TITLE XXXIV OF PUBLIC LAW 102-575

2017 ANNUAL WORK PLAN PUBLIC FINAL

U.S. Department of the Interior
Bureau of Reclamation
Mid-Pacific Region

U.S. Fish and Wildlife Service
Pacific Southwest Region

September 30, 2016

Mission Statements

The mission of the Bureau of Reclamation is to manage, develop, and protect water and related resources in an environmentally and economically sound manner in the interest of the American public.

The mission of the U.S. Fish and Wildlife Service is working with others to conserve, protect and enhance fish, wildlife, plants and their habitats for the continuing benefit of the American people.

CENTRAL VALLEY PROJECT IMPROVEMENT ACT
TITLE 34 OF PUBLIC LAW 102-575

2017 ANNUAL WORK PLAN

PUBLIC FINAL

Version
June 1, 2016 - Initial Drafting from PM Charter Submissions
June 24, 2016 – Revised Initial Corrections and Modifications
August 31, 2016 – Public Draft with Revisions after Agency Feedback
September 30, 2016 – Public Final after Revisions from PM Fatal Flaw Review

U.S. Bureau of Reclamation, Mid-Pacific Region
U.S. Fish and Wildlife Service, Pacific Southwest Region
http://www.usbr.gov/mp/cvpia

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Introduction

The U.S. Bureau of Reclamation (Reclamation) and the U.S. Fish and Wildlife Service (Service) developed this Annual Work Plan (Work Plan) in coordination with the U.S. National Marine Fisheries Service (NMFS) and the State of California (State) represented by the Department of Fish and Wildlife (DFW) and Department of Water Resources (DWR), collectively the "Agencies", to disclose and solicit feedback on activities planned for the upcoming fiscal year using the Central Valley Project Restoration Fund (CVPRF) and authorities under the Central Valley Project Improvement Act (CVPIA or Act), Title 34 of Public Law 102-575. A subsequent Accomplishment Report will describe the results from implementing this Work Plan. The CVPIA public website provides background information on the CVPIA and access to prior work plans and accomplishment reports at: http://www.usbr.gov/mp/cvpia.

Background

On October 30, 1992, President Bush signed the CVPIA to amend previous authorizations of the Central Valley Project (CVP) to include fish and wildlife protection, restoration, and mitigation as project purposes having equal priority with irrigation and domestic uses, and fish and wildlife enhancement as a project purpose equal to power generation. The Act established the Central Valley Project Restoration Fund (CVPRF or Restoration Fund) for donations from any source and revenues provided through payments by CVP water and power customers. Reclamation and the Service jointly implement the CVPIA for the Department of the Interior (Interior) in collaboration with State and local governments, Tribes, non-governmental organizations, and stakeholders. Section 3406 of the Act requires a number of activities to support fish and wildlife. This Work Plan provides a snapshot of section 3406 activities planned for the upcoming year.

This Work Plan structures CVPIA by "Charters". Individual Charters can represent a project with a discrete start and end, and can also include administration, management, grant programs, or long-term monitoring activities. Charters provide a high-level estimation of the proposed activities including the intended outcome, total costs, and schedule. Charters are included in Appendix B. This document summarizes the Charters into the general areas of:

- Fish Resources - Activities under section 3406(b) of the Act to improve natural production of anadromous fish in Central Valley rivers and streams;
- Refuge Water Supply Program - Activities under section 3406(d) of the Act to provide firm water supplies of suitable quality to maintain and improve wetland habitat areas on units of the National Wildlife Refuge System in the Central Valley of California; on the Gray Lodge, Los Banos, Volta, North Grasslands, and Mendota state wildlife management areas; and on the Grasslands Resources Conservation District in the Central Valley of California;
- Independent Programs - including the:
    - Habitat Restoration Program (HRP) - Activities authorized under section 3406(b)(1) to mitigate the other adverse environmental impacts of the CVP on Endangered Species Act (ESA) listed species other than anadromous fish,

- Ecosystem and Water System Operations Modeling Program (Modeling) - Activities authorized under section 3406(g) of the Act to develop readily usable and broadly available models and supporting data to evaluate the ecologic and hydrologic effects of existing and alternative operations of public and private water facilities and systems,
- San Joaquin River Restoration Program (SJRRP) - Use of the CVPRF authorized by section 10009(b)(2) of Public Law 111-11 for activities to implement the Stipulation of Settlement for NRDC, et al., v. Rodgers, et al., and
- Trinity River Restoration Program (TRRP) - Activities to implement the Trinity River flows under section 3406(b)(23) and to complete the channel restoration actions under the other adverse environmental impacts of the CVP provision within 3406(b)(1); and

- Administration - Activities to manage and report on the Restoration Fund.

This Work Plan focuses on the Restoration Fund, but may include other funding sources where relevant, including Water and Related Resources (WRR), the Bay Delta Fund (BDF), and State cost-share. CVPIA activities that rely exclusively on resources other than the Restoration Fund will be reported in the Annual Accomplishment report, but may not appear in this Work Plan.

Status

In 2016, activities under the Fish Resource Area continued work to improve the scientific framework supporting decision making and improve integration across the requirements of the CVPIA for Central Valley fisheries. The Work Plan for 2017 continues the newly, established integrated fisheries program through a process that provides base funding for individual provisions to meet labor and maintenance costs and then a combined pool of additional project funds prioritized by the Agencies across all fisheries authorities. The Refuge Water Supply Program will continue priority actions developed under a Stakeholder Technical Team and further refined by coordination with stakeholders.

The 2017 President's Budget included a request for $55.6 million for the Restoration Fund as shown in Table 1. The budget was developed to be flexibly aligned within the fisheries programs and between fisheries and refuges.

Table 1 - Initial Base Alignment of the Restoration Fund

Resource Area	Resource Amount
Fish	
Program Staff*	$5,100,000
Long-Term Datasets	$2,650,000
Program-Specific Requirements**	$5,800,000
Science-Based Priority Projects	$9,350,000
Refuge	
Program Staff	$1,500,000
Conveyance, Acquisition, and Facilities	$23,606,000
Independent Programs	

Resource Area	Resource Amount
Habitat Restoration	$1,500,000
Ecosystem and Water Ops. Modeling	$600,000
San Joaquin River Restoration	$2,000,000
Trinity River Restoration	$1,500,000
Administration	$2,000,000

*Includes: (b)(1) Anadromous Fish Restoration Program (AFRP); Yield, (b)(2) Dedicated Yield; (b)(3) Instream Flow Acquisition (Instream); (b)(12) Clear Creek Flows, (b)(12) Clear Creek Channel Restoration; (b)(13) CVP Spawning and Rearing Habitat (Gravel); (b)(16) Comprehensive Analysis and Monitoring Program (CAMP); (b)(21) Anadromous Fish Screen Program (AFSP).

