United States Department of the Interior

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VIA ELECTRONIC MAIL ONLY

MEMORANDUM

To: Ernest A. Conant
Regional Director, California Great Basin

From: Bay-Delta Office

Subject: Central Valley Project Improvement Act

The Central Valley Project Improvement Act ("CVPIA" or "Act", Title 34 of Public Law 102-575) sets forth actions under Section 3406 for fish, wildlife, and habitat restoration. To support implementation of these actions, the Act created, in section 3407, the CVP Restoration Fund ("Restoration Fund") for deposit of donations from any source and revenues from project water and power users, including mitigation and restoration payments by water and power beneficiaries. In subsection 3406(d)(2(A), the Act provides for a reduction in the mitigation and restoration payment ceiling "upon completion of the fish, wildlife, and habitat mitigation and restoration actions mandated under section 3406."

In January 2006, the Assistant Secretary for Water and Science of the Department of the Interior, at the request of water and power users, directed the Commissioner and the Mid-Pacific Regional Director of the Bureau of Reclamation to conduct a performance review of the CVPIA with specific attention to the fish and wildlife provisions in section 3406 of the Act. The Assistant Secretary required the performance review to evaluate whether section 3406 actions had been completed and would thus require a reduction in Restoration Fund collections. Reclamation and the Fish and Wildlife Service completed the performance evaluation in August 2009 and reported its findings in the form of the CVPIA Program Activity Review (CPAR) Report. The CPAR outlined applicable legislation by activity, interpreted statutory requirements for implementation, and evaluated whether section 3406 actions had been completed. The CPAR concluded that further work was needed; therefore, it was not appropriate at that time to reduce the mitigation and restoration payment ceiling. The report did not define specific timelines to reach completion of section 3406 activities but did express an expectation of at least another decade to complete the requisite work.

In recent years, water and power contractors of the CVP, as well as members of Congress, have repeatedly expressed interest in completing a new evaluation of the status of section 3406

activities. Since completion of the CPAR, ten years have passed, and several large projects associated with section 3406 have been completed, including mitigation measures at Contra Costa Pumping Plant, Red Bluff Diversion Dam, Coleman Fish Hatchery, and Keswick Dam. The Commissioner of the Bureau of Reclamation requested the Regional Director for the California-Great Basin, Bureau of Reclamation Region ("Region") to evaluate and report on the status of the fish, wildlife, and habitat mitigation and restoration actions mandated under section 3406. The Region considered each fish, wildlife, and habitat mitigation and restoration action described in section 3406 of the CVPIA and reports the status below consistent with legal guidance provided by the Office of the Solicitor. The Regional Directors of the Bureau of Reclamation and the Fish and Wildlife Service have joint delegated authority for the implementation of the CVPIA. The document represents Reclamation's view.

**(b)(1) Anadromous Fish Restoration Program**

Section 3406(b)(1) requires that the Secretary "develop within three years of enactment and implement a program which makes all reasonable efforts to ensure that by the year 2002, natural production of anadromous fish in the Central Valley rivers and streams will be sustainable, on a long-term basis, at levels not less than twice the average levels attained during the period of 1967-1991…."

The Anadromous Fish Restoration Program (AFRP) was developed through 1997 and a Final Plan for the AFRP released in 2001[1] and implemented to: "improve habitat for all life stages of anadromous fish through provision of flows of suitable quality, quantity, and timing, and improved physical habitat; improve survival rates by reducing or eliminating entrainment of juveniles at diversions; improve the opportunity for adult fish to reach their spawning habitats in a timely manner; collect fish population, health, and habitat data to facilitate evaluation of restoration actions; integrate habitat restoration efforts with harvest and hatchery management; and involve partners in the implementation and evaluation of restoration actions." The program remains active, 18 years beyond the year 2002 with activities on multiple tributaries throughout the Central Valley. In addition to the Restoration Fund, funding for this action includes appropriations from the CalFed Bay-Delta Act (Public Law 108-361, "CalFed Appropriations") and annual appropriations from Reclamation's Water and Related Resources Fund ("Water and Related Appropriations"). Reclamation incorporated the science-based framework for prioritizing actions to benefit into the 2020 Record of Decision on the coordinated Long-Term Operation of the Central Valley Project and State Water Project ("2020 ROD") for the annual funding of habitat restoration and facility improvement under the collaborative planning components of the 2020 ROD.

