Delta water quality control plan (i.e., the baseline) intended to maintain this unique population. In NMFS's most recent viability assessment of endangered salmonids, the agency concluded:

> "The overall viability of the [winter-run Chinook Salmon] ESU has continued to decline since the 2015 viability assessment (Johnson and Lindley 2016), with the single spawning population on the mainstem Sacramento River no longer at a low/moderate risk of extinction (Table 5.4)" (SWFSC 2023 at 142).

In other words, the status quo leads to decline of winter-run Chinook Salmon under the current baseline. The life cycle modeling results presented in the 2024 CVP LTO draft EIS (USFWS 2024) in support of the forthcoming federal biological opinions, which is not utilized or presented in the DEIR, also indicates that the nearly identical federal Proposed Action will result in continued declines in winter-run Chinook salmon, stating "[o]verall, all phases of Alternative 2 [the preferred alternative] and the No Action Alternative had mean annual decreases in spawner abundance, (federal DEIS Appendix O at O-705)." These findings are not consistent with the DEIR's assertion that the effects of the Proposed Project on endangered winter-run Chinook Salmon are not significant.

Entrainment-related mortality under the Proposed Project will harm winter-run Chinook Salmon
The DEIR claims (at 6-117) that "… entrainment loss of juvenile winter-run Chinook Salmon at the SWP south Delta export facility would be similar between Baseline Conditions and Proposed Project scenarios (Table 6-33)." This is plainly untrue based on results presented in Table 6-33 (at 6-118), which shows that entrainment will increase or decrease by more than 10% in several year types. Averaging across these water year types does not capture the true risk of entrainment impacts to winter-run Chinook Salmon as there can be no expectation that these year types are distributed evenly through time. For example, if Critically Dry years occur in sequence (as has happened repeatedly in the recent past), then negative impacts projected for those year types would compound within one generation of winter-run Chinook Salmon. Furthermore, because Bay-Delta water quality requirements are frequently waived, especially during Dry and Critically Dry years, and enforcement of endangered species act requirements (i.e., OMR flows

requirements) is frequently relaxed under these conditions (Reis et al. 2019), modeled estimates of loss that assume these baseline will be consistently enforced are unlikely to be accurate and are likely to underestimate the true impact of entrainment loss on winter-run Chinook Salmon.

Furthermore, the provision that is supposed to protect early season winter-run Chinook Salmon juvenile migration is inadequate to avoid or fully mitigate entrainment impacts. First, this provision would only be triggered once winter-run salvage has exceeded certain thresholds. By the time salvage is detected (a) the damage has already occurred and (b) heavy "loss" of winter-run is likely to continue to occur because the fish are already in close proximity to the export infrastructure. Second, once salvage thresholds are triggered, the provision would only reduce exports to achieve OMR of -5,000 cfs. The 2008/2009 operational baseline did not permit OMR to be more negative than -5,000 cfs and required reducing exports to achieve more positive levels of OMR when winter-run Chinook Salmon were being salvaged or at risk of high levels of "loss" at the export facilities. The Proposed Project makes what was once the lowest level of protection for winter-run Chinook salmon into the upper limit of protection, even when fish are actively being killed at the export facilities. The experience of 2023, when the winter-run "loss" limit identified in the NMFS 2019 BiOp was exceeded over a prolonged period demonstrates that OMR flow rates even modestly more positive than -5,000 cfs are unlikely to be protective of endangered winter-run Chinook Salmon.

Also, the DEIR fails to disclose that entrainment under the existing baseline has exceeded the incidental take limit of the 2019 biological opinion (Reclamation 2024; NMFS 2024). This demonstrates that entrainment of winter-run Chinook Salmon is higher than expected (and higher than modeled) under the baseline. It also demonstrates that the 2019 biological opinion and 2019 CESA ITP (i.e., baseline) are inadequately protective of winter-run Chinook Salmon. The DEIR's assurances that entrainment under the Proposed Project will be "similar" to the baseline indicate that the Proposed Project will not be consistent with the requirements or intent of state and federal endangered species acts.

Project impacts on through Delta survival under the Proposed Project will harm winter-run Chinook Salmon

The DEIR indicates that the Proposed Project will have little effect on through-Delta survival of winter-run Chinook Salmon relative to the baseline (at 6-131 and 6-146). Baseline survival through the Delta was previously estimated to be less than 40% in all cases, and less than 20% in Critically Dry years (as elsewhere, these estimates fail to disclose the impact on winter-run Chinook Salmon survival through the Delta of waiving water quality requirements with TUCOs and/or relaxing enforcement of the 2008/2009 biological opinion RPAs). This is well below NMFS (2014) target for through-Delta of winter-run 57%. The DEIR estimates that proposed operations will have little effect on winter-run Chinook Salmon survival through the Delta, meaning that survival will remain well-below that needed for recovery of this endangered species. Operations of the SWP thus preclude opportunities to recover winter-run Chinook Salmon. The DEIR fails to disclose this impact.

The relevant months for winter-run Chinook Salmon migration through and out of the Delta are October through April (Figure 3). The DEIR's application of the STARS model shows that winter-run Chinook Salmon through-Delta survival under the Proposed Project will be equal to or worse than the baseline in most years in October (Table 6-48 at 6-152), December (Table 6-50), and February (Table 6-52). Other months are projected to have survival rates that are less than or equal to the status quo in multiple water year types. In cases where analyses suggest the likelihood of increased survival relative to the status quo, such increases are tiny. As discussed above, it is very likely that river flows and Delta outflow will decrease and the negative effect of Delta hydrodynamics (e.g., increasingly negative OMR) will increase in years where project operations are governed by TUCO's and/or waivers/relaxed enforcement of ESA safeguards. Thus, expectations of through-Delta survival rates for winter-run Chinook Salmon are likely to be less positive in real life than they are in the DEIR's modeling.

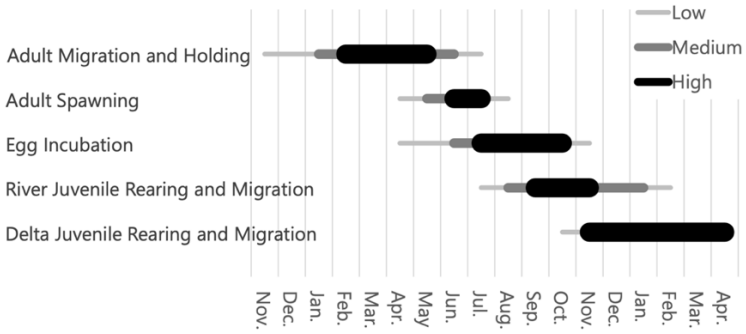


Figure C-2. Summary of Temporal Life Stage Domains for Winter-Run Chinook Salmon

Figure 3: Figure C-2 copied from Reclamation's Biological Assessment of Central Valley Project long-term operations; Appendix AB-C of Reclamation's DEIS for Central Valley Project long-term operations at p. 22 of the PDF.

The DEIR does not reveal that the project baseline was expected to result in lower through-Delta survival of winter-run migrating prior to December (CDWR 2019 at 5-163), a pattern that is potentially exacerbated under the Proposed Project. Nor does the DEIR disclose that baseline survival, which was previously estimated to range from below 20% in Critically Dry years to at best < 40% in Wet years (CDWR 2019 Figure 5.3-57 at 5-162), is well below the 57% survival that NMFS targets as the minimum necessary to recover this endangered salmon population[35].

6. Chinook Salmon – fall-run

Central Valley fall-run Chinook Salmon are the backbone of the California and Oregon coastal recreational and commercial fisheries. These fisheries have been closed for two years straight

[35] CDWR does not disclose why its estimates of winter-run Chinook Salmon survival in the current DEIR appear to be inconsistent with (higher than) estimates generated by the same model for the 2019 DEIR.

because of low production of juvenile salmon in previous years.[36] Chinook Salmon are also a traditional food source for Central Valley Indian Tribes – the tribal fishery has also been severely impacted by declines in all Central Valley Chinook Salmon populations. The DEIR fails to disclose the full impact of proposed operations on the coastal fishing industry or Tribal cultural and subsistence fishing.

The DEIR identifies important impacts to fall-run Chinook Salmon production arising from the Proposed Project. The DEIR projects very large increases in entrainment of fall-run Chinook Salmon under the Proposed Project (at 6-172). Similarly, the DEIR indicates that through-Delta survival of fall-run Chinook Salmon would be reduced under the Proposed Project in the vast majority of years, relative to the Proposed Project. The DEIR fails to disclose that the baseline represents a decrease in survival of fall-run Chinook Salmon migrating through the Delta as compared to conditions that prevailed under the 2008/2009 biological opinions (CDFW 2019 at 4-233 and 4-236).

As elsewhere, the DEIR fails to disclose the full impact of proposed operations by failing to analyze impacts on the Feather River population of fall-run Chinook Salmon related to Oroville Reservoir, the largest dam in the State Water Project. The DEIR also fails to analyze the impact on fall-run Chinook Salmon survival of waivers to water quality standards in the Bay-Delta (i.e., TUCOs) or relaxation of water temperature requirements upstream (i.e., changes in the temperature control point or temperature limits under WR 90-5), which are affected by joint operations of the CVP/SWP.

In addition, the DEIR fails to analyze whether and how the Proposed Project would affect achievement of the Bay-Delta Water Quality Control Plan's narrative salmon protection objective, which calls for doubling of natural production of Central Valley Chinook Salmon runs as compared to their 1967-1991 average. This omission applies to the other runs of Central Valley Chinook Salmon as well. Levels of through-Delta survival and entrainment under the baseline produce conditions that are inconsistent with attainment of the narrative salmon protection objective; the DEIR acknowledges that the Proposed Project would further degrade those conditions. The failure of the Proposed Project or alternatives to provide flow and water quality conditions inconsistent with achievement of the narrative salmon protection objective constitutes a significant impact under CEQA because it would impede compliance with a water quality standard.

7. Central Valley Steelhead

The Central Valley Steelhead distinct population segment is imperiled by combined operations of the CVP and SWP. The population has been listed as threatened under the federal endangered

[36] CDFW 2024 available at: https://wildlife.ca.gov/News/Archive/pfmc-recommends-repeat-closure-for-californias-2024-ocean-salmon-fisheries

species act since 1998. Although, NMFS considers it to be "stable", at "moderate" risk of extinction (SWFSC 2023), it finds, "... the majority (11 of 16) of populations for which there are data are at a high risk of extinction based on abundance and/or hatchery influence, with no population considered to be at a low risk of extinction." In addition, NMFS notes " [t]he lack of improved natural production ... [and] low abundances coupled with large hatchery influence in the Southern Sierra Nevada diversity group are causes for continued concern." (SWFSC 2023 at 156).

Entrainment-related mortality under the Proposed Project will harm winter-run Central Valley Steelhead

The DEIR's conclusion that increased entrainment are not a significant impact to the federally threatened Steelhead population is unsupported by the best available science. Entrainment-related mortality ("loss") is projected to be higher under the Proposed Project than under the baseline (Table 6-77 at 6-196). The DEIR also fails to disclose that loss is more likely than not to be higher than the values portrayed in Table 6-77. First, the DEIR does not disclose potential changes in Steelhead entrainment at the CVP export facilities; entrainment and related mortality are a function of combined operations and federal take limits are generally for combined "loss" of the two projects (NMFS 2019 BiOp at 809-810). Second, the DEIR does not disclose that in 2023 existing controls on exports (i.e., the baseline) resulted in loss that significantly exceeded two separate loss limits identified in the 2019 Biological Opinion (Reclamation 2024). These exceedances demonstrate again that limits on baseline operations are inadequate to protect federally endangered species, like Central Valley Steelhead.

Furthermore, the DEIR fails to separately analyze project impacts to Central Valley Steelhead migrating from the San Joaquin valley (the "southern Sierra diversity group") even though (1) NMFS (2014) identifies these Steelhead as critical to the viability and recovery of Central Valley Steelhead as a whole, and (2) juveniles in the southern Sierra diversity group are maximally exposed to entrainment (because they must migrate past the CVP/SWP export facilities) during April and May, when the risk of entrainment increases dramatically under the Proposed Project (i.e., because project exports (Appendix 4C-4 Table 4C-4-3-1c at p. 47 of the PDF) and negative OMR flows (Appendix 4C-3 Table 4C-3-8-1c at p. 145 of the PDF) are expected to increase).

C. Elements of the Proposed Project are inconsistent with the best available science and are likely to cause harm in addition to that disclosed in the DEIR.

Like its predecessor, the Proposed Project includes a "storm flex" provision which allows for OMR index values up to -6,250 cfs between the start of OMR management season and either the onramp of the larval and juvenile Delta Smelt protection action onramp or the last day of February, whichever occurs first. As we described in our comments on the previous EIR for the 2019 ITP, this provision is inadequately defined and would allow for conditions that are known to increase the risk of entrainment-related mortality for numerous imperiled fish species. CDWR previously admitted that OMR flows more negative than -5,000 cfs would exceed the "-5000

inflection point deemed protective of Delta smelt entrainment risk," and that -5,000 cfs OMR is "the inflection point at which entrainment tends to sharply increase" (CDFW 2019 at 4-123). The storm flex provision also increases the risk that salmonids (particularly winter-run Chinook Salmon, spring-run Chinook Salmon yearlings, late-fall run Chinook Salmon, and Central Valley Steelhead) will experience reduced through-Delta survival and entrainment-related mortality ("loss") at the south Delta export facilities. In fact, NMFS described the likely effects of the 2019 federal CVP storm-flex provision, as follows:

> "The salvage density modeling shows that salvage and associated loss increases with exports during months when listed salmonids are present in the Delta. Therefore, if fish are present in the vicinity of the export facilities in the south Delta during a time that storm flex export operations are implemented, NMFS concludes there will be an increase in the number of fish entrained into the salvage facilities above that which would have been seen with no increases in exports. Furthermore, since listed salmonids tend to start migrating downstream in response to elevated flows in the Sacramento River basin and San Joaquin River basin waterways, there is a high probability that more fish will be present in the Delta exactly when the CVP and SWP increase their exports. Besides the fish entering the Delta on the elevated storm flows, listed salmonids (especially winter-run Chinook salmon) may already be present in the Delta due to migration earlier in the year..."

2019 NMFS BiOp at 531 (emphasis added).

The Proposed Project's limits on OMR, including the constraint that OMR flows can be no more negative than -6500 cfs, do not minimize the potential negative effects of project operations that result from the storm-flex provision. Important details of the Storm Flex provision remain undefined or are clearly unprotective:

- "storm" is defined as merely "measurable precipitation." The only additional qualification of what qualifies as a storm is that CDWR and Reclamation must determine that there is a higher level of outflow "available for diversion"
- elevated export rates could continue indefinitely after a "storm" occurs, unless a real-time OMR protection is "likely to be triggered," but storm flex decisions will be re-evaluated only on a weekly basis, meaning that significant entrainment may occur while the WOMT evaluates the potential effect of maintaining storm-flex relaxation of constraints on OMR. Furthermore, the real-time salvage triggers (e.g., salvage/loss limits) are generally lagging indicators; by the time these impacts are noticed, significant impacts are likely to have occurred already.

Given CDWR's finding that OMR more negative than -5,000 cfs is not protective of Delta Smelt and high levels of winter-run and Steelhead "loss" during 2023 which indicate that such negative OMR flows are not protective of imperiled salmonids, it is unclear why the Proposed Project allows exceeding this threshold any time that the Delta is in excess conditions, and why the

DEIR maintains that more negative OMR flows would not cause a significant environmental impact under CEQA.

In summary, given the imperiled status of these species, the further reductions in abundance and survival caused by the Proposed Project constitute mandatory findings of significant impacts under CEQA. The populations of Delta smelt, Longfin smelt, White Sturgeon, Green Sturgeon, winter-run Chinook salmon, and spring-run Chinook salmon already are not self-sustaining (particularly without hatchery supplementation of salmonids and Delta Smelt) and are declining in abundance, and the Proposed Project would further "cause a fish or wildlife population to drop below self-sustaining levels." Cal. Code Regs., tit. 14, § 15065(a)(1).[37] Because the DEIR fails to recognize these mandatory findings of significance, the document must be revised to acknowledge these significant impacts and propose necessary mitigation measures, and the revised DEIR must be recirculated for public comment.

VI. The Proposed Project violates the California Endangered Species Act, and the California Department of Fish and Wildlife Should Not Rely on the DEIR.

The abundance of CESA-listed species including winter-run Chinook salmon, spring-run Chinook salmon, Delta smelt, Longfin smelt, and White Sturgeon has declined significantly under baseline conditions. The coordinated operations of the CVP and SWP have significantly contributed to the declines of these and other fish species, and the adverse effects of CVP and SWP operations have never been fully mitigated, including over the past decade when numerous requirements of the 2008 and 2009 biological opinions were waived, weakened, and/or not fully implemented.[38] The best available science demonstrates that increased protections are necessary to avoid jeopardizing the species and fully mitigate impacts. *See, e.g.*, Longfin Smelt Listing, USFWS, July 30, 2024.[39]

Yet the baseline and the Proposed Project both eliminate existing protections, especially as compared to the protections that existed prior to their weakening in 2019. Under the Proposed Project CESA-listed species are likely to continue declining in abundance, and survival and abundance of CESA-listed species will be lower under the Proposed Project than under baseline conditions and as compared to pre-2019 conditions, demonstrating that that the effects of the

[37] Moreover, any reductions in abundance and survival of listed species under the proposed project compared to the baseline demonstrates that the proposed project is not fully mitigating impacts as required by CESA, and thus that the proposed project is inconsistent with the project objectives.
[38] The federal CVP currently does not have an incidental take permit under CESA, and to our knowledge DWR lacks an incidental take permit under CESA for upstream operations of the State Water Project, including take resulting from SWP operations of Lake Oroville and in the Feather River. *See also* DEIR at 3-18 (stating that DWR is not seeking an ITP for Oroville Dam and Feather River operations, Coordinated Operation Agreement, or CVP facilities, operations and agreements).
[39] Available online at: https://www.federalregister.gov/documents/2024/07/30/2024-16380/endangered-and-threatened-wildlife-and-plants-endangered-species-status-for-the-san-francisco.

Proposed Project were not and are not fully mitigated as required under CESA and are likely to jeopardize the continued existence of the species.

In addition, while DWR purports to only seek an incidental take permit under CESA for project operations in the Delta, we are unaware of any authority for SWP operations in the Feather River to incidentally take CESA-listed species. DFW must consider the whole of the operations of the CVP and SWP to ensure that the Proposed Project will not jeopardize listed species, in light of upstream impacts and other impacts on the species. Finally, as discussed *supra* the DEIR fails to use the best available science regarding the effects of the Proposed Project on CESA-listed fish species and fails to analyze effects upstream. Therefore, DFW should not rely on the DEIR in making its conclusions under CESA.

VII. The DEIR Fails to Adequately Consider Cumulative Impacts.

The DEIR fails to adequately consider and disclose cumulative impacts. This violates CEQA.

DWR states that the "impacts of past projects, including past operation of the SWP" are included in the baseline environmental conditions. DEIR 10-26. This has resulted in a "baseline consisting of a trending decline of listed-species populations in the Delta and other waterways used by anadromous fish populations in Northern California." DEIR at 10-26. "Existing federal statutes and regulatory requirements . . . provide . . . measures to avoid jeopardizing" endangered species, including BiOps to allow the SWP and CVP to operate. DEIR at 10-26. And "California [law] requires authorization under CESA for the long-term operation of the SWP" to protect those species. DEIR at 10-26. "*Despite these protections, the cumulative impact of past Delta modifications and other past and present projects has contributed to the continuing decline of Delta fish populations.*" DEIR at 10-26. And despite this finding, DWR concludes the cumulative impact of the SWP long term operations are not significant. This conclusion contradicts the findings and the reality that the status quo is ongoing declines of endangered fish and closure or severe constriction of multiple commercial, recreational, and/or Tribal fisheries.

DWR lists a host of projects that will continue to divert flow, reduce Delta outflow, and increase storage, *see* DEIR at 10-4 to 10-21 (Table 10-1a). Yet DWR does not actually analyze the impacts because of its conclusion that the Proposed Project's impacts are not significant. But this conclusion is baseless, making the DEIR's conclusion that the cumulative impacts are not significant similarly unreliable. Additionally, the failure to analyze the cumulative impacts of Sites Reservoir,[40] the Delta Conveyance Project,[41] and the SWP mean the whole of the infrastructure projects and operation of the State Water Project are not analyzed or disclosed. Because Sites, the DCP, and ongoing operation of the SWP cause similar harms—reduced flow

[40] See Declaration of Jon Rosenfield re Sites, explaining impacts of Sites project.
[41] See Protest to Water Rights Change Application re DCP filed by Baykeeper, et al.

into and through the Delta—failing to analyze the operations of each of these projects as a whole is a failure to accurately disclose, describe, and analyze the cumulative impacts.

Moreover, the coordinated operations of the SWP and CVP are responsible for a significant proportion of the water that is stored and diverted in the Bay-Delta system, and thus are responsible for a significant proportion of the adverse effects on fish and wildlife in the watershed including from changes in hydrology, water quality and temperature, entrainment, and habitat degradation. More than half of the total water diversions in the Bay-Delta watershed are associated with the CVP and SWP in some years, and the decline in fish species has accelerated as the CVP and SWP increased diversions over the past several decades. The DEIR's conclusion that the impacts are cumulatively significant, but that the SWP's contribution to these problems is not cumulatively considerable, is not supported by substantial evidence.

It is abundantly clear that the Proposed Project is inconsistent with the requirements of CESA, and that the Proposed Project, alone and in combination with CVP operations, will jeopardize the continued existence of species listed under CESA. Therefore, DWR must significantly revise the Proposed Project before re-submitting an application for an incidental take permit under CESA, and DWR must recirculate a revised draft DEIR describing that revised project for public and agency review and comment.

IV. Conclusion.

The documents referenced in these comments are available online at: https://drive.google.com/drive/folders/15KN4rd5mS2c_YYp8mWb7ea8uATvQik14?usp=sharing

If you have any problem accessing the documents using this link, please let us know.

Thank you for the opportunity to comment on the DEIR. Please contact us if you have any questions regarding the concerns we have raised. We look forward to working with you to ensure that long-term operations of the SWP comply with the requirements of CESA and other legal mandates and ensure the survival and recovery of the Bay-Delta estuary's endangered native species.

Sincerely,

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CC: Ashley Overhouse, Defenders of Wildlife
Gary Bobker, Keiko Mertz, Friends of the River
Eric Buescher, San Francisco Baykeeper
Barry Nelson, Golden State Salmon Association

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October 4, 2024

Dave Mooney
U.S. Bureau of Reclamation

Cathy Marcinkevage
Howard Brown
National Marine Fisheries Service

Submitted electronically

RE: NMFS DRAFT LTO INCIDENTAL TAKE STATEMENT

Dear Mr. Mooney, Ms. Marcinkevage, and Mr. Brown,

This letter is submitted as the comments of Friends of the River, Golden State Salmon Association, Restore the Delta, Save California Salmon and California Sportfishing Protection Alliance, regarding the National Marine Fisheries Service's (NMFS's) September 26, 2024, draft Incidental Take Statement (ITS) for Long-Term Operations (LTO) of the Central Valley Project (CVP) and State Water Project (SWP). **Based on our review, the draft ITS will fail to prevent jeopardy to winter-run (WR) Chinook Salmon, spring-run (SR) Chinook Salmon, California Central Valley (CCV) Steelhead, Green Sturgeon DPS, White Sturgeon, and the Southern Resident Killer Whale (SRKW).**

Given the extremely limited time provided for review of the draft ITS, our brief comments will only focus on some of our highest priority concerns, and we reserve the right to raise additional issues.

Introduction

According to its own analysis in the LTO Draft Environmental Impact Statement (DEIS), the U.S. Bureau of Reclamation's (BOR or "Reclamation") LTO Proposed Action (PA) will result in impacts to salmonids and other federal and state listed species in the San Francisco Bay-Delta Estuary that would be as bad as or worse than the No Action Alternative, which represents the status quo under which listed species are being driven to extinction (*see* Comparison of Long-Term Operations Alternatives compared to the No Action Alternative, enclosed). Therefore, NMFS fundamentally errs in finding that the PA will not cause jeopardy to Chinook Salmon, CCV Steelhead, Green Sturgeon DPS and the SRKW. **The draft ITS, which is premised on**

implementation of the PA, will not prevent extinction of these species and thus does not comply with the obligations of NMFS under the federal Endangered Species Act (ESA).

Consultation Requirements for Future Projects

1. **The draft ITS includes an inadequate discussion of the consultation requirements regarding related potential future projects.**

The draft ITS includes a discussion of the approach for actions related to the CVP LTOs including programmatic consultation, framework consultation, mixed programmatic consultation and "a mixed programmatic action that approves a framework for the development of future action(s)." (ITS p. 1). This discussion is opaque at best. There are several proposed future actions that clearly fall into at least one of those categories, including the proposed Delta Conveyance Project, Sites Reservoir and a complete proposed Bay-Delta Voluntary Agreement proposal. In the draft document, it is not clear if NMFS has made a determination regarding all of these potential future actions and which of these four consultation categories they will fall into. Alternatively, it is also not clear if NMFS proposes to make a determination in the future about exactly which of these categories proposed future actions would fall into. Our organizations believe that NMFS does not have adequate information to make any meaningful determinations regarding any of the potential projects discussed above. **We recommend that the draft ITS be revised to clarify that each of the three projects discussed above would require full ESA Section 7 consultation and Incidental Take Permits.**

The need for full consultation on each of these projects is made additionally clear by the cumulative impacts that these projects could cause. For example, the Delta Conveyance Project could increase the new diversions caused by Sites Reservoir. Additionally, the Voluntary Agreements, as discussed elsewhere in these comments, would fail to protect existing environmental flows above regulatory minimums. This could set the stage for large new diversions – and new impacts – by Sites and the Delta Conveyance Project. For these and other reasons, it is important that each of these projects receive a full Section 7 consultation – including an analysis of cumulative impacts on listed species.

2. **The draft ITS fails to call for needed reductions of deliveries to the Sacramento River Settlement Contracts (SRSC), when needed to prevent jeopardy.**

The draft ITS states that the PA includes the "delivery of non-discretionary quantities of water to any contractor entitled to such non-discretionary deliveries where Reclamation has discretion. Coverage includes actions by SRS Contractors…The volume of water delivered may be reduced from full contract amounts, consistent with the terms of individual contracts." (ITS p. 2). This language has at least two fundamental problems.

First, it does not clarify that significant reductions, beyond 25 percent, may be required to prevent jeopardy, particularly to prevent unacceptable levels of temperature dependent mortality for Sacramento River Chinook Salmon. It is important to note that recent high levels of Temperature Dependent Mortality (TDM) demonstrate that this is not a theoretical

problem. Such reductions in deliveries are clearly consistent with Reclamation's responsibilities under state water law to protect public trust values including fish and wildlife, and recreational fishing. The SRS Contractors have contested Reclamation's discretion to reduce contract deliveries. **Therefore, it is important for NMFS to clarify when such reductions can and must be required.**

Second, the document does not include an RPM that details how and when, and to what extent, SRSC deliveries must be reduced. Given the ongoing problem of TDM in the Sacramento River, and the precarious status of several species affected by TDM in the Sacramento, it is essential for NMFS to clarify when and to what extent additional contract delivery reductions may be required. Absent such clarification, we believe that a jeopardy decision is required. Further, absent such clarification, NMFS cannot be reasonably certain that needed actions will be taken to prevent unacceptable levels of TDM.

The draft ITS further states that "Discerning discretionary releases specific to deliveries for exchange, water service, and repayment contracts is not practical on an annual basis." (ITS p. 4). **We believe this is exactly what is required: NMFS must, based on the RPM discussed above, make an annual determination of the reductions in SRSC deliveries, if any, that are required to achieve acceptable levels of TDM in that water year.**

Impacts on Listed Species

The NMFS draft ITS clearly incorporates Reclamation's deficient PA. This is fundamentally problematic because Reclamation failed to apply the best available science to analysis of impacts to endangered species and other biological outcomes. Indeed, several analyses reveal that the PA variants are worse for listed species than the No Action Alternative (NAA). In summary:

- Reclamation's use of the 2020 Record of Decision as the environmental baseline is misleading, inappropriate and does not adequately portray the true impacts to listed species.
- Apart from Alternative 3, all project alternatives, including the PA, are as bad as or worse than the No Action Alternative (NAA), and would jeopardize the continued existence of listed species, in violation of the Endangered Species Act. This is according to Reclamation's own analysis in the DEIS.
- The potential adverse impacts of the PA and other alternatives (except Alternative 3) are actually likely to be far worse than indicated in the DEIS. There are serious problems with the DEIS's analysis, including, but not limited to:
    - a deeply flawed and unreliable analysis of temperature effects on juvenile Chinook Salmon;
    - a failure to acknowledge or incorporate into its modeling analysis the best available science from recent studies on the effect of river flows on survival of different runs of Chinook Salmon upstream, into and through the Delta;
    - a failure to consider both the current unsustainable levels of entrainment-related mortality of larval and juvenile Longfin Smelt and the increase in mortality for these life stages expected under the PA; and

- a failure to consider the current status of the San Francisco Bay estuary's White Sturgeon population or to properly analyze the PA's effect on this species and the threatened Green Sturgeon DPS.

Thus, operations proposed under the PA are not consistent with National Environmental Policy Act (NEPA) or the federal or state Endangered Species Acts (ESA) and cannot be the preferred alternative. In turn, it should not be used by NMFS to develop the Biological Opinion (BO) or the ITS.

Unfortunately, NMFS has incorporated the legally deficient PA here, and does not adequately address and/or remedy any of these legal deficiencies in the draft ITS. Consequently, the NMFS BO and ITS will allow for the continued decline and potential extinction of listed species protected by the Endangered Species Act.

1. **Chinook Salmon and Central Valley Steelhead**

    a. **The exceedance limits for take of Sacramento River winter-run Chinook Salmon due to TDM are dangerously high for drought years.**

The draft ITS states, "Reclamation can use the observed temperature data to estimate the TDM of [Sacramento River] winter-run Chinook salmon under each Bin of the Shasta Framework and the Shasta Cold Water Pool Management Plan. This information will then be used to estimate the take of SR winter-run Chinook salmon due to the Shasta Cold Water Pool Management Plan." (ITS p. 4). While our organizations agree this is the proper metric for NMFS to determine if, and to what extent, an incidental take limit is exceeded, we would recommend NMFS revise this section to elaborate on both the legal basis and role Reclamation has in this context. Temperature management has both state and federal legal elements, and right now the section is both vague and sparse.

The draft ITS continues with listing estimated TDM, or take of winter-run (WR) Chinook Salmon, for each "Bin" type. For the driest of years, described as "Bin 3A" and "3B", the draft ITS proclaims, "The amount and extent of take is framed around the Bin 3A [and Bin 3B] objective of meeting a daily average water temperature of 53.5°F from May 15 through October 31, upstream from the CCR gage, which is expected to result in a TDM of ≤30% with a one year deviation of up to a 10% if it is incorporated through consensus into an annual temperature management plan." (ITS p. 5). This is a dangerously high take rate for an endangered species. This may spell disaster for the species as dry years, that fall under "Bin 3A" and "Bin 3B", become more frequent and more severe as the state experiences the impacts of the climate crisis.

Experience during the recent drought demonstrates the dramatic impact that high levels of TDM can have on the abundance of returning adults and on the potential survival of listed salmon species. Such high levels of TDM in dry years is unacceptable and threatens the survival of these species. **We urge NMFS to revise and considerably narrow the range of allowable take for WR Chinook Salmon.**

Finally, the discussion of take limits of WR Chinook Salmon from the Sacramento River includes two bullets at the bottom of page 5 that appear to be incomplete. (ITS p. 5). Those bullets discuss consecutive Bin 3 and Bin 3B years with high levels of take. We were unable to determine exactly what this language was intended to mean. **We urge NMFS to complete and clarify this language on page 5.**

b. The ITS is missing specific numeric take limits for spring-run Chinook Salmon and California Central Valley Steelhead due to Temperature Dependent Mortality in the Sacramento River and Clear Creek.

The draft ITS statement does not contain specific take thresholds for spring-run (SR) Chinook Salmon or California Central Valley (CCV) Steelhead due to TDM in the Sacramento River. In fact, the document vaguely notes that, "The conditions described above determine the anticipated level of take for [Sacramento River] winter-run Chinook salmon, CV spring-run Chinook salmon, and CCV steelhead." (ITS p. 6). However, there are no specific numeric metrics listed, as there were for WR Chinook Salmon on page 5.

Additionally, the ITS vaguely notes temperature thresholds as a "surrogate" for estimating TDM on Clear Creek. The document states,

> "The ecological surrogate *for the amount or extent of take of the CV spring-run Chinook salmon adult life stage is daily average temperature at the Igo gauge from June 1 to September 15.* The anticipated level of take will be exceeded if the daily average temperature at the Igo gauge exceeds 61°F from June 1 through August 15 for longer than 7 consecutive days or exceeds 62°F for any single day, and 60°F from August 16 through September 15 for longer than 7 consecutive days or exceeds 61°F for any single day." (ITS p. 8) (emphasis added).

Not only do these seem like high temperatures that are not based on the best available science, but they do not estimate the amount of *harm* exceeding these temperatures will cause the population. While that may trigger an exceedance of take by the projects, NMFs should clarify the intended thresholds here and how they will be enforced.

The need to clarify the intended take thresholds for these species was made abundantly clear this year when the CVP and SWP exceeded the incidental take limits in the 2019 NMFS BO for salvage of protected CCV steelhead and WR Chinook Salmon. (50 C.F.R. § 402.16; *see also* Defenders et al. Letter to BOR, DWR, USFWS, CDFW and NMFS on ITL exceedance March 2024). While our organizations appreciate the promise for coordinated actions by agencies to improve conditions in RPM 8 (c) and (d), they are not actually committing to improving conditions to address these exceedances. (ITS pp. 24-25). Instead, NMFS is electing to rely on unproven and disproven strategies to avoid take of listed species in the draft ITS.

Therefore, we urge NMFS to develop specific take levels for SR Chinook and CCV Steelhead due to the prevalence of TDM for both of these listed species.

c. The ITS undervalues the importance of the flow regime to listed salmonid survival.

The draft ITS rightfully reflects the importance of the instream flow regime to salmonid survival. As an example, the document states that, "The proposed action is reasonably expected to result in the take of juvenile listed salmonids through stranding or redd dewatering throughout the Upper Sacramento River from Keswick Dam to Red Bluff Diversion Dam." (ITS p. 6). Unfortunately, the ITS then arbitrarily lists two take limits due to "stranding or redd dewatering" without any additional context or analysis. They are also alarmingly low estimations, stating,

> "Take of SR winter-run Chinook salmon from changes in flow during the temperature management season is reasonably expected to result in egg mortality *from the dewatering of 1 percent of redds*. Take of CV spring-run Chinook salmon resulting from flow changes from summer releases down to 3,250 cfs is reasonably expected to result in egg mortality from the dewatering *of up to 3 percent of redds*." (ITS p. 7) (emphasis added).

Based on the enclosed analysis of all BOR LTO DEIS Alternatives, **we urge NMFS to 1) revisit this analysis, 2) improve spring out migration flows, and 3) add language to the ITS to reflect the vital role of flow management in egg-to-fry and migrating juvenile salmonid and CCV steelhead survival.**

Additionally, it is important to note that temperature management in Clear Creek is largely controlled by Trinity River operations, while Trinity River Coho Salmon are not included in the draft ITS. **We detail more of our concerns later in these comments, and urge NMFS to coordinate with Reclamation and Department of Water Resources (DWR) on the deferral of updating the environmental compliance for Trinity River operations.**

Furthermore, as noted later in our comments, the Voluntary Agreements are incorporated in the draft ITS. The document states,

> "With the intent of realizing the potential benefits of the Spring Delta Outflow actions deployed in the Delta Division, Reclamation and DWR will forgo a volume of Delta exports to supplement Delta outflow in dry, below normal, and above normal water year types for the pre-VA adoption period. If the VAs are not *(insert PA language about board process here)*, and the Spring Delta Outflow action is discontinued, this change in the proposed action would require reinitiation of ESA section 7 consultation." (ITS p. 15) (emphasis added).

While we understand this is only a draft ITS, the missing bracketed language italicized above, is critical to how NMFS will treat and address the role of the VAs in the ITS. **We urge NMFS to require an improved Spring Delta Outflow action, regardless of the status of the Voluntary Agreements.**

d. Delta Division and Table XX

From pages 14-15, the draft ITS lists specific allowable take amounts of listed species at the Delta pumping facilities in Table XX, titled "Annual amount and extent of incidental take of listed species at the Bay-Delta pumping facilities. Note that the amount and extent of incidental take differ from the operational loss thresholds in the proposed action because they are based on

an analysis of anticipated take and not loss levels that trigger operational actions." (ITS p. 14). Our organizations thank NMFS for presenting these take limits in such a clear format. We also want to thank NMFS for committing to developing a Juvenile Production Estimate (JPE) in RPM 8 for naturally producing CCV Steelhead. (ITS p. 24). We hope to see an actual date for when NMFS anticipates finalizing the JPE in the final ITS.

Unfortunately, the actual take threshold for CCV is still confusing and may lead to further backsliding and reckless exceedance by Reclamation. Table XX states, "5,294 [steelhead] juveniles in any single year or 2,319 juveniles as a 3-year rolling average for a period of up to 5 years after the ROD, after which we expect an alternative amount and extent of take is anticipated that scales incidental take to population size based on a JPE or other similar mechanism." (ITS p. 14). As demonstrated this past Spring, Reclamation will take statements like this and interpret their own allowable take of the species while actually exceeding the limit without any consequences, even in a wet year. (*See* 50 C.F.R. § 402.16; *see also* Defenders et al. Letter to BOR, DWR, USFWS, CDFW and NMFS on ITL exceedance March 2024). **We urge NMFS to revise this section of the ITS to clarify the actual take limit, setting a clear numeric limit of how many fish Reclamation can take at the pumps. Without a strong take threshold, NMFS will risk further harm to threatened CCV Steelhead populations.**

2. **White Sturgeon and Green Sturgeon DPS**

NMFS improperly excludes White Sturgeon from both the Biological Opinion and the draft ITS. One of the main threats to California White Sturgeon is the diversion of fresh water from major Central Valley rivers where they spawn, incubate, and rear as larvae (or did so historically), and diversion from the Delta, which is habitat for juveniles, sub-adults, and adults. Specifically, chronically low river flows and reductions in freshwater inflow to San Francisco Bay (also referred to as Delta outflow) resulting from water diversion and storage operations, have been implicated in the recent and rapid decline of California White Sturgeon (CDFW 2015; Jackson et al. 2015; State Water Resources Control Board [SWRCB] 2017; Baykeeper et al. 2023). As a result, White Sturgeon has a pending petition to be listed under the federal ESA, and the State of California recently declared California White Sturgeon as a candidate for listing under the California ESA, listing as threatened (CDFW 2024).

Furthermore, Reclamation's DEIS did include, albeit flawed, impacts analysis of project operations on both White and the threatened Green Sturgeon DPS. It is thus appropriate for NMFS to analyze potential impacts of proposed combined project operations on White Sturgeon in the BO and ITS, and to minimize and fully mitigate those impacts that are expected to result from those operations.

Our organizations have not had time to consider how Green Sturgeon are addressed in the draft ITS and reserve the right to comment further.

Overall, the ITS must be revised to disclose the precarious and deteriorating conservation status of White Sturgeon under the NAA and the likely negative effects of the Proposed Action on both White Sturgeon and the threatened Green Sturgeon DPS. Furthermore, we

urge NMFS to highlight Reclamation's flawed methodology in the DEIS. NMFS must account for the non-linear nature of the flow-recruitment relationship for White Sturgeon and Green Sturgeon, where the effect of flow changes materializes only in the wetter end of the hydrological spectrum.

3. Southern Resident Killer Whale

The NMFS ITS properly includes analysis of impacts to the listed Southern Resident Killer Whale (SRKW) from the PA. However, both the analysis and proposed RPMs are legally inadequate.

