

Draft Program Component Options Technical Memorandum

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Finance Plan

for the

Central Valley Project Improvement Act

Version

May 30, 2015 - Initial Outline and Internal Drafting

June 23, 2015 - Incorporation of PM Information on Programs

Introduction

This Program Component Options Technical Memorandum (TM) provides background information, in support of the CVPIA Finance Plan, on the different activities authorized by the CVPIA, services provided by those activities, and alternative budget strategies. The analysis in the TM provides baseline information for assessing options on changes to programs and the consequences.

Information was requested from the individual U.S. Bureau of Reclamation (Reclamation) and U.S. Fish and Wildlife Service (Service) Program Managers to develop a range of potential approaches as different options and then compiled by the CVPIA Administrators. These options included:

- Fully Funded: a description of the maximum resources a program could reasonably expend to accomplish the goals and objectives of the program without an increase in total CVPIA staffing.
- Current Practice: a description of current or "typical" historical conditions.
- Minimal: a description of activities that holds the status quo and maintains capabilities, but makes little progress towards achieving the requirements of the CVPIA.
- Eliminate: a description of the impact to agency and stakeholder operations in the absence of the program.
- Switch Funding Authorities: alternative existing or potentially new legislative authorities for implementing the activity in the absence of the CVPIA.

For each option, the TM describes:

- Funding Levels and Sources: budget amounts and appropriations under the proposed option.

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- 1 • Services provided and Obligations Met: activities under the option and the related legal
2 requirements and institutional goals.
- 3 • Unmet Obligations, Needs, and Adverse Effects: activities that would not occur and the
4 potential legal and institutional consequences to other operations.
- 5 • Potential Mitigating Measures: actions outside of the CVPIA or agencies that can lessen
6 adverse effects of the option, improve the ability to meet the goals and objectives of the
7 component, or increase efficiencies of the component under resource limitations.
8 Although other entities may step forward and provide funding, this TM does not identify
9 the potential for actions outside the Department of the Interior in the absence of
10 historical funding.
- 11 • Reimbursement Requirements: effects on water and power rates including the potential
12 to trigger ability to pay relief.

13 Interim levels of funding and performance will be developed within subsequent technical
14 memorandum and should not be included at this time. Additional information may be required
15 on programs and would be incorporated into subsequent steps.

16 Expenditures under CVPIA authorities are organized by programs as follows:

- 17 • Fish Resource Area
 - 18 ○ Anadromous Fish Restoration Program, section 3406(b)(1)
 - 19 ○ Dedicated Yield Program, section 3406(b)(2)
 - 20 ○ Instream Flow Program, section 3406(b)(3)
 - 21 ○ Tracy Fish Facility Improvement, section 3406(b)(4)
 - 22 ○ Clear Creek Restoration Program, section 3406(b)(12)
 - 23 ○ Gravel Spawning and Rearing Habitat on CVP Streams Program, section
24 3406(b)(13)
 - 25 ○ Comprehensive Assessment and Monitoring Program, section 3406(b)(16)
 - 26 ○ Anadromous Fish Screen Program, section 3406(b)(21)
- 27 • Refuge Water Supply including:
 - 28 ○ Facility Construction, section 3406(d)(5)
 - 29 ○ Water Acquisition, section 3406(d)(2)
 - 30 ○ Conveyance, section 3406(d)(1) and (d)(2)
- 31 • Independent Programs
 - 32 ○ Habitat Restoration Program, section 3406(b)(1) "Other"
 - 33 ○ Federal Science Task Force, section 3406(b)(1) "Other"
 - 34 ○ San Joaquin River Restoration Program, Public Law 111-11
 - 35 ○ Trinity River Restoration Program, section 3406(b)(23) and (b)(1) "Other"
 - 36 ○ Modeling Program, section 3406(g)
- 37 • CVPIA Administration, section 3407

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1 This TM does not address completed programs: install and operate a structural temperature
2 control device at Shasta Dam - section 3406(b)(6), resolve fishery passage problems at the
3 Anderson-Cottonwood Irrigation District Diversion Dam - section 3406(b)(17), mitigate
4 operations of the Glenn-Colusa Irrigation District's Hamilton City Pumping Plant - section
5 3406(b)(20), incentives for waterfowl habitat - section 3406(b)(22), Stanislaus Basin
6 investigation - section 3406(c)(2), and the Land Retirement Program - section 3408(h).

7 This TM does not address programs that are substantially complete, but that may incur small
8 future expenditures: Contra Costa Canal Pumping Plant No. 1 - section 3406(b)(5), passage at
9 Red Bluff Diversion Dam -section 3406(b)(10), rehabilitate and expand the Coleman National
10 Fish Hatchery - section 3406(b)(11), and miscellaneous flow management efforts - sections
11 3406(b)(7-9) and (19).

12 This TM does not include inactive programs not anticipated to incur substantial costs: modified
13 operations and new or improved control structures at the Delta Cross Channel and Georgiana
14 Slough - section 3406(b)(14), construct a barrier at the head of Old River - section 3406(b)(15),
15 management measures to restore the striped bass fishery of the Bay-Delta estuary - section
16 3406(b)(18). This TM does not address potential future linkages to the Bay-Delta Conservation
17 Plan.

18 Fish Resource Area

19 The fish resource area includes all of the specific provisions under section 3406(b) plus the
20 Anadromous Fish Restoration Program, but not the actions related to the Trinity River
21 Restoration Program (addressed under Independent Programs within this TM).

22 Anadromous Fish Restoration Program

23 The Anadromous Fish Restoration Program comes from section 3406(b)(1) of the act which
24 reads, "Develop within three years of enactment and implement a program which makes
25 all reasonable efforts to ensure that, by the year 2002, natural production of
26 anadromous fish in Central Valley rivers and streams will be sustainable, on a long-term
27 basis, at levels not less than twice the average levels attained during the period of
28 1967-1991." The six objectives of the AFRP, from the Final Restoration Plan, are:

- 29 1. Improve habitat for all life stages of anadromous fish through provision of flows of
30 suitable quality, quantity, and timing, and improved physical habitat;
- 31 2. Improve survival rates by reducing or eliminating entrainment of juveniles at diversions;
- 32 3. Improve the opportunity for adult fish to reach their spawning habitats in a timely
33 manner;
- 34 4. Collect fish population, health, and habitat data to facilitate evaluation of restoration
35 actions;
- 36 5. Integrate habitat restoration efforts with harvest and hatchery management; and
- 37 6. Involve partners in the implementation and evaluation of restoration actions.

38 Fully Funded

39 A fully funded AFRP would annually provide for 2 large projects (estimated at \$1,500,000 each)
40 and 5 reconnaissance studies (estimated at \$200,000 each) in each of the 4 geographic regions
41 of the Central Valley, the Upper Sacramento Basin, Lower Sacramento Basin, Delta Tributaries,

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1 and San Joaquin Valley. USFWS and USBR Program Managers, an Assistant Program
2 Manager, Six Federal Habitat Restoration Coordinators (HRCs), 2 Assistant HRCs, and 3 State
3 HRCs would implement the AFRP.

4 Sources and Levels: \$16,000,000 to \$22,000,000 from the CVPRF.

5 Services Provided and Obligations Met: HRCs provide for

- 6 • Watershed Planning and Coordination:
 - 7 ○ Stakeholder Outreach and Organization
 - 8 ○ Prioritization of Needs
 - 9 ○ Evaluation of Projects and Proposals
 - 10 ○ Technical Assistance for Watershed and Regional Planning/Management
 - 11 Efforts
 - 12 ○ Technical Assistance for FERC Relicensing Projects
- 13 • Technical Services for Watershed Restoration
 - 14 ○ Permitting
 - 15 ○ Biological Expertise
 - 16 ○ Monitoring Expertise
- 17 • Project Coordination and Management
 - 18 ○ Schedules, Budgets, Contract Management
- 19 • Funding for Restoration and Research Projects
 - 20 ○ Gravel Augmentation
 - 21 ○ Rearing, Spawning and Holding (i.e. In-Channel) Habitat Restoration
 - 22 ○ Floodplain and Side-channel Restoration
 - 23 ○ Riparian Restoration
 - 24 ○ Fish Passage Remediation (i.e. Removal or Construction/Retrofit of
 - 25 Facilities around Barriers)
 - 26 ○ Local Interfaces for Other CVPIA Programs, e.g. Fish Screens, Instream
 - 27 Flow Acquisition, Comprehensive Assessment and Monitoring.
 - 28 ○ Local Interfaces for Other non-CVPIA Aquatic/Riparian Restoration
 - 29 Programs (e.g. ERP, Partners for Fish and Wildlife, National Fish
 - 30 Passage Program)
 - 31 ○ Research and Activities Related to Adaptive Management Processes

32 Unmet Obligations, Needs, and Adverse Effects: none

33 Potential Mitigating Measures: none

34 Reimbursement Requirement: 100%. In section 3406(b)(1)(D), the Act specifies that
35 costs associated with this paragraph shall be reimbursable pursuant to existing statutory
36 and regulatory procedures. According to the Reclamation Reimbursability Guidelines,
37 the activity is aligned with a specific project, the CVP, by law and is attributable to project
38 operations. The authorized purpose is fish and wildlife mitigation. Contributions to the
39 restoration fund offset the requirement to recover these expenditures.

40 Current

41 Current looks at historical levels where there are some specific examples of very good progress
42 on some streams where significant habitat restoration work has been done. Funding has not
43 been sufficient to make progress on a wide array of Central Valley streams.

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Sources and Levels: \$5.3 million from the CVPRF based on the average from 1998-2014. Funding has been declining. Non-CVPIA funding from traditional partners has also been declining over this time period.

