Appendix F
Five-Year Implementation Summary Memorandum

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APPENDIX F

Five-year Implementation Summary Memorandum

Acronym	Definition
Conservation Strategy (or Strategy)	Central Valley Flood Protection Plan Conservation Strategy
CPA	Conservation Planning Area
CVFPB	Central Valley Flood Protection Board
CVFPP	Central Valley Flood Protection Plan
DWR	California Department of Water Resources
NGO	nongovernment organization
O&M	operations and maintenance
SPA	Systemwide Planning Area
SPFC	State Plan of Flood Control
State	State of California
Strategy (Conservation Strategy)	Central Valley Flood Protection Plan Conservation Strategy
TRLIA	Three Rivers Levee Improvement Authority
USACE	U.S. Army Corps of Engineers

This memorandum summarizes contributions to the measurable objectives of the Central Valley Flood Protection Plan (CVFPP) Conservation Strategy (Conservation Strategy or Strategy; California Department of Water Resources 2016) and progress toward the Strategy's goals resulting from projects implemented in the Systemwide Planning Area (SPA) between 2016, when the CVFPP Conservation Strategy was finalized, and 2021. Documenting progress toward the goals is a key part of each five-year update and will help the California Department of Water Resources (DWR) and its partners to adaptively manage implementation. This memorandum also describes actions taken between 2016 and 2021 to support the adaptive management of the Strategy's implementation. Chapter 2 of the Conservation Strategy 2022 Update also presents key information from this memorandum.

F.1 Context of the Goals and Measurable Objectives

The 2016 Conservation Strategy created the following four goals to attain the Central Valley Flood Protection Act's objectives to promote ecosystem functions by integrating recovery and restoration of key physical processes, self-sustaining ecological functions, native habitats, and species into flood management activities:

1. **Ecosystem Processes**. Improve dynamic hydrologic (flow) and geomorphic processes in the State Plan of Flood Control (SPFC) plan area or SPA.

2. **Habitats**. Increase and improve the quantity, diversity, and connectivity of riverine and floodplain habitats.

3. **Species**. Contribute to the recovery and sustainability of native species populations and overall biotic community diversity.

4. **Stressors**. Reduce stressors related to development and operations of the SPFC that negatively affect at-risk species.

To achieve these goals, measurable objectives were developed to target processes, habitats, and species in need of recovery, and the stressors to these processes, habitats, and species that could be addressed by flood risk management. The targets of the Conservation Strategy's measurable objectives (or the amount of restoration needed) were determined by reviewing restoration needs and opportunities across the flood system. (For further explanation of how the objectives were determined, refer to the 2016 Conservation Strategy.) Progress toward the measurable objectives will inform CVFPP implementation and future State of California (State) funding guidelines and grant programs.

F.2 Conservation Strategy Measurable Objectives Outcomes 2016 to 2021

The projects identified here generated outcomes that correspond to the metrics of one or more measurable objectives, and meet the following criteria:

- The project was designed after 2012, and completed between 2016 and 2021. Although planning, permitting, and funding of many projects progressed during the 2016 to 2021 period, only projects, or phases of projects, completed in this period are reported here. In addition, projects that were planned and designed before 2012 were generally considered part of baseline conditions while the measurable objectives were developed, and therefore do not represent ecosystem improvements resulting from the CVFPP's implementation.

- The project implements the CVFPP via a multi-benefit project (defined later in this section) or through a habitat enhancement project with a positive result for one or more measurable objectives as identified in the Conservation Strategy (typically through other DWR integrated watershed management programs, such as the Riverine Stewardship Program).

- The project is within the geographic scope of the CVFPP (i.e., the SPA), and within SPFC facilities or on lands protected by the SPFC.

- If an identified fish passage barrier from Appendix K of the 2016 Conservation Strategy has been removed as part of the CVFPP or any other program or project (e.g., Fremont Weir Adult Fish Passage Modification Project), it is considered resolved and thus counts toward meeting the measurable objective for this stressor, regardless of the effect on flood risk (i.e., not necessarily a multi-benefit project).

The CVFPP defines multi-benefit projects as follows (California Department of Water Resources 2017): "projects designed to reduce flood risk and enhance fish and wildlife habitat; multi--benefit projects may also create additional public benefits such as sustaining agricultural production, improving water quality and water supply reliability, increasing groundwater recharge, supporting commercial fisheries, and providing public recreation and educational opportunities, or any combination thereof."

The outcomes reported here are planned project outcomes as reported in environmental planning documents, permits, and spatial data provided by project managers. These outcomes will be monitored and verified so the achieved outcomes are documented accurately. The Flood Performance Tracking System will be updated once data become available for verified outcomes. When project outcomes are used to mitigate habitat loss caused by other projects, contributions to the measurable objectives will be reduced to account for that habitat loss.

F.2.1 Completed Projects

The four multi-benefit projects summarized here were completed between 2016 and 2021, and contributed to the measurable objectives by reconnecting floodplains, restoring riparian habitats, and providing other ecosystem benefits. These projects were funded through DWR's flood management programs and meet the CVFPP criteria for a multi-benefit project:

- **The Oroville Wildlife Area Flood Stage Reduction Project (Feather River Conservation Planning Area [CPA])** reduced flood risk, increased the area of inundated floodplain, and restored riparian habitat by augmenting the existing system of inflow and outflow weirs to safely divert additional floodwaters through the Oroville Wildlife Area and by improving drainage to reduce fish stranding.

- **The Three Rivers Levee Improvement Authority (TRLIA) Feather River Conservation Bank (Feather River CPA)** restored 500 acres of a previously created levee setback area to a mosaic of mixed riparian forest and riparian scrub. This project is anticipated to be used as a bank; therefore, measurable objectives contributions will be reduced as credits are used.

- **The Southport Setback Levee Project (Lower Sacramento River CPA)** increased the area of inundated floodplain and restored riparian habitat by constructing a setback levee along the west bank of the Sacramento River. A portion of this project may be used as a mitigation bank and therefore, measurable objectives may be reduced as credits are used.

- **The Dos Rios Ranch Floodplain Expansion and Ecosystem Restoration Project, Phase I (Lower San Joaquin River CPA)** reconnected approximately 1000 acres of inundated floodplain by constructing notches in agricultural berms resulting in restored riparian habitat on most of the reconnected floodplain.

Multi-benefit projects being developed within the legal Sacramento–San Joaquin Delta (Delta) independent of the CVFPP before 2016 (e.g., the McCormack-Williamson Restoration Project) were excluded from the measurable objectives, and thus, are not included in this summary of multi-benefit projects implemented between 2016 and 2021. Other projects were completed during this timeframe but do not contribute to the measurable objectives because they do not meet the required criteria. Except where components of EcoRestore projects are being used to meet specific mitigation requirements, any uplift created by EcoRestore projects will count toward meeting the Conservation Strategy's Measurable Objectives. In addition, one project did not meet the criteria as a multi-benefit project and was not implemented under the CVFPP, but it is included because it contributed to addressing a Conservation Strategy measurable objective:

- **The Fremont Weir Adult Fish Passage Modification Project (Lower Sacramento River CPA, non-CVFPP)** reduced a stressor (fish passage barrier) as identified in Appendix K of the Conservation Strategy. This project improved fish passage by replacing the existing fish ladder at Fremont Weir with a step pool channel leading up to the weir and gated notch through the weir. Note that only the fish passage barrier component of the project is being counted toward that stressor's measurable objective.

F.2.2 Methodology

The data reported here were acquired by reviewing project documents, collecting spatial information, and interviewing project managers. All data will also be captured and reported in the Flood Performance Tracking System for long-term storage and use.

To determine how each project contributed to the measurable objectives, project plans and environmental reports were reviewed, then compared to the descriptions of the measurable objectives in the Conservation Strategy. Some project outcomes, like riparian habitat (acres) and natural bank (linear miles), were often not reported using the same metrics as the Conservation Strategy. In these cases, the consistency between project outcomes and the Conservation Strategy's measurable objectives was determined based on the project description and the objective descriptions and definitions in the Conservation Strategy.

To quantify each project's contribution to the measurable objectives, project spatial data for pre-project and post-project conditions, and baseline datasets for the objectives were used. The

project's contributions to the measurable objectives were measured as the change between pre- and post-project conditions.

