

## Attachment 9

### LONG-TERM OPERATION OF THE STATE WATER PROJECT IN THE SACRAMENTO-SAN JOAQUIN DELTA

Amended Incidental Take Permit No. 2081-2023-054-00-A1  
(Amendment No. 1)

The ITP is amended as follows (amended language in ***bold italics***; deleted language in ~~strikethrough~~).

#### Amendment No. 1

1. The Amended ITP Background section has been inserted preceding the Effective Date and Expiration Date of this ITP section as follows:

##### ***Amended ITP<sup>3</sup> Background:***

***On November 4, 2024, the California Department of Fish and Wildlife (CDFW) issued Incidental Take Permit No. 2081-2023-054-00 (ITP) to the California Department of Water Resources (Permittee), authorizing take of Longfin Smelt (LFS, *Spirinchus thaleichthys*), Delta Smelt (DS, *Hypomesus transpacificus*), spring-run Chinook salmon (CHNSR, *Oncorhynchus tshawytscha*), winter-run Chinook salmon (CHNWR, *Oncorhynchus tshawytscha*), and White Sturgeon (*Acipenser transmontanus*; collectively, the Covered Species) associated with and incidental to the long-term operations of the State Water Project (SWP) in the Sacramento San Joaquin Delta (Project). The Project as described in the ITP as originally issued by CDFW includes continued operation of the SWP facilities in the Sacramento-San Joaquin Delta (Delta) and Suisun Marsh.***

***In an application dated August 20, 2025, and subsequent additions on August 29, 2025 and September 25, 2025, Permittee requested changes to Condition of Approval 9.1.3. Delta Smelt Summer-Fall Habitat Action and the Adaptive Management Program.***

2. The Effective Date and Expiration Date of this ITP section has been amended to read as follows:

***The original ~~This ITP became~~ is effective as of the date signed by CDFW, which was below November 4, 2024. This remains the effective date for the original take authorization and the implementation schedule of the MMRP Table of Mitigation Measures, unless amended otherwise. This Amended ITP shall become effective upon execution by CDFW.*** Unless renewed

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<sup>3</sup> When this incidental take permit and attachments refer to the "ITP", it means the "Amended ITP" unless the context dictates otherwise.

by CDFW, this ITP and its authorization to take the Covered Species shall expire on November 1, 2034.

Notwithstanding the expiration date on the take authorization provided by this ITP, Permittee's obligations pursuant to this ITP do not end until CDFW accepts as complete the Permittee's Final Mitigation Report required by Condition of Approval 7.4 of this ITP.

Pursuant to Permittee's request, this ITP replaces ITP No. 2081-2019-066-00, issued to DWR on March 31, 2020. ITP No. 2081-2019-066-00 is rescinded as of CDFW's issuance of this ITP.

3. Condition of Approval 9.1.3 (Delta Smelt Summer-Fall Habitat Action) has been amended to read as follows:

9.1.3. Delta Smelt Summer-Fall Habitat Action. The Delta Smelt Summer-Fall Habitat Action (Summer-Fall **Habitat** Action) is intended to benefit DS food supply and habitat, thereby contributing to the recruitment, growth, and survival of DS. The FLASH conceptual model<sup>72</sup> states that DS habitat should include low-salinity conditions of 0 to 6 parts per thousand (ppt), turbidity of approximately 12 NTU, temperatures below 25°C (77°F), food availability, and littoral or open water physical habitats. The highest-quality habitat in Suisun Marsh and Grizzly Bay includes areas with complex bathymetry, in deep channels close to shoals and shallows, and in proximity to extensive tidal or freshwater marshlands and other wetlands. The Summer-Fall Habitat Action will provide the aforementioned habitat components in the Suisun Marsh and Grizzly Bay through a range of actions by water year type to improve water quality and food supplies.