Services Provided and Obligations Met:

- Watershed Planning and Coordination
- Technical Services for Watershed Restoration
- Project Coordination
- Funding levels to around \$500k/year over 4 projects with extended time frames to completion.
- Monitoring and project effectiveness studies

Unmet Obligations, Needs, and Adverse Effects:

- Funded levels have been insufficient over the program's lifetime to achieve significant success in doubling natural production across the program. Continuation at current funded levels is unlikely to achieve program-wide CVPIA doubling goals in the foreseeable future
- Extending construction timelines that delay benefits and increase labor costs.
- Delays in addressing available restoration opportunities.
- Inability to complete some large-scale restoration projects in a timely and effective manner, which may lead to additional need to prioritize individual elements of larger projects and only implement portions of the entire possible project.
- Limited ability to respond to emergency restoration needs and time-sensitive cost share opportunities

Potential Mitigating Measures:

- Drought-year resource balancing with refuge water acquisition to shift funding to construction when water is expensive.
- Some of the well established watershed groups may be able to operate independent of the HRCs and develop grants independently. However, many of these groups have ceased to function or have had to reduce capabilities due to ongoing challenges related to funding and support
- Potential for floodway structure/operations improvements to provide additional juvenile habitat

Reimbursement Requirement: same as fully funded.

Minimal

A minimal level would provide for a single HRC in each of the four geographic areas for some representation and 1 or 2 projects a year for the entire valley.

Sources and Levels: \$3 million from the CVPRF.

Services Provided and Obligations Met:

- Limited Watershed Planning and Coordination
- Minimal Technical Assistance to watershed groups

Unmet Obligations, Needs, and Adverse Effects:

- Project Coordination
- Project Development

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- Funding of Restoration Actions and Reconnaissance Studies
- Some watershed groups would likely dissolve
- Progress towards the doubling goal would likely stop, instability of current population levels may increase and historic progress toward the doubling goal in individual watersheds would be less secure.
- Opportunities to leverage other Federal and non-Federal funding sources would be lost/diminished
- Stakeholder Outreach and Organization would likely need be drastically reduced

Potential Mitigating Measures:

- Some watershed groups could propose and implement projects independently. However, many of these groups have limited capability to propose and manage restoration projects independently.
- Potential for floodway structure/operations improvements to provide additional juvenile habitat.

Reimbursement Requirement: same as fully funded.

Eliminate

Unmet Obligations, Needs, and Adverse Effects: Eliminating the AFRP activities would leave a critical void for anadromous fish habitat restoration and related activities in the Central Valley. Elimination of the AFRP activities would likely result in a decline in all partner and stakeholder activities related to improvement of conditions for anadromous fish as well, since AFRP staff and resources commonly play key support or lead roles in a wide array of projects and activities in addition to those specifically funded under CVPIA. Further decline in anadromous fish populations would likely result under continuing water resources and land development. Negative impacts may result in reduced water operations throughout the Central Valley and additional proposals for listing under ESA and CESA. Progress toward the doubling goal would likely not only stop, but some portion of progress made to date would be lost.

Potential Mitigating Measures: Currently there are no other programs or authorities that are implementing a comprehensive program focused on the critical objectives identified in the Final Restoration Plan

Reimbursement Requirement: none.

Switch Authorities

The Fish and Wildlife Coordination Act may provide some authority, but would lack a dedicated funding source. Actions would still be fully reimbursable. Some of the activities are limited.

Dedicated Yield Program

The purpose of the Dedicated Yield Program is to "dedicate and manage annually up to 800,000 acre-feet of Central Valley Project water for the primary purpose of implementing fish, wildlife, and habitat restoration purposes authorized by this title; to assist the State of California in its efforts to protect the waters of the San Francisco Bay/Sacramento-San Joaquin Delta Estuary; and to help meet such obligations as may be legally imposed upon the Central Valley Project under state or federal law following the date of enactment of this title, including but not limited to

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1 additional obligations under the federal Endangered Species Act." The program objectives are
2 enumerated below:

- 3 1. Improve habitat conditions for anadromous fish in CVP controlled rivers and streams and the
4 Bay-Delta to help meet the AFRP doubling goals
- 5 2. Increase survival of out migrant juvenile anadromous fish, especially in the Bay-Delta
- 6 3. Contribute to recovery of listed threatened and endangered fish species, including delta smelt
- 7 4. Assist the state in efforts to protect the Delta
- 8 5. Monitor and evaluate to guide the (b)(2) management decisions and assess the effectiveness
9 of (b)(2) measures.

10 Fully Funded

11 Sources and Levels: \$1,500,000 from the CVPRF:

- 12 • \$700,000 for USBR & FWS labor
- 13 • \$500,000 for monitoring
- 14 • \$300,000 for modeling

15 Services Provided and Obligations Met:

- 16 • Provide increased flows for non-listed salmonid spawning on CVP controlled
17 streams and decreased Delta exports for non-listed salmonid juvenile rearing and
18 outmigration
- 19 • Program administration, budget development, and accomplishment reporting
- 20 • Hosting the (b)(2) Interagency Team Coordination Meetings
- 21 • Federal and state agency coordination and collaboration
- 22 • Developing monthly operational forecasts, base case forecasts, and water year
23 projections of (b)(2) water use
- 24 • Developing (b)(2) daily accounting records and establishing (b)(2) related fishery
25 actions
- 26 • Reporting on quantities of water attributable to salmon, steelhead, smelt, and
27 water quality related operations developed subsequent to the passage of the
28 CVPIA.
- 29 • Monitoring of salmonid redd locations and distributions on CVP controlled
30 streams to inform real-time flow management related to redd dewatering and egg
31 viability
- 32 • Monitoring of juvenile salmonid outmigration and survival through the lower San
33 Joaquin River and Sacramento/San Joaquin Delta
- 34 • Implementing, refining, and improving hydrologic planning model evaluations
35 (CVP forecast model)
- 36 • Development of new and enhancement of existing hydraulic models on CVP
37 controlled streams for estimating water surface elevations and potential impacts
38 of reservoir releases to salmonid redds
- 39 • Analysis of historical flow, temperature, and water quality data relative to the
40 spatial distribution of salmonid spawning and reproductive success in CVP
41 controlled streams
- 42 • Develop a (b)(2) decision support matrix to better inform program management
43 and decision making processes
- 44 • Litigation support

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- Stakeholder outreach

Unmet Obligations, Needs, and Adverse Effects: none

Potential Mitigating Measures: none

Reimbursement Requirement: 100%. The Act does not identify specific reimbursable costs. According to the Reclamation Reimbursability Guidelines, the activity is aligned with a specific project, the CVP, by law and is attributable to project operations. The authorized purpose currently provides for fish and wildlife mitigation, but could provide enhancement at a later date.

Current

Sources and Levels: \$700,000 from the CVPRF:

- \$450,000 for USBR & FWS labor
- \$220,00 for monitoring
- \$30,000 for modeling

Services Provided and Obligations Met:

- Provide increased flows for non-listed salmonid spawning on CVP controlled streams and decreased Delta exports for non-listed salmonid juvenile rearing and out migration
- Program administration, budget development, and accomplishment reporting
- Hosting the (b)(2) Interagency Team Coordination Meetings
- Federal and state agency coordination and collaboration
- Developing monthly operational forecasts, base case forecasts, and water year projections of (b)(2) water use
- Developing (b)(2) daily accounting records and establishing (b)(2) related fishery actions
- Reporting on quantities of water attributable to salmon, steelhead, smelt, and water quality related operations developed subsequent to the passage of the CVPIA.
- Monitoring of salmonid redd locations and distributions on the Sacramento River to inform real-time flow management related to redd dewatering and egg viability
- Partial support for the monitoring of juvenile salmonid outmigration and survival through the lower San Joaquin River and Sacramento/San Joaquin Delta
- Implementing hydrologic planning model evaluations (CVP forecast model)

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- Enhancement of existing hydraulic models on the American River for estimating water surface elevations and potential impacts of Nimbus dam releases to salmonid redds
- Litigation support
- Stakeholder outreach

Unmet Obligations, Needs, and Adverse Effects: none

Unmet Needs: Near real-time salmonid redd monitoring on the American and Stanislaus Rivers, refining and improving hydrologic planning models (CVP forecast model), development of hydraulic models on Clear Creek, Sacramento River, and Stanislaus River to estimate potential redd dewatering impacts, historical analyses of the interaction of flow and water quality parameters and biological responses on CVP streams, development of a (b)(2) decision support matrix, partial funding for ongoing San Joaquin/Delta juvenile salmonid outmigration and survival studies.

Adverse Effects: Reduced ability to evaluate the potential effects of flow reductions on salmonid redds and fry emergence in Clear Creek, American River, Sacramento River, and Stanislaus River, reduced confidence in hydrologic planning models, reduced ability to more effectively and efficiently manage (b)(2) water resources

Potential Mitigating Measures: Other state, federal, and CVPIA efforts provide the monitoring and modeling needs. Actions to support the NMFS Salmon and Steelhead and Service Smelt biological opinions coordinate flows.

Reimbursement Requirement: same as fully funded.

Minimal

The (b)(2) program would provide a report on quantities of water but all other functions would be addressed through the biological opinions for operation of the project.

Sources and Levels: \$60,000 from the CVPRF

Services Provided and Obligations Met: Reporting on quantities of water attributable to salmon, steelhead, smelt, and water quality related operations develop subsequent to the passage of the CVPIA.

Unmet Obligations, Needs, and Adverse Effects:

- Hosting the (b)(2) Interagency Team Coordination Meetings and development of supporting information.

Potential Mitigating Measures: Actions to support the NMFS Salmon and Steelhead and Service Smelt biological opinions would provide for the coordination flows.

Reimbursement Requirement: same as fully funded.

Eliminate

All releases would provide for the state water quality control plan and biological opinion reasonable and prudent alternative requirements.

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Unmet Obligations, Needs, and Adverse Effects:

- Hosting the (b)(2) Interagency Team Coordination Meetings and development of supporting information.
- Reporting on quantities of water attributable to salmon, steelhead, smelt, and water quality related operations develop subsequent to the passage of the CVPIA.

Potential Mitigating Measures: Actions to support the NMFS Salmon and Steelhead and Service Smelt biological opinions would provide for the coordination flows.

Instream Flow Program

The Bureau of Reclamation (Reclamation), in collaboration with the U.S. Fish & Wildlife Service (FWS), implements the Water Acquisition Program- Instream (WAP-Instream), in accordance with the Central Valley Project Improvement Act (CVPIA), Section 3406(b)(3). Reclamation's charge is to acquire water to supplement the 800,000 acre-feet of dedicated Central Valley Project (CVP) yield for fisheries, per CVPIA Section 3406(b)(2). The instream acquisition target is 200,000 acre-feet per year for use on the San Joaquin and Sacramento Rivers and their tributaries, as described in the CVPIA Programmatic Environmental Impact Statement Record of Decision.