**(b)(1) "Other" Habitat Restoration Program**

The Habitat Restoration Program (HRP) was implemented under section 3406(b)(1) to "make all reasonable efforts consistent with the requirements of this section [3406] to address other identified adverse environmental impacts of the CVP not specifically enumerated in this section". The objective of the HRP is to improve conditions for impacted federally listed species and habitats, with a focus on terrestrial species and aquatic species other than anadromous fish.

[1] USFWS (2001). Final Restoration Plan for the Anadromous Fish Restoration Program, A Plan to increase Natural Production of Anadromous Fish in the Central Valley of California. Prepared for the Secretary of the Interior by the United States Fish and Wildlife Service with assistance from the Anadromous Fish Restoration Program Core Group under authority of the Central Valley Project Improvement Act. Jan. 9.

The HRP Program has funded 147 different projects and continue to fund roughly five or more projects annually.

**(b)(2) Dedicated Yield**

Section 3406(b)(2) requires the Secretary to dedicate and manage annually eight hundred thousand acre-feet of CVP for the primary purpose of implementing the fish, wildlife, and habitat restoration purposes of the CVPIA; to assist the State of California in its effort to protect the waters of the San Francisco Bay/Sacramento-San Joaquin Delta Estuary; and to help to meet such obligations as may be legally imposed upon the CVP including obligations under the Federal Endangered Species Act ("ESA"). This water includes both releases from CVP reservoirs and decreased CVP export pumping. Reclamation and the California Department of Water Resources consult on the operation of the CVP with the Service under the ESA as well as with the National Marine Fisheries Service, most recently the 2019 Biological Opinions implemented by the 2020 ROD. Ongoing discussions on the operation of the CVP occur in coordination with the California Department of Fish and Wildlife on a weekly or more frequent basis. The 2020 ROD continues to implement releases informed by the Final Plan for the AFRP developed per Section (b)(1), and the results of Instream Flow Incremental Methodology (IFIM) studies undertaken as part of Section (b)(1)(B), which identifies optimal flow, temperature needs, and timing for the life stages of anadromous fish. Implementation of (b)(2) has been extensively litigated since Interior developed a "final" Decision on Implementation of Section 3406(b)(2) of the Central Valley Project Improvement Act in October 1999. Reports on the management of (b)(2) are available back to 2007 (https://www.usbr.gov/mp/cvo/).

**(b)(3) Instream Flows**

Section 3406(b)(3) requires "develop and implement a program in coordination and in conformance with the plan required under paragraph (1) of this subsection for the acquisition of a water supply to supplement the quantity of water dedicated to fish and wildlife purposes under paragraph (2) of this subsection and to fulfill the Secretary's obligations under paragraph 3406(d)(2)". Reclamation developed and implemented (b)(3) to support the Vernalis Adaptive Management Plan (VAMP) in coordination with other state and federal agencies, environmental groups, and member of the San Joaquin River Group Authority, which evaluated the effects on out-migrating salmon of the San Joaquin River flow, the SWP/CVP exports, and the placement of a temporary or permanent barrier at the head of Old River during the spring. VAMP was a 12-year program beginning in 2000 as an alternative to the State Water Resources Control Board (SWRCB) assigning responsibilities for the 1995 Bay-Delta Water Quality Control Plan (Bay-Delta WQCP) to water users in the San Joaquin Basin. The SWRCB has proceeded to implement the Bay-Delta WQCP and the San Joaquin Basin has been Phase 1. Reclamation further annually acquires water for the 19 specified refuges under 3406(d)(2).[2]

**(b)(4) Fishery Impacts Associated with Operations of the Tracy Pumping Plant**

Section 3406(b)(4) requires "develop and implement a program to mitigate for fishery impacts associated with operations of the Tracy Pumping Plant." The Tracy (Jones) Fish Collection Facility, located upstream of the pumping plant, collects migratory fish and transports them to the Delta where they can resume outmigration to the ocean. Reclamation developed the Tracy

[2] The Secretary's obligations under paragraph 3406(d)(2) are addressed below.

