CALIFORNIA SALMON STRATEGY FOR A HOTTER, DRIER FUTURE:

Restoring Aquatic Ecosystems in the Age of Climate Change

PROGRESS REPORT
JANUARY 2024 - MARCH 2025

CONTENTS

ABBREVIATIONS

Bureau of Reclamation ..... **Reclamation**

California Department of Food and Agriculture ..... **CDFA**

California Department of Fish and Wildlife ..... **CDFW**

California Department of Transportation ..... **Caltrans**

California Department of Water Resources ..... **DWR**

California Natural Resources Agency ..... **CNRA**

Central Valley Flood Protection Board ..... **Flood Board**

Federal Energy Regulatory Commission ..... **FERC**

National Oceanic and Atmospheric Administration ..... **NOAA**

National Marine Fisheries Service ..... **NMFS**

Pacific Gas & Electric Company ..... **PG&E**

State Water Resources Control Board... **SWRCB** or **State Water Board** or **Water Boards**

U.S. Army Corps of Engineers..... **USACE**

U.S. Fish and Wildlife Service..... **USFWS**

Wildlife Conservation Board..... **WCB**

Adult spring-run Chinook salmon being released into the San Joaquin River, Credit: Paul Adelizi, CDFW

INTRODUCTION

In January 2024, Governor Gavin Newsom introduced the *California Salmon Strategy for a Hotter, Drier Future (Salmon Strategy)*, outlining key priorities and actions to restore California's struggling salmon populations. In the year since the release of the *Salmon Strategy,* significant progress has been made toward safeguarding salmon populations and their habitats under increasingly challenging environmental conditions.

Over the past year, California's resource departments and boards have implemented key initiatives outlined in the strategy, with a focus on accelerating habitat restoration, adaptive management practices, and innovative fisheries management solutions. Tribal Nations, federal agencies, conservation

organizations, and local communities are key leaders and partners in advancing actions in the Salmon Strategy throughout California.

Salmon are central to religions, creation stories, the health and subsistence of Indigenous Peoples, and a multi-million-dollar fishing industry. Healthier, thriving salmon populations will have broader benefits beyond salmon. Salmon are one of nature's "force multipliers" super-charging benefits across entire ecological communities. Salmon nourish soils and forests through their unique journeys that bring ocean nutrients to headwater streams and rivers. Their health influences the whole ecosystem. Restoring habitat for salmon benefits many additional aquatic species. Creating passage for salmon past barriers helps lamprey and sturgeon and a suite of other aquatic species too.

California needs thriving salmon runs, and the need to support California's salmon populations remains urgent. Climate change threatens salmon populations, migrations, and habitats. California must continue to prioritize restoration of salmon populations across the state, as their health influences entire ecosystems, and actions to protect salmon help a suite of other aquatic species.

California's resource departments have taken swift and immediate action to implement the Salmon Strategy, following its release one year ago. Across the six key priorities outlined in the *Salmon Strategy*, roughly 67% of the action items are currently underway, or the action's goal has been partially met, but efforts continue to advance the action item. Another 26% have already been fully completed. Only an estimated 7% of action items are in the planning phase.

This progress report, addressing the six key priorities outlined in the *Salmon Strategy*, provides a status update of the 71 action items outlined in the *Salmon Strategy*, categorized in one of three stages:

PLANNING, meaning necessary plans are being drawn up or critical negotiations are underway;

IN PROGRESS, meaning work on the action is actively underway;

COMPLETED, meaning the action is fully completed.

Additionally, the progress report highlights several key actions that showcase important strides made in improving resilience within salmon populations and habitats, ongoing projects that are paving the way for long-term success, and additional upcoming priorities as we continue to adapt and strengthen California's salmon conservation efforts.

1. Remove Barriers and Modernize Infrastructure for Salmon Migration
2. Restore and Expand Habitat for Salmon Spawning and Rearing
3. Protect Water Flows and Water Quality in Key Rivers at the Right Times to Support Salmon
4. Modernize Salmon Hatcheries
5. Transform Technology and Management Systems for Climate Adaptability
6. Strengthen Partnerships

Copco 2 on the Klamath River fully removed, Credit: Swiftwater Films

1. Remove Barriers and Modernize Infrastructure for Salmon Migration

Lead Agency:
CDFW

Primary Partners:
Tribal Nations, Water Boards, DWR, Caltrans, Wildlife Conservation Board[1]

California's aging infrastructure limits salmon migration, with some dams far beyond their useful life. In the Central Valley, large dams constructed in the early 1900s now block salmon from over 90% of their historical spawning and rearing habitat in higher-elevation streams. As climate change intensifies and makes valley floor waters unsuitable, these cold-water habitats are increasingly important to salmon survival. While some dams still provide benefits and can be modernized to reduce harm to salmon, others are obsolete and should be decommissioned. Significant progress has been made over the last year to expand habitat and provide lasting benefits for salmon resilience.

FISH PASSAGE
Improvement Locations

Klamath Dam after removal

KLAMATH DAM REMOVAL

The historic Klamath River dam-removal project, a cornerstone of the *Salmon Strategy*, culminated in 2024 in the removal of the last barrier to salmon migration on the Klamath River. After the successful removal of Copco 2 dam in the fall of 2023, dewatering of Iron Gate, Copco 1, and J.C. Boyle reservoirs began in January 2024, paving the way for dam removal and the restoration of natural river flow. By late July, in-river work at J.C. Boyle was complete, followed by the removal of Copco 1 in mid-September 2024. Iron Gate, the final downstream dam remaining on the Klamath River, was removed in early October. This removal allowed for a free-flowing river along the entire project stretch for the first time in more than a century.

Fall-run Chinook salmon returned quickly after the dam removal. In mid-October 2024, Chinook salmon migrated through all four former dam sites to spawn in Oregon's Spencer Creek for the first time in 112 years.

In California, Chinook salmon have reached Shovel Creek, upstream of the former Copco Reservoir, and also have arrived at the newly renovated Fall Creek Hatchery, 7.5 miles above the former Iron Gate Dam site. Additionally, Chinook salmon and Pacific lamprey are now accessing new habitats in Jenny Creek, located within the former Iron Gate Reservoir footprint.

With the return of Coho salmon in late 2024 and early 2025, California Department of Fish and Wildlife (CDFW), in partnership with Klamath Basin fisheries organizations, will continue to monitor the reintroduction and repopulation of anadromous fish species. Through implementation of the *Klamath River Anadromous Fishery Reintroduction and Restoration Monitoring Plan*, partners will track adult and juvenile life stages in newly accessible habitats and supporting the re-establishment of resilient fish populations in the Klamath River Basin.

KLAMATH RIVER DAMS
Removal Timeline

COPCO 2
Dam Removed
October 30, 2023

JC BOYLE
Dam Removed
July 30, 2024

IRON GATE
Dam Removed
October 2, 2024

COPCO 1
Dam Removed
October 2, 2024

2023 **2024**

COPCO 2
Before Removal

JC BOYLE
Before Removal

IRON GATE
Before Removal

COPCO 1
Before Removal

All Photos Courtesy of Swiftwater Films

1 REMOVE BARRIERS AND MODERNIZE INFRASTRUCTURE FOR SALMON MIGRATION

13 ACTIONS

3 PLANNING **8** IN PROGRESS **2** COMPLETE

TABLE 1 - Remove Barriers and Modernize Infrastructure for Salmon Migration	
1.1 By the end of 2023, remove the first of four dams on the Klamath River, and complete the removal of the remaining three in 2024.	**COMPLETE** Klamath River is free flowing through all four former dam sites.
1.2 By the end of 2023, reach an initial agreement with Tribal Nations, counties, and conservation organizations to decommission and remove the seismically unfit Scott Dam on the Eel River and replace the Cape Horn Dam with a fish-friendly water diversion for Russian River communities. These dams that are owned by Pacific Gas & Electric Company block salmon access to 288 miles of pristine upper watershed habitat in the Eel River. Removal would likely make the Eel the longest free-flowing river in California and could contribute to water supply reliability for communities along the Russian River. The company has decided to decommission its facilities. By the end of 2024, complete negotiations with Pacific Gas & Electric Company and finalize this agreement and secure submission to the Federal Energy Regulatory Commission (FERC) in Pacific Gas & Electric Company's license surrender and decommissioning plan.	**IN PROGRESS** PG&E announced its draft plan to remove century-old, outdated and seismically at-risk hydroelectric dams on the Eel River – the Scott Dam and the Cape Horn Dam in the Potter Valley area of Mendocino County – in January 2024 with a final plan expected in summer of 2025. In February 2025, CDFW, Round Valley Indian Tribes, Sonoma County, Mendocino County, Humboldt County, Trout Unlimited and California Trout entered into a Memorandum of Understanding for a water agreement that will ensure water reliability for over 600,000 coastal Californians, farmers and ranchers while allowing the Eel River to again flow free to benefit salmon, environmental health, tribal and local communities. Negotiations are on track to finalize this agreement in the summer of 2025. DWR provided grant funding to Sonoma County Water Agency to assist with facilitation of the water agreement. In February 2025 CDFW announced $18 million towards river restoration and water supply infrastructure, matching federal funding.