For eleven years (2001-2011), Reclamation acquired up to 110,000 AF of water annually to augment in-stream spring pulse flows for the lower San Joaquin River at Vernalis, California, in accordance with the San Joaquin River Agreement (SJRA) and Vernalis Adaptive Management Plan (VAMP). The SJRA/VAMP was an agreement with the San Joaquin River Group Authority (SJRGA) and its member agencies to provide additional spring pulse and fall fishery flows on the Stanislaus, Tuolumne, Merced, and lower San Joaquin rivers, pursuant to the State Water Resources Control Board's Decision-1641 (SWRCB D-1641). The SJRA/VAMP expired at the end of 2011.

Since 2011, certain regulatory processes have been underway that may revise in-stream flow requirements on the San Joaquin River tributaries and in the lower San Joaquin River; however, these processes are ongoing and it is uncertain when they will be completed. In the absence of the SJRA/VAMP and to meet the SWRCB D-1641 spring flow objectives at Vernalis on the San Joaquin River, Reclamation negotiated a two year (2012-2013) agreement (Agreement) with the Merced Irrigation District (MID) to acquire up to 25,000 acre feet of water to support meeting Vernalis flows and continued provisions of spring pulse fishery flows through 2013. The Agreement did contribute to the Reasonable and Prudent Action #IV.2.1 and Sacramento-San Joaquin River Delta export ratios contained in the National Marine Fisheries Service's and the U.S. Fish & Wildlife Service's Biological Opinion on the Coordinated Operations of the Central Valley Project and State Water Project, respectively. The Agreement expired December 2013.

In 2014, funds were not available to acquire instream water from MID due to insufficient CVPIA Restoration Fund collections; therefore no instream water was purchased. However, funds were available to support agency staff labor and related administrative actions associated with state and federal instream water matters.

Generally, acquired water for spring instream pulse flows benefit numerous resident and anadromous fish species, but primarily benefit Chinook and juvenile salmon. Central Valley Chinook salmon constitute the majority of salmon produced in California, and at times have accounted for 70% or more of the statewide commercial harvest.

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1 Acquiring water from willing sellers for instream flow purposes is very challenging largely due to
2 various regulatory and legislative issues. A key regulatory issue is that previously stored water
3 or water acquired must meet consumptive use provisions pursuant to the State Water Code;
4 and prevent harm to downstream water users, including Central Valley Project and State Water
5 Project water customers. In addition, water for instream purposes must be protected, via an
6 instream flow dedication provided by the SWRCB, from being diverted by other water users
7 under the State Water Code. Furthermore, Congressional legislation prohibits Reclamation
8 from acquiring "protected" instream water since such water already exists in the "system",
9 meaning the Sacramento-San Joaquin river watersheds. Pricing of instream water varies widely
10 depending on the source, location, and whether or not it is an annual or multi-year acquisition or
11 a direct water right purchase.

12 Given the above information, Table A presents a comparison of five potential funding scenarios
13 for the WAP-Instream, spanning from being funded (FY 2016) to being eliminated. During
14 Fiscal Years (FY) 2005 through 2013, the WAP-Instream average annual Restoration Fund cost
15 has been approximately \$3.6 million, ranging from \$1.9 million (FY 2012) to \$6.8 million (FY
16 2011). The information provided in Table A is for discussion purposes only.

17 Fully Funded

18 Fully funded assumes WAP-Instream can acquire (annually or permanently) all 200,000 AF of
19 water (\$150/AF), per CVPIA Section 3406 (b)(3). Pricing of such water would vary widely;
20 therefore, actual costs could be lower, but more likely substantially higher.

21 Sources and Levels: \$30.3 million from the CVPRF

- 22 • \$30 M to acquire instream water.
- 23 • \$0.3 M for USBR & FWS labor

24 Services Provided and Obligations Met: Acquire up to 200,000 acre-feet (AF) of water
25 annually from willing sellers for instream benefits.

26 Unmet Obligations, Needs, and Adverse Effects: none

27 Potential Mitigating Measures: none

28 Reimbursement Requirement: 100%. The Act does not identify specific reimbursable
29 costs. According to the Reclamation Reimbursability Guidelines, the activity is aligned
30 with a specific project, the CVP, by law and is attributable to project operations. The
31 authorized purpose currently provides for fish and wildlife mitigation, but could provide
32 enhancement at a later date.

33 Current

34 Current conditions used the 2014 president's budget with the funds identified for acquiring
35 water.

36 Sources and Levels: \$2,900,000 from the CVPRF

- 37 • \$2.6M to acquire instream water
- 38 • \$0.3M for USBR & FWS labor

39 Services Provided and Obligations Met:

- 40 • Acquire up to 25,000 AF from Merced ID annually to meet SWRCB Vernalis flow
41 and water quality requirements absent VAMP or similar program.

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1 Unmet Obligations, Needs, and Adverse Effects:

- 2 • 175,000 AF not acquired for other tributary streams.
- 3 • Failure to address the key limiting factor for anadromous fish species' instream
- 4 habitats and populations.

5 Potential Mitigating Measures: The SWRCB or FERC may require non-project (CVP,
6 SWP) water districts with SWRCB water rights permits to divert and store water on
7 tributary streams to the Sacramento and San Joaquin rivers to dedicate mitigation water
8 for instream purposes. For examples, Butte County Water District, Modesto ID, Merced
9 ID, City and County of San Francisco, East Bay MUD, to name a few.

10 Reimbursement Requirement: same as fully funded.

11 **Minimal**

12 A program would be maintained to take advantage of opportunities that arose, but no specific
13 purchases would occur.

14 Sources and Levels: \$300,000

15 Services Provided and Obligations Met:

- 16 • \$0.3M for USBR & FWS labor to develop potential approaches and maintain
- 17 capability.

18 Unmet Obligations, Needs, and Adverse Effects:

- 19 • 200,000 AF of instream water not acquired.
- 20 • Failure to address the key limiting factor for anadromous fish species' instream
- 21 habitats and populations.

22 Potential Mitigating Measures: same as current.

23 Reimbursement Requirement: same as fully funded.

24 **Eliminate**

25 Unmet Obligations, Needs, and Adverse Effects:

- 26 • 200,000 AF of instream water not acquired.
- 27 • Failure to address the key limiting factor for anadromous fish species' instream
- 28 habitats and populations.
- 29 • No ability to take advantage of potential opportunities and needs.

30 Potential Mitigating Measures: same as current

31 Reimbursement Requirement: same as fully funded.

32 **Switch Funding Source**

33 No alternative authorities were identified.

34 **Tracy Pumping Plant Mitigation Program**

35 The purpose of the program is to improve fish protection and fish salvage at the Tracy Fish
36 Collection Facility and to determine the best practical fish protection technology for making long-

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1 term future improvements at Tracy and other South Delta facilities. The Tracy Program
2 historically used Water and Related Resources funding.

3 Fully Funded

4 A fully funded program would complete the improvement actions identified for the Tracy Fish
5 Facility.

6 Sources and Levels: \$15,000,000 from CVPRF and \$5,000,000 from WRR with a 25%
7 Cost-Share annual for the next 3-5 years.

8 Services Provided and Obligations Met:

- 9 • Construction of Improvement Actions
- 10 • Studies on Operations and Fish Handling Approaches
- 11 • Compliance with the Biological Opinion for operation of the CVP

12 Unmet Obligations, Needs, and Adverse Effects: none.

13 Potential Mitigating Measures: none.

14 Reimbursement Requirement: 37.5% as described by section 3406(b)(4) of the CVPIA.

15 Current

16 Historical funding level from the 2014 Annual Work Plan

17 Sources and Levels: \$5,000,000 from WRR with a 25% State Cost-Share

18 Services Provided and Obligations Met:

- 19 • Construction of Improvement Actions
- 20 • Studies on Operations and Fish Handling Approaches
- 21 • Compliance with the Biological Opinion for operation of the CVP

22 Unmet Obligations, Needs, and Adverse Effects: increased timeframe for completion of
23 activities.

24 Potential Mitigating Measures: none

25 Reimbursement Requirement: same as fully funded.

26 Minimal

27 Same as current.

28 Eliminate

29 Same as current

30 Switch Authorities

31 This program could potentially use operations and maintenance authorities, but water and
32 power contractors would lose the advantage of mitigation and restoration payments offsetting
33 reimbursable expenditures.

1 **Clear Creek Restoration Program**

2 The Clear Creek Restoration Program provides flows, gravel, and restoration actions on Clear
3 Creek.

4 **Fully Funded**

5 A fully funded program would complete all restoration actions while providing for flows and
6 adaptive management for continued restoration.

7 Sources and Levels: \$2.5 million from the CVPRF with over 50% State Cost-Share and
8 substantial state contributions. Fully funded includes a single \$3,500,000 cost to
9 complete Phase 3C.

10 **Services Provided and Obligations Met:**

- 11 ● Program Management
- 12 ● Comprehensive Flow Program
- 13 ● 25,000 tons of Spawning Gravel Injection
- 14 ● Lower Clear Creek Aquatic Habitat & Mercury Abatement Project
- 15 ● Stream Channel Restoration Phase 3C
- 16 ● Planning for Repairs to the Oak Bottom Temperature Control Curtain
- 17 ● Adaptive Management Program Monitoring

18 **Unmet Obligations, Needs, and Adverse Effects:** none.

19 **Potential Mitigating Measures:** none.

20 **Reimbursement Requirement:** Costs associated with channel restoration, passage
21 improvements, and fish ladder construction required by this paragraph shall be allocated
22 50 percent to the United States as a non-reimbursable expenditure and 50 percent to the
23 State of California. Costs associated with providing the flows required by this paragraph
24 shall be allocated among project purposes.

25 **Current**

26 The current level maintains flow releases, gravel augmentation, and some level of adaptive
27 management.

28 Sources and Levels: \$1.4 million from the CVPRF plus 50% State Cost-Share

29 **Services Provided and Obligations Met:**

- 30 ● Program Management
- 31 ● 7,700 tons of Spawning Gravel Injection
- 32 ● Lower Clear Creek Aquatic Habitat & Mercury Abatement Project
- 33 ● Partial Channel Maintenance Flows
- 34 ● Partial Adaptive Management Program

35 **Unmet Obligations, Needs, and Adverse Effects:**

- 36 ● No comprehensive flow program
- 37 ● No Planning for Repairs to the Oak Bottom Temperature Control Curtain
- 38 ● No further restoration planning (including Phase 3C)
- 39 ● Reduced geomorphic monitoring
- 40 ● Reduced biological monitoring.