DWR is developing a set of methodology sheets for future use, which will clarify how project managers can translate their project outcomes to contributions to the measurable objectives. These methodology sheets, along with the data entered into the Flood Performance Tracking System, will allow for a clear understanding of progress toward the measurable objectives (and, potentially, other plans and programs).

F.2.2.1 Case Study: Oroville Wildlife Area Flood Stage Reduction Project

To illustrate this translation of project outcomes to project contributions to the Conservation Strategy's measurable objectives, Table F-1 displays the outcomes for the Oroville Wildlife Area Flood Stage Reduction Project, and shows how they were mapped to each of the 10 measurable objectives for the Feather River CPA. The habitat types listed in Table F-1 are the restored habitats as listed in the Initial Study/Mitigated Negative Declaration for the Oroville Wildlife Area Flood Stage Reduction Project (ICF International, Inc. 2016).

Table F-1. Example Conversion from Project Habitat Types and Actions to Measurable Objectives of the Conservation Strategy

Oroville Wildlife Area Flood Stage Reduction Project Habitat Types and Actions	Quantity	Related Measurable Objective	Contribution
Riparian woodland/riparian scrub	36.3 acres	Riparian habitat	36.3 acres
Gravel understory	48.5 acres	Not applicable—no corresponding objective	Not applicable
Riparian scrub/wetland	44.3 acres	Marsh/other wetland habitat	44.3 acres
Floodplain habitat	125.8 acres	Inundated floodplain	125.8 acres
Removal of water primrose	500 acres	Not applicable—no corresponding objective	Not applicable
Removal of other invasive plant species[a[	200 acres	Not applicable—no corresponding objective	Not applicable
Re-grading of interior channel system	7,500 linear feet	River meander potential	Not applicable—no corresponding objective

[a] The Conservation Strategy has measurable objectives for the removal of prioritized invasive plant species; however, in this example, the removal of invasive plant species did not contribute toward the measurable objective because it did not include a prioritized invasive plant species as identified in the 2016 Conservation Strategy.

F.2.3 Project Outcomes

Table F-2 captures the outcomes of each of the aforementioned projects, allocated to the Conservation Strategy's 10 measurable objectives. As Table F-2 shows, these completed projects all contributed to one or more of the measurable objectives. However, in all five of the CPAs, only minimal progress was made toward most measurable objectives.

Tables F-3 and F-4 show each CPA's progress toward the Conservation Strategy's measurable objectives, and Figures F-1 through F-3 show progress toward each CPA's measurable objectives. Significant additional work is needed in each CPA to meet their objectives. Several additional projects are in the planning or funding stages. These in-progress projects are discussed in Attachment F-1, and will make additional contributions to the measurable objectives in the next few years as they are implemented.

Table F-2. Contributions to the Conservation Strategy's Measurable Objectives by Project

Project Name	Conservation Planning Area	Status	Funding Amount	Funding Source(s)	Inundation–Major River Reaches (acres)	Inundation – Bypasses/ Transient Storage (acres)	Natural Bank (miles)	River Meander Potential (acres)	Natural Bank (miles)	Riparian-Lined Bank (miles)	Riparian Habitat (acres)	Marsh/ Wetland (acres)	Fish Passage Barriers (number)	Invasive Plants (acres)
Oroville Wildlife Area Flood Stage Reduction	Feather River	Complete	$47,938,698	Prop. 1, WCB	125.8	0	0	0	0	0	36.3	44.3	0	0
Three Rivers Levee Authority Feather River Conservation Bank [a]	Feather River	Plantings Complete	$6,482,501	Prop. 1E, State of California General Fund	0	0	3.4	0	3.4	0	402.1	0	0	0
Fremont Weir Adult Fish Passage Modification [b]	Lower Sacramento River	Complete	$6,782,325	SWP, Reclamation, NGOs	0	0	0	0	0	0	0	0	1	0
Southport Setback Levee [c]	Lower Sacramento River	Construction Complete	$183,500,000	Prop. 1E, WSAFCA	110.2	0	4.9	0	4.9	0	107.7	13.4	0	0
Dos Rios Floodplain Expansion and Ecosystem Restoration, Phase I	Lower San Joaquin River	Complete	$53,182,575	DWR, WCB, NRCS, Prop. 1, Prop. 13, others	0	0	0.2	0	0.2	0.2	739.1	0	0	0
Total SPA					236.0	0	8.5	0	8.5	0.2	1,285.2	57.7	1	0

[a] Because this is a bank, uplift is temporary until credits are used. Acreage does not include approximately 100 acres of elderberry mitigation plantings.
[b] This project does not qualify as a multi-benefit project and was not implemented as part of the CVFPP but because it reduced a stressor as identified in the 2016 Conservation Strategy, it is included.
[c] Because portions of this project may be used as advance mitigation, uplift is temporary until credits are used.

Notes:
NGO = nongovernment organization
NRCS = U.S. Natural Resources Conservation Service
Prop. 1/1E/13 = State of California propositions
Reclamation = U.S. Bureau of Reclamation
SPA = Systemwide Planning Area
SWP = State Water Project
WCB = Wildlife Conservation Board
WSAFCA = West Sacramento Area Flood Control Agency

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Table F-3. Contributions to the Conservation Strategy's Measurable Objectives by Conservation Planning Area: Ecosystem Processes

Conservation Planning Area	Contributions to Floodplain Inundation–Major River Reaches	Contributions to Floodplain Inundation–Bypasses/ Transient Storage Areas	Contributions to Riverine–Natural Bank	Contributions to Riverine–River Meander Potential
Feather River[a]	125.8 acres created (3.4% of target of 3,700 acres)	0 acres created (no target applicable in this CPA)	3.4 miles created (no target applicable in this CPA)	0 acres created (0% of target of 400 acres)
Upper Sacramento River	0 acres created (0% of target of 6,300 acres)	0 acres created (0% of target of 9,600 acres)	0 miles created (0% of target of 20 miles)	0 acres created (0% of target of 5,600 acres)
Lower Sacramento River[b]	110.2 acres created (1.6% of target of 7,650 acres)	0 acres created (0% of target of 7,500 acres)	4.9 miles created (122% of target of 4 miles)	0 acres created (0% of target of 1,300 acres)
Upper San Joaquin River	0 acres created (0% of target of 2,800 acres)	0 acres created (no target applicable in this CPA)	0 miles created (0% of target of 8 miles)	0 acres created (0% of target of 2,100 acres)
Lower San Joaquin River[c]	0 acres created (0% of target of 11,600 acres)	0 acres created (0% of target of 200 acres)	0.2 miles created (1.5% of target of 13 miles)	0 acres created (0% of target of 4,300 acres)

[a] Contributing projects in the Feather River CPA include the Oroville Wildlife Area Flood Stage Reduction and Three Rivers Levee Authority Feather River Conservation Bank.

[b] Contributions in the Lower Sacramento River CPA are made by the Southport Setback Levee.

[c] Contributions in the Lower San Joaquin River CPA are made by the Dos Rios Floodplain Expansion and Ecosystem Restoration, Phase I.

Notes:
% = percent
CPA = Conservation Planning Area

Table F-4. Contributions to the Conservation Strategy's Measurable Objectives by Conservation Planning Area: Habitats and Stressors

Conservation Planning Area	Contributions to Habitat Objectives—SRA Cover: Natural Bank	Contributions to Habitat Objectives—SRA Cover: Riparian-Lined Bank	Contributions to Habitat Objectives—Riparian	Contributions to Habitat Objectives—Marsh (and Other Wetlands)	Contributions to Stressor Objectives—Fish Passage Barriers	Contributions to Stressor Objectives—Invasive Plants
Feather River[a]	3.4 miles created (no target applicable in this CPA)	0 miles created (0% of target of 0 miles)	438.4 acres created (24% of target of 1,800 acres)	44.3 acres created (no target applicable in this CPA)	0 barriers removed (0% of target of 0 barriers)	0 acres restored (0% of target of 257 acres)
Upper Sacramento River	0 miles created (0% of target of 20 miles)	0 miles created (0% of target of 8 miles)	0 acres created (0% of target of 3,400 acres)	0 acres created (0% of target of 2,400 acres)	0 barriers removed (0% of target of 5 barriers)	0 acres restored (0% of target of 268 acres)
Lower Sacramento River[b]	4.9 miles created (122% of target of 4 miles)	0 miles created (0% of target of 3 miles)	107.7 acres created (5.6% of target of 1,900 acres)	13.4 acres created (0.4% of target of 3,500 acres)	1 barrier removed (25% of target of 4 barriers)	0 acres restored (0% of target of 363 acres)
Upper San Joaquin River	0 miles created (0% of target of 8 miles)	0 miles created (0% of target of 2 miles)	0 acres created (0% of target of 2,100 acres)	0 acres created (no target applicable in this CPA)	0 barriers removed (target to be determined)	0 acres restored (0% of target of 143 acres)
Lower San Joaquin River[c]	0.2 miles created (1.5% of target of 13 miles)	0.2 miles created (3.3% of target of 6 miles)	739.1 acres created (12.7% of target of 5,800 acres)	0 acres created (0% of target of 100 acres)	0 barriers removed (target to be determined)	0 acres restored (0% of target of 34 acres)

[a] Contributing projects in the Feather River CPA include the Oroville Wildlife Area Flood Stage Reduction and Three Rivers Levee Authority Feather River Conservation Bank.