TABLE 1 - Remove Barriers and Modernize Infrastructure for Salmon Migration	
1.3 By the end of 2024, seek FERC approval to complete design of an engineering solution for maintaining temperatures ideal for salmon on the Feather River high-flow channel downstream of Thermalito Afterbay and to construct a fish segregation weir to secure the low-flow section of the Feather River below Oroville Dam.	**COMPLETE** DWR, CDFW, NMFS, and the State Water Contractors wrote letters to FERC in November and December 2024 to seek approval, urging issuance of the new license. Receiving the new license would allow projects to move forward including those listed in this action.
1.4 By the end of 2024, finalize agreements with Yuba Water Agency, National Marine Fisheries Service, and others to construct a new fishway, modernize old diversions, and initiate a salmon reintroduction program on the Yuba River.	**IN PROGRESS** Through a multiyear grant with Yuba Water Agency (YWA), CDFW and YWA have been exploring approaches to salmon reintroduction in North Yuba River upstream of New Bullard's Bar as well as locations for studies and monitoring strategies. Pilot studies are currently underway using spring-run Chinook salmon eggs from Feather River Hatchery that were injected into the river gravel in five different locations above Bullards Bar Dam in late 2024 (for more information, see action item 1.5).

Matilija Dam on Matilija Creek, a tributary of the Ventura River, Ventura County

TABLE 1 - Remove Barriers and Modernize Infrastructure for Salmon Migration	
1.5 By 2025, take the first steps to re-establish spring-run Chinook salmon populations in the North Fork Feather River and the North Fork Yuba River.	**IN PROGRESS** Initial studies to document habitat suitability and potential for reintroduction are concluding in June 2025. Then a report and Phase 2 plan will be released in 2025. An analysis of a new water treatment system for the Feather River Fish Hatchery is underway. Pilot studies are currently underway using spring-run Chinook salmon eggs from the Feather River Hatchery that were injected into the river gravel in five different locations above Bullards Bar Dam on the North Fork Yuba River in late 2024. This represents the first time salmon have been in the upper watershed since Englebright Dam was constructed in 1941. This pilot study will help inform a number of focus areas: 1) This approach helps to better understand gravel quality at different locations in the upper watershed, 2) When combined with genetic data it will help inform likely success rates for salmon spawning in different locations, 3) When coupled with downstream monitoring, it will help inform growth rates in both egg and fry life stages associated with actual water temperatures experienced in the watershed.
1.6 By 2025, begin an evaluation of additional watersheds for feasibility of salmon reintroduction above dams.	**IN PROGRESS** After the successful pilot reintroductions of spring-run and winter-run Chinook salmon eggs into the North Fork Yuba River and the McCloud River into spawning and rearing habitats that had been cut off for close to a century by Englebright and Shasta Dams, CDFW and partners have been evaluating the feasibility of above dam salmon and steelhead reintroduction in other California watersheds. Studies by CDFW and various partners have been conducted to assess habitat suitability for salmon and steelhead reintroduction above dams around the state including the Feather, Mokelumne, American, and Ventura rivers, as well as Alameda and San Francisquito Creeks. Pilot introductions will be launched where habitat is feasible and as funding is available.

TABLE 1 - Remove Barriers and Modernize Infrastructure for Salmon Migration	
1.7 By 2025, complete construction of a natural fishway to improve salmon access to the Yuba River above Daguerre Point Dam and restore access to sturgeon.	**IN PROGRESS** In December 2024 Yuba Water Agency submitted their request for a water quality certification for both their Yuba River and Narrows hydroelectric projects. In February 2025 Yuba Water Agency completed their tribal outreach for their Statewide Restoration Grant Order (SRGO) CEQA platform for the Nature Like Fishway with SWRCB. The Yuba Water Agency Board of Directors voted in February 2025 to accept the CEQA compliance document under SRGO and submit the request to the State Water Board. In February and March 2025 the parties intend to meet with NGOs on the Nature Like Fishway design and associated studies.
1.8 By 2025, complete at least 10 coastal stream fish passage actions, and by 2026 at least 20 more.	**IN PROGRESS** Local and state partners are on track to complete 10 coastal stream fish passage projects in 2025, utilizing CDFW's permitting and grant programs. Fish passage actions on Arroyo Seco, Arroyo Grande Creek, Cachuga Creek, Little Sur River, Little Case Creek, and Lindsey Creek are highlighted here. Construction is planned to begin in June 2025 on Clark Colony barrier modification and screening diversion. CDFW met with engineers in February 2025 to discuss design elements for Sycamore Flats barrier removal, on Arroyo Seco. Stream gage barrier modification on Arroyo Grande Creek was completed in October 2024. Weston Fish barrier removal on Cachuga Creek, Carmel River was completed in October 2024. Pico Blanco Dam barrier Removal on Little Sur River is in acquisition phase with removal planned to be completed in December 2026. Lindsey Creek barrier removal project started in 2023 and is anticipated to be completed in June 2026. Little Case Two barrier removal project started in April 2023 and is anticipated to be completed in June 2025.

TABLE 1 - Remove Barriers and Modernize Infrastructure for Salmon Migration	
1.9 By summer 2025, complete technical investigations, modeling, and at least 35% design of an action to remove defunct, nearly 100-year-old Rindge Dam from Malibu Creek. With remediation or removal of eight other barriers upstream of Rindge Dam, endangered steelhead could regain 15 miles of spawning and rearing habitat. The reservoir behind the dam is filled with sediment, posing a public safety hazard, and the dam blocks steelhead migration. Start deconstruction of Rindge Dam no later than 2028.	**PLANNING** An EIR/EIS has been completed for removal of the defunct Rindge Dam on Malibu Creek. Final hydraulic and traffic studies were completed in January 2025, and geotechnical investigations are slated to be finalized in March 2025. Alternative selection is the next step. State Parks is also working on removal of eight upstream barriers on Las Virgenes and Cold creeks.
1.10 By 2026, secure an approach with Pacific Gas & Electric Company for its Battle Creek Hydroelectric Project to restore volitional upstream and downstream fish passage at the remaining Battle Creek facilities.	**PLANNING** NMFS, USFWS, Reclamation, CDFW and PG&E (memorandum of understanding partners) continue to work on Phase 2 no-regrets infrastructure removal projects on South Fork Battle Creek. PG&E released a draft schedule of when documents will be developed to inform decommissioning.
1.11 By 2026, complete upgrades to bridges, levees, and infrastructure along Matilija Creek in Ventura County and complete final tasks necessary to ensure removal of Matilija Dam in 2030. This dam-removal action, on a tributary to the Ventura River, will restore steelhead habitat, eliminate a public safety dam risk, enhance riparian and floodplain habitat and property protection, and replenish the Ventura River estuary and Ventura County beaches as a climate adaptation benefit.	**PLANNING** Hydraulic and sediment analyses of upgrades to Robles Diversion and Fish Passage Facility were completed. The final alternatives analysis and feasibility study are underway, as well as preliminary design. Grant funding is in place to reach 30% design by September 2027. Improved flood protection is planned for the communities of Meiners Oak and Casitas Springs to meet federal safety requirements and to provide sufficient flood protection following dam removal. CEQA is currently being carried out by consultants for Meiners Oaks Levee and Casitas Springs Levee. Grant funding is in place to reach 60% design on both project elements. Replacement of Camino Cielo Bridge is being re-evaluated and is contingent on being able to purchase properties on west side of river.

TABLE 1 - Remove Barriers and Modernize Infrastructure for Salmon Migration	
1.12 By 2026, implement a strategy to fulfill Senate Bill 857 of 2006, which requires Caltrans to track and remediate all fish passage barriers to salmon and steelhead habitat caused by transportation infrastructure. Such a strategy may identify and bundle the small transportation-related stream barriers along the California coast into one meta-action with the potential to create advanced mitigation credits for state transportation projects.	**IN PROGRESS** Following the passage of SB 857 in 2006, Caltrans established the California Fish Passage Advisory Committee (Fish PAC) as a joint effort of Caltrans, CDFW, and NMFS. Fish PACs in each region across California nominate and prioritize barriers to fish passage in the State Highway System for remediation. Each region of the Fish PAC meets quarterly to refine and update fish passage priorities, track progress, and support implementation of barrier removal by Caltrans.
1.13 By the end of 2026, start construction to modernize Sunset Pumps on the Feather River and remove its associated rock weir thereby reducing entrainment risk and eliminating a barrier that hinders migration of adult and young salmon.	**IN PROGRESS** In August 2024 DWR published a notice of preparation as the Lead Agency under CEQA to prepare a Supplemental Environmental Impact Report (SEIR) for the Sunset Weir and Pumps Fish Passage Project. Options for environmental permitting pathways are under discussion. Commitments for fiscal contributions to the project from the State Water Project Incidental Take Permit were made for 2025 and are planned for 2026.

North Fork Feather River

Final notching of the levee at Lookout Slough in Solano County, Credit: DWR

2. Restore and Expand Habitat for Salmon Spawning and Rearing

Lead Agency:
CDFW

Primary Partners:
Tribal Nations, DWR, Water Boards, State Conservancies

Amid growing threats to biodiversity, particularly salmon, California faces an urgent need to restore wetlands and reconnect rivers to floodplains. These habitats are essential for generating food, supporting salmon growth, and improving survival rates, while also providing benefits including groundwater recharge and supporting migratory birds.

