Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary Voluntary Settlement Agreement

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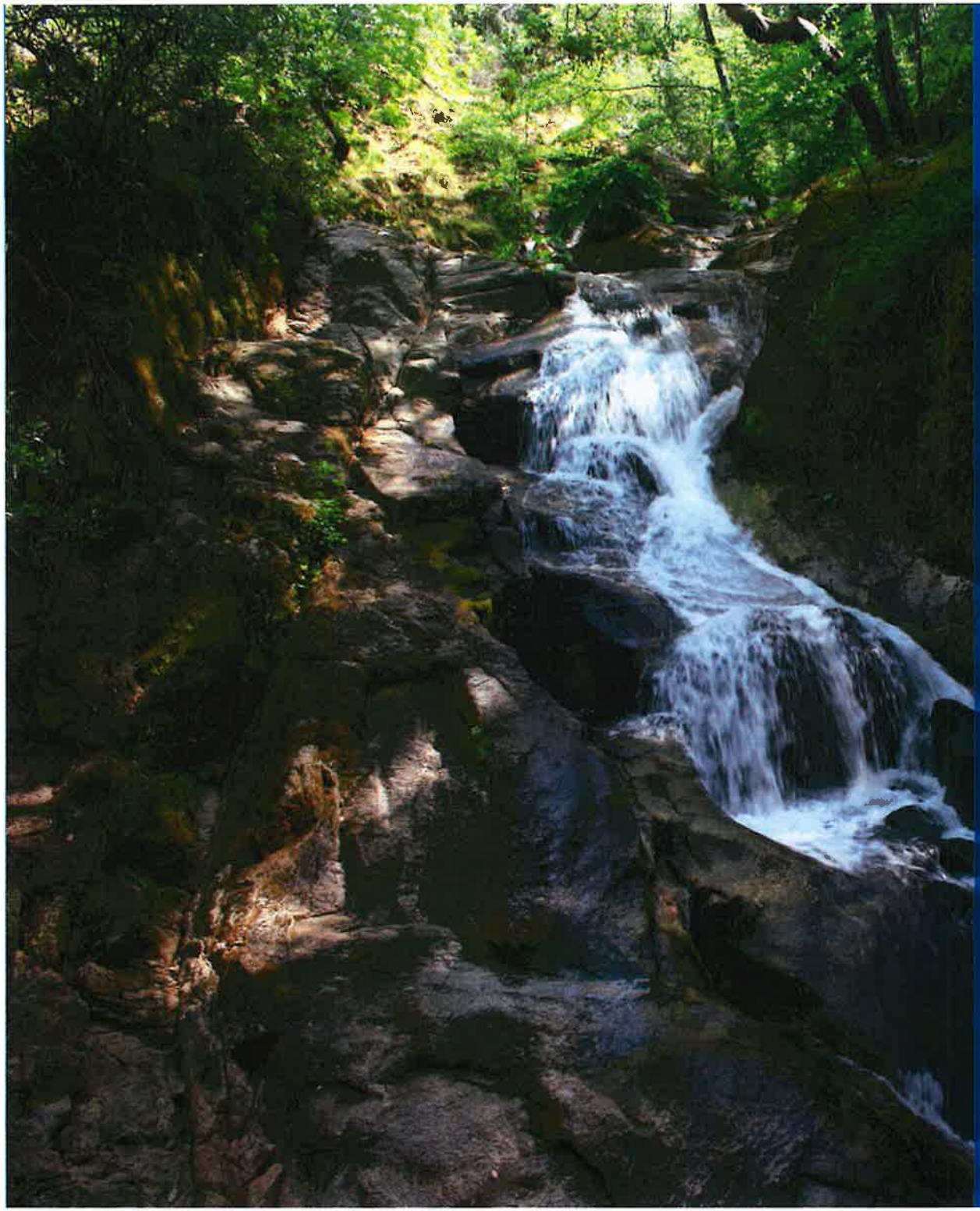
Overview

- Voluntary Settlement Agreements are a comprehensive plan to improve water quality and habitat conditions.
- Improvements can happen immediately
- Collaboration over conflict
- Integration of flow and non-flow
- Systemwide governance and scientific commitments
- All backed by significant and reliable funding mechanisms

San Francisco Bay/Sacramento-San Joaquin Delta Estuary

San Francisco Bay/Sacramento-San Joaquin Delta Estuary



Feather

- Habitat
- Flow
- Temperature
- Funding

Delta

- Habitat
- Flow
- Testable Hypotheses
- Funding

Settlement Parties

- CNRA
- CDFW
- DWR
- Bureau of Reclamation
- City and County of San Francisco
- San Francisco Public Utility Commission
- Modesto Irrigation District
- Turlock Irrigation District
- Friant Water Users Authority
- Sacramento River Settlement Contractors
- Tehama Colusa Canal Authority
- Yuba Water Agency
- American River Agencies
- Feather River Agencies

FRAMEWORK PROPOSAL FOR VOLUNTARY AGREEMENTS TO UPDATE AND IMPLEMENT THE BAY-DELTA WATER QUALITY CONTROL PLAN

California Department of Fish and Wildlife ("CDFW"), California Department of Water Resources ("CDWR"), and other parties (collectively "Parties") submit this Agreement Framework for analysis, adoption and implementation of voluntary agreements to support amendments to the Bay-Delta Water Quality Control Plan ("Bay-Delta Plan") for protection of fish and wildlife beneficial uses.

SUMMARY

1. The fundamental principle of this Agreement Framework is that protection of fish and wildlife beneficial uses in the Sacramento River and San Joaquin River watersheds and Delta ecosystem, including maintenance of viability of native fishes, will require comprehensive approach to management of their habitats and other factors that affect viability. The Parties propose an approach that integrates flow and non-flow measures, including management of tidal energy, to optimize outcomes of implementation; and establishes a science and monitoring program to evaluate, adjust, and achieve such outcomes.

   a. The Parties will develop Agreements consistent with the terms of this Framework and Appendix 1, and will cooperate in environmental analysis, as needed for the State Water Board to take final action by December 31, 2019. Implementation will begin immediately thereafter.

   b. Implementation will maintain viability of native fishes in the Sacramento River and San Joaquin River watersheds and Delta ecosystem, while concurrently protecting and enhancing water supply reliability, consistent with the statutory requirement of providing reasonable protection for all beneficial uses.

2. This Agreement Framework results from two years of negotiations by CDFW, CDWR, California Natural Resources Agency, Bureau of Reclamation, municipal and agricultural water suppliers, and other stakeholders to develop this comprehensive approach.

3. To date, Bay-Delta Plans have required changes in flow in isolation from the multiple other factors affecting fish and wildlife beneficial uses, including physical modifications of riverine channels and wetlands. The viability of native fishes has declined notwithstanding implementation of these plans.

   a. In the update process now underway, State Water Board staff have not proposed to require measures to address such other factors that affect viability. See Phase 1 SED, Master Response 5.2, p. 6.

   b. The State Water Board has recognized that a comprehensive approach may be implemented through voluntary agreements and could provide

quicker, more effective, and more durable outcomes. This Agreement Framework implements that recognition.