Fish Facility Improvement Program (TFFIP) to implement Section(b)(4) to mitigate for fishery impacts associated with the operation of the Tracy Pumping Plant. The TFFIP develops and implements annual actions to mitigate impacts to fisheries, targeting the 23 actions included in The Tracy Fish Facility Improvement Program Plan. Programs and projects have been developed for the practices associated with the Tracy Pumping Plant as described in 2020 ROD, which includes improvements to the facilities, limitations on exports, and fish routing facilities to avoid entraining fish from entering the Central and South Delta where they become susceptible to entrainment at the TFCF. The TFFIP is funded primarily by WRR appropriations with other components additionally supported by CalFed Appropriations.

**(b)(5) Contra Costa "Rock Slough" Fish Screen**

Section 3406(b)(5) requires "develop and implement a program to mitigate for fishery impacts resulting from operations of the Contract Costa Canal Pump Plant No. 1. Such program shall provide for construction and operation of fish screening and recovery facilities, and for modified practices and operations." Reclamation developed and implemented a program through construction of the Rock Slough Fish Screen in 2012 and subsequent operation by the Contra Costa Water District as a transferred work. Reclamation requested and obtained appropriations for construction under the American Recovery and Reinvestment Act (ARRA) of 2009.

**(b)(6) Shasta Temperature Control Device**

The CPAR identifies this provision as complete. Section 3406(b)(6) requires installation and operation of the TCD to assist in "efforts to control water temperatures in the upper Sacramento River in order to protect anadromous fish in the upper Sacramento River." Reclamation completed construction and began operating the TCD in the spring of 1997. The current operation of the TCD is described by the 2020 ROD. The costs identified under the CVPIA are specific to the "planning and construction". Operation of the TCD is an ongoing cost supported by WRR Appropriations.

**(b)(7) Coordinated Operations Agreement**

Section 3406(b)(7) requires meeting obligations in the Coordinated Operation Agreement CVP/SWP (COA). Reclamation and DWR entered into the COA in 1986 and signed an addendum in 2018. Consultation on the long-term operation of the CVP and SWP have included the terms of the COA, most recently the 2020 ROD.

**(b)(8) Pulse Flows**

Section 3406(b)(8) requires the "use of short pulses of increased water flows to increase the survival of migrating anadromous fish moving into and through the Sacramento-San Joaquin Delta and Central Valley rivers and streams." Reclamation implements this program through the operation of the CVP and SWP, most recently the 2020 ROD and the components for spring pulse flows.

**(b)(9) Flow Fluctuations**

Section 3406(b)(9) requires "develop and implement a program to eliminate, to the extent possible, losses of anadromous fish due to flow fluctuations caused by the operation of any Central Valley Project storage or re-regulating facility." Reclamation implements this program through the operation of the CVP and SWP, most recently the 2020 ROD and the incorporation of ramping rates on changes in reservoir releases.

**(b)(10) Red Bluff Diversion Dam**

Section 3406(b)(10) requires "develop and implement measures to minimize fish passage problems for adult and juvenile anadromous fish at the Red Bluff Diversion Dam." Reclamation developed and implemented this provision through construction of the Red Bluff Pumping Plant in 2012. Reclamation permanently opened the gates on the Red Bluff Diversion Dam in 2011. Reclamation requested and obtained appropriations for construction under ARRA. Ongoing operation is managed by the Tehama-Colusa Canal Authority as a transferred work.

