

State of California
The Natural Resources Agency
Department of Water Resources

Incidental Take Permit for the Long-Term Operation of the State Water Project: 2022 Annual Status Report

ITP No. 2081-2019-066-00

March 1, 2023



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Purpose of the ITP Annual Status Report

The purpose of the Annual Status Report (ASR) is to summarize information on the California Department of Water Resources' (DWR) compliance with the Incidental Take Permit (ITP) for the Long-Term Operation of the State Water Project (No. 2081-2019-066-00) issued by the California Department of Fish and Wildlife (CDFW). Language amended in the ITP is indicated by bolded or strikethrough text in the table below. While the information in the ASR focuses primarily on Water Year (WY) 2022 (i.e., the period from October 1, 2021–September 30, 2022), the report does also include activities up to the present, for some Conditions of Approval. As required under ITP Condition of Approval (COA) 7.2, the ASR includes a copy of the table in the Mitigation Monitoring and Reporting Plan with notes showing the current implementation status of the ITP Conditions of Approval and mitigation measures.

This ASR is occurring early in the lifecycle of the ITP issued on March 31, 2020, and therefore it is difficult to assess the effectiveness of each Condition of Approval in avoiding, minimizing, and mitigating Project impacts, as required under COA 7.2. Additionally, critically dry conditions have prevented DWR from implementing some elements of the ITP that are conditional on the type of water year. Instead, DWR has attempted to capture the challenges and successes in implementing each of the conditions. In future years, as implementation of the ITP progresses, our ability to assess the effectiveness of individual Conditions in protecting the Covered Species that are the subject of the ITP will improve and be fully realized through future reviews described in Section 3.13.8 of the ITP.

Nonetheless, the progress summarized within the ASR for Water Year 2022 represents the collective accomplishments of numerous DWR and CDFW personnel, along with partner agencies and non-governmental organizations, in successfully implementing the requirements of the ITP. Implementation of the ITP requirements will, almost certainly, prove beneficial to the protection of Longfin Smelt (LFS), Delta Smelt (DS), Winter-run Chinook Salmon (CHNWR), and Spring-run Chinook Salmon (CHNSR) in the Sacramento-San Joaquin Delta in the future.

Table 1 Mitigation measures, implementation dates, and statuses per condition

Condition	Mitigation Measure	Implementation Schedule	Status/Date/Initials
6.1	<p><u>Designated Representative</u>. Within one month of the effective date of this ITP, Permittee shall designate a representative (Designated Representative) responsible for communications with CDFW and overseeing compliance with this ITP. Permittee shall notify CDFW in writing within one month the effective date of this ITP of the Designated Representative’s name, business address, and contact information, and shall notify CDFW in writing if a substitute Designated Representative is selected or identified at any time during the term of this ITP.</p>	<p>Within one month of effective date of the ITP.</p>	<p>The Designated Representative is Dr. Lenny Grimaldo, Assistant Environmental Director for the California Department of Water Resources. Email: lenny.grimaldo@water.ca.gov Mobile phone: (415) 823-1372 Address: P.O. Box 942836 Sacramento, CA 94236-0001</p>
6.2	<p><u>Designated Biologist</u>. Permittee shall submit to CDFW in writing the name, qualifications, business address, and contact information of a biological monitor (Designated Biologist) within 30 days of the effective date of this ITP. Permittee shall ensure that the Designated Biologist is knowledgeable and experienced in the biology and the natural history of the Covered Species. The Designated Biologist shall be responsible for monitoring Covered Activities described in Condition of Approval 7.7 to help minimize or avoid the incidental take of individual Covered Species and to minimize disturbance of Covered Species’ habitat. Permittee shall obtain CDFW approval of the Designated Biologist in writing, and shall also obtain approval in advance in writing if the Designated Biologist must be changed.</p>	<p>Within one month of effective date of the ITP.</p>	<p>The Designated Biologist for the ITP is Chris Wilkinson, Environmental Program Manager II, in the DWR Division of Integrated Science and Engineering. Email: christopher.wilkinson@water.ca.gov Mobile Phone: (916) 873-4301 Address: P.O. Box 942836 Sacramento, CA 94236-0001</p> <p>Additionally, several other Designated Biologists were approved by CDFW as biological monitors according to the terms of COA 7.7 Barker Slough Pumping Plant Sediment and Aquatic Weed Removal, during WY 2022.</p>

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6.3	<u>Designated Biologist Authority.</u> To ensure compliance with the Conditions of Approval of this ITP, the Designated Biologist shall have authority to immediately stop any activity that does not comply with this ITP, and to order any reasonable measure to avoid the unauthorized take of an individual of the Covered Species.	Throughout the term of the ITP.	DWR understands that Designated Biologist Authority includes the authority to immediately stop any activity that does not comply with the ITP and to also order any reasonable measure to avoid the unauthorized take of an individual of the Covered Species.
6.4	<u>CDFW Access.</u> Permittee shall provide CDFW staff with reasonable access to the Project facilities and mitigation lands under Permittee control, and shall otherwise fully cooperate with CDFW efforts to verify compliance with or effectiveness of mitigation measures set forth in this ITP.	Throughout the term of the ITP.	DWR is committed to providing CDFW staff with reasonable access to the Project facilities and mitigation lands under DWR control.
7.1	<u>Notification of Non-Compliance.</u> The Designated Representative shall immediately notify CDFW in writing if it determines that the Permittee is not in compliance with any Condition of Approval of this ITP, including but not limited to any actual or anticipated failure to implement measures within the time periods indicated in this ITP and the MMRP. The Designated Representative shall report any non-compliance with this ITP to CDFW within 24 hours.	Throughout the term of the ITP.	During WY 2022, DWR and CDFW continued to collaborate in implementing the requirements of COA 9.2.1 Mitigation for Impacts Associated with Project Operations; however, at the time of writing this ASR, DWR has not funded a restoration project during 2022, as DWR and CDFW have not been able to agree upon a project for funding under COA 9.2.1.
7.2	<u>Annual Status Report.</u> Permittee shall provide CDFW with an Annual Status Report (ASR) no later than December 1 of every year beginning with issuance of this ITP and continuing until CDFW accepts the Final Mitigation Report identified below. The ASR shall summarize information from the prior water year October 1 through September 30. Each ASR shall include, at a minimum: (1) a	Throughout the term of the ITP.	The WY 2022 ASR includes all the required items.

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7.3	<p>copy of the table in the MMRP with notes showing the current implementation status of each Condition of Approval and mitigation measure; (2) a copy of all SWP and CVP salvage data collected from the prior water year; (3) reports of inspections and maintenance of fish protective equipment; and (4) an assessment of the effectiveness of each completed or partially completed Condition of Approval mitigation measure in avoiding, minimizing, and mitigating Project impacts.</p> <p><u>Final Mitigation Report</u>. No later than 45 days after completion of all mitigation measures or 90 days prior to the expiration of this ITP (whichever is sooner), Permittee shall provide CDFW with a Final Mitigation Report. The Designated Biologist shall prepare the Final Mitigation Report which shall include, at a minimum: (1) a summary of all ASRs; (2) a copy of the table in the MMRP with notes showing when each of the mitigation measures was implemented; (3) all available information about Project-related incidental take of the Covered Species; (4) information about other Project impacts on the Covered Species; (5) an assessment of the effectiveness of this ITP's Conditions of Approval in minimizing and fully mitigating Project impacts of the taking on Covered Species; (6) recommendations on how mitigation measures might be changed to more effectively minimize take and mitigate the impacts of future projects on the Covered Species; and (7) any other pertinent information.</p>	No later than 90 days prior to the expiration date of the ITP.	Not applicable.

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7.4	<p><u>Skinner Fish Facility Operations.</u> Permittee shall work in collaboration with CDFW to ensure essential information on salvage at the Skinner Fish Facility continues to be collected, verified for accuracy and quality, and reported to CDFW. CDFW will provide routine and regular oversight on operations as related to fish identification, handling, care, and transport to maintain appropriate compliance with ITP requirements (see Condition of Approval 8.15). This is both an essential data source for Conditions of Approval 8.1.5, 8.1.5.1, 8.5.1.2, 8.3.3, 8.4.1, 8.4.2, 8.5.2, 8.6.1, 8.6.2, 8.6.3, 8.6.4, and 8.7 as well as an important performance measure of their effectiveness. In addition, information on daily OMR flows and daily salvage are essential to ensure that the Conditions of Approval in this ITP are implemented effectively. Permittee shall continue to provide daily data sheets with preliminary salvage data from the SWP and CVP fish salvage facilities to CDFW no later than noon the following day, and final data shall be included in each ASR submitted to CDFW (Condition of Approval 7.2).</p>	Throughout the term of the ITP.	Since 2001, CDFW has provided oversight and retained responsibility for the salvage data and reporting process for the Skinner Fish Facility through a series of interagency agreements between CDFW Fish Facilities Unit and DWR's Delta Field Division. Salvage Data for the SWP and CVP from WY 2022 are provided in Appendix A.
7.4.1	<p><u>Maintenance and Inspection Reporting.</u> Permittee shall submit annual reports that describe regular inspections and maintenance of fish protective equipment at the Skinner Fish Facility that may affect screening and salvage efficiencies to CDFW each year as a part of the ASR (see Condition of Approval 7.2). Additionally, each time Permittee inspects or conducts maintenance on fish</p>	Throughout the term of the ITP.	<p>Annual reports describing regular inspections and maintenance of fish protective equipment at the Skinner Fish Facility are attached in Appendix B.</p> <p>Also, as required, DWR continued the normal practice of reporting the inspection</p>

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7.4.2	<p>protective equipment they shall report the activities to CDFW staff assigned to support salvage facility operations (see Condition of Approval 8.15) verbally or via email as soon as feasible, but no later than 24 hours after each instance.</p> <p><u>Skinner Fish Facility Operations Manual</u>. Permittee shall ensure the existing salvage monitoring and reporting program samples no less than 30 minutes every two hours from November 1 through June 30. If the presence of large number of fish or debris may result in the loss of Covered Species in the salvage monitoring process, Permittee may operate to the existing reduced sampling time protocols for such circumstances (see Skinner Fish Facility Operations Manual v 2.0 October 19, 2005) and consult with CDFW immediately, or no later than 12 hours after, to discuss options available in real-time to maintain adequate detection of Covered Species when reduced sampling time protocols are being implemented.</p> <p>The salvage process at the Skinner Fish Facility generates one of the largest data sources characterizing entrainment and take of Covered Species with a high amount of sampling effort. Reducing count times greatly reduces the ability to detect fish in the salvage facility sampling process, and often these outages occur concurrent with conditions which may be conducive to entrainment events. The intent of this Condition is to ensure a clear understanding exists between Permittee and</p>	Throughout the term of the ITP.	<p>and maintenance activities to CDFW within 24 hours of each instance.</p> <p>The draft updated salvage operations manual was submitted by DWR to CDFW on June 30, 2021. Due to protracted negotiations between CDFW and DWR on the protocols to be included in the manual, the manual was not finalized by the September 30 deadline identified in COA 7.4.2. A final draft salvage operations manual was submitted by DWR to CDFW on May 23, 2022, and CDFW issued their approval on September 19, 2022.</p>

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7.4.3	<p>CDFW regarding the circumstances in which reduced sampling times are necessary and appropriate, as the data collected from the facilities informs real-time operations such as OMR Management (Conditions of Approval 8.3 through 8.8).</p> <p>Permittee shall work with CDFW to update the Skinner Fish Facility Operations Manual and submit a draft updated manual to CDFW by June 30, 2021, for review. The updated draft operations manual shall include a new protocol for the Skinner Fish Facility which describes the decision-making process prior to reducing sampling times and the protocol used to determine whether Covered Species are present during debris removal efforts. Permittee shall work with CDFW to address comments on the draft manual and submit the final revised Skinner Fish Facility Operations Manual to CDFW for approval before September 30, 2021. Permittee shall operate the Skinner Fish Facility as described in the final CDFW-approved Skinner Fish Facility Operations Manual no more than 15 days after it is approved by CDFW.</p> <p><u>Continue to Refine Loss Equation.</u> Permittee shall continue to refine the loss equation through annual performance evaluation studies for each component of the loss equation, including but not limited to salvage at the Skinner Fish Facility, pre-screen loss, louver (screen) efficiency, and</p>	Throughout the term of the ITP.	DWR continued implementation of the Delta SWP Fish Facilities Performance Evaluations Project (DFPE) which includes field evaluations of direct losses of salmonids at the SWP using mark-recapture methods.

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	<p>handling and trucking loss. Performance evaluation studies shall also include post release survival studies on salvaged fish to evaluate loss associated with predation and reduced fitness as a result of the salvage and release process. Permittee shall work with Reclamation, CDFW, NMFS, and USFWS to develop refined protocols for daily estimation of salvage and loss for CHNWR and CHNSR, including relevant calculations, data, and information sources necessary to perform the relevant calculations used to estimate salvage and loss. Permittee shall update the loss equation with refinement to the loss equation components as approved by CDFW.</p>		<p>Implementation of the project in 2022 included 23 experimental releases of late-fall or fall Chinook Salmon. Preliminary results from the WY 2022 evaluation should be available in early spring of 2023.</p> <p>In addition, Cramer Fish Sciences completed updating and recoding their alternative loss calculation tool at the end of 2022 (with field data from 2017–2020) and presented it to DWR in December. The tool currently lacks a user guide which will be developed as part of a new task order this spring. Concurrently, during the LTO reconsultation in relation to the Clifton Court Forebay and fish facility actions, an "alternative loss estimation pilot study" was included as part of the proposed action. As part of that action, DWR commits to conducting a knowledge transfer workshop for the revised alternative loss calculation tool and to establish a technical team within 6 months of the new ROD or ITP.</p>
7.5	<p><u>Winter- and Spring-run Chinook Salmon Monitoring and Science Requirements.</u> To improve understanding of CHNWR and CHNSR population size, life history diversity, migration patterns, survival rates, habitat use, and impacts from water-operations related stressors, Permittee shall</p>	Throughout the term of the ITP.	Status of 7.5 is addressed under its individual components (7.5.1, 7.5.2, and 7.5.3).

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7.5.1	<p>initiate, fund, and implement new monitoring and science. This new monitoring and science shall include the elements identified in Conditions of Approval 7.5.1, 7.5.2, and 7.5.3, and shall be combined with existing surveys and data to: 1) continue to build knowledge regarding the biology and life history of CHNSR and CHNWR; 2) better understand potential impacts of Project operations on CHNWR and CHNSR; 3) continue to refine the CHNWR juvenile production estimate (JPE); and 4) develop a CHNSR juvenile production estimate (JPE) and associated operational criteria that may be proposed to replace Condition of Approval 8.6.4 as a part of the AMP (described in Attachment 2) and a subsequent amendment to this ITP.</p> <p><u>Upstream Monitoring During Water Transfer Window.</u> CHNSR are vulnerable to redd dewatering and juvenile stranding when flows in tributaries are increased rapidly to initiate a water transfer, then decreased rapidly following the end of a water transfer. Permittee shall develop a plan to monitor relevant flow rates prior to, during, and after all water transfers and redd distribution, redd dewatering, and juvenile stranding during the Project water transfer window and submit the draft Water Transfer Monitoring Plan to CDFW for approval within six months of the effective date of this ITP. Permittee shall work collaboratively with CDFW to address comments on the draft plan before it is finalized and submitted to CDFW for approval. Permittee shall implement the final Water</p>	Throughout the term of the ITP.	In October 2021, a spawning event in the Feather River triggered monitoring identified in the Water Transfer Monitoring Plan (WTMP). As required, CDFW and the ITP Designated Representative were notified of the event. A final WTMP report to summarize the 2021 effort was prepared and submitted April 11, 2022. Although not an annual requirement, a 2022 WTMP was submitted, in response to CDFW's request, on May 26 for review and was approved by CDFW on June 7, 2022.

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7.5.2	<p>Transfer Monitoring Plan no more than 30 days after CDFW approval and provide data to CDFW annually thereafter within 30 days of the end of the water transfer window. Additionally, Permittee shall notify the Designated Representative as soon as possible, and no more than 24 hours, after each redd dewatering or juvenile stranding event observed as a part of this monitoring program.</p> <p><u>New and Ongoing Monitoring Required to Develop and Establish a Spring-run Chinook Salmon JPE.</u> Within 30 days of the effective date of this ITP, Permittee shall convene a Spring-run JPE Team including experts from CDFW, DWR, NMFS, USFWS, and Reclamation. To further advance collaboration, upon convening, the Spring-run JPE team may invite other experts in fish biology, hydrology, or operations of the SWP and CVP to meetings of the Spring-run JPE Team to assist with discussion and analyses. Permittee shall prepare a draft Spring-run JPE Monitoring Plan in collaboration with the Spring-run JPE Team that describes monitoring required to inform the development of the JPE prior to December 1, 2020. The plan shall include, but not be limited to:</p> <ul style="list-style-type: none"> • Feather River adult passage monitoring and escapement surveys: Monitoring needed to develop adult spawner abundance estimates from which to derive production estimates. Monitoring includes continuing redd surveys and carcass surveys for CHNSR and collecting genetic samples from all carcasses. 	<p>Within thirty days of the effective date of the ITP.</p>	<p>The five teams established by DWR continued to implement the five major elements of the “Spring-run Chinook Salmon JPE Science Plan” (JPE Plan), which is posted at: https://water.ca.gov/Programs/State-Water-Project/Endangered-Species-Protection. Progress on those elements includes:</p> <p>Guidance Team:</p> <ul style="list-style-type: none"> • The JPE Guidance Team, a four-person team consisting of DWR and CDFW leads for implementing 7.5.2 and their alternates, met weekly to plan, coordinate, and review the activities of the JPE teams. • The Guidance Team planned an RST efficiency test workshop and held an all hands meeting in September to review and discuss JPE modeling progress.

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	<ul style="list-style-type: none"> • Lower Yuba River adult passage monitoring and escapement surveys: Monitoring needed to develop adult spawner abundance estimates from which to derive production estimates. Monitoring includes continuing adult salmonid passage surveys via the Vaki Riverwatcher at Daguerre Point Dam, redd surveys for CHNSR, upstream of Daguerre Point Dam, and carcass surveys for CHNSR upstream of Daguerre Point Dam. Collect genetic samples from all carcasses. • Deer, Mill, and Butte Creek adult passage monitoring and escapement surveys: Monitoring needed to develop adult spawner abundance estimates from which to derive production estimates. Monitoring includes passage surveys via video monitoring stations on Deer, Mill and Butte creeks, carcass surveys, and redd surveys. • Feather River rotary screw trap monitoring at RM 61 and 45.8: Monitoring to provide estimates of the number of CHNSR emigrating through the upper limits of the Feather River via two existing rotary screw traps located at RM 45.8 (High Flow Channel RST) and RM 61 (Low Flow Channel RST). • Feather River rotary screw trap monitoring near Beer Can Beach: New monitoring near Beer Can Beach (river mile seven) to provide estimates of the number of CHNSR entering the Delta from the Feather River Basin. Data 		<p>Core Team:</p> <ul style="list-style-type: none"> • With the assistance of professional Structured Decision-Making facilitators, the Core Team revised the JPE Decision Statement and resolved stakeholder disagreements regarding the scope of the Core Team and final decision authority for the JPE. • The Core Team began JPE model alternative development to complete a JPE Consequence Table. They determined this task required a better understanding of historical data and its ability to support various potential modeling approaches. • The Core Team turned over model development to the contracted modeler and the JPE Modeling Advisory Team (MAT) with instructions to build a full model with all available data which will be used to build other less complex model versions. The suite of model alternatives will then be used for experimentation, sensitivity analysis, evaluation of required monitoring, and to build the consequence table for the JPE model comparison.

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	<p>obtained would be used to integrate all Feather River Basin-origin fish into the JPE. The data obtained can also be used as a point of comparison for reach-specific loss estimates from upstream sites when used in conjunction with acoustic telemetry data.</p> <ul style="list-style-type: none"> • Lower Yuba River rotary screw trap monitoring: Monitoring to provide estimates of the number of CHNSR emigrating through the lower Yuba River via two rotary screw traps located near Hallwood Boulevard. Collect genetic samples on all length-at-date CHNSR. These data can also provide an upstream measurement to assess reach-specific loss estimates in coordination with acoustic telemetry data. • Deer, Mill, and Butte Creek rotary screw trap monitoring: Monitoring needed to develop in-season production estimates and provide data on the egg-to-fry survival and emigration timing of yearling and young-of-year CHNSR. Collect genetic samples on all length-at-date CHNSR. These data can also provide an upstream measurement to assess reach-specific loss estimates in coordination with acoustic telemetry data. • Tisdale Weir and Knights Landing rotary screw trap monitoring: Monitoring is needed to provide estimates of the number of CHNSR entering the Delta from the Sacramento River Basin. Collect genetic samples on all length-at-date CHNSR. The data obtained can be used as a point of 		<p>Monitoring Team:</p> <ul style="list-style-type: none"> • CDFW completed the first full year of augmented monitoring in existing locations on Butte Creek, Feather River, and lower Sacramento River, and at the new RST monitoring stations in the lower Feather River and on the Sacramento River at the point of Delta entry. • DWR coordinated with Yuba Water Agency to plan and begin implementation of an RST monitoring station on the Yuba River. DWR established a contract with Pacific States Marine Fishery Commission to staff the new RST under DWR guidance, while Yuba Water Agency purchased the new RSTs. • The Stream Teams for different monitoring programs provided historical data to the Data Management Team (DMT). They attended multiple meetings and a workshop with the DMT and the Modeler to define metadata and review preliminary modeling results. <p>Data Management Team:</p> <ul style="list-style-type: none"> • Contractor FlowWest coordinated with Stream Teams to curate and merge all

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	<p>comparison for reach-specific loss estimates from upstream sites. Weir overtopping and Sutter Bypass activation can influence the detectability of Chinook salmon at the Knights Landing monitoring station. Water entering the Sutter Bypass provides an alternative route in which juvenile salmon are routed around the Knights Landing monitoring station. Monitoring upstream of Tisdale Weir will provide an additional measure of abundance prior to weir influence.</p> <ul style="list-style-type: none"> • Rotary screw trap acoustic tagging monitoring: Monitoring using acoustic tagged fish to provide estimates of loss and timing of yearling CHNSR emigrants in the fall and emigrating young-of-year CHNSR in the spring at all new and ongoing rotary screw traps. • Genetic identification of CHNSR to support ongoing and new monitoring and development of a CHNSR JPE: Genetic samples shall be collected from all fish (or a subsample of fish where appropriate) and analyzed to race to improve identification of CHNSR-sized fish observed during monitoring and better inform migration and production estimates. Permittee shall coordinate with the CDFW Genetics Lab and NMFS Southwest Fisheries Science Center regarding the methodology for collecting and analyzing all genetic samples. • Trap capture efficiency studies: Research to guide annual CHNSR JPE calculations using 		<p>RST data for the Sacramento River valley.</p> <ul style="list-style-type: none"> • DWR and FlowWest hosted an RST efficiency test workshop attended by all CDFW Stream Teams and supported the JPE modeler in a basin-wide Bayesian analysis of RST efficiency and abundance estimates. • The DMT drafted a JPE Data Management Strategy, posted at: https://water.ca.gov/Programs/State-Water-Project/Endangered-Species-Protection. <ul style="list-style-type: none"> ○ The plan outlines a valley-wide spring-run data management system that includes field-to-cloud data entry to a private cloud database with automated data quality control, a data entry system for genetic data that links genetics analysis and field data, regular automated transfer of updated data to a public-facing data repository hosted by EDI to assist valley-wide synthesis projects such as life cycle modeling, automated links to existing decision support websites such as SacPAS, and will eventually support automated JPE

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	<p>current methods of visibly marking trap captured and hatchery sourced fish including late fall-run and fall-run Chinook salmon. Studies should also include developing trap efficiency models using the paired acoustic tagged (AT)-coded-wire tagged (CWT) releases from Livingston Stone National Fish Hatchery (NFH), Colman NFH, and Feather River Hatchery.</p> <ul style="list-style-type: none"> • A list of the entities that shall receive funding from Permittee to implement required monitoring programs. <p>This list of required monitoring may be modified in the final monitoring plan if approved by CDFW. Permittee shall work collaboratively with the Spring-run JPE Team members to incorporate edits and comments on the draft Spring-run JPE Monitoring Plan while preparing the final plan. After the final Spring-run JPE Monitoring Plan is approved in writing by CDFW, Permittee shall fund and implement required monitoring beginning the calendar year after the effective date of this ITP, according to the timelines specified in the CDFW-approved plan. At a minimum, Permittee shall convene the Spring-run JPE Team quarterly every year following initiation of the final monitoring plan to:</p> <ul style="list-style-type: none"> • Review data obtained from new and ongoing monitoring programs, 		<p>calculation and within season JPE updates if adopted.</p> <ul style="list-style-type: none"> ○ Completed components of the Strategy to date include building and field testing of the prototype field-to-cloud data entry system, establishment of contract and initiation of the build for the private cloud database and the genetic lab-to-cloud data entry system. ○ The DMT drafted template Data Management Plans specific for each spring-run RST monitoring program in the valley to ensure data from all programs are inter-compatible, and the DMT is currently meeting with Stream Teams to refine these documents. <p>Quantitative Modeling Team:</p> <ul style="list-style-type: none"> • The Modeling Advisory Team (MAT) began meeting monthly with the modeler, Josh Korman (Ecometric Research and University of British Columbia), to guide and review modeling progress. The modeler met frequently with FlowWest to develop the necessary metadata for modeling. The modeler conducted a Sacramento Valley-wide analysis of RST efficiency

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	<ul style="list-style-type: none"> • Review methods used to implement monitoring and recommend adjustments as they deem appropriate, • Formulate an approach to calculating a CHNSR JPE, including the following elements: <ul style="list-style-type: none"> ○ Total in-river escapement, ○ Adult female estimate, ○ Adult female estimate minus pre-spawn mortality, ○ Average fecundity, ○ Total viable eggs, ○ Estimated egg-to-fry survival based on Juvenile Production Index (JPI) at ongoing and new monitoring stations/total viable eggs, ○ Fry equivalents of juvenile production, ○ Fry-to-smolt survival estimates, ○ Number of smolts, and ○ Upper river to Delta survival. • Request additional monitoring if it is deemed necessary to complete a CHNSR JPE within five years of the effective date of this ITP, • Recommend approaches to using the CHNSR JPE and monitoring results as operational criteria to minimize take of CHNSR as a result of Project operations, including operations at the south Delta export facilities, and 		<p>tests and associated juvenile outmigrant abundance estimates for each RST, which will serve as the primary variable used to fit the JPE models. The modeler is currently drafting a report describing this work prior to building out the full models.</p> <ul style="list-style-type: none"> • The modeler is working with the Guidance Team to draft a JPE Modeling Roadmap to clearly define modeling milestones and timelines to ensure the JPE model stages support planned Structure Decision-Making analyses leading to recommendation of a JPE modeling and monitoring approach for implementation in 2025. <p>Run Identification Team:</p> <ul style="list-style-type: none"> • DWR established a new genetics lab which will begin producing and distributing rapid genetic testing kits to monitoring programs in 2023 on a test basis, and in 2024 on a regular basis. • DWR assembled and provided biweekly sampling kits to all Sacramento Valley spring-run RST monitoring programs throughout the WY 2022 season. Samples were processed at CDFW genetics lab.