LEGAL TERMS

4. The Parties respectfully request that the State Water Board adopt the following schedule and procedures leading to the adoption of amendments to the Bay-Delta Plan and supporting environmental analysis under the Porter-Cologne Water Quality Control Act and the California Environmental Quality Act ("CEQA"):

a. **February 15, 2019** – Completion of drafting the proposed voluntary agreements.

b. **March 1, 2019** – Submission by Parties to the State Water Board of a project description for the Bay-Delta Plan based on the voluntary agreements.

c. **August 1, 2019** – Submission by Parties to the State Water Board of an administrative draft of a Comprehensive SED that is based on the project description. For this purpose, "Comprehensive" means that it will supplement the Phase 1 SED and integrate information pertaining to the Phase 2 update.

d. **September 1, 2019** – Circulation by the State Water Board staff of a draft Comprehensive SED for a 45-day public comment period.

e. **December 1, 2019** – Submission by Parties to the State Water Board of an administrative draft of a final Comprehensive SED.

f. **As early as possible after December 1, 2019** – Consideration by the State Water Board of the certification of the Comprehensive SED and adoption of the proposed amendments to the Bay-Delta Plan, followed promptly by execution of the Agreements.

5. CDFW and CDWR propose to participate as CEQA responsible agencies in developing the Comprehensive SED.

6. The Parties agree that the Agreements will be enforceable under specified terms consistent with the State Water Board's responsibilities. Each Agreement will have a minimum 15-year term.

7. This Agreement Framework is not precedent on any disputed issues of law or fact.

SUBSTANTIVE TERMS

A. Flow Measures

8. The Agreement Framework builds upon and assumes that existing implementation responsibilities for the 2006 WQCP remain in effect, other than as addressed through the Agreements. The Parties propose to provide additional instream flows as summarized in Table 1. Appendix 1 states the terms the Parties have reached in principle.

Table 1. Summary of Annual Average Additional Flows in San Joaquin and Sacramento Basins

Contributing Area	Volume (TAF)	Seasons (AN, BN, Dry)	Proposed Sources
San Joaquin Basin • Tuolumne[1] • Friant[2]	140	Spring, summer	• Reservoir reoperation, storage withdrawal, restoration flow recapture reduction
South-of-Delta	300-600	Spring, summer	• SWP and CVP
Sacramento Basin • Sacramento • American[3] • Feather • Yuba • Mokelumne	300	Spring, summer	• Land fallowing (35,000 acres) • Reservoir reoperation • Potential for limited groundwater substitution
Total	**740 – 1,040 TAF**		

9. The Parties propose to provide additional flows in a manner that: (a) does not conflict with the requirements of the Sustainable Groundwater Management Act; (b) does not reduce existing flows for designated wildlife refuges; and (c) maintains reliability of water supply for other beneficial uses. The Agreements may provide for adjustment of flow amounts in successive dry years and immediately subsequent years for the purpose of ensuring reliable reservoir storage.

B. Habitat Improvements and Other Non-Flow Measures

10. The Parties propose to undertake non-flow measures to improve the current condition of fish and wildlife beneficial uses in the Delta ecosystem. Appendix 2 consists of maps which illustrate the proposed general locations and scales of habitat measures.

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[1] Tuolumne's proposal also includes managed flows in Critical and Wet year types.

[2] Friant is not a party identified in the Phase I or Phase 2 Bay-Delta Plan update process.

[3] American's proposal includes managed flows in Critical year types.

11. The Parties propose to undertake measures to address multiple factors affecting fish and wildlife beneficial uses, including predation by non-native species, passage barriers, and hatchery productivity. The Parties propose to ensure timely completion of all measures specified in the Agreements. The Parties propose to maintain and adaptively manage successful restoration measures which they have already funded, constructed, or currently operate, in any combination. The Parties propose to provide a more comprehensive discussion of habitat quantities and suitability to support the development of the project description provided in 4(b) of this Framework Proposal.

12. Appendix 3 identifies environmental improvements that Parties propose to implement in 2019, assuming environmental review, the continued availability of funding that has been committed to them, and the issuance of necessary federal permits, such as permits under Clean Water Act sections 404 and 408. CDFW commits to expedite its review of any applications for permits necessary for these improvements to the maximum extent possible consistent with applicable law. CDFW and DWR respectfully request that the State Water Board similarly expedite any review of those projects that the State Water Board conducts and also to direct each applicable Regional Water Quality Control Board to also expedite any necessary reviews. CDFW and DWR will formally request that the United States Departments of Commerce and Interior, as well as the United States Army Corps of Engineers, also expedite all necessary federal approvals for these projects.

C. Integrated Management of Flow and Other Measures

13. The Parties propose to integrate management of flow and non-flow measures, to optimize benefits to fish and wildlife, including through management of existing and additional flows, tidal energy, and through habitat improvements. For anadromous fisheries, the Parties propose this approach to improve water temperatures for all life stages, and to increase access to floodplains as rearing habitats. For pelagic fisheries, the Parties propose to improve the water quality variables that affect viability, including salinity, flow velocity, and turbidity. Appendix 2 consists of maps that exemplify the integrated approach.

D. Science and Monitoring Program / Structured Decision-making

14. The Parties propose a comprehensive science and monitoring program that informs implementation of the flow and non-flow measures.

15. The science and monitoring program will include the following elements, except as specifically provided in the Agreements.

a. **Implement specific experiments**. The science and monitoring program will adopt a "safe to fail" experimental approach to maximize learning.

b. **Test hypotheses**. The science and monitoring program will identify and test key hypotheses, especially/even if conflicting, about how the

ecosystem functions and what measures will be most effective at achieving desired outcomes.

c. **Learn from the experiments**. The science and monitoring program will ensure that each measure is implemented in a manner that maximizes learning.

d. **Design the experiments to test specific outcomes**. The science and monitoring program will identify a manageable set of SMART (specific, measurable, achievable, relevant, and time-bound) objectives that describe desired environmental and biological outcomes.

e. **Facilitate a collaborative process**. All Parties will be engaged in the development and implementation of the science and monitoring program.

f. **Facilitate a transparent process**. All Parties will engage in a transparent process by collaborating, reporting, and sharing data.

16. The science and monitoring program will include a structured decision-making process to inform implementation of flow and non-flow measures. CDFW and DWR anticipate that this science and monitoring program would be overseen by an entity such as the Delta Independent Science Board in order to facilitate the production of neutral, peer-reviewed science to guide further restoration and protection efforts in the Sacramento River and San Joaquin River watersheds and Delta ecosystem. CDFW and DWR intend to propose that terms to guide this science and monitoring program will be part of the proposed amendments to the Bay-Delta Plan.