Large scale habitat projects many years in the making are coming to fruition. Lookout Slough was completed in Solano County in 2024, creating 3,000 acres of tidal habitat for the benefit of fish species. The Yolo Bypass Salmonid Fish Passage and Habitat Restoration Project, also known as the Big Notch Project, is substantially complete and expected to be operational in November 2025. The Big Notch Project will facilitate passage of adult sturgeon and salmonids from the Yolo Bypass

into the Sacramento River as well as increase the frequency when juvenile salmonids can access Yolo Bypass floodplain habitat by approximately 20%. Other significant restoration projects under construction include the 800-acre Prospect Island Project in Solano County and the 900-acre Lower Elkhorn Basin Levee Setback Project in Yolo County.

Despite progress, the pace of restoration lags the scale of the challenge. Expanding river corridors through collaborative projects with Tribal Nations and other partners offers opportunities for multi-benefit solutions, including flood control, habitat creation, outdoor access, and renewable energy integration. To ensure ecosystem resilience, restoration must become a core component of infrastructure modernization. *Salmon Strategy* initiatives such as Cutting the Green Tape, Salmon Habitat and Restoration Priorities (SHaRP), and the signing of the Floodplain Forward Memorandum of Understanding are accelerating restoration and directing it to where it will provide the most benefit.

In 2024, the Water Boards utilized the suite of Cutting Green Tape tools to expedite the review and approval of 11 wetland, riparian area, and stream restoration projects. In 2025, the Water Boards will continue to refine and utilize this suite of tools. As part of that effort, the Water Boards will participate in three multi-agency Cutting Green Tape and 30X30 webinars to provide the restoration community with information regarding the permit tools and processes available to restoration practitioners. CDFW has permitted 50 Salmon restoration projects using Cutting Green Tape tools and enhanced over 640 stream miles. CDFW has also cut the average permit processing time to 48 days and launched a new single application for restoration grant funding that is available on an ongoing basis. In 2025 CDFW will improve permitting efficiency for restoration projects by combining the most common authorizations into one single streamlined permit for the California Endangered Species Act, fully protected species, rare plants, and lake and streambed alteration agreements.

Complementary to Cutting the Green Tape, DWR has begun seeking additional contracting authority to accelerate project delivery for natural infrastructure projects where salmon are the target species. In conjunction with regulatory partners, DWR has also initiated habitat suitability studies in the North Fork Feather River above Lake

CDFW staff member and family fish for salmon in the San Francisco Bay

Almanor to evaluate the potential to provide access for spring-run Chinook salmon in cold water habitats, and is working on climate modeling inventory to identify streams and rivers that can serve as "Salmon Strongholds" for specific evolutionary significant units.

Building on previous grants to support salmon habitats and restoration efforts, in January 2025 CDFW provided more than $15 million to 15 projects designed to restore, enhance, and protect salmon and steelhead habitat across California. Grantees include the Salmon River Restoration Council, awarded $1.8 million for the Windler Floodplain Habitat Restoration Project. The project will enhance salmonid rearing habitat on a reach of the North Fork Salmon River by lowering the floodplain and increasing connectivity. The project also includes riparian vegetation, which will increase shade and diversity along channels and across the river bar.

SHaRP INITIATIVE

Significant progress has been made under the Salmon Habitat Restoration Prioritization (SHaRP) initiative, with action plans finalized for the South Fork Eel River, Lower Russian River, and Lagunitas Creek. A preliminary draft action plan has been completed for Mendocino Coastal watersheds, and planning is underway for the Lower Eel River watershed. To date, approximately $15.6 million has been allocated to restoration efforts in the South Fork Eel River SHaRP watersheds, supporting 21 implementation projects such as flow enhancement, instream and floodplain habitat restoration, habitat inventory, and sediment reduction, and nine planning projects aligned with SHaRP recommendations.

In the Lower Russian River watershed, seven projects have been funded, with $8.7 million secured for floodplain restoration, fish passage, and restoration planning in Green Valley and Willow creeks. The Lagunitas Creek watershed has also seen over $10 million invested in seven priority projects, including off-channel floodplain restoration, in-stream habitat improvements, gravel augmentation, and critical planning efforts.

These investments reflect CDFW's commitment to restoring salmon strongholds and building resilience against a hotter, drier future and are paying clear and early dividends. Coastal rivers that have completed restoration projects through the SHaRP process, including Ten Mile River, Noyo River, and Lagunitas Creek, have seen substantial increases in adult Coho salmon returns, with Ten Mile and Noyo watersheds reporting 15,000 adult Coho in 2023-24—almost quadrupling their 15-year average of 4,000 fish. Similarly in 2023-24, Lagunitas Creek watershed experienced a 60% increase in Coho redds compared to three years prior.

Lagunitas Creek

The Dutch Slough Tidal Marsh Restoration Project site, located in the Sacramento-San Joaquin Delta near Oakley. The restoration project implemented by the California Department of Water Resources will restore 1,187 acres into a tidal marsh to provide habitat for salmon and other native fish and wildlife. Photo taken May 18, 2023. Credit: Florence Low/DWR

FLOODPLAIN FORWARD

In October 2024, nine Federal and California government agencies overseeing water, agriculture, fish and wildlife, public lands, and flood control signed a Memorandum of Understanding (MOU) to enhance collaboration on large-scale, multi-benefit floodplain water projects in the Sacramento River Basin. This MOU aligns with the *Salmon Strategy*, which aims to restore and expand habitat for salmon spawning and rearing. By streamlining planning, design, and implementation of floodplain projects, this agreement supports goals to improve flood protection, restore fish and wildlife habitats, and enhance water resources. These efforts will create vital rearing grounds for salmon in floodplain areas, enhancing habitat connectivity and supporting salmon resilience in the face of changing climate conditions.

The signatories, including U.S. Fish and Wildlife Service, U.S. Bureau of Reclamation, U.S. Army Corps of Engineers, Natural Resources Conservation Service, California Department of Fish and Wildlife, and California Department of Water Resources will prioritize integrated approaches to habitat restoration, flood risk management, and groundwater recharge. This multi-pronged approach will foster a balanced effort to support fish populations, particularly salmon, alongside agriculture and other land uses across the Sacramento River Basin.