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1 Potential Mitigating Measures: none

2 Reimbursement Requirement: same as fully funded.

3 **Minimal**

4 A minimal program would release flows based on existing information and provide some level of
5 gravel augmentation.

6 Sources and Levels: \$500,000 from the CVPRF plus over 50% State Cost-Share

7 Services Provided and Obligations Met:

- 8 • Program Management
- 9 • Channel Maintenance Flows
- 10 • 7,700 Tons of Gravel

11 Unmet Obligations, Needs, and Adverse Effects:

- 12 • No assistance for the Lower Clear Creek Aquatic Habitat & Mercury Abatement
13 Project
- 14 • No Adaptive Management Program
- 15 • No comprehensive flow program
- 16 • No Planning for Repairs to the Oak Bottom Temperature Control Curtain
- 17 • No further restoration planning (including Phase 3C)
- 18 • No geomorphic monitoring
- 19 • No biological monitoring.

20 Potential Mitigating Measures: none.

21 Reimbursement Requirement: same as fully funded.

22 **Eliminate**

23 Unmet Obligations, Needs, and Adverse Effects: current habitat would likely degrade
24 and anadromous fish populations would decline.

25 Potential Mitigating Measures: the State may continue to provide some funding, but the
26 level is unknown.

27 Reimbursement Requirement: same as fully funded.

28 **Switch Authorities**

29 CalFed Bay-Delta Funds and State Funding historically provided resources to the Clear Creek
30 Program. Continued activity might occur under the Fish and Wildlife Coordination Act (see
31 AFRP switch authorities).

32 **Spawning and Rearing Habitat on CVP Streams Program**

33 The language from the Act is "Develop and implement a continuing program for the purpose of
34 restoring and replenishing, as needed, spawning gravel lost due to the construction and
35 operation of Central Valley Project dams, bank protection projects, and other actions that have
36 reduced the availability of spawning gravel and rearing habitat in the Upper Sacramento River
37 from Keswick Dam to Red Bluff Diversion Dam in the American and Stanislaus Rivers

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1 downstream from the Nimbus and Goodwin Dams, respectively. The program shall include
2 preventive measures, such as re-establishment of meander belts and limitations on future bank
3 protection activities, in order to avoid further losses of instream and riparian habitat."

4 Fully Funded

5 A fully funded program would complete an annual project on each of the three rivers. Each
6 annual project would incorporate salmonid spawning and rearing habitat features such as side
7 channel creation/enhancement, floodplain rearing habitat enhancement, and spawning gravel
8 placement. Effectiveness and validation monitoring would be an ongoing part of projects to
9 ensure meeting program objectives and to identify ways to improve.

10 Sources and Levels: \$5,000,000 per year from the CVPRF with 25% State Cost-Share

11 Services Provided and Obligations Met: Completion of 1 project per year on each of the
12 three CVP streams.

13 Unmet Obligations, Needs, and Adverse Effects: this funding level would likely not be
14 sufficient to replace the estimated average annual gravel deficits but focused projects
15 would concentrate habitat improvements at locations where they can be most cost
16 effective.

17 Potential Mitigating Measures: none.

18 Reimbursement Requirement: 37.5 % based on the 3406(b)(13) provision of the CVPIA.

19 Current

20 Current levels use the historical Annual Work Plans as a reference.

21 Sources and Levels: \$750,000 to \$1,500,000 per year from the CVPRF and 25% State
22 Cost-Share

23 Services Provided and Obligations Met: projects occur on two of the three program
24 rivers. While small scale monitoring occurs on each river, more comprehensive,
25 although funding limited, effectiveness monitoring has been occurring on only the
26 American River with an attempt to apply what is learned there to the other rivers.

27 Unmet Obligations, Needs, and Adverse Effects:

- 28 • Comprehensive monitoring does not occur on the Sacramento or Stanislaus.
- 29 • Baseline population on American has not occurred.

30 Potential Mitigating Measures: none.

31 Reimbursement Requirement: same as fully funded.

32 Minimal

33 Gravel would be stockpiled below dams on a rotating basis. The program would rely on high
34 reservoir releases to transport material downstream with the hope that it would be distributed in
35 a beneficial configuration to benefit the spawning and rearing habitat needs of the species.

36 Sources and Levels: \$500,000 per year from the CVPRF and 25% State Cost-Share.

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Services Provided and Obligations Met: some replenishment of gravel.

Unmet Obligations, Needs, and Adverse Effects:

- targeted restoration
- effectiveness monitoring

Potential Mitigating Measures: none

Reimbursement Requirement: same as fully funded.

Eliminate

Unmet Obligations, Needs, and Adverse Effects: Eliminating spawning and rearing habitat restoration program activities would continue the degradation in habitat condition below the CVP reservoirs that has been occurring since the dams were put in place. As time goes by the habitat would become less productive for naturally produced salmonids and the reliance on hatchery production would necessarily continue if society desires to maintain salmonid populations. The partnerships developed with local stakeholder groups in implementing projects would end. With degradation of essential fish habitats, more requirements may be put on the CVP to maintain and improve habitats pursuant to the endangered species act.

Potential Mitigating Measures: some augmentation is currently required as part of the OCAP Biological Opinions..

Switch Authorities

No funding source is identified, but actions could potentially be taken under the Fish and Wildlife Coordination Act (see AFRP switch authorities scenario).

Comprehensive Assessment and Monitoring Program

The Comprehensive Assessment and Monitoring Program (CAMP) monitors fish and wildlife resources in the Central Valley to assess the biological results and effectiveness of actions pursuant to 3406(b).

Fully Funded

The fully funded scenarios provides for additional analysis and monitoring as well as increase ability to assist state and local entities in stop-gap measures to preserve long-term datasets.

Sources and Levels: \$4,500,000 per year from the CVPRF with a 25% State Cost-Share. Costs assume that non-CVPIA entities will continue to fund the majority of the monitoring activities that are required to assess progress toward the CVPIA's anadromous fish production targets or conduct the CAMP-recommended monitoring activities listed in the CAMP's Implementation Plan. Overall, the estimated cost of conducting all of the activities identified in the CAMP Implementation Plan in 2013 dollars would likely cost at least \$12,100,000. Costs include:

- CAMP lead, co-lead and analysis staff ~\$1,000,000
- Monitoring Projects ~\$2,500,000
- Development and Maintenance of Tools ~\$700,000
- Scientific Quality and Data Access ~\$100,000
- Temporary Funding for Data Continuity ~\$200,000

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Services Provided and Obligations Met:

- Reporting on anadromous fish populations.
- Monitoring projects that are used to assess progress toward the CVPIA's anadromous fish production targets, primarily key rotary screw traps and escapement surveys. Some of the monitoring activities that are necessary to assess progress toward the CVPIA's anadromous fish production targets have the added benefit of also addressing some of the monitoring requirements identified in the OCAP biological opinion that was issued to the BOR.
- The development and maintenance of tools that can be used to adaptively manage and improve the success of habitat restoration activities such as the Rotary Screw Trap Platform.
- Projects that require temporary funding to ensure their continuity such as screw traps and escapement on Central Valley tributaries, and
- Activities designed to improve the scientific quality of, and access to, information used by Department of the Interior managers and resource staff.

Unmet Obligations, Needs, and Adverse Effects: none.

Potential Mitigating Measures: none.

Reimbursement Requirement: 37.5 % based on the 3406(b)(16) provision of the CVPIA.

Current

Sources and Levels: \$3,700,000 from the CVPRF based on the 2014 Budget.

Services Provided and Obligations Met:

- Reporting on anadromous fish populations.
- Collecting data to proactively manage flows in the Sacramento and San Joaquin rivers, thereby improving the survival of juvenile salmon that leave their natal watersheds and migrate to the Pacific Ocean,
- Developing a computerized platform that stores, analyzes, and reports juvenile Chinook salmon data that provides insight into the biological response of in-stream habitat restoration activities, and

Unmet Obligations, Needs, and Adverse Effects:

- Analyst staff to draw conclusions and make recommendations from data collection.
- Temporary Funding to maintain data continuity, e.g. the American River Adult Salmon escapement survey, hatchery constant fractional marking.
- Increasingly unable to leverage cost-share to increase monitoring

Potential Mitigating Measures: none.

Reimbursement Requirement: same as fully funded.

Maintenance-Level

Sources and Levels: \$1,300,000 per year from the CVPRF with a 25% State Cost-Share.

Services Provided and Obligations Met:

- Reporting on anadromous fish populations

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- Critical monitoring projects necessary for reporting.

Unmet Obligations, Needs, and Adverse Effects:

- Data that could be used to improve the success of future habitat restoration activities,
- Data to determine if ongoing habitat restoration activities were producing a biological response indicative of habitat restoration success, or
- Short-term bridge funding facilitating the continuity in essential monitoring activities.
- As a frame of reference, large habitat restoration programs in the United States, e.g., the Everglades Restoration Project and the restoration program in the Columbia River for adult salmon, have explicitly recognized the need to collect data that can be used in an iterative fashion to assess the success of completed restoration activities, and use those data to adaptively manage future restoration activities so they are more successful. The importance of such an approach was also highlighted in 2008 when the CVPIA's Fisheries Program underwent an independent scientific review.

Potential Mitigating Measures: none.

Reimbursement Requirement: same as fully funded.

Eliminate

Unmet Obligations, Needs, and Adverse Effects:

- Reporting on anadromous fish populations and the ability to determine progress on the fish doubling goal.
- Standardization of tools and datasets to facilitate knowledge transfer and comparisons of successful and unsuccessful projects for future efficiencies.
- Many of the current monitoring effort rely in part on CAMP funding and may not be feasible in the absence of these federal dollars.

Potential Mitigating Measures: none.