E. Funding

17. The Parties propose to utilize dedicated funds consisting of (a) contributions based on deliveries to or diversions by the Parties, and (b) repurposing of existing funding. The contributions will be collected annually during the term of the Agreements. Through the contributions, the Parties expect to secure funds totaling approximately $425 million for the additional flows, and $345 million for the science program, over the term of the Agreements. Appendix 1 contains the details of these funding arrangements. Table 2 provides the proposed contribution to the funds, except as provided for in Attachment 1.

Table 2. Contribution to Funds[4]

Delivered Water	Contribution to Water Purchase Fund	Contribution to Structural Habitat and Science Fund
CVP/SWP water	$5/acre-foot	$2/acre-foot
Water diverted by the Sacramento River Settlement Contractors (base and project) or Feather River Diversion Agreement Parties		$1/acre-foot
Non-project water diverted by party contributing water under the terms of the Agreement Framework		$2/acre-foot
Non-project water diverted by party not contributing water under the terms of the Agreement Framework	$10/acre-foot	$2/acre-foot

F. Other Terms

18. Although the State Water Board will have authority to enforce implementation of flow and non-flow measures, as stipulated in the Agreements, the State Water Board will not enforce or otherwise regulate the funding arrangements.

19. Each potential effort, project and/or activity listed in this Agreement Framework has been or will be fully evaluated in compliance with applicable law, including, but not limited to, the National Environmental Policy Act and California Environmental Quality Act. This Agreement Framework does not, and is not intended to, bind any party to a definite course of action or limit in any manner the discretion of the United States, State of California, any other public agency, as applicable, in connection with consideration of the efforts described in this Agreement Framework, including without limitation, all required environmental review, all required public notice and proceedings, consideration of comments received, and the evaluation of mitigation measures and alternatives, including the "no action" or "no project" alternatives.

[4] Except as provided for in Attachment 1.

Appendix 1: Proposed Tributary Term Sheets

Addendum A: Sacramento River

Addendum B: Feather River

Addendum C: Yuba River

Addendum D: American River

Addendum E: Mokelumne River

Addendum F: Tuolumne River

Addendum G: Friant Division

Addendum H: Delta

Addendum A
Sacramento River Mainstem Proposal

Purpose:
The Mainstem Sacramento actions include habitat restoration designed to work with existing winter and spring flows. The habitat improvements target improved growth, survival, diversity, and abundance of the four runs of Chinook salmon and steelhead on the Sacramento River. Additionally, 100,000 acre-feet of water, available from fallowing approximately 24,000 acres, would be available to increase flows improving salmonid outmigration survival and increase Delta outflow.

Proposed Commitments:

Flow

Fall Flow Stabilization (in every year type)
Minimize fall-run spawning impacts during transition from summer/fall flows to winter base flows. Other benefits include increased rearing habitat for juvenile salmonids and conserving cold water storage for winter Chinook spawning and egg incubation in the following late spring through early fall.

Description of Proposal: Demands by the National Wildlife Refuges, upstream CVP contractors, and the Sacramento River Settlement Contractors in October result in Keswick releases that are generally not maintained throughout the winter due to needs to store water for beneficial uses the following year. These releases result in some early fall Chinook redds being dewatered at winter base flows.

Following the emergence of winter Chinook and prior to the majority of fall Chinook spawning, upstream Sacramento Valley CVP contractors and the Sacramento River Settlement Contractors propose to work to synchronize their diversions to lower peak rice decomposition demand. With lower late October and early November flows, fall Chinook are less likely to spawn in shallow areas that would be subject to dewatering during winter base flows. Reductions would balance the potential for dewatering late spawning winter-run redds.

Targets for winter base flows from Keswick would be set in October and would be based on Shasta Reservoir end-of-September (EOS) storage. These base flows would be set based on historic performance to accomplish improved refill capabilities for Shasta reservoir to build cold water pool for the following year.

Below are examples of Keswick Releases based on Shasta storage condition – these would be refined through modeling efforts:

Keswick Release	Shasta EOS Storage
3,250 cfs	< 2.2MAF
4,000 cfs	< 2.8MAF
5,000 cfs	> 3.2 MAF

Governance/Decision Making: Following the emergence of winter Chinook and prior to the majority of fall Chinook spawning, upstream Sacramento Valley CVP contractors and the Sacramento River Settlement Contractors propose to work together to smooth Sacramento Valley CVP contractor diversions to improve the ability to reach the desired winter base flow targets when possible. Reclamation retains discretion over all CVP operations and propose to operate to downstream needs (e.g. Sacramento River or Delta). Furthermore, Reclamation makes operational decisions based on the CVP as a whole, and in accordance with any requirements under then-applicable Biological Opinions issued by federal fisheries agencies.

Additional Water Provided (Dry, Below Normal, Above Normal Year Types)
Dedicate 100,000 acre-feet of water for instream flow purposes focused in April and May to improve juvenile salmonid outmigration survival. This additional water would also contribute to increased Delta outflow while minimizing impacts to Shasta cold water pool.

Description of Action: In the spring, Keswick releases are typically steady until flows are needed to support instream demands on the mainstem Sacramento River and Delta requirements. As a standard practice, Reclamation operates Shasta in the spring to have storage in the reservoir high enough to use the Shasta temperature control device (TCD) upper shutters by the end of May to maximize the cold water pool potential for winter Chinook egg incubation management.

The Parties propose to utilize the 100,000 acre-feet made available through the land-fallowing program to make releases from Shasta, initially focused on April and May, for the primary purpose of increasing spring-run Chinook outmigration and survival in the lower Sacramento River, incorporating science, monitoring, and decision making and testing the hypothesis of flow and survival.

Based on initial review of historic data, the Parties believe that in the majority of these years, the spring pulse flow utilization of water can be accomplished. The fall stabilization action and targeted winter Keswick release is expected to further improve the likelihood and additional certainty regarding the ability to refill of Shasta Reservoir to attain appropriate storage levels under typical hydrological conditions associated with these year types to allow for the spring action to occur. If Reclamation determines that projected inflows to Shasta Reservoir are less than sufficient for summer temperature management pursuant to its ESA obligations, and/or taking the spring action would cause changes to water supply allocations and/or the timing of allocations (to each CVP division north or south of the Delta), or the action impacts other system-wide operations, the water would be added to releases during the summer or fall for other ecosystem benefits, and would serve to augment Delta outflows at those times.

A method for accounting for the 100,000 acre-foot release over the baseline release would be developed as the program of implementation is further refined. Timing and shaping of flows using the water would be based on testable hypotheses developed by the governance group described below.

Governance/Decision Making: Currently, the Sacramento River Temperature Task Group provides input to Reclamation on the operations in the winter/spring on Shasta Releases,

temperatures, spring flows, and cold water pool. The Parties would develop new governance to implement this action.

Actions in Wet Years (Wet Year Types only)
Proposed alteration to timing of Shasta Reservoir releases to support increased salmonid out-migration survival and floodplain habitat.

Description of Action: Reclamation currently generally operates Shasta Reservoir pursuant flood control and safety of dams requirements and procedures.