[b] Contributing projects in the Lower Sacramento River CPA include the Fremont Weir Adult Fish Passage Modification and Southport Setback Levee.

[c] Contributions in the Lower San Joaquin River CPA are made by the Dos Rios Floodplain Expansion and Ecosystem Restoration, Phase I.

Notes:
CPA = Conservation Planning Area
SRA = shaded riverine aquatic

Figure F-1. Potential Contributions of Completed Projects to Ecosystem Process Objectives

Note: Compensatory mitigation and non-mitigation are displayed separately because using restored ecosystem processes as mitigation reduces progress toward the Conservation Strategy's goals.

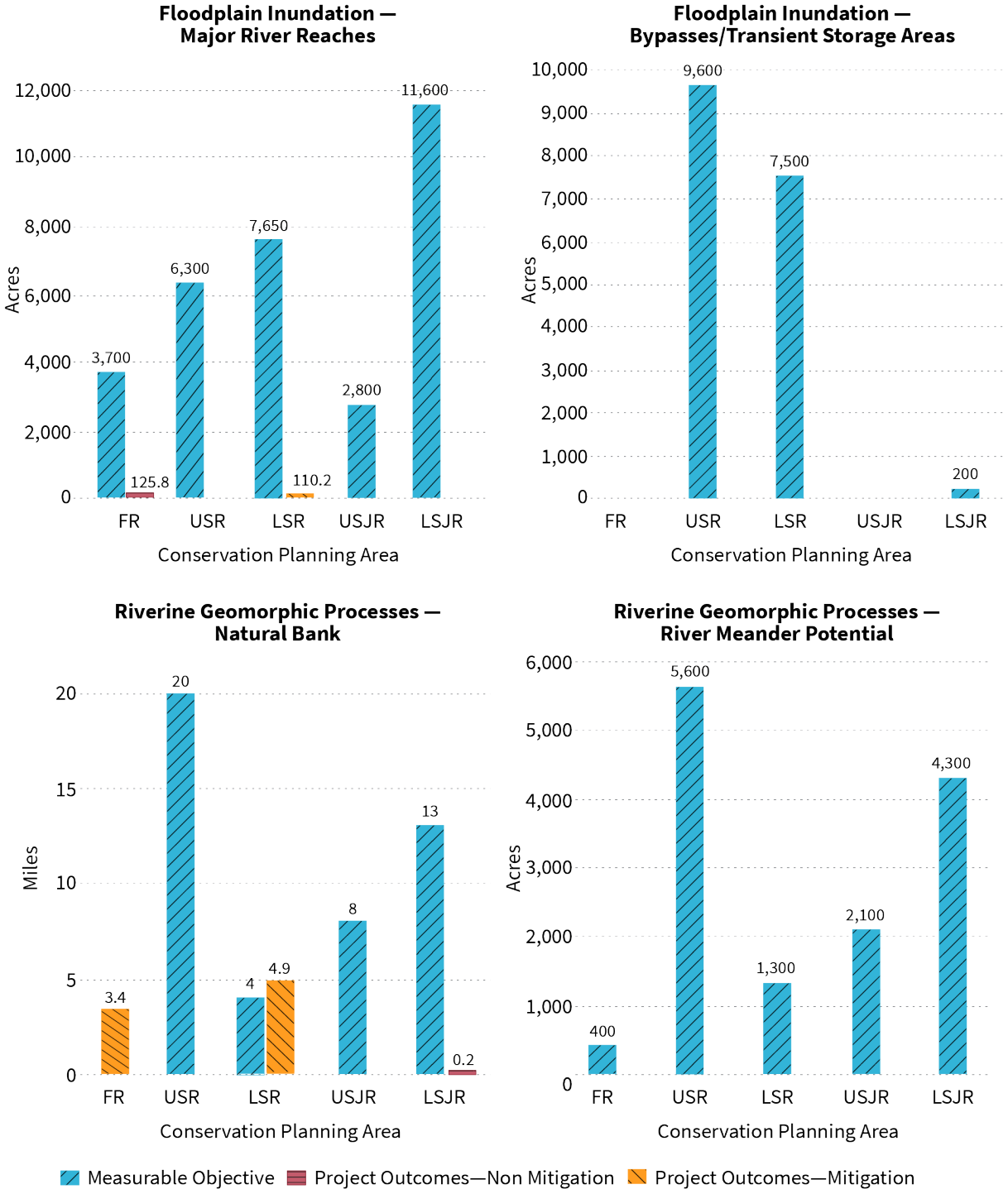


Figure F-2. Potential Contributions of Completed Projects to Habitat Objectives

Note: Compensatory mitigation and non-mitigation are displayed separately because using restored habitats as mitigation reduces progress toward the Conservation Strategy's goals.