RESTORE AND EXPAND HABITAT FOR SALMON SPAWNING AND REARING

12 ACTIONS

6 IN PROGRESS

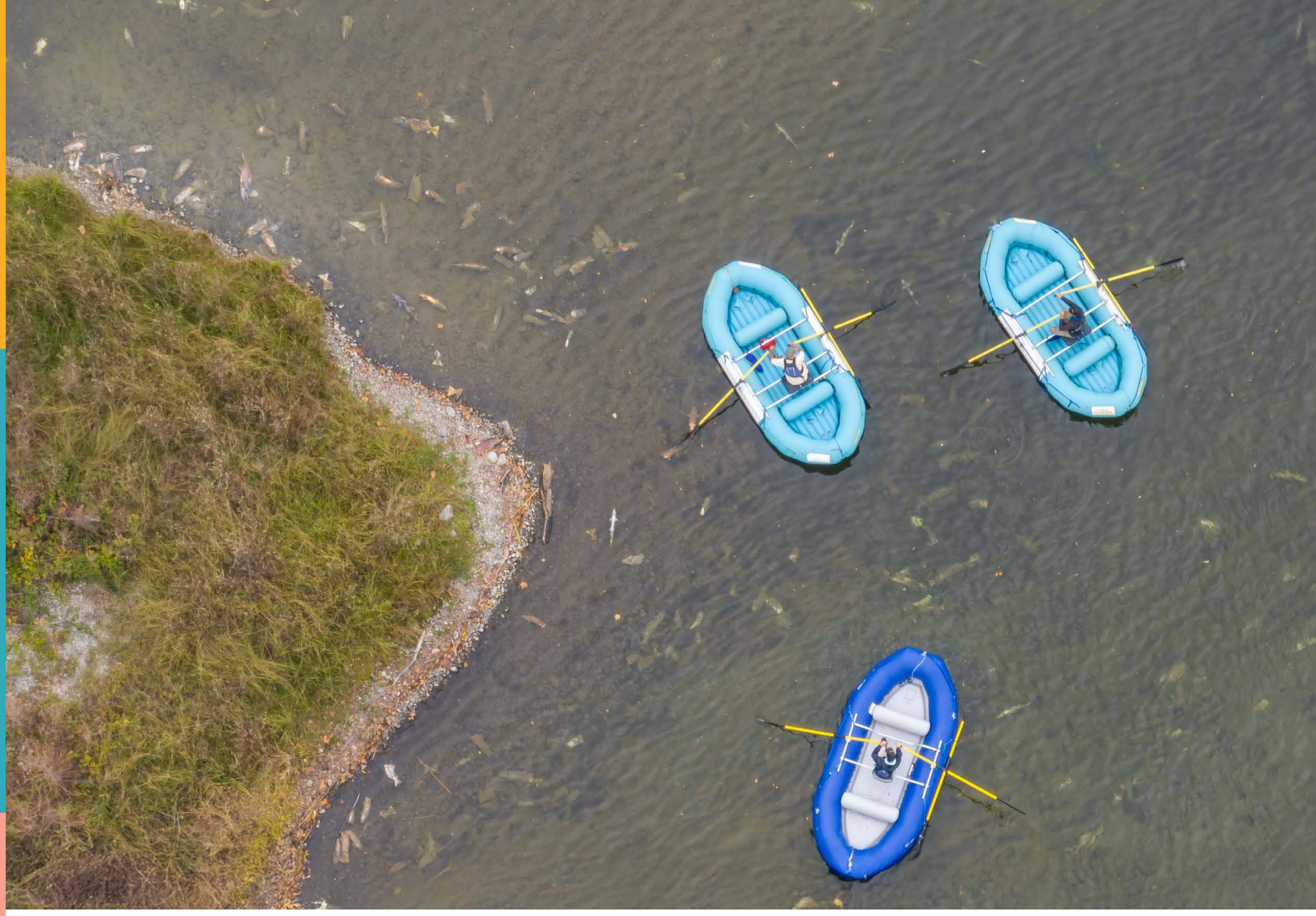
6 COMPLETE

TABLE 2 - Restore and Expand Habitat for Salmon Spawning and Rearing	
2.1 By the end of 2023, ensure green infrastructure is integrated across and within the Administration's infrastructure priorities as a nature-based solution.	**COMPLETE** Green infrastructure was integrated into agency strategies and infrastructure strike teams. On May 19, 2023, Governor Gavin Newsom signed Executive Order N-8-23 which directed the Senior Counselor on Infrastructure to convene an Infrastructure Strike Team to work across state agencies to accelerate clean infrastructure and maximize federal and state funding opportunities for California innovation and infrastructure projects. Environmental restoration was identified as a key priority and restoration strike teams were established to support hundreds of projects that are underway to mitigate water, wildfire, and hazardous material issues to ensure cleaner, greener, and safer communities. Learn more at build.ca.gov. California's Nature Based Solutions Targets, published in April 2024, included green infrastructure like Delta wetlands for flood protection. Green infrastructure was also integrated into the Natural and Working Lands Climate Smart Strategy published in 2022.
2.2 By the end of 2023, complete beaver translocation efforts at one sentinel location to evaluate feasibility for watershed restoration and identify a second action for spring of 2024. Beavers can help provide breeding and rearing habitat for aquatic species, sustain cold flows during the summer, and reduce erosion and degradation of spawning habitat. This work will also advance partnerships with Tribal Nations and conservation organizations.	**COMPLETE** In 2023 CDFW conducted the first beaver conservation release in nearly 75 years. Working with the Maidu Summit Consortium, CDFW released a family of seven beavers into Plumas County, in a location that is known to the tribal community as Tásmam Koyóm. In 2024 CDFW and the Tule River Tribe conducted a large-scale beaver reintroduction pilot project in Tulare County.

TABLE 2 - Restore and Expand Habitat for Salmon Spawning and Rearing	
2.3 By spring 2024, begin Tisdale Weir fish passage construction and complete construction by fall 2025.	**IN PROGRESS** DWR completed Fish Rescue and Relocation and Adaptive Management Plans in 2024. Two 6.5-month construction seasons are planned from April 2025 - October 2026 for Tisdale Weir fish passage.
2.4 By the end of 2024, complete at least two additional beaver translocation, watershed restoration actions.	**COMPLETE** CDFW's Beaver Restoration Program created a process for landowners or land managers to submit proposals for beaver translocation projects. Five translocation events were carried out by the end of 2024. CDFW and partners are currently identifying a 2025 pilot stream for implementing and studying beaver restoration in salmon habitat.
2.5 By the end of 2024, identify 20,000 acres that are suitable and feasible for targeted set-back levees actions within the mainstem Sacramento River and major tributaries to restore functional riparian ecosystems.	**COMPLETE** Lookout Slough Tidal Habitat Restoration and Flood Improvement Project, the largest single tidal restoration project in California, was completed in September 2024. The Lookout Slough project restored 3,400 acres of vital habitat for sensitive fish species and other wildlife while also reducing flood risk in the Central Valley. Nine total levee breaches allow tidal waters to flow into a newly constructed set-back levee, creating connection to over 16,000 acres of contiguous tidal wetland habitat.
2.6 By the end of 2024, complete SHaRP documents for coastal Chinook and Coho salmon strongholds in the Lower Eel River, Mendocino coastal watersheds, Lower Russian River, and Lagunitas Creek.	**IN PROGRESS** NOAA Fisheries and the CDFW made significant progress implementing collaborative Salmon Habitat Restoration Priorities (SHaRP) to identify priority actions for restoring California's salmon and steelhead habitat. The SHaRP process relies on Tribes, government agencies, industry, environmental groups, and local communities to work together to develop stream specific restoration action plans. South Fork Eel River and Lagunitas Creek SHaRP Action Plans are complete, and implementation of restoration actions is underway. In 2024 a SHaRP Action Plan was completed for four Lower Russian River tributaries (Dutch Bill, Green Valley, Mill, and Willow creeks). After public workshops, the first draft of a SHaRP Action Plan was produced for Mendocino coastal watersheds (Ten Mile, Noyo, Big, Navarro, and Garcia rivers). SHaRP workshops are set to begin in 2025 for Lower Eel River.

TABLE 2 - Restore and Expand Habitat for Salmon Spawning and Rearing	
2.7 By early 2024, increase awareness of Cutting the Green Tape options for salmon restoration actions. Each year between 2024-26, conduct annual workshops about the options and opportunities for restoration practitioners.	**IN PROGRESS** A total of 41 Cutting the Green Tape events were held, including 21 public events and 20 agency events with CDFW, SWRCB, Regional Water Boards, Resource Conservation Districts, USACE, USFWS, and State Parks. Notable public events included 2024 Salmonid Restoration Federation Conference, Western Section of The Wildlife Society, and State of the Estuary Conference. While this action was completed by the 2024 timeline, annual workshops and communication will continue to ensure tools and approaches are known by restoration practitioners.
2.8 By 2025, use Cutting the Green Tape permitting actions to provide reduced timelines for at least 20 salmon restoration actions and another 20 or more actions by 2026.	**COMPLETE** An overview of how Cutting the Green Tape tools are increasing the pace and scale of restoration is summarized in CDFW's CGT Story Map. By 2025 a total of 49 projects were permitted or cleared for CEQA, including 23 Statutory Exemptions for Restoration Projects (SERP) Permitting, 14 Restoration Management Permits (RMP), and 12 Restoration Consistency Determinations (CD) issued. Important RMPs or CDs that were issued for salmonids include Klamath Dam Removal, Garcia River Estuary, Redwoods Rising, Ventura River Fish Passage, Butano Creek Floodplain, Prairie Creek, Lagunitas Creek, Bolinas Lagoon, and Smith River Estuary. Important SERP Projects for salmonids include Los Angeles River, Inskip Dam Removal, Battle Creek Dam Removal, and Basso/La Grange.
2.9 By 2025, use Cutting the Green Tape permitting actions to address water infrastructure actions to benefit salmon populations.	**COMPLETE** By 2025 seven permitting actions were completed, three SERP projects, three RMPs, and one restoration CD. Water infrastructure components included dam removals, relocation of diversion intake and conveyance structures, levee improvements, off-channel storage and forbearance pond and diversion infrastructure. Cutting Green Tape tools will continue to be used to address water infrastructure actions to benefit salmon populations

TABLE 2 - Restore and Expand Habitat for Salmon Spawning and Rearing	
2.10 By 2026, complete planning and permitting processes and initiate construction for at least 1,000 acres of instream habitat for juvenile Chinook salmon rearing and spawning in the Sacramento River mainstem and its tributaries.	**IN PROGRESS** The following projects are on track to be completed in the 2025-26 construction season: Redding Riffle: 3 acres of spawning habitat; Elks Lodge: 2 acres of rearing habitat; South Sand Slough: 12 acres of rearing habitat; Rockwads, Phase 2: 1 acre of refugia/rearing habitat; Willow Bend Side Channel: 87 acres of floodplain habitat.
2.11 By 2026, modify or reoperate existing water infrastructure to provide seasonal inundation of at least 10,000 acres of floodplain habitat	**IN PROGRESS** A Floodplain Forward Memorandum of Understanding was signed in October 2024, bringing together nine state and federal agencies to support a broad coalition of academics, NGOs and water users to execute a suite of multibenefit projects that achieve flood protection, salmon uplift, and water reliability. The Yolo Bypass Salmonid Fish Passage and Habitat Restoration Project (i.e. Big Notch Project) will be operational in the winter of 2025-26. This project will be capable of creating more than 30,000 acres of floodplain habitat. DWR Tisdale weir Improvements construction is planned to occur in 2025 and 2026. DWR has begun preliminary outreach and investigation into creating 10,000 acres of new floodplain habitat in the Tisdale and Sutter bypasses. Feasibility studies need to be done on Moulton and Colusa weirs.
2.12 By 2026, create an additional 5,000 acres of floodplain habitat and reconnect salmon to floodplains across the Central Valley.	**IN PROGRESS** McCormack-Williamson Tract: Completed 2024, 1,600 acres of floodplain habitat; Lower Elkhorn Basin Levee Setback Project: Completed 2024, 900 acres of floodplain habitat; Prospect Island: anticipated completion of construction in 2025, 1,500 acres of tidal habitat; Grizzly Slough: anticipated completion of construction in 2025, 180 acres of floodplain habitat Dutch Slough Phase 2: anticipated completion of construction in 2026, 287 acres of floodplain habitat Tide's End: anticipated start of construction in 2027 or 2028 depending on permitting and approvals, approximately 1,000 acres of floodplain habitat planned; Little Egbert Tract: anticipated start of construction in 2028 depending on permitting and approvals, approximately 300 acres of floodplain habitat planned.