When inflow into Shasta Reservoir is forecasted to exceed the flood control requirements, Reclamation proposes early initiation of storage management releases for the purposes of spawning gravel cleaning functions, floodplain habitat, general fish migration flows and moderation of flood control-related pulse flows. The action would be subject to Reclamation's determination that there would be absolutely no elevated risk to public health, human safety, or property damage, and that there would be no water cost to the Projects.

Governance/Decision Making: Reclamation retains sole discretion over releases and other actions related to storage management for flood control.

Proposed Actions in Critical Years (Critical Year Types only)
Proposal to provide instream flows during critical years to support salmonid out-migration and temporary in-stream floodplain habitat.

Description of Proposed Action: In most critical years, the spring inflow into Shasta Reservoir is less than optimal and flows at Wilkins Slough are at times equal to or less than Shasta inflow. Significant runoff events that increase base flows on the Sacramento River are generally less frequent.

Reclamation proposes to provide a single spring pulse flow of 30,000 acre-feet in March, with a focus on last two weeks of the month. The water can be made available from Shasta or Whiskeytown reservoirs at Reclamation's sole discretion. The pulse would be timed to ensure that the water is 100% recoverable by the CVP and SWP through Delta exports (or other mechanisms at the discretion of Reclamation), as addressed through COA accounting. The action would be coupled with a storm event when possible, likely as an extension of the recession limb of rainfall runoff to ensure exportability.

The action would not occur if any of the following conditions occur:

- The action causes any impact to the amount or timing for Reclamation's allocations to any CVP contractors (in any CVP Division, north or south of the Delta).
- The Critical year in question immediately follows a Critical or Dry Year.
- Any new or additional RPMs, RPAs, or other regulatory actions affecting Project operations occur as a result of this action.

The action would also take into consideration temperature management considerations for the remainder of the year.

If the year type turns from Critical to Dry, any water released for this pulse action would be counted towards the 100,000 acre-foot commitment as outlined above for other year types.

Habitat

Spawning Habitat Keswick to Red Bluff Diversion Dam

Propose to annually place 40,000 to 55,000 tons of gravel at the Keswick and/or Salt Creek injection site(s). Propose to create at least three site-specific gravel restoration projects upstream of Bonnyview Bridge within 5 years.

Projects that could be implemented in 2019 include: Salt Creek Gravel Injection Site; Keswick Dam Gravel Injection Site; South Shea Levee, Shea Levee; and, Tobiasson Island Side Channel.

Rearing Habitat Keswick to Red Bluff Diversion Dam

Propose to create a total of 40 to 60 acres of side channel habitat at no fewer than 10 sites in Shasta and Tehama County.

Project that could be implemented in 2019 include: Cypress Avenue; Shea Island; Anderson River Park; South Sand Slough; Rancheria Island; Tobiasson Side Channel; and, Turtle Bay.

Rearing Habitat Red Bluff Diversion Dam to Verona

Propose to enhance ~ 2,000 acres of floodplain habitat in the Sutter Bypass within the term of the Voluntary Agreement. Propose to provide fish passage and floodplain habitat at Tisdale Weir within 5 years and Colusa Weir within 10 - 15 years. Propose to complete the Hamilton City set back levee with appropriate floodplain habitat within 5 years. Inventory historic oxbows and design fish passage and floodplain projects within 5 years and implement projects within 10 years.

Projects that could be implemented in 2019 include: Tisdale Weir and Bypass Multi Benefit Project; and Hamilton City Levee Setback and Floodplain/Riparian Enhancement.

Man Made Structures Keswick-Verona

Propose to complete remaining high-priority fish screen projects. Propose to reduce lighting to 3 lux or less at fish screens and bridges within 5 years. Propose to incorporate ongoing redd dewatering coordination with Anderson Cottonwood Irrigation District into a Voluntary Agreement. Propose to address fish passage issues at Weir 1 and Weir 2 within 5 years.

Projects that could be implemented in 2019 include: reduced lighting at Sacramento River fish screens, reduced lighting at Sacramento River bridges; Sutter Bypass Weir 1 - Rehabilitation of weir structure and fish ladder (Coupled with new Lower Butte / Sutter Bypass water management plan); Sutter Bypass Weir 2 Multi Benefit Project; Screen Meridian Farms Water

Company; Screen Natomas Mutual Water Company; and, Anderson Cottonwood Irrigation District Dam operations to protect salmon redds.

Studies Keswick-Verona

Propose to design survival and predation studies within one year and implement them yearly for the term of the agreement.

Projects that could be implemented in 2019 include: Program to identify predation hot spot / adaptively manage for the reduction/improvement of predator contact points at man-made structures where predator interactions have been observed; Study route specific survival at key diversion facilities and implement appropriate devices that reduce route selection into lower survival areas; and study, design and implement modifications to known redd dewatering locations.

Funding Commitments:
The Sacramento water service and settlement contractor groups propose to contribute to the Water Purchase Fund and Structural Habitat and Science Fund.

Water Purchase Fund

- $5 per acre-foot on Project Water Diverted

Structural Habitat and Science Fund

- SRSC contribute $1 per acre-foot of all water diverted
- All other contractors contribute $2 per acre-foot on all Project Water diverted

Addendum B
Feather River Proposal

Purpose:

The Feather River proposal includes habitat restoration intended to work with existing and proposed Spring and Summer flows. The habitat improvements target improved growth, survival, diversity, and abundance of salmon and steelhead on the Feather River. Fifty-thousand acre-feet of water available from fallowing of 11,000 acres of agricultural land will be available to increase flows improving fish survival and providing for increases in Delta outflow.

Proposed Commitments:

1. **Flow**

As set forth in Table 1 below, the Feather River Settlement Contractors propose to provide for additional managed flows beyond current flow regimes on the Feather River to reestablish functionality of the habitat for native fishes.

Table 1. Additional Managed Flow

Water Quantity (TAF)	Implementation Date	Water Year Types
50	Spring or Summer[1]	Dry, Below Normal, Above Normal

In addition, DWR proposes to provide an immediate adjustment to river flow and temperature in the Feather River, as provided under the Federal Energy Regulatory Commission (FERC) Settlement Agreement (SA) for the Licensing of the Oroville Facilities, FERC Project No. 2100, to create additional spawning and rearing habitat by increasing useable area for adult and juvenile salmonids.[2]

Table 2. River Flow and Temperature Adjustments

Flow	
Flow Velocity (cfs)	**Implementation Date[3]**
700	April 1 – September 8
800	September 9 – March 31
Temperature	
Target (F, mean daily)	**Compliance Point**
56 – 63	Robinson Riffle

DWR also proposes to provide for re-operation of the Oroville facilities to maximize spawning and rearing in the Feather River for salmonids. Instead of routing flows through Thermalito Forebay and the power generation facilities at Oroville, a pulse flow would instead be routed

[1] Subject to coordination with fisheries agencies.
[2] This is included in the FERC SA. However, unlike the non-flow measures provided in the FERC SA, the Department of Water Resources would be able to implement this plan of operation immediately.
[3] Implementation would occur for the duration of the current annual and future FERC license.

directly through the low-flow channel to create optimal conditions for fish in the upper Feather River.