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	<ul style="list-style-type: none"> Evaluate the need to revise and update the plan to incorporate genetic testing of CHNSR when it becomes available. <p>Permittee shall make all raw data acquired as a part of the monitoring program available to members of the Spring-run JPE Team within ten days of a request.</p> <p>Within four years of the effective date of this ITP, and in collaboration with the Spring-run JPE Team, Permittee shall review data collected over the past four years and prepare a draft plan that describes the approach to calculating a CHNSR JPE and long-term monitoring needed to collect the data to calculate a CHNSR JPE annually. Permittee shall submit the draft plan to the Spring-Run JPE Team for review and work collaboratively with team members to incorporate their comments into the final draft. Permittee shall submit the final plan to CDFW for approval no more than four years and six months after the effective date of this ITP to ensure that annual calculation of a CHNSR JPE is initiated within five years of the effective date of this ITP. After the final draft Spring-run JPE Plan is approved by CDFW, Permittee shall convene the Spring-run JPE Team annually to provide an annual JPE estimate for CDFW, Reclamation, USFWS, and NMFS and share all data obtained through long-term monitoring programs.</p>		<ul style="list-style-type: none"> To determine health impacts of swab and fin clip sampling on very small juvenile salmon, DWR planned and began implementation of a field experiment. The Run ID Team updated the Run ID plan based on lessons from the first year of the program. Noble Hendrix (QEDA Consulting and University of Washington, Seattle) built draft location specific PLAD models, which will be parameterized upon receipt of the WY2022 genetic test results from the CDFW genetics lab, and then used to guide more targeted sampling of genetic tissue across specific size ranges and sampling locations. DWR conducted on-site genetic sampling observation and training for programs across the valley. <p><u>Challenges and Successes</u></p> <p>By far the two greatest challenges that were overcome over the past year of implementation have been (1) curating a comprehensive spring-run database and ensuring all historical and future data are compatible across programs, and (2) beginning the process of evaluating existing monitoring programs based on initial</p>

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			<p>modeling results, which indicate some specific monitoring may not yield satisfactory juvenile abundance estimates for the purpose of fitting JPE model parameters (i.e., JPE estimates without meaninglessly large confidence intervals).</p> <p>The first challenge, data curation and compatibility, is being overcome through communication and collaboration between the JPE data management system team, JPE modelers, and data generators including CDFW Region 1 and Region 2 management and staff, but also USFWS, DWR Feather River, and Yuba Water Agency management and staff. This collaboration has produced a clear written strategy that outlines the necessary modifications of existing data management practices that will occur to ensure data compatibility and timely communication of data across monitoring programs. To ensure cross-program support of the strategy, the data management strategy was initially drafted and shared with data generators for comment and editing, and presentations outlining and vetting the strategy were made at meetings with data generators. Data generators provided edits and comments that were incorporated into the final shared strategy.</p>

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			<p>In addition to the over-arching data management strategy, the JPE data management team and each monitoring team worked together to draft detailed data management plans specific to every monitoring program element (e.g., Butte Creek RST, Battle Creek carcass survey, Butte Creek adult holding survey). These plans identify a data steward, data format, and the process for uploading data to the JPE database. Data management plans for all RST monitoring locations are completed, while plans for other life stage monitoring are still in progress.</p> <p>The process of communication between JPE data management team, modelers, and data generators also helped identify data that had been previously unidentified during the initial data curation process. For example, modeling of juvenile abundance based on rotary screw trap data was performed. The results of this modeling effort were shared with data generators on four occasions in four separate venues to allow feedback. In addition, a draft report describing the model and its output was distributed for comment. This process revealed that a substantial volume of data had not been obtained during the initial data curation effort. While DWR and its contractors cannot ensure that all data has been obtained, with continued</p>

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			<p>outreach, we expect the majority of data will be curated. We expect the second challenge, evaluation of monitoring programs and determination of monitoring improvements to support more accurate and precise model output (e.g., estimates of juvenile abundances passing RST locations), will similarly require consistent communication and collaboration to achieve stakeholder agreement on any recommendations or plans for modifying monitoring. The results of initial modeling indicated some monitoring stations may not support parameterization of JPE models. Presentation of these results in multiple venues and sharing of the written report with data generators (including CDFW Region 1 and 2 management and staff) resulted in both the identification of unobtained data, and a dialog between the modeler and data generators regarding possible alternative modeling approaches and monitoring approaches. Ultimately, with further model development and dialog, participants in the spring-run JPE program anticipate a collaborative process for evaluating current monitoring objectives (not just for the JPE), and the ability of current monitoring practices to meet those objectives, will lead to broadly supported recommendations for improvement to monitoring programs.</p>

Condition	Mitigation Measure	Implementation Schedule	Status/Date/Initials
7.5.3	<p data-bbox="380 574 1104 792"><u>Winter- and Spring-run Chinook Salmon Science Requirements</u>. Permittee shall initiate, fund, and implement new science to continue to build knowledge of CHNWR and CHNSR ecology and the status of the ESUs. Permittee shall fund and implement the following scientific studies:</p> <ul data-bbox="422 808 1104 1425" style="list-style-type: none"> <li data-bbox="422 808 1104 1166">• Pathology Monitoring: Within two years of the effective date of this ITP Permittee shall fund and initiate monitoring to provide information on the source and magnitude of CHNSR loss prior to Delta entry including in-season studies in the Sacramento and Feather Rivers and Delta. Disease has been well documented to be present in the Central Valley and to dramatically reduce production via reduction in adult spawners and egg and juvenile mortality. <li data-bbox="422 1182 1104 1425">• Salmon Rearing Habitat in the Bay-Delta: To inform salmonid impact assessments and restoration activities, the Permittee shall fund research activities to investigate juvenile salmonid habitat use in the Delta, Cache Slough, and Suisun Marsh, and subsequently conduct habitat occupancy modeling 	Throughout the term of the ITP.	<p data-bbox="1409 277 2053 565">Toward this end, CDFW and DWR collaboratively drafted and approved an amendment to the spring-run JPE monitoring contract recently to outline annual workshops between data generators and key data users for the purpose of evaluating and improving the effectiveness of monitoring at supporting those uses.</p> <p data-bbox="1409 581 2053 683">Pathology Monitoring: DWR and CDFW agreed upon a plan to satisfy the initial year of Pathology Monitoring.</p> <ul data-bbox="1444 699 2053 1398" style="list-style-type: none"> <li data-bbox="1444 699 2053 1057">• In 2022, conduct a modeling synthesis of <i>C. shasta</i> infection dynamics and population impacts on the Feather River using historical data and new data from ongoing drought-funding supported field and lab work. DWR contracted Miles Daniels (UCSC/NOAA SWFSC) to lead the synthesis modeling effort from July 2022 through June 2024. <li data-bbox="1444 1073 2053 1398">• In 2023, DWR and CDFW agreed to an updated process for planning pathogen science, which was reflected in an amendment to the DWR-CDFW contract for ITP related salmon monitoring (contract currently submitted for contract services review). The updated science planning process includes initiating a structured

Condition	Mitigation Measure	Implementation Schedule	Status/Date/Initials
	<p>beginning no later than three years after the effective date of this ITP. This work shall build upon ongoing work funded by the Delta Conservancy (Identifying Suitable Rearing Habitat for Chinook Salmon in the Sacramento-San Joaquin Delta) and Permittee (Juvenile salmon distribution, abundance, and growth in restored and relict Delta marsh habitats). Data collected through this research will also inform ongoing CHNWR lifecycle modeling and the development of a new CHNSR lifecycle model.</p> <ul style="list-style-type: none"> • Spring-run Chinook Life Cycle Model: Beginning five years after the effective date of this ITP Permittee shall fully fund and support the development of a life cycle model for CHNSR. This life cycle model shall be developed and informed by ongoing and new monitoring described in this ITP, along with other available science. • Winter-run Chinook entrainment prediction tool: Within thirty dates of the effective date of this ITP Permittee and CDFW will convene a technical team to develop a model focused on predicting Chinook salmon entrainment events at the SWP and CVP salvage facilities. Within one year of the effective date of this ITP a CDFW- approved model developed as a part of this technical team shall be provided to Salmon Monitoring Team staff to use as a part of real-time risk assessments alongside other 		<p>decision-making process to define multi-agency management objectives for pathogen science, which will then be used to guide collaborative development of an interagency coordinated science and action plan to achieve those objectives. A draft science plan is anticipated in June 2023, followed by an adaptive management framework later in the year. The plan and framework will be updated annually based on outcomes of prior year’s activities.</p> <p>Salmon Rearing Habitat in the Bay-Delta: DWR is required to initiate this habitat use research by March 31, 2023. DWR initiated broader discussion with CDFW and other stakeholders to consider proposals to fulfill this ITP requirement beginning in May 2022. No decision has been reached to date and discussion is ongoing.</p> <p>Spring-run Chinook Life Cycle Model (LCM):</p> <ul style="list-style-type: none"> • Although this requirement is not required to be initiated until 2025, DWR contracted Flora Cordoleani (UC Santa Cruz/NMFS) in calendar years 2021 and 2022 to serve on the JPE Core Team to ensure JPE development decisions support future

Condition	Mitigation Measure	Implementation Schedule	Status/Date/Initials
	<p data-bbox="447 277 1010 342">tools described in Condition of Approval 8.1.5.1.</p> <p data-bbox="380 391 1087 565">Permittee shall work collaboratively with members of the Spring-run JPE Team to review study plans, data, and reports associated with both studies. All final reports documenting the results of these studies shall be subject to CDFW approval.</p>		<p data-bbox="1488 277 2039 375">development and refinement of a spring-run LCM. DWR is renewing this contract for 2023 and 2024.</p> <ul data-bbox="1442 399 2039 610" style="list-style-type: none"> <li data-bbox="1442 399 2039 610">• In January 2023, the JPE Core Team plans to shift focus from the JPE and use Structured Decision-Making to guide plans for LCM development. Flora Cordoleani will take a lead role in this process. <p data-bbox="1409 667 2007 732">Winter-run Chinook entrainment prediction tool:</p> <ul data-bbox="1442 756 2039 1377" style="list-style-type: none"> <li data-bbox="1442 756 2039 1073">• DWR contracted ICF Fisheries to construct an entrainment prediction tool which was completed in April 2021, thus fulfilling this ITP requirement. This tool is most effective after initial detection of winter-run at salvage and helps predict expected subsequent salvage for different water ops management scenarios. <li data-bbox="1442 1097 2039 1377">• IEP is currently leading a follow-up multi-agency effort (DWR participating) to develop a complimentary entrainment prediction tool that will provide probability of initial entrainment for a given set of environmental conditions and water management scenarios.

Condition	Mitigation Measure	Implementation Schedule	Status/Date/Initials
7.6.1	<p><u>Longfin Smelt December Larval Surveys</u>. Permittee shall fully fund at least one additional SLS survey and associated sampling and processing costs to be implemented by CDFW staff between December 1 and January 31, annually. The timing of additional SLS surveys shall be determined each year by CDFW Smelt Monitoring Team staff based on observations of LFS in the Chipps Island Trawl beginning on November 1. The additional surveys requested by CDFW Smelt Monitoring Team staff shall use the same sampling methodology as the SLS, however they shall be restricted in spatial</p>	Throughout the term of the ITP.	<p><u>Challenges and Successes</u> COA 7.5.3 contains arguably the most non-specific requirements in the ITP. As such, the greatest challenge so far has been establishing stakeholder agreement on the most appropriate and pressing course of actions to fulfill these requirements. Besides the winter-run modeling requirement, which was completed in 2022, most work done for COA7.5.3 has involved engaging stakeholders and experts to support planning. Going forward, a shared understanding of science and management objectives based on a synthesis of current scientific understanding, and agreement on clear written plans for COA 7.5.3, will continue to be critical to producing science information that informs successful management actions for salmon.</p> <p>This condition was incorporated into the Longfin Smelt Science Plan and submitted to CDFW as a 2020 ITP deliverable, demonstrating DWR’s commitment to fund up to two additional SLS sampling events in December each year, at the request of the Smelt Monitoring Team. Two SLS surveys in the south and central Delta were implemented in December 2020, and two full SLS surveys (including the Napa River, Delta, and Suisun) were implemented in December 2021. December surveys were</p>

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7.6.2	<p data-bbox="380 277 1089 383">extent to the following central and south Delta stations: 809, 812, 815, 901, 902, 906, 910, 912, 914, 915, 918, 919.</p> <p data-bbox="380 542 1089 1157"><u>Larval Smelt Entrainment Monitoring.</u> Permittee shall fund and implement a new Smelt Larval Entrainment Program to quantify larval DS and LFS entrainment into CCF. Within ninety days of the effective date of this ITP Permittee shall convene a meeting of CDFW, DWR, USFWS, and Reclamation Smelt Monitoring Team staff to begin planning larval smelt monitoring protocol to fulfill this Condition of Approval. Smelt Monitoring Team staff shall evaluate options to conduct additional larval surveys within CCF and immediately outside CCF to better quantify larval entrainment into CCF. Permittee shall prepare and submit a draft monitoring plan to support a test pilot of the Smelt Larval Entrainment Program to participating Smelt Monitoring Team members for review and comment.</p> <p data-bbox="380 1211 1089 1424">Permittee shall work collaboratively with Smelt Monitoring Team members to incorporate their edits and feedback into the monitoring plan and pilot program. Permittee shall implement the pilot program within two years of the effective date of this ITP. Permittee shall provide raw data from the</p>	Within ninety days of the effective date of this ITP.	<p data-bbox="1409 277 2053 526">expanded from the language of 7.6.1 to meet the improved distribution monitoring component in the Longfin Smelt Science Plan (7.6.3). For December 2022 sampling, SLS will sample the above areas plus San Pablo Bay to further meet the needs identified in 7.6.3.</p> <p data-bbox="1409 542 2053 938">A pilot larval smelt entrainment monitoring plan was conducted in West Canal outside the Clifton Court radial gates from January to May 2022. DWR supported DFW to implement the trawling components of this plan, as well as sample processing requirements. The results of this pilot sampling informed the design of the 2023 larval smelt entrainment monitoring plan, which is currently under review for inclusion in the IEP workplan.</p> <p data-bbox="1409 997 2053 1321">Additionally, DWR and DFW conducted experiments in the spring/summer of 2022 to evaluate a suite of candidate sample preservatives for larval fish samples, with the goal of allowing for both genetic and morphological identification (currently genetic analysis is precluded by the use of formalin). Results of this study will be published in 2023.</p>

Condition	Mitigation Measure	Implementation Schedule	Status/Date/Initials
7.6.3	<p data-bbox="380 277 1083 565">pilot program to CDFW and work collaboratively with the Smelt Monitoring Team members to use new information from the pilot program to develop a final monitoring plan within three years of the effective date of this ITP. Permittee shall fund and implement the final CDFW-approved monitoring plan and provide data to the Smelt Monitoring Team after each survey.</p> <p data-bbox="380 613 1083 1122"><u>Longfin Smelt Science Program Priorities.</u> Permittee shall convene a meeting of the Longfin Smelt Science Program within 120 days of the effective date of this ITP. The Longfin Smelt Science Program shall include experts from CDFW, DWR, USFWS, and SWP Contractors. Permittee shall prepare a draft Longfin Smelt Science Program research plan in collaboration with the science program members that describes new LFS science needed to improve the understanding of LFS ecology and impacts as a result of SWP and CVP operations prior to December 1, 2020. The plan shall include, but not be limited to, the following science priorities:</p> <ul data-bbox="422 1138 1083 1425" style="list-style-type: none"> <li data-bbox="422 1138 1083 1235">• A schedule for implementation including deadlines for draft and final reports for each study required. <li data-bbox="422 1252 1083 1382">• Develop a mathematical life cycle model for LFS, verified with field data collection, as a quantitative tool to characterize the effects of abiotic and biotic factors on LFS populations. <li data-bbox="422 1398 1083 1425">• New and ongoing monitoring that: 	Within 120 days of the effective date of this ITP.	<p data-bbox="1409 277 2053 602">Additionally, DWR is leading the development of eDNA tools that will be used in conjunction with the DFW trawl sampling as part of the pilot monitoring plan. DWR staff will conduct a series of eDNA field experiments in the spring of 2023 to help develop eDNA sampling methods for use in conjunction with standard net tows for quantifying larval smelt entrainment.</p> <p data-bbox="1409 618 2053 862">The Longfin Smelt Science Plan (LFSSP) was submitted to CDFW on November 25, 2020, and approved by CDFW on December 8, 2020, as a major milestone in fulfilling Condition 7.6.3. Of the seven science priorities outlined in the LFSSP, progress was made in 2022 on five priorities.</p> <ul data-bbox="1440 878 2053 1398" style="list-style-type: none"> <li data-bbox="1440 878 2053 976">• See update for 7.6.2 for details on the larval smelt entrainment monitoring element (also listed in the LFSSP). <li data-bbox="1440 992 2053 1398">• In 2021, DWR executed a contract with UC Davis to support LFS culture and broodstock collection. This 3-year contract is for \$3.9 million and will fund the creation of new recirculation tanks and other infrastructure at UCD's Putah Creek facility, continued broodstock collection efforts, and experiments to further refine culture and husbandry methods, with the aim of completing the lifecycle in captivity.

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	<ul style="list-style-type: none"> ○ Applies equal effort throughout the known spawning and rearing distribution spanning the Delta, Suisun Marsh, Suisun Bay, Napa-Sonoma Marsh and Alviso Marsh in South Bay. ○ Characterizes the distribution and abundance of adult, larvae and juvenile life stages. ○ Facilitates estimates of survival probabilities among life stages. ○ Characterizes changes in abundance and distribution of life stages across a range of hydrologic conditions, including different water year types. ○ Considers revisions to existing IEP monitoring programs to expand the spatial distribution of LFS sampling. ○ Factors that influence LFS population abundance, distribution, and catchability, including vertical migration behavior, water transparency, and other factors that support growth and survival. ● Complete LFS lifecycle in captivity at the FCCL. ● Characterize LFS spawning substrate and spawning microhabitat requirements. ● Improve understanding of LFS spawning substrate distribution in the Delta, Cache Slough, and Suisun Marsh. ● Improve understanding of adult migration behavior and review the current conceptual 		<ul style="list-style-type: none"> ● DWR executed a contract to support DFW expanding SLS monitoring into San Pablo Bay per the Improved Distribution Monitoring priority area in the LFSSP. See update for 7.6.1 for details on expanded monitoring for winter and spring 2023. ● DWR is in the process of executing a contract with USFWS to support the creation of a LFS life cycle model. This agreement is anticipated to be executed early in 2023. ● The Longfin Smelt Tech Team is in the process of identifying hypotheses and refining conceptual models to aid in the scoping of the LFS migration and movements priority item. Later in 2023, this process will lead to the funding of one or more special studies to fill in knowledge gaps identified in the conceptual modeling exercise.

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	<p>model that assumes adult staging is followed by rapid migration into lower salinity water and spawning soon thereafter.</p> <ul style="list-style-type: none"> • Improve the understanding of juvenile LFS outmigration behavior and transport mechanisms for out-migrating fish, as it related to the potential for miscuing resulting in increased entrainment at the south Delta facilities. <p>Permittee shall work collaboratively with the science program members to incorporate edits and comments on the draft Longfin Smelt Science Plan while preparing the final plan. After the final Longfin Smelt Science Plan is approved in writing by CDFW, Permittee shall fund and implement required monitoring and science according to the timelines specified in the final plan. At a minimum, Permittee shall convene the Longfin Smelt Science Program quarterly every year following initiation of the final Longfin Smelt Science Plan to:</p> <ul style="list-style-type: none"> • Review data obtained from new and ongoing monitoring programs. • Review methods used to implement monitoring and recommend adjustments as they deem appropriate. • Review draft results from new and ongoing science. <p>Permittee shall make all raw data and modeling acquired as a part of the Longfin Smelt Science</p>		

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7.6.4	<p>Plan available to members of the Longfin Smelt Science Plan within ten days of a request.</p> <p><u>Science to Improve Understanding of Delta Smelt Habitat in the Summer and Fall</u>. There is a need for additional science to further investigate the spatial and temporal distribution of abiotic and biotic factors influencing DS habitat and survival during the summer-fall time period. To study habitat effects on DS survival, Permittee shall work collaboratively with CDFW and the Delta Coordination Group (Condition of Approval 9.1.3.1) to develop and conduct studies during implementation of the Summer-Fall Action Plan, including deployment of the Additional 100 TAF block of water (Condition of Approval 8.19) when it is available as described in the Delta Outflow Operations Plan (Condition of Approval 8.20). The Additional 100 TAF could be deferred in above normal or wet years and redeployed to operate the SMSCG in the summers of dry years, or supplement spring- summer outflow in below-normal years to provide DS habitat and improve DS survival during this critical portion of their life history (Condition of Approval 8.19). The benefits associated with the Additional 100 TAF block of water shall be evaluated in conjunction with new monitoring in Grizzly Bay (Condition of Approval 9.1.3.3) to better quantify changes in salinity associated with SMSCG operations. This new science shall also facilitate testing and evaluating</p>	Throughout the term of the ITP.	<p>Because WY 2022 was critically dry, no summer-fall habitat action was implemented; however, DWR has continued to work collaboratively with CDFW and the Delta Coordination Group (DCG) to develop monitoring and focused studies for implementation of future Summer-Fall Habitat actions.</p> <p>Activities in 2022 included:</p> <ul style="list-style-type: none"> • Updates to the multi-year Summer-Fall Habitat Action Monitoring and Science Plan (March 2022). Updates included the status of actions and identified future science needs to improve information for structured decision making (SDM) performance measures and/or better understanding of current and proposed management actions. • Baseline monitoring data was collected in Suisun Marsh, Grizzly Bay, Suisun Bay, and the North Delta to describe conditions in a non-action year (June – October 2022). This included water quality, phytoplankton, and zooplankton sampling. Some monitoring measures were reduced

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	<p>components of the Delta Smelt Resiliency Strategy by studying outflow effects on DS habitat.</p>		<p>because of sampling limitations in a critical year.</p> <ul style="list-style-type: none"> • Hydrodynamic, DS growth, habitat suitability, and zooplankton availability models were all improved for various combinations of Summer-Fall actions to support SDM. • DWR completed a focused synthesis study evaluating previous summer and fall flow pulses through the Yolo bypass to better quantify potential benefits of the North Delta Food Subsidy Action and inform adaptive management of action alternatives and the DCG SDM process. • DWR contracted UCD to study the effects of varied wetland management strategies in Suisun Marsh, a proposed experimental food enhancement action. • DWR, CDFW, USGS, USBR began a focused pilot study aimed to characterize isotopic landscape in the North Delta. If results are promising, the study will proceed to deployment of DS enclosures during North Delta Food Subsidy actions to describe transport of food and efficacy of the action.