First, the NMFS ITS underestimates the impacts the PA will have on the SRKW population by only analyzing one variant of the four proposed by Reclamation in its PA, also referred to as Alternative 2. Based on this limited analysis, the ITS declares that project operations would not "jeopardize" the species. (ITS p. 17). However, the ITS only applies the assumptions for "Alt2V2_w/oTUCP", in other words, NMFS used the version of Alternative 2 that assumes all Delta VAs will be implemented, but no Temporary Urgency Change Petitions (TUCPs) will occur. Not only is this an unrealistic project scenario given that TUCPs have been granted 6 out of the last 10 years, it is not clear from the ITS if NMFS performed any other impact analysis for SRKW using other PA variants, and whether those were in turn averaged out across all water year types. Therefore, it is highly likely that the "median" take, portrayed in Table 142 on page 17 of the ITS, may indeed be much higher, and in fact "jeopardize" the existence of the SRKW population.

Second, the NMFS ITS also seems to underestimate the impacts of an anticipated reduction in the adult ocean population of fall and late fall-run Chinook Salmon would have on the SRKW population. The California salmon fishing season is closed in 2024 for the second consecutive year as a result of low estimates of ocean adult abundance. The projections in the draft ITS anticipate that the operations of the CVP will worsen adult production of Central Valley fall and late fall-run Chinook below today's already disastrous levels.

This projection anticipates that the CVP will fail to achieve the doubling goal required by both the Central Valley Project Improvement Act and the current Bay-Delta Water Quality Control Plan. It also indicates that Reclamation plans to manage Central Valley rivers in a manner that will further damage commercially important non-listed runs, salmon fishing jobs and the communities in California and coastal Oregon that depend on Sacramento River Salmon.

Finally, the draft ITS incorporates by reference into RPM 6 a vague "Fall-run Action Plan." The ITS states, "If the anticipated reduction in fall or late fall-run juvenile CV Chinook salmon survival is exceeded, Reclamation shall notify NMFS to discuss options for increasing production; for example, *continuation of survival studies such as proportional Coleman releases at Scotty's Landing, or other actions described in the 'Fall-run Action Plan.'*" (P. 24) (emphasis added). This "Fall-run Action Plan" has not been released to the public or reviewed by the other coordinating agencies or Interested Parties in the LTO process. Our organizations are very concerned that NMFS is relying on a vague "Plan" for the protection of both the precipitously declining fall-run Chinook Salmon population as well as the SRKW. This "Plan" is outside the

federal ESA scope and has not been vetted or reviewed by any of the other coordinating agencies in the LTO process, or any of the Interested Parties. This is extremely problematic and concerning.

Given the vital connection between fall-run Chinook survival and the survival of SRKW, and the current dire state of fall-run Chinook population, we urge NMFS to revise the ITS to reflect a jeopardy opinion for SRKW, and develop stronger RPMs for the protection of both species.

Reasonable Prudent Measures

Our analysis of this draft ITS, as well as our attached comments regarding Reclamation's DEIS, clearly demonstrate that NMFS must conclude that the PA would jeopardize listed species under the authority of NMFS. Along with that jeopardy decision, NMFS must issue Reasonable Prudent Measures (RPMs) designed to prevent unacceptable levels of take.

We believe that Reclamation's analysis is flawed and understates the actual negative impacts of Alternative 2. Nevertheless, Reclamation's own analysis demonstrates that the variations on Alternative 2 all would worsen conditions compared with the No Action Alternative. Given that the NAA has put us on a path to extinction for multiple species, Reclamation's analysis demonstrates that NMFS must find that these alternatives would cause jeopardy.

We recommend that NMFS develop RPMs that reflect the approach in Alternative 3, as analyzed in the BOR LTO DEIS. Reclamation inappropriately and unlawfully dismissed this alternative. However, as demonstrated in the enclosed color-coded matrix titled "Comparison of Long-Term Operations Alternatives compared to the No Action Alternative", BOR's analysis clearly demonstrates that Alternative 3 is the only alternative that produces environmentally acceptable results.

We urge NMFS to review this analysis and convert the various components of Alternative 3 into specific, binding and enforceable RPMs.

Temporary Urgency Change Petitions

The draft ITS fails to analyze the potential impacts of TUCPs on the take of listed species. Most of the PA variants anticipate the continued use of Temporary Urgency Change Petitions. (*See* the discussion of TUCPs in the attached NGO comments on the BOR LTO DEIS). The repeated use of TUCPs has allowed state and federal agencies to waive fish protection requirements in 6 of the past 10 years. Furthermore, USFWS has recently approved a variation from the flow requirement in the current USFWS Bay-Delta BO known as Fall X2, despite the lack of a strong scientific case for this change. Experience over the past decade has shown that BO conditions are routinely waived in drought years. The experience with Fall X2 this year demonstrates that, even following two wet years, BO requirements may be waived. It is, therefore, reasonably foreseeable that BOR and NMFS will waive take limit requirements included in the final NMFS BO, unless such waivers are specifically prohibited. Without such a prohibition, the flow and temperature requirements in the BO are not reasonably likely to be implemented.

At least one section in the draft ITS makes the risk associated with TUCPs and emergency waivers of protections clear. The draft states that take can be expected as a result of "stranding or redd dewatering" on the Upper Sacramento River. (ITS p. 6). It also states that the violation of flow ramping rates exceed the rates described in the proposed action, "with the exception of flood control and emergency conditions." (ITS p. 7). **Given that the PA does not prohibit TUCPs, we believe that BOR and NMFS have failed to adequately analyze the impacts of such waivers on listed species. We further believe that the use of TUCPs and emergency waivers requires the issuance of a jeopardy decision.**

Adaptive Management

There must be a clear, transparent and fully articulated Adaptive Management framework in the NMFS ITS that is tied to triggers for action based on specific, quantitative metrics of population viability, and the public should have the ability to participate in and comment on proposed adaptive management actions. Otherwise, rushed and poorly considered decisions such as the suspension of the Fall X2 requirement discussed above and the failure to consider a Summer Outflow action will be repeated over and over again.

Voluntary Agreements

Our concerns regarding the PA as the baseline for the ITS are exacerbated by the inclusion of the proposed Voluntary Agreements (VAs). The VAs not only utterly fail to ensure adequate flows, temperatures, and other conditions necessary to protect listed species, but are indeed designed to facilitate additional diversion of current environmental flows above the existing regulatory baseline, and therefore further damage the Bay-Delta ecosystem, including increased take of listed species. In addition, neither the VAs themselves nor specific measures in the VAs are reasonably certain to occur.

In fact, NMFS itself has determined that "(t)he flow commitments identified in the VA Term Sheet would not provide a significant divergence in average flow relative to the baseline." NMFS also stated that "[W]e are highly uncertain that the VAs as currently proposed will provide for the reasonable protection of fish and wildlife beneficial uses." It is therefore very disappointing to see NMFS not addressing these critical, underlying concerns and willingly incorporating the VA flow assets into the draft BO and now the draft ITS.

RPM 5(b) attempts to address the VAs, stating:

> "On an annual basis, Reclamation and DWR shall develop and confirm through WOMT an operational protocol for determining when the CVP and SWP export facilities would forgo water diversion volume pursuant to the pre-adoption period of the Delta VAs. The protocol should include the date by which the water year type will be determined, on which exceedance forecast the water year type determination will be based, *and a proposed schedule to achieve the total volume of forgone exports described by the Delta VAs.*
>
> > i. This accounting protocol shall be developed through WOMT coordination, and, once developed, Reclamation and DWR shall report out through WOMT the

accounting of the volume of water contributing to the forgone exports intended to meet the objectives of the Delta VAs." (ITS p. 22) (emphasis added).

While we appreciate that NMFS highlights the lack of a clear accounting protocol for VAs, it does not change the fact that the VAs are fundamentally inadequate and the lack of flow assets will exacerbate project operational harms on listed species. We therefore urge NMFS to develop stronger RPMs that account for Reclamation and DWR's incorporation of the inadequate and inequitable Voluntary Agreements and the resulting harms to listed species.

Trinity River

The draft ITS improperly excludes mitigating impacts to the Trinity River. The DEIS, and now the ITS, fail to include any RPMs to protect state and federally threatened Coho Salmon or the vitally important commercial, recreational and tribal species fall-run and SR Chinook in the Trinity River. Instead, the ITS continues the DEIS' deferral of action on the Trinity River. The existing issues of inadequate temperature requirements, inadequate Trinity Lake carryover storage, and the potential adverse impact from the Voluntary Agreements on Trinity Lake coldwater storage, are all issues that require immediate mitigation, and should not be deferred to a later date.

As discussed in comments submitted on the BOR LTO DEIS, Trinity River Coho Salmon, SR Chinook Salmon and fall-run Chinook Salmon are at high risk from TDM. A significant proportion of Trinity River fall-run Chinook Salmon and SR Chinook Salmon eggs will perish even given full compliance with the 56°F requirement of Water Rights Order 90-5 and North Coast Basin Plan temperature objectives. The Trinity Lake carryover storage requirement in the 2000 NMFS Biological Opinion for the Trinity River is grossly inadequate, even according to Reclamation's own scientists. The VAs will further deplete Trinity Lake carryover storage and coldwater by diversion to the Sacramento River basin to meet Bay-Delta water quality requirements.

Therefore, as stated in comments on the BOR LTO DEIS, NMFS should incorporate RPMs to protect the Trinity River into the ITS until superseded by a subsequent Trinity BA, BO and SEIS, as follows:

1. Trinity Lake carryover storage should never be allowed to go below 750,000 AF at the end of September.
2. Reclamation should be required to operate to meet a 60°F North Coast Basin Plan temperature objective at Douglas City from July 1 to September 15.
3. Reclamation should be required to operate to meet a 53.5°F temperature requirement at Douglas City from September 15 until October 1.
4. Reclamation should be required to operate to meet a 53.5°F temperature requirement at the North Fork confluence from October 1 through October 30.
5. Reclamation should be required to operate to meet a 50°F temperature requirement at Lewiston Dam November 1 through December 31 to protect threatened Coho Salmon.

6. Reclamation shall provide enough egg chillers at the Trinity River Hatchery to keep all Chinook Salmon and Coho Salmon eggs alive in the event temperatures in items 3-5 above cannot be met.
7. Reclamation shall bypass the Trinity Dam Powerplant as necessary to meet the temperatures in items 3-5 above.
8. Reclamation shall petition the SWRCB to request a hearing to provide full temperature protection for the Trinity River in their state water permits, as promised by the SWRCB in Water Quality Order 89-18 and Water Right Order 90-5. Reclamation shall pay all costs of such water right hearing.

Conclusion

First and foremost, the ITS is deficient because it relies on a PA that is missing critical analysis and information and will likely need to be revised. The PA:

- Fails to identify or analyze all potential combinations of Alternative 2 which includes TUCPs and all VAs.
- Fails to use the NMFS Winter-run Lifecycle Model to assess likely effects on the listed species from the Proposed Action.
- Fails to use the proper temperature thresholds for assessing Proposed Action impacts to various salmonid life stages.

These and other concerns are discussed in greater detail in our July 29, 2024, comments regarding USFWS's draft LTO Biological Opinion, our August 5, 2024, comments regarding DWR's LTO DEIR, our September 9, 2024, comments regarding Reclamation's LTO DEIS, and our September 18, 2024, comments regarding the October 1, 2024, offramp from the Summer-Fall Habitat Action.

In light of these concerns and in addition to the comments articulated above, we urge you to do the following:

- Revise the draft Biological Opinion to make it a jeopardy opinion, with a protective Reasonable and Prudent Alternative to the deficient PA that remedies the shortcomings identified in our previous comments.
- Develop stronger RPMs that account for Reclamation and DWR's incorporation of the inadequate and inequitable Voluntary Agreements and the resulting harms to listed species.
- Ensure that environmental NGOs and other parties have greater opportunity to participate in the analysis and design of adaptive management activities going forward.

We appreciate the opportunity to review the draft Incidental Take Statements. Thank you for your time and consideration of this request.

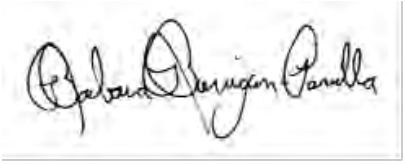
Sincerely,

Gary Bobker
Friends of the River

Scott Artis
Golden State Salmon Association

Regina Chichizola
Save California Salmon

Chris Shutes
California Sportfishing Protection Alliance



Barbara Barrigan-Parrilla
Restore the Delta

Enclosed: Comparison of Long-Term Operations Alternatives compared to the No Action Alternative
Defenders et al. Letter to Agencies on ITL Exceedance – April 2024
NGO Comments to BOR re Fall X2 Memo – September 18, 2024
NGO Comments to USFWS re draft LTO Biological Opinion – July 29, 2024
NGO Comments to DWR's re LTO DEIR – August 5, 2024
NGO Comments to BOR's re LTO DEIS – September 9, 2024

CC: Karl Stock, U.S. Bureau of Reclamation
Jennifer Quan, National Marine Fisheries Service
Paul Souza, U.S. Fish and Wildlife Service
Karla Nemeth, California Department of Water Resources
Jonathan Rosenfield, San Francisco Baykeeper
Eric Buescher, San Francisco Baykeeper
Greg Reis, Friends of the River
Ashley Overhouse, Defenders of Wildlife

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July 29, 2024

Donald Ratcliff
Field Supervisor / Project Leader
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U.S. Fish and Wildlife Service
650 Capitol Mall, Suite 8-300
Sacramento, CA 95814

Submitted electronically

Dear Mr. Ratcliff:

On behalf of the undersigned organizations, we are writing to provide feedback regarding the draft Biological Opinion (BiOp) and revised proposed action for the reinitiation of consultation on operations of the State Water Project (SWP) and Central Valley Project (CVP) recently released by the U.S. Fish and Wildlife Service (USFWS or Service).

I. Introduction and Summary of Concerns with the Proposed Action.

In 2021 the Biden Administration appropriately reinitiated consultation in order to significantly revise and replace the Trump Administration's highly flawed and insufficiently protective 2019 biological opinions (2019 BiOps). The 2019 BiOps were subject to political interference and scientific misconduct, and violated federal law. In addition, we note that reinitiation of consultation was required as a matter of law because operations of the CVP and SWP have repeatedly exceeded the incidental take limits set in those biological opinions over the past several years, including exceeding the incidental take limit in the 2019 National Marine Fisheries Service (NMFS) BiOp regarding egg to fry survival of winter-run Chinook salmon, and most recently exceeding the incidental take limits in the 2019 NMFS BiOp for salvage of protected steelhead and winter-run Chinook Salmon. 50 C.F.R. § 402.16; *see also* Defenders et al. Letter to BOR, DWR, USFWS, CDFW and NMFS on ITL exceedance March 2024, Attachment 5. Given the alarming declines in the abundance of spring-run Chinook salmon, the complete closure of the salmon fishery in 2023 and 2024 due to low abundance of fall-run Chinook salmon, the Service's listing of Longfin Smelt under the Endangered Species Act (ESA) and its finding that existing regulatory mechanisms are inadequate to prevent extinction of this

species[1], it is clear that significant changes in water project operations are necessary and appropriate to comply with State and Federal law.

Based on our initial review, the draft USFWS BiOp fails to make the following changes to the revised Proposed Action (PA) that are necessary to correct the flaws of the 2019 BiOp and comply with the law. We have summarized our ongoing concerns below.

- The revised Proposed Action fails to provide protective conditions for listed species as required by the federal Endangered Species Act and the California Endangered Species Act.
- The revised Proposed Action fails to provide minimum flows and water temperatures sufficient to comply with state water quality objectives and the terms and conditions of DWR's and Reclamation's water rights, and continues to include the use of Temporary Urgency Change Petitions (TUCPs) to violate minimum Bay-Delta water quality objectives.
- The revised Proposed Action fails to include adequate, enforceable requirements regarding Shasta operations, water storage and water temperatures.
- The revised Proposed Action fails to include adequate Delta operational measures, including a San Joaquin river Inflow:Export (I:E) ratio.
- The revised Proposed Action fails to ensure congressionally mandated water supply allocations for wildlife refuges.

Given the short time window to review this draft BiOp and the revised PA, we have attached, and incorporate by reference, more detailed comments previously submitted in the reconsultation process. Please note that while the draft BiOp adopts the new, misleading branding for the Voluntary Agreements, "the Healthy Rivers and Landscapes [HRL]", we will continue to refer to this critical element of operations under the Proposed Action as the "Voluntary Agreements" (VA or VAs) for ease of reading, consistency and transparency for all involved parties.

II. The Draft BiOp Omits Critical Information and Inappropriately Defers Analysis of Certain Actions.

The draft BiOp fails to provide critical information that would inform the analysis, conclusion, and the ultimate coordinated long-term operations (LTO) of the SWP and CVP.

First and foremost, the draft BiOp fails to address the Service's jeopardy/no jeopardy or adverse modification/no adverse modification decision on the listed species and associated Critical Habitat (CH), and also leaves placeholders in the document for analysis of other federally listed species such as yellow-legged frog or the Giant Garter Snake. Although the Water

[1] *See* U.S. Fish and Wildlife Service Press Release "U.S. Fish and Wildlife Service Lists Bay-Delta Longfin Smelt as Endangered", July 29, 2024. The final rule will be published after the filing of these comments in the Federal Register on July 30, 2024, and can be read at https://www.regulations.gov/ by searching for Docket No. FWS–R8–ES–2022–0082. Unpublished Version can be found at: https://www.federalregister.gov/d/2024-16380

Infrastructure Improvements for the Nation Act (WIIN Act) does not require release of a complete draft BiOp, the jeopardy/no jeopardy decision goes to the heart of ESA compliance for the CVP and SWP. *See* 50 C.F.R. § 402.14 (h)(1)(iv); WIIN Act §4004. Without this information, reviewers cannot evaluate the sufficiency of the analysis or proposed actions for listed species. Additionally, if there is a Jeopardy decision, interested parties should be allowed to review and evaluate "reasonable and prudent alternatives" as well. *See* 50 C.F.R. § 402.14 (h)(2).

In this case, based on the best available scientific and commercial information, including the attachments to this comment letter, the Service should conclude that the Proposed Action is likely to jeopardize the continued existence of both Delta Smelt and Longfin Smelt in its final Biological Opinion. Additionally, the Service should also conclude that the Proposed Action is likely to destroy or adversely modify the designated critical habitat for Delta Smelt, namely, the San Francisco Bay-Delta Estuary.

As stated by NMFS in their 2009 Biological Opinion for the CVP/SWP, "The ESA provides that if [the Service] has reached a jeopardy or adverse modification conclusion, it must identify a reasonable and prudent alternative (RPA) to the proposed action that is expected to avoid the likelihood of jeopardy to the species and adverse modification of designated and proposed critical habitat, if such an alternative action can be offered." *See* NMFS 2009 Biological Opinion for CVP/SWP, p. 2; *see also* 50 C.F.R. 402.14(h)(2). Given the extensive record on this issue, emerging scientific research on Delta Smelt, modeling and analysis of other Alternatives in the BOR's Biological Assessment and Draft Environmental Impact Statement, and modeling and analysis of combined operations in the DEIR of CDWR's proposed operations of the SWP (which operates in a coordinated and integrated fashion with the CVP), the undersigned organizations believe the Service is legally required to issue a jeopardy decision and to develop a protective RPA. *See* 50 C.F.R. 402.02 ("*Jeopardize the continued existence of* means to engage in an action that reasonably would be expected, directly or indirectly, to reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing the reproduction, numbers, or distribution of that species.")

Finally, the draft BiOp also seems to accept the inappropriate deferral of BOR's incomplete Drought Toolkit (BA Section 3.12) and potentially forthcoming agreement with water contractors for voluntary reductions of exports in Dry and Critically Dry water years. *See* Draft BiOp p. 89. This inappropriately defers necessary analysis of crucial elements of the LTO that may have significant impacts on the listed species. The agencies are expected to rely on the Drought Toolkit more frequently in the coming years due to the impacts of climate change on water resources in California. Essential information such as "location, extent, overlap with listed species habitat and designated critical habitat, timeframe, and other relevant information" are all missing from this document. *See* Draft BiOp p. 89. Analysis of how the Proposed Action will conserve and protect listed wildlife that are on the brink of extinction requires a complete description of the Drought Toolkit and specific proposed water export reductions. Without a complete description of this essential element of the Proposed Action, it is not possible for the

Service to determine the true impacts of the operations on the species and any needed additional mitigation by Reclamation.

III. The Draft BiOp Fails to Clarify the Applied Baseline.

The USFWS' applied baseline, which provides the foundation for the analysis of all impacts to listed species, is still unclear in the draft BiOp. The Service must clarify the baseline in the final Biological Opinion. The draft BiOp states the analysis relies on four required components, including,

> "(2) the Environmental Baseline, which analyzes the current condition of the species in the Action Area without the consequences to the listed species *caused* by the proposed action, the *factors* responsible for that condition, and the *relationship* of the Action Area to the survival and recovery of the species; . . ."

Draft BiOp p. 28 (emphasis added). The USFWS describes this baseline's expansive scope as including "past and present" water operations and actions. *Id*. The draft BiOp then differentiates references to the modeled baseline. *See* Draft BiOp p. 26. The modeled baseline by BOR in the Proposed Action is the No Action Alternative, which is described by Reclamation as operating the CVP consistent with the 2020 Record of Decision implementing the Proposed Action consulted upon for the now invalid 2019 Biological Opinions. *See* Cooperative Agency DEIS, Appendix E, p. E-34.[2]

First, it is unclear if the same baseline was used across all LTO documents. If BOR's No Action Alternative was used as the baseline for all analyses, the final Biological Opinion should make that clear.

Second, it is still unclear if <u>all</u> elements in the Service's Environmental Baseline were <u>modeled</u> in addition to the modeling analysis done by the BOR in the Proposed Action. If actions in the IOP, such as the additional 100,000 acre-feet ("AF") of outflow provided in the 2023 IOP, were not modeled by USFWS for this draft BiOp, then it needs to be clarified. The additional explanation should be paired with the Environmental Baseline visual graphic included in the draft BiOp on p. 56.

Finally, the baseline issue is further complicated by the inclusion of the Voluntary Agreements flow proposal in the Proposed Action. The Voluntary Agreements are included as the first two years of operations, also referred to as "pre-adoption period" and incorporated by reference into the draft BiOp. The Voluntary Agreements use the 2019 Biological Opinions as the baseline for their supposed "improved" flow proposal. But according to the State Water Resources Control Board's (State Water Board or SWRCB) analysis in the Bay-Delta Plan Phase II Draft Staff Report, the Voluntary Agreements will only provide marginally improved flow to the Delta in most water years. *See* SWRCB Draft Staff Report pp. 9-45, 9-117, and 9-165.

[2] Also, for ease of reading and clarity, we would recommend including a short definition of the No Action Alternative in the final USFWS Biological Opinion.

Finally, the USFWS does not clarify how they have treated the differing baselines in their analysis in the draft BiOp.

Additional information and text explaining the analysis done by the Service as to the scope and actions included by the Service in their applied baseline and what was modeled should be included in the final BiOp.

Please see attached comments on the Voluntary Agreements as described in the Draft Staff Report for Phase II of the Bay Delta Water Quality Control Plan update, submitted to the State Water Board January 2024, as well as our previous comments on the Proposed Action, for more details. *See* Attachments 1, 2 and 3. We have also included other concerns with the Voluntary Agreements in these comments below.

IV. The Draft BiOp Improperly Relies on the Proposed Voluntary Agreement Proposal.

A. The Voluntary Agreements are not reasonably certain to occur.

The Voluntary Agreements are not reasonably certain to occur. *See, e.g., Nat'l Wildlife Fed'n, v. Nat'l Marine Fisheries Serv.*, 524 F.3d 917, 936 & n.17 (9th Cir. 2008). The VA proposal has been in development for more than a decade and proponents have still not produced a complete proposal as of July 2024. *See* Voluntary Agreement Timeline, Attachment 4. Given this track record, there is no reason to assume that the VA effort will ever actually produce a complete package. Missing elements include, but are not limited to, a final Funding Agreement, enforcement agreements, and technical details such as "which reservoirs may be reoperated, which fields will be fallowed, when reservoirs can refill, and when groundwater substitution will occur, have not been fully specified." *See* SWRCB Draft Staff Report at p. G3a-1. Therefore, reliance on the VA proposal is unlawful, jeopardizing years of collaboration and collective work by all agencies involved in the LTO process.

Further, it is not certain that the State Water Board will approve the VA proposal. The proposed Bay-Delta VA is more complicated than any previous "block of water" effort anywhere in the nation. The attached *Building Blocks* white paper documents significant challenges that have faced 18 other efforts to create environmental blocks of water – most of which are located in California.[3] The VA proposal is broader in geographic scope, broader in terms of the species and beneficial uses it would address, and broader in terms of the complexity of the water management systems involved. Yet, despite the fact that all previous environmental block of water efforts in California were far less complex, all of those efforts encountered major implementation challenges.

[3] *Building Blocks – Tools and Lessons for Designing a Block of Water for the Environment*. Barry Nelson, Defenders of Wildlife. June 2022.

The problems faced by previous environmental blocks of water included a failure to purchase anticipated environmental water, accounting issues related to the program's environmental baseline, unanticipated impacts caused by changes in project operations and more. All of these problems apply to the Bay-Delta VA proposal, making the anticipated VA environmental flows even less likely to occur.

The VA proposal also contains numerous additional flaws that reduce the likelihood of anticipated environmental flows:

- The VA accounting proposal clearly allows future increases in demand, or the development of new storage or conveyance facilities, to reduce environmental water over time. This problem is exacerbated by the fact that the VAs would provide no protection for current environmental flows that are greater than current regulatory minimums. Future water diversions could capture these unregulated flows, effectively reducing environmental flows and harming listed species.
- Given the current focus on wet season diversions to rechange groundwater basins, this flaw in the VA accounting proposal could allow anticipated environmental water to be reduced significantly during the term of the final Biological Opinion.
- The flows promised in the American River VA could be provided in as few as 3 of the 8 years of the VA's initial term. In no case would VA environmental flows be provided in more than 6 of the 8 years.
- The Proposed Action does not exclude the use of Temporary Urgency Change Petitions (TUCPs) and Temporary Urgency Change Orders during future droughts. *See* PA p. 107. The VA proposal contemplates continued use of TUCPs. Approval of these TUCPs have allowed State Water Board flow requirements to be waived. This is particularly important, given the impacts on Delta Smelt and other listed species during droughts. TUCPs in the future would reduce environmental flows to a level below that assumed in the Proposed Action. As a result, the total environmental flows in the VA package, including existing regulatory flow requirements, are unlikely to occur.
- Finally, the VA proposal has no adequate enforcement mechanism, in the likely event that it fails to produce anticipated environmental water. For example, the VAs do not require annual, much less real-time or seasonal, accounting of flows – so there is no way to ensure that the pledged water arrives as promised or when it is needed by imperiled fish and wildlife.

For all of these reasons, even if the State Water Board were to approve the VAs, the amount of environmental water that is described in the VA proposal – and which is uncritically repeated in the Proposed Action – is not reasonably certain to occur. The inadequacy of the amount of VA water is addressed in the following section.

B. The VAs are inconsistent with tribal consultation requirements and Executive Orders regarding environmental justice and tribal issues.

Tribal consultation is a formal, two-way government-to-government dialogue between federal agencies and Tribes. Consultation is required before the Federal agency makes decisions.[4] Consultation requires that "information obtained from Tribes be given meaningful consideration, and agencies should strive for consensus with Tribes or a mutually desired outcome." [5] Federal agencies are required to "undertake an analysis as early as possible to determine whether Tribal consultation is required." [6]

Further, Executive Order 12898, regarding environmental justice, states "to the greatest extent practicable and permitted by law… each Federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations in the United States." [7] That order further requires agency environmental justice strategies to include "ensure greater public participation." [8]

As discussed in the attached VA Fact Sheet, VA discussions began in 2011. Those discussions consistently excluded tribal and environmental justice communities. Bureau of Reclamation Regional Director Ernest Contant signed the VA Memorandum of Understanding (MOU) on March 29, 2022. Yet at no time during the 11 years prior to signing the MOU did BOR initiate formal consultation with the many Tribes that could be harmed by the VAs or seriously engage with environmental justice representatives.[9]

The interest in Bay-Delta water management and environmental issues among tribal and environmental justice communities is well known, and highlighted by their December 16, 2022 civil rights petition to the US EPA.[10] In summary, the Petition notes that the VA negotiations produced dangerously inadequate water quality standards that disregard the needs of Delta ecosystems, native fish and wildlife species, and communities. The current VA framework, as incorporated into this draft BiOp, would increase annual outflows by only 500,000 acre feet per year above the D-1641 baseline, far less than the 1.3 million acre feet proposed in the 2017

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[4] Executive Order 12898 – Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, February 16, 1994. https://www.federalregister.gov/documents/1994/02/16/94-3685/federal-actions-to-address-environmental-justice-in-minority-populations-and-low-income-populations

[5] Memorandum on Uniform Standards for Tribal Consultations, November 30 2022. Available at : https://www.whitehouse.gov/briefing-room/presidential-actions/2022/11/30/memorandum-on-uniform-standards-for-tribal-consultation/

[6] *Id*.

[7] Executive Order 12898

[8] *Id*.

[9] See, Readout: Engagement on Development of White House Indigenous Knowledge Effort, June 27, 2022. (Listening sessions with Tribes produced several themes including "the importance of early engagement and full participation of Tribal Nations and Native communities in Federal policy decisions.") https://www.whitehouse.gov/ostp/news-updates/2022/06/27/readout-ostp-and-ceq-initial-engagement-on-white-house-indigenous-knowledge-effort/

[10] https://www.restorethedelta.org/wp-content/uploads/2022-12-16-Bay-Delta-Complaint-and-Petition.pdf

voluntary agreements and only a fraction of the additional flow requirements that the Board has itself concluded are necessary to protect public trust uses. Furthermore, the VA framework attempts to offset the shortcomings of these flow commitments with certain non-flow habitat restoration commitments. However, the habitat restoration projects themselves will also not survive without sufficient water at the right times and quantities in the system. The Petition goes on to emphasize that these non-flow commitments cannot substitute for instream flows adequate to support resident fish populations and fish migration and rearing, reduce the incidence of harmful algal blooms, restore aesthetics and recreational opportunities, and support other public trust uses.

Although this Petition targets the State Water Resources Control Board, not the Bureau of Reclamation, it highlights the interests of Tribal and environmental justice leaders in Bay-Delta issues as well as the many impacts that Bay-Delta water management decisions have on Tribal and environmental justice communities, specifically disadvantaged communities of color affected by low flows and the resulting ecological harms.[11] The BOR is aware of the Tribal and environmental justice implications of the VA process, yet chose to ignore those implications and their federal Tribal and environmental justice responsibilities.

C. The Voluntary Agreements fail to provide adequate environmental flows.

The Proposed Action includes no provisions to require increased Delta outflow in the winter months, and it relies on interim actions by DWR and BOR, based on the proposed VAs, to allegedly contribute to Delta outflow in the spring. Reliance on the proposed VAs is highly problematic for the listed fish species (all of which suffer from reduced river flows into and through the Delta) because even if it were fully implemented, the VA fails to provide anything even remotely close to adequate Delta outflows, based on the best available scientific evidence.

In fact, NMFS has determined that "(t)he flow commitments identified in the VA Term Sheet would not provide a significant divergence in average flow relative to the baseline." NMFS also stated that "[W]e are highly uncertain that the VAs as currently proposed will provide for the reasonable protection of fish and wildlife beneficial uses." [12] The U.S. Environmental Protection Agency has also concluded that "VA flow assets provide only minimal benefits," and that "EPA is concerned that the total volume and timing of Delta inflow and outflow provided under the proposed VA alternative relative to baseline is not large enough to adequately restore and protect aquatic ecosystems." Finally, the EPA concluded that "(D)uring critical dry years the proposed VA alternative will result in a decrease of flows from baseline."[13] The draft BiOp reaches a

[11] *See*, Memorandum on Guidance for Federal Departments and Agencies on Indigenous Knowledge, November 30, 2022. (Guidance "intended to promote and enable a Government-wide effort to improve the recognition and inclusion of Indigenous Knowledge. It reaffirms that Agencies should recognize and…apply Indigenous Knowledge in decision making, research, and policies across the Federal Government.") Available at: https://www.whitehouse.gov/wp-content/uploads/2022/12/OSTP-CEQ-IK-Guidance.pdf
[12] Cathy Marcinkevage, Assistant Regional Administrator, National Marine Fisheries Service to the State Water Resources Control Board, Jan. 19, 2024.
[13] Thomas Torres, Director, Water Division, EPA Region 9 to State Water Resources Control Board, Jan. 19, 2024.

similar conclusion – stating that "whether the HRL program is implemented or not the effects of the [Proposed Action] will be approximately the same as the NAA." *See* Draft BiOp p. 91.

D. The revised Proposed Action's description of the Voluntary Agreement proposal for Delta inflows is misleading.

The Proposed Action states that "if the HRL program is fully implemented, the Delta could receive an average of 150 TAF, 825 TAF, 751 TAF, 826 TAF and 155 TAF in wet, above-normal, below-normal, dry and critical year types." *See* PA pp. 91, 129 and 199. However, the State Water Board's analysis indicates that the VAs are likely to result in *lower* Delta outflows than would have occurred under that agency's baseline, which incorporates the 2008/2009 Biological Opinion RPAs rather than the invalid 2019 BiOp. *See* SWRCB Phase II Bay Delta Plan Draft Staff Report. As discussed more below, the VAs could decrease environmental flows during critical dry years, particularly relative to the current the 2024 Interim Operations Plan, which is being implemented at the direction of the federal court. Thus, the Proposed Action's portrayal of potential flow improvements under the VA proposal is misleading.

E. The revised Proposed Action appears to incorrectly assume that all anticipated Voluntary Agreement environmental flows would benefit listed species.

The draft BiOp states that the VA science plan "outlines a framework for assessment variables to determine how to deploy the proposed outflow to maximize benefits to target species, including Delta smelt." *See* Draft BiOp pp. 117 and 220. Yet the VA proposal appears to "count" as a VA contribution to flow water that is not diverted due to causes that are unrelated to environmental protection – such as regular or unscheduled maintenance, pump/canal/storage capacity limitations, or lack of demand; even if it provides an environmental benefit (and there is no requirement that it must), flows bypassed under these circumstances are a significant portion of current Delta outflows (Reis et al. 2019) and would not be additive to the baseline. The assumption implicit in the revised Proposed Action and draft BiOp – that all of the anticipated VA water would be managed to achieve maximum benefits for listed species – is not a reasonable assumption.

F. The approach included in the revised Proposed Action and the draft BiOp are likely to be in place for only two years.

The Proposed Action states that the VA process is incomplete and that "[b]ecause specific details regarding accounting, governance and other HRL program element are likely to change as they are further refined, the Service cannot analyze the specific details of where, when and how the listed species and critical habitat are likely to be affected." *See* PA p. 26. We agree. Nevertheless, the Proposed Action includes an "early implementation" proposal for the VAs, including two years of export reductions by the CVP and SWP. *See* PA p. 26. If, by the end of this period, the VAs are approved by the State Water Board, "the federal action agency will request subsequent consultation including details about how coordinated operations will be implemented to comply with the WQCP including the HRL program." *See* PA p. 27.

Additionally, the Proposed Action does not address what will happen at the end of the two-year early implementation period in the likely event that the VAs are not complete and approved by the State Water Board. The Proposed Action overlooks the fact that the VA process has already been underway for 13 years, yet it still has not resulted in a complete proposal. Further, the VA process has failed to meet at least 8 self-imposed deadlines during this period. *See* VA Timeline Fact Sheet, Attachment 4. Given this record, it is likely that the VA process will continue to struggle - intentionally or not - to produce a complete package.

In the event that the State Water Board has not approved the VAs as a part of an update to the Bay-Delta Water Quality Control Plan, the initial two-year CVP and SWP Delta export reductions would end. The Proposed Action and the Draft BiOp do not address in a clear and comprehensive manner what would happen in this likely eventuality. In this case, it appears likely that a significant component of the Proposed Action would expire, without a clear and comprehensive replacement.

This scenario suggests that it is possible, perhaps likely, that the current approach in the Proposed Action and the draft BiOp would expire after two years. This may lead to yet another multi-year reconsultation period, during which time listed species would suffer from the lack of a comprehensive, scientifically based and legally sufficient long-term Biological Opinion. This could unnecessarily allow listed species to continue to decline, possibly including extinction. This risk is made clear in the Proposed Action itself, which states that "there was no information provided in the BA about how or if additional water would be needed to be made available to support the spring Delta outflow action." *See* Draft BiOp at p. 220.

We strongly recommend that the final Biological Opinion be revised to provide an RPA that do not rely on the Voluntary Agreements. An RPA must instead rely on the best available science regarding flows that are protective of federally listed species. Alternative 3 in the BOR's Biological Assessment and Draft Environmental Impact Statement provides the best starting place for such an RPA.

V. The Draft BiOp Fails to Protect Delta Smelt, Longfin Smelt and Other Species.

As written, the draft USFWS BiOp and revised Proposed Action fail to protect Delta Smelt, Longfin Smelt and other aquatic species. The draft BiOp thoroughly details the severe and depressing decline of Delta Smelt and Longfin Smelt, especially since the 2019 Biological Opinions. Yet the corresponding conclusions on the Proposed Action's impacts are inconsistent with and contradictory to the analysis of species status and trends, are unsubstantiated, and require additional explanation and analysis.

A. The draft BiOp is inconsistent throughout its analysis of various flow actions and Delta Smelt's and Longfin Smelt's need for additional flow.

The revised Proposed Action still proposes inadequate flows for Delta Smelt, Longfin Smelt, and other aquatic species. *See* Attachment 1 for more details. Despite the voluminous scientific evidence demonstrating the need to significantly increase Delta outflow in the winter

and spring months, and despite the broad acknowledgement that existing requirements (e.g., the 2019 BiOp, 2020 CESA ITP, and water quality regulations) are inadequate to protect endangered species, the draft BiOp does not include Delta outflows in the winter and spring months that are necessary and adequate to prevent extinction, according to the best available science. Additionally, the draft BiOp continues the Proposed Action's improper reliance on the Voluntary Agreements to allegedly contribute some modicum of flow (far less than needed) to Delta outflow in the spring and DWR's "additional outflow". *See* Draft BiOp Actions 3.7.5 Spring Delta Outflow; 3.7.10 Delta Smelt Supplementation, pp. 25-26.

The draft BiOp states,

> "For the first two years (Healthy Rivers and Landscapes [HRL] pre-adoption period) of LTO implementation (or until and if the HRL program is incorporated into the Water Quality Control Plan (WQCP), whichever comes first), Reclamation and DWR propose to implement the CVP and SWP foregone exports portion of the March 2022 Memorandum of Understanding signed by the HRL parties (Table 12 of BA Section 3.7.5). Thereafter, Reclamation and DWR proposed to operate consistent with the HRL only if the parties execute the agreements associated with the HRL and the SWRCB incorporates the HRL is proposed into their WQCP. In its application for an incidental take permit for LTO under the California Endangered Species Act, DWR proposes *to implement additional outflow* beyond the first two years of ITP implementation even if the HRL plan is not implemented before the pre-adoption period ends. DWR's post-early implementation proposal is included in the PA for this consultation; *however, it was not modeled under Alternative 2 version 2*. Because DWR's proposal is *reasonably certain* to occur and is part of coordinated operations, our analysis addresses this action in a qualitative manner."

Draft BiOp pp. 25-26 (emphasis added).