DWR Feather River floating classroom

3. Protect Water Flows and Water Quality in Key Rivers at the Right Times to Support Salmon

Lead Agency:
SWRCB

Primary Partners:
Tribal Nations, CDFW, WCB, DWR

Adequate flows of cold water are needed to entice returning adult salmon to their natal streams, provide critical habitat for eggs and juvenile salmon to grow, and transport those juveniles to the Pacific Ocean. Habitat restoration is only effective if there is water for that habitat. Restoration and flow protection go hand in hand to optimize investments for salmon. Water quality is also important to support critical habitat and ensure salmon can complete their lifecycle.

California's resource agencies have made significant progress in protecting and managing water flows and habitat restoration

American River, Credit: CDFW

across the state to ensure optimal conditions for salmon to thrive. CDFW has completed instream flow analyses for four rivers, totaling over 192 river miles, with combined drainage areas of approximately 1,273 square miles. These analyses resulted in instream flow criteria developed for 18 reaches on 6 tributaries of the Ventura River, 29 reaches on 20 tributaries of the West Fork San Gabriel River, 65 reaches on 46 tributaries of the South Fork Eel River, and 25 reaches on 11 tributaries of Mark West Creek.

SWRCB has taken steps to address flows in a number of watersheds, particularly those affected by drought over the last ten years. In 2024, the State Water Board continued to implement emergency regulations requiring minimum instream flows in the Scott and Shasta Rivers and readopted the emergency regulation in January 2025 to continue implementation of minimum instream flows in 2025. In October 2024, the Board directed staff to develop a robust scientific basis to evaluate baseline minimum flows in the Scott and Shasta rivers, tributaries to the Klamath River. The Board also held a public workshop in December 2024 to solicit input on scientific basis development for three tributaries to the Sacramento River that are critical for Central Valley spring-run Chinook and steelhead. The development of scientific basis analyses will serve to inform the public and regulatory agencies on effective management actions to protect those species, including possible future actions to ensure flows in those stream systems.

The San Francisco Bay/Sacramento-San Joaquin Delta (Bay-Delta) Watershed is one of California's most important ecosystems and provides habitat for a vast array of terrestrial, avian, and aquatic species, including salmon. It is also of significance to numerous California Native American Tribes and is the hub of the state's water supply. The infrastructure developed to move water within and throughout the watershed provides water for millions of acres of farmland, and at least part of the water supply for two-thirds of the state's population. The Bay-Delta Water Quality Control Plan (Bay-Delta Plan) establishes beneficial uses of water, along with water quality and flow objectives to reasonably protect those uses. In October 2024, the Board released a complete draft of the Bay-Delta Plan that identifies potential updates, including provisions based on voluntary agreements proposed by state and federal agencies and water users, known as the Healthy Rivers and Landscapes proposal. A revised draft, based on public comments received through January 2025, is expected to be released later this year for additional public review and input.

PROTECT WATER FLOWS AND QUALITY IN KEY RIVERS AT THE RIGHT TIMES TO SUPPORT SALMON

14 ACTIONS

1 PLANNING **9** IN PROGRESS **4** COMPLETE

TABLE 3 - Protect Water Flows and Quality in Key Rivers at the Right Times to Support Salmon	
3.1 By early 2024, commence work to establish minimum instream flows in the Scott and Shasta Rivers, working with local partners on locally driven solutions and coordinating on options for incentivizing the reduction of diversions and groundwater pumping.	**IN PROGRESS** SWRCB held a public meeting on long-term flow objectives in October 2024. The Water Board directed staff to develop the scientific basis for long-term flows and economic analysis of potential flow requirements and to evaluate the need for readoption of the emergency flow regulations. SWRCB staff held a public workshop in November 2024 to discuss the need for potential readoption of the emergency flow regulations and proposed alternatives or modifications. The SWRCB readopted an emergency flow regulation in January 2025. CFDW continues to work with the SWRCB on drought emergency flows and longer term flow efforts.
3.2 By early 2024, begin review of the Mill, Deer, and Antelope creek instream flow recommendations and use the information to inform a long-term flow-setting process; conduct a scientific basis investigation that compiles the best available science and describes how it relates to flow setting; and develop analysis for a range of flows.	**IN PROGRESS** SWRCB received flow recommendations for Mill, Deer, and Antelope creeks from CDFW in February 2024. SWRCB staff held a public workshop in December 2024 to accept public comments on development of a scientific basis report regarding instream flows for these creeks.

TABLE 3 - Protect Water Flows and Quality in Key Rivers at the Right Times to Support Salmon	
3.3 By 2025, continue advancing collaborative work with stakeholder groups to implement flow solutions in Butte Creek.	**IN PROGRESS** CDFW has contracted with a consultant through spring of 2026 to continue to support the Butte Sutter Bypass Coordinated Operations Group (BSBCOG) and continue engage with willing landowners, Northern California Water Association, and Reclamation Districts. CDFW is supporting the State Board Supply and Demand Unit's efforts to gather additional information in the Butte Creek watershed. CDFW has contracted with DWR to install two new flow gages in the watershed to help inform flows in the creek and better reporting of conditions and debris related blockages in the migration corridor during the migration season.
3.4 By 2025, adopt an updated Bay-Delta Water Quality Control Plan, which could include potential Voluntary Agreements to Support Healthy Rivers and Landscapes, to protect beneficial uses including the protection of salmon, steelhead, and other native aquatic species.	**IN PROGRESS** SWRCB released a Draft Update to the Bay-Delta Plan focused on the Sacramento/Delta portions of the plan. SWRCB held five public workshop days through early 2025, with an additional 10 staff-led working group meetings occurring from January through May of 2025. As part of this process, SWRCB is continuing to evaluate Healthy Rivers and Landscapes (voluntary agreements) proposals as a potential pathway to update and implement the Bay-Delta Water Quality Control Plan.
3.5 By 2025, complete development of rapid methodologies to establish regional instream flow metrics through the multi-partner California Environmental Flows Framework, which can be used to inform CDFW recommendations and related State Water Board regulatory actions.	**COMPLETE** *Resiliency of California fishes: Assessing native fish sensitivity to changes in wet and dry season baseflows* analyses were completed. Dry season baseflow hydrology models developed for California Environmental Flow Framework (CEFF) were also completed. Native fish sensitivity to wet-season and dry-season baseflow alteration analyses were completed. 7-day moving average minimum and 7-day minimum timing metrics were developed. Two publications were based on this work: Baruch, E.M. et al. 2024. *Mimicking functional elements of the natural flow regime promotes native fish recovery in a regulated river*. Ecological Applications; and Ayers, J. R. et al. 2024. *Perennial and non-perennial streamflow regime shifts across California, USA*. Water Resources Research.

TABLE 3 - Protect Water Flows and Quality in Key Rivers at the Right Times to Support Salmon	
3.6 By 2025, and thereafter, ensure that groundwater sustainability agencies implement actions consistent with the Sustainable Groundwater Management Act that are directed at depletion of interconnected surface waters and poor river conditions in critical salmon habitats resulting from groundwater over pumping.	**IN PROGRESS** SWRCB, CDFW, and DWR continue to collaborate on stream depletion issues arising from implementation of SGMA. In 2024 DWR released a series of technical papers related to depletion of interconnected surface water caused by groundwater use to provide guidance to Groundwater Sustainability Agencies.
3.7 By 2025, where appropriate, revise and modernize approaches for Shasta Reservoir management to protect water quality and temperature management for salmon.	**COMPLETE** In November and December 2024 USFWS and NOAA Fisheries issued Biological Opinions (BiOps) for the Long-term Operation of the Central Valley Project and State Water Project. On December 20, 2024 Reclamation issued their record of decision. The BiOps include a revised and modernized approach to Shasta Reservoir management. SWRCB released draft update to Bay-Delta Plan in October 2024, which includes a proposed narrative objective for temperature.
3.8 By 2025, revise and implement state and federal permits and Biological Opinions governing the State Water Project and federal Central Valley Project.	**COMPLETE** In November 2024 CDFW issued an incidental take permit to the Department of Water Resources for operation of the State Water Project. In November and December 2024 USFWS and NOAA Fisheries issued Biological Opinions for the Long-term Operation of the Central Valley Project and State Water Project.
3.9 By 2025, ensure the Unified Cannabis Enforcement Task Force (UCETF) is taking action to incorporate salmon protection and illegal cannabis water-related issues as priorities when implementing enforcement actions.	**IN PROGRESS** As a member of UCETF, CDFW continues to prioritize environmental impacts to sensitive areas and species, including salmon, during illicit outdoor cultivation site selection for enforcement.