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7.7	<p><u>Barker Slough Pumping Plant Sediment and Aquatic Weed Removal</u>. If Permittee seeks to conduct aquatic weed or sediment removal in the vicinity of the BSPP when water temperatures are likely to be less than 25°C, Permittee shall coordinate with CDFW at least seven days prior to initiating the aquatic weed or sediment removal. Permittee shall provide a written description of the planned aquatic weed or sediment removal activities to CDFW including a description of whether activities are planned outside the embayment and the floating booms as shown in Figure 1 in the Project Description. <i>If a DS or LFS has been observed at station 716 in the most recent SLS or 20mm survey, then the</i> Permittee shall ensure that a Designated Biologist is onsite before, during, and after the planned activities to assess the potential for take of DS or LFS that would not otherwise occur as a result of Project operations and permitted diversions at the BSPP.</p> <p>Note: Amended language in <i>bold italics</i>.</p>	Throughout the term of the ITP.	<p>DWR provided advanced notification of all scheduled weed removal activities and provided monthly summary reports to CDFW. All weed removal activities occurred immediately in front of the fish screens with a biological monitor present during each weed removal event. Environmental DNA (eDNA) samples were planned to be collected from the vegetation drain water from January 19, 2022, through June 30, 2022. However, eDNA samples were not collected due to a lack of vegetation present required to meet the collection threshold of 60 gallons. The overall purpose of eDNA monitoring was a proof of concept in which the results would be used to help inform discussions of using eDNA sampling in lieu of a biological monitor, if approved by CDFW.</p> <p>In August 2022, ITP Section 7.7 was amended. This amendment stated if a DS or LFS has been observed at station 716 in the most recent SLS or 20mm survey, then a Designated Biologist will be required onsite before, during, and after the planned activities to assess the potential for take of DS or LFS that would not otherwise occur because of Project operations and permitted diversions at the BSPP. Following this amendment, DWR continued to provide</p>

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			advanced notification of scheduled removal activities; however, monthly reports were no longer provided to CDFW as no DS or LFS were observed at Station 716. In addition, eDNA samples no longer need to be collected following the amendment.
			No DS or LFS were identified during BSPP weed removal and no sediment removal activities occurred during the reporting period.
7.8	<u>Data Accessibility</u> . Permittee shall provide CDFW with access to all raw data and associated analyses and reports for all monitoring required in Condition of Approval 7 of this ITP and described in the Project Description within 60 days of collection of data or completion of analyses and reports, and otherwise upon request.	Throughout the term of the ITP.	Data management and accessibility have been addressed in each of the deliverables developed as part of compliance with Condition 7 during the water year.
8.1	<u>Real-time Operations, Monitoring, and Technical Teams</u> . Permittee shall monitor and manage Project operations in response to risk assessments conducted by collaborative real-time operations monitoring teams that include representatives from CDFW, DWR, USFWS, NMFS, SWRCB and Reclamation.	Throughout the term of the ITP.	All required teams and risk assessments have been convened and functioning since the completion of the ITP. DWR's progress towards complying with Condition 8.1 during WY 2022 is described below.
8.1.1	<u>Smelt Monitoring Team</u> . The purpose of the Smelt Monitoring Team is to meet weekly beginning November 1 and throughout the OMR management season and implementation of the	Throughout the term of the ITP.	The SMT met throughout the WY 2022 entrainment season and provided advice to WOMT based on the guidance and triggers laid out in the ITP and BiOp. SMT discussion was documented in the

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	<p>Summer-Fall Action, or more often as needed, to consider and discuss:</p> <ul style="list-style-type: none"> • The status of DS and LFS; • DS and LFS survey and salvage data at the SWP and CVP facilities; • Delta hydrology; • Other pertinent biotic or abiotic factors; • Exposure of DS and LFS to impacts associated with the operation of the CVP and SWP; • DS and LFS sensitivity to changes in behaviors of sheltering, foraging, and migration; • Results from the CDFW-approved DS life cycle model; and • The need to implement changes in operations as described in Conditions of Approval 8.3.1, 8.3.3, 8.4.1, 8.4.2, 8.5.1, 8.5.2, 8.17, 8.18, 8.19, 8.20, 9.1.3.1 and 9.1.3.2 <p>The Smelt Monitoring Team shall include representatives from CDFW, USFWS, NMFS, DWR, SWRCB, and Reclamation. To further advance collaboration, upon convening, the Smelt Monitoring Team may invite, one other expert in fish biology, hydrology, or operations of the SWP and CVP each from the SWP Contractors and an NGO to participate in specific meetings of the Smelt Monitoring Team and assist with their discussion and analyses.</p> <p>Permittee shall:</p> <ul style="list-style-type: none"> • Convene the first meeting of the Smelt Monitoring Team within three days of the 		<p>Reclamation assessment, SMT notes, and ITP SMT Risk Assessment. Risk Assessments were posted to the CDFW Water Branch web page beginning in WY 2021. SMT notes are posted to the USBR Bay-Delta Office website beginning in WY 2020 (link below).</p> <p>For a complete summary and assessment of these activities and WY 2022 OMR management actions for DS and LFS, refer to Water Year 2022 Seasonal Report for Old and Middle River Flow Management. The report was prepared in August 2022 with U.S. Bureau of Reclamation, in coordination with U.S. Fish and Wildlife Service, the National Marine Fisheries Service, and the California Department of Fish and Wildlife.</p> <p>SMT Meeting Notes: Smelt Monitoring Team Water Operations and Watershed Monitoring Technical Teams Projects, Activities, Documents BDO Area Offices California-Great Basin Bureau of Reclamation (usbr.gov).</p>

Condition	Mitigation Measure	Implementation Schedule	Status/Date/Initials
	<p>effective date of this ITP and weekly thereafter. In each year, Permittee shall convene the Smelt Monitoring Team meeting weekly, beginning no later than October 4 November 1 each year, throughout the time frame when Conditions of Approval 8.3.1, 8.3.3, 8.4.1, 8.4.2, 8.5.1, 8.5.2, 8.7, 8.8, 8.17, 8.18, 8.19, 8.20, and 9.1.3.1 may be initiated, control operations, or off-ramp.</p> <ul style="list-style-type: none"> • Distribute a meeting agenda, with relevant documents and analyses to be discussed (as applicable), to team members at least two working days prior to each Smelt Monitoring Team meeting. • Record and distribute regular meeting notes within two working days of each Smelt Monitoring Team meeting to team members for review. Incorporate member comments and post final notes on a publicly available website. • Provide an annual written report to CDFW no later than October 1 following the salvage season of approximately October through June. This report shall include a summary of major actions taken during the year to implement Conditions of Approval 8.3.1, 8.3.3, 8.4.1, 8.4.2, 8.5.1, 8.5.2, 8.7 and 8.8, an evaluation of their effectiveness, and recommendations for future actions. • Call for a special meeting of the Smelt Monitoring Team outside the regular weekly schedule, upon request from CDFW or any other Smelt Monitoring Team member. Such 		

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8.1.2	<p>meetings shall be scheduled within one working day of receiving a request, and shall be held in a timeframe responsive to the issue(s) warranting the meeting.</p> <p>The Smelt Monitoring Team shall:</p> <ul style="list-style-type: none"> • Provide advice for real-time management of operations to Permittee, CDFW, and WOMT consistent with the Project Description, Conditions of Approval in this ITP, and the applicable ESA authorizations, within one working day of each Smelt Monitoring Team meeting. • Meet weekly, or more often as needed, to consider and discuss survey data, salvage data, and other pertinent biotic and abiotic factors and conduct risk assessments (Condition of Approval 8.5.1.2). <p>Note: Amended language in <i>bold italics</i>; deleted language in strike through.</p> <p><u>Salmon Monitoring Team</u>. The purpose of the Salmon Monitoring Team is to meet weekly to consider and discuss survey data, salvage data, and other pertinent biotic and abiotic factors as described in Conditions of Approval 8.6.1, 8.6.2, 8.6.3, 8.6.4, and 8.7. The Salmon Monitoring Team shall include representatives from CDFW, USFWS, NMFS, DWR, SWRCB, and Reclamation. To further advance collaboration, upon convening, the Salmon Monitoring Team may invite one other</p>	Throughout the term of the ITP.	<p>The Salmon Monitoring Team (SaMT) met from October to June in WY 2022 in accordance with the terms of the ITP and provided advice to WOMT based on the guidance and triggers laid out in the ITP and BiOp.</p> <p>SaMT discussion was documented in the Reclamation assessment, and SaMT notes</p>

Condition	Mitigation Measure	Implementation Schedule	Status/Date/Initials
	<p>expert in fish biology, hydrology, or operations of the SWP and CVP each from the SWP Contractors and an NGO to participate in specific meetings of the Salmon Monitoring Team and assist with their discussion and analyses.</p> <p>Permittee shall:</p> <ul style="list-style-type: none"> • Convene the first meeting of the Salmon Monitoring Team within three days of the effective date of this ITP and weekly thereafter. In each year, Permittee shall convene the Smelt Monitoring Team meeting weekly, beginning no later than October 1 each year, throughout the time frame when Conditions of Approval 8.3.1, 8.3.2, 8.3.3, 8.6.1, 8.6.2, 8.6.3, 8.6.4, 8.7, and 8.8 may be initiated, control operations, or off-ramp. • Distribute a meeting agenda, with relevant documents and analyses to be discussed (as applicable), to team members at least two working days prior to each Salmon Monitoring Team meeting. • Record and distribute regular meeting notes within two working days of each Salmon Monitoring Team meeting to team members for review. Meeting notes shall include issues considered, recommendations made, key information on which recommendations were based, and incorporate member comments. Final notes shall be posted on a publicly available website. 		<p>(link below). Risk Assessments were posted to the CDFW Water Branch web page beginning in WY 2021.</p> <p>For a complete summary and assessment of these activities, including discussion of effectiveness and WY 2022 OMR management actions for salmon, please refer to Water Year 2022 Seasonal Report for Old and Middle River Flow Management for all details.</p> <p>SaMT Notes: Salmon Monitoring Team Water Operations and Watershed Monitoring Technical Team BDO Area Offices California-Great Basin Bureau of Reclamation (usbr.gov).</p>

Condition	Mitigation Measure	Implementation Schedule	Status/Date/Initials
	<ul style="list-style-type: none"> • Provide an annual written report to CDFW no later than October 1 following the salvage season of approximately October through June. This report shall include a summary of major actions taken during the year to implement Conditions of Approval 8.3.1, 8.3.2, 8.3.3, 8.6.1, 8.6.2, 8.6.3, 8.6.4, 8.7, and 8.8, an evaluation of their effectiveness, and recommendations for future actions. • Call for a special meeting of the Salmon Monitoring Team outside the regular weekly schedule, upon request from CDFW or any other Salmon Monitoring Team member. Such meetings shall be scheduled within one working day of receiving a request, and shall be held in a timeframe responsive to the issue(s) warranting the meeting. <p>The Salmon Monitoring Team shall:</p> <ul style="list-style-type: none"> • Provide advice for real-time management of operations to Permittee, CDFW, and WOMT consistent with the Project Description, Conditions of Approval in this ITP, and the applicable ESA authorizations, within one working day of each Salmon Monitoring Team meeting. • Review Project operations in the Delta and the data collected from ongoing monitoring programs annually. • Meet weekly, or more often as needed, to conduct a risk assessment (Condition of 		

Condition	Mitigation Measure	Implementation Schedule	Status/Date/Initials
8.1.3	<p>Approval 8.1.5.1) and consider and discuss survey data, salvage data, and other pertinent biotic and abiotic factors.</p> <ul style="list-style-type: none"> • Estimate the percentage of CHNWR and young-of-year CHNSR that are currently 1) upstream of the Delta, 2) in the Delta, or 3) exited the Delta past Chipps Island. • Estimate the risk of entrainment in to the central Delta and the SWP and CVP export facilities and identify factors that influence the entrainment risks such as percent of the population in the Delta, Delta Cross Channel (DCC) gate operations, Sacramento River and San Joaquin River flows and a range of possible OMR flows. <p>As required by Condition of Approval 8.1.4 conduct a collaborative risk assessment and recommend OMR targets to minimize the risk of exceeding 50% or 75% of the single year loss threshold (Condition of Approval 8.6.1) to the WOMT (Condition of Approval 8.1.3) within one working day of each Salmon Monitoring Team meeting and follow the process outlined in Condition of Approval 8.1.4.</p> <p><u>Water Operations Management Team</u>. Beginning no later than October 1 each year Permittee shall convene the Water Operations Management Team (WOMT) on a weekly basis until the end of OMR management (Condition of Approval 8.8), or the</p>	Throughout the term of the ITP.	<p>WOMT, SaMT, and SMT met during WY 2022 in accordance with terms of the ITP.</p> <p>WOMT notes for WY 2022 are posted to Reclamation’s WOMT web page: Water Operations Management Team Water</p>

Condition	Mitigation Measure	Implementation Schedule	Status/Date/Initials
8.1.4	<p>end of implementation of the Summer-Fall Action (Condition of Approval 9.1.3.2), whichever is later.</p> <p>The WOMT shall be composed of manager-level representatives from Reclamation, DWR, USFWS, NMFS, SWRCB, and CDFW with decision-making authority. This management-level team shall facilitate timely decision-support and decision-making at the appropriate level.</p> <p>The Smelt and Salmon Monitoring Teams shall report weekly updates, operations recommendations, and risk analyses to the WOMT. Each week the WOMT shall review and evaluate these risk assessments and operational recommendations, discuss potential changes to Project operations, and make final determinations for Covered Species minimization needs and water operations. If WOMT representatives do not achieve a consensus regarding final determinations for Covered Species minimization and Project operations, Permittee and CDFW shall prepare written summaries of their operational recommendations to the Directors for discussion and final decision per Condition of Approval 8.1.4 (Collaborative Approach to Real-time Risk Assessment).</p> <p><u>Collaborative Approach to Real-time Risk Assessment</u>. Beginning no later than October 1 (Salmon Monitoring Team) <i>and November 1</i></p>	Throughout the term of the ITP.	<p>Operations and Watershed Monitoring Technical Teams Projects, Activities, Documents BDO Area Offices California-Great Basin Bureau of Reclamation (usbr.gov).</p> <p>The Salmon and Smelt Monitoring Teams met during WY 2022 in accordance with terms of the ITP.</p>

Condition	Mitigation Measure	Implementation Schedule	Status/Date/Initials
	<p><i>(Smelt Monitoring Team)</i> through the end of OMR Management (see Condition of Approval 8.8) the Smelt and Salmon Monitoring Teams shall meet weekly, or more often as required, to consider survey data, salvage data, and other pertinent biotic and abiotic factors and prepare risk assessments as described in Conditions of Approval 8.1.1, 8.1.2, 8.1.5.1 and 8.1.5.2.</p> <p>The Smelt and Salmon Monitoring Teams shall prepare operations advice for the WOMT as required by Conditions of Approval 8.3.1, 8.3.3, 8.4.1, 8.4.2, 8.5.1, 8.5.2, 8.6.1, 8.6.2, 8.6.3, 8.6.4, 8.7, and 8.8, including advice on operations. The Smelt and Salmon Monitoring Teams shall each prepare risk assessments and operations advice. Within each team, staff jointly develop the risk assessment and supporting documentation to accompany operations advice (see Conditions of Approval 8.1.5.1 and 8.1.5.2). DWR and CDFW Smelt and Salmon Monitoring Team staff may conclude different operations advice is warranted, in which case the difference shall be noted and elevated as described in this Condition of Approval.</p> <p>The Smelt and Salmon Monitoring Teams shall communicate their recommendations to WOMT. The WOMT shall then confer and attempt to reach a resolution and agreed-upon Project operations. If a resolution is reached, Permittee shall operate consistent with the decision regarding Project</p>		

Condition	Mitigation Measure	Implementation Schedule	Status/Date/Initials
8.1.5	<p>operations from WOMT. If the WOMT does not reach a resolution, the CDFW Director may require Permittee to implement an operational recommendation provided by CDFW. CDFW will provide its operational decision to Permittee in writing. Permittee shall implement the operational decision required by CDFW. Permittee shall ensure that its proportional share (see Condition of Approval 8.10) of the OMR flow requirement as a part of the operational decision is satisfied.</p> <p>Note: Amended language in <i>bold italics</i>.</p> <p><u>Real-time Risk Assessments</u>. The Smelt and Salmon Monitoring Teams (Conditions of Approval 8.1.1 and 8.1.2) shall prepare weekly risk assessments, or more often as required, and operations advice (as required by Conditions of Approval 8.3.1, 8.3.3, 8.4.1, 8.4.2, 8.5.1, 8.5.2, 8.6.1, 8.6.2, 8.6.3, 8.6.4, and 8.7) during their discussions and analyses. The Smelt and Salmon Monitoring Teams shall provide the risk assessments and pertinent supporting information to the WOMT (Condition of Approval 8.1.3) within one business day of each meeting.</p>	Throughout the term of the ITP.	The Smelt and Salmon Monitoring Teams have been providing risk assessments to the WOMT in a timely manner. The risk assessments are located at: https://wildlife.ca.gov/Conservation/Watersheds/Water- Operations .
8.1.5.1	<p><u>Salmon Monitoring Team Risk Assessments</u>. Salmon Monitoring Team risk assessments shall include, but not be limited to, Components A – F and associated data sources listed below:</p> <p>A. Assessment of hydrologic, operational and meteorological information</p>	Throughout the term of the ITP.	The Salmon Monitoring Team has been providing risk assessments to the WOMT in a timely manner. The risk assessments are located at: https://wildlife.ca.gov/Conservation/Watersheds/Water- Operations .

Condition	Mitigation Measure	Implementation Schedule	Status/Date/Initials
	<ul style="list-style-type: none"> i. Water operations conditions data: <ul style="list-style-type: none"> • Antecedent actions (e.g., DCC gate closure and required actions such as first flush, etc.) • Current controlling factor(s) • Water temperatures • Tidal cycle • Turbidity • Salinity ii. Water operations outlook data: <ul style="list-style-type: none"> • Meteorological forecast • Outages • Diversions • Storm event projection • Projection data: <ul style="list-style-type: none"> • DCC gate status • Freeport flows • Vernalis flows • Old River at Bacon Island (OBI) and Freeport turbidities • South Delta Exports • OMR 		
	<ul style="list-style-type: none"> B. Assessment of biological information for CHNWR and CHNSR <ul style="list-style-type: none"> i. CHNWR population status data: <ul style="list-style-type: none"> • Adult escapement • Redd distribution and fry emergence timing • JPE and hatchery releases 		

Condition	Mitigation Measure	Implementation Schedule	Status/Date/Initials
	<ul style="list-style-type: none"> • Distribution of natural CHNWR, Livingston Stone NFH CHNWR releases, and CHNWR in Battle Creek: <ul style="list-style-type: none"> ○ % of juveniles upstream of the Delta ○ % of juveniles in Delta ○ % of juveniles past Chipps Island ii. CHNSR population data <ul style="list-style-type: none"> • Adult escapement • Redd distribution and fry emergence timing • Hatchery release (in-river vs. downstream) • Distribution of natural and hatchery fish: <ul style="list-style-type: none"> ○ % of juveniles upstream of the Delta ○ % of juvenile in the Delta ○ % of juveniles past Chipps Island iii. Change in risk of entrainment into the central Delta <ul style="list-style-type: none"> • Change in routing risk of entrainment into the central Delta • Comparison to the previous week c. Assessment of risk of entrainment into the central Delta and CVP/SWP facilities for CHNWR and CHNSR in the Sacramento River: <ul style="list-style-type: none"> i. Data sources to assess sensitivity to entrainment into the central Delta from the Sacramento River and western Delta: <ul style="list-style-type: none"> • In-Delta distribution of fish • Acoustic telemetry, trawls (e.g., Spring Kodiak), EDSM catch, rotary screw traps, 		

Condition	Mitigation Measure	Implementation Schedule	Status/Date/Initials
	<ul style="list-style-type: none"> seines, and hatchery release notifications • Hydraulic footprint • STARS model • Enhanced Particle Tracking Model (EPTM) (e.g., transitions between regions) • Data from new monitoring required in Conditions of Approval 7.5 in this ITP 		
	<ul style="list-style-type: none"> ii. Exposure risk (low, medium, high): <ul style="list-style-type: none"> • Distribution of juvenile CHNWR estimated to be in the lower Sacramento and northern Delta • Distribution of juvenile CHNSR estimated to be in the lower Sacramento and northern Delta • Distribution of hatchery produced salmonids <ul style="list-style-type: none"> ○ Incorporation of real-time acoustic tracking of AT/CWT fish • Anticipated emigration to continue into the Delta iii. Routing risk (low, medium, high): <ul style="list-style-type: none"> • Flows in the Sacramento River predicted with upcoming storm events • DCC gate position • Prediction of tidal interaction at Georgiana Slough <ul style="list-style-type: none"> ○ Inflow to Delta from Sacramento River and the interaction of the 		

Condition	Mitigation Measure	Implementation Schedule	Status/Date/Initials
	<p style="text-align: center;">muting of tidal effects around Georgiana Slough</p> <ul style="list-style-type: none"> • Precipitation in the forecast for the weekend and increasing river flows effects of routing into central and interior Delta <p>iv. Overall entrainment risk: Combination of the above two risk assessments in ii and iii.</p> <p>D. CVP/SWP facilities entrainment risk for CHNWR and CHNSR in the central Delta over the next week:</p> <p>i. Data sources to assess sensitivity to entrainment into the south Delta from the San Joaquin River and central Delta</p> <ul style="list-style-type: none"> • In-Delta distribution of fish • Acoustic telemetry, trawls (e.g., Spring Kodiak), EDSM catch, rotary screw traps, seines, and hatchery release notifications • Hydraulic footprint • EPTM (e.g., transitions between regions) <p>ii. Data sources to assess sensitivity to entrainment in salvage in the south Delta</p> <ul style="list-style-type: none"> • In-Delta distribution of fish • Acoustic telemetry, trawls (e.g., Spring Kodiak), EDSM catch, rotary screw traps, seines, and hatchery release notifications, and salvage monitoring data at the SWP and CVP facilities • Trend analysis (historical timing) 		

Condition	Mitigation Measure	Implementation Schedule	Status/Date/Initials
	<ul style="list-style-type: none"> • Survival analysis (e.g., Zeug and Cavallo CWT Model) • Tillotson entrainment model, or other entrainment models as they are available • EPTM (e.g., transitions between regions) • New monitoring required by Condition of Approval 7.5 in this ITP 		
	<p>iii. Exposure risk assessments (low, medium, high):</p> <ul style="list-style-type: none"> • Listed Chinook salmon from the Sacramento River basin observed in monitoring sites in the lower Sacramento River and northern Delta (fish at the junction of Georgiana Slough, Mokelumne River, and San Joaquin River confluence). • Prediction of flows expected to change due to precipitation events. • Salvage trends in relation to OMR • Future export modifications 		
	<p>iv. Reporting OMR/export risk:</p> <ul style="list-style-type: none"> • OMR -2,500 cfs: LOW • OMR -3,500 cfs: LOW • OMR -5,000 cfs: MEDIUM • OMR -6,250 cfs: MEDIUM-HIGH • OMR -7,500 cfs: HIGH • OMR -9,000 cfs: HIGH 		
	<p>v. Overall entrainment risk: Combination of the above two risk assessments in iii and iv</p>		
	<p>E. Annual loss threshold risk</p>		

Condition	Mitigation Measure	Implementation Schedule	Status/Date/Initials
8.1.5.2	<ul style="list-style-type: none"> i. Salvage loss at the SWP and CVP facilities compared to estimated remaining population in Delta and upstream of the Delta ii. Define risk of hitting a threshold, 50%, or 75%, or 100%, and actions to minimize that happening iii. Daily loss thresholds hit and subsequent loss and associated operations <p>F. Alternative actions, if any</p> <ul style="list-style-type: none"> i. Operations scenario ii. Alternative exposure analysis <p><u>Smelt Monitoring Team Risk Assessments.</u> Smelt Monitoring Team risk assessments shall include, but not be limited to, Components A – F and associated data sources listed below:</p> <p>A. Assessment of hydrologic, operational and meteorological information</p> <ul style="list-style-type: none"> i. Water operations conditions: <ul style="list-style-type: none"> • Antecedent actions (e.g., DCC gate closure and actions such as integrated early winter pulse protection, etc.) • Current controlling factor(s) • Water temperatures • Tidal cycle • Turbidity • Salinity ii. Water Operations Outlook: <ul style="list-style-type: none"> • Meteorological forecast • Outages • Diversions 	Throughout the term of the ITP.	<p>The Smelt Monitoring Team has been providing risk assessments to the WOMT in a timely manner. The risk assessments are located at:</p> <p>https://wildlife.ca.gov/Conservation/Watersheds/Water- Operations.</p>

Condition	Mitigation Measure	Implementation Schedule	Status/Date/Initials
	<ul style="list-style-type: none"> • Storm event projections <p>iii. Projections:</p> <ul style="list-style-type: none"> • Date • DCC status • Freeport flows • Vernalis flows • OBI and Freeport turbidities • South Delta exports • OMR <p>B. Assessment of biological information for DS and LFS</p> <p>i. DS population status</p> <ul style="list-style-type: none"> • EDSM • LCM • Biological conditions (spawned/unspawned) • % in Delta zones <p>ii. LFS population status</p> <ul style="list-style-type: none"> • FMWT and Bay Study <p>iii. Change in exposure</p> <ul style="list-style-type: none"> • Comparison to the previous week <p>C. Assessment of risk of entrainment into the central Delta and CVP/SWP facilities for DS and LFS in the Sacramento River:</p> <p>i. Data sources to assess sensitivity to entrainment into the central Delta from the Sacramento River and western Delta:</p> <ul style="list-style-type: none"> • In-Delta distribution of fish 		