The USFWS should explicitly state here that Delta Smelt and Longfin Smelt require additional outflow, especially given the dire status of both Delta Smelt and Longfin Smelt populations. The draft BiOp briefly acknowledges the current flow regime (and what is proposed in the Proposed Action) is inadequate, stating that "[a]t face value, whether the HRL program is implemented or not, CalSim 3 modeling suggests the statistical distributions of Delta outflow in the spring months would remain very similar to the [No Action Alternative] [Figure]." *See* Draft BiOp p. 91. Despite this acknowledgment, and despite the fact that, as recently as 2022, the Service declared existing regulatory mechanisms inadequate to prevent further decline of Longfin Smelt, the Service does not require additional flow from the Proposed Action, and instead relies on the Bureau and DWR's promises to "backstop" the Voluntary Agreements. *See* Draft BiOp p. 91 and p. 129; DWR's ITP application Section 3.3.3.2. Overall, due to a lack of adequate environmental flow and improper reliance on the VAs, this draft BiOp is unlikely to protect Delta Smelt or Longfin Smelt populations.

i. Delta Smelt

The draft BiOp provides no evidence that its Summer-Fall Habitat Action will "help mitigate low summer-fall survival" of Delta Smelt. *See* Draft BiOp p. 99. The draft BiOp states:

> "Based on our analysis of the Proposed Action and its predicted effects we conclude: 1. Contemporary life cycle modeling supports the hypothesis that high summer outflow can contribute to beneficial effects but *does not support the hypothesis that variation in fall outflow does*. Life cycle models suggest that absent supplementation, delta smelt would continue to decline at rates similar to those predicted from the 2019 Proposed Action (NAA). However, one model predicts a much steeper rate of decline and was unresponsive to small variations in proposed project operations. 2. The Proposed Action for June through October does not appear to meaningfully differ from a 2019 operation except in the driest June scenarios. 3. Delta smelt will gain a foraging benefit from the use of the SMSCG to lower salinity in Suisun Marsh. This benefit will be unlikely prior to at least September in Dry years when the Beldon's Landing salinity target is 6 PSU. 4. The anticipated foraging benefits from SMSCG operations could be partly offset by entrainment onto managed wetlands, particularly during fall flood up. *5. The Fall X2 action is not anticipated to have observable effects on delta smelt survival. 6. Since there may be circumstances when measurable benefits could be achieved with outflow augmentations, adaptive experimentation regarding flow pulses in the summer or fall could be helpful.*"

Draft BiOp pp. 101-102 (emphasis added).

On its face, this passage indicates that the Proposed Action is not adequate to prevent extinction of Delta Smelt, especially given flawed assumptions made in the Proposed Action (failure to model TUCPs, reliance on the uncertain VAs, etc.) described above. It is possible to manage combined operations of the CVP and SWP such that Delta Smelt are likely to benefit and experience positive population growth. In fact, the Cooperating Agency draft EIS states:

> "Alternative 3 is expected to have beneficial effects on [Delta Smelt] adults and juveniles resulting from decreased entrainment, and beneficial to negligible effects to larvae resulting from decreased to negligible change in entrainment. For food availability, there are expected positive effects on larvae and minor positive effects to juveniles. For population abundance, there is an expected positive effect on the population growth rate."

See BOR Cooperating Agency DEIS at p. 12-35.

1. <u>Summer Habitat</u>

The Service must define what it means by "summer outflows". During the draft BiOp's description of the "summer-fall habitat action", it refers to "Summer Flow Results" in the Table

on page 94 without defining the term.[14] Then it refers to July-August flows (at pp. 96-97), July-October flows (at p. 96), June and July flows (at p. 98), July-October flows (p. 96), June-October (p. 96), etc.

Delta outflow from June-August ("summer outflow") is known to correlate positively with survival of post-larval Delta Smelt (Polansky et al. 2021). We are concerned that proposed combined operations of the CVP/SWP will result in reduced summer outflows that will further harm Delta Smelt. According to modeling of combined CVP/SWP operations in the SWP LTO DEIR, summer outflows will be reduced in July and August of most years. Delta outflows during the Jun-Aug period will be reduced by CVP/SWP operations in all water year types. (*see* below; SWP LTO DEIR Table 4B-2-10-1c, App 4b Attch 2 at p. 162). According to the Service's Delta Smelt LCM, Delta Smelt post-larval survival should be expected to decline due to reductions in summer outflow.

Table 4B-2-10-1c. Delta Outflow, Proposed Project 021624 minus Baseline Conditions 072623, Monthly Outflow (cfs)

Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
10% Exceedance	-156	-269	212	466	2,845	487	853	-527	-9	-553	-859	744
20% Exceedance	156	14	25	253	-844	-481	-885	-1,084	534	-537	-434	156
30% Exceedance	0	56	11	555	-328	467	-875	-885	495	0	-402	25
40% Exceedance	94	45	122	18	331	-167	-544	-1,958	691	-239	-418	576
50% Exceedance	-42	-73	-417	370	602	1,034	231	-1,286	483	-326	-513	372
60% Exceedance	68	-69	121	118	62	1,073	420	-1,080	0	0	-33	37
70% Exceedance	0	-66	166	357	52	378	-334	-624	165	-281	-426	238
80% Exceedance	0	0	116	-165	1,003	731	293	-52	61	0	0	0
90% Exceedance	0	0	-51	202	530	-34	-103	-110	0	0	0	0
Full Simulation Period Average[a]	40	-6	21	216	191	305	-128	-799	230	-148	-333	108
Wet Water Years (30%)	69	-21	-30	222	-82	-131	-237	-1,404	301	-80	-380	-136
Above Normal Water Years (11%)	85	126	-230	171	292	462	-392	-932	462	-418	-776	817
Below Normal Water Years (21%)	-3	-118	117	236	21	772	-105	-1,084	383	-200	-259	123
Dry Water Years (22%)	35	24	-12	27	507	615	145	-66	38	-163	-349	151
Critical Water Years (16%)	18	40	211	469	422	-25	-144	-203	0	0	-17	0

[a] Based on the 100-year simulation period.
* All scenarios are simulated at current climate condition and 0 cm sea level rise.
* Water Year Types defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
* Water Year Types results are displayed with water year - year type sorting.

2. Fall Habitat

The draft BiOp's fall outflow action is not expected to benefit the species. The Service describes the Fall X2 action as:

> "…a 'pulse flow' in September of Wet and Above-Normal water years that carries over into October …. As proposed, the pulse of freshwater would maintain a 30-day average X2 at 80 km in both months. The Fall X2 action was originally in the Service's 2008 Reasonable and Prudent Alternative (Service 2008) and was motivated by concerns about proposed 'flatlining' of habitat suitability in the autumn (Feyrer et al. 2011, p. 124 and their Fig. 5). The modeled Delta outflows for September and October are about the same in the Proposed Action as the NAA (i.e., within the CalSim 3 error) so there is no proposed change from baseline …

[14] This Table should be numbered and captioned. Also, the Table currently presents results from complicated modeling papers without any context needed for interpretation -- the entries should be presented in a way that is interpretable to the average reader.

> Currently proposed outflows in September and October are lower than what they were in the 1970s through 1990s (Feyrer et al. 2011, their Fig. 2), but they are higher than what occurred naturally …."

See Draft BiOp at pp. 101-102.

This is very different than Action 4 of the USFWS 2008 BiOp (at p. 369; "Estuarine Habitat During Fall"), which is described as:

> "… provide sufficient Delta outflow to maintain average X2 for September and October no greater (more eastward) than 74 km in the fall following wet years and 81km in the fall following above normal years. The monthly average X2 must be maintained at or seaward of these values for each individual month and not averaged over the two month period. In November, the inflow to CVP/SWP reservoirs in the Sacramento Basin will be added to reservoir releases to provide an added increment of Delta inflow and to augment Delta outflow up to the fall target."

The timing of the USFWS 2008 BiOp's fall estuarine habitat action was listed as September 1 to November 30. For purposes of the Delta Smelt LCM, Polansky et al. (2021) define "fall" as September through November. The Service should provide a reasoned explanation of the scientific and management basis, if any, for modifying the fall habitat action, including reducing the required Delta outflow (increasing X2) in wet years and truncating the seasonal period of this action.

The draft BiOp acknowledges that its Fall X2 action will not change status quo conditions that are exacerbating the danger of extinction for this extremely imperiled fish. Moreover, we are concerned that even the diminished Fall X2 action described in the draft BiOp will not occur under proposed CVP/SWP operations. According to modeling for the SWP LTO (*see above*), Delta outflow during these months will be lower under modeled combined operations of the CVP/SWP than under the baseline in Wet years (which are 30% of years).

The inclusion of the fall outflow/Fall X2 action is not consistent with the draft BiOp's statement: "In contrast, statistical importance of Delta outflow (and corollaries) on delta smelt survival in the fall is not visible in the best information we now have available to us." *See* Draft BiOp at 94. This statement is inaccurate and we recommend striking it. Polansky et al. (2021) report results from the Service's Delta Smelt LCM:

> "Using the results from the global model fit with external estimates of observation error CV plugged in, and selecting (somewhat arbitrarily) a 0.80 value as the lower limit for which evidence, the posterior distribution probability that the coefficient is above (below) zero when the expected effect of a covariate is positive (negative), is considered substantial enough to report on here, the following relationships were observed: (a) <u>recruitment was most influenced by temperature, the approximate location of the 2-ppt isohaline during the previous</u>

> fall, and adult food (note also the export-inflow ratio had high evidence of support based on the models summarized in Table C.2)…"

Polansky et al. (2021 at p. 358) (emphasis added).

These results argue for maintaining the September through November timing and X2 targets ≤74km in Wet years and ≤80km in Above Normal years and potentially developing targets for other water year types beyond "Wet" and "Above Normal". In addition to lower values of X2, increased freshwater flows into the Delta during October and November are consistent with lower temperatures (Bashevkin and Mahrdja 2022) and increased transport of *Pseudodiaptomus forbesi* – a key Delta Smelt prey species– from fresh/very low salinity waters to the low salinity zone inhabited by juvenile Delta Smelt (Hassrick et al. 2023; Kimmerer et al. 2018). These positive effects on Delta Smelt habitat in the low salinity zone are increasingly apparent as low salinity habitat moves further to the west, and X2 is less than 80km (*see* e.g., Hassrick et al. 2023 at Figure 3). The Service should provide a reasoned explanation, supported by the best available science, for constraining the fall habitat action to only above normal and wet years, limiting the timing of the fall habitat action to September, and restricting it to maintenance of X2 at 80 Km.

The claim that these flows are "higher than what would occur naturally" is irrelevant, and we recommend striking this phrase. *See* Draft BiOp p. 102. ESA protections are not limited to actions that would occur naturally (e.g., Delta Smelt Supplementation is also not something that would "occur naturally"). The document acknowledges that Delta outflows in the summer and fall are less than they have been in previous decades and are very often managed by Reclamation and DWR to maintain a "salinity barrier" that enables continued export of water from the Delta.

3. Tidal Habitat Restoration

We are concerned that the draft BiOp targets only completion of the 8,000 acres of shallow water "habitat" previously required in the 2008 BiOp. We believe the Service should require additional acres of tidal marsh restoration – with restoration placement and design informed by the best available science – distributed throughout existing *and former* Delta Smelt habitat. Previous requirements for shallow water environment ("habitat") restoration have not resulted in stabilization or recovery of the Delta Smelt population and there is no evidence that the remaining required acreage will be sufficient to mitigate for harm caused by the Proposed Action. Recent modeling efforts indicate that the effect of "habitat" restoration actions on Delta Smelt population growth rate is only when restoration activities occur at a much larger spatial scale than envisioned by the draft BiOp and previous USFWS biological opinions for Delta Smelt. *See* CSAMP Delta Smelt Structured Decision-making Model ("Compass 2024") at pp. 25-27.

We are also concerned that the draft BiOp relies on previously required "habitat" actions to protect the species because multiple generations of Delta Smelt are likely to pass before these restoration actions are completed. As described in the SWP ITP DEIR (at p. 2-37), eleven Delta Smelt habitat projects – all located in the "northern arc of the upper estuary" are in different phases of completion: less than half the required restoration acreage has been constructed, 3,490 acres or under construction now, and 1,322 acres are still in the planning phase. The long time

frame required for implementation of this action is one of several key uncertainties regarding the efficacy of "habitat" restoration as a counterbalance to harms generated by CVP/SWP operations (Compass 2024 at p. 28 & pp. 30-31).

Furthermore, we are concerned that the draft BiOp misrepresents the function and effect of shallow water environments on Delta Smelt foraging success. Whereas Hammock et al. (2019) found that Delta Smelt foraging was more successful in the vicinity of shallow water marshes, they also determined that the increased predation success was ***not*** because food was more abundant in the vicinity of the marshes. Rather, these researchers hypothesized that Delta Smelt foraging behavior made them more effective predators in the vicinity of tidal marshes. Thus, the trophic benefits for Delta Smelt of shallow water environments like restored tidal wetlands are expected to be highly localized (and may be outweighed by negative effects of the same environments, such as the habitat they provide for predators of Delta Smelt). These findings suggest that the spatial distribution of habitat restoration projects is at least as important as the acreage of such projects.

The Service should strike references to the hypothesis that restoration of shallow water environments will subsidize the estuary's pelagic prey base. In general, the proposition that restored tidal marshes can supplement food supplies for fish in pelagic waters of the Delta and Suisun Bay has little or no support. For example, Yelton et al. (2022 at p. 1743) conclude: "...there is little evidence of persistent subsidies of zooplankton from tidal wetlands to open water..." (*see also* Herbold et al. 2014 and Kimmerer and Rose 2018). Hartmann et al. (2022) similarly found lower abundances of zooplankton in shallow water, in contradiction to the conceptual model that restoring shallow tidal wetlands will increase food supplies for imperiled fishes. Statements in the draft BiOp, like those at p. 107, ("Tidal exchange of water between wetlands and surrounding channels is expected to distribute primary and secondary production from the wetlands to adjacent pelagic habitats where delta smelt occur and provide access to resulting prey production and transport") are misleading and/or incorrect. Again, there is little or no evidence that restored shallow water environments increase food supply in pelagic waters; it is more likely that zooplankton are more susceptible to predation by Delta Smelt in waters adjacent to tidal marshes.

On the other hand, the draft BiOp should emphasize that the density and distribution (i.e., the availability) of key prey items for Delta Smelt respond strongly and positively to increased freshwater Delta outflow during the winter-spring (Kimmerer 2002; Hennessy and Burris 2017a,b) and summer-fall (Hennessy and Burris 2017a,b; Kimmerer et al. 2018; Hassrick et al. 2023).

4. CSAMP Delta Smelt Study

As the draft BiOp acknowledges, scientific evidence emerging over the past few years strongly suggests that enhanced summer Delta outflow is likely to provide substantial benefits for Delta Smelt, and that these benefits may exceed those associated with current management of fall Delta outflow. However, the draft BiOp errs in concluding that fall outflow has no beneficial effects for Delta Smelt (*see above*).

The importance of enhanced outflows is borne out by the results of one of the most intensive Delta Smelt modeling exercises to date. Along with many other parties, USFWS is a participant in the Delta Smelt Strategic Decision Model (DS SDM) process sponsored by the Collaborative Science and Adaptive Management Program. Over the last four years the DS SDM analysis has utilized multiple Delta Smelt life cycle models to predict population responses to different management scenarios. More model runs were conducted assessing sensitivity to different flow actions than with any other driver affecting Delta Smelt population viability. The results supported the finding that enhancing summer outflow will substantially benefit Delta Smelt. But they also showed positive population growth when fall outflow was set to month-specific locations < 80Km in W and AN years. The results were equally informative in showing that Delta smelt populations would have experienced a faster decline than observed historically over the 1994-2014 period if fall outflow had been set to month-specific locations > 80 km in W and AN years. *See* Compass 2024, Section 3.2, pp. 21-25. This latter result suggests that while fall outflows may contribute less than summer to positive population growth and recovery, they may also be essential to maintaining critical habitat and preventing extinction of the species.

Based on these results and the science describe above, we recommend revision of the Draft BiOp to require fall Delta outflows sufficient to maintain X2 targets ≤74km in Wet years and ≤80km in Above Normal years from September through November, and consideration of targets for fall X2 in other water year types. Additionally, if the Service cannot provide a reasoned explanation based on the best available science for constraining the fall habitat action to only above normal and wet years, limiting the timing of the fall habitat action to September, and restricting it to maintenance of X2 at 80 Km, then it should instead require Action 4 of the USFWS 2008 BiOp as part of the RPA.

ii. Longfin Smelt

Operations that result in long-term negative outcomes Longfin Smelt are inconsistent with conservation and restoration of a population that has a high probability of extirpation in the very near future (USFWS 2022). The Service recently observed that Bay-Delta Longfin Smelt DPS "...has plausibly been declining for over 50 years and that decline is presently at circa 3–4 orders of magnitude" (USFWS 2022a at p. 37). In its recent draft listing decision, USFWS identified existing regulatory mechanisms, including the 2019 Biological Opinions, 2020 CESA ITP, and existing water quality requirements, as inadequate to prevent further decline of Longfin Smelt (Federal Register Vol. 87, No. 194 (Friday, October 7, 2022) at pp. 60957-60974). Therefore, any alternative that does not improve conditions relative to the status quo for the San Francisco Bay estuary's Longfin Smelt population is inconsistent with the requirements of the ESA.

The Service should be guided by the best available science regarding the effect of Delta outflows on Longfin Smelt population dynamics, and should not ignore the high level of uncertainty regarding the effect of restoring shallow water environments ("habitat") on the Longfin Smelt population dynamics. *See* USFWS 2022 (and sources cited therein). Furthermore,

rather than dismiss and/or ignore large projected changes in mortality of Longfin Smelt juveniles and larvae as a result of entrainment at the CVP/SWP export facilities, the draft should integrate those effects (at least qualitatively) with the expected effects on the population from changes in Delta outflow.

The draft BiOp's analyses and conclusions regarding Longfin Smelt are internally inconsistent and misinformed. We recommend the Service reject the Longfin Smelt population modeling results from Reclamation, as presented in the draft BiOp, as they are highly likely to be erroneous and Reclamation's presentation and interpretation of these results is misleading and flawed. Instead, based on the extensive scientific record and analyses performed for numerous regulatory proceedings, we recommend the Service require ≥65 percent of unimpaired flow during December through May, whenever such flow would not impair coldwater pool at Shasta, Oroville, and Folsom reservoirs respectively.

1. Spring Delta Outflow

Strong, durable, statistically significant correlations between winter-spring Delta outflow and the change in Longfin Smelt abundance indices are well documented (Nobriga and Rosenfield 2016; SWRCB 2017; and see USFWS 2022 for additional references). Indeed, the draft BiOp reports: "It has been recognized for more than 40 years that the abundance of longfin smelt increases as a function of wet season Delta outflow or its corollary, X2 (Stevens and Miller 1983, their Table 8; Jassby et al. 1995, their Fig. 5; Thomson et al. 2010, their Fig. 6)." *See* Draft BiOp p. 199. Thus, it is surprising and concerning that the draft BiOp attempts to minimize the effect of Delta outflow on Longfin Smelt abundance, citing "Appendix J Spring Delta Outflow, Attachment J. Longfin Smelt Outflow". [15] The draft BiOp describes as "circular" the outcome that Longfin Smelt abundance will increase under management regimes that produce higher Delta outflows because the model employed includes Delta outflow as a continuous predictor. *See* Draft BiOp p. 201. This is not circular reasoning. Higher abundance is predicted for management regimes with increased Delta outflow *because the best available science consistently demonstrates that Delta outflow is the only reliable predictor of Delta Smelt abundance.* Thus, alternative scenarios that differ only in Delta outflow *will* produce different estimates of future Longfin Smelt abundance – this outcome simply reflects the best available science.

We are concerned with the Service's interpretation that the real and very large differences in Longfin Smelt abundance that result from different operational alternatives are "small" relative to the large variation in predicted abundance. We are not able to study the modeling that resulted in the figure on page 200 of the draft BiOp (reproduced below); however, it looks remarkably similar to DWR's presentation of results in their 2019 DEIR for SWP LTO, which were the product of misapplication of a model (developed by Nobriga and Rosenfield 2016) and extremely misleading presentation. We are very concerned that the draft BiOp presents this

[15] We have not been able to review this appendix.

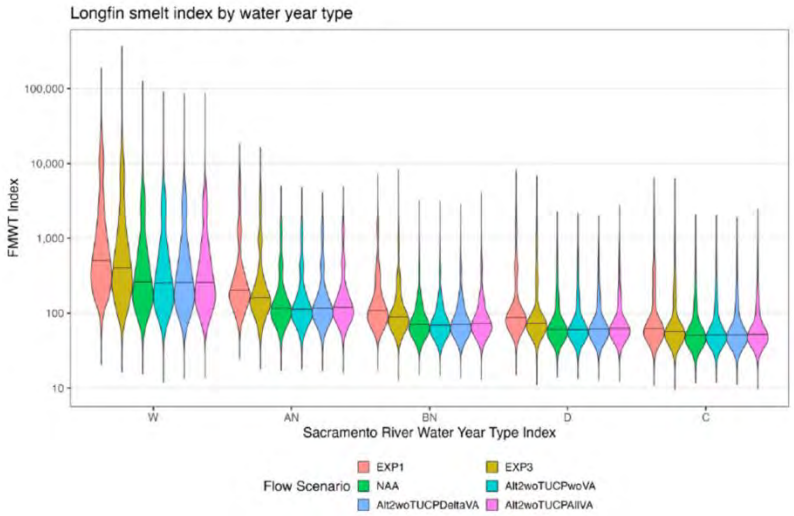
figure because it misrepresents what is known about Longfin Smelt biology and fails to apply basic concepts of alternative comparison. Our concerns include:

a) The figure below obscures very large differences in median outcome for the different alternatives. Representing abundance on a log scale tends to hide the magnitude of differences between the alternatives. An informative presentation of these results would plot the median results (the horizontal line in each "violin" plot) on a non-log transformed y-axis. Doing so would likely reveal that the higher outflow alternatives result in substantially higher Longfin Smelt populations on average.
b) The figure represents high flow alternatives in a misleading manner. "Wet" years and alternatives with greater Delta outflow are plotted on the left of the x-axis and drier years and drier alternatives toward the right of the x-axis. This is the opposite of the traditional representation of magnitude on an x-axis; typically, x-values increase as one moves to the right on the x-axis. The draft BiOp's presentation creates the erroneous impression of declining abundance as flows increase.
c) Variation in Longfin Smelt abundance in each water year type is highly exaggerated because:
    1. The water year types themselves represent tremendous variation in Delta outflow (i.e., there are large differences in Delta outflow between the wettest and driest years within any one year type), and this translates to large variation in abundance of Longfin Smelt expected to result from different years within a year type. There is no reason to plot these results within year type when the predictor variable (Delta outflow) is continuous.
    2. It is highly likely (given the similarity with DWR's previous analysis) that the variation in Longfin Smelt abundance shown in the water year types reflects variation from across the Longfin Smelt time series (e.g.., the figure combines results from "wet" years early in the time series with "wet" years late in the time series). Given that there is an as yet unexplained time trend of decline in Longfin Smelt abundance beyond the effect of Delta outflow (Nobriga and Rosenfield 2016), this practice adds variance to the results that has nothing to do with "prediction uncertainty" or the operational alternatives being studied.
    3. It is highly likely (given the similarity with DWR's previous analysis,) that the variation shown in predicted Longfin Smelt abundance reflects randomization of variables that are not related to the alternative (e.g., prior abundance, survival, recruitment of larvae, etc.). Nobriga and Rosenfield (2016) randomized such inputs to maximize variation within *conceptual alternatives* in order to increase certainty that any differences detected between those conceptual alternatives were real. But the task here is to compare *operational alternatives* and to determine which of those alternatives produces better outcomes for listed species; thus, varying inputs that have nothing to do with operations obscures the effect of the operational alternatives. This is exactly what a comparison of alternatives should seek to avoid.

Because Reclamation's model relies on Delta outflow as an input, alternatives with higher outflow will have higher Longfin Smelt abundance than alternatives with lower winter-spring Delta outflow. This result will be invariant unless there are other variables in the model that are affected by the alternatives. Again, this is not a "circular" outcome – it results from the fact that Delta outflow is the only *known* variable that affects Longfin Smelt abundance[16] and the only variable that is altered by project alternatives. A proper comparison of Reclamation's modeled alternatives would show the average annual *difference* (measured in each year) between alternatives in projected Longfin Smelt population abundance as a function of Delta outflow. Delta outflow would be represented as a continuous variable on the x-axis (instead of categorical water year types).

Confounding variation that has nothing to do with project alternatives (e.g., lumping together years that vary substantially in Delta outflow (e.g., within year types); incorporating variance due to time trends in abundance that are unrelated to flow; randomization of non-flow variables) with variation *caused by the project alternatives themselves* is statistical malpractice.

We ask that the Service share with us the model and methods used to generate the figure below and to reconsider how it interprets the very large differences shown in that figure in predicted outcomes of different management alternatives.



The Service should reject Reclamation's Longfin Smelt abundance model for the reasons described above. However, if Reclamation's model is retained, then we note that it projects a decline in Longfin Smelt abundance for the Alternative 2 variants relative to the No Action Alternative. *See* Draft BiOp p. 202. The fact that the difference among alternatives modeled appears "small" is not relevant (especially because the model is described as "hyper-stable" and

[16] There are other factors affecting abundance, but the driving or correlative variables are not known.

"unrealistic"). Furthermore, Reclamation's model projects declines in Longfin Smelt abundance under Alternative 2 variants without even accounting for the increase in larval and juvenile Longfin Smelt entrainment described below.[17]

The draft BiOp should acknowledge the finding in the State Water Board's recent Draft Staff Report that the proposed VA will continue or even accelerate the decline of the Bay-Delta's endangered Longfin Smelt population. The frequency of seasonal flows that promote Longfin Smelt population growth is projected to decline under the VAs relative to the State Water Board's baseline. *See* SWRCB Draft Staff Report Table 9.6-4 at 9-80. Furthermore, the VAs are likely to eliminate conditions that currently produce the highest population growth rates because the VAs are expected to result in lower winter-spring flows during the Wet year-type relative to conditions under the State Water Board's baseline or the 2008/2009 biological opinions. *See* SWRCB Draft Staff Report Tables 9.5-40, 9.5-41. Because the flow-productivity and flow-abundance relationships are log-log linear (Rosenfield and Baxter 2007; SWRCB 2017), flows in Wet years are critically important to the population; high productivity during these years provides some buffer against extirpation in subsequent years with low Delta outflows. We emphasize that the current flow regime is associated with the long-term and catastrophic decline of Longfin Smelt. Decreasing the frequency of flows that promote any population growth by truncating the higher end of the winter-spring Delta outflow (and Longfin Smelt population growth) spectrum is not consistent with protecting the species or maintaining opportunities for its future recovery.

Although we appreciate the Service's investigation of the frequency of years with population growth vs. decline among different Alternative 2 variants, in the context of a net population decline, the draft BiOp's conclusion that the "HRL"/VA program will provide incremental benefits to the Longfin Smelt population over the NAA is not relevant.

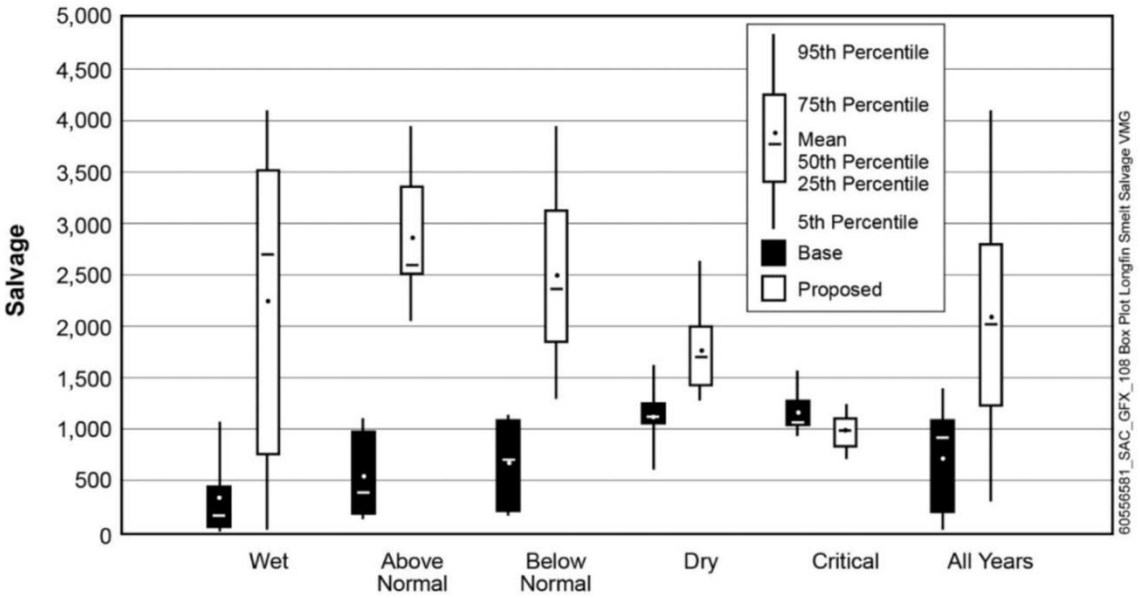
2. Entrainment of Larval and Juvenile Life Stages

The draft BiOp's reliance on Kimmerer and Gross (2022) to interpret the effect of larval and juvenile entrainment mortality on overall population dynamics is inappropriate. Kimmerer and Gross (2022) underestimate the potential population impact of larval and juvenile entrainment in several ways.[18] Most importantly, this research studied larval Longfin Smelt exposure to entrainment based on data from 2009-2020; flow and export conditions in the Delta were driven by the 2008/2009 federal biological opinions in all but one of those years. But those rules have now changed in ways that should be expected to increase entrainment-related mortality of Longfin Smelt.

[17] We know of no model that integrates changes in patterns of Longfin Smelt entrainment with overall population dynamics, but this does not mean that juvenile and larval entrainment have no effect on the adult population. Indeed, at some level, increased entrainment mortality of early Longfin Smelt life stages must impact overall population abundance and productivity – the Service must acknowledge this fact in its evaluation of proposed alternatives.
[18] Kimmerer and Gross underestimate the exposure of larval Longfin Smelt to entrainment in various ways. For example, they assumed that larval Longfin Smelt were only susceptible to entrainment for approximately 7-13 days post hatching, but otolith data reveal that larval many Longfin Smelt remain in low salinity habitats, which are often within the area affected by water exports, for 100-150 days (Lewis et al. 2019 at p. 9 and at pp. 48-83 of the PDF).

Furthermore, Kimmerer and Gross estimated direct entrainment only during January-March, but larvae remain in the upper estuary through at least May (SWRCB 2010 Table 2 at p. 45; CDFW 2010) and likely into June (Rosenfield 2010; Lewis et al. 2019 at p. 9 and p. 28 of the PDF). The difference in timing is important because (a) it extends the window/opportunity for entrainment, (b) the salinity field moves east as the spring progresses because outflows tend to decline during these months, increasing X2 and likely drawing rearing larvae closer to the export facilities, and (c) OMR flows become significantly more negative during April and May, increasing the exposure of larval Longfin Smelt to entrainment-mortality at the CVP/SWP export pumps.

Recent revisions to the operation of the SWP (DWR 2019) allow for increased water exports in every year relative to the baseline operations under the 2008/2009 biological opinions, including in every April and every May, relative to conditions analyzed by Kimmerer and Gross (DWR 2019 Figs. 4.4-24 at p. 4-147 and at pp. 4-15 thru 4-16; DWR 2019c Table 3.1 at p. 284 of the PDF). This increase in exports, and the increasingly negative Old and Middle River flows (OMR) flows that result, were projected to cause very large increases in juvenile Longfin Smelt entrainment (*e.g.,* DWR 2019 at Figure 4.4.-56, *see below*) and are expected to produce massive increases in particles that are proxies for smelt entrainment during April and May (DWR 2019 Table 4.4-8a at 4-173).

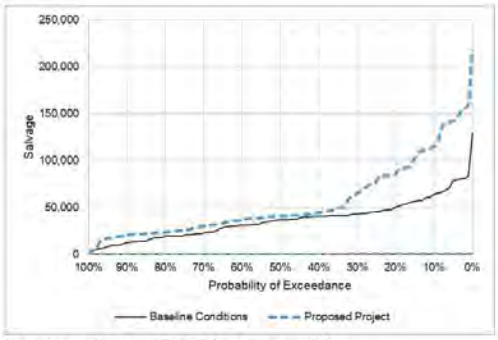


Note: Plot only includes mean responses and does not consider model uncertainty.

Figure 4.4-56. Box Plot of Longfin Smelt April–May Salvage, from the Regression Including Mean Old and Middle River Flows (Grimaldo et al. 2009), Grouped by Water Year Type

On top of these impacts (which are now the baseline for proposed reoperation of the CVP and SWP), even more negative OMR flows during April and May are expected to result from proposed CVP/SWP combined operations (SWP 2024 ITP DEIR at Figure 6-52, *see below*) and additional, very large increases in juvenile entrainment will result (SWP ITP DEIR at Table 6-22,

see below); larval entrainment during April and May should also be expected to increase under proposed CVP/SWP combined operations.



Note: Data are sorted by upper 95% limit, with 95% prediction intervals shown.

Figure 6-52. Exceedance Plot of Longfin Smelt April–May Salvage Prediction Interval, Based on the Analysis using the Salvage-Old and Middle River Flow Regression Developed by Grimaldo et al. (2009a)

Table 6-22. Mean Annual Longfin Smelt April–May Salvage, from the Regression Including Mean Old and Middle River Flows (Grimaldo et al. 2009a) and Differences between the Scenarios (Proposed Project minus Baseline Conditions) Expressed as a Percentage Difference (parentheses), Grouped By Water Year Type

Water Year Type	Baseline Conditions	Proposed Project
Wet	1,072.5	1,853.4 (72.8%)
Above Normal	935.7	1,625.9 (73.8%)
Below Normal	396.4	582.1 (46.8%)
Dry	635.1	688.6 (8.4%)
Critically Dry	695.1	771.9 (11.0%)

Note: Table only includes mean responses and does not consider model uncertainty (see Figure 6-52 for 95% prediction intervals)

Furthermore, Old and Middle River flow rates are projected to become much more negative under the VAs relative to the 2008/2009 Biological Opinion and the Board's baseline during April and May (SWRCB Draft Staff Report Appendix G3a Figure G3a-36 at p. G3a-113), the two months in which juvenile Longfin Smelt are most vulnerable to entrainment and death in the infrastructure of the CVP/SWP export facilities (Grimaldo et al. 2009). Thus, the impact of entrainment and salvage on Longfin Smelt is likely to increase under the VAs.

Moreover, all of these modeling results are likely to underestimate the impact of combined CVP/SWP operations on negative OMR and resulting Longfin Smelt juvenile entrainment because the modeling described above does not account for waiver of environmental standards via temporary urgency change orders during Critically Dry and other years.

For all the reasons above, the draft BiOp's reliance on Kimmerer and Gross (2022) is entirely inappropriate. In particular, the statement quoted at draft BiOp p. 191 is erroneous even within the context of the Kimmerer and Gross manuscript (the quote is from Kimmerer and Gross p. 2742). Their paper studied the effect of direct larval and juvenile entrainment of Longfin Smelt into the CVP/SWP water export infrastructure. But this is, by far, not the only effect of CVP/SWP operations on Longfin Smelt population biology. Indeed, it is well documented that winter-spring Delta outflow is the most important single variable driving Longfin Smelt abundance. *See, e.g.,* Draft BiOp at p. 199. Kimmerer and Gross did not study the effect of CVP/SWP exports on Delta outflow, or the likely impact of exports on Longfin Smelt abundance via the strong correlation with Delta outflow. The conclusion quoted in the draft BiOp is without basis and the Service should strike it from the final BiOp.

3. Tidal Habitat Restoration

There is no evidence that Longfin Smelt are limited by the availability of shallow water environments. USFWS (2022 at p. 56) summarized the empirical support for loss of shallow water environments as a driver of Longfin Smelt decline this way:

> "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."

Longfin Smelt occupancy of and recruitment in the restored shallow marsh habitats in southernmost San Francisco Bay appears to be dependent on seasonal hydrology across the region. Lewis et al. (2019 at pp. 44-45 of the PDF) observed successful recruitment of Longfin Smelt larvae in these marshes 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, 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" (Lewis et al. 2019 at p. 7 of the PDF).

Furthermore, there is only scant evidence that Longfin Smelt are limited by food production in the estuary. Kimmerer (2002) suggested that a step-decline in Longfin Smelt abundance may have occurred due to grazing of primary productivity by the invasive Amur Clam (*Corbula amurensis*), but this was based only on the observation that Longfin Smelt abundance indices were lower for any given flow after the clam invaded than before the invasion. No other years were investigated as markers of a Longfin Smelt step-decline by Kimmerer (2002), nor was the possibility of a continuous decline in juvenile survival, such as that documented by Nobriga and Rosenfield (2016). We are aware of no study subsequent to Kimmerer (2002) showing a significant positive relationship between Longfin Smelt population size and measures of food availability (Thomson et al. 2010). In fact, MacNally et al. (2010) found a weak, but significant, negative association between Longfin Smelt abundance and their calanoid copepod prey, as compared to a very strong association with spring X2. As described above, there is little or no evidence that meaningful quantities of the prey eaten by Longfin Smelt is exported from restored tidal marshes to the estuarine pelagic zone.

We recommend that the Service revise and reframe text that implies that tidal marsh restoration will increase food supplies for Longfin Smelt in the pelagic zone (where they live most of their lives) or that such an increase would lead to increases in population abundance or productivity, *e.g., see* Draft BiOp pp. 208-209.

VI. The Draft BiOp Properly Excludes Certain Actions and Applies the Framework Programmatic Consultation Approach to Certain Actions.

We would also like to briefly acknowledge and thank the USFWS for a few elements in the draft BiOp.

First, the draft BiOp clearly distinguishes revised actions for inclusion or exclusion in the scope of the analysis from the 2019 BiOps at the beginning of the document. This makes comprehension, review and coordination more transparent.

Second, we support the exclusion of certain actions, such as the proposed Shasta Dam raise operations. It is proper to exclude this highly concerning and problematic project from both the USFWS' analysis and the LTO process overall, especially because it is unlikely to move forward at this time given significant legal and funding challenges.

Additionally, we agree that the USFWS properly considered the Delta Conveyance Project and the proposed Sites Reservoir at a "Framework Consultation" approach, requiring those projects to undergo further ESA review at a later date. This is appropriate given the technical complexity of these proposed projects and the potential substantial impacts they are likely to have on the Delta if approved. *See* Draft BiOp p. 107.

Finally, we support additional coordination between the five agencies responsible for operational decisions and protecting ESA-listed species and habitat, the USFWS, NMFS, BOR, DWR and CDFW. Given the dire state of the Bay-Delta Estuary, the complexity of water operations and the ongoing impacts from climate change, additional coordination and sharing of information is critical to the survival of the ecosystem and all imperiled wildlife.

VII. Conclusion

The undersigned organizations appreciate the Service's efforts to-date to address the impacts of the SWP / CVP on listed species. However, the draft BiOp needs important clarifications and revisions.

In addition to the changes requested in the Proposed Action comment letters, we request the Service modify the BiOp by:

- Including missing critical information such as impacts to Giant Garter Snake,
- Analyzing components of the Proposed Actions such as the Drought Toolkit,
- Clarifying the applied baseline and what actions were modeled,
- Rejecting the BOR's reliance on the Voluntary Agreements, and
- Strengthening flow requirements to be protective of Delta Smelt and Longfin Smelt.

Thank you for consideration of our views.