**Legal requirements, legacy commitments, program discretionary funding, and any other activities that are not part of the prioritization effort across all fisheries programs.

Charters include an estimate of future funding requested to accomplish the proposed work. The specific budgets for future years (out-year budgets) are embargoed and cannot be disclosed or discussed. Out-year funding in the Charters shows the current estimated level of effort necessary to complete the work, but does not represent a commitment by Reclamation or the Service to provide those resources and actual future budgets may differ. The ability to obligate funds in this Work Plan will depend upon appropriations from the U.S. Congress, collections from water and power contractors, and the execution of non-federal cost-share where required.

Next Steps

To develop the Charters attached to this Final Work Plan, the federal and state programs and project managers assembled proposed activities for the upcoming year based on an estimated budget. Activities were reviewed by the Agencies and then Charters were further revised to create a Public Draft posted to the CVPIA website on July 11, 2016 with an open house on July 22, 2016. Comments on the Public Draft were incorporated to create this Final Work Plan. Reclamation and the Service will work to implement this Final Work Plan throughout Fiscal Year 2017. Revisions and adjustments to the specific activities may occur during implementation depending on the ability to make progress and changes to priorities throughout the year. The Work Plan will not be updated. An Annual Accomplishments Report at the conclusion of the 2017 Fiscal Year will disclose the results of implementation. Reclamation and the Service appreciate the feedback and assistance provided by our partner agencies.

Fish Resource Area

The Fish Resource Area includes all provisions under section 3406(b) of the CVPIA to improve natural production of anadromous fish in Central Valley rivers and streams. Descriptions of the specific strategies and efforts to address the individual paragraphs within the Act are accessible online from the CVPIA public website: http://www.usbr.gov/mp/cvpia.

The Service coordinated with the Agencies to release the Service's Draft Implementation Plan for the Fish Resource Area with an Adaptive Resource Management (ARM) framework and a more integrated approach to developing priorities for the different activities under section

3406(b). Through this process, a CVPIA Fish Science Integration Team (SIT) was convened to begin assessing current relevant data, developing decision support models (DSMs) and, recommending Fish Resource Area priorities. The Service and Reclamation, in coordination with a Core Team consisting of Agency representatives, considered the Science Integration Team (SIT) and Project Work Team (PWT) recommended priorities and released a memorandum of fish program priorities (Attachment 1). This memorandum included the SIT recommended priorities and Core Team prioritizing elements. These elements included:

1. Watersheds with Identified Priority Actions
2. Benefits to Endangered Species Act (ESA) Listed Species
3. Benefits to Multiple Species
4. Cost-Share
5. Long-Term Partnerships and Coordination with other Restoration Efforts
6. Project that address Decision Structure Model (DSM) modules identified as having high uncertainty

The Service and Reclamation evaluated submitted Charters based on the priorities.

Application of the criteria results in consideration of 15 watersheds, 34 ongoing activities, and 16 potential new categories of actions. Table 2 shows the resulting Charters and 2017 funding requirements and funding sources.

Table 2 – Fish Resource Area Implementation Charters

Watershed and Charter	CVPRF	WRR	State/Local	Total
Central Valley Wide				
Assess Impacts of River Structure Lighting	$183,000			$183,000
b1 AFRP Program Administration and Management	$3,013,374			$3,013,374
b2 operations	$333,863			$333,863
b2 administration	$82,874			$82,874
b13 Program Administration	$320,000			$320,000
CAMP Program Manager	$239,150			$239,150
CAMP rotary screw trap Platform enhancements	$134,214			$134,214
CAMP Internet data portal	$129,139			$129,139
CVP watershed adult salmon escapement database	$350,000			$350,000
Pacific States Marine Fishery Commission database support	$116,000			$116,000
Anadromous Fish Screen Program (AFSP) Projects	$750,000			$750,000
AFSP Administration	$665,182			$665,182
American River				
American River rotary screw trap project	$226,100			$226,100

Watershed and Charter	CVPRF	WRR	State/Local	Total
American River Salmonid Habitat Improvement at upper River Bend	$600,000			$600,000
Battle Creek				
b1 North Fork Battle Creek Natural Barrier Removal	$106,000			$106,000
Battle Creek Winter run Chinook re-introduction and Battle Creek Coleman weir passage project	$500,000			$500,000
Butte Creek				
b1 Sutter Bypass Weir 1 Restoration	$318,000			$318,000
Clear Creek				
b12 Clear Creek Adaptive Management	$301,107			$301,107
b12 Clear Creek Program Management	$95,660	$99,016	$48,503	$243,179
b12 Clear Cr Spawning Gravel Injection	$298,698			$298,698
b12 Clear Creek Channel Maintenance Flows (aka EWP)	$0			$0
b12 Clear Creek Flows	$0			$0
b12 Clear Creek Stream Channel Restoration including Phase 3C	$4,397,469			$4,397,469
b12 Lower Clear Cr Aquatic Habitat and Mercury Abatement Project	$40,000		$2,250,000	$2,290,000
b12 Replace Oak Bottom Temperature Control Curtain	$15,000			$15,000
Deer Creek				
Deer Creek Irrigation District Dam Fish Passage Project	$2,549,300			$2,549,300
Deer Creek: Fish Passage at SVRIC	$79,500			$79,500
Merced River				
b1 Merced River Instream & Off-Channel Drought-Resilient Habitat Rehabilitation	$296,800			$296,800
Mokelumne River				
Identifying and reducing impacts of riparian water diversions - Mokelumne River	$21,200		$17,800	$39,000
Lower Mokelumne River Salmonid Spawning and Rearing Habitat Improvement Project	$53,000		$92,500	$145,500
Sacramento-San Joaquin Delta				
Delta Salmon Survival Study	$1,086,880			$1,086,880
TFFIP Administration		$122,413		$122,413
TFFIP Implementation		$430,066		$430,066
Reconfigure Breached Delta Levees	$111,300			$111,300
Recreate Shallow Water Habitat in the Delta Migration Routes	$318,000			$318,000
b1 San Joaquin River Sturgeon Habitat Assessment	$287,953			$287,953
Stanislaus River				
Stanislaus River rotary screw trap monitoring	$220,922			$220,922
b1 Migratory Corridor Rehabilitation	$975,200			$975,200
Stanislaus River Salmonid Spawning and Rearing Habitat Restoration	$330,000			$330,000
Tuolumne River				