**(b)(11) Coleman National Fish Hatchery**

Section 3406(b)(11) requires "rehabilitate and expand the Coleman National Fish Hatchery by implementing the United States Fish and Wildlife Service's Coleman National Fish Hatchery Development Plan, and modify the Keswick Dam Fish Trap to provide for its efficient operation at all project flow release levels and modify the basin below the Keswick Dam spillway to prevent the trapping of fish". This action is discrete and complete. Modifications to the Keswick Dam Fish Trap were completed in 2002 to provide for its efficient operation at all project flow release levels and modify the basin below the Keswick Dam spillway to prevent the trapping of fish. Numerous improvements continue on the Coleman Nation Fish Hatchery, including the satellite conservation hatchery for endangered winter-run Chinook salmon, the Livingston Stone National Fish Hatchery. Activities for the Coleman National Fish Hatchery now occur under the Coleman National Fish Hatchery Adaptive Management Plan (2016). The hatchery is funded primarily from WRR appropriations.

**(b)(12) Clear Creek Restoration Program**

Section 3406(b)(12) requires "develop and implement a comprehensive program to provide flows to allow sufficient spawning, incubation, rearing, and outmigration for salmon and steelhead from Whiskeytown Dam as determined by instream flow studies conducted by the California Department of Fish and Game after Clear Creek has been restored and a new fish ladder has been constructed at the McCormick-Saeltzer Dam." McCormick-Saeltzer Dam on Clear Creek was removed in 2000. Since 1999, the Program has undertaken anadromous salmonid habitat and flow restoration actions in Clear Creek. These actions have re-established Central Valley spring-run Chinook Salmon (*Oncorhynchus tshawytscha*) and California Central Valley (CCV) steelhead (*O. mykiss*) within the Clear Creek watershed. Reclamation implements this program through the operation of the CVP and SWP, most recently the 2020 ROD and the operation of Whiskeytown Reservoir in the Trinity Division. Federal costs for channel restoration, passage improvements, and dam removal rely upon the CVPIA as well as CalFed and WRR Appropriations.

**(b)(13) Spawning and Rearing Habitat**

Section 3406(b)(13) requires the development and implementation of a continuing program for the purpose of restoring and replenishing, as needed, spawning gravel. The gravel program has developed and completed habitat projects in the Sacramento, American, and Stanislaus Rivers and continues effectiveness monitoring focusing on fish use of existing and restored habitat sites. The 2020 ROD includes ongoing implementation of this program. Recent funding uses the CVPIA as well as Water Infrastructure Improvements for the Nation (WIIN) Act Section 4001 and 4010 (environmental supplemental) WRR Funding.

**(b)(14) Delta Cross Channel and Georgianna Slough**

Provision 3406(b)(14) was stricken from CVPIA on December 16, 2016 by section 4010(g) of the WIIN Act, PL. 114-322. As a result, reduction criteria are no longer applicable.

**(b)(15) Head of Old River Barrier**

Section 3406(b)(15) requires "construct, in cooperation with the State of California and in consultation with local interests, a barrier at the head of Old River in the Sacramento-San Joaquin Delta to be operated on a seasonal basis to increase the survival of young outmigrating salmon that are diverted from the San Joaquin River to Central Valley Project and State Water Project pumping plants". The California Department of Water Resources constructed the Head of Old River Barrier seasonally, when feasible since 1992. After thorough study and consideration, the Proposed Action considered in the 2019 Biological Opinions for the coordinated long-term operation of the CVP and SWP, citing extensive studies synthesized in the 2016 Salmon Scoping Team Report[3], found that the barrier did not increase the survival of young outmigrating salmon and does impairs diversions. The 2020 revisions to the LTO ceased implementation of the Head of Old River Barrier and instead relies upon performance measures that restrict exports as well as habitat improvements to reduce other sources of mortality, e.g. Restoration of the scour hole at the Head of Old River and predator hot spot reduction.

**(b)(16) Comprehensive Assessment and Monitoring Program**

Section 3406(b)(16) requires "establish, in cooperation with independent entities and the State of California, a comprehensive assessment program to monitor fish and wildlife resources in the Central Valley to assess the biological results and effectiveness of actions implemented pursuant to this subsection." The Comprehensive Assessment and Monitoring Program (CAMP) has been established, in cooperation with independent entities and the State of California, and includes the operation of rotary screw traps to capture juvenile salmon and steelhead, carcass and redd surveys to monitor returning adults, and reporting by CDFW on natural production (GRAND TAB[4]).