Table 3. Pulse Flow

Water Quantity (TAF) – Average Annual	Pulse Velocity (cfs)	Date & Duration	Water Year Types
43	2,000	14 or more continuous days between January 1 – April 15	Dry, Below Normal, Above Normal

2. Non-Flow Habitat

The Parties propose to enhance and create riverine habitat sufficient to support salmon and sturgeon populations in the Feather River with specific years of implementation, as described in Table 4 below. These projects would target specific critical life stages for fish including spawning (S), rearing (R), migration (M), and adult migration (AM).

Table 4. New Riverine Habitat

Project	Description	Targeted Habitat	Years	Life Stage
Gravel augmentation	Improve substrate conditions for spawning salmonids at key riffles	25,000 cu. yd.	0-5 years	S
Remove Sunset Pumps and associated rock dam	Remove barrier/entrainment risk for upstream salmonid and sturgeon passage	Over 25 miles upstream	0 – 5 years	AM, M
Oroville Wildlife Flood Stage Reduction Project	Weir improvements and ecosystem restoration and Oroville Wildlife Area to allow floodplain access	100 – 600 acres	3 – 8 years	R
Nelson Slough Floodplain Restoration	Provide optimal habitat for floodplain rearing and reduce stranding during high flow events	20 acres	3 – 15 years	R
Abbott Lake Re-Connection/Restoration	Provide optimal habitat for floodplain rearing and reduce stranding during high flow events	440 acres	3 – 15 years	R
Star bend Setback Levee	Provide optimal habitat for floodplain rearing and reduce stranding during high flow events	50 acres	3 – 15 years	R
Feather River Setback Levee below Yuba River on River Left Floodplain	Provide optimal habitat for floodplain rearing and reduce stranding during high flow events	1,100 acres	3 – 15 years	R
Identification of Predation Hot Spots and Adaptive Management for Predator Reduction	Improve rearing and migration conditions by reducing predation	Entire reach of river	0 – 15 years	R, M

As set forth in Table 5 below, DWR proposes to accelerate the creation of riverine habitat under FERC SA for the Licensing of the Oroville Facilities, FERC Project No. 2100. This acceleration would be an improvement over the timing for completion of projects identified in the FERC SA and would occur within the FERC jurisdictional boundary.

Table 5. Accelerated Riverine Habitat in the FERC SA

Project[4]	Description	Years after FERC License	Life Stage
Habitat Improvement Plan (A101)	Develop and adaptive management plan to respond to restoration project feedback	2 years	All
Gravel Supplementation Improvement Program (A102)	File a gravel supplementation and improvement plan to respond to restoration project feedback	2 projects within 2 years; 5 within 5; 10 within 10	S
Channel Improvement Program (A103)	Creation and improvement of side channel habitat	Develop plan within 2 years; 3 channels in 5; all channels within 7	S, R
Structural Habitat Program (A104)	Installation of large woody debris, boulders, etc. and filing a plan for implementation	Submit plan within 1 year; implement within 2 years	R
Fish Weir Program (A105)	Filing plans for weir installation, installation of monitoring and segregation weirs	Install count weir within 1 year and segregation weir within 3	AM, S
Riparian Floodplain Program (A106)	Filing of recommendations for riparian projects, physical completion of projects	Screening level within 3 years; 1 project within 10; 2 projects within 15	R
Hatchery Improvement Implementation (A107)	Implementation of temperature targets, filing a hatchery genetics management plan (HGMP), data collection – minimize straying	Target hatchery temperatures and data collection immediately; HGMP within 1 year	AM, S

3. Governance

Governance for the Feather River proposal will be consistent with the terms of the Agreement Framework.

4. Funding Commitments

The Feather River Contractors propose to help fund the science and monitoring program at a rate of $1 per acre-foot of all water diverted.

[4] Includes FERC SA project identifier (e.g., A104, A109, etc.).

Addendum H
Delta Proposal

Purpose:

The flow provided through D-1641, combined with the additional flow, structural habitat, and funds included herein, would be used to create substantial benefits to ecosystem functions and to create conditions necessary to improve the viability of native fish. The augmented outflow would be applied based on the governance described below and would be integrated with landscape and other changes to achieve ecological outcomes favorable to native fish and wildlife.

Proposed Commitments:

1. **Flow**

Reclamation and DWR, with the support of SWP Contractors and South of Delta CVP Contractors, commit 300 TAF of water from SWP Contractors and South of Delta CVP Contractors to annual outflow after April 1 of Above Normal, Below Normal, and Dry water year types.

In addition to the 300 TAF and the 440 TAF from the Agreement Framework, 300 TAF of additional water will be made available, subject to conditions below, through Prop 1 storage projects that generate environmental water; purchases of additional water through the Agreement Framework, other willing seller/buyer arrangements; future bond funding; and, if required, from SWP Contractors and South of Delta CVP Contractors. Environmental water provided through Prop 1 storage projects would be made available as these projects are constructed. If the science demonstrates a need, additional water to generate a total of 300 TAF will be made available in year 8 or beyond. This water would be used to test specific hypotheses for identified species or ecosystem needs, as agreed to through the new governance structure by a stakeholder group. The availability of this water is contingent upon the restructuring of the Delta science and monitoring program.

2. **Habitat**

The application of the 740-1,040TAF of water across seasons and water years would vary and would be based on direction from the stakeholder group, although would be primarily focused on above Normal, Below Normal, and Dry water year types. This flexibility would allow for real-time adjustments to hydrologic conditions (for example, to take advantage of pulse flows from storms), experimental flows to test ecological responses to landscape changes, and strategic use of flows to improve water quality. This also involves narrowly targeting flows to improve ecological conditions in specific areas, which increases the efficiency of the use of this water. Additionally, several projects are proposed to increase the land-water interaction in the Delta (described below). Freshwater flows, tidal flows, and landscapes would be managed together to stimulate ecosystem processes and functions to improve habitat conditions for fish. This increased flexibility in the timing and magnitude of freshwater flows and linkages to landscape modifications would increase habitat benefits and take advantage of tidal energy. For example,

flows in combination with structural habitat projects would be used to reverse declines in food resources for the Delta ecosystem, maximize high-quality habitat that favors native plants and animals, and manage nutrient pollution to reduce harmful algal blooms. Flow and non-flow habitat actions can also be influenced by existing and planned gates and barriers to further maximize the benefits of these resources. Clear hypotheses would be used to monitor, report and adjust both flow and non-flow actions to maximize the benefits of the water and funding made available to the Delta habitats. This approach has the best chance of improving our understanding of how to manage the Delta in the future.

Additionally, there are opportunities to provide substantial benefits in Cache Slough and some augmented Delta outflow through the use of water from the Solano project or other water available in Putah Creek. This can provide foodweb benefits in Cache Slough and the North Delta as well as provide a modest contribution to outflow for other ecological functions.

Delta habitat projects that may contribute to the above are included in Table 1.