Switch Authorities

There is the potential that some of the CAMP-recommended monitoring activities could be undertaken by other entities, e.g., the California Department of Fish and Wildlife. If such were to occur, however, there would be no assurance that the entity would: (1) collect, analyze, report anadromous fish data in a manner that conforms with the need to assess progress toward the CVPIA fish production targets, (2) prioritize the funding of activities in a manner that reflects CVPIA priorities, or (3) produces data in the time frame CVPIA managers prefer.

Anadromous Fish Screen Program (AFSP)

The AFSP implements CVPIA Section 3406 (b)(21) which directs and authorizes the Secretary of the Interior to assist State of California in efforts to develop and implement measures to avoid losses of juvenile anadromous fish resulting from unscreened or inadequately screened diversions on the Sacramento and San Joaquin rivers, their tributaries, the Sacramento-San Joaquin Delta, and the Suisun Marsh. Such measures shall include but shall not be limited to the construction of fish screens on unscreened diversions. The share of project costs from the Department of the Interior shall not exceed 50 percent of the the total project costs.

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1 The Key AFSP Goals and Objectives are:

2 Goals:

- 3 (A) To assess fish screen benefits and to prioritize diversions for screening.
4 (B) To improve fish screen effectiveness and efficiency.
5 (C) To coordinate and collaborate with other agencies and entities involved in fish
6 screening.
7 (D) To develop and share fish screen information.
8 (E) To reduce fish screen project costs.

9 Objectives:

- 10 (A) Provide funding and/or technical assistance for fish screen projects.
11 (B) Coordinate with the Anadromous Fish Restoration Program (AFRP) to assess fish
12 screen project priorities in support of the Final Restoration Plan for the AFRP.
13 (C) Support and evaluate screen/diversion related research to help determine:
14 1. The benefits of fish screens.
15 2. Lower cost options for minimizing fish losses at diversions such as the use of
16 behavioral devices at small diversions rather than more expensive positive
17 barrier screens.
18 3. Cost-effective fish screen design improvements including ways to reduce fish
19 predation.
20 (D) Conduct post-construction monitoring of fish screens

21 Fully Funded

22 Sources and Levels: \$5 - \$10 million from the CVPRF

23 Services Provided and Obligations Met: 4-8 screens per year.

24 Unmet Obligations, Needs, and Adverse Effects: There are over 3,700 diversions on the
25 Sacramento and San Joaquin Rivers and their tributaries, and the Sacramento-San
26 Joaquin Delta and Suisun Marsh. Of these existing diversions, over 95% of them are
27 currently unscreened.

28 Potential Mitigating Measures: none.

29 Reimbursement Requirement: Up to 50% based on the federal share amount provided
30 pursuant to section 3406(b)(21) of the CVPIA. The Act does not identify specific
31 reimbursable amounts for the federal share. According to the Reclamation
32 Reimbursability Guidelines, the activity is aligned with a specific project, the CVP, by law
33 and is attributable to project operations. The authorized purpose currently provides for
34 fish and wildlife mitigation, but could provide enhancement at a later date

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1 Current

2 Sources and Levels: \$3-\$4 million from the CVPRF on average with supplemental from
3 WRR of \$1-\$5 million.

4 Services Provided and Obligations Met: Historically, the AFSP has averaged completion
5 of about 2 fish screen projects per year. Funding at historic levels would be consistent
6 with the NMFS Biological Opinion and would allow the AFSP to continue to meet its key
7 program goals and objectives: It is estimated that 2 to 3 fish screen projects could be
8 constructed each year under a program funded at current levels.

9 Unmet Obligations, Needs, and Adverse Effects: same as fully funded, but to a greater
10 extent.

11 Potential Mitigating Measures: none.

12 Reimbursement Requirement: same as fully funded.

13 Minimal

14 Sources and Levels: \$1.5 million dollars would allow the program to continue to support
15 program operations and provide basic technical support for fish screen projects.

16 Services Provided and Obligations Met: It is estimated that 1 small-sized fish screen
17 project (less than 40 cfs) could be constructed every other year under a program funded
18 at a maintenance level.

19 Unmet Obligations, Needs, and Adverse Effects: same as fully funded, but with no
20 material progress.

- 21 • Minimal funding for the AFSP would not be consistent with the NMFS Biological
22 Opinion for CVP/SWP operations that requires funding for the AFSP at historic
23 levels.
- 24 • Minimal funding for the AFSP would not allow the program to make substantial
25 progress towards the AFSP performance target of screening high priority
26 diversions on priority watersheds within the Central Valley and Delta.

27 Potential Mitigating Measures: none

28 Reimbursement Requirement: same as fully funded.

29 Eliminate

30 Unmet Obligations, Needs, and Adverse Effects:

- 31 • Currently the AFSP is the lead program for fish screening in the Central Valley
32 and Delta, and provides leadership and management on fish screen technical
33 issues, fish screen design and support for fish screen related research.
34 Elimination of AFSP funding would terminate these essential fishery restoration
35 functions.
- 36 • It would also significantly reduce the ability of the State of California to implement
37 fish screen projects since the AFSP cost shares on many of the fish screen
38 projects advocated by the State.

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- 1 • Elimination of funding for the AFSP would not be consistent with the NMFS
2 Biological Opinion for CVP/SWP operations that requires funding for the AFSP at
3 historic levels.
- 4 • The AFSP would not be able to fund activities in support the NMFS California
5 Central Valley Salmon and Steelhead Recovery Plan.
- 6 • Removal of AFSP funding would further impede the ability of CVPIA to double
7 the natural production of anadromous fish since fish screening is a key fishery
8 restoration tool in this effort.
- 9 • Lack of fish screen funding could result in ESA regulatory actions including more
10 stringent restrictions on water use including agricultural diversions. Some
11 diverters may need to provide a significant local cost share if their diversion
12 needs to be screened, due to the lack of available AFSP funding.

13 Potential Mitigating Measures: none

14 **Switch Authorities**

15 The Bay-Delta appropriation may have some authority to provide funding but does not have an
16 ongoing fish screening program.

17

18 **Refuge Water Supply Program**

19 The RWSP consists of three major components - water acquisition, water conveyance, and
20 facilities construction. Reclamation and the U. S. Fish and Wildlife Service (USFWS) jointly
21 implement the Refuge Water Supply Program (RWSP), with the California Department of Fish
22 and Wildlife (CDFW) acting as the lead state partner. In addition, Reclamation collaborates with
23 the Grassland Water District (GWD) in the acquisition and delivery of water supplies to the
24 Grassland Resource Conservation District's (GRCD) private wetlands. Reclamation, Service,
25 CDFW, and GWD, working collaboratively together, plan and implement RWSP activities to
26 meet wildlife refuge water supply needs, in accordance with Section 3406 (d) of the Central
27 Valley Project Improvement Act (CVPIA).

28 **Fully Funded**

29 Assumes "current" conditions and constraints as portrayed for FY 2016 in the FY 2015/16
30 Annual Work Plans (AWPs). That is:

- 31 A) 15 of 19 wildlife refuges can receive full Level 4 (L4) water supplies, although this
32 may change within 5-10 years.
- 33 B) An average annual IL4 water acquisition quantity of 60,000 acre-feet (AF).
- 34 C) Total L2 and IL4 water conveyed (surface and groundwater) of 395,000 AF and
35 60,000 AF, respectively.
- 36 D) Per the FY 2015/16 AWPs, the conveyance of L2 water assumes an average
37 conveyance unit cost of \$43/acre-feet (AF) for 340,000 AF of surface water, and an
38 average groundwater pumping cost of \$72/af for approximately 14,300 AF of

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1 groundwater. For IL4 water supplies: Assumes a conveyance unit cost of \$160/af for
2 17,330 AF of surface water and an average pumping unit cost of \$100/af for 12,200 AF
3 of groundwater. For water acquisitions, assumes an average water acquisition unit cost
4 of \$280/af for surface water and a groundwater pumping unit cost of \$100/af.

5 E) For facilities construction, assumes an average annual budget sufficient to fund up to
6 4 ongoing projects over a 10-year period. Ongoing construction activities include Gray
7 Lodge WA – Biggs-West Gridley Water District's facilities improvements, Sutter NWR -
8 Lift Station (short-term solution), NVRWP - design and permitting activities, and
9 resolution of East Bear Creek Unit Pumping Plant's design and operational issues.

10 All dollar amounts are estimates only. Actual annual unit costs for conveyance and acquisitions
11 vary from year to year. Assumes CVPIA Finance Plan would be initiated in FY 2016.

12 Sources and Levels: From the CVPRF, the RWSP would require \$42.5 million with a
13 25% state cost-share on incremental level 4 facility construction, water acquisition, and
14 conveyance broken down as follows:

- 15 • \$20 M to convey Level 2 (L2) (\$15.6 M) and Incremental Level 4 (IL4) (\$4.4M)
16 water supplies
- 17 • \$15 M to acquire IL4 water.
- 18 • \$6 M for facilities construction.
- 19 • \$1.5 M for USBR & FWS labor.

20 Services Provided and Obligations Met: Refuges provide habitat supporting migrant
21 waterfowl and shorebirds; resident wildlife; and the recovery of special status species
22 such as the giant garter snake, and tricolored blackbirds. In addition, RWSP water
23 supplies allow refuge managers to "flush" excess salts from wetlands to improve soil
24 quality and productivity.

- 25 • Provide 395,000 acre-feet (AF) of L2 (including 40,000 AF from diverse sources)
26 and 54,000 AF of IL4 (net after 10% losses) to refuges' boundaries
- 27 • Acquire 60,000 AF of IL4 water.
- 28 • Partially fund phases of 4 construction activities

29 Unmet Obligations, Needs, and Adverse Effects:

- 30 • 27,000 AF undelivered L2 water.
- 31 • 79,000 AF undelivered IL4 water (net after 10% losses).
- 32 • 88,000 AF of IL4 water not acquired.
- 33 • Completion of 4 construction projects
- 34 • May need up to \$50M for North Valley Regional Recycled Water Program's
35 construction, if it moves forward.

36 Potential Mitigating Measures: State provides SWP mitigation water (pending Bay-Delta
37 Conservation Plan outcome) to refuges in lieu of 25 % cost share.

38 Reimbursement Requirement: 100% for level 2 conveyance & facilities construction (L2
39 benefit portion) based on section 3406(d)(3). 100% of federal expenditures are non-
40 reimbursable for all Incremental Level 4 costs.