Condition	Mitigation Measure	Implementation Schedule	Status/Date/Initials
	<ul style="list-style-type: none"> • Trawls (e.g., Spring Kodiak, FMWT, SFBS, and EDSM) catch • Hydraulic footprint • EPTM (e.g., transitions between regions) • New monitoring required by Conditions of Approval 7.6.1 and 7.6.2 in this ITP 		
	<p>ii. Exposure risk (low, medium, high):</p> <ul style="list-style-type: none"> • Distribution of DS estimated to be downstream of the lower Sacramento and northern Delta • Distribution of all life stages of larval and juvenile DS and LFS estimated to be in the lower Sacramento and northern Delta • Anticipated onset of spawning movement into upstream Delta habitats. 		
	<p>iii. Routing risk (low, medium, high):</p> <ul style="list-style-type: none"> • Flows in the Sacramento River predicted with upcoming storm events • Precipitation in the forecast for the weekend and increasing river flows effects of routing into central and interior delta 		
	<p>iv. Overall entrainment risk: Combination of the above two risk assessments in ii and iii.</p>		
	<p>D. CVP/SWP facilities entrainment risk for DS and LFS in the central Delta over the next week:</p>		
	<p>i. Data sources to assess sensitivity to entrainment into the south Delta from the San Joaquin River and central Delta</p> <ul style="list-style-type: none"> • In-Delta distribution of fish 		

Condition	Mitigation Measure	Implementation Schedule	Status/Date/Initials
	<ul style="list-style-type: none"> • Trawls (e.g., Spring Kodiak, FMWT, SFBS, and EDSM) catch • Hydraulic footprint • EPTM (e.g., transitions between regions) • New monitoring required by Conditions of Approval 7.6.1 and 7.6.2 in this ITP <p>ii. Data sources to assess sensitivity to entrainment in salvage in the south Delta</p> <ul style="list-style-type: none"> • In-Delta distribution of fish • Trend analysis (e.g., historical timing) • Temperature conditions • New monitoring required by Conditions of Approval 7.6.1 and 7.6.2 in this ITP <p>iii. Exposure risk assessments (low, medium, high):</p> <ul style="list-style-type: none"> • DS or LFS observed in monitoring sites in the lower Sacramento River, northern Delta, lower San Joaquin River and Sacramento- San Joaquin confluence • Daily salvage thresholds exceeded, subsequent loss, and associated operations • Recruitment informed by available life cycle model • Prediction of flows expected to change due to precipitation events. • Salvage trends in relation to OMR • Future export modifications • Environmental surrogates <p>iv. Reporting OMR/export risk:</p>		

Condition	Mitigation Measure	Implementation Schedule	Status/Date/Initials
8.2	<ul style="list-style-type: none"> • OMR -2,500 cfs: LOW • OMR -3,500 cfs: LOW • OMR -5,000 cfs: MEDIUM • OMR -6,250 cfs: MEDIUM-HIGH • OMR -7,500 cfs: HIGH • OMR -9,000 cfs: HIGH <p>v. Overall entrainment risk: Combination of the above two risk assessments in iii and iv.</p> <p>E. Alternative actions, if any</p> <ul style="list-style-type: none"> • Operations scenario • Alternative exposure analysis <p><u>Independent Review Panels.</u> In the event that an independent review panel is convened to review aspects of the Project or AMP, Permittee shall provide drafts of 1) the list of potential panel participants, 2) the panel charges and associated review questions, and 3) the panel report and findings to CDFW for review at least 20 days before they are scheduled to be finalized. Permittee shall incorporate CDFW comments into the final panel selection and panel charge before they are finalized. Permittee shall facilitate CDFW communication with panelists, as requested, to help address CDFW questions on the draft panel report before a final report is completed. Permittee shall work collaboratively with CDFW to address CDFW comments in the final panel report.</p>	Throughout the term of the ITP.	No independent review panels were convened during 2022.
8.3	<p><u>Onset of OMR Management.</u> From the onset of OMR Management (initiated as described in Conditions of Approval 8.3.1, 8.3.2, or 8.3.3) to the</p>	Throughout the term of the ITP.	WY 2022 OMR management was regulated in accordance with the terms of section 8.3.

Condition	Mitigation Measure	Implementation Schedule	Status/Date/Initials
8.3.1	<p>end (Condition of Approval 8.8) Permittee shall maintain a 14-day average OMR index that is no more negative than -5,000 cfs, except during OMR Flex operations (see Condition of Approval 8.7) or if a more positive OMR index is required. The OMR index shall be calculated using the equation provided in Hutton (2008). When a more positive OMR index is required by any Condition of Approval of this ITP, except when ending OMR Flex During Excess Conditions (Condition of Approval 8.7), Permittee shall reduce south Delta exports to achieve the new required OMR index within three days of exceeding a threshold or acceptance of flow advice (see Conditions of Approval 8.3.1, 8.3.2, 8.3.3, 8.4.1, 8.4.28.5.1, 8.5.2, 8.6.1, 8.6.2, 8.6.3, 8.6.4, 8.7, and 8.8). The new moving average will be calculated beginning no later than the third day moving forward.</p> <p><u>Integrated Early Winter Pulse Protection.</u> Between December 1 and January 31 each year Permittee shall reduce south Delta exports for 14 consecutive days to maintain a 14-day average OMR index no more negative than -2,000 cfs, and convene the Smelt Monitoring Team within one day of triggering the following criteria:</p> <ul style="list-style-type: none"> • Three day running average daily flows at Freeport greater than, or equal to, 25,000 cfs, AND • Three day running average of daily turbidity at Freeport is greater than, or equal to, 50 	Throughout the term of the ITP.	<p>This condition was triggered on December 18, 2021. The Integrated Early Winter Pulse Protection was implemented within three days of the trigger, and the action lasted from December 20, 2021, through January 2, 2022. The 14-day averaged OMR index was not more negative than -2,000 cfs and turbidity did not increase above 12 FNU.</p> <p>See Water Year 2022 Seasonal Report for Old and Middle River Flow Management for all details.</p>

Condition	Mitigation Measure	Implementation Schedule	Status/Date/Initials
8.3.2	<p data-bbox="428 277 999 347"><i>Formazin</i> Nephelometric Turbidity Units (NTU), OR</p> <ul data-bbox="401 358 1094 532" style="list-style-type: none"> <li data-bbox="401 358 1094 532">• The Smelt Monitoring Team determines that real-time monitoring of abiotic and biotic factors indicates a high risk of DS migration and dispersal into areas at high risk of future entrainment. <p data-bbox="380 578 1094 829">After maintaining a 14-day average OMR index no more negative than -2,000 cfs for 14 days. Permittee shall reduce south Delta exports to maintain a 14-day average OMR index no more negative than -5,000 cfs, initiating the OMR Management season, until the OMR Management Season ends (Condition of Approval 8.8).</p> <p data-bbox="380 886 1083 1024">The Integrated Early Winter Pulse Protection Action may only be initiated once during the December 1 through January 31 time period each year.</p> <p data-bbox="380 1081 1073 1154">Note: Amended language in <i>bold italics</i>; deleted language in strikethrough.</p> <p data-bbox="380 1166 1073 1414"><u>Salmonid Presence</u>. After January 1 each year, if Conditions of Approval 8.3.1 or 8.3.3 have not already been triggered, the OMR Management season shall begin when the Salmon Monitoring Team first estimates that 5% of the CHNWR or CHNSR population is in the Delta whichever is sooner. Upon initiation of the OMR Management</p>	Throughout the term of the ITP.	SaMT first estimated that 5% of CHNWR were present in the Delta as of 11/2/2021. Since SaMT estimated that at least 5% of CHNWR were in the Delta by January 1, 2022, the onset of OMR Management was triggered.

Condition	Mitigation Measure	Implementation Schedule	Status/Date/Initials
8.3.3	<p>season, Permittee shall reduce exports to achieve, and shall maintain a 14-day average OMR index no more negative than -5,000 cfs, until the OMR Management season ends (see Condition of Approval 8.8). In the event that a salmon daily or single-year loss threshold is exceeded (Conditions of Approval 8.6.1, 8.6.2, 8.6.3, or 8.6.4) prior to the start of OMR Management season the requirements in those Conditions shall control operations.</p> <p><u>Adult Longfin Smelt Entrainment Protection</u>. After December 1, if an Integrated Early Winter Pulse Protection (Condition of Approval 8.3.1) has not yet initiated, Permittee shall reduce south Delta exports to maintain a 14-day average OMR index no more negative than -5,000 cfs and initiate OMR Management (Condition of Approval 8.3) if:</p> <ul style="list-style-type: none"> • Cumulative combined LFS expanded salvage (total estimated LFS counts at the CVP and SWP salvage facilities beginning December 1 through February 28 exceeds the most recent Fall Midwater Trawl (FMWT) LFS index divided by 10, OR • Real-time monitoring of abiotic and biotic factors indicates a high risk of LFS movement into areas at high risk of future entrainment, as determined by DWR and CDFW Smelt Monitoring Team staff. 	Throughout the term of the ITP.	<p>See Water Year 2022 Seasonal Report for Old and Middle River Flow Management for all details.</p> <p>This condition was not triggered in WY 2022.</p> <p>See Water Year 2022 Seasonal Report for Old and Middle River Flow Management for all details.</p>

Condition	Mitigation Measure	Implementation Schedule	Status/Date/Initials
8.4.1	<p>When evaluating the possibility of LFS movement into areas that may be subject to an elevated risk of entrainment, the Smelt Monitoring Team shall evaluate catch of LFS with fork length ≥ 60 mm by the Chipps Island Trawl (conducted by USFWS) as an early warning indicator for LFS migration movement into the Delta, in addition to other available survey and abiotic data. The Smelt Monitoring Team shall communicate the results of these risk assessments and advice to the WOMT (Condition of Approval 8.1.3), and operational decisions shall be made as described in Condition of Approval 8.1.4 (Collaborative Approach to Real-time Risk Assessment).</p> <p><u>OMR Management for Adult Longfin Smelt.</u> From the onset of OMR Management (Condition of Approval 8.3) through February 28, the Smelt Monitoring Team shall conduct weekly, or more often as needed, risk assessments (see Condition of Approval 8.1.5.2) and decide whether to recommend an OMR flow requirement between - 5,000 cfs and - 1,250 cfs to minimize entrainment and take of adult LFS. The Smelt Monitoring Team may provide advice to restrict south Delta exports for seven consecutive days to achieve a seven-day average OMR index within three risk categories:</p> <ul style="list-style-type: none"> • Low risk: OMR between -4,000 cfs to -5,000 cfs • Medium risk: OMR between -2,500 cfs to -4,000 cfs 	Throughout the term of the ITP.	<p>This condition was not triggered in WY 2022.</p> <p>See Water Year 2022 Seasonal Report for Old and Middle River Flow Management for all details.</p>

Condition	Mitigation Measure	Implementation Schedule	Status/Date/Initials
8.4.2	<ul style="list-style-type: none"> High risk: OMR between -1,250 cfs to -2,500 cfs <p>If a risk assessment conducted by the Smelt Monitoring Team determines that a more restrictive OMR flow requirement is needed to minimize take of adult LFS, the Smelt Monitoring Team shall provide its advice to WOMT (Condition of Approval 8.1.3) and operational decisions shall be made following the process described in Condition of Approval 8.1.4 (Collaborative Approach to Real-time Risk Assessment).</p> <p>This Condition will terminate when a high-flow off-ramp occurs (Condition of Approval 8.4.3), or when LFS spawning has been detected in the system, as determined by the Smelt Monitoring Team, or, if there is disagreement and resolution is not reached within WOMT, as determined by CDFW. The Smelt Monitoring Team shall consider results from Additional LFS Larval Sampling (Condition of Approval 7.6.1) to inform its assessment of the start of LFS spawning. After LFS spawning has been observed, Permittee shall implement Condition of Approval 8.4.2 to minimize take of larval and juvenile LFS.</p> <p><u>Larval and Juvenile Longfin Smelt Entrainment Protection</u>. From January 1 through June 30, when a single Smelt Larva Survey (SLS) or 20 mm</p>	Throughout the term of the ITP.	This condition was triggered in WY 2022.

Condition	Mitigation Measure	Implementation Schedule	Status/Date/Initials
	<p>Survey (20 mm) sampling period exceeds one of the following thresholds:</p> <ul style="list-style-type: none"> • LFS larvae or juveniles found in four or more of the 12 SLS or 20 mm stations in the central Delta and south Delta (Stations 809, 812, 815, 901, 902, 906, 910, 912, 914, 915, 918, 919), or • LFS catch per tow exceeds five LFS larvae or juveniles in two or more of the 12 stations in the central Delta and south Delta (Stations 809, 812, 815, 901, 902, 906, 910, 912, 914, 915, 918, 919). <p>Permittee shall restrict south Delta exports for seven consecutive days to maintain a seven-day average OMR index no more negative than -5,000 cfs. Permittee shall also immediately convene the Smelt Monitoring Team to conduct a risk assessment (see Condition of Approval 8.5.1.2) to assess the risk of larval and juvenile LFS entrainment into the South Delta Export Facilities, determine if an OMR flow restriction is warranted, and recommend an OMR flow limit between -1,250 and - 5,000 cfs. The Smelt Monitoring Team risk assessment and operational recommendation shall be reviewed by the WOMT (Condition of Approval 8.1.3) via the Collaborative Real-time Decision-making process (Condition of Approval 8.1.4). Permittee shall operate to the export restriction and OMR flow target approved through Conditions of Approval 8.1.3 and 8.1.4. Each week the Smelt Monitoring Team shall convene to conduct a new risk assessment and determine whether to</p>		<p>See Water Year 2022 Seasonal Report for Old and Middle River Flow Management for all details.</p>

Condition	Mitigation Measure	Implementation Schedule	Status/Date/Initials
8.4.3	<p data-bbox="380 277 1098 418">maintain, or off ramp from, export restrictions based on the risk to LFS, or until the DS and LFS off-ramp has been met as described in Condition of Approval 8.8 (End of OMR Management).</p> <p data-bbox="380 472 1098 1308">From January 1 through June 30, DWR and CDFW Smelt Monitoring Team staff shall conduct weekly, or more often as needed, risk assessments (see Condition of Approval 8.5.1.2) to assess the risk of larval and juvenile LFS entrainment into the South Delta Export Facilities. As a part of the risk assessment the Smelt Monitoring Team shall recommend appropriate OMR flow targets to minimize LFS entrainment or entrainment risk, or both. The Smelt Monitoring Team shall provide its recommendation to WOMT (Condition of Approval 8.1.3) and use the Collaborative Approach to Real-time Risk Assessment process described in Condition of Approval 8.1.4 to determine if an OMR flow restriction is warranted and determine OMR flow limit between -1,250 and -5,000 cfs. The OMR flow limit shall be in place until the next risk assessment conducted by the Smelt Monitoring Team determines that it is no longer necessary to minimize take or related impacts to LFS, or until the DS and LFS off-ramp has been met as described in Condition of Approval 8.8 (End of OMR Management).</p> <p data-bbox="380 1320 1098 1422"><u>High Flow Off-Ramp from Longfin Smelt OMR Restrictions.</u> OMR management for adult, juvenile, or larval LFS as described in Conditions of</p>	Throughout the term of the ITP.	This condition was not triggered in WY 2022.

Condition	Mitigation Measure	Implementation Schedule	Status/Date/Initials
8.5.1	<p>Approval 8.4.1 and 8.4.2 are not required, or would cease if previously required, when river flows are (a) greater than 55,000 cfs in the Sacramento River at Rio Vista or (b) greater than 8,000 cfs in the San Joaquin River at Vernalis. If flows subsequently drop below 40,000 cfs in the Sacramento River at Rio Vista or below 5,000 cfs in the San Joaquin River at Vernalis, the OMR limit previously required as a part of Conditions of Approval 8.4.1 and 8.4.2 shall resume.</p> <p><u>Turbidity Bridge Avoidance</u>. The purpose of this Condition is to minimize the risk of entrainment of adult DS in the corridors of the Old and Middle rivers into the south Delta export facilities. This Condition is intended to avoid the formation of a turbidity bridge from the San Joaquin River shipping channel to the south Delta export facilities, which historically has been associated with elevated salvage of pre-spawning adult DS.</p> <p>After the Integrated Early Winter Pulse Protection (Condition of Approval 8.1.3) or February 1 (whichever comes first), until April 1, Permittee shall manage exports to maintain daily average turbidity in Old River at Bacon Island (OBI) at a level of less than 12 FNFTU. If the daily average turbidity at OBI is greater than 12 FNFTU, Permittee shall restrict south Delta exports to achieve an OMR flow that is no more negative than -2,000 cfs</p>	Throughout the term of the ITP.	<p>See Water Year 2022 Seasonal Report for Old and Middle River Flow Management for all details.</p> <p>This condition was not triggered in WY 2022.</p> <p>See Water Year 2022 Seasonal Report for Old and Middle River Flow Management for all details.</p>

Condition	Mitigation Measure	Implementation Schedule	Status/Date/Initials
	<p>until the daily average turbidity at OBI is less than 12 FNTU.</p> <p>If, after five consecutive days of OMR flow that is less negative than -2,000 cfs, the daily average turbidity at OBI is not less than 12 FNTU the Smelt Monitoring Team may convene to assess the risk of entrainment of DS (Condition of Approval 8.1.5.2). The Smelt Monitoring Team may provide a recommendation to WOMT regarding changes in operations that could be conducted to minimize the risk of entrainment of DS (Condition of Approval 8.1.3). The Smelt Monitoring Team may also determine that OMR restrictions to manage turbidity are infeasible and may instead recommend a different OMR flow target that is between -2,000 and -5,000 cfs and is protective based on turbidity and adult DS distribution and salvage to the WOMT for consideration (Condition of Approval 8.1.3). Operational decisions shall be made following the process described in Condition of Approval 8.1.4 (Collaborative Real Time Risk Assessment).</p> <p>Turbidity readings at individual sensors can generate spurious results in real time. Spurious results could be incorrectly interpreted as a turbidity bridge, when in fact the cause is a result of local conditions or sensor error. To assess whether turbidity readings at OBI are attributable to a sensor error or a localized turbidity spike,</p>		

Condition	Mitigation Measure	Implementation Schedule	Status/Date/Initials
8.5.2	<p>Permittee, in coordination with Reclamation, may consider and review data from other nearby locations and sources. Additional information that will be reviewed include regional visualizations of turbidity, alternative sensors, and boat-based turbidity mapping, particularly if there was evidence of a local sensor error. Permittee may bring data from these additional sources to the Smelt Monitoring Team for consideration during the development of a risk assessment to be provided to the WOMT for evaluation (Condition of Approval 8.1.3).</p> <p>Permittee shall use the decision-making process described Condition of Approval 8.1.4 (Collaborative Real-time Risk Assessment) to determine if south Delta exports may increase after five-days of OMR no more negative than -2,000 cfs, or to determine that this action is not warranted due to a sensor error or localized turbidity event. Permittee shall implement this action until CDFW is in agreement that the action may be ended or modified.</p> <p>Note: Amended language in <i>bold italics</i>; deleted language in strike through.</p> <p><u>Larval and Juvenile Delta Smelt Protection</u>. If the five-day cumulative salvage of juvenile DS at the CVP and SWP facilities is greater than or equal to one plus the average prior three years' FMWT</p>	Throughout the term of the ITP.	This condition was not triggered in WY 2022.

Condition	Mitigation Measure	Implementation Schedule	Status/Date/Initials
	<p>index (rounded down), Permittee shall restrict south Delta exports for seven consecutive days to maintain a seven-day average OMR index no more negative than -5,000 cfs. Additionally, if the five-day cumulative salvage threshold is met or exceeded, Permittee shall immediately convene the Smelt Monitoring Team to conduct a risk assessment (Condition of Approval 8.1.5.2) and determine the future risk of entrainment and take of larval and juvenile DS. The Smelt Monitoring Team may recommend further restricting south Delta exports to maintain a more positive OMR than -5,000 cfs. The Smelt Monitoring Team may provide advice for further restrictions within three risk categories:</p> <ul style="list-style-type: none"> • Low risk: Limit OMR between -4,000 cfs to -5,000 cfs • Medium risk: Limit OMR between -2,500 cfs to -4,000 cfs • High risk: Limit OMR between -1,250 cfs to -2,500 cfs <p>The duration and magnitude of operational recommendations shall be provided to the WOMT (Condition of Approval 8.1.3) and decisions shall be made following the process described in Condition of Approval 8.1.4 (Collaborative Real Time Risk Assessment). When conducting risk assessments to evaluate the risk of entrainment and take of juvenile DS the Smelt Monitoring Team shall evaluate the following information sources, in</p>		<p>See Water Year 2022 Seasonal Report for Old and Middle River Flow Management for all details.</p>

Condition	Mitigation Measure	Implementation Schedule	Status/Date/Initials
	<p>addition to any other models or surveys they deem appropriate and those listed in Condition of Approval 8.1.5.2:</p> <ul style="list-style-type: none"> • Results from a CDFW- approved DS life cycle model. • DS recruitment levels identified by the Smelt Monitoring Team using the CDFW-approved life cycle model that links environmental conditions to recruitment, including factors related to loss as a result of entrainment such as OMR flows. In this context, recruitment is defined as the estimated number of post-larval DS in June per number of spawning adults in the prior February-March period. • Hydrodynamic models and forecasts of entrainment informed by the EDSM or other relevant survey data to estimate the percentage of larval and juvenile DS that could be entrained. <p><i>When a larval or juvenile DS is detected in the SLS or 20 mm, or the 3-day average water temperature at Jersey Point is greater than or equal to 12oC, and Secchi depth from the most recent SLS or 20 mm survey is less than or equal to 1 meter, averaged across the 12 south Delta survey stations (809, 812, 815, 901, 902, 906, 910, 912, 914, 915, 918, and 919) if</i></p> <p>expanded salvage at the CVP and SWP facilities of juvenile DS exceeds 11 within a three-day period under this condition, Permittee shall restrict south</p>		

Condition	Mitigation Measure	Implementation Schedule	Status/Date/Initials
8.6.1	<p>Delta exports for seven consecutive days to maintain a seven-day average OMR index no more negative than 3,500 cfs <i>until the average Secchi depth is greater than 1 meter in the south Delta stations in a subsequent SLS or 20mm survey. If average south Delta Secchi depth continues to be less than or equal to 1 meter in a subsequent SLS or 20mm survey</i> juvenile DS continue to be salvaged at the CVP and SWP facilities during the seven days of OMR restrictions, then Permittee shall continue restrictions and request a risk assessment by the Smelt Monitoring Team to determine if additional advice and subsequent restrictions are warranted and provide advice to WOMT (see Condition of Approval 8.1.3) and follow the decision-making process described in Condition of Approval 8.1.4</p> <p>Note: Amended language in <i>bold italics</i>; deleted language in strikethrough.</p> <p><u>Winter-run Single-year Loss Threshold</u>. In each year, Permittee shall, in coordination with Reclamation, operate the Project to avoid exceeding the following single-year loss thresholds:</p> <ul style="list-style-type: none"> • Natural CHNWR (loss = 1.17% of JPE) • Hatchery CHNWR (loss = 0.12% of JPE) 	Throughout the term of the ITP.	This condition was not triggered in WY 2022. Natural CHNWR (LAD) loss equaled 5% (73.04 fish) of the single-year loss threshold (1,931 fish). Hatchery origin CHNWR loss was an estimated 6.7 fish. No genetic CHNWR were observed at the salvage facilities; however, 2 LAD CHNWR failed to be assigned to a run.