TABLE 3 - Protect Water Flows and Quality in Key Rivers at the Right Times to Support Salmon	
3.10 By 2026, complete supply-demand assessment pilot projects in three watersheds to better manage water allocations and provide data for local water management decisions. Expand to at least 12 additional watersheds by 2029.	**IN PROGRESS** SWRCB identified Napa, Butte, and Navarro as pilot watersheds. A contract has been executed for these watersheds, and hydrologic modeling has begun. Community public meetings were held in 2024 and will be ongoing in 2025. Six additional watersheds were selected for supply-demand assessment with work on these watersheds underway – Gualala, Mattole, Salmon Creek, South Fork Trinity, Tomales-Drakes Bay, and Upper Putah.
3.11 By 2026, design and implement an initiative focused on the North Coast – a region well-suited to harmonizing water resiliency, streamflows, and true salmon strongholds – by transitioning communities toward drought-resilient, water-efficient infrastructure such as water tanks, ponds, and off-stream storage and recharge that improve instream flow for salmon.	**PLANNING** CNRA, CDFW, State Parks, Caltrans, the California Salmon and Steelhead Coalition, and local tribes identified a transformational bundle of projects to reconnect, protect, and restore key salmon strongholds across the North Coast. In 2024 the North Coast Salmon Strongholds Initiative was selected by the White House as one of ten transformational projects across the nation. Building on decades of work across the region and emergent science, the North Coast Salmon Strongholds Initiative will accelerate the pace and scale of habitat restoration, create climate-resilient watersheds, and provide a model for similar work across the Pacific Northwest and the nation.
3.12 By 2026, complete instream flow analysis for all streams identified in the 2014 California Water Action Plan, which includes the Ventura River, South Fork Eel River, and Mark West Creek, and eight additional streams of Mattole River, West Fork San Gabriel River, Santa Ana River, Santa Margarita River, Mojave River, Dos Pueblos Creek, Carpinteria Creek, and North Fork Navarro River.	**COMPLETE** CDFW completed the technical reports for the Ventura River, South Fork Eel River, and Mark West Creek (2014 California Water Action Plan streams), and anticipates having the technical reports containing flow criteria completed for all of the eight additional streams listed in 3.12 by summer 2025.
3.13 By 2026, submit these instream flow recommendations to the State Water Board for setting regulatory minimum stream flows.	**IN PROGRESS** Flow recommendations have not been submitted to the State Water Board for any of the listed streams in 3.12. CDFW anticipates submitting instream flow recommendations to the State Water Board by 2026.

TABLE 3 - Protect Water Flows and Quality in Key Rivers at the Right Times to Support Salmon	
3.14 By 2026, secure voluntary – and, ideally, permanent – transactions of water to improve instream flow conditions in salmon strongholds through local, cooperative agreements, instream flow water purchase programs, and state grants.	**IN PROGRESS** The Instream Flow Water Purchase Program launched by CNRA and DWR in June 2023 will provide $360 million to secure environmental water flows during ecologically crucial months. Initial Proposals were received in March 2024 for nearly three times the available funding. DWR then invited Full Proposals and is completing due diligence in coordination with the Wildlife Conservation Board, with input from SWRCB, to provide funding for a variety of projects that will result in additional instream flows, with several funding awards anticipated for summer 2025.

Russian River

Mokelumne River Hatchery, Credit: CDFW

4. Modernize Salmon Hatcheries

Lead Agency:
CDFW

Primary Partners:
Tribal Nations, Water Boards, DWR, NMFS, USFWS, Reclamation

Hatcheries were constructed to mitigate for the massive loss of habitat on California's rivers. The California salmon and steelhead hatchery system operated or overseen by CDFW is one of the largest in the world and produces millions of spring- and fall-run Chinook salmon and steelhead every year. Modernization of hatcheries is important as climate-driven changes further stress fish and wildlife.

In the past year, significant strides have been made in modernizing California's salmon hatchery programs to support salmon resilience amid changing climate conditions, as outlined in the *Salmon Strategy*.

Key accomplishments include expanding juvenile rearing capacity in CDFW-operated Central Valley salmon hatcheries, enabling an additional 12 million juvenile Chinook eggs to be incubated annually. This expansion supported an increase of more than 12 million fall-run Chinook salmon, marking a substantial boost in hatchery production capacity.

To enhance early-life survival rates, more than 2 million fall-run Chinook salmon fry were released as part of pilot fry-release projects from Nimbus hatchery on the American River, which aim to assess and refine new release strategies that took advantage of better early-season environmental conditions in February 2024. This effort was complemented by expanding alternative hatchery release locations in the San Francisco Bay to mitigate risks associated with environmental pressures at traditional release sites.

Advances in hatchery technology and data tracking included the implementation of Parental-Based Tagging (PBT) both at hatcheries and in inland fishery monitoring sectors, a practice enhancing the ability to monitor lineage and manage genetic diversity in wild and hatchery fish populations. Additionally, the construction of the Salmon Conservation and Research Facility (SCARF) was completed which is central to the San Joaquin River spring-run Chinook restoration program. As part of the Klamath Dam Removal Project, a major operational transition was completed, moving Klamath River hatchery production from Iron Gate Hatchery to the newly upgraded and constructed Fall Creek Hatchery. Important planning milestones, including completion of value engineering, advancing project design, and identifying funding, have been completed for a water treatment system at the Feather River Hatchery in 2024. This work will ultimately facilitate adult salmon movement above Oroville dam.

Iron Gate Hatchery, Credit: CDFW

The state completed its first comprehensive climate resiliency assessment of state-owned or operated hatcheries, identifying priority adaptations to address emerging environmental challenges. The state also concluded a feasibility study for establishing a new Coho salmon conservation hatchery south of San Francisco Bay, a project that holds promise for expanding protective efforts for this vulnerable species.

These initiatives collectively support a modernized hatchery system, equipped to address the demands of a hotter, drier future while contributing to sustainable salmon populations.

4 MODERNIZE SALMON HATCHERIES

14 ACTIONS

9 IN PROGRESS

5 COMPLETE

TABLE 4 - Modernize Salmon Hatcheries	
4.1 By early 2024, evaluate further increases of fall-run Chinook salmon production and prepare a plan for hatchery operations in 2024. This plan will prioritize conservation benefits to fall-run survival; mitigation of ongoing drought and other impacts; testing of PBT for one year with related monitoring; and identify a series of work streams between federal and state agencies to develop a long-term technology implementation plan for parental-based tagging and integration into the Pacific Fishery Management Council.	**COMPLETE** The 2024 and 2025 hatchery spawning and release protocols were completed in June 2024. CDFW partnered with DWR, Reclamation and EBMUD to produce an additional 12.6 million fall-run Chinook salmon in 2024 and 2025. The draft PBT monitoring plan has been shared with USFWS, NMFS and USGS/Cal Poly Humboldt Cooperative Research Unit for comments.
4.2 By early 2024, prepare to use emergency transport of hatchery-raised juvenile fall-run Chinook salmon to San Pablo Bay, San Francisco Bay, and seaside net pens more frequently.	**COMPLETE** CDFW is prepared for emergency transport of hatchery-raised juvenile fall-run Chinook salmon. Truck rental and net contracts have been completed. CDFW has added trailer capacity and has identified new release locations and is prepared to truck all Chinook produced at CDFW hatcheries if conditions are unsuitable in river.
4.3 By early 2024, use different hatchery production life stages to supplement in-river production.	**IN PROGRESS** Pilot Fry Release projects are underway at Coleman National Fish Hatchery (CNFH), Feather River Hatchery (FRH), Nimbus Fish Hatchery (NIM) and Fall Creek Hatchery (FCH). Tissue samples from adult broodstock have been collected for future PBT analysis, and monitoring and tissue collection are underway.

TABLE 4 - Modernize Salmon Hatcheries	
4.4 By summer 2024, complete construction of the San Joaquin Salmon Conservation and Research Facility (SCARF). By 2025, increase spring-run Chinook production at the SCARF facility to one million fish annually.	**IN PROGRESS** SCARF construction was completed in December 2024. The facility will focus on the reintroduction of threatened spring-run Chinook salmon and genetic diversity of the species. In 2025, production will start with available resources at 250,000 spring-run Chinook salmon.
4.5a By 2025, have fully transitioned from the Iron Gate Hatchery on the Klamath River to a new, 21st century facility on Fall Creek.	**COMPLETE** CDFW operations have fully transitioned to Fall Creek Hatchery with great success. With Iron Gate Dam removal completed prior to salmon migration in 2024, CDFW anticipates a suite of methods to trap adult fish to meet production goals. Example methods include an auxiliary fish trap near the mouth of Bogus Creek at the Iron Gate Hatchery facility, stream side capture of salmon in Bogus Creek at monitoring stations, and fish returning to the new Fall Creek Hatchery to imprint and return as adults.
4.5b Continue advancing Trinity River Hatchery modernization in collaboration with the Bureau of Reclamation and Tribal Nations.	**IN PROGRESS** CDFW staff continue to meet with basin co-managers to discuss hatchery operations and other fisheries management goals of the Klamath Basin.
4.6 By 2025, complete a first-ever, top-to-bottom, systemwide climate resiliency assessment of hatchery infrastructure and create a public works plan for modernization, relocation, or construction of new facilities.	**IN PROGRESS** As of February 2025, CDFW staff are currently working through ADA accessibility for final hatchery reports and reviewing comments from mitigators. Reports for each hatchery are anticipated to be publicly available in spring 2025.
4.7 By 2026, advance construction or reconstruction of five new state-of-the-art fish conservation hatcheries.	**IN PROGRESS** As of February 2025, construction has been completed on two new fish conservation hatcheries: Fall Creek and SCARF. A feasibility study for the South of Bay Coho Conservation Hatchery is underway and is nearing completion. CDFW is also working with UC Davis to expand conservation hatchery capacity to include a Central Valley spring-run Chinook Salmon conservation captive broodstock program on campus to assist in rebuilding of populations in Mill, Deer and Butte creek.