Table 1. In Delta Habitat Actions

• North Delta Arc
• Complete CWF tidal and channel margin restoration on Sacramento River, Steamboat Slough and Sutter Slough
• Chipps Island restoration
• Increased aquatic weed removal
• Predator hot spot removal
• North Delta food subsidies
• Suisun Marsh food subsidies
• Construct RVRS facility
• Consolidate and screen intakes in Cache Slough
• Funding for game wardens for enforcement/boats in Delta

3. Governance/Decision Making:

An organized, deliberate approach to integrating science into decision-making, and continually adjusting actions in response, is needed to reduce uncertainty and more effectively use the resources made available as part of this agreement (Figure 1).

This approach would define a set of initial projects throughout the Sacramento and San Joaquin River basins and the Delta that have high probability to provide benefits to improve Delta ecosystem functions and to create conditions necessary to improve the viability of native fish. (See Appendix 2 to Agreement Framework, Proposed Actions for Species Objectives: The Delta and American & Mokelumne Rivers).

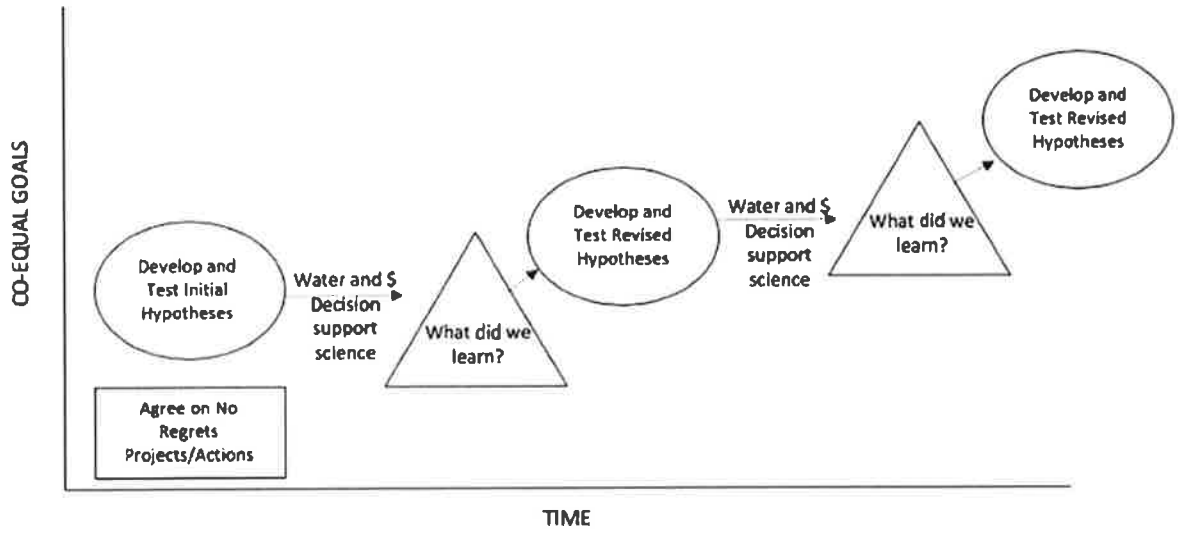
This approach would define a set of initial testable hypotheses that are used to test the integration of flow and habitat actions to provide identified, measurable benefits. It would also facilitate coordination among parties throughout the Delta ecosystem to better integrate habitat and species management activities.

This approach would define a program to answer management questions and support the investigation of the testable hypotheses. This would be accomplished by using existing funding that has been used for compliance monitoring and science program implementation and redirecting it; funding generated through this agreement, and other sources. The purpose of the program would be to accomplish the following:

- Implementing specific experiments – The Science Program would adopt a "safe to fail" experimental approach to maximize learning.
- Testing hypotheses – the program should identify and test key hypotheses, especially/even if conflicting, about how the system functions and what measures are most effective at achieving desired outcomes.
- Learning from the experiments – ensure each action undertaken is designed to gain as much knowledge as possible.
- Designing the experiments to be outcomes based – The VA Science Program would identify a manageable set of SMART objectives that describe desired environmental and biological outcomes.
- Facilitating a collaborative process – all stakeholders are engaged in the development and implementation of the science program.
- Facilitating a transparent process – through collaboration, reporting, and working towards open data.

This approach would establish a collaborative structured decision-making process to determine flow and structural habitat actions, direct science needs, and incorporate outcomes of the testable hypotheses to continue to inform decision-making.

Figure 1. Summary of proposed science and decision-making process



4. Funding Commitments:

Sacramento River Flow and Delta Outflow Augmentation Effort, With Fund: A fund will be developed to compensate farmers in the Sacramento River basin, Sacramento River, and Feather River who fallow land to contribute water for Delta outflow and tributary flows. The fund would be initially established with Prop 1 funds and subsequently funded through the collection of a surcharge on water diverted, as described below. Collection of the surcharge would begin immediately and would be collected for each of the 15 years of this agreement.

CVP and SWP contract water: Each acre-foot of CVP and SWP water diverted would be assessed a charge. Based on the last 10 years of diversions, this per acre foot charge could generate in excess of $370M over the 15-year term. After the 5th call for water using this revenue, the Reclamation, DWR, SWP Contractors and South of Delta CVP Contractors would reconvene to determine if the surcharge needs to be adjusted to ensure the fund can support future calls for water.