Sincerely,

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Lenny Grimaldo, Assistant Environmental Director, California Department of Water Resources
Paul Souza, Regional Director, Pacific Southwest Region, U.S. Fish and Wildlife Service

Attachments:

1. NGO LTO Draft Proposed Action Comment Letter Part 1 – July 2023
2. NGO LTO Draft Proposed Action Comment Letter Part 2 – August 2023
3. NGO Bay Delta Plan Phase II Draft Staff Report Comments – January 2024
4. Voluntary Agreement Timeline Fact Sheet – July 2024
5. Defenders et al. Letter to Agencies on ITL Exceedance – April 2024

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September 30, 2024

Dave Mooney
U.S. Bureau of Reclamation

Donald Ratcliff
Jana Affonso
U.S. Fish and Wildlife Service

RE: DRAFT INCIDENTAL TAKE STATEMENT FOR DELTA SMELT AND LONGFIN SMELT

Dear Mr. Mooney, Mr. Ratcliff, and Ms. Affonso,

This letter is submitted as the comments of Friends of the River, Golden State Salmon Association, Restore the Delta, and California Sportfishing Protection Alliance, regarding the U.S. Fish and Wildlife Service's (USFWS's) September 26, 2024, draft Incidental Take Statement (ITS) for Long-Term Operations (LTO) of the Central Valley Project (CVP) and State Water Project (SWP). **Based on our review, the draft ITS will fail to prevent jeopardy to Delta Smelt and Longfin Smelt.**

Given the extremely limited time provided for review of the draft ITS, our brief comments will only focus on some of our highest priority concerns, and we reserve the right to raise additional issues.

According to its own analysis in the LTO Draft Environmental Impact Statement (DEIS), the U.S. Bureau of Reclamation's LTO Proposed Action (PA) will result in impacts to Delta Smelt, Longfin Smelt, and other federal and state listed species in the San Francisco Bay-Delta Estuary that would be as bad as or worse than the No Action Alternative, which represents the status quo under which listed species are being driven to extinction (*see* Comparison of Long-Term

Operations Alternatives compared to the No Action Alternative, attached). Therefore, USFWS fundamentally errs in finding that the PA will not cause jeopardy to Delta Smelt and Longfin Smelt. **The draft ITS, which is premised on implementation of the PA, will not prevent extinction of these species and thus does not comply with the obligations of USFWS under the federal Endangered Species Act.**

For instance, the proposed permit terms governing take from South Delta entrainment will not prevent jeopardy to Longfin Smelt because the underlying analyses in the USFWS's draft LTO Biological Opinion, Reclamation's LTO DEIS and the Department of Water Resources (DWR) Draft Environmental Impact Report for the SWP: i) seriously underestimate the magnitude of larval and juvenile entrainment of Longfin Smelt under current conditions or as Old and Middle River flow (OMR) flows become more frequently negative under the PA , and ii) ignore the overwhelming scientific evidence that the PA's Spring Outflow targets are grossly inadequate to prevent further decline of the species, let alone support positive population growth. The proposed terms also overlook the likelihood that compliance with some or all of the OMR criteria and flow provisions of the PA will be waived through the adoption of Temporary Urgency Change Orders in drier years.

Similarly, the proposed permit terms governing take from far-field effects of Project operations will not prevent jeopardy to Delta Smelt because USFWS's draft LTO Biological Opinion: i) fails to incorporate the best available scientific evidence that increasing summer outflows (June-August) would be highly beneficial for Delta Smelt (and overlooks the fact that implementing the PA will instead decrease summer outflows), and ii) underestimates the benefits of the Summer-Fall Habitat Action, allowing for flexible management that makes it extremely unlikely that the September-October action will occur as planned (as demonstrated by the decision to offramp from the requirement, as requested by Delta water exporters, that will be implemented tomorrow, October 1, 2024).

Furthermore, the Adaptive Management framework should be clear, transparent, and tied to triggers for action based on specific, quantitative metrics of population viability, and the public should have the ability to participate in and comment on proposed adaptive management actions.

Our concerns regarding the PA as the baseline for the ITS are exacerbated by the inclusion of the proposed Voluntary Agreements (VAs). The VAs not only utterly fail to ensure adequate flows, temperatures, and other conditions necessary to protect listed species, but are indeed designed to facilitate additional diversion of current environmental flows above the existing regulatory baseline, and therefore further damage the Bay-Delta ecosystem, including increased take of listed species. In addition, neither the VAs themselves nor specific measures in the VAs are reasonably certain to occur.

These and other concerns are discussed in greater detail in our July 29, 2024, comments regarding USFWS's draft LTO Biological Opinion, our August 5, 2024, comments regarding DWR's LTO DEIR, our September 9, 2024, comments regarding Reclamation's LTO DEIS, and

our September 18, 2024, comments regarding the proposed October 1, 2024, offramp from the Summer-Fall Habitat Action.

In light of these concerns, we urge you to do the following:

- **Revise the draft Biological Opinion to make it a jeopardy opinion, with a protective Reasonable and Prudent Alternative to the deficient PA that remedies the shortcomings identified in our previous comments.**
- **Revise the proposed Summer-Fall Habitat Action to include a summer X2 (July-August) component beginning in WY 2025 to augment the Fall X2 (Sept-Oct) component, which should be continued.**
- **Ensure that environmental NGOs and other parties have greater opportunity to participate in the analysis and design of adaptive management activities going forward.**

We appreciate the opportunity to review the draft Incidental Take Statements. Thank you for your time and consideration of this request.

Sincerely,

Gary Bobker
Friends of the River

Scott Artis
Golden State Salmon Association

Barbara Barrigan-Parrilla
Restore the Delta

Chris Shutes
California Sportfishing Protection Alliance

Enclosed: Comparison of Long-Term Operations Alternatives compared to the No Action Alternative

NGO Comments to BOR re Fall X2 Memo – September 18, 2024
NGO Comments to USFWS re draft LTO Biological Opinion – July 29, 2024
NGO Comments to DWR's re LTO DEIR – August 5, 2024
NGO Comments to BOR's re LTO DEIS – September 9, 2024

CC: Karl Stock, U.S. Bureau of Reclamation
Paul Souza, U.S. Fish and Wildlife Service
Jonathan Rosenfield, San Francisco Baykeeper
Greg Reis, Friends of the River
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July 27, 2023

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RE: Proposed Action for Reinitiation of Consultation on Operations of the Central Valley Project and State Water Project

Dear Regional Director Conant, Regional Administrator Quan, and Mr. Ratcliff:

On behalf of the undersigned organizations, we are writing to provide initial feedback regarding the description of the proposed action for the reinitiation of consultation on operations of the State Water Project and Central Valley Project.

We greatly appreciate that the Biden Administration reinitiated consultation in order to significantly revise and replace the Trump Administration's 2019 biological opinions ("2019 BiOps"), which were the result of political interference and scientific misconduct, and which violate federal law. In addition, we note that reinitiation of consultation is required as a matter of law because operations of the CVP and SWP repeatedly exceeded the incidental take limits in those biological opinions over the past several years, including exceeding the incidental take limit in the 2019 NMFS BiOp regarding egg to fry survival of winter-run Chinook salmon. 50 C.F.R. § 402.16. And given the alarming declines in the abundance of spring-run Chinook salmon, low initial returns of winter-run Chinook salmon this year, the complete closure of the salmon fishery due to low abundance of fall-run Chinook salmon, and the U.S. Fish and Wildlife Service's proposal to list Longfin Smelt under the Endangered Species Act and finding that existing regulatory mechanisms are inadequate to protect extinction of this species, it is clear that significant changes in water project operations are necessary and appropriate to comply with State and federal law.

However, at this time it does not appear that the proposed action will adequately protect salmon or other ESA-listed fish and wildlife, and in several respects the proposed action does not meet the requirements of the Endangered Species Act and other state and federal laws. We recognize that there has been substantial work to develop this proposed action, particularly regarding Shasta Reservoir operations, and also recognize that significant work remains to model and analyze this proposed action, which is necessary to evaluate the effects of the proposed action and produce a legally adequate biological assessment. We therefore urge the federal agencies to revise the proposed action consistent with these comments. We anticipate providing additional comments regarding other elements of the proposed action in the coming weeks.

I. Failure to Include Adequate, Enforceable Requirements Regarding Shasta Operations, Water Storage and Water Temperatures:

While the proposed action identifies credible targets for water storage and water temperatures, the proposed action fails to include actions necessary to achieve these targets and fails to demonstrate that these targets are reasonably certain to be achieved, as required by the Endangered Species Act. We appreciate that the proposal for Shasta Reservoir operations utilizes the best available science regarding the critical water temperature threshold for winter-run Chinook salmon egg mortality (53.5 degrees Fahrenheit, Martin et al 2016), references NMFS's existing targets for maximum temperature-dependent mortality of winter-run Chinook salmon eggs of less than 3% in most years and less than 30% in all years,[1] recognizes the need to increase end of September carryover storage to avoid years with massive temperature-dependent mortality like that observed in 2014, 2015, and 2021, and proposes reductions in water supply allocations to Sacramento River Settlement Contractors (or more likely, to reduce water transfers from Sacramento River Settlement Contractors to other water contractors) to improve storage and temperature management in certain years.

However, the proposed action does not include enforceable requirements that ensure that these targets are reasonably certain to occur, and it does not appear that the Proposed Action is adequate to achieve these targets in many years. Unless these provisions are requirements that are reasonably certain to occur, rather than unenforceable targets, these provisions cannot be considered as conservation or mitigation measures under the Endangered Species Act. *See, e.g., Nat'l Wildlife Fed'n, v. Nat'l Marine Fisheries Serv., 524 F.3d 917, 936 & n.17 (9th Cir. 2008); Ctr. for Biological Diversity v. U.S. Bureau of Land Mgmt.*, 698 F.3d 1101, 1117 (9th Cir. 2012); *Nat'l Wildlife Fed'n v. Nat'l Marine Fisheries Serv.*, 839 F. Supp. 2d 1117, 1125–26 (D. Or. 2011); *Nat. Res. Def. Council v. Kempthorne*, 506 F. Supp. 2d 322, 350–57 (E.D. Cal. 2007).

[1] The target of maximum temperature dependent mortality of 30% in critically dry years lacks credible scientific evidence demonstrating this level of mortality would avoid jeopardizing the continued existence of winter-run Chinook salmon; in 2017 NMFS concluded that it is unclear if these levels of mortality would avoid jeopardy to winter-run Chinook salmon. The biological opinion must include analysis that demonstrates whether these levels of mortality would not jeopardize the continued existence of the species.

For instance, the proposed action does not require reductions in water supply allocations, hydropower bypasses, or other actions to ensure that temperature dependent mortality does not exceed the identified target (30%) in Bin 3 years. The proposed action does not identify any actions that would occur if modeling indicates this target (or the targets in Bins 1 and 2) will not be achieved. The proposed action should provide a process by which NMFS evaluates likely temperature-dependent mortality before Reclamation announces water supply allocations, similar to the requirements of the 2009 NMFS BiOp. Instead, under the proposed action Reclamation plans to issue water supply allocations in February, before preliminary temperature modeling will be prepared (likely at the end of March, since it states it will be based on the March 90% forecast, which is typically not available until the last 10 days of the month). *See* Proposed Action at 9-28 to 9-29. It does not appear that modeling of temperature-dependent mortality plays any role in determining water supply allocations or water operations throughout the year. Because the proposed action fails to include measures to ensure that temperature dependent mortality will be limited to 30% in Bin 3 years and 3% in Bin 1 and Bin 2 years, it is very unlikely to achieve these targets.

Similarly, the proposed action does not include enforceable requirements to ensure that the minimum end of September carryover storage of 2.0 million acre feet is achieved every year. *See id*. at 6-23. Instead, the proposed action asserts that "final decisions" on drought actions, including water supply for Sacramento River Settlement Contractors, will be based on the April 90% forecast, *see id*. at 9-3, even though water diversions for the Sacramento River Settlement Contractors often begin before the April 90% forecast is available, and even if updated forecasts show that Reclamation will not achieve end of September storage of 2.0 MAF. And under the proposed action, it does not appear that NMFS will have any say on the initial water supply allocations, and indeed does not require a call or meeting with NMFS and sharing of a full operational outlook even if end of September storage is anticipated to be less than 2.4 MAF. *See id*. There are no specific criteria explaining what happens with respect to allocations when projected end of September storage is less than 2.0 MAF. *Id*.

In addition, Reclamation proposes the development of a temperature management plan in April, which will occur long after water supply allocations have been announced, and which will use a less conservative approach than in the past (90 percent "in the aggregate," instead of using 90% hydrology and conservative (25%) meteorology). *Id*. at 7-24. Furthermore, the proposed action does not identify or discuss any measures by which Reclamation will protect the "salmon fishery," including fall-run Chinook salmon, from lethal water temperatures in the Sacramento River, as required by Water Rights Order 90-5.

Nor does the proposed action prohibit water transfers or other actions that would reduce Shasta storage after October 1; instead, the proposed action explains that water transfers and higher reservoir releases are anticipated in October, and states that Reclamation "expects" ramping down releases to 3,250 cfs after the irrigation season. *Id*. at 5-20. This failure to protect Shasta carryover storage through the fall and winter undermines the ability to maintain temperature

control if the subsequent year is dry. The proposed action should be revised to prohibit water transfers after September 30 if doing so would reduce water storage below 2.0 MAF.

Finally, it does not appear that the proposed reduction in allocations to Sacramento River Settlement Contractors would be sufficient to meet these proposed targets for water storage and temperature-dependent mortality. It is very troubling that Reclamation estimates that these critical years will be only 8.5% of all years, *see id*. at 5-20, given the high frequency with which these critical conditions have occurred in the past 15 years. While we look forward to reviewing modeling of the proposed Shasta Reservoir operations to evaluate how frequently these targets might be achieved, we expect that Reclamation's modeling will not adequately capture the likely impacts in these drier years, given Reclamation's plan to only include the effects of climate change as of 2022 and the fact that hydrologic conditions and temperatures have been far more severe in the real world in recent years than Reclamation's modeling has indicated.

We remain deeply concerned that Reclamation is not proposing to reduce discretionary allocations of Project Water to Sacramento River Settlement Contractors, nor proposing to reduce allocations to San Joaquin River Exchange Contractors and DWR's Feather River Settlement Contractors, in order to address the fundamental overallocation of water in drier years that prevents the CVP and SWP from meeting the requirements of D-1641 and providing minimally adequate ecological conditions for endangered and threatened fish species in those years. These concerns are heightened because the proposed action fails to provide adequate instream flows for successful juvenile salmon migration for winter-run Chinook salmon, fails to provide adequate instream flows for spring-run Chinook salmon in many years, fails to provide adequate Delta outflows for Longfin Smelt and Delta Smelt, and appears to rely on waiving Delta water quality standards through Temporary Urgency Change Petitions ("TUCPs") – even though TUCPs have not been shown to improve Shasta Reservoir water storage.

Therefore, we strongly urge the agencies to revise the Shasta Action to include enforceable requirements and measures that are adequate to ensure these water storage and temperature-dependent mortality targets are reasonably certain to occur, particularly during multi-year droughts.

II. Failure to Ensure Congressionally Mandated Water Supply Allocations for Wildlife Refuges

The proposed action also appears to allow water supply allocations for wildlife refuges to be reduced by more than 25 percent, which would violate the explicit statutory requirements of the 1992 Central Valley Project Improvement Act. *See id*. at 5-22. In order to comply with federal law, the proposed action must be revised to eliminate language suggesting or allowing Level 2 Refuge water supply allocations to be reduced below 75 percent. *See* Letter from Defenders of Wildlife to the Bureau of Reclamation and U.S. Fish and Wildlife Service dated April 24, 2023.

III. Inadequate Delta Outflows to Protect Longfin Smelt and Other Species, Including Improper Reliance on the Proposed Voluntary Agreement

The proposed action fails to provide adequate Delta outflow to protect Longfin Smelt and other ESA-listed species, and the inadequate Delta outflow that is included improperly relies on the proposed voluntary agreement.

Numerous state and federal agencies have concluded that existing Delta outflows are inadequate to protect endangered species, and that increased Delta outflow – particularly in the winter and spring months – is necessary to prevent the likely extinction of Longfin Smelt, Delta Smelt, and other species. As you know, the U.S. Fish and Wildlife Service has recently concluded that Longfin Smelt warrants listing as an endangered species under the federal Endangered Species Act, that the reduction in winter-spring Delta outflow is the primary threat to the continued existence of the species, and that existing regulatory protections, including existing Delta outflow requirements of the Bay-Delta Water Quality Control Plan and requirements under the incidental take permit for the State Water Project, are inadequate to protect Longfin Smelt. 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, 60961-60964, 60968-60971 (Oct. 7, 2022). Similarly, in its findings on the incidental take permit for the State Water Project, the California Department of Fish and Wildlife concluded that Delta outflow during the winter and spring months of January to June[2] were the primary driver of Longfin Smelt recruitment and population abundance, and that Longfin Smelt were likely to decline in abundance under the incidental take permit compared to the Delta outflow resulting from the 2008/2009 biological opinions. *See* California Department of Fish and Wildlife, Findings of Fact of the California Department of Fish and Wildlife Under the Endangered Species Act, Long-term Operation of the State Water Project in the Sacramento San Joaquin Delta and Final Environmental Impact Report, Incidental Take Permit 2081-2019-066-00, March 2020, at 66; *id*, Attachment 7, at 64-75.

Increasing spring and summer Delta outflow is also critically important to prevent the extinction of Delta Smelt; the best available science demonstrates that reduced Delta outflow in the spring reduces the recruitment and subsequent abundance of Delta Smelt. *See* Polansky et al 2021; State Water Resources Control Board, Final 2017 Scientific Basis Report at 3-73 to 3-74; IEP MAST 2015. Recent scientific studies also confirm that reduced Delta outflow in the summer resulted in reduced Delta Smelt post-larval survival, and that increased Delta outflow in the fall increased abundance of Delta Smelt prey. Smith, Polansky and Nobriga 2021; Lee et al 2023. The SWP's incidental take permit included several measures to improve summer-fall outflow for Delta Smelt, including conditions 8.19 and 9.1.3.1, which requires dedication of 100,000 acre feet of water that can be used to increase Delta outflow in the summer to protect Delta Smelt.

[2] In contrast, the proposed action only addresses "Spring Delta Outflow," which generally focuses on the months of March to May, with certain outflow actions "prioritized" during April and May. *See* Proposed Action at 9-70 to 9-72.

However, these Delta outflow requirements of the SWP's incidental take permit do not appear to be part of the proposed action.

And increased Delta outflows in the winter and spring months are also critically important to protect migrating juvenile salmon and steelhead, because they result in higher instream flows into and through the Delta. Numerous peer-reviewed studies have concluded that flow is the primary factor affecting the survival of juvenile salmon as they migrate down the Sacramento River. *See, e.g.,* Hassrick et al 2022 (concluding that survival of juvenile winter-run Chinook salmon in the Sacramento River decreases as flows decrease below approximately 24,720 cfs);[3] Michel 2022;[4] Michel et al. 2015; Henderson et al. 2018; Michel 2019; Munsch et al. 2020; Notch et al. 2020. Similarly, the best available science demonstrates that there is a strong flow: survival relationship in many reaches of the Delta, and that survival of juvenile salmon through the Delta "decreases sharply" whenever flows at Freeport are less than approximately 35,000 cfs. Perry et al 2018 ("survival decreases sharply and routing into the interior Delta (where survival is low) increases sharply as Delta inflows decline below approximately 1,000 m^3s^{-1}."). Thus, increased flows into and through the Delta during the winter and spring months are critically important for preventing the extinction of winter-run and spring-run Chinook salmon, as well as Longfin Smelt and Delta Smelt. Currently, the survival of juvenile salmon is unsustainable and inconsistent with continued population viability, in part as a result of inadequate instream flows in all but wet periods.

Despite the voluminous scientific evidence demonstrating the need to significantly increase flows into and through the Delta (Delta outflow) in the winter and spring months, the proposed action includes no provisions to require increased Delta outflow in the winter months, and it relies on the proposed voluntary agreement to allegedly contribute some modicum of flow to Delta outflow in the spring. *See* Proposed Action at 9-70 to 9-72. Reliance on the proposed

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[3] It is important to recognize that NMFS' Winter-Run Life Cycle Model ("WRLCM") fails to use the best available science regarding the effects of Sacramento River flows on the survival of winter-run Chinook salmon. The WRLCM fails to incorporate data on the effects of river flows on survival of juvenile winter-run Chinook salmon published in Hassrick et al 2021; instead, the WRLCM uses a relatively flat flow:survival relationship that is inconsistent with the best available science and that significantly underestimates the negative effect of reduced river flow on juvenile outmigration survival.

[4] The analysis published in Michel 2022 identifies a potential flow:survival threshold at 10,712 cfs, finding similar survival rates at flows between 10,712 cfs and 22,872 cfs, and survival declining above 22,872 cfs. However, the paper acknowledged that the upper flow threshold, which was based on limited observations at higher flows, may not be accurate; it admits that "The 22,872 cfs threshold may be an artifact of lower detection efficiencies associated with fish utilizing additional high flow migration routes with less receiver coverage." In contrast to the finding of flow threshold effects in Michel 2022, numerous other studies have found a continuous positive relationship between river flow and juvenile salmon survival. *See, e.g.*, Michel et al. 2015; Henderson et al. 2018; Michel 2019; Munsch et al. 2020; Notch et al. 2020; Hassrick et al 2022.

voluntary agreement is unlawful because it is not reasonably certain to occur, and even if it were fully implemented, the voluntary agreement fails to provide adequate Delta outflows.

First, the memorandum of understanding for the voluntary agreement explicitly does not commit the signatories to provide the water or funding proposed under the agreement until after the State Water Board takes action to update the Bay-Delta Water Quality Control Plan:

> The Parties reserve judgment whether they each will sign or otherwise support the Voluntary Agreements and do not at this time, commit to any actions described in the Term Sheet. They will decide whether or not to commit to take these actions after the State Water Board adopts a SED and resolution to update the Bay-Delta Plan consistent with Resolution 2018-0059.

Memorandum of Understanding, ¶ 2.2. Because there is no commitment to implement these flow measures and they are not reasonably certain to occur, they cannot be considered as part of the project.[5] *See Nat'l Wildlife Fed*., 524 F.3d at 936. Moreover, the proposed voluntary agreement provides no mechanism to ensure that promised flows will actually be additive to the baseline. The voluntary agreement assumes water that is not reasonably certain to occur in specific years, such as: water that is to be purchased on the open market, which may not materialize depending upon water availability, cost, and availability of funding; water that would potentially be made available in several years if additional projects are successfully undertaken, such as new storage or groundwater substitution infrastructure; water that is only available if there are minimum water supply allocations and offramps do not apply; water that could instead be used to increase water storage behind Shasta dam or shifted to other times of year; water that is modeled to be available in the Tuolumne River, but is not an enforceable flow commitment; and water that may not be protected from export operations and may not contribute to Delta outflow. *See esp.* Memorandum of Understanding, Table 1a and Table 1b, footnotes 4, 7, 8, 10, 11-15; *id*. at ¶¶ 5.1(C), 8.3.

Moreover, the proposed CVP/SWP export curtailment under the voluntary agreement provides less than half of the Delta outflow in April and May that previously resulted from the San Joaquin River inflow:export ratio under the 2009 NMFS Biological Opinion. The incidental take permit for the SWP requires up to 150,000 acre feet of export curtailment by the SWP alone in April and May of all water years, and the incidental take permit resulted in reduced Delta outflow compared to the 2009 NMFS biological opinion; in contrast, the voluntary agreement requires the CVP and SWP to jointly contribute zero acre feet of water to Delta outflow in wet years, zero acre feet of water in critically dry years, 125,000 acre feet in dry and below normal

[5] The proposed action appears to recognize that the voluntary agreement is not reasonably certain to occur, proposing that Reclamation would only make limited commitments to implementing the voluntary agreement for two years, and thereafter would make no commitments to implement any Delta outflow shown under the voluntary agreement if the State Water Board and the signatories to the Memorandum of Understanding do not approve the voluntary agreement. *See* proposed Action at 9-70 to 9-72.

years, and 175,000 acre feet in above normal years. As a result, much of the flow promised in the voluntary agreement would, at best, only partially replace the Delta outflow that occurred under the 2008 and 2009 BiOps. *See also* Memorandum of Understanding at ¶ 5.1(A) ("The Parties agree a portion of the volumes of water in Appendix 1 will be managed with a priority of providing increased flows in the months of April and May in D, BN, and AN water years to replicate average outflow resulting from the I/E ratio in the 2009 salmonid BiOp as modeled."). It appears that flows proposed under the voluntary agreement may not actually increase Delta outflow, but would instead replace (or partially replace) existing flow obligations, such as Sacramento River pulse flows, *see* proposed action at 4-2 (VA flow assets may be used to meet part or all of the pulse flow action when the pulse flow is not released due to "other project purposes"), summer outflow under the SWP incidental take permit, or CVPIA (b)(2) water.[6]

In addition, because of changes to the baseline for measurement, even assuming that all of the flows called for under the voluntary agreement materialized, the flows provided under the voluntary agreement would be significantly less than they appear. CalSim modeling by Reclamation that was included in the January 2019 draft biological assessment showed that the combination of the voluntary agreement (including 300,000 acre feet of CVP/SWP export reductions in dry, below normal, and above normal years) and the Trump Administration's proposed CVP/SWP operations resulted in less Delta outflow during the January to June period compared to Delta outflow under the 2008/2009 biological opinions. *See* Exhibit A. Thus, even taken at face value, it appears that Delta outflow conditions under the voluntary agreement are likely to be worse for the Bay-Delta's endangered fish species than they were under the 2008/20009 biological opinions, which state and federal agencies have acknowledged are inadequate.

Finally, the proposed voluntary agreement was the product of an exclusionary backroom process that is inconsistent with the Biden Administration's stated goals and commitments to environmental justice and public participation. Native American Tribes, environmental justice advocates, conservation groups, fishing organizations, and the public were all prevented from meaningful participation in the development of the voluntary agreement. The Biden Administration should not endorse this deeply flawed, exclusionary process by including the potential voluntary agreement in the proposed action.

Because the voluntary agreement is not reasonably certain to be adopted, and river flows promised therein are not reasonably likely to occur, the proposed Delta outflows in the voluntary agreement cannot be considered as a mitigation or conservation measure under the proposed action. Reclamation and DWR must propose alternative measures that adequately increase Delta

[6] Although the proposed action mentions CVPIA (b)(2) as a legal requirement, *see* proposed action at 9-85, there is no discussion of how (b)(2) assets would be utilized. In recent years Reclamation has violated the Central Valley Project improvement Act by failing to utilize the full volume of (b)(2) flow assets required by the Act, including in 2011, 2014, 2015, 2017, 2019, and 2020.

outflow during the January to June period in order to avoid jeopardizing the continued existence of Longfin Smelt and other threatened and endangered species.

Thank you for consideration of our initial comments on the proposed action for reinitiation of consultation. We look forward to discussing these issues with you, and we anticipate providing additional comments regarding other elements of the proposed action in the coming weeks.

Sincerely,

Doug Obegi
Natural Resources Defense Council

Gary Bobker
The Bay Institute

Jon Rosenfield, Ph.D.
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August 14, 2023

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Dear Regional Director Conant, Regional Administrator Quan, and Mr. Ratcliff:

On behalf of the undersigned organizations, we are writing to provide additional feedback regarding the description of the proposed action for the reinitiation of consultation on operations of the State Water Project ("SWP") and Central Valley Project ("CVP"), following up on our letter dated July 27, 2023.

I. The Proposed Action Fails to Provide Minimum Flows and Water Temperatures Sufficient to Comply with State Water Quality Objectives and the Terms and Conditions of DWR's and Reclamation's Water Rights, Including the Use of Temporary Urgency Change Petitions to Violate Minimum Bay-Delta Water Quality Objectives

Under the proposed action, CVP and SWP operations will violate minimum instream flow and water quality objectives and will plan to violate the terms and conditions of the Department of Water Resources' ("DWR") and the Bureau of Reclamation's ("Reclamation") water rights. The best available science – including analyses by state and federal agencies – demonstrates that existing water quality objectives are inadequate to protect native fish and wildlife, including endangered species, and that the proposed action's failure to meet these existing water quality objectives is likely to further reduce the survival and abundance of Longfin Smelt, Delta Smelt, winter-run Chinook salmon and other species listed under the Endangered Species Act ("ESA"). The proposed action must be revised to comply with state water quality objectives and the State Water Resources Control Board's water rights decision 1641 ("D-1641").

A. Bay-Delta Water Quality Objectives and Temporary Urgency Change Petitions

First and foremost, under the proposed action Reclamation and DWR anticipate continued use of Temporary Urgency Change Petitions ("TUCPs") to allow the CVP and SWP to violate minimum water quality objectives under the Bay-Delta Water Quality Control Plan, which Reclamation and DWR are required to meet pursuant to the terms and conditions of their water rights. *See* D-1641. While the proposed action never explicitly uses the term "TUCP" or "Temporary Urgency Change Petition," the proposed action clearly contemplates continued violation of minimum Delta water quality objectives using TUCPs. *See, e.g.,* Proposed Action at 5-19 (discussing drought actions under Bin 2B to include "situation-specific adjustments to Delta water quality standards under D-1641 to address developing drought conditions and other actions from the Drought Toolkit."); *id*. at 5-21 (identical language for Bin 3A years); *id*. at 5-21 to 5-22 (identical language for Bin 3B years). This is a fundamental flaw in the draft proposed action.

First, it appears that TUCPs will be used in a significant percentage of years, resulting in Reclamation and DWR violating minimum water quality standards. For instance, the proposed action describes Bin 2 and Bin 3 years as 20% of all years, which likely underestimates the frequency of TUCPs given that DWR and Reclamation have used TUCPs to violate minimum Bay-Delta water quality objectives in six of the past ten years– and not just in critically dry years, but even in wet years like 2023.

Second, it is important to note that state and federal agencies have repeatedly concluded that <u>*existing*</u> Bay-Delta water quality objectives are not adequate to protect the environment and ESA-listed species, and must be strengthened by increasing the magnitude, frequency, and duration of Delta inflows, Delta outflows, and other requirements. *See, e.g.,* State Water Resources Control Board ("SWRCB" or "State Water Board") 2010 Public Trust Flows Report; SWRCB 2017 Final Scientific Basis Report; SWRCB 2018 Framework; SWRCB Water Rights Order 2022-0095; SWRCB Water Rights Order 2015-0043; 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) (emphasis added).

But instead of operating the CVP and SWP to implement the existing – albeit inadequate – water quality objectives, the proposed action instead proposes to allow the agencies to violate the already inadequate water quality objectives. This will worsen conditions for ESA-listed species. State and federal agencies have repeatedly found that reduced Delta inflows and reduced Delta outflows as a result of TUCPs would further reduce the survival of juvenile salmon and steelhead through the Delta, reduce the abundance of Longfin Smelt, reduce the recruitment and survival of Delta Smelt, and increase the magnitude and frequency of harmful algal blooms.

At the same time, Reclamation has acknowledged that TUCPs generally do not improve water storage at Shasta Reservoir, and the TUCPs in 2014, 2015, 2016, 2021, 2022, and 2023 did not

meaningfully improve water storage at Shasta Reservoir. Minimum releases from Shasta Reservoir are generally sufficient to meet water quality objectives in the Delta, in the absence of diversions of that water by CVP and SWP contractors, and reducing water deliveries and allocations would enable the CVP and SWP to meet water quality objectives.

Therefore, continued use of TUCPs will cause additional harm to ESA-listed species without providing adequate water temperature benefits to salmon in the Sacramento River.

Yet despite repeatedly finding that existing water quality objectives fail to provide reasonable protection of fish and wildlife beneficial uses in the Delta, that prior TUCPs were unsustainable and leading to extinction, that outflows greater than existing regulatory requirements are needed to protect Longfin Smelt and other endangered and threatened species, and that prior TUCPs have harmed ESA-listed species, under the proposed action Reclamation and DWR plan to routinely violate existing flow and water quality objectives through the use of TUCPs.

Moreover, because the document fails to ***explicitly*** incorporate the use of TUCPs into the proposed action, it appears that: (1) these adverse impacts to fish and wildlife will not be adequately considered in the biological opinion's quantitative modeling and analysis of impacts; and, (2) the biological opinions will unlawfully rely on conservation measures – meeting minimum Delta water quality objectives, particularly during droughts – that are not reasonably certain to occur. *See, e.g., Nat'l Wildlife Fed'n, v. Nat'l Marine Fisheries Serv*., 524 F.3d 917, 936 & n.17 (9th Cir. 2008). For example, while the *process* of TUCPs was contemplated in the 2019 biological opinions, the adverse impacts of the *substance* of TUCPs was not analyzed or modelled in the biological assessment and biological opinion, which assumed compliance with the minimum Delta water quality objectives and D-1641. *See, e.g.,* 2019 NMFS BiOp at 15 (defining the 2019 Proposed Action to include "Delta outflow to meet D-1641 requirements"); *id*. at 461 ("Reclamation and DWR will continue to meet existing D-1641 salinity requirements in the Delta and Suisun Marsh."); *id*. at 583 ("Reclamation and DWR will continue to meet existing D-1641 salinity requirements in the Delta and Suisun Marsh."). As a result, actual operations of the CVP and SWP were more harmful to ESA-listed fish species than the operations analyzed and authorized in the 2019 biological opinions. Given the plan to use TUCPs in the future, and in order to avoid the biological opinions unlawfully relying on conservation measures that are not reasonably certain to occur, Reclamation must ensure that quantitative modeling and analysis of the proposed action includes the effects of TUCPs, so that NMFS, the U.S. Fish and Wildlife Service, other agencies and the public can properly evaluate the impacts this action will have on fish and wildlife.

Instead of planning for drought, the CVP and SWP have wholly failed to plan for meeting water quality objectives under D-1641 and Water Rights Order 90-5 during drought conditions, as the State Water Resources Control Board acknowledged in 2021:

> Although the current violations are exacerbated by the extreme dry conditions, they are in part the result of the overallocation of Project water during dry

> conditions. Additionally, risk management and operational decisions by the Projects were made that appear to have discounted the need to maintain regulatory compliance.

Letter from State Water Board to DWR and Reclamation dated April 30, 2021.[1] What is more, despite including the voluntary agreement in the proposed action, the CVP and SWP still anticipate using TUCPs to violate water quality objectives, demonstrating that the voluntary agreement is not adequate to even meet existing water quality objectives in drier years, let alone increase Delta outflow.[2]

The proposed action must be revised to include actions sufficient to meet existing Bay-Delta water quality objectives during droughts. Even if the proposed action contemplates the *process* of using TUCPs,[3] if the adverse effects of CVP/SWP operations using TUCPs are not modeled and analyzed in the biological assessment and final biological opinion, the biological opinions cannot authorize incidental take that results when operations fail to meet water quality objectives and will unlawfully rely on conservation measures that are not reasonably certain to occur, and reinitiation of consultation will be required. 50 C.F.R. § 402.16(a)(3).

B. San Joaquin River Inflow Requirements Under D-1641 and Stanislaus River Water Quality Objectives

The proposed action also results in instream flows that fail to meet the requirements of Reclamation's water rights in the Lower San Joaquin River under D-1641, as well as Stanislaus River flows that fail to meet State existing water quality objectives during the winter and spring months. The best available science demonstrates that there is a strong positive relationship between instream flow in the winter/spring months and the survival of salmon and steelhead in the Stanislaus River, in the lower San Joaquin River, and through the Delta. As a result, the proposed action's failure to meet these higher instream flow objectives under State law will

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[1] Indeed, because the use of TUCPs to violate water quality objectives is unlawful under state law, *see* Cal. Water Code § 13247, it is unclear how Reclamation and DWR can lawfully plan to violate water quality objectives in the future using TUCPs. While the Governor has asserted authority under the California Emergency Services Act to suspend application of section 13247 of the Water Code, no court has confirmed this authority, let alone the authority to proactively do so in advance of specific emergencies in future years.

[2] *See* prior NRDC et al. comment letter submitted on July 27, 2023 for more detail regarding the problems created by including the voluntary agreement in the proposed action.

[3] Despite the fact that TUCPs were never explicitly part of the proposed action authorized in the 2019 biological opinions, Reclamation plans to include TUCPs as part of the environmental baseline in this consultation, while not including TUCPs as part of the proposed action (instead performing a sensitivity analysis). This approach to modeling is grossly misleading, making the prior baseline appear more harmful to fish and wildlife than what was authorized in the biological opinions, and making the proposed action appear less harmful than it actually will be.

significantly reduce the survival of steelhead and salmon, as well as resulting in less Delta inflow and outflow in these months.

In 2018, the State Water Board adopted amendments to the Bay-Delta Water Quality Control Plan, establishing a numeric water quality objective requiring instream flows in the Stanislaus River to be a minimum of 40 percent of unimpaired flow in the months of February to June in order to ensure viable fish populations, including salmon and steelhead. Peer reviewed scientific studies have concluded that increased instream flows in the Stanislaus River result in increased survival of salmon, and that salmon survival is lower at lower flows. *See, e.g*., Zeug et al 2014; Sturrock et al 2015. NMFS has repeatedly concluded that higher instream flows are necessary to protect the viability of salmon and steelhead in the Stanislaus, Tuolumne, and Merced Rivers. For instance, in 2013, NMFS concluded that the State Water Board's earlier proposal to require a minimum instream flow of 35% of unimpaired flow "is not adequate to achieve a viable salmonid population in the San Joaquin River system." *See* Letter from NMFS to the State Water Board dated March 28, 2013. And in 2016, NMFS concluded that "40% of unimpaired flow on the Stanislaus River would be slightly higher than the minimum February to June flow on the Stanislaus River required by the 2009 Biological Opinion." *See* Letter from NMFS to the State Water Resources Control Board dated Dec. 22, 2016.

In contrast, the proposed action uses the so-called Stepped Release Plan for the Stanislaus River. *See* Proposed Action at 9-86. The Stepped Release Plan requires significantly reduced minimum instream flows in the Stanislaus River compared to the requirements of the 2009 NMFS BiOp in wetter years. *See* 2019 NMFS BiOp at 635 (explaining that the Stepped Release Plan's wet water year type flow schedule is the same as the 2009 NMFS BiOp's above normal year type flows and the Stepped Release Plan's above normal water year type flows are the same as the NMFS BiOp's below normal year type flows). The proposed action further reduces instream flows compared to the 2019 NMFS BiOp because the proposed action now uses the conservative 90% exceedance forecast to determine the applicable water year type, *see* Proposed Action at 9-87, resulting in more frequent drier year type designations earlier in the year. As a result, the proposed action provides significantly less instream flow than the minimum instream flows (40% unimpaired flow) required by the Bay-Delta Water Quality Control Plan, which will reduce the survival of juvenile salmon and steelhead in the Stanislaus River.

In addition to violating existing water quality objectives, it appears that under the proposed action Reclamation will continue to violate the terms and conditions of its water rights (D-1641) with respect to San Joaquin River pulse flows at Vernalis. *See also* 2019 NMFS BiOp at 635. Reclamation has not met the Vernalis pulse flow requirement of D-1641 and the Water Quality Control Plan in recent years, except in years with flood releases. The failure to meet this minimum instream flows will also reduce the survival and abundance of steelhead and salmon in the San Joaquin River basin.

The proposed action requires significantly reduced Stanislaus River flows and Delta inflows than what is required by State water quality objectives. These reduced flows under the proposed

action will not only reduce survival of salmonids in the Stanislaus River, but they will also reduce survival of salmon and steelhead in the lower San Joaquin River and riverine segments of the Delta. *See, e.g.,* Buchanan and Skalski 2020; Buchanan 2021; Buchanan and Whitlock 2022. For instance, Buchanan 2021 explains that "The relationship between SJR inflow and survival was particularly strong" for steelhead and accounted for much of the variability of survival observed in 2011-2016. And as noted above, NMFS has previously concluded that instream flows less than 40 percent of unimpaired flow – like those in the proposed action – are not adequate to ensure viable salmonid populations in the Stanislaus River and other tributaries. In addition to harming salmon, reduced Delta inflow from the Stanislaus River under the proposed action also results in more negative Old and Middle River ("OMR") flows and likely reduces Delta outflows, harming other species.

Reclamation and DWR should revise the proposed action to comply with the minimum 40 percent instream flow from February to June required under the Bay-Delta Water Quality Control Plan.