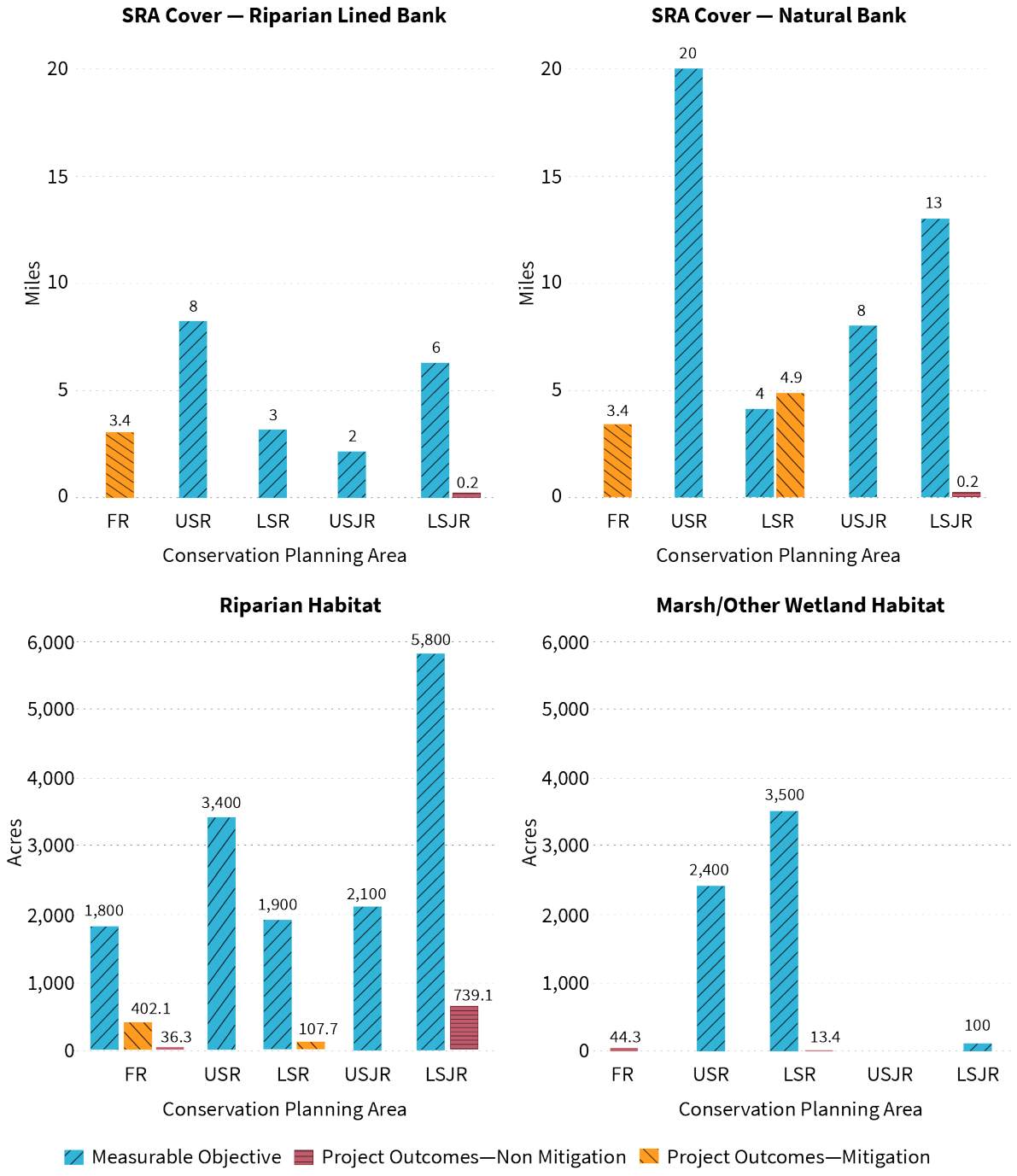
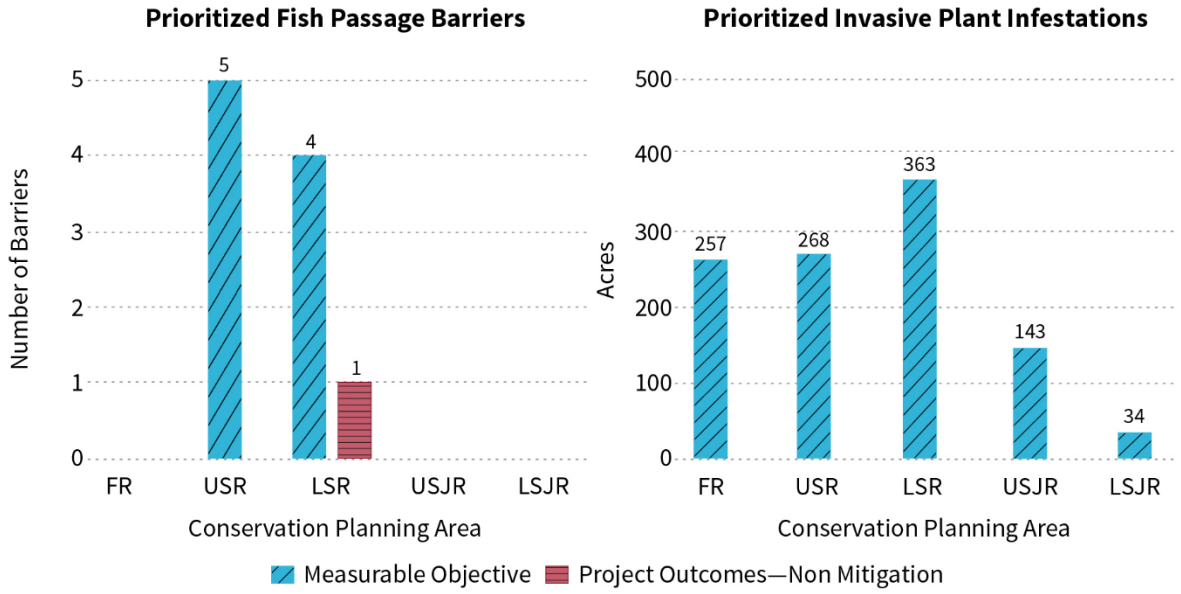


Figure F-3. Potential Contributions of Completed Projects to Stressor Objectives

Note: Compensatory mitigation and non-mitigation are displayed separately because using reduced stressors as mitigation reduces progress toward the Conservation Strategy's goals.



F.2.4 Funding for Multi-Benefit Projects Contributing to the Conservation Strategy's Measurable Objectives

As Table F-5 shows, the completed multi-benefit projects listed in Table F-2 received funding from multiple sources, including federal, State, and local contributions. A total of $297,886,099 was spent on these five projects. State bonds were the largest funding source.

Table F-5. Funding Sources and Amounts for Multi-benefit Projects

Source	Funding Amount
Federal Funding	**$21,079,511**
U.S. Natural Resources Conservation Service	$10,100,000
U.S. Bureau of Reclamation	$6,782,325
Central Valley Project Improvement Act	$2,775,186
U.S. Fish and Wildlife Service	$1,422,000
Local Funding	**$42,020,000**
West Sacramento Area Flood Control Agency	$40,000,000
San Francisco Public Utilities Commission	$2,000,000
Other private and local contributions	$20,000

Source	Funding Amount
State—Propositions	**$229,986,588**
Proposition 1E	$181,783,501
Proposition 84	$14,850,000
Proposition 1	$27,305,587
Proposition 13	$6,047,500
State—Other Funds	**$4,800,000**
Other State funds	$4,800,000
Total Funding	**$297,886,099**

F.2.5 Recommendations for Documenting Outcomes

The documentation of project outcomes for the Conservation Strategy 2022 Update and in the development of this memorandum has highlighted a few key processes that should be improved in the future. These improvements would promote greater understanding of floodplain progress toward the measurable objectives.

- **Project reporting guidance should be created and distributed.** Project reporting guidance would enable project managers across the flood system to know how, when, and what to report at each stage of project implementation. Such guidance would lessen the reporting burden, reduce inconsistencies, and keep DWR's records up to date. This guidance should describe how to report on funding amounts and sources, project statuses, and multi--benefit outcomes planned or achieved to date. This could be done using the methodology sheets (described in the "Methodology" section). These methodology sheets also clarify how different project actions could contribute to the measurable objectives, which may incentivize project managers to include elements in their project design that they otherwise may not have considered, to show advance progress toward their region's measurable objective targets. These sheets also clarify the spatial analyses needed to understand contributions to the measurable objectives.

- **A central repository of information should be promoted.** An easily accessible repository for project information should be updated regularly by project managers, so DWR can keep an accurate record of current project information. This repository should also contain contact names to enable followup with project managers as questions arise.

- **Post-construction monitoring should occur regularly and should be reported to a centralized source**. The project outcomes reported here are planned outcomes. However, verified outcomes via monitoring are critical to ensure projects achieve their intended outcomes. Although it is easy to assume projects will produce and maintain all planned outcomes, it is difficult to understand ecological change on the ground and over time without consistent monitoring and maintenance. Monitoring can ensure projects stay on track and continue to provide both flood and habitat benefits as intended.

F.3 Adaptive Management of Implementation 2016 to 2021

The 2016 Conservation Strategy included an approach to adaptive management based on implementation tracking and data dissemination; systemwide or regional inventories of targeted ecosystem processes, habitats, and stressors; studies focused on key uncertainties; and solicited guidance. The following sections describe how these components were implemented between 2016 and 2021.

F.3.1 Implementation Tracking and Data Dissemination

The 2016 Conservation Strategy described a proposed system of tracking and data management to facilitate necessary reporting, information sharing, and adaptive management.

Since 2016, to meet these needs, DWR has been creating new, more efficient systems for data management, including two systems to manage data from the implementation of the Conservation Strategy. The Flood Performance Tracking System compiles and tracks flood management and environmental outcomes. Another system that is under development will associate these outcomes with DWR programs, and will support project prioritization and outcome-based evaluations of programs. These new, centralized systems use common data from across programs and applications while maintaining the unique functionality of existing applications. This data management infrastructure has the following characteristics:

- Relies on an integrated set of databases and applications.
- Integrates shared data across programs.
- Reduces redundancy and duplicated data management efforts by storing shared data in a single location that can be accessed across DWR.

Together, these data systems manage information about projects, funding, habitat outcomes, and ecosystem metrics across DWR programs. They are described further in Section 3.3.5, “Adaptive Management,” of the Conservation Strategy 2022 Update, which provides the updated approach to adaptive management.