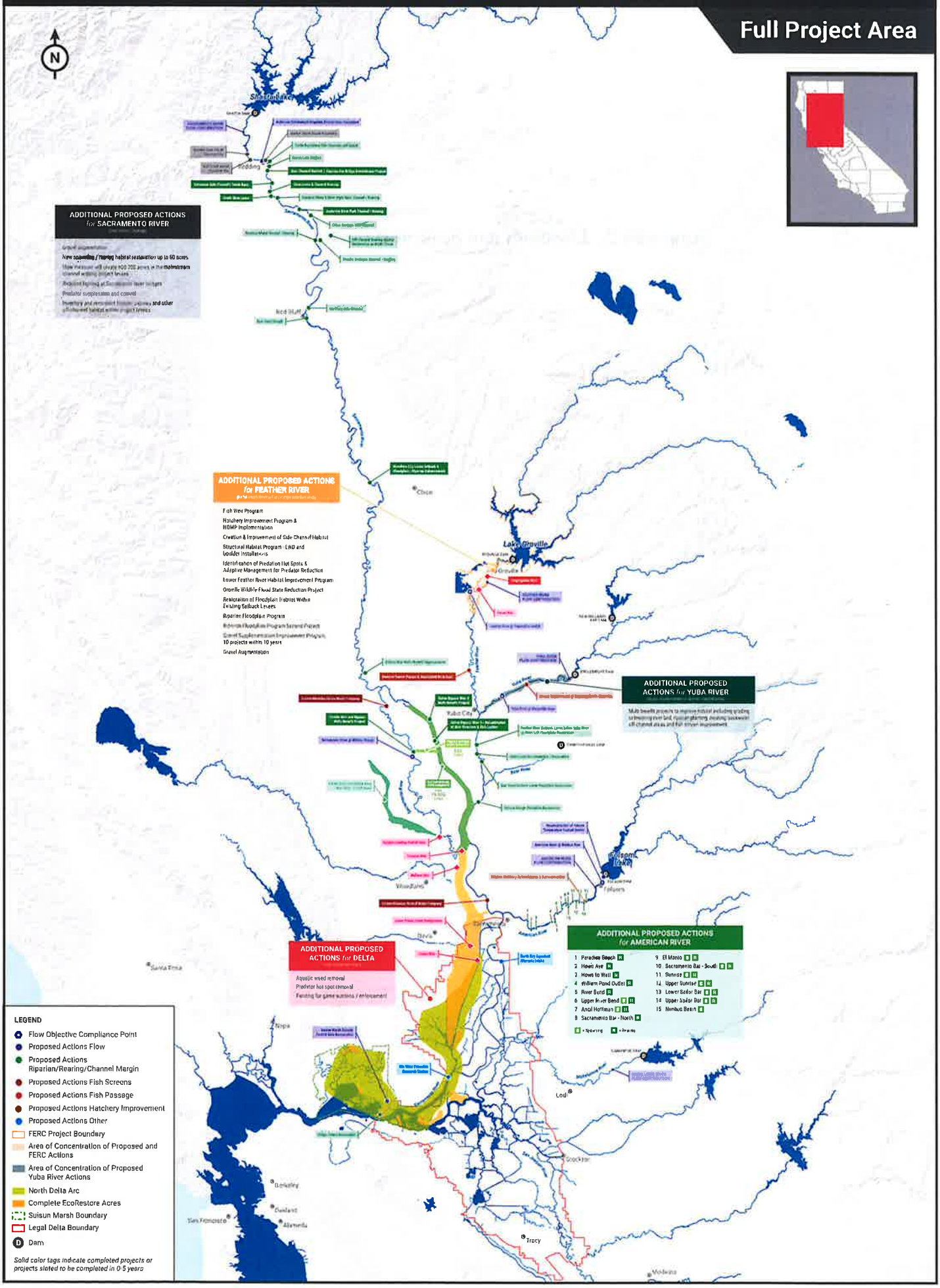
Non-CVP and SWP contract water: Agencies who contribute water would not pay a charge on their non-CVP/SWP water diversions, but agencies who do not contribute water would pay $10/acre-foot towards the revolving fund for water acquisition.

State and Federal contributions: The State and Federal governments commit to pursuing State bond money and seeking any necessary legislation to provide additional monetary funds. This includes potential directed and competitive funding opportunities from various State sources. Up to approximately $1.3 billion in bond funding is available for instream flows, restoration, multi-benefit flood projects, and other activities.

Appendix 2: Locations and Scale of Habitat Measures

PROPOSED ACTIONS FOR SPECIES OBJECTIVES

Full Project Area



PROPOSED ACTIONS FOR SPECIES OBJECTIVES

Sacramento River

Shasta Lake

N

SHASTA DAM (D)

SACRAMENTO RIVER FLOW CONTRIBUTION

Anderson Cottonwood Irrigation District Dam Operations

Market Street Gravel Placement

Keswick Dam Gravel Injection Site

Turtle Bay Island Side Channels and Gravel

Salt Creek Gravel Injection Site

Redding

Kutras Lake Project

Side Channel Habitat | Cypress Ave Bridge Downstream Project

Tobiasson Side Channel / South Bank

Shea Levee & Channel Rearing

South Shea Levee

Kapuesta Island & River Right Bank Channel / Rearing

Anderson River Park Channel / Rearing

China Gardens Side Channel

Sacramento River

Off-Channel Rearing Habitat Restoration on Battle Creek

Reading Island Channel / Rearing

Rancho Breisgau Channel / Rearing

Rio Vista Side Channel

East Sand Slough

Red Bluff

ADDITIONAL PROPOSED ACTIONS *for* SACRAMENTO RIVER

- Gravel augmentation
- New spawning / rearing habitat restoration up to 50 acres
- Flow measure will create 600-700 acres in the mainstream channel withing project levees
- Reduced lighting at Sacramento River bridges
- Predator suppression and control
- Inventory and reconnect historic oxbows and other off-channel habitat within project levees

MAPS ARE DRAFT.
PRIVILEGED & CONFIDENTIAL.
SETTLEMENT COMMUNICATION.