TABLE 4 - Modernize Salmon Hatcheries	
4.8 By 2026, install a water treatment system at Feather River Hatchery to facilitate adult salmon movement above Oroville Dam.	**IN PROGRESS** CDFW and DWR staff participated in a series of Value Engineering Planning meetings and are in the process of achieving consensus on a preferred alternative. DWR is in early stages for project design and implementation. Commitments for fiscal contributions to the project were made in the 2024 State Water Project Incidental Take Permit.
4.9 By 2026, continue to implement joint federal-state plans to utilize genetic parental-based tagging strategies to facilitate tracking of adaptively released fish.	**IN PROGRESS** CDFW and USFWS have continued to encourage release of PBT-marked fry nationally. CDFW has shared the draft PBT monitoring plan. USBR has agreed to fund PBT at CNFH, and DWR has agreed to PBT 100% of spring-run Chinook salmon at Feather River Hatchery. Idaho and the Columbia Intertribal Fish Commission are engaging in PBT for in-season management and forecasting.
4.10 By 2026, replace aging hatchery equipment, modernize fish-incubation and rearing enclosures, and replace egg incubators and sorting machines.	**COMPLETE** CDFW has replaced sorting machines, automated fish feeders, new fish planting trucks, tanks, and trailers, new carts, and fish loaders. CDFW has also purchased some new incubation and rearing equipment.
4.11 By 2026, acquire automated fish counters and pumps and install water treatment systems and chillers at state hatcheries.	**IN PROGRESS** Automated fish counters and new pumps were acquired at several hatcheries. CDFW will continue to assess the need for further water treatment systems and chiller upgrades, depending on recommendations and available funding.
4.12 By 2026, expand state juvenile fish rearing capacity by 10 million fish.	**COMPLETE** In 2024, production at CDFW operated hatcheries increased by over 12 million fish, exceeding the original goal.
4.13 By 2026, complete necessary Hatchery Genetic Management Plans to ensure any production capacity increase is pursuant to best management requirements to avoid risks to wild salmon populations.	**IN PROGRESS** The Feather River Spring-run Hatchery Genetic Management Plan has been submitted to NMFS, and significant progress has been made on the Nimbus Fish Hatchery Chinook Salmon Hatchery Genetic Management Plan.

Steelhead Tagging at Nimbus Hatchery, Credit: CDFW

5. Transform Technology and Management Systems for Climate Adaptability

Lead Agency:
CDFW

Primary Partners:
Tribal Nations, Water Boards, DWR, FERC, USFWS, NMFS, USACE, Counties, Local Agencies

Traditional salmon management relies on historical data, but past trends are no longer reliable predictors. Protecting salmon abundance and harvest now requires 21st-century technology and adaptive management systems that integrate improved forecasting, real-time data on streamflow and temperature, rigorous science, and state-of-the-art monitoring, including genetics. These tools are critical for both salmon survival and reliable management of water supplies for cities and farms. Modernizing abundance forecasts, harvest models, and management strategies to account for climate change is essential.

Actions are underway to transform technology and management systems to adapt to climate change. Through SB 19, funding was established for planning and prioritizing stream gages in CA and made available to outside parties through DWR. Regions are identifying key locations, and a Public Mapping Application is available at CA Stream Gage Improvement Program Public Map Application. Federal venues like the Pacific Fishery Management Council must update their tools and processes, while state regulations should be revisited to provide fisheries managers with the flexibility needed to respond effectively to climate-driven challenges. CDFW and partner agencies and tribes have made significant progress in 2024 to make improvements in monitoring, data collection, modeling, and tools for forecasting abundance.

MODERNIZING DATA COLLECTION, ASSESSMENT, AND FORECASTING

In September 2024, in partnership with the Cal Poly Humboldt/U.S. Geological Survey (USGS) Cooperative Research Unit, CDFW staff participated in a Salmon Forecasting Workshop with fisheries agencies and Cooperative Research Units across the West Coast. This workshop focused on the use and development of innovative forecasting tools for salmon and steelhead populations, aiming to improve prediction accuracy and resource management. Additionally, CDFW has been actively involved in the Klamath and Sacramento Fall Chinook Pacific Fishery Management Council (PFMC) workgroups, which are evaluating current modeling and run forecasting methods alongside conservation goals. The outcomes of these efforts are shared in PFMC public meetings. To enhance fish-tracking capabilities, CDFW has developed a genetics-based Parental-Based Tagging (PBT) monitoring plan and initiated pilot projects at Nimbus Hatchery and Feather River Hatchery, collaborating with federal agencies and other states to leverage genetic data in fish-monitoring efforts.

Scientific Aid collects data at Thermalito Afterbay, Credit: CDFW

Delta Cross Channel, Credit: DWR

BIOLOGICAL GOALS AND THE BAY-DELTA WATER QUALITY CONTROL PLAN

In 2025, the State Water Board plans to release a draft regulation for public comment to implement the 2018 updates to the Bay-Delta Water Quality Control Plan (Bay-Delta Plan) including new instream flows for Lower San Joaquin River tributaries for the protection of Chinook salmon and Central Valley Steelhead. The draft regulation will describe how quantitative Biological Goals adopted by the State Water Board in 2023 will inform implementation of the new Lower San Joaquin River flow objectives, including adaptive implementation of those flows for the protection of salmon and steelhead, monitoring designs to evaluate the effectiveness of implementation actions, and possible needed changes to the flow objectives and implementation measures in the future.

In October of 2024, the State Water Board released a draft update to the Bay-Delta Plan that includes provisions for development of biological goals for the Sacramento River and Delta portions of the watershed. The proposed updates include adaptive implementation, monitoring, and evaluation processes related to protection of Chinook salmon, Central Valley Steelhead, and other native aquatic species.

TRANSFORM TECHNOLOGY AND MANAGEMENT SYSTEMS FOR CLIMATE ADAPTABILITY

11 ACTIONS

10 IN PROGRESS

1 COMPLETE

TABLE 5 - Transform Technology and Management Systems for Climate Adaptability	
5.1 By early 2024, create an executive salmon steering committee within CDFW to coordinate salmon policy and management within and across the department, which would use successful case studies of similar organizational structure for nutria, mountain lion and bear management.	**COMPLETE** An executive steering committee within CDFW was convened and meets monthly. The steering committee worked with a CDFW salmon implementation team to produce a vision document.
5.2 By early 2024, create a salmon strategy implementation team that coordinates salmon projects within CDFW and across state agencies.	**IN PROGRESS** CDFW has convened a salmon implementation team within CDFW. Significant multiagency coordination takes place around specific actions in the Salmon Strategy. A strategy-level state agency coordination team will be convened in 2025.
5.3 By the fishing season of 2024, implement in-season monitoring to actively manage commercial and recreational ocean salmon fisheries to align with pre-season harvest forecasts.	**IN PROGRESS** In season quota is ready to be implemented for Commercial Ocean fishery. CDFW has the ability to implement a quota system in the ocean recreational fishery, however this process has not been adopted by the PFMC. CDFW continues actively participating in the PFMC process to manage ocean fisheries.
5.4 By 2025, begin to use biological indicators, referred to as biological goals, to inform decision making during implementation of the updated Bay-Delta Water Quality Control Plan.	**IN PROGRESS** SWRCB adopted biological goals to assess effectiveness of 2018 Bay-Delta Plan flow objectives for the Lower San Joaquin River. SWRCB is currently developing draft regulations and associated draft Environmental Impact Report (EIR) for implementation of 2018 Bay Delta Plan amendments to ensure that Lower San Joaquin River flow and southern Delta salinity objectives are achieved. The draft regulation and draft EIR will be part of a public process; release is planned for as early as summer/fall of 2025.

TABLE 5 - Transform Technology and Management Systems for Climate Adaptability	
5.5 By 2025, create a new database to store salmon coded wire tag recovery and scale aging data.	**IN PROGRESS** CDFW continues efforts to modernize the databases used to store data used for salmon management.
5.6 By 2025, evaluate existing state law and regulations and update where necessary to provide for real-time management actions for salmon populations.	**IN PROGRESS** CDFW and the Fish and Game Commission update inland salmon regulations annually. CDFW is proposing new regulation language in 2025 to provide significant additional flexibility to open and close inland salmon fisheries by geographic region and date, which will allow CDFW to maximize angler opportunities while protecting vulnerable populations.