**(b)(17) Anderson Cottonwood Irrigation District Diversion Dam**

The CPAR identified this action as complete. Section 3406(b)(17) requires "develop and implement a program to resolve fishery passage problems at the Anderson-Cottonwood Irrigation District Diversion (ACID) Dam as well as upstream stranding problems related to Anderson-Cottonwood Irrigation District Diversion Dam operations." The right bank pool and chute fish ladder and fish screen were completed in 2000. The left bank vertical slot fish ladder, complete with public fish viewing facilities, was completed in 2001. The facilities are non-project and operated on an ongoing basis by ACID.

**(b)(18) Striped Bass Fishery**

Provision 3406(b)(18) was stricken from CVPIA on December 16, 2016 by section 4010(g) of the WIIN Act, PL. 114-322. As a result, reduction criteria are no longer applicable.

[3] SST (2016). Effects of Water Project Operations on Juvenile Salmonid Migration and Survival in the South Delta. Volume 1: Findings and Recommendations. Prepared for Collaborative Adaptive Management Team, Prepared by Salmonid Scoping Team. June.

[4] https://wildlife.ca.gov/Conservation/Fishes/Chinook-Salmon/Anadromous-Assessment

**(b)(19) Carryover at Sacramento and Trinity River Reservoirs**

Section (b)(19) requires, "reevaluate existing operational criteria in order to maintain minimum carryover storage at Sacramento and Trinity River reservoirs to protect and restore the anadromous fish of the Sacramento and Trinity Rivers in accordance with the mandates and requirements of this subsection and subject to the Secretary's responsibility to fulfill all project purposes, including agricultural water delivery." Reclamation implements this program through the operation of the CVP and SWP, most recently the 2020 ROD, and the components for season operations and Shasta Cold Water Pool Management.

**(b)(20) Glenn Colusa Irrigation District Hamilton City Pumping Plant**

The CPAR identified this action as complete. Section 3406(b)(20) requires, "participate with the State of California and other Federal agencies in the implementation of the on-going program to mitigate fully for the fishery impacts associated with operations of the Glenn-Colusa Irrigation District's Hamilton City Pumping Plant" Reclamation funded GCID to complete a fish screen in 2000. The facilities are non-project and operated on an ongoing basis by GCID

**(b)(21) Anadromous Fish Screen Program**

Section 3406(b)(21) provides for assistance to the State of California to develop and implement measures for the specified purposes. The program was implemented in 1996 and has completed 70 fish screen projects in cooperation with the State of California. The program is implemented with funding from the CalFed Bay-Delta Act (Public Law 108-361, "CalFed Appropriations") and WRR Appropriations as well as the Restoration Funds.

**(b)(22) Waterfowl Incentives**

The CPAR identified this action as complete. Section 3406(b)(22) included a specific time-frame which expired.

**(b)(23) Trinity River Flow Evaluation Study**

Section 3406(b)(23) of the Act required releases from 1992-1996, which were completed, a Trinity River Flow Evaluation Study, which was completed in 1999, and implementation of the flows. Flows are released as a program under the 2000 Trinity River Record of Decision.

**(c) San Joaquin and Stanislaus Rivers**

Obligations of the Secretary regarding the San Joaquin River were deemed satisfied and discharged as provided at Section 10007 of the San Joaquin River Restoration Settlement Act enacted in 2009. The Stanislaus Comprehensive was completed in 1996 and included requisite evaluation and investigation.

**(d) Refuge Water Supply**

Section 3406(d) requires "provide, either directly or through contractual agreements with other appropriate parties, firm water supplies of suitable quality to maintain and improve wetland habitat areas on" 19 federal; state, and local refuges. A program has been developed, the Refuge Water Supply Program, and implemented to deliver water to CVPIA refuges. Water acquisition and facility construction indicates are ongoing needs that change upon the expiration, renewal, revision, and development of a portfolio of contracts and agreements. Additionally, infrastructure degrades and conditions change such that some refuge facilities once able to receive deliveries

are no longer able without additional investment. There is an ever evolving and ongoing need to acquire water from various sources and convey it to where it is needed.