F.3.2 Inventories

While developing the 2016 Conservation Strategy and 2017 CVFPP Update, DWR produced several systemwide or regional inventories of targeted ecosystem processes, habitats, and stressors. These inventories supported the development of the measurable objectives and also inform project planning. As described in the 2016 Conservation Strategy, updating these datasets every 5 to 10 years would document regional changes to the amount and distribution of these targets, thereby supporting adaptive management of the Strategy’s implementation and development of multi-benefit projects (refer to Table 8-1 in the 2016 Conservation Strategy).

Between 2016 and 2021, DWR updated vegetation mapping systemwide in three separate efforts: the legal Sacramento-San Joaquin Delta, a portion of the Feather River CPA, and the rest of the SPA. These updates are based on 2016 imagery and fieldwork and validation studies conducted from 2018 until 2021. The previous map of vegetation in the SPA was based on 2009 imagery.

The channel-bank datasets (revetted and natural banks) were also updated for the Upper Sacramento River and Lower Sacramento River CPAs. These updates were based on 2016 aerial imagery and field work that took place during 2019 and 2020. The Feather River CPA is scheduled to be updated in 2022. The previous mapping for the Lower Sacramento River CPA was based on a U.S. Army Corps of Engineers (USACE) inventory of revetment along the Sacramento River (U.S. Army Corps of Engineers 2007). The previous mapping for the Upper Sacramento River CPA was based on 2009 imagery and field work that took place in 2014.

The updated inventory of revetted and natural banks in the Upper Sacramento River CPA illustrates the value of regional inventories for adaptively managing implementation of the Conservation Strategy. Between 2009 and 2014, revetment was eroded away from or deposited at nearly 100 locations with a combined length of nearly 3 miles. These changes resulted in a net decrease in natural bank of approximately 1 mile. Figure F-4 and Table F-6 show t this net reduction in ecosystem processes and habitat does not substantially alter 2009 conditions, but continues a trend that has already dramatically reduced ecosystem processes and habitat for target species. Because revetment is placed on the most actively eroding locations along channel banks, the placement of revetment on approximately one-third of bank length has had a disproportionate impact on geomorphic processes and the regeneration of early successional vegetation (Fremier 2003).

Figure F-4. Length of Revetment and Natural Channel Bank in the Upper Sacramento River Conservation Planning Area in 2009 and 2016

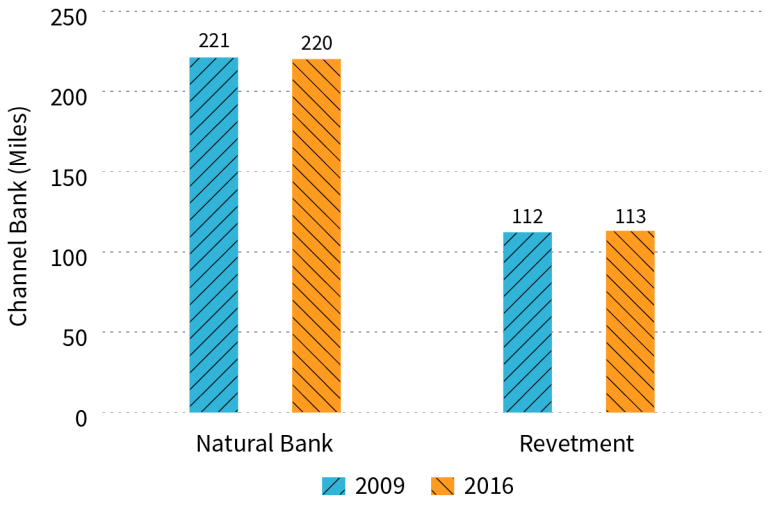


Table F-6. Length of Natural Bank and Revetment in the Upper Sacramento River Conservation Planning Area in 2009 and 2016

Year	Natural Bank (miles)	Revetment (miles)
2009	221	112
2016	220	113

Source: DWR, unpublished data

F.3.3 Focused Studies

The 2016 Conservation Strategy recommended using focused studies to complete key datasets and reduce uncertainty surrounding how targeted habitats and species would respond to management actions. The Strategy identified 17 studies as priorities (refer to Table 8-2 in the 2016 Conservation Strategy). Seven of these studies would complete regional inventories of targeted ecosystem processes or habitats, nine are focused on targeted species, and one is focused on fish passage barriers.

None of these focused studies have taken place since 2016 to support the implementation of the CVFPP or relevant conservation programs. New priorities have also been identified, particularly related to the need to update older inventories and inform climate change adaptation. These new priorities are provided in the Conservation Strategy 2022 Update.

F.3.4 Implementation Guidance

As described in the 2016 Conservation Strategy, an adaptive management approach to implementation must be guided not only by project outcomes, regional resource inventories, and focused studies, but also by input from other agencies and scientists. To obtain this guidance, an interagency advisory committee and scientific advisory committee were proposed. Neither of these committees has convened during the 2016 and 2021 period. However, DWR solicited advisory input from agencies, NGOs, and project proponents.

In addition to conducting its own assessment of implementation of this Conservation Strategy, DWR solicited input regarding implementation and applied the input to this update. Input was solicited from the Central Valley Flood Protection Board (CVFPB), other project proponents and maintainers, regulatory agencies, NGOs, and other stakeholders.

This input was initially solicited through a survey (distributed to approximately 240 individuals, 42 of whom responded) and 16 interviews, and subsequently through participation in the CVFPB's Conservation Strategy Advisory Committee. The experience of survey recipients and interviewees represented the range of regions, roles, project types, and project phases relevant to the Conservation Strategy's implementation.

Survey respondents identified funding availability, funding-source requirements, and regulatory requirements as major factors limiting multi-benefit projects, among other factors (Figure F-5 and Table F-7). They identified funding availability and project proponent leadership as the major factors contributing to the successful implementation of multi-benefit projects (refer to Figure F-5 and Table F-8).

Figure F-5. Survey Responses regarding Factors Contributing to or Limiting Ecosystem Improvements by Multi-benefit Projects