Each year, Permittee shall develop a plan in collaboration with Reclamation, and subject to written approval by CDFW, to operate the Project to achieve operational requirements described in the bullets below in this Condition of Approval, and implement additional actions, as available, including monitoring, science, and food enhancement actions to enhance DS habitat (Summer-Fall Action Plan). As an outcome of this annual planning and implementation process, reports documenting Summer-Fall Habitat Action operations and results from monitoring and scientific investigations shall be used as part of the AMP (Attachment 4) to better understand DS habitat during the summer-fall time period and investigate the way in which SWP and CVP operations interact with the full range of components of DS habitat. Permittee shall submit drafts of all reports **documenting Summer-Fall Habitat Action operations and results** to CDFW for review, incorporate CDFW input, and send final **draft** reports to CDFW for approval prior to **finalization**.~~completion.~~

~~Following WOMT discussion of the Delta Coordination Group (DCG) proposed gate operations each water year and decision-making, Permittee, in coordination with Reclamation, shall submit a final draft Summer-Fall Habitat Action Plan to CDFW~~ **by May 15 in each year a Summer-Fall Habitat Action is required for written approval prior to** implementation of this Condition of Approval. The Summer-Fall Action Plan shall describe the planned implementation

of the actions required in this Condition of Approval and the expected hydrologic and biological benefits. The Summer-Fall Habitat Action shall be implemented between June 1 and September 30 of each water year and through October 31 of the following water year.

Permittee shall include in the Summer-Fall Action Plan and adhere to the following minimum requirements:

- Improve Fall Low-Salinity Habitat (Fall X2): To increase the amount of low-salinity zone habitat for DS in wet and above normal hydrologic year types, Permittee shall, in coordination with Reclamation, maintain a 30-day average  $X2 \leq 80$  km from September 1 through October 31.
- Operate Suisun Marsh Salinity Control Gates: To address effects on habitat for juvenile DS and increase habitat and food access for DS in summer and fall (June through October) in Suisun Marsh and Grizzly Bay during above normal and below normal years, and dry years following wet or above normal years, Permittee shall operate SMSCG for 60 days, to maximize the number of days that Belden's Landing 3-day average salinity is equal to, or less than, 4 practical salinity units (psu), to maximize the spatial and temporal extent of DS low salinity zone habitat in Suisun Marsh and Grizzly Bay. Operation of the SMSCG shall occur between June 1 and October 31 in years which operation of the SMSCG is required. In dry years following below normal years, Permittee shall operate SMSCG for 30 days to maximize the number of days Belden's Landing 3-day salinity is equal to, or less than 6 psu to maximize the spatial and temporal extent of DS low salinity zone habitat in Suisun Marsh and Grizzly Bay.  
***Permittee shall implement SMSCG operations consistent with the CDFW-approved Summer-Fall Action Plan in each year in which an action is required.***

***Permittee shall implement a modified Summer-Fall Habitat Action for Water Year 2025 that adheres to the following minimum requirements:***

- ***Permittee shall operate to meet the requirements of D-1641 in September 2025 and October 2025 and is not required to meet a monthly average  $X2$  of  $\leq 80$  km during this time.***
- ***Permittee shall operate the SMSCG for 60 days as required for an above normal water year type. In addition, Permittee shall extend the required SMSCG operations for three (3) consecutive days starting from August 23, 2025, and operate the SMSCG on a daily basis starting from September 5, 2025, for an additional seven (7) consecutive days to expand the spatial extent of Delta Smelt low salinity zone habitat in Suisun Marsh.***