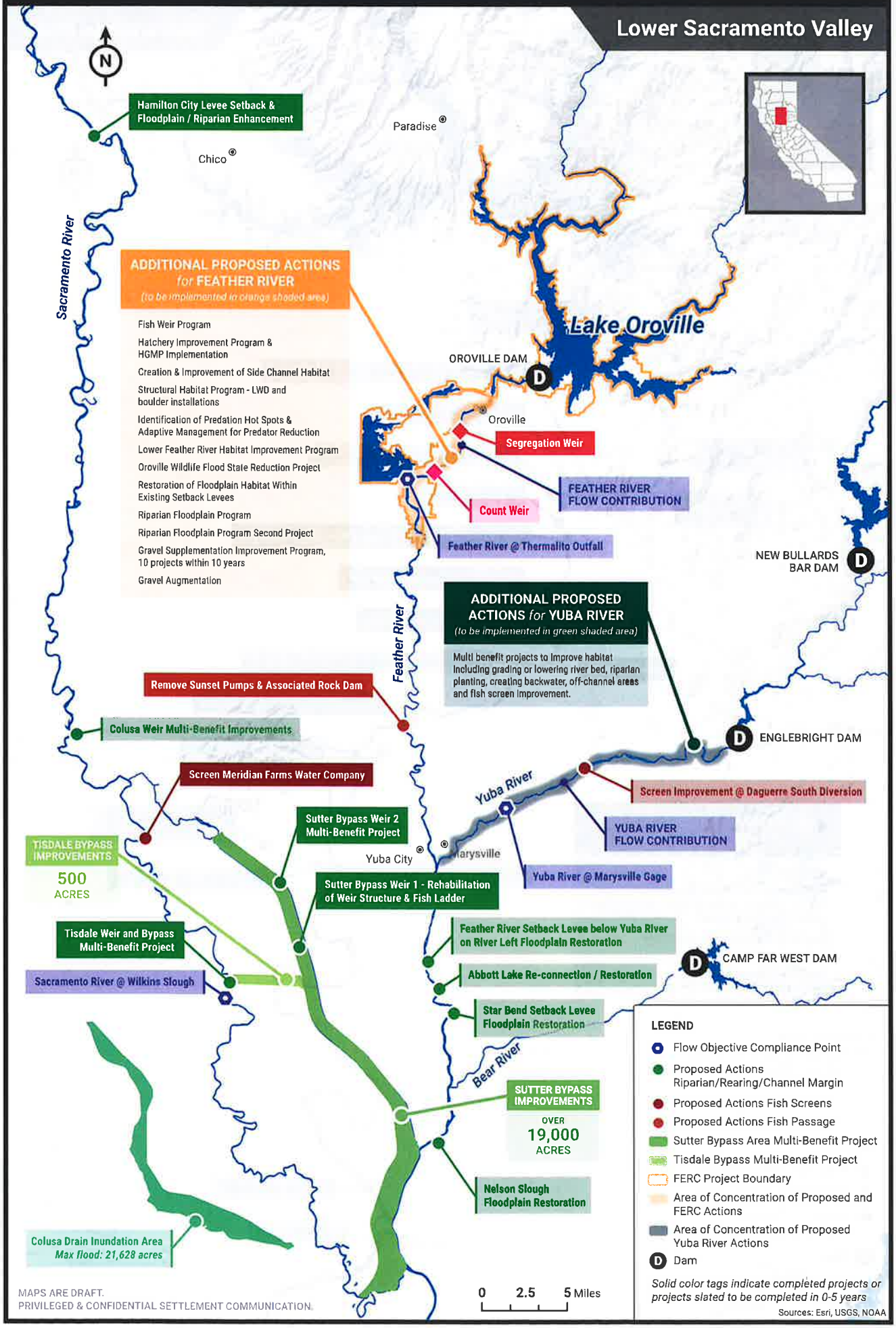
LEGEND

- Proposed Actions Flow
- Proposed Actions Gravel
- Proposed Actions Riparian/Rearing/Channel Margin
- (D) Dam

Solid color tags indicate completed projects or projects slated to be completed in 0-5 years

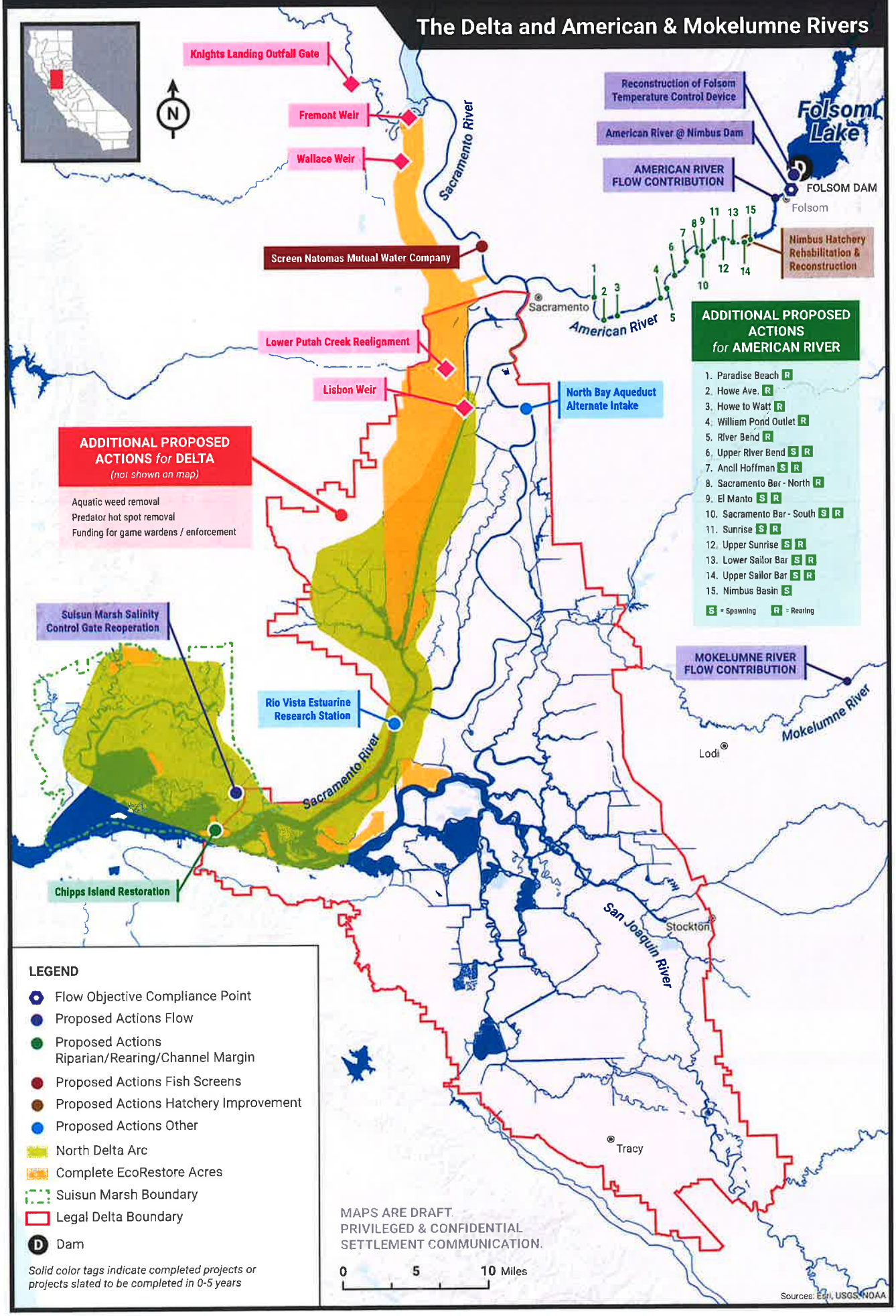
PROPOSED ACTIONS FOR SPECIES OBJECTIVES

Lower Sacramento Valley



PROPOSED ACTIONS FOR SPECIES OBJECTIVES

The Delta and American & Mokelumne Rivers



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STATE WATER CONTRACTORS
FOUNDED 1982

State Water Contractors Response to Presentation of Proposed Voluntary Settlement Agreements for the Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary

Sacramento, CA – In coordination with several public water agencies throughout the San Joaquin-Sacramento Bay-Delta, the California Department of Water Resources (DWR) and the United States Bureau of Reclamation (USBR), the State Water Contractors are pleased that we have successfully outlined a proposal for voluntary agreements for several tributaries and the Delta.

The proposal is a critical step towards better species management that relies on the integration of flow and habitat measures along with new funding to meet species needs. The proposal was coordinated among the many water users and other stakeholders throughout the system. These agreements establish how funding for habitat and water will be secured and used, how science will be used to inform decision-making and adjustments over time to benefit species and ecosystem functions. The agreements also lay out a suite of initial actions that provide immediate environmental benefits.

"The proposal represents a landmark change in species management that guarantees funding for dozens of important habitat projects, provides substantial flow for the environment, and paves the way to a more sustainable future, meeting the state's co-equal goals of providing water reliability and increased protections for our environment. We believe that a collaborative, voluntary approach that can be implemented as soon as next year is far superior to a top-down regulatory approach that could end up in court for years."

Jennifer Pierre
General Manager
State Water Contractors

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The State Water Contractors is a statewide, non-profit association of 27 public agencies from Northern, Central and Southern California that purchase water under contract from the California State Water Project. Collectively the State Water Contractors deliver water to more than 25 million residents throughout the state and more than 750,000 acres of agricultural land. For more information on the State Water Contractors, please visit www.swc.org.