41 **Current**

42 Assumes FY 2016 RWSP activities and budgets as presented in FY 2014 Annual Work Plans.

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1 Sources and Levels: Since 2002, the RWSP average annual operating cost has been
2 approximately \$21 million from the CVPRF, ranging from approximately \$15 million to
3 approximately \$26 million, depending on the availability of funds as well as water pricing,
4 water conveyance costs, and conveyance facilities' construction activities. Some WRR
5 funds have assisted the refuges on rare occasion. Current conditions used the FY16
6 budget for a total cost of \$23.5 million broken down as follows.

- 7 • \$11.7 M to convey L2 & IL4 water supplies.
- 8 • \$10.3 M to acquire IL4 water.
- 9 • No funding for facilities construction.
- 10 • \$1.5 M for USBR & FWS labor

11 Services Provided and Obligations Met:

- 12 • Provide 306,000 AF of L2 (including 40,000 AF from diverse sources) and 37,080
13 AF of IL4 water (net after 10% losses) to refuges' boundaries.
- 14 • Acquire 41,200 AF of IL4 water.
- 15 • Provide project management support for on-going facilities construction activities
16 previously funded with prior year funds.

17 Unmet Obligations, Needs, and Adverse Effects:

- 18 • 116,000 AF of undelivered L2 water.
- 19 • 94,300 AF (net after 10% losses) of undelivered IL4 water.
- 20 • 104,800 AF of IL4 water not acquired.

21 Potential Mitigating Measures: same as the fully funded scenario.

22 Reimbursement Requirement: same as fully funded.

23 **Minimal**

24 Assumes delivery of L2 water to all refuges except Sutter NWR and that SJRRP easements will
25 be completed to allow for L2 water delivery to East Bear Creek Unit.

26 Sources and Levels: From the CVPRF, the RWSP would require \$17.1 million broken
27 down as follows:

- 28 • \$18M to convey L2 water.
- 29 • \$1.5M for USBR & FWS labor.

30 Services Provided and Obligations Met:

- 31 • Provide annually approximately 386,000 AF of L2 water only (including 40,000
32 AF from diverse sources).
- 33 • Provide project management support for on-going facilities construction activities
34 and IL4 water acquisitions previously funded with prior year funds.

35 Unmet Obligations, Needs, and Adverse Effects:

- 36 • 36,000 AF of L2 not provided.
- 37 • 133,264 of IL4 undelivered (net after 10% losses).
- 38 • 148,000 AF of IL4 not acquired.
- 39 • Facility construction not completed.

40 Potential Mitigating Measures: same as the fully funded scenario

41 Reimbursement Requirement: same as the fully funded scenario

1 **Eliminate**

2 Refuges would rely upon conditions prior to the CVPIA that included floodwater when available,
3 riparian rights where available, ground water and drainage water of poor quality, and delivery
4 schedules not aligned to waterfowl needs.

5 Unmet Obligations, Needs, and Adverse Effects:

- 6 • 422,251 AF of L2 undelivered.
- 7 • 133,264 AF of IL4 undelivered (net after 10% losses)
- 8 • Adverse impacts to wetland habitat and birds

9 Potential Mitigating Measures: state and federal refuges would rely upon appropriations
10 separate from the CVPIA and historical water supplies of poor quality and incorrect
11 timing.

12 **Switch Authorities**

13 Potential actions could be taken under the Fish and Wildlife Coordination Act although no
14 funding source is identified.

15 **Independent Programs**

16 Independent programs either receive funding primarily from sources other than the CVPRF or
17 have few linkages to the fish doubling or refuge water supply objectives.

18 **Habitat Restoration Program**

19 The Habitat Restoration Program (HRP) addresses impacts of the CVP on species other than
20 anadromous and other fish and provides for protection, restoration, and enhancement of
21 habitats for priority federally listed species.

22 **Fully Funded**

23 The fully funded level would award all existing grant submissions under the current project
24 selection process that meet the program priorities, goals, objectives, and other eligibility criteria.

25 Sources and Levels: Approximately \$7 million per year based on the average annual
26 total request from program applicants from 2006 through 2014 and the ability of existing
27 staff to manage the workload.

28 Services Provided and Obligations Met: The HRP would fully fund more proposals as
29 opposed to the current practice of partial funding over numerous years.

- 30 • Expedited recovery and enhancement of priority federally listed species and
31 mitigation of habitat loss at an expedited rate to improve baseline conditions.
32 When proposed actions, such as contract renewals, undergo Section 7
33 consultation, they are analyzed in light of an environmental baseline that
34 improves as a result of HRP actions.
- 35 • Continued Operation of the CVP under Section 7 Consultation under the
36 Endangered Species Act for the renewal of contracts under the CVPIA
37 Programmatic EIS.

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- Interim Contract Renewals Biological Opinions (2001, 2002, and 2004) assume the HRP will continue "with at least current funding levels" which was at least \$1.5 million or more annually during these years.
- State Water Resources Control Board Decision 1641 (D-1641) (1999) requirement to provide funds to acquire, restore, or otherwise improve 41,109 acres of grassland and alkali scrub habitats. Under the Fully Funded option, Reclamation would provide sufficient funds to fulfill that requirement by 2020.
- Central Valley Project Conservation Program (CVPCP) Support: staff from the Service (Field Office & Regional Office) are involved in the reviewing, scoring, ranking, and selecting process for CVPCP projects along with HRP projects since the solicitation for proposals is jointly announced. Applicants submit proposals to both programs under one funding announcement since the goals and objectives of the programs the same. The HRP, in working closely with the CVPCP, does provide a service to the CVPCP by increasing efficiencies in program staffing and delivery, and by leveraging CVPCP funds to make for more effective mitigation of CVP impacts.

Unmet Obligations, Needs, and Adverse Effects: None

Potential Mitigating Measures: None required.

Reimbursement Requirement: 100%. In section 3406(b)(1)(D), the Act specifies that costs associated with this paragraph shall be reimbursable pursuant to existing statutory and regulatory procedures. According to the Reclamation's Reimbursability Guidelines, the activity is aligned with a specific project, the CVP, by law and is attributable to project operations. The authorized purpose is for fish and wildlife species mitigation. Contributions to the restoration fund offset the requirement to recover these expenditures.

Current

The current level evaluated the historical average conditions and accomplishments.

Sources and Levels: Approximately \$1,500,000 from the CVPRF based on the historical average during the period of 2005 through 2014.

Services Provided and Obligations Met: approximately the same amount of habitat would be acquired and restored as historically accomplished for species impacted by the CVP.

- Recovery of Listed Species and Mitigation of Habitat Loss: The 2013 CVPIA Accomplishment report shows that from 1996 through 2013, the HRP protected and restored over 16,000 acres.
- Continued Operation of the CVP under Section 7 Consultation under the Endangered Species Act
- Interim Contract Renewals Biological Opinions (2001, 2002, and 2004) assume the HRP will continue "with at least current funding levels" which was at least \$1.5 million or more annually.
- CVPCP Support: staff managing the HRP would continue to collaborate with the CVPCP manager.

Unmet Obligations, Needs, and Adverse Effects:

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- Meeting the D-1641 Timelines Would Be Difficult: The HRP is one of only two active programs that Reclamation has identified to help meet its D-1641 requirement for fulfilling the State's mitigation requirement for the CVP Place of Use. In 2010, Reclamation informed the Board that it had not met its requirements under D-1641, and requested an extension. In 2010, the Board issued an extension until 2020. Reclamation is still having difficulty in achieving its land acquisition and habitat improvement requirements for D-1641, as funding levels have not been enough to make sufficient progress. It could become more difficult to expand and consolidate the Place of Use as needed by Reclamation, as well as by Water and Power contractors for whom periodic changes in the Place of Use is in their interest.
- CVPIA Programmatic Biological Opinion: The CVPIA Programmatic EIS assumed HRP costs of \$2 million per year. If the Service believes Reclamation is not meeting the terms of the BO, the Service may compel Reclamation to reinitiate consultation on contract renewals. The continued decline in habitat and species since the BO was issued may result in additional measures that make it more difficult for Reclamation to continue to operate the CVP.

Potential Mitigating Measures:

- The CVPCP is a Reclamation program outside of the CVPIA that could lessen the effects of the option and is also listed as a measure to mitigate impacts from the CVP under Service BOs and D-1641. Should additional resources be allocated to the CVPCP to compensate for reduced allocations to the HRP, it would enhance Reclamation's ability to achieve its regulatory and mitigation requirements.

Reimbursement Requirement: Costs under the CVPRF would be 100% reimbursable. If Reclamation must use Water and Related Resource funds to accomplish the D-1641 requirements, the collections into the CVPIA would not offset the reimbursability requirements and the costs would be reflected in the water and power rates in the same year the costs were incurred.

Minimal

Minimum level funding uses the minimum historical budget from fiscal year 2010 to fund staff and a small number of grants.

Sources and Levels: Approximately \$1,300,000 from the CVPRF.

Services Provided and Obligations Met: It is not clear that this level of funding would be adequate to avoid a need to reinitiate Section 7 consultation, although some small progress would occur. Staff from the HRP would continue to collaborate with the CVPCP.

Unmet Obligations, Needs, and Adverse Effects:

- Recovery of listed species and mitigation of habitat loss would occur on a minimal basis and may not achieve full mitigation requirements because of continued land and water resources development.
- Continued Operation of the CVP under Section 7 Consultation under the Endangered Species Act would be at risk. The Service may require Reclamation to re-initiate ESA consultation which may result in additional measures that make it more difficult to continue to operate the CVP.

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- The Service raised concerns at this level in 2010 based on the Interim Contract Renewals Biological Opinions (2001, 2002, and 2004), therefore water contracts would be at risk.
- Little to no progress on D-1641 would occur from the HRP.

Potential Mitigating Measures: same as current practices, but with an increased burden on the CVPCP.

Reimbursement Requirement: An increased burden on Water and Related Resources funding to meet obligations for contracts and operations of the CVP would increase the water and power rates payable in the same year as the costs are incurred. Future projects would likely see additional mitigation requirements.

Eliminate

Unmet Obligations, Needs, and Adverse Effects

- No recovery of listed species and mitigation of habitat loss
- No HRP support for the CVPCP.
- Continued Operation of the CVP would require re-consultation under Section 7 of the Endangered Species Act
- The CVPIA would not meet the terms for Interim Contract Renewals Biological Opinions (2001, 2002, and 2004).
- All responsibilities for D-1641 would be born by other sources, such as the CVPCP.