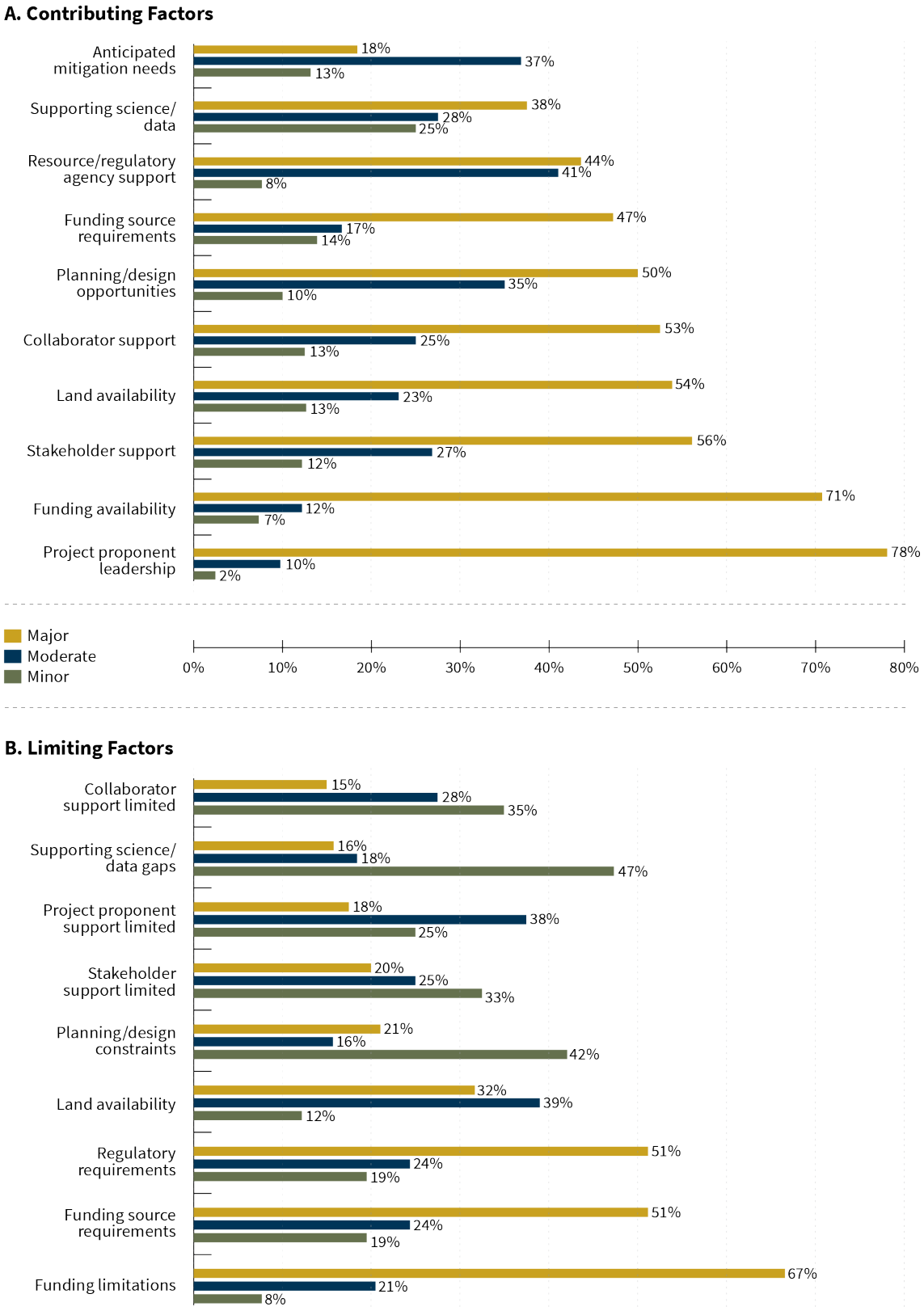


Table F-7. Survey Responses regarding Factors Limiting Ecosystem Improvements by Multi--benefit Projects

Factor	Minor (%)	Moderate (%)	Major (%)
Collaborator support limited	35	27.5	15
Supporting science/data gaps	47	18	16
Project proponent support limited	25	38	18
Stakeholder support limited	33	25	20
Planning/design constraints	42	16	21
Land availability	12	39	32
Regulatory requirements	20	24	51
Funding source requirements	20	24	51
Funding limitations	8	21	67

Table F-8. Survey Responses regarding Factors Contributing to Ecosystem Improvements by Multi-benefit Projects

Factor	Minor (%)	Moderate (%)	Major (%)
Anticipated mitigation needs	13	37	18
Supporting science/data	25	28	38
Resource agency support	8	41	44
Funding source requirements	14	17	47
Planning/design opportunities	10	35	50
Collaborator support	13	25	53
Land availability	13	23	54
Stakeholder support	12	27	56
Funding availability	7	12	71

Interview participants provided more extensive and detailed input regarding implementation needs. The interviews led to the following major findings:

- **Better alignment is needed among agency policies, funding sources, and regulatory requirements.** Participants called for better policy integration and coordination within and among agencies to facilitate the development of multi-benefit projects. Such projects are subject to the policy and regulatory requirements of fish and wildlife agencies and USACE, and to the requirements of funding sources, which often do not align well with the

multi--benefit project objectives described in the CVFPP. Much of this alignment will have to occur at higher State and federal policymaking levels; however, participants also noted the need for better alignment of divisions and programs within key CVFPP agencies to support the development and implementation of multi-benefit projects.

- **CVFPP criteria are needed that define multi-benefit projects and contributions to measurable objectives.** Participants also called for clearer policy guidance in the CVFPP, particularly regarding criteria that define multi-benefit projects and determine contributions to the measurable objectives (e.g., mitigation contributions, if any).

- **The CVFPP should consider how to strike an appropriate balance between multi-benefit and single-purpose projects.** Some participants expressed concern that because of the difficulty of developing multi-benefit projects, placing substantially greater emphasis on such projects could leave important flood safety needs unaddressed. They were also concerned that it may not be feasible for every flood management project to achieve meaningful ecosystem improvements.

- **Regional planning is working well, but more early engagement is needed between project proponents, stakeholders, and regulatory agencies.** Developers of multi-benefit projects reported that early engagement with local stakeholders and State and federal agencies, particularly regulators, is essential to a successful project. Participants considered the collaborative environments established by the regional flood management plan process and the CVFPB's Advisory Committee to be effective at the planning level; however, they also identified the need for additional, earlier engagement among all stakeholders and agencies (including divisions and programs within agencies) in the project development process.

- **Funding requirements are a major constraint, including the lack of funding for monitoring and long-term operations and maintenance (O&M) associated with ecosystem improvements.** Project developers consistently cited the divergent requirements of various funding sources as a significant barrier to project development. Multi-benefit projects usually package funds from multiple sources, many of which can only be used for specified purposes, and which may have different deadlines and administrative requirements. The perennial lack of funding for post-construction O&M and monitoring is an even larger problem for restoring habitats through multi-benefit projects.

- **Improved post-construction monitoring, data management, and documentation of project outcomes are needed to adaptively manage implementation.** Participants reported that funding of post-construction activities, including monitoring, is generally inadequate. Some noted data are recorded inconsistently and project outcomes are insufficiently documented. Without more complete, consistent methods of tracking and recording project features and outcomes, it will be difficult to accurately assess progress toward this Conservation Strategy's measurable objectives, or to improve management strategies in response to ecological conditions and lessons learned from previous implementation experiences.

The CVFPB's Advisory Committee also provided recommendations. During summer 2020, the CVFPB Advisory Committee formed three stakeholder-led subgroups to provide input into the update of this Strategy and its implementation. The subgroups addressed the following topics:

- Implementation of multi-benefit projects.
- Permitting.
- Performance tracking.

Each subgroup met multiple times between August 2020 and February 2021 to formulate recommendations. DWR requested that these recommendations be grouped to distinguish recommendations pertaining to this update of the Conservation Strategy from other recommendations. These subgroup-specific recommendations were finalized in January 2021. Cross-cutting themes (e.g., topics applicable to all three subgroups) were also identified and include: funding, O&M support, technical assistance for disadvantaged communities, and clarification on the definitions of mitigation and allocation of multi-benefit project features toward meeting the Conservation Strategy's measurable objectives. The cross-cutting themes were finalized in January 2021 and formed the basis for a unified set of recommendations to DWR (provided in Appendix G).

F.4 Implementation Summary

During the past five years, DWR has developed tracking systems; updated systemwide vegetation mapping ; updated mapping of natural and riparian-lined banks in the Upper Sacramento River CPA; developed permitting mechanisms for O&M activities; funded and developed multi-benefit projects; aligned efforts with non-flood programs making conservation-related investments in the SPA; and sought input on the implementation of this Strategy from resource agencies, project proponents, maintainers, and other stakeholders.

Overall, completed projects have attained only a small portion of most measurable objectives (less than 5 percent). Projects under construction and proposed projects are anticipated to result in contributions to additional objectives, and for multiple objectives, cumulative contributions could exceed 20 percent of the objective by 2027. Nonetheless, for most of the objectives, the cumulative contributions of projects could still be less than 20 percent of the objective in 2027.

This level of implementation indicates that without systemic changes that expedite the development or increase the number of multi-benefit projects (particularly those analyzed in the 2017 CVFPP's Basin-Wide Feasibility Studies that expand the footprint of the flood system) multiple measurable objectives may not be attained, leaving the goals of this Conservation Strategy unfulfilled.

The input from DWR staff, survey respondents, interviewees, and the CVFPB's Advisory Committee indicated that project funding and permitting have been major impediments to the successful implementation of multi-benefit projects, and that multiple factors are important

contributors to the success of these projects. The input received also includes numerous recommendations for aiding the development and implementation of multi-benefit projects, and for aligning implementation with non-flood programs making conservation-related investments in the SPA. Those recommendations have been applied to development of the updated content for the Conservation Strategy and priority actions for 2022–2027 that are provided in the Conservation Strategy 2022 Update.

F.5 References

Note: The following references are cited in the text of this appendix. For references cited in Attachment F1, "Project Descriptions," please refer to the lists in Attachment F1.

California Department of Water Resources (DWR). 2016. *Central Valley Flood Protection Plan Conservation Strategy.* Sacramento (CA).

California Department of Water Resources (DWR). 2017. *Central Valley Flood Protection Plan 2017 Update*. Sacramento (CA).

Fremier AK. 2003. *Floodplain Age Modeling Techniques to Analyze Channel Migration and Vegetation Patch Dynamics on the Sacramento River, California*. Master's thesis. Davis (CA): University of California, Davis.