4. Condition of Approval 9.1.3.3 (Delta Smelt Food and Habitat Enhancement Action) shall be added as follows:

***9.1.3.3. Delta Smelt Food and Habitat Enhancement Action. Permittee shall develop and implement a DS Food and Habitat Enhancement Program (Program) to maximize DS habitat suitability and to subsidize food resources for DS within the Suisun Marsh region in 2026, 2027, and 2028. Permittee in collaboration with CDFW shall prepare a Program including specific implementable actions to be taken in each year (2026, 2027, 2028) to both subsidize food resources and improve DS suitable habitat. The Program shall identify site-specific actions, research questions, and monitoring metrics to promote enhanced food resources, habitat suitability and condition, and to assess the efficacy of the localized food and habitat actions. Permittee shall submit the draft Program to CDFW for approval by December 31, 2025. Permittee shall start implementing the CDFW approved final Program no later than June 2026. Updates to the Program for site-specific components to be implemented in 2027 and 2028 shall be submitted to CDFW for approval no later than May 15 in each year they are to be implemented. The Program shall ensure that at least 6,000 kg of Delta Smelt food resources are provided, as demonstrated through an analysis approved in writing by CDFW, within the Suisun Marsh region in each year (2026, 2027, 2028) and include, but not be limited to, the following food web and habitat enhancement components:***

- ***Supplementation of cultured zooplankton between June and October within the Suisun Marsh region.***
  - ***Measuring the efficacy of food supplementation in supporting DS growth and survival compared to surrounding areas.***
  - ***Identifying the best strategies to release food resources from culture facilities into the Suisun Marsh region, while minimizing effects from loss in water quality and increased predation risk.***
  - ***Quantifying the spatial and temporal influence of the released food resources.***
- ***Removal of invasive species annually within the North Delta Arc region sufficient to achieve a measurable change in food web resources and/or habitat quality to DS in the immediate vicinity of the action, in conjunction with site-specific monitoring pre- and post-removal. Consideration shall be given to the removal of Arundo, Phragmites, golden mussel, and invasive clam species (Potamocorbula amurensis and Corbicula fluminea).***
- ***Site-specific monitoring shall be used to identify the following factors, depending on the species targeted for removal:***
  - ***The effect of Arundo and Phragmites removal on local turbidity levels.***
  - ***The effect of Arundo removal and use of inundated shallow areas for spawning.***
  - ***How the presence of invasive competitors limits DS access to food.***

***It is estimated to cost \$1 million dollars annually (\$3 million total) to implement the CDFW approved Program starting 2026 and continuing through the summer and fall of 2027 and 2028, to meet food resource targets identified above, improve habitat conditions for DS, and answer identified research questions. Permittee may fund an alternative action to the Program in a given year (up to \$1 million) to benefit DS food resources and habitat conditions, if approved by CDFW by May 15 in the given year for which an alternative action would be funded and implemented, if CDFW determines the alternative action would have an equivalent or greater biological benefit than Program implementation in that year. Permittee shall submit a draft report summarizing the findings of the 3-year DS Food and Habitat Enhancement Program efforts to CDFW by May 1, 2029, for approval.***

5. Condition of Approval 10.1 (Security Amount) has been amended to read as follows:

**10.1. Security Amount.** Estimated costs to implement acquisition, protection, restoration and perpetual management of the HM lands as shown in Table 6 of this ITP and Conditions of Approval 9.1.1, 9.1.2, ~~and 9.2.1,~~ **and 9.1.3.3** total ~~\$446,529,000~~ **\$443,529,000**. Total costs for mitigation associated with Conditions of Approval 9.2.2, 9.2.3 and 9.3 are \$30,800,000.

Total costs to maintain the required long-term monitoring described in Section 3.10 of the Project Description are \$120,000,000. Estimated costs throughout the term of this ITP to implement studies and monitoring required in Conditions of Approval 6 through 9 and to support the Adaptive Management Program required by this ITP (Attachment 4) are estimated to total \$13,750,000 per year.

6. Conditions of Approval 7.9.2 (Winter-run Chinook Salmon Machine Learning Model Development) and 9.1.4 (Delta Smelt Supplementation Program) have been amended to better reflect current planned science and implementation processes as follows:

**7.9.2. Winter-run Chinook Salmon Machine Learning Model Development.** Permittee shall, as part of the AMP (Attachment 4) and in coordination with Reclamation, support and fund the continued refinement of the Winter-run Chinook Salmon Machine Learning Model for use during real-time operations to inform the SaMT and implementation of this ITP. The continued refinement of the Winter-run Chinook Salmon Machine Learning Model will require the established Winter-run Chinook Machine Learning Interagency Team to incorporate genetic-based run-identification loss and monitoring data of CHNWR currently available. The Winter-run Chinook Machine Learning Interagency Team will also develop a CHNWR distribution model to explicitly predict daily juvenile CHNWR migration timing in the Delta using historical long-term monitoring data and environmental variables for SaMT to use by 2026 (Condition of Approval 8.1.2, Attachment 4).