Section 3406(d)(1) requires that "the quantity and delivery schedules of water measured at the boundaries of each wetland habitat area… be in accordance with level 2 of the `Dependable Water Supply Needs' table for those habitat areas as set forth in the Refuge Water Supply Report and two-thirds of the water supply needed for full habitat development for those habitat areas identified in the San Joaquin Basin Action Plan/Kesterson Mitigation Action Plan Report". Water supplies are derived from CVP yield as well as local water rights held by the refuges and "the Secretary shall endeavor to diversify sources of supply in order to minimize possible adverse effects upon Central Valley Project contractors." Reclamation, Service, and partners have made supplies available to the Refuges who are able to receive the water.

Section 3406(d)(2) of the Act requires "the quantity and delivery schedules of water measured at the boundaries of each wetland habitat area described in this paragraph shall be in accordance with level 4 of the `Dependable Water Supply Needs' table for those habitat areas as set forth in the Refuge Water Supply Report and the full water supply needed for full habitat development for those habitat areas identified in the San Joaquin Basin Action Plan/Kesterson Mitigation Action Plan Report" The acquisition of water supplies to reach level 4 (Incremental Level 4) comes from voluntary measures which do not require involuntary reallocations of project yield. Reclamation, Service, and partners have acquired water through a range of actions including purchase, assignment, transfer, exchange, groundwater, reuse, recycled water, and settlements.

Various construction actions authorized and directed by Section 3406(d)(5) have been completed and/or implemented to deliver those supplies to the Refuges which are challenged in receiving the full Level 4 supplies. Operation, maintenance, replacement, and upgrades for facilities is an ongoing need for the conveyance of water, aging infrastructure, changing demand patterns, and compliance with new regulations. Four major construction projects are currently identified to deliver water supplies and include: Sutter Nation Wildlife Area Lift Station, the pre-bid design estimates of $10 million are currently under evaluation for cost certainty based on cost increases during final design; San Luis National Wildlife Refuge East Bear Creek Unit pumping retrofit of ~$7 million planned for 2022 (10% design); Mendota Wildlife Area, a draft conceptual design report identified options that included raising Mendota Pool, refurbishing the San Luis Drain, or constructing a pipeline from San Luis Canal and preliminary estimated costs range from $28-$67 million; and Pixley National Wildlife Area, which is currently supported for Level 2 by groundwater pumping and no economical designs are available for long-term conveyance. Some of the projects may no longer be cost-effective and may be in excess of funds available from the Restoration Fund. Similarly, the costs associated with these projects may exceed what Congress had envisioned in directing these actions. Reclamation will need to continue to review these construction projects and review potential alternatives to complete this program.

The report required under 3406(d)(6) has been completed. The *Central Valley Wetlands Water Supply Investigations* report was provided is December of 2000.

**(e) Supporting Investigations**

The CPAR identified this action as complete. The *CVPIA Tributary Production Enhancement Report* was provided in 1998.

**(f) Report on Fishery Impacts**

The CPAR identified this action as complete. The *Report to Congress on the Central Valley Project Impacts to the Anadromous Fish Resource, Fisheries, and Associate Economic, Social, or Cultural Interests* was provided in 1995.

**(g) Ecosystem and Water System Operations Models**

Section 3406(g) requires the development of readily usable and broadly available models and supporting data. The Program has developed models for water operations, salinity, temperature, groundwater, and fisheries, among others. The status of models is documented and used most recently in the 2019 Biological Assessment support the consultation and 2020 ROD. Supporting data is published in near-real time through various online portals including SacPAS (http://www.cbr.washington.edu/sacramento/).

**(h) Cost-Share Agreement with the State of California**

Section 3406(h) requires "a binding cost-share agreement with the State of California with respect to the timely reimbursement of costs allocated to the State" The Sharing of Costs and Mitigation Project Improvements (SCAMPI) agreement was entered into with the State of California to identify how the State's share of costs will be reimbursed consistent with the Act as well as a successor agreement, SCAMPI II.