Condition	Mitigation Measure	Implementation Schedule	Status/Date/Initials
	<p>The loss threshold and loss tracking for hatchery CHNWR does not include releases into Battle Creek.</p>		<p>See Water Year 2022 Seasonal Report for Old and Middle River Flow Management for all details.</p>
	<p>Loss of CHNWR at the at the CVP and SWP salvage facilities shall be calculated based on length-at-date criteria.</p>		
	<p>Annual loss of natural and hatchery CHNWR at the CVP and SWP salvage facilities shall be counted cumulatively beginning November 1 each calendar year through June 30 the following calendar year.</p>		
	<p>CHNWR shall be identified based on the Delta Model length-at-date criteria. Loss shall be calculated for the South Delta Export Facilities using the 2018 California Department of Fish and Wildlife loss equation (Attachment 6).</p>		
	<p>During the water year, if cumulative loss of natural or hatchery CHNWR exceeds 50% of the annual loss threshold, Permittee shall restrict south Delta exports to maintain a 14-day average OMR index no more negative than -3,500 cfs through the end of OMR Management (see Condition of Approval 8.8). After 14 days of operations to maintain an OMR index no more negative than -3,500 cfs Permittee may convene the Salmon Monitoring Team to conduct a risk assessment (Condition of</p>		

Condition	Mitigation Measure	Implementation Schedule	Status/Date/Initials
	<p>Approval 8.1.5.1) and determine whether the risk of entrainment and loss of natural and hatchery CHNWR is no longer present. Risks shall be measured against the potential to exceed the next single-year loss threshold. The results of this risk assessment and associated OMR recommendations shall be provided to WOMT according to Condition of Approval 8.1.3 and the decision-making process shall follow the process described in Condition of Approval 8.1.4.</p>		
	<p>The -3,500 cfs OMR flow operational criteria, adjusted and informed by this risk assessment, shall remain in effect until the end of OMR Management (Condition of Approval 8.8).</p>		
	<p>During the water year, if cumulative loss of natural or hatchery CHNWR at the at the CVP and SWP salvage facilities exceeds 75% of the single-year loss threshold, Permittee shall restrict OMR to a 14-day moving average OMR flow index that is no more negative than -2,500 cfs through the end of OMR Management (Condition of Approval 8.7). After 14 days Permittee may convene the Salmon Monitoring Team to conduct a risk assessment (Condition of Approval 8.1.5.1) and determine whether the risk of entrainment and take of natural and hatchery CHNWR is no longer present. The results of this risk assessment and associated OMR recommendations shall be provided to WOMT according to Condition of Approval 8.1.3</p>		

Condition	Mitigation Measure	Implementation Schedule	Status/Date/Initials
	<p>and the decision-making process shall follow the process described in Condition of Approval 8.1.4.</p> <p>The -2,500 cfs OMR flow operational criteria adjusted and informed by this risk assessment shall remain in effect until the end of OMR Management (Condition of Approval 8.8).</p> <p>During the water year, if natural or hatchery CHNWR cumulative loss at the at the CVP and SWP salvage facilities exceeds the single-year loss threshold, Permittee shall immediately convene the Salmon Monitoring Team to review recent fish distribution information and operations and provide advice regarding future planned Project operations to minimize subsequent loss during that year. The Salmon Monitoring Team shall report the results of this review and advice to the WOMT (see Condition of Approval 8.1.3). Operational decisions shall be made following the process described in Condition of Approval 8.1.4 (Collaborative Real Time Risk Assessment).</p> <p>If the single-year loss threshold is exceeded, Permittee and Reclamation shall also convene an independent panel to review Project operations and the single-year loss threshold prior to November 1, as described in Condition of Approval 8.2. The purpose of the independent panel is to review the actions and decisions contributing to the loss trajectory that lead to an exceedance of the</p>		

Condition	Mitigation Measure	Implementation Schedule	Status/Date/Initials
8.6.2	<p>single-year loss threshold, and make recommendations on modifications to Project implementation, or additional actions to be conducted to stay within the single-year loss threshold in subsequent years.</p> <p>Permittee shall, in coordination with Reclamation, continue monitoring and reporting salvage at the at the CVP and SWP salvage facilities. Permittee and Reclamation shall continue the release and monitoring of yearling Coleman National Fish Hatchery (NFH) late fall-run and yearling CHNSR surrogates. The Salmon Monitoring Team shall use reported real-time salvage counts along with qualitative and quantitative tools to inform risk assessments (see Condition of Approval 8.1.5.1).</p> <p><u>Early-season Natural Winter-run Chinook Salmon Discrete Daily Loss Threshold.</u> To minimize entrainment, salvage, and take of early-migrating natural CHNWR Permittee shall restrict south Delta exports for five consecutive days to achieve a five-day average OMR index no more negative than -5,000 cfs when daily loss of older juveniles (natural older juvenile Chinook salmon and yearling CHNSR used as a surrogate for CHNWR) at the SWP and CVP salvage facilities exceeds the following thresholds:</p> <ul style="list-style-type: none"> • From November 1 – November 30: 6 older juvenile Chinook salmon 	Throughout the term of the ITP.	<p>This condition was not triggered in WY 2022.</p> <p>See Water Year 2022 Seasonal Report for Old and Middle River Flow Management for all details.</p>

Condition	Mitigation Measure	Implementation Schedule	Status/Date/Initials
8.6.3	<ul style="list-style-type: none"> • From December 1 – December 31: 26 older juvenile Chinook salmon <p>All natural older juvenile Chinook salmon juveniles shall be identified based on the Delta Model length-at-date criteria. Loss shall be calculated for the South Delta Export Facilities using the equation provided in CDFW (2018) (Attachment 6). This Condition of Approval may be modified through the process described in Condition of Approval 8.6.6 and an amendment to this ITP.</p> <p><u>Mid- and Late-season Natural Winter-run Chinook Salmon Daily Loss Threshold.</u> To minimize entrainment, salvage, and take of natural CHNWR during the peak and end of their migration through the Delta. Permittee shall restrict south Delta exports for five days to achieve a five-day average OMR index no more negative than -3,500 cfs when daily loss of natural older juveniles at the SWP and CVP salvage facilities exceeds the following thresholds based on the JPE reported in January of the same calendar year:</p> <ul style="list-style-type: none"> • January 1 – January 31: 0.00635 % of the CHNWR JPE • February 1 – February 28: 0.00991 % of the CHNWR JPE • March 1 – March 31: 0.0146 % of the CHNWR JPE • April 1 – April 30: 0.00507 % of the CHNWR JPE 	Throughout the term of the ITP.	<p>This condition was not triggered in WY 2022.</p> <p>See Water Year 2022 Seasonal Report for Old and Middle River Flow Management for all details.</p>

Condition	Mitigation Measure	Implementation Schedule	Status/Date/Initials
8.6.4	<p data-bbox="380 277 1104 310">• May 1 – May 31: 0.0077 % of the CHNWR JPE</p> <p data-bbox="380 354 1104 639">All natural older juvenile Chinook salmon juveniles shall be identified based on the Delta Model length-at-date criteria. Loss shall be calculated for the South Delta Export Facilities using the equation provided in CDFW (2018) (Attachment 6). This Condition of Approval may be modified through the process described in Condition of Approval 8.6.6 and an amendment to this ITP.</p> <p data-bbox="380 656 1104 1166"><u>Daily Spring-run Chinook Salmon Hatchery Surrogate Loss Threshold.</u> To minimize entrainment of emigrating natural juvenile CHNSR from the Sacramento River and tributaries, including the Feather and Yuba rivers into the channels of the central Delta, south Delta, CCF, and the Banks Pumping Plant, Permittee shall restrict exports based on the presence of hatchery produced CHNSR surrogate groups at the CVP and SWP salvage facilities. CHNSR surrogate groups shall consist of all in-river fall- and spring-run surrogate release groups of Chinook salmon from the Coleman National Fish Hatchery, Feather River Hatchery, and the Nimbus Fish Hatchery.</p> <p data-bbox="380 1214 1104 1388">Each water year between February 1 and June 30 Permittee shall reduce south Delta exports for five consecutive days to achieve a five-day average OMR index no more negative than -3,500 cfs when:</p>	Throughout the term of the ITP.	<p data-bbox="1409 656 2039 721">This condition was not triggered in WY 2022.</p> <p data-bbox="1409 781 2039 883">See Water Year 2022 Seasonal Report for Old and Middle River Flow Management for all details.</p> <p data-bbox="1409 943 2039 1008">CWT tagged surrogate releases occurred as follows:</p> <p data-bbox="1409 1068 2039 1388">Coleman National Fish Hatchery: Group 1: 719,838 CWT fall-run released 3/15/2022. Group 2: 749,368 CWT fall-run released 3/18/2022. (substitute Coleman groups for Nimbus) Group 3: 1,058,439 CWT fall-run released 3/31-4/1/2022.</p>

Condition	Mitigation Measure	Implementation Schedule	Status/Date/Initials
	<ul style="list-style-type: none"> • Feather River Hatchery coded wire tagged (CWT) CHNSR surrogates (includes both spring- and fall-run hatchery release groups) cumulative loss at the at the CVP and SWP salvage facilities is greater than 0.25% for each release group, OR • Coleman National Fish Hatchery and Nimbus Fish Hatchery CWT fall-run release groups cumulative loss at the at the CVP and SWP salvage facilities is greater than 0.25% of the total in-river releases for each release group. <p>This Condition of Approval may be modified through the process described in Condition of Approval 8.6.6 and an amendment to this ITP.</p>		<p>Group 4: 339,094 CWT fall-run released 4/5-4/7/2022.</p> <p><u>One CNFH Group 3 fish was observed in salvage on April 18, 2022, and one CNFH Group 4 fish was observed in salvage on April 23, 2022. Both fish were observed during predator removal events at the SWP so were not subject to the expansion factor that applies to salvage samples. CNFH Group 3 had a 0.25% threshold at the CVP and SWP salvage facilities of 2,646.10 fish and a total observed loss of 4.33 fish. CNFH group 4 had a 0.25% threshold at the CVP and SWP salvage facilities of 847.74 fish and a total observed loss of 4.33 fish.</u></p> <p>Feather River Fish Hatchery: Group 1: 729,199 spring-run released on 3/30/2022. Group 2: unable to release in-river due to extreme drought conditions; no substitute was available.</p> <p>Nimbus Fish Hatchery: unable to release in-river due to extreme drought conditions. As substitutes, a third and fourth group were released from Coleman National Fish Hatchery (see Coleman groups 3 & 4 above).</p>

Condition	Mitigation Measure	Implementation Schedule	Status/Date/Initials
8.6.5	<p data-bbox="380 272 1100 529"><u>Funding for Spring-run Hatchery Surrogates.</u> Permittee shall provide at least \$72,000 one- time start-up costs per hatchery and \$150,000 of additional funding each year for each hatchery to CDFW to support the following hatchery surrogate release group protocol to enable implementation of Condition of Approval 8.6.4:</p> <ul data-bbox="401 540 1100 781" style="list-style-type: none"> <li data-bbox="401 540 1100 610">• 100% CWT for each hatchery in-river surrogate release group <li data-bbox="401 610 1100 711">• Unique CWT for each hatchery in-river surrogate release group to allow differentiation among groups at the salvage facilities <li data-bbox="401 711 1100 781">• At least two hatchery in-river surrogate release groups per hatchery, per year <p data-bbox="380 818 1100 927">Permittee shall provide sufficient funding to ensure that all hatchery surrogate release groups can be produced in addition to annual production releases.</p> <p data-bbox="380 971 1100 1117">Locations and times of year for in-river surrogate releases shall be developed to best represent natural juvenile CHNSR migration into the Sacramento River and Delta.</p> <p data-bbox="380 1128 1100 1380">Permittee shall provide technical support and guidance to CDFW, as needed, to inform CDFW's development of its annual plan for in-river surrogate releases. CDFW's annual planning includes specifying the number of fish included in each release group, and the timing and the locations of in-river releases.</p>	Throughout the term of the ITP.	<p data-bbox="1409 272 2053 675">DWR worked with CDFW to develop a surrogate release schedule designed to protect a range of spring-run Chinook salmon life history types consisting of releases of several different life stages at multiple locations over the migration season. DWR supported the release plan. Note that the plan was modified with concurrence from DWR regarding the need for contingency planning during extreme drought conditions as detailed above under 8.6.4.</p> <p data-bbox="1409 727 2053 987">During WY 2021 implementation, CDFW and DWR agreed that if contingencies were to arise, CDFW could request funding from DWR to meet the requirements of Condition of Approval 8.6.5. However, CDFW did not request funding from DWR to meet requirements of this COA during WY 2022.</p>

Condition	Mitigation Measure	Implementation Schedule	Status/Date/Initials
8.6.6	<p data-bbox="380 277 1104 927"><u>Evaluate Proactive Salmon Entrainment Minimization During Real-time Operations.</u> When a new Chinook salmon entrainment model is developed and approved by CDFW as required by Condition of Approval 7.5.3, it shall be evaluated during real-time operations for two water years by the Salmon Monitoring Team (Condition of Approval 8.1.2) as a part of their weekly risk assessments (Condition of Approval 8.5.1.1). If Permittee and CDFW agree that the new entrainment model provides a more proactive approach to minimizing CHNWR entrainment and loss, while providing the same level of protection as Conditions of Approval 8.6.2 and 8.6.3, Permittee may request an amendment to the ITP to modify or replace Conditions of Approval 8.6.2 and 8.6.3 with salmon entrainment thresholds based on the entrainment model.</p> <p data-bbox="380 980 1104 1341">When a CHNSR JPE is approved by CDFW and implemented (see Condition of Approval 7.5.2), Permittee and CDFW staff shall work with the Spring-run JPE Team to evaluate minimization provided by Condition of Approval 8.6.4. Permittee may request an amendment to the ITP to modify or replace Conditions of Approval 8.6.4 and 8.6.5 with CHNSR entrainment minimization measures that incorporate new information gleaned from the new monitoring and CHNSR JPE.</p>	Throughout the term of the ITP.	<p data-bbox="1409 277 2043 927">The post-salvage winter-run salvage prediction tool developed by ICF has been available since the beginning of SaMT and incorporated into the risk assessments since WY 2021, although the tool output has seldom been reviewed or discussed during SaMT calls because the conditions when the tool is useful (following salvage of a winter-run), has seldom occurred. The pre-salvage winter-run salvage prediction tool was introduced to SaMT along with potential use of the model for risk assessments in October 2022. Beginning some time in 2023, pre-salvage model predictions are expected to be supplied to SaMT, and their usefulness will be evaluated within the context of other information provided to SaMT and eventual outcomes for salmon.</p> <p data-bbox="1409 987 1997 1089">Evaluation of a CHNSR JPE minimization measure is not applicable until after WY 2025.</p>

Condition	Mitigation Measure	Implementation Schedule	Status/Date/Initials
8.7	<p data-bbox="380 277 1058 418"><u>OMR Flexibility During Delta Excess Conditions.</u> Permittee may increase exports to capture peak flows in the Delta during storm-related events (hereafter OMR flex) when:</p> <ul data-bbox="401 435 1100 1365" style="list-style-type: none"> <li data-bbox="401 435 978 462">• The Delta is in excess conditions, AND <li data-bbox="401 472 869 500">• QWEST is greater than 0, AND <li data-bbox="401 509 1087 581">• A measurable precipitation event has occurred in the Central Valley, AND <li data-bbox="401 591 1079 727">• Permittee, in coordination with Reclamation, determines that the Delta outflow index indicates a higher level of outflow available for diversion due to peak storm flows, AND <li data-bbox="401 737 1100 873">• None of the following Conditions of Approval are controlling Project operations: 8.3.1, 8.3.3, 8.4.1, 8.4.2, 8.5.1, 8.5.2, 8.6.1, 8.6.2, 8.6.3, and 8.6.4, AND <li data-bbox="401 883 1100 1182">• Risk assessments conducted by the Salmon and Smelt Monitoring Teams (Conditions of Approval 8.1.5.1 and 8.1.5.2) indicate that an OMR more negative than -5,000 cfs is not likely to trigger an additional real-time OMR restriction (Conditions of Approval 8.3.1, 8.3.3, 8.4.1, 8.4.2, 8.5.1, 8.5.2, 8.6.1, 8.6.2, 8.6.3, and 8.6.4), AND <li data-bbox="401 1192 1079 1365">• Cumulative salvage at the CVP and SWP facilities of yearling Coleman NFH late fall-run Chinook salmon (as yearling CHNSR surrogates) is less than 0.5% within any of the release groups, AND 	Throughout the term of the ITP.	OMR Flexibility During Delta Excess Conditions was not implemented during WY 2022.

Condition	Mitigation Measure	Implementation Schedule	Status/Date/Initials
	<ul style="list-style-type: none"> Risk assessments conducted by the Salmon and Smelt Monitoring Teams determines that no changes in spawning, rearing, foraging, sheltering, or migration behavior as a result of OMR Flex operations beyond those anticipated to occur through operations described in Conditions of Approval 8.3.1, 8.3.3, 8.4.1, 8.4.2, 8.5.1, 8.5.2, 8.6.1, 8.6.2, 8.6.3, and 8.6.4 are likely to occur. <p>If, during OMR flex operations, any of the following conditions occurs, Permittee shall reduce south Delta exports to achieve a 14-day average OMR index no more negative than -5,000 cfs, unless a further reduction in exports is required by another Condition of Approval. The more positive OMR index shall be achieved within 48 hours of the occurrence of the condition, and the 14-day moving average shall apply from that point forward.</p> <ul style="list-style-type: none"> Risk assessments conducted by the Salmon and Smelt Monitoring Teams (Conditions of Approval 8.1.5.1 and 8.5.1.2) indicate that an OMR more negative than -5,000 cfs is likely to trigger an additional real-time OMR restriction (Conditions of Approval 8.3.1, 8.3.3, 8.4.1, 8.4.2, 8.5.1, 8.5.2, 8.6.1, 8.6.2, 8.6.3, and 8.6.4), OR Cumulative salvage at the CVP and SWP facilities of yearling Coleman NFH late fall-run Chinook salmon (as yearling CHNSR 		

Condition	Mitigation Measure	Implementation Schedule	Status/Date/Initials
8.8	<p>surrogates) exceeds 0.5% within any of the release groups, OR</p> <ul style="list-style-type: none"> • A risk assessment conducted by the Salmon or Smelt Monitoring Teams identifies changes in spawning, rearing, foraging, sheltering, or migration behavior as a result of OMR Flex operations beyond those anticipated to occur through operations described in Conditions of Approval 8.3.1, 8.3.3, 8.4.1, 8.4.2, 8.5.1, 8.5.2, 8.6.1, 8.6.2, 8.6.3, and 8.6.4, OR <p>Operational restrictions described in Conditions of Approval 8.3.1, 8.3.3, 8.4.1, 8.4.2, 8.5.1, 8.5.2, 8.6.1, 8.6.2, 8.6.3, 8.6.4, and 8.17 are required.</p> <p><u>End of OMR Management.</u> Permittee shall operate the Project to meet the requirements included in Conditions of Approval 8.3.1, 8.3.3, 8.4.1, 8.4.2, 8.5.1, 8.5.2, 8.6.1, 8.6.2, 8.6.3, and 8.6.4 to ensure that entrainment and take of Covered Species is minimized during the OMR Management season through June 30, or until the following species-specific off- ramps occur:</p> <ul style="list-style-type: none"> • LFS and DS: Daily mean water temperature at CCF is greater than 25 °C for three consecutive days. • CHNWR and CHNSR: <ul style="list-style-type: none"> ○ More than 95% of CHNWR and CHNSR have migrated past Chipps Island as determined by the Salmon Monitoring Team, AND 	Throughout the term of the ITP.	<p>OMR management for LFS and Delta Smelt off-ramped on June 28, 2022.</p> <p>OMR management for CHNWR and CHNSR off-ramped on June 16, 2022.</p> <p>See Water Year 2022 Seasonal Report for Old and Middle River Flow Management for all details.</p>

Condition	Mitigation Measure	Implementation Schedule	Status/Date/Initials
8.9.1	<p data-bbox="449 280 999 391">○ Daily average water temperature at Mossdale exceeds 22.2°C for 7 non-consecutive days in June, AND</p> <p data-bbox="380 399 1083 509">Daily average water temperature at Prisoner’s Point exceeds 22.2°C for 7 non-consecutive days in June.</p> <p data-bbox="380 524 1094 1141"><u>Construct and Operate a Salmonid Migratory Barrier at Georgiana Slough.</u> A salmonid migratory barrier at Georgiana Slough is expected to provide a higher probability of survival for emigrating juvenile CHNWR and CHNSR that encounter the Sacramento River- Georgiana Slough junction and reduce entrainment of emigrating CHNWR and CHNSR into the central and south Delta. Permittee shall construct and operate a salmonid migratory barrier at Georgiana Slough within three years of the effective date of this ITP. This timeline shall be subject to Permittee attaining required state and federal permits. If permits are not obtained within 2.5 years after the effective date of this ITP, Permittee shall confer with CDFW to determine a timeline for permit acquisition and construction of the migratory barrier.</p> <p data-bbox="380 1190 1094 1404">Permittee shall develop a Georgiana Slough Migratory Barrier Operations Plan and associated operating criteria in collaboration with CDFW, USFWS and NMFS to maximize benefits to migrating CHNWR and CHNSR. Permittee shall prepare a draft Georgiana Slough Migratory Barrier</p>		<p data-bbox="1409 524 1986 667">Permittee shall construct and operate a salmonid migratory barrier at Georgiana Slough within three years of the effective date of this ITP (by March 30, 2023).</p> <ul data-bbox="1444 678 2028 1003" style="list-style-type: none"> • Design completed • Equipment procurement almost completed • Construction Contractor selected • Property access completed • Completed installation of GSS exclusion fence for the project staging area on September 28, 2022 <p data-bbox="1409 1060 1986 1162">Permittee shall attain required State and federal permits within 2.5 years after the effective date of this ITP.</p> <ul data-bbox="1444 1174 2028 1320" style="list-style-type: none"> • USFWS provided a signed Biological Opinion for the Georgiana Slough Salmonid Migratory Barrier Project on May 27, 2022

Condition	Mitigation Measure	Implementation Schedule	Status/Date/Initials
	<p>Operations Plan and submit it to CDFW, USFWS, and NMFS at least 120 days before beginning construction and deployment of the barrier. Operation of the Georgiana Slough Migratory Barrier shall not commence until the final Georgiana Slough Migratory Barrier Operations Plan and associated criteria are approved in writing by CDFW.</p> <p>Permittee as part of the AMP shall continue pilot investigations to refine the understanding of barrier efficiency and benefits to Covered Species in coordination with CDFW, NMFS and USFWS. This ITP does not provide take authorization for construction of the migratory barrier at Georgiana Slough. Permittee shall submit a separate 2081(b) application for incidental take authorization associated with construction of the barrier.</p>		<ul style="list-style-type: none"> • Real Estate Branch received State Land Commission MOU on July 7, 2022 • NMFS has provided signed Biological Opinion for the Georgiana Slough Salmonid Migratory Barrier Project on August 29, 2022 • CDFW issued a final Land and Streambed Alteration Agreement issued on September 4, 2022 • CEQA document released, NOI submitted to State Clearinghouse October 1, 2021 • DWR approved and signed NOD and IS-MND on March 25, 2022 • 408 letter of completion is expected to issue by middle November 2022 • A separate Incidental Take Permit (CDFW 2081(b)) for construction of this project is expected in early 2023 <p>Permittee developed a Georgiana Slough Migratory Barrier Operations Plan and associated operating criteria in collaboration with CDFW, USFWS, and NMFS to maximize benefits to migrating CHNWR and CHNSR.</p> <ul style="list-style-type: none"> • Final operation plan completed in May 2022

Condition	Mitigation Measure	Implementation Schedule	Status/Date/Initials
8.9.2	<p><u>Evaluate Benefits of Salmonid Guidance Structures at Sutter and Steamboat Sloughs.</u> Fish guidance structures near the junction between the Sacramento River and Sutter and Steamboat sloughs are expected to provide a higher probability of survival for emigrating juvenile CHNWR and CHNSR by increasing the proportion</p>	Throughout the term of the ITP.	<p>Permittee as part of the AMP shall continue pilot investigations to refine the understanding of barrier efficiency and benefits to Covered Species in coordination with CDFW, NMFS and USFWS.</p> <ul style="list-style-type: none"> • Due to project construction delays, there won't be a monitoring study plan implemented in 2023. However, DWR is currently working on completing the draft study plan and monitoring plan for the following year, 2024 • Once the finalized plan is updated for 2024, it will be distributed to the ITP workgroup as planned <p>Per discussions with regulatory, construction has been moved to January/February 2023 to meet ITP operation requirements for March 31, 2023. The usual operation window is generally five to seven months (November – May) but a shorter two- to three-month window is expected (March – May) in 2023 (commissioning year).</p> <p>Within two years of the effective date of this ITP, Permittee shall use SDM, in collaboration with CDFW, NMFS, and USFWS, to evaluate a range of potential approaches to designing and operating fish guidance structures.</p>

Condition	Mitigation Measure	Implementation Schedule	Status/Date/Initials
8.10	<p>of juveniles that enter Sutter and Steamboat sloughs and minimizing the proportion of juveniles that migrate into the central and south Delta.</p> <p>Within two years of the effective date of this ITP, Permittee shall use SDM, in collaboration with CDFW, NMFS, and USFWS, to evaluate a range of potential approaches to designing and operating fish guidance structures near Sutter and Steamboat sloughs. Permittee shall submit a draft report documenting the results of the SDM process and associated implementation recommendations to CDFW, NMFS, and USFWS within three years of the effective date of this ITP.</p> <p><u>SWP Proportional Share</u>. Due to the historically coordinated operations of the SWP and CVP, joint operational criteria related to OMR flows and</p>	Throughout the term of the ITP.	<ul style="list-style-type: none"> • SDM workgroups with required resource agency representatives established and at least 16 formal working group sessions completed • Fish guidance structure alternatives, evaluation criteria, and metrics were identified <ul style="list-style-type: none"> ○ Determined that initial development of alternatives should focus on Steamboat Slough ○ Currently assessing performance of identified alternatives according to identified evaluation criteria <p>Permittee shall submit a draft report documenting the results of the SDM process and associated implementation recommendations to CDFW, NMFS, and USFWS within three years of the effective date of this ITP (March 31, 2023).</p> <ul style="list-style-type: none"> • On February 15, 2023, the working group (CDFW, NMFS, and USFWS) received the Draft Guidance Structure Evaluation Report for review • Final report to be submitted to the Salmon Migration Coordination Group Steering Committee before March 31, 2023 <p>All applicable OMR flow and export restrictions for the SWP per COA 8.10 were met in WY 2022. Because of drought</p>