ICF International, Inc. 2016. *Draft Oroville Wildlife Area Flood Stage Reduction Project, Initial Study/Mitigated Negative Declaration.* Sacramento (CA). Prepared for Sutter Butte Flood Control Agency, Yuba City (CA). May 2016. Viewed online at: Oroville_Flood_Risk_Reduction_Project. Accessed: January 2021.

U.S. Army Corps of Engineers (USACE). 2007. *Bank Revetment Inventory, Sacramento River Bank Protection Project.* Sacramento (CA). Prepared by Stillwater Sciences, Berkeley (CA).

ATTACHMENT F.1

Project Descriptions

Acronym	Definition
CDFW	California Department of Fish and Wildlife
CPA	Conservation Planning Area
DWR	California Department of Water Resources
SWP	State Water Project
TRLIA	Three Rivers Levee Improvement Authority
USFWS	U.S. Fish and Wildlife Service

This attachment describes each project completed during the 2016 to 2021 period and identifies anticipated 2022 to 2027 projects, defined as projects under construction or proposed projects that may begin construction during 2022 to 2027. Project descriptions include the project implementer, type, location, and funding sources and amounts. In the following descriptions, project funding often does not include staff time for the California Department of Water Resources (DWR) and other agencies and other in-kind costs.

Completed Projects

The following four projects were completed between 2016 and 2021. Together, they represent a diverse set of multi-benefit projects that both provide flood control benefits and improve habitat features. An additional (5th) project is described below because although it does not qualify as a multi-benefit project, it contributed to addressing a Conservation Strategy measurable objective (i.e., reduced a stressor).

Oroville Wildlife Area Flood Stage Reduction Project

This project improved State Water Project (SWP) operations, reconnected the Feather River floodplain, provided inundated floodplain, improved fish habitat, and removed fish passage barriers. The project augmented the existing system of inflow and outflow weirs to safely divert additional floodwaters through the Oroville Wildlife Area and reduce flood stages in the main channel. The improvements were completed to reduce flood stages, improve SWP operations, reconnect the Feather River to its historic floodplain, provide more frequently inundated floodplain rearing habitat for juvenile salmonids, and improve drainage and fish stranding

conditions. The project also incorporated removal of invasive species, new riparian restoration plantings, and construction of new recreational footbridges and grading work to provide improved river access, public parking, and site access improvements.

- **Project Implementer:** Sutter Butte Flood Control Agency
- **Project Status**: Constructed
- **Type:** Multi-benefit flood and ecosystem enhancement project
- **Location:** Feather River Conservation Planning Area (CPA)
- **Funding:** Total cost $47,938,697
  - Proposition 1 (California Department of Fish and Wildlife and Wildlife Conservation Board): $15,217,697.81
  - Proposition 1E (DWR Emergency Levee Repair Work and Emergency Flood Fighting and Protective Measures): $29,201,000
  - Private and Local Contributions: $20,000
  - Other State Funds: $3,500,000
- **Sources:**
  - California Department of Fish and Wildlife. 2017. "California Endangered Species Act Consistency Determination No. 2080−2017−005−02." California Regulatory Notice Register No. 26-Z (June 30, 2017): Page 947.
  - California Natural Resources Agency. 2015a. "Bond Accountability: Oroville Wildlife Area Restoration Project." Viewed online at: Bond Accountability Resources. Accessed: January 2021.
  - California Natural Resources Agency. 2015b. "Bond Accountability: Oroville Wildlife Area Floodplain Reconnection and Habitat." Viewed online at: Bond Accountability Resources. Accessed: January 2021.
  - ICF International. 2016. *Draft Oroville Wildlife Area Flood Stage Reduction Project, Initial Study/Mitigated Negative Declaration.* Sacramento (CA). Prepared for Sutter Butte Flood Control Agency, Yuba City (CA). May 2016. Viewed online at: Oroville Flood Risk Reduction. Accessed: January 2021.
  - Sutter Butte Flood Control Agency. 2017. Lease agreement. June 22, 2017.
  - Sutter Butte Flood Control Agency. 2019. "Sutter Butte Flood Control Agency Overview of Activities." Central Valley Flood Protection Board briefing, May 10, 2019.

– Bureau of Reclamation. 2017. Fisheries Charters Appendix B for the 2017 Annual Work Plan. Public Final. Central Valley Project Improvement Act, Title XXXIV of Public Law 102-575.

Three Rivers Levee Improvement Authority Feather River Setback Conservation Bank

The Three Rivers Levee Improvement Authority (TRLIA) Feather River Setback Conservation Bank restored approximately 500 acres of a previously created levee setback area to a mosaic of mixed riparian forest and riparian scrub. This project is expected to generate advance mitigation credits from the California Department of Fish and Wildlife (CDFW), for riparian habitat and possibly for yellow-billed cuckoo, and the U.S. Fish and Wildlife Service (USFWS), for valley elderberry longhorn beetle and possibly for yellow-billed cuckoo.

- **Project Implementer:** TRLIA
- **Project Status:** Planting completed
- **Type:** Conservation bank (approval pending)
- **Location:** Feather River CPA
- **Funding:** $6,482,501 million
  - Proposition 1E (DWR FloodSAFE Ecosystem Stewardship and Statewide Resources Office): $5,182,501
  - State of California General Fund: $1,300,000
- **Sources**:
  - Three Rivers Levee Improvement Authority. 2016. Final Initial Study/Mitigation Negative Declaration Feather River Setback Conservation Bank Project. July. Marysville, California. Viewed online at: Feather-River. Accessed: July 2021.
  - Three Rivers Levee Improvement Authority. 2020. Feather River Conservation Bank – FESSRO. Viewed online at: Feather-River-Floodway. Accessed: July 2021.

Southport Setback Levee Project

This project involved constructing a setback levee along the western bank of the Sacramento River, which resulted in approximately 138 acres of inundated floodplain and riparian habitat. The setback area is a mixed floodplain and riparian habitat intended to provide floodplain restoration benefits to native fish species. The project is self-mitigating, and all habitat created is reserved for later use as mitigation for other projects under the West Sacramento Levee Improvement Program.

- **Project Implementer:** West Sacramento Area Flood Control Agency
- **Project Status:** Constructed
- **Type:** Multi-benefit flood and ecosystem enhancement project
- **Location:** Lower Sacramento River CPA, Yolo County

- **Funding:** Estimated total cost: $183,500,000
  - Proposition 1E (DWR Flood Project Office Early Implementation Projects and Urban Flood Risk Reduction Program): $143.5 million
  - Local contribution (West Sacramento Area Flood Control Agency): $40 million
- **Sources:**
  - California Natural Resources Agency. [Date unknown]. *Southport Setback Levee Project, West Sacramento, CA: Mixed Floodplain and Riparian Habitat.* Viewed online at: Southport-Setback-Levee. Accessed: January 2021.
  - Dirksen Jr. P. Flood protection planner, City of West Sacramento, West Sacramento (CA). February 9, 2021—email to Boysen K, Environmental Incentives, Denver (CO).
  - West Sacramento Area Flood Control Agency. 2020. *Draft Southport Levee Setback Implementation Report*. July 2020.

Dos Rios Floodplain Expansion and Ecosystem Restoration Project, Phase 1

River Partners' Dos Rios project provides almost 1,000 acres of floodplain reconnection and habitat restoration via a controlled breach of agricultural berms on the site, which increases floodwater storage and potentially reduces flood stages in the San Joaquin River. Dos Rios also provides extensive habitat for salmonids, migratory birds, and many other native aquatic and terrestrial species, including the endangered riparian brush rabbit. A planned second phase of Dos Rios would breach the federal project levee on the site and reconnect approximately 1,100 more acres of floodplain habitat to the San Joaquin River, ultimately providing more than 2,100 acres of total floodplain restoration, absorbing approximately 10,000 acre-feet of floodwaters, and increasing flood protection for downstream communities. Because Dos Rios is an expansive project, only a portion of the project qualifies to be included in this implementation summary. Some of the work had been done before the 2016 Conservation Strategy, and future phases, including the neighboring Hidden Valley Ranch parcel, have yet to be implemented.