Watershed and Charter	CVPRF	WRR	State/Local	Total
b1 Tuolumne River: Dos Rios Floodplain Restoration	$26,500			$26,500
Upper Sacramento Basin and Tributaries				
b1 Green Sturgeon Juvenile Investigation	$274,195			$274,195
b1 Impacts of Marijuana Activity on Fish	$116,388			$116,388
Disease impact on Winter-run juvenile Chinook salmon survival in the Upper Sacramento River	$65,775			$65,775
Natural and Artificial Rearing Structures in the Upper Sacramento	$116,600			$116,600
Restore Rearing and Spawning Side Channels in the Upper Sacramento River	$2,000,000			$2,000,000
Yuba River				
b1 Yuba River Hallwood Floodplain Restoration Project	$424,000			$424,000
b1 Yuba River Hammon Bar Velocity Validation	$5,777			$5,777
b1 Yuba River Narrows Restoration Project	$324,837			$324,837
Grand Total	**$22,898,957**	**$651,495**	**$2,408,803**	**$25,959,255**

*CVPRF = Central Valley Project Restoration Fund, WRR = Water and Related Resources.

Additional Fish Resource Area projects may be undertaken if funding allows. Uncertainties include environmental compliance and permitting requirements, construction costs, and the reliability of collections for the Restoration Fund.

Table 3 shows a list of potential additional Charters, in no particular order, if additional funding becomes available.

Table 3 – Unfunded Potential Additional Fisheries Charters for 2017

Charter	Total
CVPIA ARM Process	$135,000
Delta Salmon Survival Study	$170,000
Central Valley: Sturgeon Spawning Survey and Habitat Mapping	$124,216
b1 Sturgeon Population Dynamics and Demographics Evaluation	$121,900
Instream Water Acquisition	$300,000
b1 Feather River Oroville Wildlife Area flood stage reduction	$6,650,016
b1 Feather River Sunset Pumps Sturgeon and Salmon Passage	$1,875,800
b1 DCC GFFB at Deadhorse Cut	$3,314,252
b1 Sacramento River Tisdale Weir sturgeon and salmonid passage	$477,000
b1 Tuolumne River - River Mile 44 Spawning and Rearing Habitat Restoration	$626,163
b1 Yuba River Daguerre Point Dam Juvenile Salmon Outmigration Study	$477,000
b1 Yuba River Restoration Downstream of Highway 20	$1,749,000
Yuba Upper Rose Bar Restoration	$300,000
Mill Creek Upper Dam Project	$3,000,000

Refuge Water Supply Program

The Refuge Water Supply Program (RWSP) includes all provisions under section 3406(d) of the CVPIA to provide firm water supplies of suitable quality to maintain and improve wetland habitat areas on units of the National Wildlife Refuge System in the Central Valley of California; on the Gray Lodge, Los Banos, Volta, North Grasslands, and Mendota state wildlife management areas; and on the Grassland Resources Conservation District in the Central Valley of California.

The Act specifies two water delivery requirements. Section 3406(d)(1) “Level 2” requires the quantity and delivery schedules of water measured at the boundaries of each wetland habitat area shall be in accordance with Level 2 of the `Dependable Water Supply Needs' table for those habitat areas as set forth in the Refuge Water Supply Report and two-thirds of the water supply needed for full habitat development for those habitat areas identified in the San Joaquin Basin Action Plan/Kesterson Mitigation Action Plan Report. Section 3406(d)(2) “Incremental Level 4” requires the quantity and delivery schedules of water measured at the boundaries of each wetland habitat area shall be in accordance with Level 4 of the `Dependable Water Supply Needs' table for those habitat areas as set forth in the Refuge Water Supply Report and the full water supply needed for full habitat development for those habitat areas identified in the San Joaquin Basin Action Plan/Kesterson Mitigation Action Plan Report acquired through voluntary measures. A full Level 4 water supply (Level 2 plus Incremental Level 4) will provide for optimum habitat management to support a broad range of species including targeted threatened and endangered species. Components of the RWSP include:

- Water Acquisition: purchase, exchange, and transfer for Incremental Level 4 water supplies;
- Conveyance: groundwater pumping and the conveying (wheeling) of surface sources for Level 2 and Incremental Level 4 water supplies; and
- Facility Construction: infrastructure improvements to enable the delivery of full Level 4 water supplies.

Priorities have been discussed throughout the year through an Inter-Agency Refuge Water Management Team (IRWMT). Reclamation and the Service hosted specific workshops with invitations to the IRWMT to discuss potential 2017 funding. Based on feedback, the RWSP funding prioritized Charters based on:

1. Program Administration

2. Level 2 Water Conveyance

3. Incremental Level 4 Water Acquisitions (i.e., Exchange Contractors, groundwater supplies, etc.)

4. Facility Construction Projects – ongoing work (i.e., East Bear Creek O&M, Sutter NWR lift station design, etc.)

5. Other Incremental Level 4 Acquisitions (i.e., NVRRWP)

6. Unfunded needs

Table 4 shows the proposed activities.

Table 4 – Refuge Water Supply Implementation Charters

Program Components and Charters	CVPRF	SIK	Total
Administration			
RWSP Administration	$947,372		$947,372
RWSP Technical Support	$195,541		$195,541
Subtotal	$1,142,913		$1,142,913
Level 2 Water Supply			
Level 2 Refuge Water Conveyance (FY2017)	$15,489,541	$81,000	$15,570,541
Subtotal	$15,489,541	$81,000	$15,570,541
Refuge Construction			
Mendota WA Water Supply Study	$465,967		$465,967
East Bear Creek Pump Station O&M	$606,000		$606,000
Subtotal	$1,071,967		$1,071,967
Incremental Level 4			
Inc. Level 4 Water Purchases and L2 Exchanges	$6,000,000		$6,000,000
Inc. Level 4 Refuge Water Conveyance (FY2017)	$1,401,579		$1,401,579
Subtotal	$7,401,579		$7,401,579
Grand Total	$25,106,000	$81,000	$25,187,000

*CVPRF = Central Valley Project Restoration Fund, SIK = State In-Kind

The RWSP anticipates substantial coordination with the State on Proposition 1 funding directed towards State contributions for RWSP. Several of these activities are shown as unfunded needs in Table 5. The RWSP will be working with partners on strategies to meet these needs.