C. Sacramento River Water Temperature Objectives and Protection of the Salmon Fishery under Water Rights Order 90-5

Finally, the proposed action includes no actions to protect the salmon fishery, including fall-run Chinook salmon, from harmful water temperatures in the Sacramento River below Shasta Dam, as required by Order 90-5 and the Basin Plan. In recent years Reclamation's operations at Shasta Dam have routinely resulted in water temperatures that violate the Basin Plan's water temperature objective and result in water temperatures that are plainly detrimental to the salmon fishery. Indeed, egg to fry survival of fall-run Chinook salmon in the Sacramento River over the past 20 years is significantly lower than average egg to fry survival of winter-run Chinook salmon, contributing to the complete closure of the salmon fishery this year.

	Fall-run Chinook salmon	**Winter-run Chinook salmon**
Average egg-to-fry survival 2002-2020	13.4%	23.4%
Number of years between 2002-2020 with less than 10% egg-to-fry survival	7	2

See Voss, S. D. and W. R. Poytress. 2022. 2020 Red Bluff Diversion Dam Rotary Trap Juvenile Anadromous Fish Abundance Estimates. Report of U.S. Fish and Wildlife Service to U.S. Bureau of Reclamation, Sacramento, CA.

Reclamation's obligations under Order 90-5 are not simply to prevent the extinction of winter-run Chinook salmon and other endangered species, but to ensure water temperatures below Shasta Dam that protect the salmon fishery. Yet instead, the proposed action appears to assume

that Order 90-5 requires nothing more than the preparation of a temperature management plan that focuses on protection of winter-run Chinook salmon, and the proposed action includes no actions to meet the Basin Plan's water temperature objective or to reduce impacts to fall-run Chinook salmon as required by Order 90-5. *See* Proposed Action at 7-24 (no mention of the SWRCB, Basin Plan temperature requirements, or fall-run Chinook salmon); *id*. at 9-32 (noting that Reclamation will share the final Shasta Reservoir Temperature Management Plan ("TMP") with the SWRCB and NMFS, without acknowledging the SWRCB's role in approving the TMP). The proposed action should be revised to strengthen protections for fall-run Chinook salmon required under Order 90-5.

II. The Proposed Action Fails to Require Enforceable Water Temperature Requirements on the American River, Stanislaus River, and Clear Creek

The proposed action fails to adequately protect listed salmonids because it fails to include enforceable, biologically adequate water temperature requirements and actions to achieve those water temperatures on the American River, Stanislaus River, and Clear Creek. As a result, the proposed action would allow for virtually unlimited temperature dependent mortality of steelhead, spring-run Chinook salmon, and fall-run Chinook salmon on these rivers.

First, the proposed action includes no water temperature goals or requirements for the Stanislaus River, nor any actions to manage water temperatures for steelhead or spring-run Chinook salmon on the Stanislaus River. *See* proposed action at pages 9-83 to 9-88. The Trump Administration's 2019 biological opinion eliminated the requirements included in the 2009 NMFS BiOp to maintain adequate water temperature for steelhead and spring-run Chinook salmon in the Stanislaus River. *See* 2019 NMFS BiOp at 62-63, 807. In contrast, the 2009 biological opinion included a reasonable and prudent alternative regarding water temperature management on the Stanislaus River, even though that measure was not enforceable and thus not a legally adequate reasonable and prudent alternative measure. *See* 2009 NMFS BiOp at 620-622. The Trump BiOp also included an unenforceable incidental take statement regarding water temperature impacts to steelhead on the Stanislaus River that authorized incidental take from significantly hotter water temperatures than was allowed by the 2009 NMFS BiOp. *Compare* 2019 NMFS BiOp at 807 *with* 2009 NMFS BiOp at 758 (for example, the 2009 NMFS BiOp required water temperatures at Orange Blossom Bridge to be less than 65 degrees Fahrenheit from July through September, whereas the 2019 NMFS BiOp authorized incidental take unless water temperatures exceeded 68 degrees Fahrenheit from May 15 to Oct 31). The proposed action should be revised to include enforceable, biologically adequate water temperature requirements for the Stanislaus River and actions that are sufficient to achieve those water temperatures.

Second, while the proposed action includes some management actions regarding water temperatures in the American River, the proposed action does not include any enforceable water temperature requirements, will not maintain adequate water temperatures, and does not require reduced water diversions in order to maintain adequate water temperatures. *See* proposed action at 9-50 to 9-51. Under the proposed action, in many years "the lower American River will have

temperatures unsuitable for rearing or spawning," including years when water temperatures may approach 72 degrees Fahrenheit from May through November. *See id*. at 9-50. The Automated Temperature Selection Procedure discussed in the proposed action only evaluates shutter configurations, and while the proposed action does consider hydropower bypasses under very limited circumstances, it does not consider reduced water diversions to maintain water storage levels or other actions that improve downstream water temperature.

The proposed action for the American River appears similar to the failed approach of the Trump Administration's biological opinion, *see* 2019 NMFS BiOp at 58, 340-353, which was anticipated to result in significant water temperature impacts to "a high proportion of the American River steelhead population in nearly all years." As expected, the 2019 NMFS BiOp failed to maintain adequate water temperatures during the recent drought, and water temperatures even exceeded the authorized incidental take statement in 2021. The proposed action appears to anticipate and potentially allow for even higher water temperatures during the summer months (up to 72 degrees Fahrenheit at the Watt Avenue bridge) than those considered in the Trump Administration's biological opinion. In order to remedy these problems, the proposed action should be modified to include additional actions, including consideration of hydropower bypasses whenever water temperatures are anticipated to exceed 65 degrees Fahrenheit at Watt Avenue bridge, in order to achieve biologically adequate water temperature requirements.

Finally, the proposed action also fails to include enforceable water temperature requirements on Clear Creek and targets unsuitable water temperatures. *See* proposed action at 9-41 to 9-42. The proposed action admits that these targets may not be met in "dry, critical, or import curtailment years," and does not require increases in flow to meet these temperature targets. Id. at 9-41. In addition to the proposed action's water temperature "targets" being unenforceable and not likely to be achieved, they are also warmer than the requirements of the 2009 NMFS BiOp. *Compare id. with* 2009 NMFS BiOp at 589 (proposed action targets water temperatures at the Igo gage of 61°F from June 1 to Aug. 15, 60°F from Aug. 16 to Sept. 15, and 56°F from Sept. 16 through Nov. 15, whereas 2009 NMFS BiOp required meeting water temperatures at the Igo gage of 60°F from June 1 to Sept. 15 and 56°F from Sept. 15 to Oct. 31). The proposed action should be revised to include biologically adequate water temperature requirements and actions sufficient to achieve those water temperatures.

III. The Proposed Action Fails to Include Adequate Delta Operational Measures, Including a San Joaquin River Inflow: Export Ratio

Finally, the proposed action largely continues the Trump Administration's export operations in the Delta. The proposed action, like the Trump Administration's biological opinions, does not include a San Joaquin River inflow: export ratio similar to that required by the 2009 NMFS BiOp, despite the facts that: the Court issued an injunction in 2020 requiring implementation of the inflow: export ratio in the 2009 NMFS BiOp; a similar San Joaquin River inflow: export ratio was required to be implemented under the interim operations plans in 2021 and 2022; NMFS included a modified San Joaquin River inflow: export ratio in its 2019 jeopardy biological

opinion; and the State Water Project's incidental take permit includes a modified San Joaquin River inflow: export ratio. The exclusion of any San Joaquin River inflow: export ratio is likely to reduce the survival of salmon and steelhead, as well as resulting in more negative OMR flows. We urge Reclamation and DWR to revise the proposed action to include limits on the San Joaquin River inflow: export ratio in April and May.

In addition, the proposed action continues to allow OMR to be more negative than -5,000 cfs during poorly defined "storm flex" operations, even though there is no scientific evidence justifying OMR to be more negative than -5,000 cfs. We recognize that the current proposed action imposes several additional requirements on OMR storm flex that were not included in the Trump Administration's biological opinions, including capping negative OMR during storm flex operations at -6,250 cfs, prohibiting OMR storm flex after the end of February, and prohibiting OMR storm flex when X2 is greater than 81 km. However, even with these additional restrictions, given the dire status of endangered species and the lack of scientific evidence justifying these more negative OMR flows, Reclamation and DWR should eliminate the OMR storm flex from the proposed action.

Thank you for consideration of our views.

Sincerely,

Doug Obegi
Natural Resources Defense Council

Ashley Overhouse
Defenders of Wildlife

Gay Bobker
The Bay Institute

Jon Rosenfield, Ph.D.
San Francisco Baykeeper

Scott Artis
Golden State Salmon Association

2.5.6 Responses to California Sportfishing Protection Alliance, Defenders of Wildlife, Friends of the River, Golden State Salmon Association, San Francisco Baykeeper, and Restore the Delta Comments

Comment Code	Response
CSPA-1	The NOP and DEIR were fully noticed per CEQA requirements (including all county clerks, relevant Tribes, and anyone who has requested to be notified of GCID CEQA actions). No edit is required.
CSPA-2	Thank you for your comment. As this comment provides only general statements, the responses to your specific CEQA comments are described in the following responses.
CSPA-3	Please refer to Global Response 1. The proposed project is not meant to be a solution to regional water management issues but rather a tool that Reclamation can use during drought years to ensure more water is left in Shasta Lake. As noted in the objectives, the purpose of the proposed project is to approve and facilitate reduced water contract supply to the SRSC during specified drought years to address water shortages at Shasta Lake. Reduced SRSC contract supply allows for Reclamation to respond to shortages in water supplies due to very dry hydrologic conditions, climatic variability, climate change, and regulatory requirements.
CSPA-4	The comment is incorrect. As fully noticed in the DEIR, the SRSC would forego up to 500,000 acre-feet of water in Phase 1 and 100,000 acre-feet of water in Phase 2. The quantity up to these amounts would be set by Reclamation, not the SRSC, and is dependent on hydrological conditions at Shasta Lake.
CSPA-5	As provided in the DEIR, Reclamation would make the determination of how much of the total water reductions would be required in the same manner as currently determined as part of existing water agreements. The amounts would be determined based on Reclamation's annual forecasts. As described in Section 2.4 of the DEIR, under Phase 1 of the Agreement (2025 to 2035), the SRSC would collectively incur a reduced contract supply of up to 500,000 acre-feet under their aggregated contracts during certain years (defined as Phase 1 Agreement Years) if the following four conditions are met: • Reclamation forecasts end-of-April Shasta Lake storage is to be less than 3.0 million acre-feet. • Reclamation forecasts end-of-September Shasta Lake storage is to be less than 2.0 million acre-feet. • Combined actual and forecasted natural inflow to Shasta Lake from October 1 through April 30 is less than 2.5 million acre-feet. • Reclamation forecasts a Critical Year under the Settlement Contracts. Under Phase 2 (2036 to 2045), the SRSC would agree to collectively incur a reduced contracted supply of up to 100,000 acre-feet under their aggregated contracts during certain years (defined as Phase 2 Agreement Years) if the following two conditions are met: • Combined actual and forecasted natural inflow to Shasta Lake from October 1 through April 30 is less than 2.5 million acre-feet. • Reclamation forecasts a Critical Year under the Settlement Contracts. The amounts reduced would be based on storage conditions and forecasted conditions used to determine the Agreement Year. The difference in amounts between the two phases is because

Comment Code	Response
	drought-resiliency projects are expected to be online within Phase 2 and provide for water savings. No changes are required.
CSPA-6	Under the proposed project, the SRSC would forego water that would have otherwise been delivered during defined Agreement Years. The water would remain in Shasta Lake. The DEIR analyzes the environmental effects within the SRSC service area of up to 500,000 acre-feet of reduced contract supply, compared to baseline conditions. Past and future management of contracted water is outside the scope of the proposed project.
CSPA-7	Please refer to Global Response 1. While the impacts of reduced surface water deliveries to the SRSC on the CVP/SWP have been evaluated and analyzed by Reclamation in its environmental review for the LTO, the Agreement is a separate project that would exists separate of the LTO project.
CSPA-8	Per CEQA Guidelines Section 15126.6, alternatives to a project should consider a comprehensive selection of different project options that could feasibly achieve most of the project's objectives while also avoiding or significantly lessening potential negative environmental impacts. The alternatives should analyze various locations, designs, and project scales within an EIR but not including every conceivable alternative, as long as the selection is considered a "reasonable" range of alternatives based on the project's specific context and goals. The DEIR includes a reasonable range of alternatives, including a No Project Alternative and the No Groundwater Substitution Alternative (Alternative 1). Three alternatives were considered but eliminated. The Decreased Contract Supply Reductions and No Cropland Idling alternatives were eliminated because they would not meet the project objectives, not because of feasibility issues. The third eliminated alternative was Alternative Site Locations, which was dismissed because it would cause disproportionate impacts to certain members of the SRSC and would not be agreeable to the Agreement signatories, rending it infeasible. An infeasible alternative would not meet the project objectives.
CSPA-9	Please refer to the response to comment AA-32 for a discussion on the No Groundwater Substitution Alternative. Please refer to the response to comment CSPA-8 regarding the range of alternatives.
CSPA-10	As discussed in the DEIR, the 500,000-acre-foot-maximum Phase 1 reduction is an agreed-upon amount between Reclamation and the SRSC. Moreover, decreasing the amount of contract supply reductions would not result in the same level of expected benefits to fish and Shasta Lake management and would be environmentally inferior to the proposed project in those respects. Please refer to Global Response 1. The Agreement is not a component of Reclamation's LTO project; it is a separate agreement between Reclamation and the SRSC to forego contracted water during specified drought years. The alternative suggested in the comment is outside the scope of the project and therefore would not meet the project objectives within the parameters of the Agreement between Reclamation and the SRSC.
CSPA-11	Please refer to the responses to comments AA-6, Aud-1, and Aud-4 for discussions on potential project impacts on migratory birds, waterfowl, and other sensitive species.
CSPA-12	Please refer to the responses to comments Aud-1, Aud-2, and Aud-3 for discussion of refuges and wetlands.
CSPA-13	Please refer to the responses to comments Aud-1 and Aud-2 for discussions on migratory waterfowl. The proposed project balances competing demands of limited water supply, agriculture, and the requirements of fish and wildlife by allowing for reduced surface water deliveries in years where it is most important to protect cold water pool in Shasta Lake and implementing a program of drought-

Comment Code	Response
	resiliency projects that are intended to improve long-term water delivery capabilities to support multiple beneficial uses of surface water, including agriculture, habitat, and municipal uses.
CSPA-14	Please refer to the responses to comments Aud-4 and Aud-5 for a discussion on cropland idling impacts on migratory birds and refuges. The project will not reduce water supplies to refuges. The drought-resiliency projects contemplated under the Agreement would reasonably be expected to reduce the future need for crop idling, thus providing a long-term benefit to migrating waterfowl compared to existing conditions, including years such as 2021, when extreme drought conditions resulted in substantial reductions in surface water deliveries and extensive crop idling.
CSPA-15	Please refer to the responses to comments Aud-4 and Aud-5 for a discussion on cropland idling impacts on migratory birds.
CSPA-16	Please refer to the response to comment Aud-2. In addition, Sections 3.4.3.4.2 and 3.4.3.4.3 of the DEIR do not specifically pertain to NWR water supplies. The project would not result in reduced water supplies to refuges. Clarifying text has been added to the relevant text from these sections in the FEIR.
CSPA-17	Please refer to the response to comment Aud-2. The project would not result in reduced water supplies to refuges.
CSPA-18	Please refer to the responses to comments CSPA-1 through CSPA-17.
CSPA-19	As described in Section 1.4.2 of the DEIR, Assembly Bill 52 requires lead agencies to consider the effects of projects on Tribal cultural resources and to conduct notification and consultation with Native American Tribes early in the environmental review process. One Native American Tribe, the Colusa Tribe – Cachil Dehe Band of Wintun Indians, has requested to be notified of CEQA documents prepared by GCID. GCID notified the Colusa Tribe – Cachil Dehe Band of Wintun Indians of the project on May 24, 2024. To date, GCID has not received a response from the Colusa Tribe – Cachil Dehe Band of Wintun Indians. In addition, GCID provided the NOP and Notice of Availability of the DEIR to the county clerks, trustee and responsible agencies, and stakeholders identified in Sections 1.2 and 1.4 of the DEIR. Therefore, adequate public outreach was conducted for the proposed project. Please refer to the response to comment CCWD-1 regarding holding a public workshop on the project.

541 Washington Avenue
Yuba City, CA 95991
(530) 634-7659
FAX (530) 634-7660
www.fraqmd.org

Christopher D. Brown, AICP
Air Pollution Control Officer

Serving Sutter and Yuba Counties

November 4, 2024

Jeff Sutton
P.O. Box 150
Willows, CA 95988

Re: Water Reduction Program Agreement DEIR

Dear Jeff Sutton,

The Feather River Air Quality Management District (District) appreciates the opportunity to review and comment on the project referenced above.

FRAQMD-1

The District would like to notify the Glenn-Colusa Irrigation District (GCID) that the contractor and/or GCID will be responsible during construction phase of the project to adhere to District Rule 3.16. District Rule 3.16 states that a person shall take every reasonable precaution not to cause or allow the emissions of fugitive dust from being airborne beyond the property line from which the emission originates, from any construction, handling or storage activity, or any wrecking, excavation, grading, clearing of land or solid waste disposal operation. It should be noted that if any materials and structures are removed from the project site, the materials and/or structures must be disposed of properly. Materials and/or structures being removed from the project site must not be burned. The District recommends that the project prepare a Fugitive Dust Control Plan for the constructional phase of development and submit it to the air district for review and approval. The dust control plan must be submitted prior to project work in Sutter County.

FRAQMD-2

The District recommends using Caleemod's Lineal Construction Module to calculate emissions from linear construction projects such as new roadways, road widening, and levee projects. A type 2 project is considered to be a less than significant impact if the averaged project life emissions do not exceed 25 lbs/day of Nox or ROG, and the daily emissions of 80 lbs/day of PM10. If the type 2 project average project life emissions exceed the threshold of 25 lbs/day of NOx or ROG, or daily emissions of 80 lbs/day of PM10, the project must apply Best Available Mitigation Measures for the Construction Phase and include other mitigation to reduce the impact to below significant thresholds. If the project cannot mitigate below the thresholds of significance, the project should incorporate all feasible mitigation measures.

FRAQMD-3

The District has also attached a list of local and state regulations applicable to new development that each project must adhere to in addition to any mitigation measures proposed to reduce construction or operational air quality impacts.

If you need further information or assistance, please contact me at (530) 634-7659 x209. Air District staff will be available to assist the project proponent or Lead Agency as needed.

Sincerely,

Peter Angelonides
Air Quality Planner II

Enclosures: FRAQMD Construction Phase Mitigation Measures; Fugitive Dust Control Plan; Thresholds of Significance, Construction Emissions, Rules and Regulations Statement

File: Chron

FRAQMD Construction Phase Mitigation Measures

1. The contractor shall be responsible to ensure that all construction equipment is properly tuned and maintained prior to and for the duration of onsite operation.
2. Utilize existing power sources (e.g., line power) or clean fuel generators rather than temporary power generators.
3. Develop a traffic plan to minimize traffic flow interference from construction activities. The plan may include advance public notice of routing, use of public transportation, and satellite parking areas with a shuttle service. Schedule operations affecting traffic for off-peak hours. Minimize obstruction of through-traffic lanes. Provide a flag person to guide traffic properly and ensure safety at construction sites.
4. All grading operations on a project should be suspended when winds exceed 20 miles per hour or when winds carry dust beyond the property line despite implementation of all feasible dust control measures.
5. Work areas shall be watered or treated with Dust Suppressants as necessary to prevent fugitive dust violations.
6. An operational water truck should be available at all times. Apply water to control dust as needed to prevent visible emissions violations and offsite dust impacts. Travel time to water sources should be considered and additional trucks used if needed.
7. Onsite dirt piles or other stockpiled material should be covered, wind breaks installed, and water and/or soil stabilizers employed to reduce wind-blown dust emissions. Incorporate the use of approved non-toxic soil stabilizers according to manufacturer's specifications to all inactive construction areas.
8. All transfer processes involving a free fall of soil or other particulate matter shall be operated in such a manner as to minimize the free fall distance and fugitive dust emissions.
9. Apply approved chemical soil stabilizers according to the manufacturers' specifications, to all-inactive construction areas (previously graded areas that remain inactive for 96 hours) including unpaved roads and employee/equipment parking areas.
10. To prevent track-out, wheel washers should be installed where project vehicles and/or equipment exit onto paved streets from unpaved roads. Vehicles and/or equipment shall be washed prior to each trip. Alternatively, a gravel bed may be installed as appropriate at vehicle/equipment site exit points to effectively remove soil buildup on tires and tracks to prevent/diminish track-out.
11. Paved streets shall be swept frequently (water sweeper with reclaimed water recommended; wet broom) if soil material has been carried onto adjacent paved, public thoroughfares from the project site.
12. Provide temporary traffic control as needed during all phases of construction to improve traffic flow, as deemed appropriate by the Department of Public Works and/or Caltrans and to reduce vehicle dust emissions.
13. Reduce traffic speeds on all unpaved surfaces to 15 miles per hour or less and reduce unnecessary vehicle traffic by restricting access. Provide appropriate training, onsite enforcement, and signage.
14. Reestablish ground cover on the construction site as soon as possible and prior to final occupancy, through seeding and watering.

15. The proponent shall assemble a comprehensive inventory list (i.e. make, model, engine year, horsepower, emission rates) of all heavy-duty off-road (portable and mobile) equipment (50 horsepower and greater) that will be used an aggregate of 40 or more hours for the construction project and apply the following mitigation measure:

    > The project shall provide a plan for approval by FRAQMD demonstrating that the heavy-duty (equal to or greater than 50 horsepower) off-road equipment to be used in the construction project, including owned, leased and subcontractor vehicles, will achieve a project wide fleet-average 5 percent ROG reduction, 20 percent NOx reduction and 45 percent particulate reduction compared to the most recent CARB fleet average at time of construction. A Construction Mitigation Calculator (MS Excel) may be downloaded from the SMAQMD web site to perform the fleet average evaluation http://www.airquality.org/cega/index.shtml . Acceptable options for reducing emissions may include use of late model engines (Tier 4), CARB Approved low-emission diesel products, alternative fuels, engine retrofit technology (Carl Moyer Guidelines), after-treatment products, voluntary offsite mitigation projects, provide funds for air district offsite mitigation projects, and/or other options as they become available. The District should be contacted to discuss alternative measures.

    The results of the Construction Mitigation Calculator shall be submitted and approved by the District PRIOR TO BEGINNING WORK. The project shall provide a monthly summary of heavy-duty off-road equipment usage to the District throughout the construction of the project.

16. The Lead Agency may also contribute to the FRAQMD's Off-Site Mitigation Program to reduce project emissions to less than significant. The lead agency should include contribution to the off-site mitigation program as a mitigation measure in its environmental analysis. The lead agency will need to compile a list of all emission sources and consult with the FRAQMD staff to implement this mitigation measure. The project will need to track emissions generated from equipment and vehicles throughout the project phase that is estimated to exceed the threshold (for example, if construction phase exceed the threshold, then track emissions from off-road, portable, and on-road equipment and vehicles). Please consult with the FRAQMD for more information on contributing to an Off-Site Mitigation Program.

Feather River Air Quality Management District
Fugitive Dust Control Plan

This plan, upon signature and submittal to the FRAQMD, will serve as an approved Fugitive Dust Control Plan to be implemented at the designated site. This plan must be submitted by the project proponent and received at the air district prior to start of work.

The approved plan serves as an acknowledgment by the project proponent of their duty to address state and local laws governing fugitive dust emissions and the potential for first offense issuance of a Notice of Violation by the air district where violations are substantiated by District staff. This plan (along with standard mitigation measures for all projects and best available mitigation measures where applicable) shall be made available to the contractors and construction superintendent on the project site.

- Site Location: _____
- Project Type (circle all that apply): Residential Commercial Industrial Transportation
- List of responsible persons:

  Company:_____

  Office (name, title, address, phone): _____

  _____

  Field (name, title, phone): _____

- Projected Start and End Dates: _____
  (Day/Month/Year)

Project Proponent: _____ _____
Printed Name Company/Phone

By signing this document I acknowledge that I have read the FRAQMD Rules and Regulations Statement: New Development, which includes state and local fugitive dust emission laws. I understand that it is my responsibility as the project proponent to ensure that appropriate materials and instructions are available to site employees to implement fugitive dust mitigation measures appropriate for each development phase of this project in order to ensure compliance.

I further acknowledge that it is my responsibility to ensure that site employees are made formally aware of fugitive dust control laws, requirements, and available mitigation techniques, and that appropriate measures are to be implemented at the site as necessary to prevent fugitive dust violations.

Signature: _____ Name: _____

Title: _____ Date: _____

Please Submit to: FRAQMD, 541 Washington Avenue, Yuba City, CA 95991 Attn: Planning
Phone: 530-634-7659 x210 FAX: 530-634-7660 Email: FRAQMDplanning@fraqmd.org

3. Thresholds of Significance

Projects that are subject to CEQA generally undergo a preliminary evaluation in an Initial Study. The Initial Study is used to determine if a project may have a significant effect on the environment. The Initial Study should evaluate the potential impact of a proposed project on air quality. The air quality impact of a project is determined by examining the types and levels of emissions generated by the project, the existing air quality conditions, and neighboring land uses. The initial study should analyze all phases of project planning, construction and operation, as well as cumulative impacts. When considering a project's impact on air quality, a lead agency should provide substantial evidence that supports its conclusions in an explicit, quantitative analysis whenever possible.

The State CEQA Guidelines Appendix G (included as Appendix D in this document) presents a modal initial study checklist. This checklist suggests criteria for determining whether a project will have a potentially significant impact on air quality. According to the checklist, a project will have a potentially significant impact if it will:

- Conflict with or obstruct implementation of the applicable air quality plan.
- Violate any air quality standard or contribute to an existing or projected air quality violation.
- Result in cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors).
- Expose sensitive receptors to substantial pollutant concentrations.
- Create objectionable odors affecting a substantial number of people.

In addition, the District has adopted Thresholds of Significance to assist Lead Agencies in determining whether a project may have a significant impact on air quality. If a Lead Agency determines that the proposed project would exceed any of these Thresholds, then an EIR should be prepared. Where no significant air quality impacts of a project or plan can be identified in the Initial Study, the District recommends that the Lead Agency either prepare a Negative Declaration or include in the EIR a statement explaining the reasons for determining air quality impacts as less than significant.

3.1. FRAQMD Thresholds of Significance

Project Phase	Nitrogen Oxides (NOx)	Reactive Organic Gases (ROG)	Particulate Matter less than 10 microns (PM_{10})	Particulate Matter less than 2.5 microns ($PM_{2.5}$)	Greenhouse Gases (CO_2, CH_4)
Operational	25 lbs/day	25 lbs/day	80 lbs/day	Not Yet Established	Not Yet Established
Construction	25 lbs/day multiplied by project length, not to exceed 4.5 tons/year *	25 lbs/day multiplied by project length, not to exceed 4.5 tons/year*	80 lbs/day	Not Yet Established	Not Yet Established

*NOx and ROG Construction emissions may be averaged over the life of the project, but may not exceed 4.5 tons/year

4. Construction Generated Emissions of Criteria Air Pollutants

The District distinguishes two types of projects, Type 1 and Type 2. Type 1 projects are land use projects in which an operational phase exists. Type 2 projects have no land use component. Examples of Type 2 projects are road construction and levee projects. The District recommends that construction emissions generated by the two types of projects be evaluated and mitigation measures applied as described below.

Type 1: Is a land use project in which an operation phase exists (such as retail/commercial development or residential housing projects). The emissions generated during the operational phase of the project are considered long term and will be used to determine significance of the project. The District recommends the use of URBEMIS (most recent version), or other District approved model, to calculate operational and construction phase emissions.

If the operational emissions of a Type 1 project do not exceed the operational thresholds, and the construction emissions of NOx or ROG do not exceed the 25 lbs/day averaged over the length of the project or the PM_{10} emissions do not exceed 80 lbs/day, the District recommends the following construction phase Standard Mitigation Measures:

1. Implement the Fugitive Dust Control Plan
2. Construction equipment exhaust emissions shall not exceed FRAQMD Regulation III, Rule 3.0, Visible Emissions limitations (40 percent opacity or Ringelmann 2.0).
3. The contractor shall be responsible to ensure that all construction equipment is properly tuned and maintained prior to and for the duration of onsite operation.
4. Limiting idling time to 5 minutes – saves fuel and reduces emissions. (State idling rule: commercial diesel vehicles- 13 CCR Chapter 10 Section 2485 effective 02/01/2005; off road diesel vehicles- 13 CCR Chapter 9 Article 4.8 Section 2449 effective 05/01/2008)
5. Utilize existing power sources (e.g., power poles) or clean fuel generators rather than temporary power generators.
6. Develop a traffic plan to minimize traffic flow interference from construction activities. The plan may include advance public notice of routing, use of public transportation, and satellite parking areas with a shuttle service. Schedule operations affecting traffic for off-peak hours. Minimize obstruction of through-traffic lanes. Provide a flag person to guide traffic properly and ensure safety at construction sites.
7. Portable engines and portable engine-driven equipment units used at the project work site, with the exception of on-road and off-road motor vehicles, may require California Air Resources Board (ARB) Portable Equipment Registration with the State or a local district permit. The owner/operator shall be responsible for arranging appropriate consultations with the ARB or the District to determine registration and permitting requirements prior to equipment operation at the site.

If the operational emissions of a Type 1 project do not exceed the operational thresholds, but the construction phase emissions exceed the construction thresholds of 25 lbs/day of NOx or ROG averaged over the length of the project and 80 lbs/days of PM_{10}, the District recommends the Standard Mitigation Measures listed above in addition to the following Best Available Mitigation Measures for Construction Phase:

1. All grading operations on a project should be suspended when winds exceed 20 miles per hour or when winds carry dust beyond the property line despite implementation of all feasible dust control measures.
2. Construction sites shall be watered as directed by the Department of Public Works or Air Quality Management District and as necessary to prevent fugitive dust violations.
3. An operational water truck should be available at all times. Apply water to control dust as needed to prevent visible emissions violations and offsite dust impacts.
4. Onsite dirt piles or other stockpiled particulate matter should be covered, wind breaks installed, and water and/or soil stabilizers employed to reduce wind blown dust emissions. Incorporate the use of approved non-toxic soil stabilizers according to manufacturer's specifications to all inactive construction areas.
5. All transfer processes involving a free fall of soil or other particulate matter shall be operated in such a manner as to minimize the free fall distance and fugitive dust emissions.
6. Apply approved chemical soil stabilizers according to the manufacturers' specifications, to all-inactive construction areas (previously graded areas that remain inactive for 96 hours) including unpaved roads and employee/equipment parking areas.
7. To prevent track-out, wheel washers should be installed where project vehicles and/or equipment exit onto paved streets from unpaved roads. Vehicles and/or equipment shall be washed prior to each trip. Alternatively, a gravel bed may be installed as appropriate at vehicle/equipment site exit points to effectively remove soil buildup on tires and tracks to prevent/diminish track-out.
8. Paved streets shall be swept frequently (water sweeper with reclaimed water recommended; wet broom) if soil material has been carried onto adjacent paved, public thoroughfares from the project site.
9. Provide temporary traffic control as needed during all phases of construction to improve traffic flow, as deemed appropriate by the Department of Public Works and/or Caltrans and to reduce vehicle dust emissions. An effective measure is to enforce vehicle traffic speeds at or below 15 mph.
10. Reduce traffic speeds on all unpaved surfaces to 15 miles per hour or less and reduce unnecessary vehicle traffic by restricting access. Provide appropriate training, onsite enforcement, and signage.
11. Reestablish ground cover on the construction site as soon as possible and prior to final occupancy, through seeding and watering.
12. Disposal by Burning: Open burning is yet another source of fugitive gas and particulate emissions and shall be prohibited at the project site. No open burning of vegetative waste (natural plant growth wastes) or other legal or illegal burn materials (trash, demolition debris, et. al.) may be conducted at the project site. Vegetative wastes should be chipped or delivered to waste to energy facilities (permitted biomass facilities), mulched, composted, or used for firewood. It is unlawful to haul waste materials offsite for disposal by open burning.

Additional mitigation measures may be available and lead agencies should contact the District for more information.

Type 2 Projects: This type of project has no operational phase. The construction phase emissions are the only emissions generated by the project and significance should be based on construction

phase emissions. The URBEMIS or other District recommended land use model may not be the most appropriate for calculating emissions from these types of projects. The District recommends the Roadway Construction Emissions Model to calculate emissions from linear construction projects, such as new roadways, road widening, and levee projects. This model is available to download at: http://www.airquality.org/ceqa/index.shtml. Other District recommended models may be available, and the lead agency should contact the District for more information.

A Type 2 project is considered to be a less than significant impact if the averaged project life emissions do not exceed 25 lbs/day of NOx or ROG, and the daily emissions of 80 lbs/day of PM_{10}. For example, if a project is six months, then the maximum allowed emissions are 4500 lbs or 2.25 tons. For projects that occur over multiple years, the maximum allowed emissions of NOx and ROG are 4.5 tons/year. The project should implement Standard Mitigation Measures (above) and prepare a ND.

If the Type 2 project average project life emissions exceed the thresholds of 25 lbs/day of NOx or ROG, or daily emissions of 80 lbs/day of PM_{10}, the project must apply Best Available Mitigation Measures for Construction Phase (above) and include other mitigation to reduce the impact to below the significant thresholds. A MND may be prepared, which includes all mitigation measures, if the project is successful at mitigating emissions below the thresholds. If the project cannot mitigate below the thresholds of significance, the project should prepare an EIR and incorporate all feasible mitigation measures. The District staff are available to assist lead agencies and project applicants with selection and incorporation of feasible mitigation measures.

4.1 Special Considerations for Construction Phases of Projects

In addition to the construction air quality thresholds and mitigation measures above, there are a number of special conditions, local regulations or state/federal rules that apply to construction activities. These conditions must be addressed in proposed construction activity.

Sensitive Receptors

The proximity of sensitive receptors to a construction site constitutes a special consideration and may require an evaluation of toxic diesel particulate matter. Examples of sensitive receptor locations include schools, day care centers, parks/playgrounds, hospitals or nursing centers, and residential dwelling units. If a project is located within 1,000 feet of a sensitive receptor location, the impact of diesel particulate matter should be included in the environmental analysis. For more information on diesel particulate matter, please refer to Section 6 Toxic Air Contaminants.

Diesel Idling Restrictions

On-road vehicles must adhere to the idling restrictions of Section 2485 of Title 13 of the California Code of Regulations. The regulation applies to vehicles with a gross vehicular weight rating of 10,000 pounds and licensed for operation on highways. In general, the regulation restricts vehicle idling of the primary diesel engine to no more than 5 minutes in any location. The regulation also prohibits operation of a diesel-fueled auxiliary power system (APS) to power a heater, air conditioner, or any ancillary equipment on a vehicle during sleeping or resting in a sleeper berth for greater than 5 minutes at any location when within 100 feet of a restricted area.

Off-road vehicles must adhere to the idling restrictions of Section 2449(d)(3) of the California Air Resources Board's In-Use Off-Road Diesel Regulation. The regulation restricts idling time to 5 minutes. For more information refer to: www.arb.ca.gov/regact/2007/ordies107/frooal.pdf.

Asbestos

Naturally Occurring Asbestos (NOA) and asbestos containing material may be encountered during construction phase of a project. NOA is most likely to be found in the foothills and mountainous portions of the Feather River District. Asbestos containing materials can be present during demolition and remodeling, as well as found in utility pipes or pipelines. For more information on asbestos, refer to Section 6 Toxic Air Contaminants.

Permits

Portable engines 50 horsepower (hp) or greater, and certain types of equipment commonly used during construction activities may require California statewide portable engine equipment registration (issued by the CARB) or an Air District permit. The following list is an example of types of equipment/operations that may require this type of permit:

- Power screens, conveyors, diesel engines, and/or crushers;
- Portable generators and equipment with engines that are 50 hp or greater;
- Internal combustion engines;
- Unconfined abrasive blasting operations;
- Concrete batch plants;
- Rock and pavement crushing;
- Tub grinders; and
- Trommel screens.

If the above types of equipment/operations are part of the proposed project, the project applicant and/or lead agency should contact the District for more information. Equipment/Operations that typically require an Air District permit for the operational phase of the project are discussed in Section 9 Permitted Sources.

FRAQMD Rules & Regulations Statement: New Development

The following statement is recommended as standard condition of approval or construction document language for **all** development projects within Feather River Air Quality Management District (FRAQMD). All projects are subject to FRAQMD rules in effect at the time of construction. A complete listing of current rules is available at www.fraqmd.org or by calling 530-634-7659. Specific rules that may relate to construction activities or building design may include, but are not limited to:

Regulation IV: Stationary Emission Sources Permit System and Registration. Any project that includes the use of equipment capable of releasing emissions to the atmosphere may require permit(s) from FRAQMD prior to equipment operation. The applicant, developer, or operator of a project that includes an emergency generator, boiler, or internal combustion engine should contact the FRAQMD early to determine if a permit is required, and to begin the permit application process. Portable construction equipment (e.g. generators, compressors, pile drivers, lighting equipment, etc.) with an internal combustion engine over 50 horsepower are required to have a FRAQMD permit or a California Air Resources Board portable equipment registration. Other general types of uses that require a permit include, but are not limited to fumigation chambers, gasoline tanks and dispensing, spray booths, and operations that generate airborne particulate emissions.

Rule 3.0: Visible Emissions. A person shall not discharge into the atmosphere from any single source of emissions whatsoever, any air contaminants for a period or periods aggregating more than three minutes in any one hour which is as dark or darker in shade as that designated as No. 2 on the Ringleman Chart.

Rule 3.15: Architectural Coatings. The developer or contractor is required to use coatings that comply with the volatile organic compound content limits specified in the rule.

Rule 3.16: Fugitive Dust. The developer or contractor is required to control dust emissions from earth moving activities, storage or any other construction activity to prevent airborne dust from leaving the project site.

Rule 3.17: Wood Burning Devices. This rule requires newly installed wood burning devices meet emission standards. Wood burning fireplaces are prohibited unless they meet emission standards.

Rule 3.23: Natural Gas-Fired Water Heaters, Small Boilers, and Process Heaters. This rule requires all newly purchased or installed units 75,000 Btu/hr up to 1 million Btu/hr meet emission limits.

Rule 7.10: Indirect Source Fee. An applicant for a building permit shall pay fees to the FRAQMD based on number of units (residential) or square footage of the building and associated parking (commercial and industrial).

Disposal by Burning: Open burning is yet another source of fugitive gas and particulate emissions and shall be prohibited at the project site. No open burning of vegetative waste (natural plant growth wastes) or other legal or illegal burn materials (trash, demolition debris, et. al.) may be conducted at the project site. Vegetative wastes should be chipped or delivered to waste to energy facilities (permitted biomass facilities), mulched, composted, or used for firewood. It is unlawful to haul waste materials offsite for disposal by open burning.

In addition, other State or Federal rules and regulations may be applicable to construction phases of development projects, including:

California Health and Safety Code (HSC) section 41700. Except as otherwise provided in Section 41705, no person shall discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health, or safety of any such persons or the public, or which cause, or have a natural tendency to cause, injury or damage to business or property.

HSC section 41701. Except as otherwise provided in Section 41704, or Article 2 (commencing with Section 41800) of this chapter other than Section 41812, or Article 2 (commencing with Section 42350) of Chapter 4, no person shall discharge into the atmosphere from any source whatsoever any air contaminant, other than uncombined water vapor, for a period or periods aggregating more than three minutes in any one hour which is: (a) As dark or darker in shade as that designated as No. 2 on the Ringelmann Chart, as published by the United States Bureau of Mines, or (b) Of such opacity as to obscure an observer's view to a degree equal to or greater than does smoke described in subdivision (a).

California Vehicle Code section 23114 regarding transportation of material on roads and highways.

California Code of Regulations Title 13 Chapter 10 section 2485: Airborne Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling. Limits idling time to 5 minutes for on-road heavy duty diesel trucks.