The Winter-run Chinook Machine Learning Interagency Team shall develop a modeling framework that integrates ***a >10-year dataset of genetically classified CHNWR that has been***

***compiled since the development of the Winter-run Chinook Salmon Machine Learning Model. A revised model incorporating these genetic data shall be developed based on the framework used during the development of the existing Winter-run Chinook Salmon Machine Learning Model. Specifically, a new model will be developed using biotic and abiotic variables upstream of the south Delta to predict salvage one or more weeks prior to salvage occurring.*** the CHNWR distribution model with particle tracking model outcomes (potentially Ecological Particle Tracking Model [ECO-PTM]), and considers the efficacy of the Georgiana Slough Migratory Barrier, to estimate the proportion of the juvenile CHNWR outmigrating population vulnerable to entrainment into the south Delta per day, the probability of juvenile CHNWR entrainment into the south Delta given current hydrologic conditions, and the travel time of juvenile CHNWR to the SWP and CVP export facilities.

In addition to the real-time assessment tool, the Winter-run Chinook Machine Learning Interagency Team shall also provide modeling outputs from the Winter-run Chinook Salmon Machine Learning Model and associated OMR Conversion Tool to SaMT for the implementation of Condition of Approval 8.4.4 to this ITP.

**9.1.4. Delta Smelt Supplementation Program.** A Delta Smelt Supplementation Program (DS Supplementation Program) is intended to work in conjunction with water management strategies, habitat restoration, and food web productivity enhancements, to support the persistence of DS in the wild. Permittee shall, in coordination with Reclamation, support the development, refinement and implementation of a DS Supplementation Strategy which shall establish the framework, objectives, and timelines for the DS Supplementation Program to bolster the current population of DS and increase the likelihood of achieving a self-sustaining status. Permittee shall fund DS Supplementation Program CDFW staff according to Condition of Approval 9.1.4.1.

Permittee shall, in coordination with Reclamation, work through the Culture and Supplementation of Smelt Steering Committee (CASS SC), to continue to collaborate with CDFW and USFWS on the development of the DS Supplementation Program and the DS Supplementation Strategy. ***The CASS group was created in 2019 and is comprised of participants from Reclamation, DWR, CDFW, and USFWS. This body provides oversight in advancing science-based management activities to secure and stabilize the DS population through a coordinated propagation and supplementation program. The CASS SC shall continue to provide guidance to its three working groups: 1) Captive Propagation Working Group, 2) Research Working Group, and 3) Regulatory Working Group.***

An update to the DS Supplementation Strategy is expected to be approved by CDFW and USFWS in 2025. Permittee shall, in coordination with Reclamation, CDFW, and USFWS, and subject to necessary state and federal permitting, support implementation of the DS Supplementation Program through a collective management structure consistent with the updated DS Supplementation Strategy and the AMP (Attachment 4). DS Supplementation

Program governance will consist of the CASS SC and ~~several~~ collaborative technical teams charged with implementation of all aspects of supplementation (***Captive Propagation Working Group, Research Working Group, and Regulatory Working Group*** ~~e.g., fish culture, transportation and release, monitoring, and synthesis~~) and will be consistent with governance described in the AMP (Attachment 4).