- **Project Implementer:** River Partners
- **Project Status:** Constructed
- **Type:** Ecosystem enhancement project
- **Location:** Lower San Joaquin River CPA
- **Funding:** $53,182,575 million
  - Proposition 1 (CDFW Watershed Restoration Grants and Wildlife Conservation Board): $12,087,889
  - Proposition 13 (DWR, Costa Machado Water Act): $6,047,500

  - Proposition 84 (DWR Flood Protection Corridor Program and California Natural Resources Agency River Parkways Program): $14,850,000
  - Proposition 1E (DWR FloodSAFE Ecosystem Stewardship and Statewide Resources Office): $3,900,000
  - U.S. Bureau of Reclamation and USFWS Central Valley Project Improvement Act Habitat Restoration Program and Conservation Project: $2,775,186
  - USFWS Anadromous Fish Restoration Project and North American Wetland Conservation Act: $1,422,000
  - U.S. Natural Resources Conservation Service: $10,100,000
  - San Francisco Public Utilities Commission: $2,000,000
- **Sources:**
  - Akiona R, P.E. San Joaquin Valley Regional Director, River Partners. Turlock (CA). January 13, 2021—email to Boysen K, Environmental Incentives, Denver (CO).
  - U.S. Bureau of Reclamation. 2016a. *Dos Rios Ranch Riparian Brush Rabbit Recovery Project Environmental Assessment*. May 2016.
  - U.S. Bureau of Reclamation. 2016b. *Dos Rios Ranch Riparian Brush Rabbit Recovery Project Finding of No Significant Impact*. June 2016.

Fremont Weir Adult Fish Passage Modification Project

Fremont Weir Adult Fish Passage Modification Project led by the Bureau of Reclamation is not considered a multi-benefit project, and was not implemented under the CVFPP. However, it reduced a stressor (fish passage barrier) as identified in Appendix K of the Conservation Strategy. This project improved adult fish passage at Fremont Weir and along the Tule Canal in the Yolo Bypass. The project constructed a new fish passage structure at Fremont Weir to widen and deepen the fish ladder and removed barriers in the Tule Canal.

- **Project Implementer:** DWR
- **Project Status:** Constructed
- **Type:** Fish passage project
- **Location:** Lower Sacramento River CPA, Yolo County
- **Funding:** Estimated total cost $6,782,325
- U.S. Bureau of Reclamation: $6,782,325

Documentation of contribution amount not available for DWR and nongovernmental organization contributions.

- **Sources:**

  - California Department of Water Resources. 2014. *Lower Sacramento River/Delta North Regional Flood Management Plan*. July 2014. Viewed online at: www.yolocounty.org. Accessed: January 2021.

  - California Natural Resources Agency. [Date unknown]. *Fremont Weir Adult Fish Passage Modification Project, Yolo Bypass, CA: Fish Passage Improvements*. Viewed online at: www.resources.ca.gov. Accessed: January 2021.

  - California Natural Resources Agency. 2018. *Fremont Weir Adult Fish Passage Modification Project—Securing Fish Passage in the Yolo Bypass: Frequently Asked Questions (FAQ*)." May 2018. Viewed online at: Fremont-Weir. Accessed: January 2021.

  - U.S. Bureau of Reclamation. 2017. "Project Details." Viewed online at: www.usbr.gov. Accessed: January 2021. Last updated: August 22, 2017.

  - U.S. Bureau of Reclamation. 2020. "Fremont Weir Adult Fish Passage Modification Project." Viewed online at: Fremont-Weir. Accessed: January 2021. Last updated: November 4, 2020.

Anticipated to be Proposed 2022 to 2027 Projects

In addition to the projects described that were completed between 2016 and 2021, many more projects progressed in terms of their funding and planning. The following projects are categorized as anticipated to be proposed, meaning they are under construction or are likely to be proposed for consideration and may be implemented over the next five years. Input from these projects, relevant to the measurable objectives will be placed into the Flood Performance Tracking System and information will be updated as the projects are developed.

Upper Sacramento River Conservation Planning Area

- **Knights Landing Flood Management Project:** This proposed project would improve the existing SPFC levees near the small community of Knights Landing while creating ecosystem restoration and enhancement.

- **Kopta Slough Flood Damage Reduction and Habitat Project:** This proposed project would restore floodplain and riparian habitat, re-establish the historical river channel, and establish erosion protection.

- **Lower Deer Creek Flood and Ecosystem Improvement Project, Phase I:** This proposed project would enhance fish passage and rearing conditions for salmonids and improve the reliability of flood protection along lower Deer Creek.

- **Tisdale Weir Rehabilitation and Fish Passage Project:** This proposed project would restore the weir to improve performance and provide passage for fish to the Sacramento River.

- **Sutter Bypass Weir #1 Remediation Project:** CDFW has identified this weir as a major fish passage barrier for Butte Creek spring-run Chinook salmon. This project has received non-CVFPP (via the Central Valley Project Improvement Act) funding for a feasibility study, planning, design, and implementation. This project will restore physical processes and provide other habitat and species benefits consistent with the Conservation Strategy.

Lower Sacramento River Conservation Planning Area

- **Agricultural Road Crossing 4 Fish Passage Project:** This proposed project will remove a priority fish passage barrier while maintaining private land access.

- **Little Egbert Tract Multi-Benefit Project:** This proposed project aims to reduce flood risk, improve agricultural sustainability, and restore habitat in the Little Egbert Tract.

- **Lookout Slough Tidal Habitat Restoration & Flood Improvement Project:** This proposed project would create tidal habitat for delta smelt and other salmonids by building a setback levee that will provide flood protection and improve climate resiliency in the region. Although this project is not being implemented under the CVFPP, it is located within the footprint of the Lower Sacramento River CPA and is expected to contribute towards the measurable objectives.

- **Lower Elkhorn Basin Levee Setback Project:** This project that is under construction is setting back levees and modifying SPFC facilities, thus widening the Yolo and Sacramento Bypasses, and will restore floodplain and riparian habitat.

- **Yolo Bypass Salmonid Habitat Restoration & Fish Passage Project:** This is a non-CVFPP project that would improve fish passage and increase floodplain rearing habitat in the Yolo Bypass and lower Sacramento River Basin. Funding for this project is provided by the Central Valley Project and State Water Project as a mitigation requirement stipulated by the 2009 Biological Opinion for impacts related to the operation of their facilities. Because this project will likely be counted as mitigation, it may not count toward meeting Conservation Strategy measurable objectives.

Upper San Joaquin River Conservation Planning Area

- **Arroyo Canal Screening and Sack Dam Passage Project:** This proposed project would construct a new dam and fish screen at the Arroyo Canal to improve fish passage.

- **Eastside Bypass Improvements Project:** This project that is under construction would address fish passage barriers in the Eastside Bypass in conjunction with reinforcing the levee, modifying the control structure, replacing existing culverts, and removing two weirs.

- **Reach 2B and Mendota Pool Bypass Improvement Project:** This proposed project would provide flood benefits by creating an expanded floodplain and creating an alternate channel around Mendota Pool.

- **Cottonwood, Dry, Berenda Creek Arundo Eradication and Sand Removal Project:** This ongoing project is in the process of restoring 17 miles of creeks by removing 25,000 tons of sediment and eradicating false bamboo (*Arundo donax*) in order to enhance flood flows, provide groundwater recharge, and restore native riparian habitat.

Lower San Joaquin River Conservation Planning Area

- **Three Amigos Non-structural Alternative Flood Management Project:** This proposed project would restore the historic floodplain and provide transient storage to more than 3,100 acres along 3 miles of the San Joaquin River.

- **Dos Rios Floodplain Expansion and Ecosystem Restoration Project and Hidden Valley Ranch Mitigation Project (Phase 2):** This proposed project would expand previous phases to include the Hidden Valley Ranch parcel and continue to reconnect and expand floodplain habitat.

- **Paradise Cut Multi-Benefit Improvement Project:** This proposed project would modify Paradise Cut to enhance flood conveyance and ecosystem benefits, including expansion of the bypass, modifications to the weir, and habitat restoration along the channel and adjacent floodplains.

Feather River Conservation Planning Area

- **Sunset Pumps Facility Removal Project:** This project is currently in the design and planning phase and seeks to remove the Sunset Pumps Diversion Dam, pumps, and pump platform constructed in the 1920s. This project will restore the channel elevation consistent with the upstream and downstream slope, restore connectivity for fish species including spring-run Chinook salmon and green sturgeon, reduce flood risk, and by improving physical processes will provide other benefits to Conservation Strategy habitats and species.