Table 5 – Refuge Water Supply Unfunded Needs

Charter	Total
Refuge Water Acquisition - NVRRWP*	$10,000,000
Refuge Construction - Sutter NWR Lift Station	$4,350,000
Refuge Construction - Biggs-West Gridley/Gray Lodge Refuge	$4,270,000

*NVRRWP = North Valley Regional Recycled Water Project

Reclamation and the Service may update the list of Charters based on feedback received on this Work Plan.

Administration

CVPIA Administration provides for the specific staff to collect funds, submit the overall budgets, coordinate between activities, administer the agreements with the Service, Reclamation

and Service Regional management, and review and oversight of expenditures. Table 6 shows the resulting budget.

Table 6 – CVPIA Fund Administration and Program Management

Program Area	CVPRF	SIK	WRR	Total
CVPIA Administration	$2,000,000			$2,000,000
Total	$2,000,000			$2,000,000

*CVPRF = Central Valley Project Restoration Fund, SIK = State In-Kind, WRR = Water and Related Resources

Independent Programs

Independent programs are not integrated with other provisions of the CVPIA. These programs generally have separate oversight and resources in addition to the CVPRF, and program-specific reporting and stakeholder coordination requirements.

Habitat Restoration Program

Reclamation and the U.S. Fish and Wildlife Service manage the HRP jointly with the Central Valley Project Conservation Program (CVPCP) with the overall objective of improving conditions for impacted species and habitats, excluding fish. The CVPCP and HRP utilize a proposal solicitation process to fund and carry out conservation actions within the areas served by the Central Valley Project, California. At the beginning of each annual funding cycle, a Funding Opportunity Announcement (FOA) is posted on www.grants.gov with a solicitation period of approximately120 days. Table 7 shows the HRP Charters. Historical projects and reports funded by the CVPCP and/or HRP and contact information for more information are available at: http://www.usbr.gov/mp/cvpcp.

Table 7 – Habitat Restoration Program Charters

Program Area	CVPRF	Total
HRP Program Management and Compliance	$341,219	$341,219
HRP Protection, Restoration, & Captive Propagation Projects	$1,134,782	$1,134,782
Total	$1,476,001	$1,476,001

Ecosystem and Water Operations Modeling Program

The goal of the Ecosystem and Water Systems Operations Models program is to develop readily usable and broadly available models and supporting data in order to 1) evaluate ecologic and hydrologic effects of existing and alternative water management strategies in the Sacramento, San Joaquin, and Trinity River watersheds; 2) improve scientific understanding of ecosystems in the Sacramento, San Joaquin, and Trinity watersheds; and 3) support the Interior Secretary's efforts in fulfilling the requirements of the CVPIA. The Program manages projects in conjunction with in-kind services from State partners.

Table 8 – Modeling Program Charter

Charter	CVPRF
FY17 CVPIA (g) Program Administration and Modeling Project Management	$368,073
FY17 CalSim Solver License	$20,085
FY17 CalSim, Fisheries, Temperature Modelling Support	$50,000
FY17 CalSim, CalLite Temperature Modeling Support	$50,000
FY17 CalLite GUI Project Extension & Modification	$50,562
Total	$538,720

San Joaquin River Restoration Program

The San Joaquin River Restoration Settlement Act (Title X, Subtitle A, Part I of Public Law 111-11), authorizes and directs implementation of the Settlement in NRDC, et al., v. Rodgers, et al. Section 10007 of the Settlement Act finds and declares that the Settlement satisfies and discharges all of the obligations of the Secretary contained in Section 3406(c)(1) of the CVPIA. Section 10009(b)(2) authorizes use of the CVP Restoration Fund in an amount not to exceed $2,000,000 (October 2006 price levels) in any fiscal year. CVPIA funded activities for the SJRRP Charter is reflected in Table 9.

Table 9 – San Joaquin River Restoration Program Charter

Charter	CVPRF
SJRRP - Mendota Pool Bypass and Reach 2B Project	$2,000,000

*The SJRRP uses multiple funding disclosed within SJRRP specific materials, not this Work Plan

Trinity River Restoration Program

The Trinity River Restoration Program was founded in 2000 based on three comprehensive foundational documents: the Trinity River Flow Evaluation Final Report; the Trinity River Environmental Impact Statement; and the Trinity River Mainstem Fishery Restoration Record of Decision. These documents established a comprehensive science-based adaptive management

program to restore the Trinity River's fishery resources. The Program's overarching goal is to restore anadromous fish populations to pre-dam levels. Activities that contribute to that end include mechanical channel rehabilitation, sediment management, and instream flow releases, and watershed restoration. Table 10 shows the TRRP Charter.

Table 10 – Trinity River Restoration Program Charters

Charter	CVPRF	FWSA	WRR	Total
CVP Restoration Fund TRRP Channel Restoration Projects	$1,500,000			$1,500,000
WRR Fund TRRP Monitoring Actions			$4,000,000	$4,000,000
WRR Funding of ROD Flows			$7,000,000	$7,000,000
Total	$1,500,000		$11,000,000	$12,500,000

*FWSA = Fish and Wildlife Service Appropriations

Synthesis

Table 11 shows a summary of Restoration Fund planned budgets for Fiscal Year 2017 broken down by legislative provision and agency overseeing the funding.

Table 11 – Summary of Fiscal Year Restoration Fund Budgets by Legislative Provision and Agency

Provision	BOR	FWS	Total
(b)(1) AFRP	$21,887	$9,845,212	$9,867,099
(b)(2)	$125,494	$291,242	$416,737
(b)(3) Instream Flows	$0	$0	$0
(b)(12) Clear Creek Flows	$353,698	$396,767	$750,465
(b)(12) Clear Creek Restoration	$3,899,639	$497,830	$4,397,469
(b)(13) Gravel	$3,266,600	$100,000	$3,366,600
(b)(16) CAMP	$183,000	$2,502,405	$2,685,405
(b)(21) AFSP	$413,400	$1,001,782	$1,415,182
(d)(1) Refuge Conveyance L2	$14,899,139	$785,944	$15,685,082
(d)(2) Refuge Acquisition IL4	$6,710,590	$236,782	$6,947,372
(d)(2) Refuge Conveyance IL4	$1,401,579	$0	$1,401,579
(d)(5)-(1) Refuge Facility L2	$1,071,967	$0	$1,071,967
(d)(5)-(2) Refuge Facility IL4	$0	$0	$0
HRP (b)(1)	$749,999	$726,001	$1,476,001
Modeling (g)	$511,688	$27,032	$538,720
SJRRP (PL111-11)	$2,000,000	$0	$2,000,000
TRRP (b)(1)	$1,500,000	$0	$1,500,000
TRRP (b)(23)	$0	$0	$0
Administration	$1,756,115	$243,885	$2,000,000
Grand Total	**$38,864,795**	**$16,654,882**	**$55,519,678**

References

Final Restoration Plan for the Anadromous Fish Restoration Program. U.S. Fish and Wildlife Service.