Condition	Mitigation Measure	Implementation Schedule	Status/Date/Initials
	<p>export restrictions have been developed for SWP and CVP that assume coordinated implementation by Permittee and Reclamation. Conditions of Approval 8.3.1, 8.3.2, 8.3.3, 8.4.1, 8.4.2, 8.5.1, 8.5.2, 8.6.1, 8.6.2, 8.6.3, 8.6.4, 8.7, 8.8, and 8.17 set out such operational criteria that assume coordination by Permittee and Reclamation to meet the criteria and that are subject to the process set out in this condition.</p> <p>During the term of this ITP there may be instances when operational requirements stated in or determined by these Conditions of Approval are different from operational requirements of the applicable ESA authorizations, which govern operations at the CVP as well as the SWP. If an operational restriction required by this ITP, pursuant to one or more of the Conditions of Approval listed above, is more restrictive than the then-controlling operations required by the applicable ESA authorizations, Permittee shall take the following steps to meet its proportional share of the operational criteria stated or determined by the Condition of Approval(s) at issue:</p> <ol style="list-style-type: none"> 1) Permittee is legally bound, both statutorily and through agreements with the Bureau of Reclamation, not to utilize State facilities (including the CCF, Banks Pumping Plant, the California Aqueduct, and the SWP share of San Luis Reservoir) or allow third parties (including the CVP) to use State facilities in a manner that 		<p>conditions, the SWP operated to health and safety standards in April and May.</p>

Condition	Mitigation Measure	Implementation Schedule	Status/Date/Initials
	<p>would result in a violation of law, including the operational criteria stated in or determined by Conditions of Approval 8.3.1, 8.3.2, 8.3.3, 8.4.1, 8.4.2, 8.5.1, 8.5.2, 8.6.1, 8.6.2, 8.6.3, 8.6.4, 8.7, 8.8, and 8.17 of this ITP.</p> <p>2) If prohibiting the use of state facilities for CVP purposes will not result in conditions that meet the operational criteria stated in or determined by the Condition of Approval at issue, Permittee shall provide CDFW with a written estimate of the total allowed exports at both the SWP and CVP facilities that would be required to meet the operational criteria stated in or determined by the Condition of Approval at issue.</p> <p>3) Under Excess Conditions: Based on the written estimate prepared under paragraph 2 of this condition, Permittee shall reduce exports at the Banks Pumping Plant to 40% of the estimated total allowed exports that would be allowed if both the SWP and CVP were operating to meet the requirement stated in or determined by the Condition of Approval at issue.</p>		
	<p>Under Balanced Conditions: Based on the written estimate prepared under paragraph 2 of this condition, Permittee shall reduce exports at the Banks Pumping Plant to 35% of the estimated total allowed exports that would be allowed if both the SWP and CVP were operating to meet the requirement stated in or</p>		

Condition	Mitigation Measure	Implementation Schedule	Status/Date/Initials
	<p>determined by the Condition of Approval at issue.</p>		
	<p>Excess and Balanced Conditions are defined in Section 1.4 of the Project Description. The SWP shares of allowable exports in Step 3 above are defined based on the SWP share of exports during excess and balanced conditions described in the 2018 COA Addendum. This condition in combination with other Conditions of Approval required by this ITP are intended to further satisfy Permittee's obligations pursuant to CESA. If the COA is revised after the effective date of this ITP, Permittee shall notify CDFW per Condition of Approval 5.</p>		
8.11	<p>Permittee shall not be required to reduce exports below 600 cfs, the minimum required to health and safety standards.</p> <p><u>Ongoing comparison of OMR Index to Tidally Filtered OMR.</u> The United States Geological Survey (USGS) Tidally Filtered Method to calculate OMR flow is defined in the NMFS 2009 BiOp and uses values reported by the USGS for the Old River at Bacon Island and Middle River at Middle River monitoring stations. Permittee shall continue to calculate and report OMR as estimated using the USGS Tidally Filtered Method in all risk analyses conducted as a part of the Smelt and Salmon Monitoring Teams and reported to the WOMT, in addition to OMR flows as calculated</p>	Throughout the term of the ITP.	DWR has continued to calculate and report OMR as estimated using the USGS Tidally Filtered Method in all risk analyses conducted as a part of the Smelt and Salmon Monitoring Teams and reported to the WOMT, in addition to OMR flows as calculated using the OMR Index. Data comparing the daily OMR Index and USGS Tidally Filtered OMR over Water Year 2022 are provided in Appendix C.

Condition	Mitigation Measure	Implementation Schedule	Status/Date/Initials
8.12	<p>using the OMR Index. Permittee shall provide raw data for the daily OMR Index and USGS Tidally Filtered OMR and a report comparing the estimates over the prior water year annually as a part of the ASR (Condition of Approval 7.2).</p> <p><u>Barker Slough Pumping Plant Longfin and Delta Smelt Protection</u>. Permittee shall operate the BSPP to protect larval LFS from January 15 through March 31 of dry and critical water years. Permittee shall operate to protect larval DS from March 1 through June 30 of dry and critical years. If the water year type changes after January 1 to below normal, above normal or wet, this action will be suspended. If the water year type changes after January to dry or critical, Permittee shall operate according to this Condition of Approval.</p> <p>From January 15 through March 31 of dry and critical water years, Permittee shall reduce the maximum seven-day average diversion rate at BSPP to less than 60 cfs when larval LFS are detected at Station 716. In addition, in its weekly meetings from January 15 through March 31, the Smelt Monitoring Team shall review LFS abundance and distribution survey data and other pertinent abiotic and biotic factors that influence the entrainment risk of larval LFS at the BSPP. When recommended by the Smelt Monitoring Team, and as approved through the decision-making processes described in Conditions of Approval 8.1.3 and 8.1.4, Permittee shall reduce</p>	Throughout the term of the ITP.	<p>Barker Slough Pumping Plant restrictions for larval LFS were triggered four times in WY 2022, at the February 15, February 22, March 15, and March 22 SMT meetings. Restrictions for larval Delta Smelt were triggered once on March 29.</p> <p>See Water Year 2022 Seasonal Report for Old and Middle River Flow Management for all details.</p>

Condition	Mitigation Measure	Implementation Schedule	Status/Date/Initials
	<p>the maximum seven-day average diversion rate at BSPP according to the advice provided by the Smelt Monitoring Team.</p> <p>From March 1 through June 30 of dry and critical water years, Permittee shall reduce the maximum seven-day average diversion rate at BSPP to less than 60 cfs when larval DS are detected at Station 716. In addition, in its weekly meetings from March 1 through June 30, the Smelt Monitoring Team shall review DS abundance and distribution survey data and other pertinent abiotic and biotic factors that influence the entrainment risk of larval DS at the BSPP (including temperature and turbidity). When recommended by the Smelt Monitoring Team, and as approved through the decision-making processes described in Conditions of Approval 8.1.3 and 8.1.4, Permittee shall reduce the maximum seven-day average diversion rate at BSPP to less than 60 cfs.</p> <p><i>From April 1 through June 30, 2022 Permittee shall meet and confer with CDFW when larval DS are detected at Station 716 to determine a maximum diversion rate between 60 – 100 cfs at the BSPP that would serve to 1) minimize the entrainment risk of larval DS and 2) allow deliveries to customers that would support their minimum health and safety requirements and proactively prevent a situation where a community within the North Bay Aqueduct</i></p>		

Condition	Mitigation Measure	Implementation Schedule	Status/Date/Initials
8.13	<p data-bbox="380 277 1100 971"><i>service area runs out of drinking water. During the meet and confer process Permittee and CDFW will review the most recent available hydrological data, storage levels and other information regarding any alternative water sources available to customers of the North Bay Aqueduct, as well as DS survey data and other pertinent abiotic and biotic factors that influence the entrainment risk of larval DS at the BSPP (including temperature and turbidity), informed by recent risk assessments by the SMT. The final maximum diversion rate shall be subject to CDFW approval. Permittee and CDFW shall meet and confer every two weeks through June 30 if larval DS continue to be detected at Station 716 to identify any updated information and consider adjustments to the maximum diversion rate, within the 60-100 cfs range and subject to CDFW approval.</i></p> <p data-bbox="380 1015 1058 1154">The DS requirements described in this condition may be adjusted to align with USFWS requirements to minimize take of DS through an amendment to this ITP.</p> <p data-bbox="380 1203 1100 1352">Note: Amended language in <i>bold italics</i> <u>Water Year Type Definition</u>. All references to water year type in this ITP shall be defined based on the Sacramento Valley Index unless otherwise noted.</p>	Throughout the term of the ITP.	DWR will define water year type based on the Sacramento Valley Index unless otherwise noted.

Condition	Mitigation Measure	Implementation Schedule	Status/Date/Initials
8.14	<p data-bbox="380 277 1094 418"><u>Clifton Court Forebay Aquatic Weed Control Practices</u>. Permittee may apply Aquathol K and copper-based aquatic pesticides, as needed, from June 28 to August 31.</p> <p data-bbox="380 467 1094 938">Permittee may apply Aquathol K and copper-based aquatic pesticides, if necessary, prior to June 28 or after August 31 if the average daily water temperature within the CCF is greater than or equal to 25°C, and if DS, LFS, CHNWR and CHNSR are not at additional risk from the treatment, as confirmed by CDFW, NMFS and USFWS. Before applying aquatic pesticides outside of the June 28 to August 31 time frame, Permittee shall notify and confer with CDFW, NMFS and USFWS to determine whether ESA- or CESA-listed fish species are present and at risk from the proposed treatment.</p> <p data-bbox="380 987 1094 1198">Permittee may apply Aquathol K and copper-based aquatic pesticides, outside of the June 28 to August 31 timeframe and when the average daily water temperature in the CCF is below 25°C only as approved by CDFW and subject to the following conditions. Permittee shall:</p> <ul data-bbox="401 1219 1062 1359" style="list-style-type: none"> • Close the CCF radial gates for 24 hours after Aquathol K application is completed, unless CDFW determines that rapid dilution of the herbicide would be beneficial to reduce the 	Throughout the term of the ITP.	Aquatic weed treatments occurred on two occasions during the reporting period. After conferring with CDFW that no CESA-listed fish species were present and at risk, a treatment was conducted on November 4, 2021. A second treatment was conducted on June 28, 2022, which was within the permitted work window. The aquatic herbicides were applied within permissible concentration limits. All treatment conditions were followed.

Condition	Mitigation Measure	Implementation Schedule	Status/Date/Initials
	<p>exposure duration to Covered Species present within the CCF.</p> <ul style="list-style-type: none"> <li data-bbox="401 358 1087 570">• Monitor the salvage of Covered Species at the Skinner Fish Facility prior to the application of the aquatic herbicides and algaecides in the CCF. If salvage of Covered Species occurs Permittee shall confer with CDFW prior to initiating aquatic weed control. <li data-bbox="401 581 1104 829">• Close the radial intake gates at the entrance to the CCF for at least 24 hours prior to the application of Aquathol K and copper compounds pesticides to allow fish to move out of the targeted treatment areas and toward the salvage facility and to minimize the possibility of aquatic pesticide diffusing into the Delta. <li data-bbox="401 841 1104 1235">• Close the radial gates for a minimum of 12 and up to 24 hours after treatment with Aquathol K and copper compounds to allow for the recommended duration of contact time between the aquatic pesticide and the treated vegetation or cyanobacteria in CCF, and to reduce residual endothall concentration for drinking water compliance purposes. Permittee shall not open radial gates until a minimum of 36 hours (24 hours pre-treatment closure plus 12 hours post-treatment closure). <li data-bbox="401 1247 1094 1386">• Close the radial gates prior to the application of peroxide-based algaecides to minimize the possibility of the algaecide diffusing into the Delta. Permittee may reopen the radial gates 		

Condition	Mitigation Measure	Implementation Schedule	Status/Date/Initials
	<p>immediately after treatment with peroxide-based algaecides.</p> <ul style="list-style-type: none"> • Ensure that aquatic herbicides are applied by a licensed applicator under the supervision of a California Certified Pest Control Advisor. • Apply aquatic herbicides and algaecides by boat or by aircraft. • Apply aquatic herbicides by boat using a subsurface injection system for liquid formulations and a boat-mounted hopper dispensing system for granular formulations. Applications shall start at the shoreline and move systematically farther offshore, enabling fish to move out of the treatment area. • Use helicopter or aircraft for aerial application of aquatic herbicides during times when wind speeds are less than 15 mph to prevent spray drift. • Restrict application to the smallest area possible (no more than 50% of the CCF at one time) that provides relief to SWP operations or water quality. • Collect water quality samples to monitor copper and endothall concentrations within or adjacent to the treatment area, per NPDES permit requirements, before, during and after application. Additional water quality samples may be collected during the following treatment for drinking water compliance purposes. 		

Condition	Mitigation Measure	Implementation Schedule	Status/Date/Initials
8.15	<p>Measure dissolved oxygen concentration prior to and immediately following application within and adjacent to the treatment zone</p> <p><u>Skinner Fish Salvage Facility CDFW Staff</u>. To support implementation of Conditions of Approval 7.4, 7.4.1, 7.4.2 and 7.4.3 Permittee shall fully fund two existing Environmental Scientist and one new Senior Environmental Scientist Specialist CDFW staff positions to work collaboratively with DWR Skinner Fish Salvage Facility staff starting on July 1 in the same year this ITP becomes effective. Permittee shall work collaboratively with these CDFW staff to ensure that they have the access and information needed to perform their duties and discuss roles and responsibilities relative to existing DWR facility staff. CDFW staff duties will include, but not be limited to, the following:</p> <ul style="list-style-type: none"> • Receive daily salvage data from the SWP and CVP fish salvage facilities, • Conduct salvage data QA/QC, • Train salvage facility staff, • Monitor salvage facility operations, • Work collaboratively with DWR staff to develop a revised Skinner Fish Facility Operations Manual v 2.0 October 19. 2005 (see Condition of Approval 7.4.2), • Review annual salvage reports, • Receive notifications regarding inspections or maintenance of fish protective equipment, 	Throughout the term of the ITP.	The agreement for DWR to provide full funding to CDFW for the two existing Environmental Scientist and one new Senior Environmental Scientist CDFW staff positions was the subject of negotiation into WY 2021. DWR and CDFW met and corresponded regularly to collaboratively develop the terms of the agreement, which was successfully completed and approved by the Department of General Services on June 27, 2021, with the effective dates of January 1, 2021, through June 30, 2025.

Condition	Mitigation Measure	Implementation Schedule	Status/Date/Initials
8.16	<ul style="list-style-type: none"> • Work collaboratively with Permittee to develop a new protocol which describes the decision-making process prior to reducing sampling times, • Engage in real-time decision making to determine whether reduced count times are needed and measures to ensure adequate detection of Covered Species during reducing count times, and • Conduct special studies to refine estimates of entrainment, expanded salvage, and loss (see Condition of Approval 7.4.3) <p>Permittee shall provide reasonable access to the Skinner Fish Salvage Facility for the three CDFW staff identified in this Condition of Approval.</p> <p><u>Relationship Between the Adaptive Management Program and This ITP.</u> The Adaptive Management Program (Attachment 2, AMP) shall be used to consider and address scientific uncertainty regarding the Bay-Delta ecosystem, Covered Species ecology, and to inform the understanding of minimization of take and impacts of the taking associated with the operational criteria in this ITP. The AMP may result in recommendations regarding operational components described in Conditions of Approval in this ITP, and consequently Permittee may request amendment of this ITP based on new information developed through new science and monitoring (Condition of Approval 5) and according to the amendment</p>	Throughout the term of the ITP.	An Adaptive Management Team (AMT) was formed, consisting of two designated representatives each from DWR, CDFW, and the SWC. The AMT has identified key adaptive management tasks and timelines associated with specific Actions in the ITP, which will be important to consider as part of the Adaptive Management Program (AMP). The AMT agreed that individual adaptive management plans should be developed for specific Actions that are subject to adaptive management to best guide an Action through an adaptive management cycle. Some of these individual adaptive management plans have been drafted for

Condition	Mitigation Measure	Implementation Schedule	Status/Date/Initials
	<p>standards and processes identified in CESA’s implementing regulations. The AMP shall be used to build scientific understanding of Covered Species and evaluate potential changes in the operational criteria in this ITP. The AMP (Attachment 2) describes this structure and steps associated with adaptive management in more detail.</p> <p>The AMP does not govern real-time operations. Recommendations of the AMP shall not commit Permittee or CDFW to a definite course of action related to ITP amendments. The AMP shall not modify CDFW’s discretionary decision-making as set out in the Conditions of Approval, CESA, or CESA’s implementing regulations.</p> <p>Condition of Approval 5 describes circumstances when CDFW anticipates that Permittee may request an amendment to this ITP in the future, including amendments that may be requested in response to recommendations from the AMP.</p>		<p>specific actions (e.g., operations of the Suisun Marsh Salinity Control Gates) and others are still being developed. These individual adaptive management plans are a key part of the overarching AMP as outcomes from them will help inform scientific understanding of Covered Species and evaluate potential changes in the ITP’s operational criteria. The AMP contained within the ITP (i.e., Attachment 2 of the ITP, refined in early 2021), will continue to serve as the foundation for adaptive management under the ITP, and the AMT is currently discussing some approaches to bolster that document. Finally, the AMT has been in discussions with the Delta Science Program (DSP), and they are willing to help provide facilitation and peer-review support during the 4-yr review cycle for several ITP Actions (e.g., Summer-Fall Habitat Action, Spring Run Juvenile Production Estimate). As these reviews are an integral part of the AMP, the AMT is working to ensure the necessary resources are available to complete these reviews.</p>
8.17	<p><u>Export Curtailments for Spring Outflow.</u> As described in Sections 1.5 and 3.17 of the Project Description, as part of the Voluntary Agreement process, Permittee and its SWP Contractors have proposed a reduction in SWP exports to protect outflows in the spring time period. Each year,</p>	Throughout the term of the ITP.	The applicable E/I export curtailments for spring outflow described in the COA 8.17 did not restrict exports in WY 2022 because the project’s exports were already below 1,500 cfs for the entirety of the April through May period to address other regulations and the

Condition	Mitigation Measure	Implementation Schedule	Status/Date/Initials
	<p>following the finalization of the March forecast, Permittee will confer with CDFW regarding export reductions from April 1 to May 31. If in any year during the term of this ITP, Permittee and its SWP Contractors identify in a written operations plan, submitted to CDFW following the March forecast, and throughout April and May conduct SWP export reductions pursuant to the Voluntary Agreements that are consistent with the SWP export reductions required by this Condition, then the Voluntary Agreement implementation may satisfy the reductions required to meet this Condition.</p> <p>The following shall be implemented by Permittee during any year in which SWP export reductions pursuant to the Voluntary Agreements are not identified and conducted as described in the preceding paragraph. Permittee shall operate the Project during the spring each year to restrict exports and enhance Delta outflow.</p> <p>Permittee shall reduce exports from April 1 to May 31 each year to achieve the SWP proportional share (Condition of Approval 8.10) of export reductions established by the ratio of Vernalis flow (cfs) to combined CVP and SWP exports, scaled by water year type, to provide incidental spring outflow. In a critically dry year, the ratio of Vernalis flow to CVP and SWP combined exports shall be 1 to 1. In a dry year, the ratio of Vernalis flow to CVP and SWP combined exports shall be 2 to 1. In a</p>		<p>unavailability of water. DWR and Reclamation were under a TUCO during this permit per our request from the State Water Board so operated at health and safety.</p>

Condition	Mitigation Measure	Implementation Schedule	Status/Date/Initials
	<p>below normal year, the ratio of Vernalis flow to CVP and SWP combined exports shall be 3 to 1. In an above normal or wet year, the ratio of Vernalis flow to CVP and SWP combined exports shall be 4 to 1¹. In wet years SWP export curtailments required by this Condition of Approval for spring outflow in April and May is limited to 150 TAF. The ratio of Vernalis flows to export reductions is intended to serve as an operational mechanism to achieve the Delta outflow required by this Condition of Approval for minimization of the Covered Activities' impacts to Covered Species.</p> <p>For purposes of this Condition of Approval only, the Joaquin Valley "60-20-20" Water Year Hydrologic Classification and Indicator as defined in the Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary (SWRCB 2006) is used.</p> <p>Permittee shall not be required to restrict operations as described above under either of the following circumstances:</p> <ul style="list-style-type: none"> • If the three-day average Delta outflow is greater than 44,500 cfs, then Project operations shall not be controlled by this Condition until the flows drop below 44,500 cfs on a three-day average. • Permittee shall not be required by this Condition of Approval to restrict exports at the 		

Condition	Mitigation Measure	Implementation Schedule	Status/Date/Initials
	<p>Banks Pumping Plant below its minimum health and safety exports of 600 cfs.</p> <p>The ratios used to establish export restrictions by water year type are a tool that incorporates San Joaquin River inflows while also allowing for a high outflow offramp of 44,500 cfs, which is expected to be driven by inflow from the Sacramento River. Spring export curtailments are intended to augment Delta outflow during a critical time in the life history of all four Covered Species. When April and May Delta outflow is augmented salinity in Suisun Bay is reduced and central Delta productivity is dispersed westward, improving habitat for both Delta and longfin smelt. At the upper end of managed flows when X2 is in San Pablo Bay, export curtailments help maintain this favorable location and sustain food web productivity and other conditions for improved longfin smelt recruitment in San Pablo Bay. Reductions in outflow during such conditions could restrict longfin smelt nursery habitat upstream to less favorable habitat in Carquinez Strait. Augmenting spring outflow through export curtailments improves migratory conditions for CHNWR and CHNSR by reducing Covered Activities' impacts on routing and through-Delta survival. Maintaining a higher Delta outflow during this time period will also provide a proactive approach to entrainment minimization that is expected to reduce CHNWR and CHNSR routing into the central and south Delta and</p>		

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8.18	<p>minimize loss of all Covered Species at the SWP export facility. Additionally, increases in Delta outflow are associated with increased food web transport to, and productivity in, Suisun Bay.</p> <p>Immediately following the SWRCB's adoption of final Voluntary Agreements Permittee, SWC and CDFW will meet and confer to review the Project in light of the final form of the Voluntary Agreements. Consistent with Condition of Approval 5, CESA, and CESA's implementing regulations, the Permittee and CDFW, in consultation with SWC and as appropriate depending on the results of that review, may replace the ratio of Vernalis flows to exports used as an operational mechanism to determine spring outflow volumes in this condition of approval, based on the final Voluntary Agreements and as part of such amendment process.</p> <p><u>Potential to Redeploy up to 150 TAF for Delta Outflow.</u> Permittee shall curtail exports at the Banks Pumping Plant to maintain the SWP contribution to spring Delta outflow as required by Condition of Approval 8.17 from April 1 to May 31.</p> <p>If approved in writing by CDFW, Permittee may increase exports at the Banks Pumping Plant between April 1 and May 31 above what would otherwise be allowed by operating to Condition of Approval 8.17. When making the determination</p>	Throughout the term of the ITP.	WY 2021 was critically dry; therefore, there was no opportunity to develop a 150 TAF block of water to redeploy in WY 2022.