***DWR shall, in coordination with Reclamation, ensure production ramps up to a minimum of 125,000 fish by water year 2024, a minimum of 150,000 fish by water year 2025, a minimum of 250,000 fish by water year 2029, and a minimum of 500,000 fish by water year 2034 that are at least 200 days post-hatch (dph) or equivalent as informed by CDFW and USFWS. In the event that current DS production estimates indicate a risk that minimum production will not be met in the subsequent year for reasons outside Permittee's control, Permittee shall meet and confer with CDFW to develop a plan to maximize production for supplementation. USFWS and CDFW, in coordination with Reclamation and DWR, will update the Supplementation Strategy to incorporate new findings from the program and update performance metrics used to guide production targets and methods development.***

***A process to evaluate production targets to support supplementation will be developed and implemented no less than annually via the CASS SC. Outcomes of the review may include but are not limited to revisions of annual production numbers, timeline, release methods, monitoring, and genetic management strategies. These findings will be incorporated into the DS Supplementation Strategy and will serve as guidance for the program.***

The DS Supplementation Strategy will also evaluate and address any need for additional facilities and infrastructure improvements to existing facilities, and evaluate the benefit of new approaches to maintaining the refugial population of DS while also supporting the updated DS Supplementation Strategy and DS Supplementation Program. Permittee shall, in coordination with Reclamation, collaborate with CDFW and USFWS on the development of additional facility needs, their construction and operation, to meet a production capability of ~~400,000–500,000~~ DS that are at least 200 days post-hatch, within 10 years of the effective date of this ITP. Such facilities and infrastructure improvements are not Covered Activities of this ITP and could require separate processes for compliance under CESA and CEQA for their construction and eventual operation.

To support CDFW's role in the DS Supplementation Program, Permittee shall fund a full-time biologist position (Condition of Approval 9.1.4.1).

7. Attachment 4 (Adaptive Management Program) Summer Fall Habitat Action for Delta Smelt has been amended to require Permittee to convene a Summer Fall Planning Group comprised of technical experts from Permittee and CDFW to conduct a structured decision making planning process to develop a research plan for testing key mechanisms underlying the findings of the USFWS Delta Smelt Life Cycle Model and findings resulting from prior

Summer-Fall Habitat Action reports. As such, Condition of Approval 9.1.3.4 (Summer Fall Planning Group) shall be added to the ITP as follows:

***9.1.3.4 Summer Fall Planning Group. The Summer Fall Planning Group (SFPG) is comprised of two representatives, each from Permittee and CDFW, and one representative from the SWP Contractors. The SFPG may approve attendance by additional technical representatives when appropriate in a non-voting role. Permittee shall convene the SFPG beginning no later than January 2026 to initiate a structured decision making (SDM) planning process to develop a research plan for testing key mechanisms underlying the findings of the USFWS Delta Smelt Life Cycle Model and findings resulting from prior Summer-Fall Habitat Action reports. The goal of this SDM effort will be to identify key research questions that will be prioritized and implemented starting in water year 2026. Results of this research will be communicated to the DCG and used to support the development of the Summer-Fall Action Plan each year, starting in water year 2026.***

8. Attachment 4 (Adaptive Management Program) has been revised for consistency with amendments made to Conditions of Approval 7.9.2, 9.1.3, 9.1.3.4, and 9.1.4.

9. The Attachments Section has been revised to read as follows:

**Attachments:**

FIGURE 1	Map of Project ( <b>November 2024</b> )
ATTACHMENT 1	List of Acronyms and Terms ( <b>November 2024</b> )
ATTACHMENT 2	Winter-run Chinook Salmon Juvenile Production Estimates ( <b>November 2023</b> )
ATTACHMENT 3	Mitigation Monitoring and Reporting Program ( <b>September 2025</b> )
ATTACHMENT 4	Adaptive Management Program ( <b>September 2025</b> )
ATTACHMENT 5	CDFW Smelt Effects Analysis ( <b>CDFW, November 2024</b> )
ATTACHMENT 6	CDFW Salmon Effects Analysis ( <b>CDFW, November 2024</b> )
ATTACHMENT 7	CDFW White Sturgeon Effects Analysis ( <b>CDFW, November 2024</b> )
ATTACHMENT 8	Definition of Loss Equation (CDFW 2018)
<b>ATTACHMENT 9</b>	<b>Amendments (September 2025)</b>