1989 Dependable Water Supply Refuge Report.

1989 San Joaquin Basin Action Plan.

2016 Central Valley Project Improvement Act (CVPIA) Fiscal Year 2017 Fish Program Priorities and Call for Annual Work Plan (AWP) Charters.

2016 CVPIA Science Integration Team: FY17 Decision Support Model activities.

Appendix A – Description of Charter Information

Classification: Classification of the Charter type according to an overall category and a project type.

Location: Reference to a site name (where available) and a watershed.

Funding Years: Fiscal years covered by the Charter.

Benefits Start Year: When the impacts of the Charter will be realized. Typically a project would become operational following construction, acquisition, or reporting (in the case of a study) phases of an effort.

Priority: Ranking of the Charter within a specific CVPIA authority to provide an understanding of the relative importance of different efforts.

Partners: Listing of agencies and entities assisting in the planning and implementation of the Charter through the contribution of resources. Resources may include cost-share, in-lieu services, use of facilities, or other technical support during the development of a project.

Related Programs: List of related programs and activities supported by the Charter such as BDCP, RPA, Recovery Plans, CVJV, etc. to provide an understanding of the relationship between the proposed Charter and other efforts by Federal, State, and local entities.

Authority: Provision under the CVPIA supported by the Charter that will allow the government to undertake the action and determine the relevant reimbursement and cost-share requirements.

- **Authority**: One or more legislative provisions for the action and the relative contribution to the different provisions within the legislation.
- **Percentage**: Fraction of the total Charter costs attributable to the Authority.
- **Description**: Justification for why the Charter is allowable under the Authority and for the specific fraction, if applicable.

Metric(s): Anticipated accomplishments from successful completion.

Deliverables: Anticipated documentation and timeline for key activities under the Charter, typically public documents and reports that would be referenced by title.

- **Date**: The estimated year and month when the deliverable will be available.
- **Title**: The anticipated name or citation of the deliverable.

Narrative: A one or two paragraph(s) description of the Charter background, benefits, deliverables, additional information (e.g. cost basis), and changes since prior Charters, if any.

Data Management: Information on where reports and data for this Charter will be permanently housed and the relevant protocols for understanding the information.

Risks: Narrative or bulleted list of uncertainties and potential project management related issues that might change including, the scope, schedule, or budget.

Cost Estimate: Summary of costs by fiscal year and fund. This table is automatically populated by the information in Resources Data.

Activities and Resources: Cost estimates to undertake the activity.

- **Type**: Category of resource, e.g. labor, equipment, agreement, etc.
- **Total**: Dollar value of the resource.
- **Agency**: Agency expending the resource.
- **Fund**: Source of the resource.
- **Description**: Text narrative of the activities and basis for the estimate.

Appendix B – Charters

Appendix C – Unfunded Charters

The following table describes the project proposals (Charters) submitted for fiscal year 2017 not selected for funding.

Table 12 – Charters not selected for 2017 funding

Title	Cost	Reason
b1 Yuba River Rotary Screw Trap Monitoring	$212,000	Defer another year until restoration efforts are complete. Local entities should establish a mechanism for funding long-term monitoring requirements.
b1 Sacramento River Tisdale Weir sturgeon and salmonid passage	$477,000	Project is not believed to be feasible given the extensive level of effort currently focused on the Freemont Weir. This project would be a good candidate after demonstration of success on the Freemont Weir.
American River SDM model development and monitoring	$1,248,200	Uncertainty in scope (budget and tasks) due to controversy with RST permitting.
Central Valley: Sturgeon Genome Initiative	$106,000	Project does not correspond to a priority watershed action or Decision Support Model uncertainty.
b1 Central Valley wide Sturgeon eDNA	$318,000	Project does not correspond to a priority watershed action or Decision Support Model uncertainty.
b1 Battle Creek fine sediment prevention: post-fire & salvage logging road inventory	$30,000	Project does not correspond to a priority watershed action or Decision Support Model uncertainty.
b1 Bear River/Beale Air Force Base Fish Passage Improvement	$106,000	Project does not correspond to a priority watershed action or Decision Support Model uncertainty.
b1 Bear River Rotary Screw Trap Monitoring and Baseline Conditions	$106,000	Project does not correspond to a priority watershed action or Decision Support Model uncertainty.
b1 Cow Creek Riparian Restoration, Phase 1	$145,000	Project does not correspond to a priority watershed action or Decision Support Model uncertainty.
Fish Passage at Cook & Butcher Diversion	$106,000	Project does not correspond to a priority watershed action or Decision Support Model uncertainty.
Mill Creek non-native species removal & riparian restoration	$106,000	Project does not correspond to a priority watershed action or Decision Support Model uncertainty.
b1 Sacramento River Riparian Assessment and NIS plant investigation, Phase 1	$106,000	Project does not correspond to a priority watershed action or Decision Support Model uncertainty.

Appendix D – Public Comments and Responses

General

Comment No. 1

The 2017 Annual Work Plan appropriately prioritizes providing full Level 2 water deliveries to refuges. As with last year's Work Plan, however, we are concerned with the conservative, and therefore significant, estimated costs for conveying Level 2 supplies. The Work Plan estimates that Level 2 conveyance will cost $15,489,541 in 2017, which is approximately 62% of total anticipated refuge expenditures. Further, the Refuge Charter indicates that Level 2 conveyance costs are expected to increase in 2018 and 2019. Dedicating 62% of the program's funding to Level 2 conveyance means there is little leftover money for other critical infrastructure and water acquisition projects, and impedes the agencies' ability to meet the CVPIA's mandate of providing full Level 4 deliveries.

The use of conservative assumptions regarding the cost of south-of-delta Level 2 water deliveries contributed to the Work Plan's high Level 2 conveyance cost estimates, which suggests that the full amount set aside for that purpose in 2017 (approximately $15.5 million, italics added) may not be needed. Because the unused Level 2 conveyance funds could be critical for meeting other Refuge Water Supply Program priorities, we request that the final Work Plan specifically identify that the unused funds will be used for the acquisition and conveyance of Incremental Level 4 water supply, and for unfunded refuge construction projects.