Condition	Mitigation Measure	Implementation Schedule	Status/Date/Initials
	<p>about whether to approve an increase in exports CDFW will weigh the benefits of increasing exports to bank water for other purposes against the risk of entrainment of Covered Species or impacting Covered Species habitat during that water year.</p> <p>If an increase in Project exports is approved by CDFW in April and May, the increase in the volume of water exported during this time period, up to 150 TAF (hereafter Spring Outflow Block), shall be accounted for by Permittee and available for use by CDFW after March 1 of the next water year, except if the following year is critical. The Spring Outflow Block is in addition to the water required to achieve criteria in Table 9-A in Condition of Approval 9.1.3.1 and the Additional 100 TAF Block (Condition of Approval 8.19). Condition of Approval 8.19, Delta Outflow Operations Plan and Report, describes the required planning, accounting, and reporting process that shall be used by Permittee, in collaboration with CDFW, each year following a water year in which CDFW approves an increase in exports during April and May. CDFW is most likely to approve an increase in exports for the purpose of building a Spring Outflow Block in wetter water years.</p> <p>In wet water years Permittee may export no more than 30 TAF above what would be allowed by operating to Condition of Approval 8.17. This 30 TAF is intended to offset the water required to</p>		

Condition	Mitigation Measure	Implementation Schedule	Status/Date/Initials
	<p>operate SMSCG for 30 days during summers of dry years that follow a below normal water year as described in Condition of Approval 9.1.3.1, Table 9-A. The timing and magnitude of exports to capture 30 TAF in a wet year shall be described in the Delta Outflow Operations Plan (Condition of Approval 8.20) to avoid sharp reductions in Delta outflow during April and May that may increase take of Covered Species as a result of entrainment into the central and south Delta.</p> <p>In addition, Permittee shall provide a Spring Outflow Block Report to CDFW by August 1 of the same water year in which the increased exports are approved by CDFW. The Spring Outflow Block Report shall quantify the increase in Project exports, account for the water available in the Spring Outflow Block, and include the following daily information from April 1 through May 31:</p> <ul style="list-style-type: none"> • Delta outflow • Delta conditions (excess vs. balanced) • Total exports at Banks Pumping Plant • Jones Pumping Plants • OMR index • San Joaquin inflow • Flow at Freeport • Controlling factor each day and associated SWP allowable exports • Estimated daily exports at Banks Pumping Plant from April 1 – May 31 of that year that 		

Condition	Mitigation Measure	Implementation Schedule	Status/Date/Initials
	<p>would have occurred if all SWP operations remained the same except exports were restricted by operating to Condition of Approval 8.17</p> <p>Permittee shall address comments and questions from CDFW on the draft Spring Outflow Block Report before it is finalized and submitted to CDFW for approval, no later than October 31.</p> <p>The following water year, Permittee shall adjust operations of the Project to provide the Spring Outflow Block (as specified in the CDFW-approved Delta Outflow Operations Plan, Condition of Approval 8.20), unless that water year is critical. The Spring Outflow Block shall be stored in Oroville Reservoir and will be subject to spill if redeployed to the following year.</p> <p>Permittee shall ensure that the water provided by the SWP achieves the defined purpose in the CDFW-approved Delta Outflow Operations Plan by dedicating the Spring Outflow Block of water to outflow for the duration of this ITP through agreements with downstream water users, a term-limited Section 1707 dedication as provided under the California Water Code, reliance on Term 91 conditions as enforceable by the SWRCB, or other means to ensure the water is not diverted for any intended use other than Delta outflow.</p>		

Condition	Mitigation Measure	Implementation Schedule	Status/Date/Initials
8.19	<p data-bbox="380 277 1104 634"><u>Additional 100 TAF for Delta Outflow.</u> To provide benefits to DS or LFS during a critical part of their life histories Permittee shall operate the project to provide a flexible block of water to enhance Delta outflow during the spring, summer, or fall months. Permittee shall provide 100 TAF of water to supplement Delta outflow (Additional 100 TAF) as approved by CDFW. Permittee shall provide the Additional 100 TAF of water subject to the following conditions:</p> <ul data-bbox="401 651 1104 1414" style="list-style-type: none"> <li data-bbox="401 651 1104 894">• This water may be used in June through September of wet and above normal water years, and the October immediately following, to supplement Delta outflow in addition to flow required to meet the criteria in Condition of Approval 9.1.3.1, Table 9-A, and improve DS habitat. <li data-bbox="401 911 1104 1414">• As approved by CDFW, the Additional 100 TAF of water available in a wet or above normal water year may instead be deferred and redeployed in the following water year to supplement Delta outflow during the March through September time period, or the October immediately following the end of that water year. The Additional 100 TAF shall be provided in addition to outflow required to meet the criteria in Table 9-A of Condition of Approval 9.1.3.1 in that following year, except if the following year is dry. The Additional 100 TAF is not required to be provided if the following water year is critical as determined by the May 	Throughout the term of the ITP.	Because of the dry conditions, there was no 100 TAF carryover from WY 2021 to use in WY 2022 as described in COA 8.19.

Condition	Mitigation Measure	Implementation Schedule	Status/Date/Initials
	<p>forecast with planning beginning in February each year as described in Condition of Approval 8.20, Delta Outflow Operations Plan and Report.</p> <ul style="list-style-type: none"> • The Additional 100 TAF shall be stored in Oroville Reservoir and will be subject to spill from Oroville Reservoir if redeployed to the following year. • The Additional 100 TAF from a wet or above normal water year may be deferred only to the following water year, or the October immediately following the end of that water year. <p>Permittee shall provide the Additional 100 TAF as described in the CDFW-approved Delta Outflow Plan (Condition of Approval 8.20). In determining the use of the Additional 100 TAF, CDFW and Permittee will plan for the possibility that the following year is dry and this water would be needed to operate the SMSCG for 60 days during the June – October time period. Sixty days of SMSCG operations in the summer of a dry year is anticipated to require an additional 60-70 TAF of Delta outflow to ensure that other Project operating requirements (including Delta salinity standards) are met. CDFW anticipates that another high-priority use of the Additional 100 TAF, if deferred and redeployed to the following year, would be to supplement outflow in the spring of below normal water years.</p>		

Condition	Mitigation Measure	Implementation Schedule	Status/Date/Initials
8.20	<p>Permittee shall ensure that the water provided by the SWP achieves the defined purpose in the CDFW-approved Delta Outflow Operations Plan by dedicating the 100 TAF to outflow for the duration of this ITP through agreements with downstream water users, a term-limited Section 1707 dedication as provided under the California Water Code, reliance on Term 91 conditions as enforceable by the SWRCB, or other means to ensure the water is not diverted for any intended use other than Delta outflow.</p> <p><u>Delta Outflow Operations Plan and Report.</u> Conditions of Approval 8.18 and 8.19 describe blocks of water that shall be made available to supplement spring, summer or fall Delta outflow at the discretion of CDFW. Additionally, Condition of Approval 9.1.3.1 describes a requirement to operate the SMSCG during above normal, below normal, and dry water years and operate to an X2 standard in September and October of wet and above normal water years. Each year, to facilitate the planning, accounting, and reporting of these Conditions of Approval, Permittee shall:</p> <ol style="list-style-type: none"> 1) Develop and operate to a Delta Outflow Operations Plan: <ul style="list-style-type: none"> • Beginning no later than February 1, work collaboratively with CDFW to develop a draft Delta Outflow Operations Plan that describes: <ul style="list-style-type: none"> ◦ The amount of water available to supplement Delta outflow associated with the Additional 100 TAF (Condition of 	Throughout the term of the ITP.	DWR and CDFW collaborated and jointly reached a decision, documented in an email dated March 29, 2022, that there was no need for DWR to prepare a Delta Outflow Operations Plan or Report for WY 2022.

Condition	Mitigation Measure	Implementation Schedule	Status/Date/Initials
	<p>Approval 8.19) and Spring Outflow Block (Condition of Approval 8.18).</p> <ul style="list-style-type: none"> ○ The timing and volume of water to be made available on a daily basis between March 1 and October 31 associated with the available blocks of water. ○ Anticipated Project operational actions (e.g., export restrictions or storage releases) that would be taken to ensure the available blocks of water supplement Delta outflow. ○ An accounting of how and when each available block of water would be used to supplement Delta outflow in addition to water required to operate to X2, SMSCG operational criteria, or other controlling operational criteria as required in Table 9-A and Condition of Approval 9.1.3.2. ○ Ongoing coordination with CDFW throughout deployment of the available blocks of water to evaluate operations relative to the requirements described in the Final Delta Operations Plan. <ul style="list-style-type: none"> ● Permittee shall work collaboratively with CDFW on an ongoing basis after February 1 to update the draft Delta Outflow Operations Plan based on refinements in understanding of Covered Species status and distribution, Project operations, and hydrologic and temperature forecasts. 		

Condition	Mitigation Measure	Implementation Schedule	Status/Date/Initials
	<ul style="list-style-type: none"> • Submit the draft Delta Outflow Operations Plan to CDFW no less than 15 days prior to the start date of operational requirements described in the plan and incorporate CDFW comments and edits into the final plan no less than five days prior to the start of operational requirements described in the plan. • Operate the Project consistent with the final CDFW-approved Delta Outflow Operations Plan. <p>2) By October 31, submit to CDFW a draft Delta Outflow Operations Report that includes the following daily information throughout the duration of the implementation of the Delta Outflow Operations Plan that year:</p> <ul style="list-style-type: none"> • Delta outflow • Total exports at Banks Pumping Plant • Total exports at Jones Pumping Plant • OMR index • USGS Tidally Filtered OMR flow • San Joaquin inflow • Flow at Freeport • Flow on the Feather River immediately below Thermalito • State and federal share stored in San Luis Reservoir • Releases from the following reservoirs: <ul style="list-style-type: none"> ○ Nimbus ○ Keswick ○ Oroville ○ Whiskeytown 		

Condition	Mitigation Measure	Implementation Schedule	Status/Date/Initials
	<ul style="list-style-type: none"> • Jersey Point salinity • Salinity at Belden’s Landing • Flow as measured at Lisbon Weir • Delta outflow controlling factor each day and associated allowable SWP exports • Minimum required Delta outflow that would be required to meet applicable controlling standards • Documentation of the volume and timing of the Additional 100 TAF and Spring Outflow Block planned to be used in that year according to the CDFW-approved Delta Outflow Operations Plan • Depiction of operations that would have occurred during the timeframe outlined in the Delta Outflow Operations Plan for that water year if the available blocks of water and the Summer-Fall Action had not been implemented. This depiction shall include estimates of all required hydrologic data points used to quantify actual operations during the same time period <p>Incorporate CDFW comments and edits into the draft Delta Outflow Operations Report and submit to CDFW for approval before December 1.</p>		
8.21	<p><u>Drought Contingency Planning.</u> On October 1, if the prior water year was dry or critical, Permittee, in coordination with Reclamation, shall meet and confer with USFWS, NMFS, SWRCB, and CDFW to develop a drought contingency plan to be implemented if dry conditions continue into the following year. On February 1 if dry conditions continue, Permittee shall submit the drought</p>		<p>Because WY 2021 was considered critical, DWR in coordination with Reclamation arranged to “meet and confer” with USFWS, NMFS, SWRCB, and CDFW during a DRY Team meeting on September 30, 2021, to begin drought contingency planning. As dry conditions continued, DWR and Reclamation, developed the State Water</p>

Condition	Mitigation Measure	Implementation Schedule	Status/Date/Initials
9.1.1	<p>contingency plan to CDFW and shall update the plan monthly based on current and forecasted hydrologic conditions. If dry conditions continue, Permittee shall regularly convene this group to evaluate hydrologic conditions and the potential for continued dry conditions that necessitate implementation of measures identified in the drought contingency plan for the current water year. By February 1 of each year following the development of a drought contingency plan, Permittee shall submit a report to CDFW on the measures employed during the previous year, including an assessment of their effectiveness.</p> <p><u>Tidal Wetland Habitat Restoration for Delta Smelt.</u> Within 6 years of the effective date of this ITP, Permittee shall site, design, restore, and conserve 8,000 acres of DS tidal wetland habitat as compensatory mitigation to expand the diversity, quantity, and quality of DS rearing and refuge habitat in the tidal portions of the Delta and Suisun Marsh. This requirement is carried forward from the compensatory mitigation obligation originally established in the 2008 BiOp and associated CDFW consistency determination.</p> <p>Permittee shall site, design, restore, and conserve an additional 396.3 401.25 acres of DS tidal wetland habitat as compensatory mitigation for increased diversions at the BSPP. <i>If CDFW does not approve an increase in the maximum diversion rate at BSPP in Water Year 2022, the</i></p>		<p>Project and Central Valley Project Drought Contingency Plan, which DWR submitted to CDFW on February 1, 2022. Since then, DWR updated the plan monthly through the end of WY 2022 to provide SWP and CVP operations forecasts, as well as updates on species status, the drought monitoring plan, and updates on planned drought actions. The Drought Contingency Plan for WY 2022 and all updates are available on DWR's website: Endangered Species Protection (ca.gov)</p> <p>As of 10/21/2022, acreage estimates for Conservation Measures 9.1.1 and 9.1.2 are as follows:</p> <p>Delta Smelt</p> <ul style="list-style-type: none"> • Required Acreage: 8396.30. • Estimated creditable acreage planned and/or constructed to date: 8711. • Acreage awarded credits to date: 1713. <p>Longfin Smelt</p> <ul style="list-style-type: none"> • Required Acreage: 1196.30. • Estimated creditable acreage planned and/or constructed to date: 3128.

Condition	Mitigation Measure	Implementation Schedule	Status/Date/Initials
	<p data-bbox="380 272 1083 386"><i>total number of additional DS tidal wetland acres required to be sited, designed, restored, and conserved by Permittee shall be 396.3.</i></p> <p data-bbox="380 423 1104 971">Permittee shall coordinate with USFWS and CDFW during the process of site selection and restoration design for HM lands intended to serve as compensatory mitigation for impacts to DS habitat. HM lands and restoration designs shall be informed by the specifications and habitat crediting process described in the 2012 <i>Fish Restoration Program Agreement Implementation Strategy</i>, the <i>Draft 2008 FWS BiOp Delta Smelt Crediting Decision Model Guidelines</i>, and the <i>Draft 2008 FWS BiOp Delta Smelt Crediting Decision Model</i> (Guidance for Smelt HM Lands Suitable for Compensatory Mitigation, Attachment 4). All DS tidal wetland habitat restoration shall be subject to approval by CDFW.</p> <p data-bbox="380 1008 1077 1081">Note: Amended language in <i>bold italics</i>; deleted language in strikethrough.</p>		<ul data-bbox="1444 277 1961 350" style="list-style-type: none"> • Acreage awarded credits to date: 590.94. <p data-bbox="1409 402 2024 475">DWR is now in the crediting process for the following completed projects:</p> <ul data-bbox="1444 483 2043 1409" style="list-style-type: none"> • Arnold Slough: DWR completed constructing all restoration features at Arnold Slough in October 2021, but erosion control and hydroseeding work remained. All construction work will be concluded by November 30, 2022. Approximately 138 acres were created for Delta and LFS. Post-construction monitoring is anticipated to begin after construction work is concluded. • Decker Island Tidal Habitat Restoration Project: Construction was completed in October 2018. Approximately 113 acres were created for DS. DWR is currently in the third year of post-construction monitoring. The annual monitoring report covering the second year of monitoring was submitted to USFWS, CDFW, NMFS, and USBR in October 2021. • Tule Red Tidal Habitat Restoration Project: Construction was completed in October 2019. Approximately 590 acres were created for DS. DWR is currently in the second year of post-

Condition	Mitigation Measure	Implementation Schedule	Status/Date/Initials
			<p>construction monitoring. The annual monitoring report covering the second year of monitoring is currently being reviewed for submission to USFWS, CDFW, NMFS, and USBR. CDFW has awarded DWR 590.94 acres of credit for LFS.</p> <ul style="list-style-type: none"> • Lower Yolo Ranch Tidal Habitat Restoration Project: Construction was completed in November 2020. Approximately 1,713 acres were created for DS. • Wings Landing Tidal Habitat Restoration Project: Construction was completed in November 2020. Approximately 190 acres were created for DS and LFS. • Winter Island Tidal Habitat Restoration Project: Construction was completed in September 2019. Approximately 544 acres were constructed for Delta Smelt. DWR is currently in the third year of post- construction monitoring. The annual monitoring report covering the second year of monitoring was submitted to USFWS, CDFW, NMFS, and USBR in October 2021. • Yolo Flyway Farms Tidal Habitat Restoration Project: Yolo Flyway Farms construction was completed in

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			<p>September 2018. Approximately 296 acres were constructed for Delta Smelt. DWR is currently in the third year of post-construction monitoring. The annual monitoring report covering the second year of monitoring was submitted to USFWS, CDFW, NMFS, and USBR in October 2021.</p> <ul style="list-style-type: none"> • Bradmoor Island Tidal Habitat Restoration Project: All permits were obtained and construction of restoration features at Bradmoor Island is expected to be completed in October 2022. Approximately 588 acres are expected to be created for DS and LFS. <p>DWR is now in the planning process for the following projects:</p> <ul style="list-style-type: none"> • Chipps Island Tidal Habitat Restoration Project: DWR has acquired all three parcels of Chipps Island for restoration construction. DWR has also developed multiple restoration design alternatives through collaboration with regulators, regional experts, and other interested parties. DWR plans to select a design for construction soon. Permit application preparation and environmental

Condition	Mitigation Measure	Implementation Schedule	Status/Date/Initials
			<p>analyses will begin following design selection. Construction of the restoration project will address remaining notice of violations that were transferred to DWR through acquisition of the Chipps properties. Approximately 687 acres are expected to be created for DS and LFS.</p> <p>Project milestones completed:</p> <ul style="list-style-type: none"> ○ Acquired property ○ Pre-application meetings with regulatory agencies <p>Upcoming milestones in planning:</p> <ul style="list-style-type: none"> ○ Issue a CMGC contract – Spring 2023 ○ Submit permit applications — Summer 2023 ○ Begin construction — Fall 2024 ○ Complete construction — Fall 2025 <ul style="list-style-type: none"> ● Lookout Slough Tidal Habitat Restoration and Flood Improvement Project: DWR received all permits and approvals and began construction in Spring 2022. Construction is scheduled to be completed by 2024. Approximately 3,000 acres are expected to be created for DS.

Condition	Mitigation Measure	Implementation Schedule	Status/Date/Initials
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Below are project milestones completed:

- EIR NOD
- Final design
- 401 Water Quality Certification
- CDFW 1600 and ITP
- CVFPB Encroachment Permit
- Section 106
- Section 7
- USACE 404 and 408
- Delta Stewardship Council Consistency Determination Certification
- Began construction

Upcoming milestones in planning:

- Complete construction — September 2024
- Potrero Marsh Tidal Habitat Restoration Project: DWR has awarded a Request for Proposal contract to Westervelt Ecological Services to build the Potrero Marsh restoration project. DWR expects the contract to be executed at the end of November. Approximately 489 acres

Condition	Mitigation Measure	Implementation Schedule	Status/Date/Initials
			<p>are expected to be created for DS and LFS.</p> <ul style="list-style-type: none"> • Prospect Island Tidal Habitat Restoration Project: DWR is currently in its permitting and approvals stage of the Prospect Island Tidal Habitat Restoration and Flood Improvement Project. Project activities have been on hold since December 2019. Decisions are being made regarding funding sources and when work can begin again. <p>Below are project milestones completed:</p> <ul style="list-style-type: none"> ○ EIR NOD ○ 401 Water Quality Certification ○ CVFPB Encroachment Permit (needs to be amended) ○ Section 106 ○ Section 7 ○ USACE 404 and 408 <p>Upcoming milestones in planning:</p> <ul style="list-style-type: none"> ○ Delta Stewardship Council Consistency Determination Certification — Spring 2023 ○ CDFW 1600, ITP — TBD

Condition	Mitigation Measure	Implementation Schedule	Status/Date/Initials
9.1.2	<p data-bbox="380 444 1094 883"><u>Habitat Restoration for Longfin Smelt.</u> Within 6 years of the effective date of this ITP, Permittee shall site, design, restore, and conserve 800 acres of LFS mesohaline habitat and 396.3 acres of LFS tidal wetland habitat as compensatory mitigation to expand the diversity, quantity, and quality of LFS rearing and refuge habitat in the tidal portions of the Delta and Suisun Marsh. The requirement to restore and conserve 800 acres of mesohaline habitat is carried forward from the compensatory mitigation obligation originally established in the 2009 ITP issued by CDFW for take of LFS.</p> <p data-bbox="380 932 1094 1403">Permittee shall coordinate with CDFW during the process of site selection and restoration design for HM lands intended to serve as compensatory mitigation for impacts to LFS habitat. HM lands and restoration designs shall be informed by the specifications and habitat crediting process described in the 2012 <i>Fish Restoration Program Agreement Implementation Strategy</i>, the <i>Draft 2008 FWS BiOp Delta Smelt Crediting Decision Model Guidelines</i>, and the <i>Draft 2008 FWS BiOp Delta Smelt Crediting Decision Model</i> (Guidance for Smelt HM Lands Suitable for Compensatory Mitigation, Attachment 4) and adapted for the</p>	Within 6 years of the effective date of this ITP.	<ul style="list-style-type: none"> ○ CEQA Addendum — TBD ○ Complete design and specifications — TBD ○ Begin construction — TBD <p data-bbox="1409 444 2053 548">As of 10/21/2022, acreage estimates for Conservation Measures 9.1.1 and 9.1.2 are as follows:</p> <p data-bbox="1409 565 1604 597">Longfin Smelt</p> <ul style="list-style-type: none"> ● Required Acreage: 1196.30. ● Estimated creditable acreage planned and/or constructed to date: 3128. ● Acreage awarded credits to date: 590.94. <p data-bbox="1409 862 2053 932">DWR is now in the crediting process for following completed projects:</p> <ul style="list-style-type: none"> ● Arnold Slough: DWR completed constructing all restoration features at Arnold Slough in October 2021, but erosion control and hydroseeding work remains. All construction work will be concluded by November 30, 2022. Approximately 138 acres were created for DS and LFS. Post-construction monitoring will begin after construction work is concluded. ● Tule Red Tidal Habitat Restoration Project: Construction was completed in October 2019. Approximately 590

Condition	Mitigation Measure	Implementation Schedule	Status/Date/Initials
	<p>specific habitat requirements of LFS, as approved by CDFW. All LFS mesohaline habitat restoration shall be subject to approval by CDFW.</p>		<p>acres were created for Delta Smelt. DWR is currently in the second year of post- construction monitoring. The annual monitoring report covering the second year of monitoring is currently being reviewed for submission to USFWS, CDFW, NMFS, and USBR. CDFW has awarded DWR 590.94 acres of credit for LFS.</p> <ul style="list-style-type: none"> • Wings Landing Tidal Habitat Restoration Project: Construction was completed in November 2020. Approximately 190 acres were created for DS and LFS. • Winter Island Tidal Habitat Restoration Project: Construction was completed in September 2019. Approximately 544 acres were constructed for Delta Smelt. DWR is currently in the third year of post- construction monitoring. The annual monitoring report covering the second year of monitoring was submitted to USFWS, CDFW, NMFS, and USBR in October 2021. • Bradmoor Island Tidal Habitat Restoration Project: Construction began in July 2022 and is expected to be completed in October 2022. Approximately 588 acres are expected to be created for DS and LFS.

Condition	Mitigation Measure	Implementation Schedule	Status/Date/Initials
			<p>DWR is now in the planning process for the following projects:</p> <ul style="list-style-type: none"> ○ Chipps Island Tidal Habitat Restoration Project: DWR has acquired all three parcels of Chipps Island for restoration construction. DWR has also developed multiple restoration design alternatives through collaboration with regulators, regional experts, and other interested parties. DWR plans to select a design for construction soon. Permit application preparation and environmental analyses will begin following design selection. Construction of the restoration project will address remaining notice of violations that were transferred to DWR through acquisition of the Chipps properties. Approximately 687 acres are expected to be created for DS and LFS. <p>Below are project milestones completed:</p> <ul style="list-style-type: none"> ○ Acquired property ○ Pre-application meetings with regulatory agencies

Condition	Mitigation Measure	Implementation Schedule	Status/Date/Initials
9.1.3	<p><u>Delta Smelt Summer-Fall Habitat Action.</u> The DS summer-fall habitat action (Summer-Fall Action) is intended to benefit DS food supply and habitat, thereby contributing to the recruitment, growth, and survival of DS. The FLaSH conceptual model 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, 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</p>	Throughout the term of this ITP.	<p>Upcoming milestones in planning:</p> <ul style="list-style-type: none"> ○ Issue a CMGC contract – Spring 2023 ○ Submit permit applications — Summer 2023 ○ Begin construction — Fall 2024 ○ Complete construction — Fall 2025 <ul style="list-style-type: none"> ● Potrero Marsh Tidal Habitat Restoration Project: DWR has awarded a Request for Proposal contract to Westervelt Ecological Services to build the Portrero Marsh restoration project. DWR expects the contract to be executed at the end of November. Approximately 489 acres are expected to be created for Delta and longfin smelt. <p>WY 2022 was Critically Dry, no Delta Smelt Summer-Fall Habitat occurred. See Summer-Fall Habitat planning and Delta Coordination Group activities completed in 2022 below in Condition 9.1.3.</p>

Condition	Mitigation Measure	Implementation Schedule	Status/Date/Initials
9.1.3.1	<p>to shoals and shallows, and in proximity to extensive tidal or freshwater marshlands and other wetlands. The Summer-Fall 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.</p> <p>As described in Sections 1.6 and 3.9.2 of the Project Description, proposals under the Voluntary Agreements may be implemented in a way that complements the Delta Smelt Summer-Fall Habitat Action by providing summer outflow during above normal, below normal, and dry water year types, in a manner that is equivalent to or greater than the flow needed to achieve the standards described in Conditions of Approval 9.1.3.1 and 9.1.3.2 for Permittee.</p> <p>Permittee shall implement SMSCG operations as described in Conditions of Approval 9.1.3.1 and 9.1.3.2 through its operations, including through reducing its exports at Banks Pumping Plant.</p> <p>Note: Amended language in <i>bold italics</i>; deleted language in strike through.</p> <p><u>Summer-Fall Action Plan</u>. Each year Permittee shall initiate the process to develop a plan to operate the Project, achieve criteria described in Table 9-A and requirements in Conditions of</p>	Throughout the term of this ITP.	<p>Because WY 2022 was Critically Dry, no Summer-Fall Habitat Action occurred.</p> <ul style="list-style-type: none"> Although no 2022 Action Plan was required, DWR developed a Summer-

Condition	Mitigation Measure	Implementation Schedule	Status/Date/Initials
	<p>Approval 8.19, 9.1.3, and 9.1.3.2, and implement additional actions, as available, including monitoring, science, and food enhancement actions to enhance DS habitat (Summer-Fall Action Plan). As a part of this annual planning and implementation process, reports documenting summer-fall operations and results from monitoring (including Condition of Approval 9.1.3.3) and scientific investigations (including Condition of Approval 7.6.4) shall be used to better understand DS habitat during the summer-fall time period and investigate the way in which SWP-CVP operations interact with the full range of components of DS habitat. The planning process will investigate the extent to which providing flow and low salinity conditions of various volumes and locations improves the quality and quantity of DS habitat and food in the summer and fall, and whether DS survival, viability, and abundance improves in response to the Summer-Fall Action. The planning process shall also consider tradeoffs between actions to benefit DS and effects on other Covered Species. For example, the planning process shall include consideration of the potential for CHNSR juvenile stranding in upstream tributaries associated with reservoir releases.</p> <p>The Summer-Fall Action Plan shall be developed based on hydrologic, operational, and temperature forecasts using the best available modeling to plan SMSCG operations (Table 9-A in the ITP) to</p>		<p>Fall Action Plan that was reviewed by the DCG and submitted to CDFW (May 2022) that described hydrology forecasts in summer-fall, the structured decision making (SDM) process and recommendations for a Below Normal or Dry water year.</p> <ul style="list-style-type: none"> ● Monitoring studies for Summer-Fall actions occurred June through October as no-action contrasts (see 7.6.4). <p>The following accomplishments occurred in 2022:</p> <ul style="list-style-type: none"> ● The Delta Coordination Group (DCG) met monthly (or more during Jan-April) to continue Summer-Fall planning, reporting, refinement of structured decision making (SDM) models and learning. ● With an SDM facilitator, the DCG refined their SDM structure and process from the 2021 prototype. SDM advances included: <ul style="list-style-type: none"> ○ DSM2 modeling of various actions ○ Modeling of DS growth, habitat suitability, and food availability from various combinations of actions.