California Code of Regulations Title 13 Chapter 9 Article 4.8 section 2449: Regulation for In-Use Off-Road Diesel Vehicles. Limits idling time to 5 minutes.

California Code of Regulations Title 17 Division 3 Chapter 1 Subchapter 7.5 section 93105: Asbestos ATCM for Construction, Grading, Quarrying, and Surface Mining Operations.

California Code of Regulations Title 17 Division 3 Chapter 1 Subchapter 7.5 section 93106: Asbestos ATCM for Surfacing Applications.

Asbestos NESHAP. Prior to demolition of existing structures, an asbestos evaluation must be completed in accordance with the Asbestos National Emission Standard for Hazardous Air Pollutants (NESHAP) regulations. Section 61.145 requires written notification of demolition operations. Asbestos NESHAP Demolition/Renovation Notification Form can be downloaded at http://www.arb.ca.gov/enf/asbestos/asbestosform.pdf. This notification should be typewritten and postmarked or delivered no later than ten (10) days prior to the beginning of the asbestos demolition or removal activity. Please submit the original form to USEPA and a copy each to California Air Resources Board (CARB) and the District at the addresses below:

U.S. EPA
Attn: Asbestos NESHAP Program
75 Hawthorne Street
San Francisco, CA 94105

CARB, Compliance Division
Attn: Asbestos NESHAP Program
P.O. Box 2815
Sacramento, CA 95814

FRAQMD
Attn: Karla Sanders
541 Washington Avenue
Yuba City, CA 95991

2.5.7 Responses to Feather River Air Quality Management District Comments

Comment Code	Response
FRAQMD-1	Thank you for your comments. Applicable SRSC doing work within the FRAQMD would comply with District Rule 3.16, and this information has been added to the FEIR. Please refer to mitigation measure MM-AIR-2, which requires dust control provisions during Agreement Years and construction of all drought-resiliency projects.
FRAQMD-2	As noted in the DEIR, construction details are not known at this time, but based on conversations with the SRSC, projects would be small-scale infrastructure type construction projects and would not lead to a significant impact to concentrations of PM and O_3. Compliance with mitigation measures MM-AIR-1 and MM-AIR-2 would further reduce emissions. No further analysis or mitigation measures are required.
FRAQMD-3	Comment noted. These measures would apply to drought-resiliency projects that qualify as new development projects within the FRAQMD. This information has been added to the FEIR.

November 4, 2024

SENT VIA ELECTRONIC MAIL ONLY

Jeff Sutton, General Manager
Glenn-Colusa Irrigation District
P.O. Box 150
Willows, California 95988
ceqapublicomments@gcid.net

Subject: Comments on the Draft Environmental Impact Report for the Water Reduction Program Agreement Between the Sacramento River Settlement Contractors Nonprofit Mutual Benefit Corporation, Individual Sacramento River Settlement contractors, and the U.S. Bureau of Reclamation

Dear Mr. Jeff Sutton:

On behalf of the Friant Water Authority (FWA), thank you for the opportunity to review and provide comments on the Draft Environmental Impact Report (DEIR) for the Water Reduction Program Agreement (Agreement) Between the Sacramento River Settlement Contractors Nonprofit Mutual Benefit Corporation (SRSCNC), Individual River Settlement Contractors (SRSC), and the U.S. Bureau of Reclamation (Reclamation).

FWA is a joint powers authority of Friant Division contractors (Friant Contractors) of the Central Valley Project (CVP), which span the eastside of the lower San Joaquin Valley and are served by surface water that is diverted from the upper San Joaquin River watershed at Millerton Lake. The Friant Division encompasses over 1 million acres of farmland, and more than 1 million people, including 54 disadvantaged communities.

The Friant Division's principal facilities include Friant Dam on the San Joaquin River, which impounds Millerton Lake; the Friant-Kern Canal, which diverts water from Friant Dam and conveys it south to the Kern River, serving portions of Fresno, Tulare, Kings, and Kern Counties; and the Madera Canal, which diverts water from Friant Dam and carries it north to the Chowchilla River to serve areas of Madera and Merced Counties. The Friant Division's water supply was made possible by purchase and exchange agreements between U.S. Bureau of Reclamation (Reclamation) and the original riparian and pre-1914 water users, the San Joaquin River Exchange Contractors (Exchange Contractors), who agreed not to exercise their remaining San Joaquin River water rights in exchange for a different water supply to be delivered by the United States from the Sacramento River and Sacramento-San Joaquin Delta, and other sources delivered to them via

Jones Pumping Plant and through the Delta-Mendota Canal and Mendota Pool. So long as there is sufficient water to meet the Exchange Contract, the United States stores and delivers the waters of the San Joaquin River to Friant Contractors. Thus, although Friant Contractors are not direct users of Sacramento River water, Delta operations and upstream operations can significantly affect Friant Division water supplies. Changes to surface and groundwater availability in the Sacramento Valley could have impacts south-of-Delta for the CVP and the environment.

FWA has reviewed the DEIR on the Agreement between the SRSCNC, SRSC, and Reclamation. As a general matter, FWA is supportive of an effort like the proposed project that reduces water consumption through mutual agreement, resulting in better cold water and flow management in Shasta Lake without harming other water users. However, based on our read of the proposed project in the DEIR, FWA is concerned that the analysis performed does not sufficiently evaluate potential rediverted impacts to other CVP contractors, including Friant Division contractors. We offer the following comments:

1. The proposed project fails to address the whole of the action with the Long-Term Operations of the CVP/SWP, and the impacts should have been evaluated together

FWA-1

The proposed project will facilitate reduced contract water supply to the SRSC during Shasta critical years to support operations at Shasta Lake. This action appears to be part of the Bin 3b years proposed in the Draft Environmental Impact Statement for the Long-Term Operations (LTO) of the Central Valley Project (CVP) and State Water Project (SWP) and would support or is necessary to achieve an Endangered Species Act non-jeopardy determination. It is unclear why this was separated from the National Environmental Policy Act (NEPA) / California Environmental Quality Act (CEQA) process that is already occurring, especially given the changes in Shasta Lake operations related to this proposed project. Both NEPA and CEQA prohibit improper segmentation.

2. The Project Description is not sufficiently detailed to evaluate the full range of impacts

FWA-2

The Project Description provides little detail on the Agreement itself other than SRSC and SRSCNC members would forego a certain amount of contract supply under certain year types and then develop “drought-resilient projects” to mitigate those effects. These projects include water reduction activities, such as crop idling, crop shifting, and of most concern groundwater substitution. The DEIR describes a potential annual groundwater substitution within the SRSC Service Area as 167,100 acre-feet (AF) for Phase 1 and 33,420 AF for Phase 2. There is no description of how those estimates were developed, and how that groundwater substitution would be enacted (e.g., new or existing wells), which also questions whether a programmatic CEQA document would be more appropriate. Without a more detailed project description, it is simply not possible to identify or evaluate (much less mitigate or avoid) the potential for significant impacts to FWA and its members.

3. The Project Description does not describe the accounting in Shasta Lake and potential redirected impacts to other CVP water users

FWA-3

All water storage, whether on the surface or in the ground, incurs some loss. Other CVP reservoirs, including San Luis Reservoir, account for losses and share them across various water types stored in the reservoir. The project description does not describe how reductions in SRSC would be stored in Shasta Lake, and how the accounting would be considered compared to Reclamation's approach to other reservoirs. If SRSC is allowed to store supplies in Shasta Lake with no losses, then those losses will be borne by other CVP water users. In a dry year (2021), the evaporative loss ranges from 0.5 to 0.8% during the summer. Again, without this type of information, it is not possible to fully evaluate the proposed project's potential impacts.

4. The DEIR does not appropriately assess and quantify indirect and direct impacts associated with changes in groundwater pumping or land use.

FWA-4

The proposed project states that SRSC would reduce contract supply by 500,000 acre-feet (AF) and 100,000 AF in certain years under Phase 1 and Phase 2, respectively. It is stated that groundwater pumping may increase up to 167,100 AF and 33,420 AF in Phase 1 and Phase 2 years, respectively. On page 213 of the DEIR it is stated, "However, groundwater substitution activities could contribute to accelerated depletion of groundwater resources" and it is acknowledged that activities such as crop idling, crop shifting, or other efforts to reduce water demand may reduce groundwater seepage and thus reduce groundwater recharge. Further, the proposed project describes the installation of up to 30 additional deep aquifer wells as part of drought resiliency improvements. Impacts associated with these actions including additional subsidence and non-compliance with the Sustainable Groundwater Management Act are disclosed, however the document does not address or quantify changes to groundwater accretion trends that may affect interconnected surface waters within the project area. We are concerned that an assessment of interconnected surface waters is missing from this document and thus impacts of project actions are underestimated. Changes to conjunctive use management, including groundwater and land use changes, may alter the magnitude or timing of groundwater accretions that support in-stream flows, causing longer and/or more frequent periods when the Sacramento River (or other local tributaries) are losing streams, or where there is an increased gradient of surface water to groundwater. Changes to river losses may affect Delta and upstream flow objectives associated with LTO of the CVP/SWP and ESA compliance, and water supply made available to south of Delta CVP contractors. Changes in groundwater levels associated with project actions should be quantitatively analyzed and correlated to potential impacts to interconnected surface waters, and operations of the CVP/SWP.

Thank you for your consideration of our comments and perspective. If you have any questions, please contact Ian Buck-Macleod at ibuckmacleod@friantwater.org.

Sincerely,

Jason Phillips
Chief Executive Officer
Friant Water Authority

2.5.8 Responses to Friant Water Authority Comments

Comment Code	Response
FWA-1	Please refer to Global Response 1. The Agreement is not a component of Reclamation's LTO project. The Agreement is a separate project that would allow water to remain in Shasta Lake during Agreement Years.
FWA-2	Please refer to Global Responses 1, 2, and 3. As discussed in the DEIR, the volumes of groundwater anticipated to be pumped in Phases 1 and 2 (167,100 acre-feet and 33,420 acre-feet, respectively) are based on conversations with the SRSC who were asked to provide feedback on their likely response actions assuming the maximum amount of water were reduced for the longest duration possible. Contrary to the comment, the DEIR conservatively assumed that a maximum of 30 new wells may be constructed. The comment does not provide any details on how additional detail might identify potential significant impacts to FWA and its members, nor does it suggest what types of impacts FWA believes it or its members might experience. There is no evidence to suggest that the proposed project would have the potential to result in significant impacts within the FWA.
FWA-3	Please refer to Global Response 1. The DEIR provides details on what types of water reduction activities the SRSC would undertake in response to the reduction in deliveries of contracted water supplies (Section 2.5.1) and what drought-resiliency projects would be developed as a result of the funding (Section 2.5.2). The proposed project is not an SRSC water storage project. Section 3 analyzes the reasonably foreseeable environmental impacts associated with the proposed project based on all information currently available.
FWA-4	Please refer to Global Responses 2 and 3 and the response to comment AA-8 regarding subsidence, the potential for surface water depletion from groundwater pumping, and SGMA compliance. As discussed, under existing conditions in critically dry years, insignificantly small amounts of water diverted by the SRSC end up downstream, so the action of forgoing surface water deliveries by the SRSC under the Agreement would not significantly affect downstream supplies of water. CVP water allocations would most likely be zero based on recent history when conditions have been similar to those that would trigger the Agreement, and it would be reasonable to assume these conditions would be the same in the future.

November 4, 2024

VIA E-MAIL

Jeff Sutton, General Manager
Glenn-Colusa Irrigation District
P.O. Box 150
Willows, CA 95988
Email: ceqapublicomments@gcid.net

Re: Comments on Water Reduction Program Agreement

Dear Mr. Sutton (Jeff):

Grassland Water District and California Waterfowl Association submit these comments on Glenn-Colusa Irrigation District's (GCID) Draft Environmental Impact Report (DEIR) on the Water Reduction Program Agreement between the Sacramento River Settlement Contractors (SRSC) and U.S. Bureau of Reclamation (USBR) (the "Project").

Request for Minor Clarification in DEIR Text

GWD/ CWA-1

It is our understanding that the Project does not include the national wildlife refuges (NWRs) that make up the Sacramento NWR Complex (Sacramento, Delevan, Colusa, and Sutter NWRs) or the Gray Lodge State Wildlife Area. These are allocated water under separate refuge contracts under the Central Valley Project Improvement Act (CVPIA). The DEIR reflects this in several ways. First, the refuges are not included in the SRSC service area maps that show where the Project will occur. (DEIR pp. ES-1, ES-2, 2, and 10.) This is consistent with the service area map on GCID's website that makes the same distinction. (DistrictMap2.pdf.) The DEIR describes the refuges as being "located adjacent to the project area." (DEIR p. 245.)

Second, the DEIR describes the CVPIA Refuge Water Supply Program that oversees refuge water allocations as a "related project" that is not part of the proposed Project. (DEIR p. 286.) The Project is described as voluntary reductions in SRSC contract volumes, not refuge contract volumes. (DEIR p. ES-3.) The refuges are also referred to in the DEIR as "key areas" important for migratory waterfowl, giant garter snake, and recreation. (DEIR pp. 87, 114, 245.)

However, there is one repeated paragraph in DEIR sections 3.4.3.4.2 and 3.4.3.4.3 that creates confusion regarding the scope of the Project, and is potentially inconsistent with the sections described above. We request the following changes to this paragraph in both places where it appears:

GWD/ CWA-1 cont.

"Riparian vegetation associated with preserves depend on surface waters to inundate their habitats during the summer. Portions of national wildlife refuges and wildlife management areas occur ~~**within**~~ **near** the project area and surface water delivery from SRSC members to these areas, **for example through water transfers,** ~~**would**~~ **may** be reduced during Agreement Years, which has the potential to affect riparian habitats that may be present within preserves. Reduced water ~~**allocation in**~~ **deliveries to** a preserve after the end of seasonal rainfall in an Agreement Year could result in a less robust growth of riparian vegetation in the summer and fall. When rainfall occurs the following winter, riparian vegetation would resume a growth pattern matching rainfall quantity, which is consistent with how riparian areas evolve naturally under seasonal and annual variations in precipitation. It is assumed that preserve managers would comply with legal requirements, including for surface water, applicable to the site, which may involve pumping from their own groundwater wells or using other surface waters to augment water used to sustain riparian habitat areas. Crop shifting would not alter or affect riparian habitats in the project area." (DEIR p. 117.)

…

"Wetland vegetation associated with preserves depend on surface waters to inundate their habitats during the summer. Portions of national wildlife refuges and wildlife management areas occur ~~**within**~~ **near** the project area and surface water delivery from SRSC members to these areas, **for example through water transfers,** ~~**would**~~ **may** be reduced during Agreement Years, which has the potential to affect wetland habitats that may be present within preserves. Reduced water ~~**allocation in**~~ **deliveries to** a preserve after the end of seasonal rainfall in an Agreement Year could result in a less robust growth of wetland vegetation in the summer and fall. When rainfall occurs the following winter, wetland vegetation would resume a growth pattern matching rainfall quantity, which is consistent with how wetlands evolve naturally under seasonal and annual variations in precipitation. It is assumed that preserve managers would comply with legal requirements, including for surface water, applicable to the site, which may involve pumping from their own groundwater wells or using other surface waters to augment water used to sustain wetland vegetation areas. Crop shifting would not alter or affect wetland habitats in the project area." (DEIR p. 120.)"

Thank you for considering making these clarifications to the DEIR text. These suggested changes will avoid potentially significant gaps in the DEIR's analysis of impacts by consistently describing the scope of the Project as applying to the described SRSC service area and contracts.

Sincerely,

Ricardo Ortega
General Manager
Grassland Water District

Jake Messerli
Chief Executive Officer
California Waterfowl Association

2.5.9 Responses to Grassland Water District and California Waterfowl Association Comments

Comment Code	Response
GWD/CWA -1	Please refer to the response to comment Aud-2. These paragraphs in Sections 3.4.3.4.2 and 3.4.3.4.3 have been modified in the FEIR.

From: Jeff Sutton
To: Thaddeus Bettner; Katie Chamberlin; mnikkel; Marine Vie
Subject: FW: DEIR COmments on
Date: Tuesday, November 5, 2024 11:42:12 AM
Attachments: image001.png
image002.png
image003.png
image004.png

Just forwarding this comment, that states has no comment, so you all have everything received.

Jeffrey P. Sutton
General Manager

OFFICE: 530.934.8881 | **CELL:** 530.301.1030
EMAIL: jsutton@gcid.net

Post Office Box 150, Willows, California 95988

From: Richard Muzzy <RMuzzy@airquality.org>
Sent: Tuesday, October 1, 2024 6:56 AM
To: CEQA Comments <ceqapublicomments@gcid.net>
Cc: Paul Philley <PPhilley@airquality.org>; LU Project Review Account <ProjectReview@airquality.org>
Subject: DEIR COmments on

Hi Jeff,

SMAQMD-1

Thank you for giving the Sac Metro Air Quality Management District the opportunity to review the Draft Environmental Impact Report (DEIR) for the proposed Water Reduction Program Agreement Between the Sacramento River Settlement Contractors Nonprofit Mutual Benefit Corporation, Individual Sacramento River Settlement Contractors and the U.S. Bureau of Reclamation (project).

We have reviewed the DEIR and have no comments.

Thank you,
Rich

Rich Muzzy

Associate Air Quality Planner/Analyst
Transportation & Climate Change Division - CEQA & Land Use
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2.5.10 Responses to Sacramento Metropolitan Air Quality Management District Comments

Comment Code	Response
SMAQMD-1	Thank you for taking the time to review the DEIR.

November 4, 2024

Via Email: ceqapublicomments@GCID.net

Mr. Jeff Sutton, General Manager
Glenn-Colusa Irrigation District
P.O. Box 150
Willows, CA 95988

Re: Public Comment on Environmental Impact Report for Water Reduction Program Agreement (State Clearinghouse No. 2024050834)

Dear Mr. Sutton:

The State Water Contractors ("SWC")[1] appreciate this opportunity to comment on the Environmental Impact Report for the Water Reduction Program Agreement Between the Sacramento River Settlement Contractors, individual Sacramento River Settlement Contractors, and the United States Bureau of Reclamation (herein "EIR"). The SWC are providing these comments on behalf of itself and its member agencies, who work together to provide water to more than 27 million California residents and 750,000 acres of farmland throughout the state.

SWC-1 Based on the general description of the proposed project, it appears the EIR is analyzing the Sacramento Settlement Contractors and individual settlement contractors' (collectively "Settlement Contractors") obligations and agreements under the Memorandum of Understanding for the Purpose of the Recovery of Winter-Run Chinook Salmon Pursuant to the Winter-Run Action Plan ("WRAP"). The SWC support the Sacramento Settlement Contractors in their efforts to improve conditions for Winter-Run Chinook Salmon through WRAP implementation. At the same time, the SWC have concerns because the EIR does not fully analyze the impacts to SWP water supplies from Settlement Contractor actions related to the Water Reduction Program Agreement (Agreement) pursuant to the California Environmental Quality Act (CEQA).

[1] Alameda County Flood Control District Zone 7, Alameda County Water District, Antelope Valley – East Kern Water Agency, Casitas Municipal Water District, Central Coast Water Authority, City of Yuba City, Coachella Valley Water District, Crestline – Lake Arrowhead Water Agency, Desert Water Agency, Dudley Ridge Water District, Empire West Side Irrigation District, Kern County Water Agency, Kings County, Littlerock Creek Irrigation District, Metropolitan Water District of Southern California, Mojave Water Agency, Napa County Flood Control and Water Conservation District, Oak Flat Water District, Palmdale Water District, San Bernardino Valley Municipal Water District, San Gabriel Valley Municipal Water District, San Gorgonio Pass Water Agency, San Luis Obispo County Flood Control and Water Conservation District, Santa Clara Valley Water District, Santa Clarita Valley Water Agency, Solano County Water Agency, and Tulare Lake Basin Water Storage District.

1. Proposed Project and Potential SWP Impacts

The proposed project should not redirect adverse impacts to other water users and specifically the State Water Project (SWP). The description of the proposed project should make that clear, and the analysis of the proposed project in the EIR should support that statement.

The EIR at p. ES-1 states that "under the proposed project, the SRSCNC and individual members of the SRSC would enter into an Agreement with Reclamation to forego a larger percentage of their contract supply in specified drought years under two phases." The EIR further states that "Reduced contract supply would be accomplished through various actions by the SRSC, including groundwater substitution, cropland idling, cropland shifting, conservation, and through implementing the drought-resiliency projects."

SWC-2

The EIR identifies additional groundwater pumping that likely would occur in lieu of the reduced surface water diversions. The Proposed Project and the "Alternative 2: No Groundwater Substitution Alternative" include up to 167,100 acre-feet in Phase 1 and 33,240 acre-feet in Phase 2 of additional groundwater pumping.

While the specific areas in which this groundwater pumping will occur are not identified in the EIR, the proximity of the Settlement Contractors' service areas to the key rivers and streams and the known interconnected nature of the groundwater basins with the surface water in these rivers and streams, may result in the depletion of flows from these surface water bodies into the groundwater aquifers or the reduction of flows from groundwater aquifers to the surface water bodies (DWR, 2024[2]).

Reduced river flows because of the proposed groundwater pumping may require additional stored water releases from the CVP and SWP reservoirs, especially in the drier conditions when the Agreement is in effect. As such, the EIR should analyze the likely impact to the CVP and SWP and identify appropriate mitigation.

2. Impacts Appear to be Underestimated or not Analyzed

SWC-3

The Proposed Project provides a range of methods for accomplishing surface water reductions (EIR Section 2.5) and states that the Agreement participants may choose to do a combination of different methods. It appears that the EIR defines the maximum extent of use of the individual methods if only one method is chosen. The maximum extent of changes required under each method are likely underestimated in the EIR.

The EIR assumes a water application rate of 6.0-7.0 per acre. (EIR, p.19.) This rate includes non-consumptive uses and therefore over-estimates the quantity of surface water diversions reduced by fallowing the cropland. If the quantity of water available from fallowing is over-estimated, CVP and SWP stored water supplies would be impacted. Conversely, if the water application rate is lowered, then the number of acres that would need to be fallowed to generate the 500,000 acre-feet of Phase 1 water and the 100,000 acre-feet of Phase 2 water will be higher than the reported maximum values in Table 6. If the number of fallowed acres is underestimated, then the potential environmental effects in several resource areas are also under-estimated.

[2] California DWR, February 2024, Depletion of Interconnected Surface Water: an Introduction

SWC-4 The EIR likely underestimates the magnitude of increased groundwater pumping. The SWC believe that the groundwater diversions of 167,100 acre-feet in Phase 1 and 33,240 acre-feet in Phase 2 are underestimated because the surface water deliveries in the Reclamation modeling[3] is less than the contract maximums. The EIR should disclose the Reclamation modeling assumptions and results for completeness.

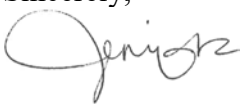
SWC-5 The groundwater section of the EIR should have analyzed the effect of the project-related increases in groundwater diversions on surface water supplies. There is no analysis of the impact that at least 30 new wells and at least 167,100 acre-feet of new groundwater diversions would have on surface water supplies. The EIR should have included a streamflow depletion factor or some other mitigation measure to avoid CVP and SWP storage impacts. The failure to consider impacts on surface water supplies is an important CEQA concern because the reduction in river flows can impact the quantity of water released and stored in upstream reservoirs and the ability of the CVP and SWP to meet water quality standards, environmental obligations, and other contractual obligations. The EIR does not include all areas that receive water from the Bay-Delta watershed in the project and regional setting. As such, the EIR does not consider impacts to the SWP and its service areas north and south of the Delta. These areas could be impacted if stored water supplies and/or surface supplies are reduced.

SWC-6 The description of the crop shifting program also raises questions about whether it would result in any surface water savings. The EIR at p. 20 states, "Historically, farmers generally rotate among several crops to maintain soil quality, so the SRSC may not know the specific type of crop that would have been planted in a given field in a given year." This statement was not followed by an explanation of how this uncertainty would be addressed to ensure that the surface water savings would be realized. If this uncertainty is not addressed, the quantity of water made available under the Agreement would be impacted.

SWC-7 The EIR should clarify this statement on page 310: "Under Alternative 1, contractors would not pump any additional groundwater during Agreement Years and would instead need to reduce surface water use through other activities." In reading the description of Alternative 1: No Project Alternative, states that Settlement Contractors will not sign the Agreement. It is unclear why there would be reduced surface water use if the Agreement is not signed under the Alternative 1.

The SWC appreciate the efforts of the Settlement Contractors, and look forward to working with the WRAP participants to address these concerns. If you have any questions, please contact Mr. Chandra Chilmakuri at cchilmakuri@swc.org.

Sincerely,



Jennifer Pierre
General Manager

[3] Assuming Reclamation modeling referenced in the EIR is the Long-term Operations (LTO) modeling. The EIR does not provide any details or reference to Reclamation modeling.

2.5.11 Responses to State Water Contractors Comments

Comment Code	Response
SWC-1	Please refer to Global Response 1. The SRSC appreciate SWC's support of the Winter Run Action Plan.
SWC-2	Please refer to Global Responses 1 and 2. The proposed project is an Agreement to forego a larger percentage of water during Agreement Years. The reduced deliveries to the SRSC means that there will be more water in Shasta Lake than what would have normally been available for operation of the CVP during years with the same hydrologic conditions as Agreement Years. This Agreement therefore would help Reclamation improve the operation of the CVP during Agreement Years but is not the sole way Reclamation would manage Shasta Lake operations or the CVP. This Agreement would also not affect other Reclamation agreements or obligations. Groundwater pumping is identified and its effects are analyzed in the DEIR. The level of pumping expected is relatively low compared to the groundwater basin capacities, and an Agreement Year is forecasted to occur an average of once in a 10-year period. The DEIR requires compliance with GSPs and SGMA (mitigation measure MM-HYD-2), which is sufficient to address any groundwater-related impacts. SGMA requires local GSAs to develop GSPs or alternatives to GSPs in high- and medium-priority basins sufficient to ensure sustainable groundwater management. SGMA defines sustainable groundwater management as the management and use of groundwater in a manner that can be maintained during the planning and implementation horizon without causing undesirable results. No additional analysis is required.
SWC-3	Please refer to Global Response 1 and the response to comment AA-21. The 6 to 7 acre-feet per acre water application rate was identified based on feedback from the SRSC from their recent experience growing crops in the project area (baseline conditions reported in the DEIR). The purpose of the water application rate assumption was to quantify the likely amount of rice land that would be idled in response to the surface water delivery reductions that would occur under the Agreement, not to estimate the quantity of surface water diversions that would be reduced by fallowing. A water application rate of 6 to 7 acre-feet per acre is intentionally a range to accommodate the local variations throughout the SRSC service area.
SWC-4	The comment is incorrect. The amount of groundwater pumping was not based on Reclamation modeling; it was based on the experiences of the SRSC, who were asked to provide feedback assuming likely operations for the maximum amount of water that would be required to be reduced for the longest duration possible.
SWC-5	Please refer to Global Response 2. Contrary to the comment, the DEIR does consider the effect of groundwater pumping on surface water supplies. Potential streamflow losses that could result from project-related groundwater pumping are discussed in the DEIR: "*In areas where creeks, streams, or other drainages are highly influenced by groundwater infiltration, the interception of groundwater by the additional pumping of the aquifer could potentially reduce surface flows during and after pumping until the groundwater aquifer refills. Increased subsurface drawdown on groundwater that normally discharges to surface waters nearby would potentially affect fish and amphibian habitats, within riverine, riparian, seasonal wetland, and managed wetland habitats reliant on groundwater resources.*" While impacts as a result of streamflow depletion may occur, they would be reduced to less than significant levels with the implementation of mitigation measure MM-HYD-2 and would only occur locally and temporarily as the Agreement would only be in effect during Agreement Years, which are

Comment Code	Response
	anticipated to occur an average of once every 10 years. The FEIR has been revised to include language regarding this aspect of the Agreement. Regarding the potential for the proposed project to affect the CVP and SWP, it also should be noted that the overall level of additional groundwater pumping in Agreement Years (anticipated to occur an average of once in a 10-year period), is relatively small in comparison with the total groundwater pumping that occurs within the subbasins where the wells would be operated to pump groundwater under the Agreement. Further, the additional groundwater pumping during Agreement Years (up to 167,000 acre-feet during Phase 1)—in lieu of diverting surface water (or in lieu of idling additional acreage)—is comparable to the quantity of groundwater substitution pumping by the SRSC that has occurred within recent years, such as during 2021. Actual groundwater substitution volumes may be less. Regarding the request to analyze impacts to the SWP and its service areas north and south of the Delta, please refer to Global Response 3. The Agreement would ensure that up to 500,000 acre-feet in Phase 1 and 100,000-acre feet in Phase 2 of water that would otherwise have been delivered and used within the SRSC service areas would remain in Shasta Lake to improve operational flexibility for Reclamation in extremely dry years. There is no evidence to suggest that minor potential changes to streamflow in Agreement Years (e.g., from reduced agricultural return flows) will result in a substantial adverse change to SWP water supplies.
SWC-6	The comment is incorrect in its logic. The type of crop shifted would not determine the surface water reduction realized. As discussed in the document, the Agreement requires the SRSC to forego a larger percentage of their contracted water during specified drought years. The DEIR provides details on what types of water reduction activities the SRSC would engage in because of the reduced contracted water supplies, such as crop shifting or idling. The water reduction activities are the result of the contract supply reductions to be confirmed by Reclamation in accordance with the Agreement. The water reduction activities do not dictate the amount of surface water reductions.
SWC-7	The comment points out a typo in the DEIR that has been fixed in the FEIR. There are two Alternatives: the No Project Alternative and Alternative 1 (No Groundwater Substitution). The DEIR erroneously refers to the No Project Alternative as Alternative 1. However, because the text was found under the discussion "Alternative 1: No Groundwater Substitution Alternative" and part of a broader discussion related to No Groundwater Substitution, the intent of the text as describing Alternative 1 was clear.

Westlands Water District

November 4, 2024

Jeff Sutton
General Manager
Glenn-Colusa Irrigation District
P.O. Box 150
Willows, CA 95988

Sent Via Email: ceqapublicomments@gcid.net

Subject: Comments on the Draft Environmental Impact Report of the Proposed Water Reduction Program Agreement Between the Sacramento River Settlement Contractors Nonprofit Mutual Benefit Corporation, Individual Sacramento River Settlement Contractors, and the U.S. Bureau of Reclamation, State Clearinghouse No. 2024050834

Dear Mr. Sutton,

On behalf of Westlands Water District ("Westlands"), thank you for the opportunity to review and provide comments on the documents provided by Glenn-Colusa Irrigation District ("GCID") that comprise the Draft Environmental Impact Report ("Draft EIR") for the Water Reduction Program Agreement between the Sacramento River Settlement Contractors Nonprofit Mutual Benefit Corporation, individual Sacramento River Settlement Contractors (collectively, "Settlement Contractors"), and the U.S. Bureau of Reclamation ("Reclamation") (the "Proposed Project").

Westlands is a California water district formed pursuant to California Water Code sections 34000 et seq. Westlands' principal office is in Fresno, California and its service area in western Fresno and Kings counties encompasses approximately 614,000 acres that include some of the most highly productive agricultural lands in the world. On average, agricultural activities within Westlands generate over 38,000 jobs and approximately $4.7 billion in annual economic activity. These jobs and economic output are integrally tied to water supply. Westlands provides water primarily for irrigation, but also provides water for some municipal and industrial uses, including for use by disadvantaged communities, and to Naval Air Station Lemoore. To provide water in its service area, Westlands has contracted with Reclamation to receive water from the Central Valley Project ("CVP"). Westlands is also a participant in water transfers, including the north-to-south water transfers more specifically discussed in the comments below.

Westlands' purpose in reviewing and commenting on the Draft EIR is to ensure that the analysis adequately evaluates and avoids or mitigates impacts from the Proposed Project on the environment and to the CVP system, including those adversely affecting hydrology, water quality, water supply, fish and wildlife, and other resources.

A. Introductory Remarks and Overarching Concerns

WWD-1

Fundamentally, Westlands is concerned that the Proposed Project has the potential to substantially impact operations of the CVP and future allocations of CVP water to the San Joaquin Valley and Westlands in particular, especially during Critical Years. However, Westlands' ability to evaluate and comment on the extent of these potential impacts is hampered by the separation of this CEQA process from the concurrent and related state and federal efforts to address ongoing operations and environmental concerns in with the Sacramento-San Joaquin River Delta ("Delta"), the State Water Project ("SWP"), and the CVP.

Specifically, the current action by GCID is integrally related to and part of Reclamation's proposed action evaluated in the July 26, 2024 Draft Environmental Impact Statement for the Long-Term Operation of the CVP and SWP ("Draft EIS"). However, as described in Westlands' comments on the Draft EIS, neither this CEQA analysis nor the Draft EIS evaluate the extent to which the measures included as part of this Proposed Project may have water supply impacts to downstream CVP contractors, including Westlands, because neither present a cohesive and comprehensive environmental analysis of the measures in the Proposed Project. As discussed further in these comments, the Draft EIR does not provide the fulsome analysis missing from the Draft EIS.

WWD-2

Furthermore, Westlands believes efforts to prepare this Draft EIR would have benefitted from advance coordination with CVP contractors. However, the Notice of Preparation did not appear to have been provided to Westlands or other CVP contractors (*see* Draft EIR at 6-7), which would have facilitated collaboration in the process at an earlier date.

WWD-3

Nevertheless, Westlands appreciates the opportunity to provide comments at this time, and retained Luhdorff and Scalmanini, Consulting Engineers to provide a technical review of the Draft EIR, which is incorporated into the comments below. Overall, the Draft EIR would benefit from updates to present a comprehensive and detailed analysis of the Proposed Project's impacts on the environment and other legal users of the water supply, including South-of-Delta CVP contractors. Perhaps most importantly, the Draft EIR must be updated to provide a quantitative analysis of impacts, especially for the Geology and Hydrology sections of the Draft EIR. Westlands' concerns are more specifically described in the comments outlined below.

B. The Draft EIR Should Analyze the Project's Potential Impacts to Downstream Water Supply.

WWD-4

Under CEQA, a project is "the whole of an action." (14 Cal. Code Regs., § 15378 ("CEQA Guidelines").) A lead agency may not divide a project into two or more pieces to be evaluated in separate environmental review documents rather than evaluating the whole of the project in one environmental document. Activities that are a reasonably foreseeable consequence of approving a project should be included in the environmental analysis. Additionally, the environmental

analysis should include a discussion of cumulative impacts, or two or more individual effects which are considerable when considered together. (CEQA Guidelines, §§ 15130(a), 15355.)

As identified in Westlands' September 9, 2024 comments on the Draft EIS evaluating the Long-Term Operation of the CVP and SWP, that analysis failed to evaluate the extent to which the measures to be included as part of this Proposed Project may have water supply impacts to downstream CVP contractors. The Draft EIR similarly lacks analysis of how implementation of the Proposed Project will impact downstream surface water supply.

The Draft EIR includes the entire Central Valley as part of the regional setting and describes the interplay of the Settlement Contractors' contracts within the larger operation of the CVP. (Draft EIR at 10-12.) For example, the Draft EIR notes that Reclamation "operates Shasta Dam as part of the larger CVP in accordance with multiple legal obligations . . . and in conjunction with California's State Water Project" and that Reclamation has contracts with South-of-Delta water users. (Draft EIR at 13.) Additionally, coordinated long-term operations of the CVP and SWP are listed as projects considered in the cumulative impacts analysis. (Draft EIR at 286.) Despite this, and as discussed in further detail below, the Draft EIR does not discuss how the anticipated increase in groundwater pumping and investments in water use efficiency could impact surface water flow in interconnected surface waters, which, in turn, could lead to significant impacts on surface water availability for downstream CVP contractors such as Westlands. Westlands is therefore concerned that the Draft EIR does not adequately consider the full impacts of the Proposed Project alone, or cumulatively in conjunction with ongoing operations of the CVP and SWP, Sustainable Groundwater Management Act ("SGMA") implementation, and the Bay-Delta Plan update. Westlands is concerned that the Draft EIR's focus on the Sacramento Valley north of the Delta and below Shasta Lake is too narrow given the Draft EIR's recognition of the Proposed Project's setting within the larger operation of the CVP.

WWD-4 cont.

The Draft EIR should be updated to include an analysis of the Proposed Project's potential impacts on downstream water supply. If GCID does not believe that CEQA requires such an analysis, it should provide its rationale for this approach in the Final EIR.

WWD-5

Finally, the Draft EIR states that the Reclamation is preparing an Environmental Assessment under the National Environmental Policy Act ("NEPA") for its approval of the Proposed Project. (Draft EIR at 1.) That NEPA analysis must also fully evaluate direct and cumulative impacts to downstream water supply of the Proposed Action and other related and ongoing projects. Because these impacts are likely to be significant, Reclamation should prepare an Environmental Impact Statement that fully analyzes the Proposed Project's potential water supply impacts to downstream CVP contractors.

C. The Draft EIR Should Include Additional Information on the Proposed Project and Project Objectives.

WWD-6

To satisfy CEQA's informational requirements, an EIR must describe the components of the Proposed Project in a manner sufficient to enable meaningful comparison between the Proposed Project, its alternatives, and baseline conditions. (CEQA Guidelines, §§ 15124(c), 15125.) Additionally, the project description should include a statement of objectives addressing the underlying purpose of the project. (CEQA Guidelines, § 15142(b).)

To meet these requirements, the Draft EIR should include additional information regarding the anticipated crop idling and crop shifting described as part of the Proposed Project. The Draft EIR lists both these as actions the Settlement Contractors can undertake during Critical Years to offset the cutbacks in surface water supplies. (Draft EIR at 19-20.) However, the Draft EIR does not provide estimates of water savings expected from these activities. Additionally, the Draft EIR does not discuss the feasibility of these options. For example, soil and drainage conditions need to be considered when determining if crop shifting is a viable option.

WWD-7

Additionally, the Draft EIR should expand its explanation of the project objectives. The Draft EIR states the project objectives to facilitate reduced water contract supply to the Settlement Contractors "and generally meet existing municipal, agricultural, and habitat demands from 2025 to 2045." (Draft EIR at ES-4, 14.) It is unclear what those existing demands are, and whether they include existing demands from all water and irrigation districts like Westlands, or whether an objective is that water and irrigation districts will not be impacted by the Proposed Project. It is also unclear if the conserved water will only be used instead for habitat purposes. The Draft EIR should include additional explanation of the objectives to explain how fulfillment of those objectives could result in changes to CVP operations.

WWD-8

Finally, the mechanisms for accounting for the management of water stored in Shasta Dam on behalf of the Settlement Contractors are lacking in detail. Westlands would have expected considerations for accounting for the development and loss of supplies held in Lake Shasta that are typical for reservoir operations across the CVP, such as in Friant Dam and San Luis Reservoir. Such considerations include in-reservoir loss to supplies that are proportional with other supplies being held and experiencing loss from seepage and evaporation. Additionally, Westlands would have expected a thorough process for accounting for foregone water supplies that considers downstream accretions that may be otherwise satisfying CVP obligations for the Settlement Contracts. Further still, Westlands would have expected similar considerations for the conveyance of supplies when delivered. It is unclear how these mechanisms will be facilitated in a manner that protects the CVP.

Additional information describing the project would allow for more complete understanding of the Proposed Project and facilitate a fuller discussion of the likelihood of significant impacts.

D. The Draft EIR Should Include Sufficient Information to Allow the Public to Understand the Full Environmental Impact of the Proposed Project and Provide Informed Public Comment.

WWD-9

To allow for informed public comment and informed decision making, an EIR must include relevant information. The Draft EIR should include additional information critical to understanding the potential impacts of the project.