Comment 1 Response

The total Level 2 conveyance cost is an estimate based on information available at the time work plans are being prepared, but is subject to change depending on actual unit water conveyance rates in place during the water year in which the water is conveyed. The effective water year is approximately 12 months after budget development is initiated. Therefore, adjustments to the Level 2 conveyance budget may be necessary, but the RWSP would make such adjustments in the actual fiscal year of implementation. Surplus funds not required may remain obligated for Level 2 water conveyance in a subsequent year, or could be re-aligned to another RWSP activities such as Incremental Level 4 acquisitions or facilities construction, depending on need.

Historically, Reclamation and the Service generally sought reallocated the difference between actual and estimated within the original respective fish or refuge resource areas, but reserve the right to allocate funding to the highest priorities. The last sentence will be revised to state, "During FY2017, the conveyance budget will be revised and if the revision results in a lower cost, then the CVPIA Program Administrator and RWSP team will determine where the unneeded funds could benefit other RWSP activities or CVPIA Program needs."

Comment No. 2

The Work Plan identifies only $4.2 million for acquisition of Incremental Level 4 water under the Exchange Contractor acquisition contract, despite the fact that up to $18 million may be available, as contemplated in the contract. Unless and until reliable alternative sources of

Incremental Level 4 water supplies for south-of-delta refuges are developed, Reclamation must continue to fund and honor its commitment to acquire water for refuges under the Exchange Contractor acquisition contract. We strongly encourage the Bureau to look at a number of potential sources of funding to meet this obligation, including not only the Restoration Fund but also the Water and Related Resources Fund, and other annual funding such as drought funding that should be dedicated to complying with the refuge mandates of CVPIA section 3406(d).

Comment 2 Response

The RWSP's FY 2017 Workplan Charters can only budget for funds expected to be made available from the CVPIA Restoration Fund. While it is possible other federal funding sources for Incremental Level 4 water purchases may be appropriated in a given fiscal year, it is beyond the scope of this document and the CVPIA annual workplan preparation process to include such funding sources.

Comment No. 3a

The Work Plan does not include a plan or vision for how compliance with the CVPIA's mandate for full Level 4 water supplies will be achieved. Significant conveyance limitations continue to hamper Reclamation's ability to deliver critical Level 2 water supplies, and progress toward acquiring Level 4 supplies has been very slow. To move the Refuge Water Supply Program forward toward compliance with the CVPIA's mandates, the Work Plan should include a clearly defined plan for how full Level 4 water deliveries will be achieved within a reasonable time period.

Comment 3a Response

Developing a plan on how the RWSP would achieve full Level 4 water deliveries to all CVPIA refuges is beyond the scope of the annual work plans. However, the RWSP is working with the CVJV along with other refuge partners and stakeholders in the development of a 10-year strategic plan so that together we can achieve the full Level 4 refuge water delivery target.

Comment No. 3b

We believe Reclamation has taken steps in the right direction by proposing the development of a strategic plan and identifying new opportunities to acquire long-term, reliable supplies of Incremental Level 4 water from projects such as the North Valley Regional Recycled Water Project ("NVRRWP"). However, as refuge stakeholders with resources and capacity to help facilitate projects like the NVRRWP, we would like to play a more significant role in project implementation.

Comment 3b Response

The RWSP's commitment is collaboratively work together with all RWSP partners and stakeholders in the planning and implementation of projects benefiting CVPIA refuges. Certain federal actions are confidential. The NVRRWP tertiary treated recycled water purchase from the Del Puerto Water District was such an action. When contracts like the NVRRWP are fully executed (signed by all parties), they are made available to the general public. The RWSP looks forward to continue working with the CVJV and all refuge stakeholders on funding priorities and implementing projects benefiting refuges. We believe the most effective strategy is communicating on priorities and developing a shared vision of priorities as opposed to vetting

the specific details of every action. Some projects may have greater opportunity for stakeholder participation than others.

Comment No. 3c

The Work Plan shows an unfunded need of $4.35 million to construct the Sutter National Wildlife Refuge (NWR) lift station (see Table 5). Without conveyance improvements such as this lift station, it is difficult for Sutter NWR to even receive Level 2 water supplies, particularly in the fall. The water conveyance limitations at Sutter NWR are amongst the worst for our public wetland areas. Therefore, we request that Reclamation make funding the lift station at Sutter NWR a high priority in its future Work Plan budgeting efforts.

Comment 3c Response

Although presently identified as "unfunded" in FY 2017, the construction of the Sutter NWR Lift Station is a high priority of the RWSP, as well as that of Reclamation. The project will be constructed when federal funds are appropriated, or other non-federal funding becomes available. The RWSP looks forward to working with the CVJV, and refuge stakeholders, on finding creative ways to fund this project, as well as future projects.

Comment No. 3d

The Work Plan also shows an unfunded need of $4.27 million to construct water conveyance system improvements on the Biggs-West Gridley system to provide Incremental Level 4 delivery capabilities to Gray Lodge Wildlife Area (WA) (see Table 5). That is a severe underestimate of the actual cost to construct the needed system improvements and expenditure of that level of funding will not result in a significant increase related to delivery of Incremental Level 4 water supplies to Gray Lodge WA. The current estimated cost to complete the needed system improvements is approximately $35 million, based in part on the actual costs of the system improvements that have been completed to date.

Comment 3d Response

The cost estimate of approximately $35 million is correct to finish construction of the BWGWD's conveyance system that is considered its "Backbone", which consists of portions of the Belding Lateral and Traynor Lateral to and including its Rising River reach. The Rising River reach discharges water to the Gray Lodge Wildlife Area at the Evans-Reimer Bridge flow control structure.

The $4.5 million (including construction management) indicated in the project's Fiscal Year 2017 Workplan Charter is approximately half of the total $9 million estimated (2015) needed to construct only selected segments of the Backbone remaining to be improved; not the full project. The narrative in the project's FY 2007 Workplan Charter was revised to clarify.

Comment No. 4

Reclamation provides funding to the U.S. Fish and Wildlife Service ("USFWS") for a number of administrative positions to implement the CVPIA. In fact, many positions are duplicated between Reclamation and USFWS. However, the Work Plan routinely shows that the USFWS administrative costs for similar positions are almost double that which is required for Reclamation administrative costs. A better mechanism for transferring and reducing USFWS administrative costs must be developed. The Work Plan identifies at least $8.6 million in

administrative and staffing costs alone (Work Plan Main Body document, pp. 2-3.) This is a significant portion of the CVPIA program budget that would otherwise be used for on-the-ground CVPIA projects. The agencies must work together to identify better strategies to reduce administrative costs.

Comment 4 Response

Administrative costs are set by Regional and National policy. Reclamation and the Service are open to discussing proposals on alternative methods to accomplish the coordination, planning, administration, contracting, and reporting work necessary for implementing the CVPIA.