Potential Mitigating Measures: same as maintenance levels, but with exclusive reliance on the CVPCP and no HRP support.

Reimbursement Requirement: An increased burden on Water and Related Resources funding to meet obligations for contracts and operations of the CVP would increase the water and power rates payable in the same year as the costs are incurred. Future projects would likely see additional mitigation requirements.

Alternative Authorities

The CVPCP is a Reclamation program outside of the CVPIA that could lessen the effects of the option and is also listed as a measure to mitigate impacts from the CVP under Service BOs and D-1641. Should additional resources be allocated to the CVPCP to compensate for reduced allocations to the HRP, it would enhance Reclamation's ability to achieve its regulatory and mitigation requirements.

Federal Science Task Force

The Task Force was established by the Federal Bay-Delta Leadership Committee to develop and implement a Near-Term Science Strategy and an Integrated Biological Opinion that would address the Bay Delta Conservation Plan (BDCP) and related operations of the Federal Central Valley Project (CVP) and California's State Water Project (SWP). The Task Force was formed in May 2010 with staff from the Bureau of Reclamation (Reclamation); U.S. Fish and Wildlife Service (FWS), National Marine Fisheries Service (NMFS) and U.S. Geological Survey (USGS). The Task Force prepared two documents: the "Near-Term Science Strategy" and the "Integrated BDCP BiOp Strategy". The first document identifies an initial list of near-term scientific research issues arising from the National Academy of Sciences report entitled, "A

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1 Scientific Assessment of Alternatives for Reducing Water Management Effects on Threatened
2 and Endangered Fishes in California's Bay Delta" (NAS Report). The second document
3 identifies analytical methods and modeling tools, responsibilities, integration of independent
4 peer review, and critical science gaps that need to be addressed. The Task Force uses Water
5 and Related Resources appropriations.

6 Current

7 Sources and Levels: \$5,500,000 from Water and Related Resources.

8 Services Provided and Obligations Met: grants to address issues in the Bay-Delta.

9 Reimbursement Requirement: 100%. In section 3406(b)(1)(D), the Act specifies that
10 costs associated with this paragraph shall be reimbursable pursuant to existing statutory
11 and regulatory procedures. According to the Reclamation Reimbursability Guidelines,
12 the activity is aligned with a specific project, the CVP, by law and is attributable to project
13 operations. The authorized purpose for fish and wildlife mitigation. Contributions to the
14 restoration fund offset the requirement to recover these expenditures.

15 Alternative Authorities

16 None identified.

17 San Joaquin River Restoration Program

18 The San Joaquin River Restoration Program (SJRRP) is a comprehensive long-term effort to
19 restore flows to the San Joaquin River from Friant Dam to the confluence of Merced River and a
20 self-sustaining Chinook salmon fishery in the river while reducing or avoiding adverse water
21 supply impacts from restoration flows.

22 Fully Funded

23 Sources and Levels: \$2,000,000 (2006 price levels) from the CVPRF plus variable Water
24 and Related Resource appropriations and the San Joaquin River Restoration Fund.

25 Services Provided and Obligations Met:

- 26 • Monitoring and Analysis Program for Adaptive Management
- 27 • Channel and Structural Improvements.

28 Unmet Obligations, Needs, and Adverse Effects: none related to the CVPIA.

29 Potential Mitigating Measures: none related to the CVPIA

30 Reimbursement Requirement: 0%. Expenditures are non-reimbursable according to Title
31 10 of Public Law 111-11 section 10006(d).

32 Current

33 Sources and Levels: \$2,000,000 from the CVPRF plus additional funding from other
34 sources.

35 Services Provided and Obligations Met:

- 36 • Monitoring and Analysis Program for Adaptive Management
- 37 • Channel and Structural Improvements.

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1 Unmet Obligations, Needs, and Adverse Effects: none.

2 Potential Mitigating Measures: none.

3 Reimbursement Requirement: same as fully funded.

4 **Minimal**

5 Sources and Levels: \$0 - other sources would provide all funding.

6 Services Provided and Obligations Met: none.

7 Unmet Obligations, Needs, and Adverse Effects: reduced monitoring to inform actions to
8 support fish populations. Channel and structural improvement actions would require
9 additional time. Downstream reaches would not receive the full additional flows as a
10 result of the SJRRP as quickly.

11 Potential Mitigating Measures: reduced ability to meet water management goal activities
12 as funds are directed to the Restoration Goal.

13 Reimbursement Requirement: not applicable.

14 **Eliminate**

15 Same as maintenance level.

16 **Trinity River Restoration Program**

17 The Trinity River Restoration Program's (TRRP) overarching goal is to restore anadromous fish
18 populations to pre-dam levels. The TRRP is designed to restore the attributes of a healthy,
19 alluvial river system by implementing variable annual instream flows, mechanical channel
20 rehabilitation, sediment management, and watershed restoration. TRRP has three funding
21 sources: (1) Water and Related Resources, (2) USFWS fisheries program funds and (3)
22 Restoration Fund. For this exercise it was assumed that Water and Related Resources and
23 USFWS fisheries program funds would be unaffected by the CVPIA fiancé plan. However,
24 USFWS appropriated funds and W&RR funding are augmented by Restoration funds from \$1-
25 3M to maintain TRRP funding at ~\$16M . Restoration Fund moneys are typically used for
26 mechanical channel rehabilitation that fall under 3406(b)(1) other program activities. This is only
27 one of a suite of restoration actions the TRRP takes to restore the attributes of a healthy, alluvial
28 system. Annual reductions in Restoration Funds are accommodated by reductions in the scope
29 of planned Channel Rehabilitation Projects, or deferral of projects to subsequent years.

30 **Fully Funded**

31 This increased level would allow the TRRP to complete the goal of 47 inchannel projects in a
32 timelier manner.

33 Sources and Levels: \$5-\$6 million per year from the CVPRF.

34 Services Provided and Obligations Met: An increase in RF funds to \$5-6M would annual
35 TRRP levels at approximately \$22M. An increase of RF funding to \$5-6M would enable
36 3 projects to be built per year, and the program to complete all in-channel projects by a

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projected date of 2018. Construction of inchannel fish habitat was documented as a limiting factor to restore the Trinity River fishery resources to pre-dam levels.

Unmet Obligations, Needs, and Adverse Effects: none

Potential Mitigating Measures: none

Reimbursement Requirement: 100%. In section 3406(b)(1)(D), the Act specifies that costs associated with this paragraph shall be reimbursable pursuant to existing statutory and regulatory procedures. According to the Reclamation Reimbursability Guidelines, the activity is aligned with a specific project, the CVP, by law and is attributable to project operations. The authorized purpose for fish and wildlife mitigation. Contributions to the restoration fund offset the requirement to recover these expenditures.

Current

Sources and Levels: \$1-3M annually from the CVPRF with W&RR providing \$11-13M and USFWS providing \$2M.

Services Provided and Obligations Met: CVPRF funds typically cover construction costs for one or two in-channel construction projects that meet CVPIA and Bureau goals of 1-3 inchannel projects per year toward a final goal of 47 completed inchannel projects. Actual needs are determined by the project scope, but based on 32 completed in-channel projects, an estimate of \$1.5-2.5M per project can be expected. Based on these factors, funding will be required at \$1-3M annually through 2022 to maintain the current rate of achievement.

Unmet Obligations, Needs, and Adverse Effects: none.

Potential Mitigating Measures: none.

Reimbursement Requirement: same as fully funded.

Minimal

Sources and Levels: \$0 from the CVPRF

Services Provided and Obligations Met: none.

Unmet Obligations, Needs, and Adverse Effects: The TRRP would only complete 1 project using the other funding sources. Accommodating reductions in Restoration Funds could allow expirations of Environmental Assessments, NEPA/CEQA and other required permits for the projects.

Elimination of funding would prolong completion of the identified inchannel rehabilitation projects, identified in the 2000 Record of Decision (ROD). Elimination of funding for TRRP channel rehabilitation activities would likely result in a decline in all partner and stakeholder activities related to improvement of conditions for anadromous fish in the mainstem Trinity River. These rehabilitation activities supported by RF are part of a comprehensive programmatic, restoration approach funded through W&RR and USFWS that help reach the goal of restoration of the riverine processes of the Trinity River to maintain the anadromous fishery resources in the future. Given these assumptions, an

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1 extended recovery period for Trinity River habitat and the dependent fishery resources is
2 to be expected. The other complimentary restoration approaches of variable flows,
3 sediment management, and riparian and watershed restoration have much longer habitat
4 recovery periods than inchannel habitat construction where anadromous fish occupancy
5 and use are evident in the same or subsequent year.

6 Potential Mitigating Measures: none. Currently there are no other programs or
7 authorities that are implementing a comprehensive program in the Trinity River
8 mainstem focused on the critical objectives identified in the ROD.

9 Reimbursement Requirement: none.

10 **Eliminate**

11 Same as minimum level.

12 **Switch Authorities**

13 No other authorizations exist for the CVPIA-TRRP. TRRP partner agencies with existing
14 management or regulatory responsibilities in the Trinity River basin might be compelled to
15 contribute resources toward those activities that benefit their agencies and other stakeholders
16 beyond the CVPIA-TRRP goals.

17
18 **Modeling Program**

19 The Modeling Program is a multi-agency collaborative and comprehensive effort to model the
20 ever-changing CVPIA water operations and ecosystems. The U.S. Bureau of Reclamation
21 (Reclamation) and the U.S. Fish and Wildlife Service (USFWS) jointly implement the
22 Ecosystem and Water System Operations Modeling Program. The state partners are California
23 Department of Water Resources and California Department of Fish and Wildlife. This Program
24 is authorized by and being executed in accordance with Public Law Section 3406 (g) which
25 directs and authorizes the Secretary of the Interior to: ...*“develop readily usable and broadly
26 available models and supporting data to evaluate the ecologic and hydrologic effects of existing
27 and alternative operations of public and private water facilities and systems in the Sacramento,
28 San Joaquin, and Trinity River watersheds...”*

29 The models, that are being developed and maintained by this Modeling Program, are being
30 used to support water planners' and managers' decisions, screen and analyze the long-term
31 effects of various water operations on water quality, maximize the beneficial and diversified
32 water uses, and restore the ecosystem in the Central Valley region. In addition to the
33 Reclamation, water users in the Central Valley region and public entities such as the: (1) San
34 Luis and Delta-Mendota Water Authority; (2) Westlands Water District; (3) Metropolitan Water
35 Districts; (4) Contra Costa Water District; (5) Santa Clara Valley Water Agency; (6) California
36 Department of Water Resources; (7) California Department of Fish and Game; and (8) U.S. Fish
37 and Wildlife Service, etc. also use these models for their planning and operations.