The Draft EIR noted that Reclamation utilized a model for evaluating the frequency of Critical Years that could occur in Phase 1 and Phase 2 of the Proposed Project. (Draft EIR at 16-17.) However, the Draft EIR does not include any report describing the technical analysis developed from that modeling effort or any other technical analysis that supports the Draft EIR's analysis of the potential impacts from the Proposed Project. Assumptions regarding climate change, reservoir operation criteria, and other inputs to the modeling exercise are necessary to understand whether the projected frequency of Critical Years is reasonable, or whether the Draft EIR presents an accurate estimate. It also is unclear why Phase 2 will have an increased number of Critical Years (9 out of every 10) compared with Phase 1 (6-7 out of every 10).

WWD-10

Additionally, the Draft EIR should explain why anticipated water cutbacks are larger during Critical Years in Phase 1 (500,000 acre feet) than Phase 2 (100,000 acre feet). Without additional explanation on how the Draft EIR arrived at these underlying assumptions, the public cannot provide an informed comment on the Draft EIR. Similarly, the analysis of impacts on hydrology are largely based on qualitative assessments, and it does not appear that quantitative assessments were conducted. This is an inadequate approach to assessment of impacts and the Draft EIR needs to be revised to include a quantitative approach to impacts analysis and determination of significance.

E. The Draft EIR Should Fully Analyze the Environmental Impacts From Increased Groundwater Pumping.

WWD-11

Under CEQA, an EIR must identify and describe the project's significant environmental effects, include mitigation measures proposed to minimize these significant impacts, and briefly set forth the reasons that possible significant environmental impacts were found to be insignificant. (Pub. Res. Code § 21100(b), (c); CEQA Guidelines, § 15126.2.) Westlands is concerned that the Draft EIR does not fully address or analyze the potential reductions in groundwater availability that may result from implementation of the Proposed Project, and in particular the effect of groundwater reductions on CVP water supplies.

The Draft EIR states that "an additional 167,100 acre-feet and 33,420 acre-feet of groundwater is anticipated to be pumped in Phases 1 and 2, respectively." (Draft EIR at 20.) It estimates a maximum of 30 new wells to be constructed to implement the necessary reduction in surface anticipated by the Proposed Project. (Draft EIR at 28.) It also describes a conjunctive use

program with coordination operation and use of surface water, ground water, and conveyance facilities, with diversion of surface water in non-Agreement years while groundwater is recharging, and increased groundwater pumping in Agreement years when surface water is reduced. (Draft EIR at 32.) However, the Draft EIR does not analyze the full impacts of increased groundwater pumping on surface flows, water quality, subsidence and flooding, or groundwater recharge, and does not consider how increased groundwater pumping could impact SGMA implementation.

WWD-11 cont.

1. The Draft EIR Must Analyze the Potential Impacts of Increased Groundwater Pumping on Surface Flows.

WWD-12

The Draft EIR recognizes the interconnectedness of groundwater and surface waters. (Draft EIR at 32.) However, there is no attempted analysis of how increased levels of groundwater pumping could impact interconnected surface waters, or even a clear explanation of which surface waters are interconnected. The Draft EIR should provide additional information in this regard, including maps and descriptions of relevant groundwater basins and interconnected surface waters, as well as additional information on the rate and timing of depletions of surface waters to groundwaters.

It is well known that substituting groundwater pumping for the delivery of surface water supplies in the Sacramento Valley may result in the streamflow depletions in the Sacramento River and tributary streams. Indeed, for many groundwater substitution transfers in the Sacramento Valley, a minimum 13% streamflow depletion factor is imposed when determining the quantity of water available for transfer.[1] As it relates to the Proposed Project, the Draft EIR estimates that one third of the surface water cutbacks will be addressed by increasing groundwater pumping by approximately 167,000 acre-feet and 33,000 acre-feet during Phase 1 and Phase 2, respectively. Yet the Draft EIR fails to even mention that increased groundwater pumping could result in streamflow depletions, it fails to quantify its impact on the CVP, and consequently fails to address mitigation of negative effects of this action on the CVP.

DWR recently released a webinar discussing the depletion of interconnected surface waters, including discussion of next steps to develop a guidance document.[2] This further underscores the importance of this issue, which should be further analyzed in the Draft EIR. The increase in over 150,000 acre feet of ground water pumping along the Sacramento River may result in larger amounts of surface water depletion from the river to the groundwater, adding to existing groundwater pumping impacts on Sacramento River flows. This in turn may impact CVP operations south of the Delta. Significantly more detail and analysis is required on the impact to surface water flows from increased groundwater pumping.

[1] *See* Department of Water Resources, Bureau of Reclamation Draft Water Transfer White Paper, pgs. 34-35 (2019).
[2] Available at https://www.youtube.com/watch?v=HQbPod1Kr2o.

WWD-13

Our concern for the groundwater resource is based on recent trends. A recent publication by the Public Policy Institute of California[3] shows a dramatic increase in groundwater pumping along the Sacramento River. Comparisons of 2013-14 and 2021-22 show a 1 million acre-foot increase in groundwater pumping within the Sacramento Valley during the more recent drought. We are concerned that the funded increases to groundwater extraction in the Sacramento Valley— which is tied directly to the rivers that run through it—played a dominant role in the actions during that time period. Further, we expect that Reclamation-funded investments in drought water supply reliability for the Settlement Contractors will have a similar and compounded negative impact on the CVP South of Delta exports that is not fully disclosed in the CEQA documentation and likely prohibits a finding of less than significant impact.

WWD-14

In mitigation measure MM-HYD-2, the Draft EIR states that "installation and operation of new groundwater wells in accordance with the GSPs for all ground water pumping activities undertaken in the agreement in accordance with targets and requirements set by applicable GSPs management by groundwater sustainability agencies in the project area" will mitigate the potential impacts from increased ground water pumping to less than significant. (Draft EIR at 214.) This assertion is problematic for two reasons. First, as discussed in further detail below, the Draft EIR does not provide sufficient discussion of the existing groundwater regulation in the project area to determine what protective measures might be imposed on future groundwater extraction. Second, it does not explain how impacts to interconnected surface waters would be reduced by those measures.

Increased groundwater pumping could lead to a further reduction in available surface water which would impair one of the main goals of the project—to provide flexibility in the Bureau of Reclamation's management of operation in the CVP during drought conditions—as well as negatively impact water supply south of the Delta.

2. The Draft EIR Should Analyze the Potential Impacts of Increased Groundwater Pumping on Water Quality.

WWD-15

Projected increases in groundwater pumping by the Settlement Contractors may impact water quality in water delivered into the Delta-Mendota Canal and San Luis Canal during Critical Years. The Proposed Project may exacerbate baseline water quality issues in the CVP area and San Luis Canal in the form of increased salinity. However, the Draft EIR did not sufficiently quantitatively address or analyze these potential impacts to surface water quality or ground water quality in the Project or Regional Settings areas.

[3] Policy Brief: Drought and Groundwater Sustainability in California's Farming Regions. Available at https://www.ppic.org/publication/policy-brief-drought-and-groundwater-sustainability-in-californias-farming-regions/.

WWD-16

3. The Draft EIR Should Analyze the Potential Impacts of Increased Groundwater Pumping on Subsidence

The Draft EIR should include an assessment of whether increased groundwater pumping will cause increased subsidence in the subbasins adjacent to the Sacramento River. Exacerbation of historical subsidence is likely to occur under the Proposed Project. The Draft EIR does not include an adequate analysis, qualitative or quantitative of potential impacts from subsidence in its analysis under the GEO-3 criteria. (Draft EIR at 166.) Similarly, there is no discussion of possible increase in subsidence in the discussion of impacts to hydrology.

WWD-17

4. The Draft EIR Should Analyze the Impact of the Proposed Project on Groundwater Recharge.

The Draft EIR acknowledges that the Proposed Project could interfere substantially with groundwater recharge. (Draft EIR at 213-214.) The Drought Resiliency measures described in the Draft EIR describe approaches to use water more efficiently through a variety of water conveyance and irrigation efficiency upgrades. However, all of these measures will also decrease the recharge of the groundwater aquifer. Moreover, to the extent groundwater recharge is reduced by Drought Resiliency measures, the impact of surface water depletions resulting from increased groundwater pumping will be exacerbated. These impacts are not described in the Draft EIR, which should include a quantitative discussion of recharge rates and the impacts on groundwater storage and replenishment. The current analysis is insufficient to fully inform the public or decisionmakers on the potential impacts of the project. Quantitative information regarding groundwater use, subsurface flows, recharge, and overdraft are fundamental elements necessary to determine the environmental impacts of increased groundwater pumping and other impacts to groundwater recharge.

WWD-18

5. The Draft EIR Should Analyze the Interaction and Impact of the Proposed Project on SGMA Implementation.

The Draft EIR includes MM-Hyd-2, which requires new groundwater wells to be installed and operated in compliance with applicable GSPs, to address potential impacts to groundwater supplies and storage. (Draft EIR at 214). However, the proposed mitigation measure is inadequate, as it merely shifts responsibility to mitigate for project impacts to the local GSAs which will be required to incorporate the Proposed Project's additional groundwater demand into their plans for sustainability of ground water resources. Despite specifically relying on the GSA process to mitigate potentially significant impacts, the Draft EIR includes minimal discussion of what the requirements of applicable GSPs would be, and does not provide information on which GSPs would be involved in monitoring the additional groundwater pumping anticipated by the Proposed Project. The Draft EIR should be updated to include this information to allow for informed consideration of the feasibility of the mitigation measure. The Draft EIR should also document how the Proposed Project may impact the ability of GSAs to achieve their subbasin

WWD-18 cont.

sustainability goals, and provide more detail in whether additional groundwater pumping may impact the sustainable yield of the subbasins which are adjacent to the Sacramento River.

WWD-19

Furthermore, the Draft EIR should acknowledge and account for the declining availability and reliability of groundwater due to SGMA implementation. Anticipated groundwater pumping could change due to SGMA implantation, especially as a substitute for surface water in times of shortage. The Draft EIR fails to evaluate how applicable GSPs could impact the Settlement Contractors' ability to pump groundwater to meet the required reduction in surface water use.

WWD-20

F. The Draft EIR Should Fully Analyze the Impacts on Special Status Species

The qualitative assessment of impacts on special status species is inadequate. As an example, the Draft EIR concludes the Proposed Project could reduce habitat for giant garter snakes and western pond turtles, *see* Draft EIR at 106-107, and finds a significant but unavoidable impact on these species, *see* Draft EIR at 115. Despite this, the Draft EIR is devoid of any analysis beyond generalized statements regarding potential impact on these species. For a proposed project of this magnitude, the Draft EIR must describe in quantitative terms how the proposed project would impact these and other special status species and the methodology used to perform the quantitative analysis.

WWD-21

G. The Draft EIR Should Provide Additional Analysis of the Interaction Between the Proposed Project and North-to-South Water Transfers

The Draft EIR recognizes the ongoing north-to-south water transfers. (Draft EIR at 286.) These water transfers provide opportunities for South-of-Delta water users to meet water use needs during years of reduced water supply availability. However, the Draft EIR does not sufficiently address the Proposed Project's interaction with north-to-south water transfers.

First, the Draft EIR does not provide sufficient detail on how the crop idling and groundwater substitution actions that are part of the Proposed Project may affect similar crop idling and groundwater substitution actions that have historically occurred in connection with the north-to-south water transfers. The Proposed Project's impacts on the quantity and frequency of north-to-south water transfers should be disclosed in the Draft EIR for it to be adequate as an informational document and to support informed public comment.

WWD-22

Additionally, the Draft EIR lists water transfers as a project considered in the cumulative impacts analysis, and recognizes the potential for cumulatively significant impacts on biological resources such as special status species. (Draft EIR at 115, 286.) However, as discussed above, the Draft EIR's analysis of the Proposed Project's impacts on special status species lacks quantitative analysis. Similarly, the Draft EIR's analysis of the impacts from the Proposed Project's anticipated increase in groundwater pumping is missing critical information that would inform not only the analysis of impacts from the Proposed Project, but also the potential for

WWD-22 cont.

cumulative impacts on surface water flow, water quality, subsidence, and groundwater recharge. The Draft EIR should update the cumulative impacts analysis once additional information and analysis in included in these areas. This will allow a full understanding of the level of anticipated impacts from the Proposed Project, and how those impacts are distinct from those associated with current or future water transfer activities. That in turn will allow for an informed decision and informed public comment on whether the proposed mitigation measures adequately cover the impacts that should be properly attributed to implementation of the Proposed Project.

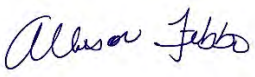
WWD-23

H. Conclusion

Westlands request that GCID update the Draft EIR to address the issues identified and include a comprehensive analysis of all the impacts from all pending state and federal projects, including impacts to South-of-Delta water supply. In order to serve as an adequate informational document, significant additional information and analysis should be included in the Draft EIR. We believe it would be appropriate to recirculate the Draft EIR once that analysis is developed to allow more informed public comment prior to final approval of the Proposed Project.

Westlands appreciates the opportunity to review and comment on the Draft EIR and hopes to work with GCID in a cooperative manner to ensure that the Final EIR addresses the issues identified herein.

Sincerely,



Allison Febbo
General Manager, Westlands Water District
afebbo@wwd.ca.gov

cc: Karl Stock, Regional Director, California-Great Basin Region, U.S. Bureau of Reclamation
KStock@usbr.gov

2.5.12 Responses to Westlands Water District Comments

Comment Code	Response
WWD-1	Please refer to Global Response 1. The Agreement is a separate project that would result in more water in Shasta Lake than what would have normally been available for operation of the CVP during years with the same hydrologic conditions as Agreement Years and would exist separate of the LTO.
WWD-2	The NOP and DEIR were fully noticed per CEQA requirements (all county clerks, relevant Tribes, and anyone who has requested to be notified of GCID CEQA actions).
WWD-3	Thank you for your comments. The responses to your specific CEQA comments follow, and please refer to Global Responses 1 and 3, which provide responses to the request for a comprehensive and detailed analysis of the proposed project's impacts on the environment and other legal users of the water supply, including South-of-Delta CVP contractors.
WWD-4	Please refer to Global Response 1. The proposed project is an Agreement to forego a larger percentage of surface water during Agreement Years. As adequately described in the DEIR, the water would remain in Shasta Lake. Regarding the comments on groundwater pumping impacts on surface water supplies, potential for the proposed project to affect the CVP and SWP, please refer to Global Response 3 and the response to comment SWC-5. Groundwater pumping is identified, and its effects are analyzed in the DEIR. There is no evidence that the level of pumping during an Agreement Year would result in additional stored water releases from the CVP and SWP reservoirs. The level of pumping expected is relatively low, and an Agreement Year is forecasted to occur an average of once in a 10-year period. The DEIR requires compliance with applicable GSA-managed GSPs or, where there are no GSPs, in accordance with SGMA (mitigation measure MM-HYD-2), which is sufficient to address any groundwater-related impacts. SGMA requires local GSAs to develop GSPs or alternatives to GSPs in high- and medium-priority basins sufficient to ensure sustainable groundwater management. SGMA defines sustainable groundwater management as the management and use of groundwater in a manner that can be maintained during the planning and implementation horizon without causing undesirable results. No additional analysis is necessary. Also refer to response to comment AA-25.
WWD-5	This comment is beyond the scope of the CEQA document and should be directed to Reclamation based on the NEPA analysis.
WWD-6	Please refer to Global Response 1. The proposed project is a new Agreement between the SRSC and Reclamation under which the SRSC would forego a larger percentage of their contracted water during specified drought years. The DEIR provides details on what types of water reduction activities the SRSC would engage in because of the reduced contracted water supplies as determined though conversations with the SRSC based on their experiences during recent drought years. Contrary to the comment, the amount of water that could be reduced by idling is quantified in Table 6 of the DEIR. No evidence is provided as to why crop idling is not feasible and why soil and drainage conditions need to be considered to determine if crop shifting is a viable option.
WWD-7	The existing water demands are detailed in the paragraph preceding the quoted text. Specifically: *Currently, Reclamation operates Shasta Lake for multiple purposes in accordance with multiple legal obligations, including to meet SRSC-contracted supplies and other CVP water supplies, while also*

Comment Code	Response
	managing releases of water for fish and wildlife purposes, flood control requirements, and power generation. The purpose of the proposed project is to approve and facilitate reduced water contract supply to the SRSC during specified drought years to address water shortages at Shasta Lake. Reduced SRSC contract supply allows for Reclamation to respond to shortages in water supplies due to very dry hydrologic conditions, climatic variability, climate change, and regulatory requirements. The discussion satisfies CEQA's requirement for a clearly written statement of the objectives sought by the project, including its underlying purpose, and project benefits (CEQA Guidelines Section 15124[b]). No changes are necessary.
WWD-8	The comment expands the scope of the analysis beyond the project description. The project is an Agreement that would result in the SRSC forgoing a larger portion of their contracted surface water during Agreement Years—it is not the management of the CVP. The amount of water is not based on management of the CVP; it is an agreed-upon amount of water that would result in more water being left in Shasta Lake to allow Reclamation to respond to shortages in water supplies due to very dry hydrologic conditions, climatic variability, climate change, and regulatory requirements. The level of detail in the project description is sufficient to analyze the reasonably foreseeable effects of the Agreement. No additional detail is necessary. Regarding the potential for the Agreement to affect other CVP water users, please refer to Global Response 3.
WWD-9	As noted in the DEIR, Reclamation performed modeling to determine the potential frequency of Agreement Years during each phase to help the SRSC plan for outcomes. Modeling completed by Reclamation was based on simulated climate and operational conditions, and results are representative of prolonged droughts that have occurred in the project area. The fact that the results are representative of recent droughts provides confidence that the modeling results can be used as an accurate planning tool for the DEIR, as the true frequency of future droughts is unknown. As noted in the comment, the model predicts that Agreement Years would be anticipated to occur on average 0.66 time over the 10-year Phase 1 period and on average 0.88 time over the 10-year Phase 2 period. It should be noted that the DEIR rounded up 0.66 and 0.88 to one time over each 10-year period. The maximum potential for there to be an Agreement Year in both phases is 4 times based on the modeling. The difference in average occurrences is due to background climate predictions.
WWD-10	Please see response to comment AA-11. The maximum water reduction volumes in Phases 1 and 2 are the mutually agreed-upon result of negotiations between the SRSC and Reclamation. The comment generally questions the use of a qualitative assessment of hydrologic impacts but does not provide any information or explanation for their assertion that the analysis was inadequate or how a quantitative assessment would have been feasible or lead to more meaningful information, given the informational limitations discussed in the DEIR.
WWD-11	Please refer to Global Response 2. The response to specific comments on increased groundwater pumping impacts on surface flows, water quality, subsidence, flooding, and groundwater recharge are provided in the following responses.
WWD-12	Please refer to Global Responses 2 and 3.
WWD-13	Please refer to Global Responses 2 and 3. The comment does not provide any evidence that the proposed project would affect South-of-Delta CVP exports and result in environmental impacts. No edit is required.

Comment Code	Response
WWD-14	Contrary to the comment, the DEIR provides an overview of the GSA process and requires reliance on basin management objectives identified in applicable GSPs and SGMA to sufficiently address any groundwater-related impacts. As noted in the DEIR, the SRSC would coordinate with the local applicable GSA to ensure that the well locations and related construction and operational activities would not be inconsistent with the targets set by GSPs under SGMA. The overall connectedness of the systems is also discussed in several sections of the DEIR, including Section 3.10.1.2 and the Impacts sections HYD-1, HYD-2, and HYD-5. As noted in Global Responses 2 and 3, the overall level of additional groundwater pumping in Agreement Years (anticipated to occur an average of once in a 10-year period) is relatively small in comparison with the total groundwater pumping that occurs within the subbasins where the wells would be operated to pump groundwater under the Agreement. Further, the additional groundwater pumping during Agreement Years (up to 167,000 acre-feet during Phase 1)—in lieu of diverting surface water (or in lieu of idling additional acreage)—is comparable to the quantity of groundwater substitution pumping by the SRSC that has occurred within recent years, such as during 2021. The contract surface water foregone by the SRSC under this Agreement far exceeds the amount that may be pumped.
WWD-15	Please refer to Global Responses 2 and 3. The DEIR presents a detailed accounting of the maximum amount of water that could be pumped from existing and new wells. The DEIR also discussed the interconnectedness of systems and the potential effects on stream flow. As noted previously, the amount of groundwater pumped in Agreement Years would be relatively small; during an Agreement Year (again, anticipated to occur an average of once in a 10-year period), groundwater substitution would constitute a maximum of approximately 8% and 1.6% of the total surface water diverted by the SRSC. Actual groundwater substitution volumes may be less. Because very little water used by the SRSC makes its way to the Sacramento River and project-related groundwater would constitute a small amount of any return flows, it is reasonable to assume that the Agreement would have an insignificant effect on water quality in the CVP and the Delta-Mendota and San Luis canals, which are several hundred miles south of the SRSC service area. Water in the Delta-Mendota and San Luis canals is an amalgam of multiple inputs, many of which are downstream of the SRSC service area; the proportion of Agreement-Year return flow in these conveyances would be infinitesimally small and would only be present in Agreement Years. For these reasons, there is no reasonable possibility that the project would have a significant impact on water quality in the CVP area or the Delta-Mendota and San Luis canals.
WWD-16	Please refer to Global Response 2.
WWD-17	Contrary to the comment, the DEIR does discuss the potential of reduced recharge to groundwater. As noted in Section 3.10.3.4.2 of the DEIR, "*the potential for adverse drawdown effects would increase as the amount of extracted water increased. Additionally, elements that save water, including conservation activities, cropland idling, and cropland shifting, typically reduce seepage losses, which may return to groundwater supplies and incidentally recharge groundwater. Groundwater substitution activities beyond existing conditions would only occur in Agreement Years and be temporary, which could lead to groundwater recovery and recharge in non-Agreement Years and reduce impacts. However, because groundwater recovery and recharge is highly dependent on hydrology of following year, which could be another Agreement Year, as well as proximity to surface water and pumping in following year (i.e., if the subsequent year also includes groundwater substitution pumping), and aquifer properties,*

Comment Code	Response
	impacts to groundwater levels could occur." With implementation of mitigation measure MM-HYD-2, impacts were found to be less than significant.
WWD-18	As noted in Global Response 2, given the uncertainties regarding water supply and weather conditions throughout the large project area during the term of the Agreement, it would be entirely speculative to try to predict precise volumes of groundwater pumping within specific groundwater subbasins. While the estimated maximum volume of groundwater pumping that could occur within each SRSC service area is known at this time, the specific location of pumping, including from existing and new wells, is not known. Some SRSC service areas span multiple subbasins, and it is possible that their groundwater pumping activities could occur in multiple subbasins or within a single subbasin. However, these uncertainties do not mean the potential environmental impacts were not assessed. An exact location is not needed to conduct an analysis of potential project impacts in compliance with CEQA. Existing groundwater conditions including number of subbasins, levels of recharge, and hydrological conditions in the project area are known and were described in the DEIR. The analysis in the DEIR then identified and considered ways that the specific regional conditions (including known effects from past recent droughts) and pumping locations could result in or influence the extent or magnitude of a potential impact, then identified mitigation measures that would be imposed if a project element were in areas or during periods where such mitigation would be needed.
WWD-19	The SRSC would be required to comply with applicable GSA-managed GSPs or, where there are no GSPs, in accordance with SGMA, including potential future management changes. As future changes are speculative, such changes cannot be predicted at this time. The DEIR adequately accounts for the possibility that groundwater might not be available by considering the impacts of extensive crop idling, as an alternative response to reduced surface water deliveries.
WWD-20	The DEIR considered the extent of potential impacts to special status species to the extent feasible, given the information available. As noted, due to the unpredictable nature of droughts and the specific location of project activities, construction time frames are unknown as of 2024. The analysis of special status species made reasonable assumptions about the extent of crop idling and the nature and amount of construction projects, and it also identified and considered ways that the specific location or construction time frame could influence the extent or magnitude of the impact, then identified mitigation measures that would be imposed if a project element were located in areas or during periods where such mitigation would be needed. The lack of precise information precluded a quantitative analysis of special status species impacts. GCID consulted with state and federal wildlife agencies in preparing the DEIR, including on the specific methodology for assessing impacts and proposed mitigation. The 13 biological resources mitigation measures have been proposed to mitigate potential impacts in a variety of settings and different times of the year. No additional analysis or information is feasible or necessary.
WWD-21	The comment identifies related projects identified and analyzed as part of the cumulative impact assessment. The proposed project is not a regional water management plan. The proposed project is an Agreement to forego water in specified drought years that would have been delivered to the SRSC but would instead remain in Shasta Lake for use by Reclamation. Agreement Years are, as identified, severe drought years where the total available water amount would be less regionwide with or without the Agreement. The proposed project does not affect carryover in subsequent years. No edit is required.
WWD-22	Please refer to the response to comment WWD-20.

Comment Code	Response
	Given the uncertainties regarding water supply and weather conditions throughout the large project area during the term of the Agreement, it would be entirely speculative to try to predict precise volumes of groundwater pumping within specific groundwater subbasins. While the estimated maximum volume of groundwater pumping that could occur within the SRSC service areas is known (see Table 7 of the DEIR), the specific location of pumping, including from existing and new wells, is not known. Some SRSC service areas span multiple subbasins, and it is possible that their groundwater pumping activities could occur in multiple subbasins or within a single subbasin. However, based on the regional data available through a cumulative assessment of past, present, and expected future projects, enough conclusions have been made to inform decision-makers of the magnitude of likely environmental impacts consistent with the requirements of CEQA. No edit is required.
WWD-23	Thank you for taking the time to review the DEIR. Please see the responses provided to Westlands Water District's comments in responses to comments WWD-1 through WWD-22, which address your concerns; recirculation is not required.

3 Modifications to the DEIR

This section of the FEIR documents changes and additions to the DEIR that have been made to clarify, correct, or add to the information provided in that document. Text and table changes presented below are incorporated into the FEIR. Section references included in this section refer to respective items from the DEIR. Only paragraphs wherein text was deleted or added are included in this section. The symbol "[…]" denotes where one or more paragraphs are skipped between others that contain edits. Deleted text is marked as ~~strikeout~~ and new text is marked as underlined. Immediately surrounding text has also been included to provide context and increase readability. Table numbering is retained from the DEIR; therefore, they are not inherently sequential. New tables are titled with letters vs. numbers to avoid confusion with tables from the DEIR.

3.1 Section Executive Summary

[…]

Summary of Project Alternatives

The CEQA Guidelines (14 CCR 15126) require that a DEIR consider a range of reasonable alternatives to the project or to the location of the project that would feasibly attain most of its basic objectives but would avoid or substantially lessen any of the significant effects of the project. The following alternatives are considered in the DEIR:

- ~~Alternative 1:~~ No Project Alternative
- Alternative 1~~2~~: No Groundwater Substitution Alternative

~~Alternative 1:~~ No Project Alternative

The No Project Alternative, which is required for inclusion in an EIR by CEQA, represents what would reasonably be expected to occur in the foreseeable future if the proposed project were not approved. Under the No Project Alternative, the Agreement between the SRSC and Reclamation would not be signed, and water would continue to be managed based on current allocations and management plans. Neither additional reductions during specified drought years nor drought-resiliency projects to address potential water loss and strengthen the resilience of the SRSC's water system and long-term water delivery capabilities would be implemented.

Alternative 1~~2~~: No Groundwater Substitution Alternative

This alternative would involve accomplishing surface water use reductions through cropland idling, cropland shifting, and conservation activities, without groundwater substitution occurring as a result of the Agreement. Drought-resiliency projects would also be undertaken with this alternative. While more crop shifting could reduce surface water use, it is assumed most contractors would idle more

cropland without access to the additional water provided by groundwater substitution. Crop shifting and conservation may result in additional reductions but these are too speculative to quantify.

[…]

Summary of Impacts and Mitigation

[…]

Table ES-2
Summary of Mitigation Measures

Name	Mitigation Measure
BIO-12	**MM-BIO-12: Conduct Aquatic Resources Surveys and Avoidance for Drought-Resiliency Projects** ~~Require to the extent practicable that during crop idling minimum water depths are maintained in drainage canals in key areas for the benefit of GGS and northwestern pond turtle. While this mitigation measure could reduce impacts to GGS associated with loss of population and genetic diversity, disconnected natural habitats, and stress from the loss of essential cover from predators, as well as reduce impacts to northwestern pond turtle from reduced habitat and foraging opportunities, there could still be areas where sufficient water cannot be maintained due to inadequate surface water. Therefore, crop idling impacts on GGS and northwestern pond turtle could represent a conflict with local policies or ordinances protecting biological resources.~~ If the drought-resiliency project site survey identified in MM-BIO-1 indicates that the project site contains potentially jurisdictional aquatic resources, including wetlands, other waters, and riparian habitat, that may be affected by construction, an aquatic resources delineation to identify and delineate wetlands and other waters shall be conducted. Wetlands and waters identified on site will be flagged as environmentally sensitive areas and avoided to the extent practicable. Permanent impacts to jurisdictional aquatic resources will be mitigated per MM-BIO-13.
MM-MIN-1	**Avoid Siting Drought-Resiliency Projects in Mineral Resource Zones.** ~~Drought-resiliency projects would sited~~ Site drought-resiliency projects away from areas mapped as MRZ to the extent practicable.

3.2 Section 2 Project Description

Section 2.4 Proposed Agreement Phases

[…] Under Phase 2 (2036 to 2045), the contractors would agree to collectively incur a reduced contracted supply of up to 100,000 acre-feet under their aggregated contracts during certain years (defined as Phase 2 Agreement Years) if the following two conditions are met:

- Combined actual and forecasted natural inflow to Shasta Lake from October 1 through April 30 is less than 2.5 million acre-feet.
- Reclamation forecasts a Critical Year under the Settlement Contracts

The contractors' use of their contract supplies is tracked monthly by Reclamation and provided on water account records they provide to each contractor. These monthly quantities are based on

measured diversions, most of which would meet the accuracy, frequency, and telemetry requirements of the SWRCB under the contractor's water rights. The monthly quantities by the largest the SRSC are posted online in Reclamation's Table 28, available on its website. […]

Section 2.5.1 ~~Water Reduction~~ Activities Taken in Response to Water Reductions

~~Surface water use reduction~~ Activities taken in response to water reductions ("water reduction activities") include cropland idling, cropland shifting, groundwater substitution, and conservation. Contract supply reductions available through use reduction activities would contribute to storage volumes in Shasta Lake. These activities are further described in Sections 2.5.1.1 to 2.5.1.4. ~~Surface water reductions~~ Activities that relate to surface water reductions would not involve the construction of any new development such as large structures, infrastructure, or roadways. Agreement participants may choose to do a combination of cropland idling, crop shifting, groundwater pumping, and/or conservation. If an Agreement Year is in effect, GCID and the SRSC would provide an annual report to CDFW and USFWS reporting on the actual volume of cropland idling and groundwater substitution activities.

Section 2.5.1.4 Conservation

Water conservation includes actions to reduce the diversion of surface water by improving water conservation and irrigation efficiencies. Effective water conservation and efficiency actions are described within the Regional Water Management Plan and/or individual contractor's water conservation plan as required under the applicable SRSC contract. The SRSC also complies with the Water Conservation Act of 2009 (Senate Bill [SB] X7-7). For many of the smaller contractors a written water conservation plan is not required, and water conservation actions would be based on state and local policies governing such actions. While the SRSC already implements water conservation actions, the SRSC would further implement water conservation actions, such as sending notices to landowners and water users to conserve water during Agreement Years. Conservation activities could also include deficit irrigation. Specifically, Anderson Cottonwood Irrigation District (ACID) is proposing to implement deficit irrigation as its method to address contract supply reductions under Agreement Years. ACID is unique because its landowners' crops are primarily small pastures (5 to 7 acres in size) that are not suitable for fallowing, and it has limited groundwater wells. As a result, ACID proposes to operate and deliver its reduced SRSC contract supply during Agreement Years from April 15 through July 31, after which its canal system would be shut off and deliveries terminated. From that date on, pasture crops would be subject to deficit irrigation. Based on past experiences during Critical Years, ACID expects that its pasture crops would be severely stressed, with some not recovering and requiring subsequent replanting and investment. In 2022, ACID experienced effects to all crops, its main canal and distribution system, and localized ecosystems. ACID anticipates that similar effects could occur under the Agreement; however, those

effects would be less because approximately 50% of ACID's water would be delivered in these year types, whereas in 2022, no water was able to be delivered under the 18% supply. ACID intends to use funding provided under the Agreement to make investments in drought-resiliency projects, including to improve its main canal and distribution system, and consider other actions to extend the operation of the main canal, thus minimizing the duration and effect of deficit irrigation.

Section 2.5.2.8 New Groundwater or Deep Aquifer Well

To add to their water supply, some members of the SRSC would construct new groundwater wells as part of the proposed project. A maximum of 30 new wells are assumed to be constructed as part of the proposed project and would all comply with the minimum construction standards in California set under California Department of Water Resources (CDWR) Bulletin 74. CDWR Bulletin 74 sets the minimum standards for water, monitoring, cathodic protection, and geothermal heat exchange wells, with the purpose of protecting California's groundwater quality. Coordination with the local applicable Groundwater Sustainable Agency (GSA) would also occur to ensure that the well locations and related construction activities would not be inconsistent with the targets set by Groundwater Sustainability Plans (GSPs) under the Sustainable Groundwater Management Act (SGMA) and ~~Executive Order N-3-23, Paragraph 4~~ Executive Order N-3-24, Paragraph 6. […]

Section 2.5.2.9 Conjunctive Use Program

[…] To implement conjunctive use programs, new conveyance systems may be constructed, and the following steps would likely be undertaken:

[…]

- **Operations:** ~~No operational needs would be necessary as part of implementing conjunctive use programs.~~ Operational activities would consist of maintenance activities, including regular inspections, pump maintenance, removal of tumbleweeds and other debris, burning of dead weeds and grass, repairing damage from rodents, removal of trees/shrubs that have encroached, and cleaning out sediment build-up in pipelines or similar conveyance structures.

Section 2.6.2 ~~Alternative 1:~~ No Project Alternative

The No Project Alternative, which is required by CEQA, represents what would reasonably be expected to occur in the foreseeable future if the proposed project were not approved. Under the No Project Alternative, the Agreement between the SRSC and Reclamation would not be signed, and water would continue to be managed based on current contracts, agreements, and management plans. Neither additional reductions during specified drought years nor drought-resiliency projects to address potential water loss and strengthen the resilience of the SRSC's water system and long-term water delivery capabilities would be implemented. The ability of this alternative to meet the project

objectives and to avoid or substantially reduce significant environmental impacts as compared to the proposed project is provided in Section 6.

Section 2.6.3 Alternative 1~~2~~: No Groundwater Substitution Alternative

This alternative would involve accomplishing surface water use reductions through cropland idling, cropland shifting, and conservation activities, without groundwater substitution. Drought-resiliency projects would also be undertaken with this alternative. While more crop shifting could reduce water use, it is assumed most contractors would idle more cropland without access to the additional water provided by groundwater substitution. Crop shifting and conservation may result in additional reductions but these are too speculative to quantify. The ability of this alternative to meet the project objectives and to avoid or substantially reduce significant environmental impacts as compared to the proposed project is provided in Section 6.

Section 3 Environmental Impacts

Section 3.4.1.2.3 Wetlands

[…] Wetlands including marshes and riparian vegetation are found within preserves in the project area, including national wildlife refuges, wildlife management areas, and local wildlife preserves. Examples include large preserves encompassing thousands of acres of wetlands associated with the Natomas Basin Conservancy (approximately 54,000 acres) and Delevan and Colusa National Wildlife Refuges (5,757 acre and 4,507 acres, respectively) as well as smaller preserves like the Davis Wetlands (400 acres), among others. The Sacramento National Wildlife Refuge Complex (Sacramento, Delevan, Colusa, Sutter, and Sacramento River National Wildlife Refuges), representing approximately 36,000 acres, partially overlaps with the project area (specifically the Colusa and Sutter Wildlife Refuges) but is mostly adjacent to the project area. The Refuges and Conservation Easements were largely established to protect wetlands and associated habitats for migratory birds and threatened and endangered species. In addition, there are thousands of acres of privately owned wetlands within and adjacent to the project area, the majority of which are protected by U.S Fish and Wildlife Service (USFWS) and Natural Resource Conservation Service Conservation Easements. Additional preserves of varying types are found adjacent to the Sacramento River as well as to the east and west of the levees. A wide diversity of wetlands form a mosaic in preserve areas providing annual and perennial herbaceous vegetation as well as scrub-shrub to mature riparian trees that are important for both resident and migratory waterfowl in the Pacific Flyway.

Section 3.4.3.4.1 BIO-1

[…] **Groundwater Substitution Impacts.** […] Increased use of groundwater to irrigate crops instead of diverting water from the Sacramento River could potentially affect fish and amphibian habitats reliant on groundwater resources. In areas where creeks, streams, or other drainages are highly

influenced by groundwater infiltration, the interception of groundwater by the additional pumping of the aquifer could potentially reduce surface flows during and after pumping until the groundwater aquifer refills. Increased subsurface drawdown on groundwater that normally discharges to surface waters nearby would potentially affect fish and amphibian habitats, within riverine, riparian, seasonal wetland, and managed wetland habitats reliant on groundwater resources. However, these impacts would only occur locally and temporarily as the Agreement would only be in effect during Agreement Years, which are anticipated to be at a frequency of less than once every 10 years.

[…] **Mitigation Measures:** The following mitigation measures would be implemented to reduce the potential impacts to biological resources:

[…]

- **MM-BIO-7:** Obtain Incidental Take Authorization for Take of Listed Species from Drought-Resiliency Project Impacts
  - If species avoidance is not expected to be possible through implementation of MM-BIO-1, MM-BIO-3, MM-BIO-4, MM-BIO-5, or MM-BIO-6, USFWS and/or CDFW will be consulted to determine the appropriate approach for minimizing impacts to special status wildlife species and compensating for potential incidental take. Impacts will be compensated for through purchase of mitigation credits at an approved conservation bank and/or on or offsite restoration and enhancement. Incidental take authorization will be obtained for take of listed species resulting from construction of a drought-resiliency project.

[…]

- **MM-HYD-2:** Install and Operate Groundwater Wells in Accordance with Groundwater Sustainability Plans (GSPs) and the SGMA for All Groundwater Pumping Activities Undertaken Under the Agreement
  - The installation of any new groundwater wells and the operation of existing and new groundwater wells will be in accordance with targets and requirements set by applicable GSPs managed by Groundwater Sustainability Agencies in the project area, as well as the requirements set forth by SGMA, including the submittal of annual reports regardless of determination status following adoption of a GSP or alternative.

Residual Impact:

[…] Implementation of MM-HYD-2 would require all new groundwater well installation and all groundwater well operation to occur in accordance with targets and requirements set by applicable GSA-managed GSPs or where there are no GSPs, in accordance with SGMA. As the local authorities for sustainable groundwater management, complying with GSA and SGMA requirements would ensure that the appropriate siting, evaluation, and documentation steps are taken. Implementation of MM-HYD-2 would prevent the dewatering of surface waters from groundwater pumping, maintaining the minimum level of flow to avoid impacts to fish and amphibian habitats reliant on

groundwater resources. Aquifers that contribute to adjacent creeks would not be depleted by groundwater pumping to levels that would reduce water flows for aquatic organisms dependent upon riverine habitat. Impacts would be reduced to less than significant with mitigation.

Section 3.4.3.4.2 BIO-2

[…] Riparian vegetation associated with preserves depend on surface waters to inundate their habitats during the summer. Portions of national wildlife refuges and wildlife management areas occur within the project area and surface water delivery from SRSC members to these areas would be reduced during Agreement Years, which has the potential to affect riparian habitats that may be present within preserves. Reduced water allocation in a preserve after the end of seasonal rainfall in an Agreement Year could result in a less robust growth of riparian vegetation in the summer and fall. When rainfall occurs the following winter, riparian vegetation would resume a growth pattern matching rainfall quantity, which is consistent with how riparian areas evolve naturally under seasonal and annual variations in precipitation. It is assumed that preserve managers would comply with legal requirements, including for surface water, applicable to the site, which may involve pumping from their own groundwater wells or using other surface waters to augment water used to sustain riparian habitat areas. During Agreement Years, surface water diversion reduction-related activities within the project area would not alter water availability to National Wildlife Refuges and State Wildlife Areas because these areas are not served by the contracts implicated by this Agreement and are outside the scope of this analysis. Therefore, there would be no impacts to wetlands associated with refuges supplied by the Refuge Water Supply Program under the Central Valley Project Improvement Act. Crop shifting would not alter or affect riparian habitats in the project area.