Comment 5

The proposed spending plan directs too much of the financial resource to tributaries relatively unaffected by the CVP such as the Mokelumne River, and too much of the resources toward refuge development and refuge water supply. With a goal of double salmon fishery production affected by the CVP as a premise for the now 15 year over-reach of the program, funds collected should go directly to projects that specifically tie to CVP facilities and operations affecting salmon production.

Comment 5 Response

Requirements under the CVPIA include both anadromous fish as well as water supplies for wildlife refuges. The authorizing legislation under 3406(b)(1) directs doubling on Central Valley rivers and streams, not just CVP facilities and operations. (b)(1)(A) confers a priority modifications to CVP operations and the specific other measures under section 3406(b) in addition to habitat restoration. The priority is reflected in the funding for the (b)(2) and other flow management provisions; (b)(12) Clear Creek Restoration Program; (b)(13) Spawning and Rearing Habitat Program on CVP Rivers and Streams; and (b)(21) Anadromous Fish Screen Program. Cost effective opportunities such as those in the Mokelumne and Feather rivers where active partners share in the funding of activities provide an opportunity to diversify species habitats and relieve pressures upon the CVP.

Comment 6

Staff efforts to prioritize funding through a scoring process has not yet been completed. When completed, a scoring model does not supplant the need for common-sense focus on appropriate goals to finish the program facilities development and move to maintenance for the developed facilities. Common sense programs with prescribed contribution to the salmon doubling objective must take precedent over other projects.

Comment 6 Response

The Decision Support Model (DSM) using a Structured Decision-making process is a tool to provide scientific information to decision makers. The Fish Resource Area decision making does not occur via the DSM or even within the SIT or the Core Team. The Implementing Agencies of Reclamation and the Service allocate the funding based on the scientific information from the SIT, other factors from the Core Team, legal and regulatory requirements, and agency priorities.

Comment 7

Many things thwart the goal of fish doubling that are beyond the purview and influence of the CVP: fishing, invasive species, predation, and pollutants. USBR should therefore exercise its discretion to retool the metric of success to elements affected directly by the CVP that are measurable by project parameters set prior to project approval. This would allow the doubling of spawning and rearing habitats areas to meet the CVPIA goals rather than a fish count that is affected by non-CVP related maladies that cannot and should not be addressed by the CVPIA Restoration Fund.

Comment 7 Response

One of the goals in DSM development is to identify and address metrics that are more direct measures of success. The DSM has not yet completed that stage of development; however, the models do separate spawning success, juvenile production, and other life-stage metrics that relate more directly for conditions that can potentially be influenced by the programs.

Comment 8

To the extent operational limitations and practices negatively affect salmon, use the CVPIA funds to procure lost diversions and power by-passes. To the extent operations are restricted to protect predatory fishes -- reverse those operations.

Comment 8 Response

This issue has been incorporated into ongoing litigation.

Comment 9

Predation of salmon by bass is not addressed anywhere in the proposed projects; moreover, the CVP presently restricts operations specifically to protect striped bass. This practice defies common sense. The agencies should support the Salmon Foundation recommendations insofar as: modified operations to reduce predation - including such things as facility lighting that attract emigrating smolts to fall prey to bass predation. Develop a fund to reduce invasive species such as striped bass due that have thrived due to wrong-headed protection afforded by restricted CVP and SWP diversion and flow management. Such a fund might place a bounty on striped bass.

Comment 9 Response

While striped bass is included as an anadromous fish species under the CVPIA, neither Reclamation nor the Service have implemented actions under the CVPIA specifically to benefit striped bass. The 2017 work plan includes operation of the CVP in a manner favorable to Chinook salmon and steelhead. Temperature management is unfavorable to striped bass. Additional projects include habitat modifications that favor juvenile salmon and a pilot project in the Delta that specifically addresses predation (Reconfigure Breached Delta Levees). The “Delta Salmon Survival Study” addresses the migration of juvenile salmon through the Delta.

River and Delta Projects

Comment 10

In the past, most of the projects which were implemented were in the upriver mainstems and the tributaries of both the Sacramento and San Joaquin Rivers. In isolation these were all good projects. Spawning areas were improved, rearing areas were opened and migration barriers were

removed. However, river and Delta losses, particularly in low water years, wiped out virtually all the upriver gains and survival at the Golden Gate was at or below 5%. As a result, the runs were unsustainable and the populations continued to slip. In the past several years studies by the National Marine Fisheries Service Science Center have confirmed through coded wire tag results and other studies the validity of this river and Delta loss data and how these losses result in the inability to increase the wild salmon populations.

We are very pleased to see that the 2017 plan is targeting several key Sacramento River projects and, for the first time in history, is investing in two Delta predation avoidance projects. We are very excited about the plans to open up as many as 13 new side channel rearing projects in the upper Sacramento river in the next few years. We believe these are of the highest priority and will help reduce predation by creating stronger, healthier, and more abundant out migrating juvenile salmon in all of the upriver runs.

We urge that Delta problems continue to receive increased CVPIA and agency attention in the future. Some of the needed projects may be beyond the financial means or scope of the CVPIA but we strongly believe the SIT model needs to incorporate them so that Delta investments can be weighed against upriver investments in the Structured Decision evaluations. We support the HSRG study conclusion that the proper measurement of progress should be the number of smolts from each watershed that pass under the Golden Gate.

Comment 10 Response

We agree that the losses through the Delta are significant and must be addressed, although the complexity of the problem is significant and there isn't consensus on a suite of actions that will increase Delta survival, so significant challenges remain. The CVPIA currently has ongoing investments in tributaries to the Sacramento and San Joaquin that it needs to complete. In addition, the program places a higher priority on listed winter- and spring-run Chinook, but many of the proposed actions on the Yuba and Clear Creek will benefit fall-run as well.

The SIT is actively pursuing increasing the robustness of the Delta portion of the Fall Chinook life cycle model (DSM). This portion was the latest addition to the model. The robustness of the Delta portion is directly related to the availability and acquisition of requisite data. The survival numbers justify expenditure of time and resources to identify mortality causation and develop management strategies aimed at increasing juvenile survival through the Delta. We are thankful for the partners and stakeholders that have worked with CVPIA staff this year in the development of Delta and lower Sacramento River predation reduction charters.