38 **Fully Funded**

39 The Modeling Program provides leadership and accomplishes all modeling activities required for
40 the development, application, and adaptive management of the all model required for

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1 implementing the CVPIA Program according to changes in the laws, climate, reservoir
2 operations priorities, ecosystem hydrology, and water users' demands and priorities.

3 At Fully Funded level, the Modeling Program would serve as a "Regional Modelling Coordinator"
4 and would be able to lead, advise and coordinate modeling activities of other CVPIA Programs'
5 modeling needs. Best utilization of modeling resources would be achieved and duplication of
6 modeling activities and projects across programs and agencies would be eliminated. The
7 developed tools would lead to substantial savings in the other CVPIA programs through having
8 a ready representation of background physical conditions. They could also lead to more rapidly
9 achieving the doubling goal by helping identify the key projects.

10 Sources and Levels: \$13,000,000 per year from the CVPRF plus a 25% State in-kind
11 Cost-Share. Costs of DOI include:

- 12 • Modeling Program Manager (Lead), Co-Lead and 3 FTE modeling support staff
13 ~\$2,000,000
- 14 • Modeling Projects ~\$10,000,000
- 15 • Development, Updating, Applying and Maintaining of Modeling Tools
16 ~\$1,000,000

17 Services Provided and Obligations Met:

- 18 1. Apply SRH-2D (<http://www.xmswiki.com/xms/SMS:SRH-2D>) to seven of the
19 major tributaries to the Delta - Upper SJ (for SJRRP work), Merced, Tuolumne,
20 Stanislaus (done), American (done), Feather, and Sacramento. This would be
21 highly valuable for floodplain analyses focused on restoration as well as
22 avoidance in realtime operations of Redd dewatering and fish stranding.
- 23 2. Pay a consultant to re-write and fully document the code of HEC-5Q for each of
24 the existing applications (Upper SJ, Merced, Tuolumne, Stanislaus, American,
25 Feather, Sacramento, Clear Creek, and Trinity from Trinity Lake through
26 Lewiston) and then extensively train DOI staff in their use.
- 27 3. Pay a consultant to compare the accuracy of HEC-5Q on the various streams
28 with other more detailed physical water temperature models on those same
29 streams, e.g., On the Stanislaus - US NOAA's (contractor Tetra Tech) newly
30 developed EFDC model.
- 31 4. Pay a consultant to evaluate the accuracy of simulating Tracy and Clifton Court
32 on a monthly basis as opposed to a daily basis and the error of assuming full
33 capacity can ever be utilized on a sustained (for a whole month) basis.
- 34 5. Pay a consultant to evaluate the accuracy of simulating the upstream CVP and
35 SWP reservoirs on a monthly basis as opposed to a daily basis during periods of
36 high inflows.
- 37 6. Pay a consultant to enhance the Interactive Object-Oriented Simulation (IOS)
38 lifecycle model by incorporating the best parts of SALMOD, inSALMO and
39 SALSIM.
- 40 7. Based on 4 and 5 above, integrate daily submodels in CALSIM II.
- 41 8. Pay a consultant to integrate a Dynamic-link library (DLL)
42 (http://en.wikipedia.org/wiki/Dynamic-link_library) to reflect water temperature
43 operations/ requirements in CALSIM II.
- 44 9. Conduct an independent review of the CALSIM II hydrologic inputs including
45 accretions, depletions, demand magnitudes and diversion patterns, perhaps
46 leading to more detailed assumptions in extreme hydrologic-conditions.
- 47 10. Evaluate the realism of groundwater pumping operations/assumptions in
48 CALSIM II.

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11. Develop an ocean harvest model and apply that model for fish species that are of CVPIA's concern.

12. Develop at least a modicum of in-house familiarity/ competence with DSM2.

Unmet Obligations, Needs and Adverse Effects: None related to CVPIA

Potential Mitigating Measures: None related to CVPIA

Reimbursement Requirement: Federal expenditures are non-reimbursable according to 3406(g).

Current

The models, that are under development by this Program, are being continuously modified to incorporate changes to the regulatory environment, man-made changes in the eco-system, hydro-climate and water facilities, Operational Criteria and Plan (OCAP), Reasonable and Prudent Alternatives (RPA), etc. and then being applied to evaluate the effects of these changes or to evaluate the effects of any proposed/ planned modification.

Sources and Levels: About \$800,000 per year from the CVPIA Restoration Funds (CVPRF) plus Water & Related Resources plus State in-kind Cost-Share. Costs of DOI include:

- Modeling Program Manager (Lead), Co-Lead and minimal modeling support staff ~ \$450,000
- Modeling Projects ~\$350,000
- Development, Updating, Applying and Maintaining of Modeling Tools ~\$100,000

Services Provided and Obligations Met: Models namely -

- Comprehensive San Joaquin Water Quality Mode I (SJRSIM),
- CalSim II,
- DSM2,
- ECOSIM,
- InSALMO,
- C2VSIM,
- CalSim 3,
- CalLite II and HydroGeoSphere, are developed and being modified to incorporate recent changes in legislative requirements and water-environment.

These models met the CVPIA obligation for improved flow and water temperature, improved water quality, better management for anadromous fish species, better planning of water operations.

Unmet Obligations, Needs, and Adverse Effects: None related to CVPIA

Potential Mitigating Measures: None related to CVPIA

Reimbursement Requirement: same as fully funded.

Minimal

The models, that are under development by this Program, can not be modified to incorporate changes to the regulatory environment, man-made changes in the eco-system, hydro-climate and water facilities, Operational Criteria and Plan (OCAP), Reasonable and Prudent

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1 Alternatives (RPA), etc. These models then being applied to evaluate the effects of these
2 changes or to evaluate the effects of any proposed/ planned modification.

3

4 Sources and Levels: About \$450,000 per year from the CVPRF with no State Cost-
5 Share. Costs of DOI include:

6 Modeling Program Manager (Lead), Co-Lead and minimal modeling support staff ~
7 \$450,000

8 Services Provided and Obligations Met: None

9 Unmet Obligations, Needs, and Adverse Effects: The models, that are under
10 development by this Program, can not be modified to incorporate changes to the
11 regulatory environment, man-made changes in the eco-system, hydro-climate and water
12 facilities, Operational Criteria and Plan (OCAP), Reasonable and Prudent Alternatives
13 (RPA), etc. These models then being applied to evaluate the effects of these changes
14 or to evaluate the effects of any proposed/ planned modification.

15 Potential Mitigating Measures: None available

16 Reimbursement Requirement: Same as fully funded

17 Eliminate

18 Unmet Obligations, Needs, and Adverse Effects: Water development and transfer projects
19 would be required to provide the funds necessary to develop the models for evaluating changes
20 to operations.

21 Administrative

22 The administrative line item provides for the budget, collections, and reporting for Reclamation
23 and the Service including: management staff for Reclamation and the Service, and contract
24 management for the Service.

25 Fully Funded

26 Same as current.

27 Current

28 The current funding levels meet the requirements for overall administration of the CVPIA and
29 tools to assist in prioritizing funding needs..

30 Source and Levels: \$1,400,000 per year from from the CVPRF including Service
31 Regional Management charges formerly distributed across Programs.

32 Services Provided and Obligations Met:

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Budget: development of appropriations including submissions for the Service and Reclamation and responses to questions. Deliverables include:

1. Annual Work Plan: deliverable to provide transparency and public input.
2. Prioritization: identification of needs between the different CVPIA programs.
3. Structured Decision Making: prioritization tool for the Fish Resource Area
4. Integration: coordination between the CVPIA programs and other department of the interior, federal, and state programs.

Collections: processing of receipts and related financial transactions including the congressional report deliverable required under section 3407(f).

Cost-Share: administration of cost-sharing with California to meet the state payments as required under 3406(h).

Reporting: development of the Accomplishment reports to meet the deliverables required under section 3408(f).

Unmet Obligations, Needs, and Adverse Effects: None.

Potential Mitigating Measures: None

Reimbursement Requirement: 100%. The Act does not identify specific reimbursable costs for administration of the CVPIA. According to the Reclamation Reimbursability Guidelines, the activity is aligned with a specific project, the CVP, by law and is attributable to project operations. The authorized purpose currently provides for fish and wildlife mitigation, but could provide enhancement at a later date.

Minimal

Maintenance level eliminates the work plan and associated prioritization of activities. Programs would receive a static budget each year with no overall public involvement.

Source and Levels: \$1,000,000 per year from the CVPRF.

Services Provided and Obligations Met: same as current except the budget would no longer include an annual work plan, prioritization, or integration.

Unmet Obligations, Needs, and Adverse Effects:

1. The absence of a work plan would not provide for public input on upcoming projects.
2. Static funding and the absence of Structured Decision Making would not allow for centralized prioritization of projects across programs.
3. No oversight would be provided across the CVPIA for activities and efficiencies.
4. Each project with cost-share would require independent agreement(s).

Potential Mitigating Measures: Program, Division, and Area Managers could exchange funding and would resolve issues at the Regional Director level.

Reimbursement Requirement: same as current.

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1 Eliminate

2 Unmet Obligations, Needs, and Adverse Effects: The CVPIA could not submit for
3 appropriations, could not process collections, and would fail to meet the congressional
4 reporting requirements. Regional management costs for other programs and activities
5 would increase.

6 Potential Mitigating Measures: None

7 Alternative Authorities

8 Reclamation could appropriate funds through Water and Related Resources. Administration by
9 Reclamation used Water and Related Resources authorities up until 2011.

10 The Service could appropriate funds under their own base funding authorities. The Service has
11 not historically requested appropriations for the CVPIA.

12