[…] **Mitigation Measures:** The following mitigation measures would be implemented to reduce the potential impacts to biological resources:

[…]

- **MM-HYD-2:** Install and Operate Groundwater Wells in Accordance with GSPs and the SGMA for All Groundwater Pumping Activities Undertaken Under the Agreement

Residual Impact:

[…] Implementation of MM-HYD-2 would require all new groundwater well installation and all groundwater well operation to occur in accordance with targets and requirements set by applicable GSA-managed GSPs or where there are no GSPs, in accordance with SGMA. Complying with GSA and SGMA requirements would ensure that the appropriate siting, evaluation, and documentation steps are taken and that substantial loss of groundwater reliant riparian vegetation is avoided. Impacts would be reduced to less than significant with mitigation.

Section 3.4.3.4.3 BIO-3

[…] Wetland vegetation associated with preserves depend on surface waters to inundate their habitats during the summer. Portions of national wildlife refuges and wildlife management areas occur within the project area and surface water delivery from SRSC members to these areas would be reduced during Agreement Years, which has the potential to affect wetland habitats that may be present within preserves. Reduced water allocation in a preserve after the end of seasonal rainfall in an Agreement Year could result in a less robust growth of wetland vegetation in the summer and fall. When rainfall occurs the following winter, wetland vegetation would resume a growth pattern matching rainfall quantity, which is consistent with how wetlands evolve naturally under seasonal and annual variations in precipitation. It is assumed that preserve managers would comply with legal requirements, including for surface water, applicable to the site, which may involve pumping from their own groundwater wells or using other surface waters to augment water used to sustain wetland vegetation areas. During Agreement Years, surface water diversion reduction-related activities within the project area would not alter water availability to National Wildlife Refuges and State Wildlife Areas because these areas are not served by the contracts implicated by this Agreement and are outside the scope of this analysis. Therefore, there would be no impacts to wetlands associated with refuges supplied by the Refuge Water Supply Program under the Central Valley Project Improvement Act. Crop shifting would not alter or affect wetland habitats in the project area.

[…] **Mitigation Measures:** The following mitigation measures would be implemented to reduce the potential impacts to biological resources:

[…]

- **MM-HYD-2:** Install and Operate Groundwater Wells in Accordance with GSPs and the SGMA for All Groundwater Pumping Activities Undertaken Under the Agreement

Residual Impact:

[…] Implementation of MM-HYD-2 would require all new groundwater well installation and all groundwater well operation to occur in accordance with targets and requirements set by applicable GSA-managed GSPs or where there are no GSPs, in accordance with SGMA. Complying with GSA and SGMA requirements would ensure that the appropriate siting, evaluation, and documentation steps are taken and significant impacts to groundwater-dependent wetlands and waters are avoided. Impacts would be reduced to less than significant with mitigation.

Section 3.4.3.4.5 BIO-5

[…] **Mitigation Measures:** The following mitigation measures would be implemented to reduce the potential impacts to biological resources:

[…]

- **MM-HYD-2:** Install and Operate Groundwater Wells in Accordance with GSPs and SGMA for All Groundwater Pumping Activities Undertaken Under the Agreement

Residual Impact:

[…] Implementation of MM-HYD-2 would require all new groundwater well installation and all groundwater well operation to occur in accordance with targets and requirements set by applicable GSA-managed GSPs or where there are no GSPs, in accordance with SGMA. Complying with GSA and SGMA requirements would ensure that the appropriate siting, evaluation, and documentation steps are taken. With mitigation, groundwater substitution would present no conflict with local policies or ordinances protecting biological resources.

Section 3.4.2.4.6 BIO-6

[…] The Yolo Habitat Conservation Plan/Natural Communities Conservation Plan (Yolo NCCP/HCP) was adopted in April 2018 as a comprehensive, countywide plan to provide for the conservation of 12 sensitive species and the natural communities and agricultural land on which they depend, as well as a streamlined permitting process to address the effects of a range of future anticipated activities on them. The Yolo HCP/NCCP will improve habitat conservation efforts in Yolo County; encourage sustainable economic activity; and maintain and enhance agricultural production.

The Central Valley Joint Venture 2020 Implementation Plan (CVJVIP) is a strategic conservation plan focused on protecting and enhancing bird habitat in California's Central Valley. The CVJVIP is intended to be useful to policy makers, regulators, agencies, conservation organizations, and landowners working to further bird habitat conservation efforts in the Central Valley. It builds on earlier plans to address habitat loss and population declines among waterfowl, shorebirds, and other bird species. The CVJVIP outlines objectives to support bird populations across a range of habitats, including wetlands, grasslands, riparian areas, and agricultural lands. The CVJVIP establishes short-term habitat and population objectives to guide conservation efforts over a 10-year period and also sets long-term (100-year) objectives that represent the ultimate conditions necessary to sustain bird populations.

[…] **Mitigation Measures:** The following mitigation measures would be implemented to reduce the potential impacts to biological resources:

[…]

- **MM-HYD-2:** Install and Operate Groundwater Wells in Accordance with GSPs and the SGMA for All Groundwater Pumping Activities Undertaken Under the Agreement

Residual Impact:

[…] Implementation of MM-HYD-2 would require all new groundwater well installation and all groundwater well operation to occur in accordance with targets and requirements set by applicable GSA-managed GSPs or where there are no GSPs, in accordance with SGMA. Complying with GSA and SGMA requirements would ensure that the appropriate siting, evaluation, and documentation steps are taken. With mitigation, groundwater substitution would present no conflict with the provisions of HCPs/NCCPs/the CVJVIP.

Section 3.6.3.4.1 ENE-1

The potential for increased energy impacts due to water reduction activities would largely stem from groundwater substitution. Energy intensity for water delivery in the Sacramento River geologic region has been roughly quantified by the California Public Utilities Commission for surface water and groundwater (CPUC 2010). Groundwater energy intensity was estimated at about 177 kilowatt hours per acre-foot.[13] Assuming the anticipated groundwater pumping volumes shown in Section 2.5, groundwater pumping would require 29,500 MWh annually during Phase 1 Agreement Years and 5,900 MWh annually during Phase 2 Agreement Years, which, represents about 0.1% or less of the total electricity consumption in the project area and would be offset somewhat by the disuse of surface water pumping stations during these years.

Section 3.7.1.8 Subsidence and Settlement

Subsidence involves a sudden sinking or gradual settling and compaction of soil and other surface material with little or no horizontal motion. Land surface subsidence can result from both natural and artificial phenomena, including tectonic deformation, consolidation, hydrocompaction, collapse of underground cavities, oxidation of organic-rich soils, rapid sedimentation, and the withdrawal of groundwater. Expansive soils and materials are more susceptible to subsidence, including estuarine sediments, organic detritus, or thick organic deposits. Settlement occurs when ground shaking reduces the amount of pressure existing between soil particles, resulting in a reduction of the volume of the soil. Areas are susceptible to differential settlement if they are underlain by compressible sediments, such as poorly engineered artificial fill. Differential settlement can damage structures, pipelines, and other subsurface entities. Earthquakes and seismic activity can accelerate and accentuate settlement. The project area is mapped as containing soils susceptible to expansion or subsidence. Although soils susceptible to expansion and subsidence exist within the project area, based on a 2018 CDWR study on subsidence (CDWR 2018) completed from 2008 to 2018, only 2 of the 73 stations sampled within the project area showed subsidence of over 1 foot. All other sampled stations showed subsidence of less than 1 foot over the period of the survey. The majority of the

[13] The value of 177 kilowatt hours per acre-foot was selected because it is the most recent value provided for the Sacramento River Region in Table G-1 and therefore was the most appropriate to use.

SRSC service area does not experience significant subsidence due to sufficient recharging of the groundwater system from surface water use and diversions.

Section 3.7.3.4.3 GEO-3

The soils mapped as occurring within the project area include soils susceptible to expansion or subsidence. However, as discussed in Section 3.7.1.8, the majority of the SRSC service area does not experience significant subsidence due to sufficient recharging of the groundwater system from surface water use and diversions. In addition, to result in significant subsidence impacts, groundwater depletion would typically need to be sustained over multiple years. Water reductions under the Agreement are only expected to be in effect on average once per decade (if at all) during each phase, limiting the potential for groundwater to be depleted over a sustained period of time. The project area is not located in an area considered subject to lateral spreading or landslides. During construction of drought-resiliency projects, adherence to Occupational Safety and Health Administration (OSHA) excavation safety guidelines would minimize the potential for worker injury associated with unstable soils. The proposed project would not increase the potential for slope failures or landslides, and risk from lateral spreading is minimal due to the project area's flat topography. No changes to the existing geology and soils at the site and immediate adjacent areas would occur from implementing proposed project elements.

[…] **Mitigation Measures:** While impacts would be less than significant and mitigation is not required, implementation of the following mitigation measures would further reduce the potential for impacts:

[…]

- **MM-HYD-2:** Install and Operate Groundwater Wells in Accordance with GSPs and the SGMA for All Groundwater Pumping Activities Undertaken Under the Agreement

Residual Impact: Implementation of MM-GEO-1 would include as-needed adherence to geotechnical recommendations, which would reduce the potential for impacts related to geologic unit or soils instability, including seismic liquefaction and ground shaking. Implementation of MM-GEO-3 would ensure that drought-resiliency projects would be constructed or installed in adherence with applicable seismic standards, which would reduce the potential for slope failure or landslides. Implementation of MM-HYD-2 would further reduce potential for over pumping of groundwater that would trigger subsidence. Impacts related to seismic liquefaction and ground shaking would remain less than significant.

Section 3.7.3.4.4 GEO-4

The project area has significant portions that are designated as having expansive soils, with 288 square miles having a very high linear extensibility percentage and 570 square miles having a high linear extensibility percentage. Expansive soils can cause stress on loads placed on the soils. As

noted above, the majority of the SRSC service area does not experience subsidence due to sufficient recharging of the groundwater system from surface water use and diversions (CDWR 2018).

Because there is limited potential for subsidence in the project area and the proposed activities implemented in response to water reductions would not involve any construction, these activities that happen to be located on expansive soils would not create substantial direct or indirect risk to life or property. The proposed drought-resiliency projects include construction of small structures such as weirs or check structures that could potentially be located on expansive soil, and therefore be impacted by settlement or subsidence, cracking, or lift once constructed. If these projects are sited near property or residences, impacts from settlement or subsidence, cracking, or lift could result in risks to property or life. Additionally, grading activities on expansive soils, if sited near property or residences, could create substantial risks to property or life because expansive soils have the potential to undergo changes with movement of earth and changes in moisture content, which could cause soil swelling. […]

Section 3.10.1.2 Hydrology

[…] Beyond the Lower Sacramento River, there are many riverine habitats such as natural channels and relocated channels that convey water from watersheds to downstream receiving bodies. Local watersheds within the project area are summarized in Table 16.

Table 16
Summary of Hydrologic Unit Codes Within the Project Area

Name	HUC-8	Area (mi^2)
Big Chico Creek-Sacramento River	18020157	952
Butte Creek	18020158	820
Clear Creek-Sacramento River	18020154	686
Cottonwood Creek	18020152	945
Honcut Headwaters-Lower Feather	18020159	774
Lower American	18020111	294
Lower Sacramento	18020163	1229
Paynes Creek-Sacramento River	18020155	424
Sacramento-Stone Corral	18020104	1884
Thomes Creek-Sacramento River	18020156	1010
Upper Cache	18020116	1162
Upper Coon-Upper Auburn	18020161	434
Upper Putah	18020162	657
Upper Stony	18020115	777
Upper Tule	18030006	945

[…] CDWR monitors a robust network (3,590 total) of groundwater monitoring wells throughout the State, with 117 of these wells located within the project area. Among monitoring wells within the project area, almost 55% (64 total) have been designated as having a "decreasing"[14] trend in water level for the last 20 years (1998 through 2018) of data collection. Approximately 44% (51 total) of the wells within the project area demonstrated a neutral trend and approximately 2% (2 total) of the wells within the project area have been designated as having an "increasing" trend in water level for the last 20 years of data collection (CDWR 2021). Table A details the existing conditions of each groundwater subbasin within the project area.

Table A
Existing Conditions of CDWR Bulletin 118 Groundwater Subbasins within the Project Area

Groundwater Basin Name	Groundwater Basin Description	GSP	Groundwater Conditions
Redding Area – Anderson	The Redding Area – Anderson groundwater basin covers approximately 154.2 square miles and is bounded by the Klamath Mountains to the west and northwest, the Sacramento River to the east, and Cottonwood Creek to the south. The basin receives annual precipitation ranging from 27 to 41 inches, increasing towards the north and west (CDWR 2004a). The entire Redding Basin has an estimated storage capacity of 5.5 million acre-feet (CDWR 2004a).	Enterprise-Anderson GSP	When reviewing the seasonal change in groundwater levels from Spring 2024 in the Redding Area – Anderson subbasin, over a 1-year period, approximately 3% of wells have experienced a decrease in groundwater levels, approximately 87% of wells have experienced no significant change in groundwater levels, and approximately 10% of wells have experienced an increase in groundwater levels; over a 3-year period, approximately 4% of wells have experienced a decrease in groundwater levels, approximately 91% of wells have experienced no significant change in groundwater levels, and approximately 4% of wells have experienced an increase in groundwater levels (CDWR 2024d).
Redding Area – Bowman	The Redding Area – Bowman groundwater basin, located in California's Sacramento River hydrologic region, spans approximately 191.5 square miles. The basin receives annual precipitation ranging from 23 to 27 inches (CDWR 2004b). The storage capacity for the entire	Bowman Subbasin GSP	When reviewing the seasonal change in groundwater levels from spring 2024 in the Redding Area – Bowman subbasin, over a 1-year period, approximately 93% of wells have experienced no significant change in groundwater levels, and 7% of wells have experienced an increase in groundwater levels; over a 3-year period, approximately 7% of wells have experienced a decrease in groundwater levels, approximately 86% of wells have

[14] Decreasing trends are defined as having a statistically significant trend (using the Mann-Kendall non-parametric test) and a negative slope (using the Theil-Sen method). In other words, any decreasing trends are captured in these statistics, unless trends are not statistically significant, which could be caused by outlier data, changing trends (shifting between increasing and decreasing trends), or other factors.

Groundwater Basin Name	Groundwater Basin Description	GSP	Groundwater Conditions
	Redding Basin is estimated at 5.5 million acre-feet (CDWR 2004b).		experienced no significant change in groundwater levels, and approximately 7% of wells have experienced an increase in groundwater levels (CDWR 2024d).
Redding Area – Enterprise	The Redding Area – Enterprise groundwater basin covers approximately 95.8 square miles. The basin receives annual precipitation ranging from 29 to 41 inches, increasing towards the north (CDWR 2004c). The storage capacity for the entire Redding Basin is estimated at 5.5 million acre-feet (CDWR 2004c).	Enterprise-Anderson GSP	When reviewing the seasonal change in groundwater levels from spring 2024 in the Redding Area – Enterprise subbasin, over a 1-year period, approximately 46% of wells have experienced no significant change in groundwater levels, and 54% of wells have experienced an increase in groundwater levels; over a 3-year period, approximately 60% of wells have experienced no significant change in groundwater levels, and approximately 40% of wells have experienced an increase in groundwater levels (CDWR 2024d).
Sacramento Valley – Antelope	The Sacramento Valley – Antelope groundwater basin is located in California's Sacramento River hydrologic region and covers approximately 29.8 square miles. The basin receives annual precipitation ranging from 23 to 27 inches, increasing towards the east (CDWR 2004d). The storage capacity is estimated at approximately 269,179 acre-feet (CDWR 2004d).	Antelope Subbasin GSP	When reviewing the seasonal change in groundwater levels from spring 2024 in the Sacramento Valley – Antelope subbasin, over a 1-year period, approximately 100% of wells have experienced no significant change in groundwater levels; over a 3-year period, approximately 40% of wells have experienced no significant change in groundwater levels, and approximately 60% of wells have experienced an increase in groundwater levels (CDWR 2024d).
Sacramento Valley – Butte	The Sacramento Valley – Butte groundwater basin covers an area of approximately 416.5 square miles. The basin is bordered by Butte Creek to the west and northwest, the Cascade Ranges to the northeast, the Feather River to the southeast, and the Sutter Buttes to the south. Annual precipitation is approximately 18 inches in the valley, increasing to 27 inches towards the eastern foothills (CDWR 2004e). The estimated storage capacity to a depth of 200 feet is approximately 3,128,959 acre-feet (CDWR 2004e).	Butte Subbasin GSP	When reviewing the seasonal change in groundwater levels from spring 2024 in the Sacramento Valley – Butte subbasin, over a 1-year period, approximately 97% of wells have experienced no significant change in groundwater levels, and approximately 3% of wells have experienced an increase in groundwater levels; over a 3-year period, approximately 1% of wells have experienced a decrease in groundwater levels, approximately 63% of wells have experienced no significant change in groundwater levels, and approximately 36% of wells have experienced an increase in groundwater levels (CDWR 2024d).

Groundwater Basin Name	Groundwater Basin Description	GSP	Groundwater Conditions
Sacramento Valley – Colusa	The Sacramento Valley – Colusa groundwater basin is a significant subbasin within California's Sacramento River hydrologic region covering 1,129.4 square miles. The basin is bounded by the Sacramento River to the east, the Coast Range and foothills to the west, Cache Creek to the south, and Stony Creek to the north. Annual precipitation ranges from 17 to 27 inches, with higher amounts occurring in the western parts of the basin (CDWR 2004f). The estimated storage capacity to a depth of 200 feet is approximately 13,025,887 acre-feet (CDWR 2004f).	Colusa Subbasin GSP	When reviewing the seasonal change in groundwater levels from spring 2024 in the Sacramento Valley – Colusa subbasin, over a 1-year period, approximately 2% of wells have experienced a decrease in groundwater levels, approximately 51% of wells have experienced no significant change in groundwater levels, and approximately 47% of wells have experienced an increase in groundwater levels; over a 3-year period, approximately 14% of wells have experienced a decrease in groundwater levels, approximately 43% of wells have experienced no significant change in groundwater levels, and approximately 43% of wells have experienced an increase in groundwater levels (CDWR 2024d).
Sacramento Valley – Corning	The Sacramento Valley – Corning groundwater basin covers 324 square miles. The basin is bounded by the Coast Ranges to the west, Thomes Creek to the north, the Sacramento River to the east, and Stony Creek to the south. Annual precipitation ranges from 19 to 25 inches, increasing to the north (CDWR 2004g). The estimated storage capacity to a depth of 200 feet is approximately 2,752,950 acre-feet (CDWR 2004g).	Corning Subbasin GSP	When reviewing the seasonal change in groundwater levels from spring 2024 in the Sacramento Valley – Corning subbasin, over a 1-year period, approximately 4% of wells have experienced a decrease in groundwater levels, approximately 32% of wells have experienced no significant change in groundwater levels, and approximately 64% of wells have experienced an increase in groundwater levels; over a 3-year period, approximately 10% of wells have experienced a decrease in groundwater levels, approximately 34% of wells have experienced no significant change in groundwater levels, and approximately 56% of wells have experienced an increase in groundwater levels (CDWR 2024d).
Sacramento Valley – North American	The Sacramento Valley – North American groundwater basin is a significant subbasin within California's Sacramento River hydrologic region covering 534.8 square miles. The basin is bounded by the Bear River to the north, the Feather River to the west, the Sacramento River to the south, and a north-south line	North American Subbasin GSP	When reviewing the seasonal change in groundwater levels from spring 2024 in the Sacramento Valley – North American subbasin, over a 1-year period, approximately 7% of wells have experienced a decrease in groundwater levels, approximately 80% of wells have experienced no significant change in groundwater levels, and approximately 47% of wells have experienced an

Groundwater Basin Name	Groundwater Basin Description	GSP	Groundwater Conditions
	extending from the Bear River south to Folsom Lake to the east. Annual precipitation ranges from 18 to 24 inches, with higher amounts in the eastern part of the basin (CDWR 2004h). Storage capacity of this groundwater basin is estimated at 4,900,000 acre-feet (CDWR 2004h).		increase in groundwater levels; over a 3-year period, approximately 5% of wells have experienced a decrease in groundwater levels, approximately 75% of wells have experienced no significant change in groundwater levels, and approximately 20% of wells have experienced an increase in groundwater levels (CDWR 2024d).
Sacramento Valley – Solano	The Sacramento Valley – Solano basin is located in the southwestern portion of the Sacramento Valley and the northern part of the Sacramento-San Joaquin Delta. The Sacramento Valley – Solano basin covers 554.2 square miles. Annual precipitation averages in the basin range from approximately 23 inches in the western portion of the subbasin to 16 inches in the eastern portion of the basin (CDWR 2004i).[15]	Solano Subbasin GSP	When reviewing the seasonal change in groundwater levels from spring 2024 in the Sacramento Valley – Solano subbasin, over a 1-year period, approximately 2% of wells have experienced a decrease in groundwater levels, approximately 84% of wells have experienced no significant change in groundwater levels, and approximately 14% of wells have experienced an increase in groundwater levels; over a 3-year period, approximately 13% of wells have experienced a decrease in groundwater levels, approximately 62% of wells have experienced no significant change in groundwater levels, and approximately 25% of wells have experienced an increase in groundwater levels (CDWR 2024d).
Sacramento Valley – Sutter	The Sacramento Valley – Sutter basin is bounded by the confluence of Butte Creek and the Sacramento River and Sutter Buttes to the north, the Sacramento River to the west, the confluence of the Sacramento River and the Sutter Bypass to the south, and the Feather River to the east. The Sacramento Valley – Sutter basin covers 446.6 square miles (CDWR 2004j). The average precipitation within this subbasin ranges from 17 to 21 inches (CDWR 2004j).[16]	Sutter Subbasin GSP	When reviewing the seasonal change in groundwater levels from spring 2024 in the Sacramento Valley – Sutter subbasin, over a 1-year period, approximately 97% of wells have experienced no significant change in groundwater levels, and approximately 3% of wells have experienced an increase in groundwater levels; over a 3-year period, approximately 85% of wells have experienced no significant change in groundwater levels, and approximately 15% of wells have experienced an increase in groundwater levels (CDWR 2024d).

[15] There is no groundwater storage calculation for the Solano basin (CDWR 2004i).

[16] There is no groundwater storage calculation for the Sutter basin; however, "DWR's 1992 California Water Plan estimated a useable storage potential of five million-acre feet for Sutter County" (CDWR 2004j).

Groundwater Basin Name	Groundwater Basin Description	GSP	Groundwater Conditions
Sacramento Valley – Vina	The Sacramento Valley – Vina basin is bounded by the Sacramento River to the west, Deer Creek to the north, the Chico Monocline to the east, and Big Chico Creek to the south. The Sacramento Valley – Vina basin covers 288.9 square miles. Annual precipitation within the subbasin ranges from 18 to 22.5 inches, increasing to the east (CDWR 2004k). The estimated storage capacity to a depth of 200 feet is approximately 1,468,239 acre-feet (CDWR 2004k).	Vina Subbasin GSP	When reviewing the seasonal change in groundwater levels from spring 2024 in the Sacramento Valley – Vina subbasin, over a 1-year period, approximately 2% of wells have experienced a decrease in groundwater levels, approximately 64% of wells have experienced no significant change in groundwater levels, and approximately 34% of wells have experienced an increase in groundwater levels; over a 3-year period, approximately 61% of wells have experienced no significant change in groundwater levels, and approximately 39% of wells have experienced an increase in groundwater levels (CDWR 2024d).
Sacramento Valley – Yolo	The Sacramento Valley – Yolo groundwater basin is a significant subbasin within California's Sacramento River hydrologic region. The basin is located primarily within Yolo County, bounded by the Sacramento River to the east, the Coast Range to the west, Cache Creek to the north, and Putah Creek to the south. The Sacramento Valley – Yolo basin covers 844.8 square miles. Precipitation averages range from approximately 20 to 24 inches per year in the western portion of the subbasin and from approximately 18 to 20 inches per year in the eastern portion of the subbasin (CDWR 2004l). The total storage capacity of the Sacramento Valley – Yolo basin is estimated at 6,455,940 acre-feet (CDWR 2004l).	Yolo Subbasin GSP	When reviewing the seasonal change in groundwater levels from spring 2024 in the Sacramento Valley – Yolo subbasin, over a 1-year period, approximately 3% of wells have experienced a decrease in groundwater levels, approximately 49% of wells have experienced no significant change in groundwater levels, and approximately 48% of wells have experienced an increase in groundwater levels; over a 3-year period, approximately 8% of wells have experienced a decrease in groundwater levels, approximately 43% of wells have experienced no significant change in groundwater levels, and approximately 48% of wells have experienced an increase in groundwater levels (CDWR 2024d).

Table B details the groundwater basins occurring within each SRSC.

Table B
Groundwater Subbasins within Each SRSC

SRSC	Subbasin
Anderson-Cottonwood Irrigation District	Redding Area – Anderson; Redding Area – Bowman; Redding Area – Enterprise
City of Redding	Redding Area – Anderson; Redding Area – Enterprise
Conaway Preservation Group, LLC	Sacramento Valley – Yolo
Glenn-Colusa Irrigation District	Sacramento Valley – Corning; Sacramento Valley – Butte; Sacramento Valley – Colusa
M&T Chico Ranch, Inc	Sacramento Valley – Butte; Sacramento Valley – Corning; Sacramento Valley – Vina; Sacramento Valley – Colusa
Maxwell Irrigation District	Sacramento Valley – Colusa
Meridian Farms Water Company	Sacramento Valley – Sutter
Natomas Central Mutual Water Company	Sacramento Valley – North American; Sacramento Valley – Yolo
Pelger Road 1700	Sacramento Valley – Sutter
Pleasant Grove Verona Mutual Water Company	Sacramento Valley – North American
Princeton-Codora-Glenn Irrigation District	Sacramento Valley – Colusa
Provident Irrigation District	Sacramento Valley – Colusa
Reclamation District No. 1004	Sacramento Valley – Butte; Sacramento Valley – Colusa; Sacramento Valley – Sutter
Reclamation District No. 108	Sacramento Valley – Colusa; Sacramento Valley – Yolo
RRG Garden Properties, LLC	Sacramento Valley – Yolo; Sacramento Valley – Sutter
Sutter Mutual Water Company	Sacramento Valley – Sutter
Sycamore Family Trust	Sacramento Valley – Colusa
Woodland-Davis	Sacramento Valley – Solano; Sacramento Valley – Yolo
Other	Redding Area – Bowman; Redding Area – Enterprise; Sacramento Valley – Antelope; Sacramento Valley – Butte; Sacramento Valley – Colusa; Sacramento Valley – Corning; Sacramento Valley – North American; Sacramento Valley – Sutter; Sacramento Valley – Yolo

Source: CDWR 2021

Since the 2000s, the project area has periodically been subjected to drought conditions of variable severity. Utilizing data specific to the Lower Sacramento River Hydrologic Unit Code (180201) from the U.S. Drought Monitor's website, average drought conditions were analyzed. Since 2012, only 3 years have not been categorized as falling within drought monitoring categories, with 5 out of 13 years not falling as "severe drought," "extreme drought," and "exceptional drought" conditions. In recent years, from 2021 to 2022, average drought conditions within the Lower Sacramento River HUC were mostly categorized as "severe drought," "extreme drought," and "exceptional drought" conditions. These drought conditions have not only affected surface water quantity, but also

groundwater recharge. While recent droughts, ending in 2023, have caused the driest hydrologic period on record in portions of the project area, causing impacts to hydrology, water deliveries, and agricultural operations, 2023 and 2024 were more wet, included full water supply and reservoir storage recovery, and generally have seen recovery of these impacts.

Sustainable yield in the context of a GSP refers to the maximum quantity of water that can be withdrawn annually from a groundwater supply without causing undesirable results, such as significant depletion of the aquifer, land subsidence, or degradation of water quality. Water use data from the CDWR SGMA Portal for water year 2023 was compared against the sustainable yield for each GSP. For water year 2023, groundwater extraction for 9 of the 12 GSPs was at or below the GSP sustainable yield. In water year 2023, groundwater extraction in the Sacramento Valley – Colusa, Sacramento Valley – Corning, and Sacramento Valley – Vina GSPs surpassed their respective GSP sustainable yields, signaling overdraft conditions for that year within these three GSPs. The water use data for each subbasin GSP within the project area are detailed in Table C.

Table C
Subbasin GSP Water Use for Water Year 2023

Groundwater Basin Name	GSP	Groundwater Extraction (acre-feet)	Surface Water Use	Overdraft	GSP Sustainable Yield (acre-feet per year)
Redding Area – Anderson	Enterprise-Anderson	17,979 (Jacobs 2024a)	81,504 (Jacobs 2024a)	No	89,000 (Jacobs 2024a)
Redding Area – Bowman	Bowman Subbasin	5,000 (Luhdorff and Scalmanini Consulting Engineers and Davids Engineering 2024a)	10,000 (Luhdorff and Scalmanini Consulting Engineers and Davids Engineering 2024a)	No	10,000 (Luhdorff and Scalmanini Consulting Engineers and Davids Engineering 2024a)
Redding Area – Enterprise	Enterprise-Anderson	13,581 (Jacobs 2024b)	37,423 (Jacobs 2024b)	No	75,000 (Jacobs 2024b)
Sacramento Valley – Antelope	Antelope Subbasin	18,000 (Luhdorff and Scalmanini Consulting Engineers and Davids Engineering 2024b)	9,000 (Luhdorff and Scalmanini Consulting Engineers and Davids Engineering 2024b)	No	18,000 (Luhdorff and Scalmanini Consulting Engineers and Davids Engineering 2024b)
Sacramento Valley – Butte	Butte Subbasin	128,900 (Luhdorff and Scalmanini Consulting Engineers, Davids Engineering, and Butte County 2024a)	786,500 (Luhdorff and Scalmanini Consulting Engineers, Davids Engineering, and Butte County 2024a)	No	208,500 (Luhdorff and Scalmanini Consulting Engineers, Davids Engineering, and Butte County 2024a)

Groundwater Basin Name	GSP	Groundwater Extraction (acre-feet)	Surface Water Use	Overdraft	GSP Sustainable Yield (acre-feet per year)
Sacramento Valley – Colusa	Colusa Subbasin	577,400 (Luhdorff and Scalmanini Consulting Engineers and Davids Engineering 2024c)	1,343,100 (Luhdorff and Scalmanini Consulting Engineers and Davids Engineering 2024c)	Yes	390,000 (Luhdorff and Scalmanini Consulting Engineers and Davids Engineering 2024c)
Sacramento Valley – Corning	Corning Subbasin	175,000 (Luhdorff and Scalmanini Consulting Engineers and Davids Engineering 2024d)	24,000 (Luhdorff and Scalmanini Consulting Engineers and Davids Engineering 2024d)	Yes	171,800 (Luhdorff and Scalmanini Consulting Engineers and Davids Engineering 2024d)
Sacramento Valley – North American	North American Subbasin	241,300 (GEI Consultants 2024)	325,600 (GEI Consultants 2024)	No	336,000 (GEI Consultants 2024)
Sacramento Valley – Solano	Solano Subbasin	148,230 (Luhdorff and Scalmanini Consulting Engineers 2024)	489,000 (Luhdorff and Scalmanini Consulting Engineers 2024)	No	190,000 (Luhdorff and Scalmanini Consulting Engineers 2024)
Sacramento Valley – Sutter	Sutter Subbasin	124,800 (Woodard and Curran 2024)	547,500 (Woodard and Curran 2024)	No	182,000 (Woodard and Curran 2024)
Sacramento Valley – Vina	Vina Subbasin	242,000 (Luhdorff and Scalmanini Consulting Engineers, Davids Engineering, and Butte County 2024b)	27,200 (Luhdorff and Scalmanini Consulting Engineers, Davids Engineering, and Butte County 2024b)	Yes	233,500 (Luhdorff and Scalmanini Consulting Engineers, Davids Engineering, and Butte County 2024b)
Sacramento Valley – Yolo	Yolo Subbasin	243,100 (Yolo Subbasin Groundwater Agency, Stockholm Environment Institute, and Leafbird Consulting 2024)	502,000 (Yolo Subbasin Groundwater Agency, Stockholm Environment Institute, and Leafbird Consulting 2024)	No	346,000 (Yolo Subbasin Groundwater Agency, Stockholm Environment Institute, and Leafbird Consulting 2024)

Section 3.10.2.1.1 Clean Water Act

[…] Important applicable sections of the CWA are as follows:

- […] Section 404 establishes a permit program for the discharge of dredge or fill material into waters of the United States and the no net wetlands loss policy, which requires at a basic level that for every acre of wetland lost, at least one functionally equivalent acre of wetland must be restored. This permit program is administered by USACE.

Section 3.10.2.2.3 Sustainable Groundwater Management Act

Enacted in 2014, the SGMA established a new structure for local and regional-level management of California's groundwater resources. The SGMA's intent was to recognize and preserve the ability for cities and counties to manage groundwater according to their existing authority. SGMA required the formation of GSAs from local and regional authorities in California's high- and medium-priority basins and subbasins. GSAs have 5 years from the date of reprioritization to be managed under GSPs. Relative to GSA formation, SGMA assigns different roles to CDWR, the State Water Resources Control Board, local agencies, and counties. SGMA defines sustainable groundwater management as the management and use of groundwater in a manner that can be maintained during the planning and implementation horizon without causing undesirable results. SGMA defines undesirable results as:

> "One or more of the following effects caused by groundwater conditions occurring throughout the basin:
>
> 1. Chronic lowering of groundwater levels indicating a significant and unreasonable depletion of supply if continued over the planning and implementation horizon. Overdraft during a period of drought is not sufficient to establish a chronic lowering of groundwater levels if extractions and groundwater recharge are managed as necessary to ensure that reductions in groundwater levels or storage during a period of drought are offset by increases in groundwater levels or storage during other periods.
> 2. Significant and unreasonable reduction of groundwater storage.
> 3. Significant and unreasonable seawater intrusion.
> 4. Significant and unreasonable degraded water quality, including the migration of contaminant plumes that impair water supplies.
> 5. Significant and unreasonable land subsidence that substantially interferes with surface land uses.
> 6. Depletion of interconnected surface water that have significant and unreasonable adverse impacts on beneficial uses of the surface water."

Section 3.10.2.2.4 Executive Order W-59-93 (California's No Net Loss Policy)

Executive Order W-59-93 established the California Wetlands Conservation Policy, commonly known as the "no net loss" policy for wetlands. The policy's key goals include no overall net loss of wetlands in terms of quantity, quality, and function; promoting wetlands restoration and enhancement to achieve a net gain; encouraging collaborative approaches between government agencies, private landowners, and conservation groups; and reducing conflicts and delays in wetlands permitting processes.

Section 3.10.3.4.1 HYD-1

[…] **Mitigation Measures:** To reduce potential impacts, the following mitigation measures would be implemented:

[…]

- **MM-HYD-2:** Install and Operate Groundwater Wells in Accordance with GSPs and the SGMA for All Groundwater Pumping Activities Undertaken Under the Agreement

Residual Impact: Implementation of MM-HYD-1 would include erosion and spill control measures, which would reduce the significance of erosion impacts and potential impacts from accidental spills. Implementation of MM-HYD-2 would require all new groundwater well installation and all groundwater well operation to occur in accordance with targets and requirements set by applicable GSA-managed GSPs or where there are no GSPs, in accordance with SGMA. Complying with GSA and SGMA requirements would ensure that the appropriate siting, evaluation, and documentation steps are taken. Impacts to surface and groundwater water quality would be reduced to less than significant with mitigation.

Section 3.10.3.4.2 HYD-2

[…] Increased groundwater pumping ~~may~~ has the potential to lead to land subsidence caused by water level declines. The project area is mapped as containing soils susceptible to expansion, which is an indicator that they may be susceptible to ~~or~~ subsidence. However, based on a 2018 CDWR study, only 2 of the 73 stations sampled within the project area showed subsidence of over 1 foot (CDWR 2018). All other sampled stations showed subsidence of less than 1 foot over the period of the survey, from 2008 to 2017. The majority of the SRSC service area does not experience significant subsidence due to sufficient recharging of the groundwater system from surface water use and diversions. ~~Therefore, there could be land subsidence as a result of groundwater substitution activities in the project area~~. Further, to result in significant subsidence impacts, groundwater depletion would need to be sustained over multiple years. The Agreement is only expected to be in effect once per decade during each phase, limiting the potential for groundwater to be depleted over a sustained period of time. Therefore, because the project area does not experience significant subsidence and because of the limited occurrence of Agreement Years, the impacts of the proposed project's groundwater pumping on subsidence would be less than significant.

[…] **Mitigation Measures:** To reduce potential impacts, the following mitigation measures would be implemented:

[…]

- **MM-HYD-2:** Install and Operate Groundwater Wells in Accordance with GSPs and the SGMA for All Groundwater Pumping Activities Undertaken Under the Agreement

Residual Impact: Implementation of MM-HYD-2 would require all new groundwater well installation and all groundwater well operation to occur in accordance with targets and requirements set by applicable GSA-managed GSPs, or where there are no GSPs, in accordance with SGMA. Complying with GSA and SGMA requirements would ensure that the appropriate siting, evaluation, and documentation steps are taken. Additionally, implementation of MM-HYD-2 would ensure that no land subsidence occurs as a result of groundwater substitution activities in the project area. Impacts would be reduced to less than significant with mitigation.

Section 3.10.3.4.5 HYD-5

[…]

[…] **Mitigation Measures:** The following mitigation measures would be implemented to reduce potential impacts:

[…]

- **MM-HYD-2:** Install and Operate Groundwater Wells in Accordance with GSPs and the SGMA for All Groundwater Pumping Activities Undertaken Under the Agreement

Residual Impact: Implementation of MM-HYD-1 would include erosion control measures, which would reduce the significance of erosion impacts and any potential conflict with a water quality control plan. Implementation of MM-HYD-2 would require all new groundwater well installation and all groundwater well operation to occur in accordance with targets and requirements set by applicable GSA-managed GSPs or where there are no GSPs, in accordance with SGMA. Complying with GSA and SGMA requirements would ensure that the appropriate siting, evaluation, and documentation steps are taken. The potential for conflict or obstruction with implementation of a water quality control plan or sustainable groundwater management plan would be reduced to less than significant with mitigation.

3.3 Section 4 Cumulative Impacts

Section 4.2.2.10.1 Cumulative Impact Analysis

The proposed project presents the potential for both positive and negative impacts to surface and groundwater quality as a result of water reduction activities and construction and operation of the drought-resiliency projects. Potentially significant impacts include possible impacts due to erosion following cropland idling or during construction of the drought-resiliency projects, as well as release of hazardous substances during construction of the drought-resiliency projects. Implementation of mitigation measure MM-HYD-1, requiring development of an erosion control and spill prevention plan, would reduce erosion impacts such that impacts to surface water and groundwater quality would be less than significant. The proposed project could cause both additional decreases to

groundwater supplies and reduce seepage that helps recharge groundwater and increase the potential for land subsidence. To reduce this potentially significant impact to less than significant, mitigation measure MM-HYD-2, requiring installing and operating groundwater wells in accordance with GSPs and SGMA for all groundwater pumping, would be required. Implementation of mitigation measures MM-HYD-1 and MM-HYD-2 would reduce impacts to surface and groundwater water quality such that the potential for conflict with or obstruction of implementation of a water quality control plan or sustainable groundwater management plan as a result of the proposed project would be reduced to less than significant. The proposed project would have no impact regarding flood risk.
[…]

3.4 Section 6 Alternatives

Section 6.2.1 ~~Alternative 1:~~ No Project Alternative

[…]

Section 6.2.2 Alternative 1~~2~~: No Groundwater Substitution Alternative

[…]

3.5 Section 8 References

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