San Joaquin Projects

Comment 11

Our tally of spending in the San Joaquin tributaries indicates the plan proposes to again spend approximately $4 million in these tributaries in 2017. We understand that some of this is completing projects that were started earlier but, with multiple studies confirming that current San Joaquin survival through the Delta is only between 2% and 5%, the ocean smolt contribution of these funds is virtually zero in most water years. Until the Delta is fixed so salmon smolts from the San Joaquin can safely pass the pumps, this money is mostly wasted. We have two recommendations:

- There are major improvement possibilities in the Delta that are not getting priority attention. Predation and entrainment losses at the pumps are two and predation at the salvage pipe discharges is another. All parties need to push hard for these changes to be made.
- Until the Delta changes are made, we suggest that the San Joaquin funds should be scaled back to the minimums needed to maintain the gene pool diversity in each tributary. The SIT model should help guide this spending.

Comment 11 Response

CVPIA is pursuing better coordination between the Bay Delta offices and the San Joaquin River Restoration Program to focus resources on these issues. Partnerships that avoid duplication of monitoring efforts and coordinated prioritization of management actions are highly desired.

Comment 12

Even though more spending has been moved to the Sacramento River and the Delta, The preponderance of the spending is still in the upper Sacramento River and the upper Sacramento tributaries. Our tally shows that upriver projects will receive approximately $27 million in 2017 and $54 million in the next five years. We believe it would be more productive if more of these funds could be spent in reducing river and Delta losses. In low water years, the Science Center studies show that smolt survival in the Sacramento River is in the order of 24% and survival through the Delta is in the order of 55%. These figures result in the runs being unsustainable. The SIT model is showing the same thing. We need to find more investments that can reduce the river and Delta losses. We suggest this be a major target of the CVPIA. Predation is a big factor in these losses and there are a number of hotspot predation projects that are not being currently funded.

Comment 12 Response

Establishing the organizational changes outlined in the USFWS Implementation Plan is a transitional process. FY2016 projects were the first prioritized using the SDM process, including the Fall Chinook DSM. FY18 charter prioritization will benefit from the iteration of the SIT processes inaugurated for FY17. It will be roughly 3-5 years to complete on-going projects and to fully begin implementing projects prioritized through the ARM/SDM process.

Heavy Investments in Listed Species to the Detriment of the Fall-Run

Comment 13

The 2017 spending also focuses heavily on the listed species with the fall-run only getting the spillover. The Yuba gets $7.5 million in 2017 and $15 million in the next five years. Clear Creek gets $1 million in 2017 and $6.2 million in 5 years. There are a number of highly productive fall-run projects that are being ignored. That run continues to slide. We suggest a better balance in the figures. The salmon industry is dying and the agencies need to honor their obligation to keep the industry alive.

Comment 13 Response

Priorities are in the process of being reordered now through the ARM/SDM process. Continued participation by stakeholders will ensure that the process is transparent and collaborative.

Delta Salmon Survival Study

Comment 14

The program proposes to spend $2.2 million in 2017 on studying San Joaquin Delta salmon losses. There have been dozens of San Joaquin Delta salmon loss studies. They have provided information but none of them have resulted in increased salmon survival. The big void in Delta survival data is now in the fate of the Sacramento smolts that are pulled through the cross channel gates and down Georgiana Slough. We know there are heavy losses but we don't know where they occur or why. Are they lost to predation in the open water or are they lost at or near the pumps from direct and indirect pumping impacts? What are the impacts of temperature and food sources in Georgiana and the North and South branches of the Mokelumne and the San Joaquin itself where they end up? The entrainment at the pumps is now better understood but what are the indirect impacts of the pumps outside of Clifton Court and outside of the CVP trash racks? We believe the $2.2 million could better be spent focused on the Sacramento smolt Delta losses than those in the San Joaquin.

Comment 14 Response

This is a scenario ripe for investigation on the part of the Science Integration Team using the DSM's. Model results may result in the reordering of priorities for the resources you mention

Night Lights

Comment 15

We're heartened by the adoption of GGSA's proposal to address the severe predation of juvenile salmon amplified by brightly lit spots on the smolts out migration path in Central Valley rivers and tributaries. GGSA recommends that next steps include incorporating the work and insights of former CDFW biologist Mike Berry (now with DWR) and CDFW biologist Andrew Jensen. Both have already invested considerable time and resources in researching the nature of the problem. Both would be excellent candidates to lead the next step to define exactly how much illumination migrating juvenile salmon can be exposed to before their night time natural behavior is interrupted or changed.

There is considerable research already done on this, including a major white paper by Jensen, which can be brought to bear. After a lighting standard is identified, the next step is to identify the various specific light sources on the Sacramento, and possibly Feather and American rivers, that are likely causing smolts to diverge from natural night time behavior, where they're lost to predators. In addition to Berry and Jensen, GGSA is aware of river fishing guides who have witnessed night time predation of salmon smolts at some of these spots and could help identify some of the worst.

Comment 15 Response
We will pass this recommendation along to the SIT, or your representative on the SIT may make the proposal in person.

Feather Breached Delta Levees

Comment 16
Next steps as GGSA understands is for USFWS to see what's already known and documented of breached levees in the Delta where predator hot spots might exist in scour holes. Specific locations, like the breach at Liberty Island, are the target. The USFWS reports that many sister agencies have done extensive Delta studies and likely has already identified known levee breach locations and possibly even established baseline data for species present at those spots. Establishing relationships and access with private property owners in the Delta could be important. GGSA has offered to use its Delta contacts to try to secure same.

Biologist Dave Vogel of Natural Resource Scientists first brought this proposal to the attention of GGSA and has recently said he could help identify relevant areas for remediation if desired. Liberty Island has been mentioned as one likely levee breach in need of fixing. There are likely others where salmon fry and smolts are being lost to predators. GGSA has an extensive proposal prepared by Dave Vogel on this topic and is happy to share it with federal project managers.

Comment 16 Response
We will pass this recommendation along to the SIT, or your representative on the SIT may make the proposal in person.

Recreate Shallow Water Habitat in Delta Migration Routes

Comment 17
This bears similarities to the breached Delta levees project in that considerable work has been done by various parties over the years researching and documenting where shallow water habitat in the Delta should be restored to best aid various runs of salmon, including fall and winter run. A literature search and expert solicitation could quickly identify where in the Delta target runs of salmon prefer to rear and migrate through which in turn would inform next steps to restore habitat. Biologist Dave Vogel of Natural Resource Scientists first brought this proposal to the attention of GGSA and has recently said he can narrow down relevant areas for remediation if desired. GGSA has an extensive proposal prepared by Dave Vogel on this topic and is happy to share it with federal project managers.

Comment 17 Response
We will pass this recommendation along to the SIT, or your representative on the SIT may make the proposal in person.