Condition	Mitigation Measure	Implementation Schedule	Status/Date/Initials
	<p>maximize the number of days that Belden’s Landing three-day average salinity is equal to, or less than, 4 ppt in all but dry years following below normal years. In a dry year following a below normal year the Summer-Fall Action Plan shall be developed to maximize the number of days that Belden’s Landing three-day average salinity is equal to, or less than, 6 ppt. CDFW anticipates that a three-day average salinity of 4 ppt at Belden’s Landing (or 6 ppt in dry years following below normal years) may be met by operating the SMSCG intermittently throughout the summer-fall. The required days of SMSCG operations (Table 9-A) need not be on consecutive days. As a result, this action is likely to extend beyond the required number of days of SMSCG operations to maximize benefits to DS. Project operations shall be consistent with the operations described in the Summer-Fall Action Plan from June – October each year. Permittee shall meet and confer with CDFW within thirty days of the effective date of this ITP to determine actions to implement June – August to improve Delta smelt habitat to the maximum extent feasible, including the possibility of operating the SMSCG. The requirements described in this Condition shall begin with the 2021 water year.</p> <p>Permittee shall:</p> <ul style="list-style-type: none"> • Within 30 days of the effective date of this ITP, convene a Delta Coordination Group (two 		<ul style="list-style-type: none"> ○ Completion of two expert elicitations to evaluate action effects on other species and contaminants. • WY 2021 Summer-Fall Habitat Seasonal Report was reviewed by the DCG (Dec 2021) and submitted to CDFW (Feb 2022) • Although no Summer-Fall Habitat Seasonal Report is required for WY 2022, DWR in collaboration with Reclamation has begun preparing the Summer-Fall Seasonal Report which will also include new data from 2021. The 2022 draft report will be shared with the DCG at the start of December. This will provide “no action” data to which future years may be compared.

Condition	Mitigation Measure	Implementation Schedule	Status/Date/Initials
	<p>representatives each from DWR, Reclamation, USFWS, NMFS and CDFW and one representative each from the CVP water contractors and SWP water contractors) to select a SDM model and complete initial model runs (and annual model runs thereafter) testing various approaches to satisfying environmental and biological goals, based on the criteria described in Table 9-A, monitoring and science, and additional actions, if available, such as DS food enhancement actions (see Section 3.9.1 in the Project Description and Section 5.3.3 in the FEIR).</p> <ul style="list-style-type: none"> • Distribute a meeting agenda to group members at least four working days prior to each Delta Coordination Group meeting. • Record and distribute regular meeting notes within two working days of each Delta Coordination Group meeting to group members for review. Incorporate member comments and post final notes on a publicly available website. • Before April 15, develop a draft Summer-Fall Action Plan in collaboration with the Delta Coordination Group accounting for forecasted hydrology and temperatures over the summer and fall that describes: <ul style="list-style-type: none"> ○ How planned operations are expected to meet the criteria in Table 9- A based on the anticipated water year type; ○ Planned operations of the SMSCG if the group anticipates an above normal, below 		

Condition	Mitigation Measure	Implementation Schedule	Status/Date/Initials
	<p>normal, or dry water year, including whether the SMSCG operations are anticipated to be conducted pursuant to the Voluntary Agreements or by Permittee independently;</p> <ul style="list-style-type: none"> ○ A schedule for applying the Additional 100 TAF as described in the CDFW-approved Delta Outflow Operations Plan, if applicable; ○ Planned studies and monitoring during the planned Summer-Fall Action Plan to improve understanding of DS summer-fall habitat and survival during this time period (see Conditions of Approval 7.6.4 and 9.1.3.3); ○ A schedule for regular meetings and coordination between CDFW and Permittee throughout the implementation of the Summer-Fall Action Plan each year; ○ Habitat conditions expected to be achieved through use of the Additional 100 TAF (Condition of Approval 8.19) as described in the CDFW-approved Delta Outflow Operations Plan to supplement Delta outflow during the spring, summer, or fall and further improve DS habitat conditions beyond those required through operations criteria governing X2 and SMSCG operations included in Table 9-A; ○ Hypotheses to be tested through ongoing monitoring and scientific investigations, the suite of actions and operations conducted to 		

Condition	Mitigation Measure	Implementation Schedule	Status/Date/Initials
	<p>test the hypotheses, and the expected outcomes; and</p> <ul style="list-style-type: none"> ○ Information learned from data and prior year Summer-Fall Action Reports. ● Submit the draft Summer-Fall Action Plan to the Delta Coordination Group and work collaboratively to address comments and prepare a final report no later than May 15. ● No later than December 31 annually, Permittee shall submit a draft Summer- Fall Action Report to the Delta Coordination Group that: <ul style="list-style-type: none"> ○ Synthesizes results from abiotic and biotic monitoring conducted during the prior summer-fall season; ○ Synthesizes results from actions conducted as a part of the Summer-Fall Action Plan including scientific research and additional summer-fall food actions; ○ Describes Project operations (including south Delta exports and dates of SMSCG operations) implemented to comply with the final Summer-Fall Action Plan for the prior water year; ○ Includes all raw data from monitoring efforts conducted as a part of the Summer-Fall Action; ○ Includes the criteria required in Table 9-A and summaries of monitoring data demonstrating whether criteria were met through planned operations. 		

Condition	Mitigation Measure	Implementation Schedule	Status/Date/Initials
	<ul style="list-style-type: none"> • Submit a final Summer-Fall Action Report to the Delta Coordination Group that incorporates comments and edits from CDFW prior to February 28 each year. <p>Each year, the Delta Coordination Group shall:</p> <ul style="list-style-type: none"> • Collaboratively assess forecasted hydrologic conditions, precipitation and temperature forecasts, and review available information regarding the distribution and abundance of DS and LFS prior to March 15. • Use a SDM model to analyze the environmental and biological goals based on the criteria described in Table 9-A, proposed DS food enhancement summer-fall actions (see Section 3.9.1 in the Project Description and Section 5.3.3 of the FEIR), and make predictions regarding the potential outcomes for various implementation scenarios. This structured decision-making process shall be used to inform the Summer-Fall Action Plan prepared each year. • Review draft Summer-Fall Action Plan prior to May 1. • Collaboratively review available monitoring data and results from scientific studies following the completion of a Summer-Fall Action. • Review the draft Summer-Fall Action Report and provide comments to Permittee to assist in developing a final report prior to February 28. 		

Condition	Mitigation Measure	Implementation Schedule	Status/Date/Initials
	<ul style="list-style-type: none"> Use the results from prior year reports to inform the subsequent SDM modeling exercise and develop future Summer-Fall Action Plans. <p>The Summer-Fall Action shall be included in the Four-Year Reviews under the Adaptive Management Program (Attachment 2), including the SDM model used to develop the annual Summer-Fall Action Plan.</p> <p>If, in a given year, CDFW does not approve the Summer-Fall Action Plan developed by the Delta Coordination Group, CDFW may develop a new Summer-Fall Action Plan, consistent with the parameters of Conditions of Approval 8.19, 8.20, 9.1.3, 9.1.3.1, and 9.1.3.2 and Table 9-A, and submit it to Permittee prior to June 1. Permittee shall operate the Project consistent with the CDFW-developed Summer-Fall Action Plan beginning June 1.</p>		
9.1.3.2	<p><u>Summer-fall Delta Smelt Habitat During Successive Dry Years.</u> Permittee shall operate the Project to enhance DS summer-fall habitat as described in Conditions of Approval 9.1.3.1, except if the current water year is dry and was preceded by a dry or critical water year. If a dry water year was preceded by a dry or critical water year, Permittee shall confer with CDFW prior to April 1 to collaboratively develop a plan for June through</p>	Throughout the term of this ITP.	DWR consulted with CDFW on March 28, 2022, and concluded there were no alternative actions to implement given critically dry conditions and lack of permitting for the North Delta Food Subsidy action.

Condition	Mitigation Measure	Implementation Schedule	Status/Date/Initials
9.1.3.3	<p>October to enhance DS habitat to the maximum extent practicable. Permittee shall evaluate their ability to operate the SMSCG during the June – September time period and implement other appropriate actions to enhance DS habitat.</p> <p><u>Improved Monitoring in Grizzly Bay.</u> Permittee shall convene the Smelt Monitoring Team within 60 days of the effective date of this ITP to collaboratively develop a draft Grizzly Bay Monitoring Plan to identify and implement three additional monitoring stations and improve measurement of temperature, salinity, turbidity, and other relevant abiotic factors in areas expected to be influenced by planned operations of the SMSCG in the summer and fall. At least one of these new stations shall be sited in the western margin of Grizzly Bay near the mouth of Montezuma Slough. Permittee shall submit the draft Grizzly Bay Monitoring Plan to CDFW and the IEP Science Management Team (SMT) for review and comments. After CDFW and IEP SMT review, Permittee shall prepare a final Grizzly Bay Monitoring Plan to deploy, maintain, and fund these additional monitoring stations within nine months of the effective date of this ITP and submit the final Grizzly Bay Monitoring Plan to CDFW for review. If approved by CDFW, Permittee shall implement the final Grizzly Bay Monitoring Plan and incorporate data from new monitoring stations into annual Summer-Fall Action data collection, planning and reporting processes within one year of the effective date of this ITP.</p>	Throughout the term of this ITP.	Grizzly Bay monitoring is included in the Suisun Marsh Salinity Control Gate Monitoring Plan for the Delta Smelt Summer- Fall Habitat Action. The three monitoring stations have been installed as required. Station GZM is at the mouth of Montezuma Slough, Station GZB is in the center of Grizzly Bay, and station TRB is at the mouth of Tule Red Restoration site on the eastern edge of Grizzly Bay.

Condition	Mitigation Measure	Implementation Schedule	Status/Date/Initials
9.1.4	<p><u>Rio Vista Estuarine Research Station</u>. Permittee shall provide 66% of the total funding required during the term of this ITP to construct the Rio Vista Estuarine Research Station (RVERS) to provide long-term support for Bay-Delta science and research to enhance the understanding of Covered Species ecology. RVERS shall be constructed in conjunction with the USFWS Fish Technology Center, a research facility for cultured fish and a potential future home for Delta smelt refuge populations.</p>	Throughout the term of this ITP.	<p>Representatives from the Interagency Ecological Program agencies that will house staff and/or equipment at RVERS (i.e., USFWS, CDFW, USBR, USGS, NMFS, and DWR) participated in a workshop hosted by Strategic Value Solutions in August 2022 to gauge support from RVERS partners and to identify aspects/functions of RVERS deemed critical to interagency monitoring and research needs. Feedback from the agencies highlighted numerous challenges that RVERS would conceptually support (e.g., lack of lab/office space, storage etc.), and those discussions were used to develop alternatives intended to support the mandated Delta Smelt Supplementation Program objectives at the FTC, as well as decrease the proposed scope and costs of the RVERS project. Three VE alternatives were developed during the VE Workshop: Scenarios 1 & 2 focus on supporting the Supplementation Program at the FTC, while Scenario 3 represents a “scaled-down” version of the 2021 RVERS design. The VE Team and DWR Executive recommended that the DWR led RVERS project should not be pursued by the State. Further, the VE Team recommended that DWR Executive support the incorporation of Scenario 1 into the scope of the FTC planning. In doing so, we can ensure that key aspects of RVERS</p>

Condition	Mitigation Measure	Implementation Schedule	Status/Date/Initials
9.2.1	<p><u>Mitigation for Impacts Associated with Project Operations.</u> Within six months of the effective date of this ITP, Permittee shall provide funding toward at least one restoration project annually, identified in coordination with CDFW, NMFS, USFWS, Reclamation and other entities undertaking restoration and enhancement in the Sacramento River watershed. Permittee shall make its first funding payment toward one or more approved restoration projects no later than April 1, 2021. A funding commitment for a larger project that extends over multiple years will satisfy the annual funding requirement if approved by CDFW. Permittee shall fund a total of \$20,000,000 for restoration projects over the term of the ITP as approved by CDFW. The selected restoration projects shall provide one or more of the biological benefits described below to either CHNWR or and CHNSR, or both species, in the Sacramento River watershed upstream of the Delta, subject to CDFW's approval and determination that the funding required by this Condition, on the whole, will result in benefits to both species, as compensatory mitigation for impacts associated with Project operations. Larger restoration projects may be carried over multiple years. Restoration projects shall align with CHNWR and CHNSR</p>	Throughout the term of this ITP.	<p>will support a holistic supplementation program (e.g., transport and release of fish as well as field monitoring to determine program effectiveness).</p> <p>During WY 2022, DWR and CDFW continued to collaborate in implementing the requirements of this COA, including refining the structured decision-making tool to evaluate projects. Several hypothetical, sample projects were scored to show the utility of the tool. CDFW and DWR developed a team charter to help clarify the role of each agency and CDFW, as described in the charter, is developing a list of projects which may be evaluated using the decision-making tool. And although a project has not been selected for funding in WY 2022, the team plans to follow the process outlined in the charter and to provide strategic resources to select high scoring projects for funding and thereby provide benefits to salmonids, as soon as possible.</p>

Condition	Mitigation Measure	Implementation Schedule	Status/Date/Initials
	<p>recovery needs and be guided by information in the Salmon Resiliency Strategy.</p> <p><i>Biological Benefits of Improved Juvenile Upstream Rearing Habitat:</i> Channelization of rivers to manage flood risk and convert wildlife habitat to agricultural use has eliminated 95% of riparian and floodplain wetland habitat in the Central Valley. Historically, these habitats benefited rearing CHNWR and CHNSR by providing increased primary productivity and prey availability, refuge from predators, respite from high flows, and efficient locations to feed. These benefits allow for increased growth of juvenile CHNWR and CHNSR, which may be reflected in higher adult return rates. Remaining riparian and floodplain wetland habitat in the Sacramento and San Joaquin river basins is largely unavailable for rearing juvenile CHNWR and CHNSR due to the reduced frequency and duration of seasonal over-bank flooding.</p> <p>Restoring connectivity of floodplains with adjacent streams increases the available habitat that is inundated with the frequency and duration of suitable floodplain rearing habitat. This connectivity with adjacent streams is critical to provide volitional entry and exit for rearing juveniles that cue migration based on the hydrograph of the river. Projects to improve rearing habitat for juvenile salmonids are limited in scope by engineered leveed waterways, but primarily include breaching</p>		

Condition	Mitigation Measure	Implementation Schedule	Status/Date/Initials
	<p>or setbacks of levees to create bench habitat. These habitats provide shallow water foraging and refuge habitat for rearing juveniles. Other projects include channel margin enhancement that focuses on improving channel geometry and restoring riparian, marsh, and mudflat habitats on the water side of levees. Similar to breaching and setbacks of levees, channel margin enhancement is expected to increase rearing habitat through enhancement and creation of additional shallow water habitat that will provide foraging opportunities and refuge from unfavorable hydraulic conditions and predation.</p> <p>Restoring juvenile rearing habitat is intended to increase habitat diversity and complexity, which can lead to population resiliency during times of increased temperatures and water demands.</p> <p><i>Biological Benefits of Improved Adult Passage:</i> Passage barriers exist in many forms, including low-flow road crossings, bridges, flow control structures, and dams. Many of these structures require minimum flows to allow passage; however, flows are often limited due to high water demands. Each in-water structure within the Sacramento and San Joaquin river basins can cause delays in upstream passage for CHNWR and CHNSR. CHNWR and CHNSR may sustain injuries or experience pre-spawn mortality due to stress as they attempt to navigate barriers. Loss of upstream</p>		

Condition	Mitigation Measure	Implementation Schedule	Status/Date/Initials
	<p>spawners can lead to a reduction in genetic diversity as well as a decrease in juvenile production.</p> <p>The decline in CHNWR and CHNSR populations increased following the construction of major water project facilities and development projects in the mid- 1900s. Many of these projects impede or completely block upstream migration of CHNWR and CHNSR to historic cold-water spawning and rearing habitats. This has led to a reduction in available spawning habitat (e.g., suitable spawning and egg incubation temperatures and flow) and has increased competition and hybridization between CHNSR and CHNFR. As a result of reduced spawning habitat CHNWR and CHNSR are more vulnerable to serious effects of elevated, and potentially lethal, temperatures during egg incubation that can occur in most years. The frequency of increased temperatures is expected to increase with increased water demands and climate change, necessitating the evaluation of passage above known barriers.</p> <p>Improving fish passage throughout the Sacramento and San Joaquin river basins will reduce migratory delays and loss of adult CHNWR and CHNSR at barriers and can enhance ecosystem function through improved habitat connectivity.</p>		

Condition	Mitigation Measure	Implementation Schedule	Status/Date/Initials
	<p>After consulting with Reclamation, USFWS, and NMFS, Permittee and CDFW shall work each year to collaboratively select the restoration projects to be funded to restore and enhance either CHNWR or CHNSR, or both species, spawning and rearing habitat on the Sacramento River and its tributaries. CDFW acknowledges that planning, environmental review, and permitting may be necessary for restoration project implementation and funding under this Condition of Approval may be used for these project development activities. In some cases, implementation may be in the form of funding a restoration project in whole or in part to supplement restoration projects being implemented by others, when appropriate and approved by CDFW and when CDFW determines that funding under this Condition of Approval will ensure additive benefits to CHNWR and CHNSR the species, that would not occur in the absence of Permittee's contribution. However, under no circumstances shall any funds under this Condition of Approval be used to fund any other regulatory permitting requirement other than those established in this ITP. Final allocation of this funding shall be subject to CDFW approval each year.</p> <p>If, as described in Section 1.6 of the Project description and as part of the Voluntary Agreement Review (Section 3.13.9), the Voluntary Agreements are approved and Permittee, or its SWP</p>		

Condition	Mitigation Measure	Implementation Schedule	Status/Date/Initials
9.2.2	<p>Contractors acting on Permittee’s behalf, conduct habitat restoration for CHNWR and CHNSR, Permittee and CDFW shall collaborate to review the Project in light of the final form of the Voluntary Agreements. Consistent with Condition of Approval 5, CESA, and CESA’s implementing regulations, Permittee and CDFW will utilize results from the review to consider whether the Voluntary Agreements’ implementation modifies the scope or nature of the Project, or the circumstances under which it is implemented, to an extent that warrants a permit amendment.</p> <p>Note: Amended language in <i>bold italics</i>; deleted language in strike through.</p> <p><u>Implement the Yolo Bypass Salmonid Habitat Restoration and Fish Passage Project</u>. Within 6 years of the effective date of this ITP Permittee shall implement the Yolo Bypass Salmonid Habitat Restoration and Fish Passage Project (Salmonid Habitat and Fish Passage Project). The objective of the Salmonid Habitat and Fish Passage Project is to enhance floodplain rearing habitat and fish passage in the Yolo Bypass by implementing the Project as described in in Alternative 1 of the Yolo Bypass Salmonid Habitat Restoration and Fish Passage Final EIR/EIS. This project will benefit CHNWR, CHNSR, Central Valley steelhead, and the Southern DPS of North American green sturgeon to benefit CHNWR, CHNSR, Central</p>	<p>Within 6 years of the effective date of the ITP.</p>	<p>In June of 2022, DWR awarded a \$32.5M construction contract to Goodfellow Bros. LLC for all activities necessary for an operable Yolo Bypass Salmonid Habitat Restoration and Fish Passage (Big Notch) Project. At that time, work to construct the Big Notch Project began which included sawcutting the Fremont Weir, excavating channels, and installing a coffer dam to protect the weir during wet weather.</p> <p>We resolved all CEQA challenges to the project and mitigated for construction impacts on special status species. Key construction milestones in 2022 include</p>

Condition	Mitigation Measure	Implementation Schedule	Status/Date/Initials
	<p>Valley steelhead, and the Southern DPS of North American green sturgeon.</p> <p>The first objective of the Salmonid Habitat and Fish Passage Project is to increase the availability of floodplain rearing habitat for juvenile CHNWR, CHNSR, and Central Valley steelhead. This action can also improve conditions for Sacramento splittail and Central Valley fall-run Chinook salmon. Specific biological goals include:</p> <ul style="list-style-type: none"> • Improve access to seasonal habitat through volitional entry • Increase access to and acreage of seasonal floodplain fisheries rearing habitat • Reduce stranding and presence of migration barriers • Increase aquatic primary and secondary biotic production to provide food through an ecosystem approach <p>The second objective of the Salmonid Habitat and Fish Passage Project is to reduce migratory delays and loss of fish at Fremont Weir and other structures in the Yolo Bypass. Specific biological goals include:</p> <p>Improve connectivity within the Yolo Bypass for passage of salmonids and green sturgeon</p> <ul style="list-style-type: none"> • Improve connectivity between the Sacramento River and the Yolo Bypass to provide safe and timely passage for: 		<p>construction of a cofferdam and dewatering system to protect flood infrastructure and prevent uncontrolled releases by November 1 and excavation of all channels and protection of those channels. Construction of the Big Notch Project headworks and associated structures will continue through the end of 2023.</p> <p>Work continues to acquire flowage easements. DWR has offers on all 45 flowage easements needed for operations and is pursuing possession of all needed rights by October 2023. Though DWR anticipates many acquisitions will be completed without use of a full eminent domain proceeding, DWR plans to obtain all the Resolutions of Necessity needed to allow full operation in early 2023. These acquisitions will be processed through eminent domain as needed until all rights are secured.</p> <p>Upcoming milestones in planning:</p> <ul style="list-style-type: none"> • Acquire real estate rights for project operations — October 2023 • Begin operating Big Notch headwork structure — November 2023

Condition	Mitigation Measure	Implementation Schedule	Status/Date/Initials
	<ul style="list-style-type: none"> ○ Adult CHNWR between mid-November and May when water surface elevations in the Sacramento River are amenable to fish passage ○ Adult CHNSR between January and May when elevations in the Sacramento River are amenable to fish passage ○ Adult California Central Valley steelhead in the event their presence overlaps with the defined seasonal window for other target species when elevations in the Sacramento River are amenable to fish passage ○ Adult Southern DPS green sturgeon between February and May when elevations in the Sacramento River are amenable to fish passage. 		<ul style="list-style-type: none"> ● Begin construction of Secondary Fish Passage Structure — May 2024 ● Complete SFP Structure — November 2024

Primary Project activities include the construction of a notch in Fremont Weir located in the Northern Yolo Bypass, including the construction of the following features:

- *Intake channel:* The intake channel shall connect the Sacramento River to the proposed headworks structure at the appropriate elevation to facilitate an upstream fish passage facility for adult fish and for passing rearing habitat flows and juvenile salmonids.
- *Headworks structure:* The headworks structure shall bisect the existing Fremont Weir on the east side and would control the diversion of Project flow from the Sacramento River into the

Condition	Mitigation Measure	Implementation Schedule	Status/Date/Initials
	<p>Yolo Bypass. It would also serve as the primary upstream fish passage facility for adult fish and the primary facility for passing rearing habitat flows and juvenile salmonids into the Yolo Bypass. The components of the headworks shall include a concrete control structure, an upstream vehicular bridge crossing, and a concrete channel transition, which transitions the rectangular sides of the control structure to the side channel slopes of the transport channel.</p> <ul style="list-style-type: none"> • <i>Transport channel:</i> The transport channel shall serve as the primary facility for upstream adult fish passage between the existing Tule Pond and the headworks structure. It would also serve as the primary channel for conveying juvenile salmonids and rearing habitat flows from the headworks structure to the existing Tule Pond. • <i>Downstream channel improvements:</i> Improvements shall be made to the existing channel that extends from the Tule Pond outlet to the beginning of Tule Canal. The improvements would be made to facilitate upstream adult fish passage between the existing Tule Canal and Tule Pond. <p>The location of each of these facilities is described in Alternative 1 in the Yolo Bypass Salmonid Habitat Restoration and Fish Passage Final EIR/EIS. The project also includes a</p>		

Condition	Mitigation Measure	Implementation Schedule	Status/Date/Initials
	supplementary fish passage structure located on the west side of Fremont Weir.		

Not included: 9.3.1, 9.3.2, 9.3.3, 9.3.4, 9.4, 9.4.1, 9.4.2, 9.4.3, 9.4.4, 9.4.5, 9.4.6, 9.4.7, 9.4.8, 9.4.9, 9.4.9.1, 9.4.9.2, 9.4.9.2.1, 9.4.9.2.2, 9.4.9.2.3, 9.4.10, 9.5