Scientists secure an egg box containing spring-run Chinook salmon eggs under river rocks in Plumas County. Credit: Fred Greaves, DWR

TABLE 5 - Transform Technology and Management Systems for Climate Adaptability	
5.7 By 2025, work with the Legislature and local entities to establish funding and begin implementing recommendations in the Stream Gaging Prioritization Plan 2022, developed pursuant to Senate Bill 19 of 2019. The goal of the plan is to create a network of new and revamped stream gauges to track surface water data on a real-time basis to improve knowledge, increase management efficiencies, and help salmon.	**IN PROGRESS** Funding was made available in 2024 to outside parties through DWR, and directly for participating agencies. Regions are identifying key locations. The CA Stream Gage Improvement Map shows operational stream gages, approved sites that are in progress, and sites with pending applications.
5.8 By 2026, create new data assessment tools to improve abundance forecast and harvest models, and evaluate performance of hatchery release strategies.	**IN PROGRESS** CDFW, NMFS, and western states participated in an abundance forecasting workshop in Portland in September 2024. CDFW and NMFS are participating in the Sacramento River Fall Chinook and Klamath River Technical Teams that are working on improved modeling and forecasting tools including PBT and Cohort Reconstruction for the Central Valley.
5.9 By 2026, change the status quo approach to tagging and marking fish to increase fine-scale, real-time knowledge and provide database support for tagging and marking methods.	**IN PROGRESS** CDFW, DWR, Reclamation are in discussions on PBT implementation in the Central Valley. Also see updates to actions 4.3, 4.9 and 5.8.
5.10 By 2026, achieve the Pacific Fishery Management Council efforts to improve Sacramento and Klamath fall-run Chinook conservation objectives, harvest modeling, and abundance forecasting.	**IN PROGRESS** CDFW and NMFS are participating in the Sacramento River Fall Chinook and Klamath River Technical Teams that are working on improved modeling and forecasting tools including PBT and Cohort Reconstruction for the Central Valley.

TABLE 5 - Transform Technology and Management Systems for Climate Adaptability	
5.11 By 2026, improve temperature modeling and information below important reservoirs, including Shasta Reservoir, and engage and coordinate with state and federal agencies to develop temperature management strategies to protect and enhance these runs.	**IN PROGRESS** SWRCB continues to improve temperature modeling tools and capabilities to inform its decision-making. SWRCB is currently considering temperature management actions as part of its efforts to update and implement the Bay-Delta Plan. The Board released draft Sacramento/Delta updates to the plan in October 2024 and accepted comments until January 2025. The Board anticipates releasing a revised version of the updates and considering adoption in 2025. The Board is also developing a regulation to implement the Lower San Joaquin River flow updates to the plan (approved in 2018), including considering actions to address temperatures for the protection of salmon. The Board anticipates considering that regulation as early as 2026. Reclamation developed a Water Temperature Modeling Platform (WTMP) for Central Valley Project, which includes improved temperature models for Shasta, Folsom, New Melones Reservoirs and downstream river reaches.

Iron Gate Hatchery, Credit: CDFW

State and tribal partners working on DWR's Juvenile Salmonid Collection System (JSCS) Pilot Program in Shasta County, California. Credit: Xavier Mascareñas, DWR

6. Strengthen Partnerships

Lead Agency:
CDFW

Primary Partners:
Tribal Nations, Water Boards, DWR, Counties, Local Agencies

Salmon have been a vital part of California's landscapes and cultures for generations, with Tribal Nations bringing deep knowledge to conservation efforts. Partnerships with Tribal Nations are advancing efforts through co-management agreements, reintroduction projects, and restoration initiatives. Collaborative work with universities further supports salmon conservation by providing essential research into key challenges, informing future management actions to ensure the species' resilience and survival.

In alignment with the Salmon Strategy, CDFW has partnered with the Cal Poly Humboldt USGS Cooperative Research Unit to conduct vital research aimed at supporting salmon conservation and resource management. This collaboration enables projects beyond typical agency capacity, with a strong focus on actionable research. Key initiatives include reviewing and enhancing a PBT monitoring plan in coordination with other states, and partnering with CDFW, NMFS, and the Hoopa and Yurok tribes to study the effects of river flow on fish food resources in the Trinity River.

To monitor fish migration post-dam removal on the Klamath, a SONAR fish monitoring station has been established below the former Iron Gate Dam, complemented by eDNA analysis, telemetry, and PIT tagging to evaluate long-term restoration outcomes. Additionally, the team is involved in developing research on beaver reintroduction to improve salmon habitats and is studying salt tolerance in Chinook salmon in the Klamath Basin, in collaboration with tribal co-managers, examining tolerance across basin origin, run type, and fish size.

CDFW continues to build upon the foundational co-management agreement entered into with the Winnemem Wintu Tribe in May of 2023. Pilot studies continue to be implemented to help inform a potential reintroduction program for the return of Chinook salmon into the McCloud River (Winnemem Waywaket) that would include state and federally listed endangered Sacramento River winter-run Chinook salmon and Nur from New Zealand. CDFW also awarded a $3.7 million grant to support the Tribe's continued participation. This funding builds on the original $2.3 million grant that helped start this historic partnership to return wild Chinook salmon to their historic habitat.

To date, in partnership and close coordination with the Tribe, CDFW has invested more than $32 million into a variety of pilot projects to help inform reintroduction efforts.

6 STRENGTHEN PARTNERSHIPS

8 ACTIONS

1 PLANNING **6** IN PROGRESS **1** COMPLETE

TABLE 6 - Strengthen Partnerships	
6.1 By early 2024, engage with the United States Geological Survey/ Cal Poly Humboldt, California Cooperative Fish and Wildlife Research Unit to conduct critical research on climate change related impacts to salmon.	**IN PROGRESS** A cooperative program is underway with ongoing meetings. The cooperative program is currently advising CDFW on Klamath Dam removal monitoring and assisting in coordinating Central Shasta research in the Central Valley to assist in the development of a juvenile salmon Central Shasta predictive mortality model.
6.2 By early 2024, form a working group with state and federal agencies, salmon industry, water districts, and Tribal Nations to find holistic approaches and strategies to rebuild fall-run Chinook salmon populations in the mainstem Sacramento River. Also, continue and improve current collaboratives like the Sacramento Valley Recovery Program, Reorienting to Recovery project, and Central Valley Salmon Habitat Partnership.	**IN PROGRESS** Fish agencies and partners completed development of a draft "Fall-run Chinook Salmon Action Plan" document. Meetings are now ongoing with fisheries agencies, the salmon industry, and Sacramento River water districts. CDFW met with the Reorienting to Recovery group throughout 2024, providing technical expertise in the development of a habitat and water delivery forecasting model. The goal is to produce scientific based solutions to species recovery with reasonable waters supply impacts where possible.
6.3 By 2025, develop a regular co-management approach for hatchery operations with Tribal Nations and federal partners consistent with the volitional reintroduction of salmon and steelhead to the upper Klamath River post-dam removal.	**COMPLETE** CDFW has established and continues a regular process to work collaboratively with tribal and federal partners regarding the management approach for hatchery operations.

TABLE 6 - Strengthen Partnerships	
6.4 By 2025, incorporate Tribal input into efforts to update and implement the Bay-Delta Water Quality Control Plan for the protection of salmon and other native aquatic species, including consideration of the incorporation of tribal beneficial uses into the plan and traditional ecological knowledge into planning and implementation actions.	**IN PROGRESS** Draft updates to the Bay-Delta Plan include potential new provisions related to Tribal Beneficial Uses (TBUs), engagement and outreach, a tribal advisory group, traditional ecological knowledge, and harmful algal blooms. A final Bay-Delta Plan is slated for 2025.
6.5 By 2025, conduct outreach to Tribal Nations in salmon habitat areas for discussions on cooperative management approaches.	**IN PROGRESS** CDFW has reached agreements with several tribes on take of fish for cultural and ceremonial purposes. CDFW has entered into an MOU with the Round Valley Tribes, Cal Trout, Trout Unlimited, and Humboldt, Sonoma, and Mendocino Counties to support the water supply for 600,000 people and the salmon population on the Eel River. CDFW and fish agency partners are regularly discussing comanagment, collaboration, and ancestral land return with tribes that have ancestral ties to the Klamath River, including tribes that now have anadromous fisheries that flow through their lands. California has committed its support for the return of over 2,800 acres of land back to the Shasta Indian Nation as part of the post Klamath Dam removal recovery.
6.6 By 2025, further strengthen partnership with UC Davis and Federal Agencies to protect and house juvenile Spring-run Chinook Salmon.	**IN PROGRESS** Juvenile spring-run Chinook Salmon are housed at UC Davis with grant funding from CDFW. NMFS has secured funding to complete genetics testing. A long-term captive broodstock plan for Core 1 spring-run Chinook populations is under development.
6.7 By 2026, enter into agreements with Tribal Nations that wish to memorialize salmon management partnerships.	**IN PROGRESS** CDFW is in communication with several tribes about management partnerships in the Eel, Smith and Klamath River watersheds. One of the primary examples is in the Klamath River Basin where fish agencies and tribes have had a long-standing collaborative process in managing the hatchery and reintroduction of salmon and steelhead.

TABLE 6 - Strengthen Partnerships	
6.8 By 2026, complete key elements of the San Joaquin River Restoration Program to build on the progress of 2019, when spring-run Chinook salmon that migrated as juveniles out of the San Joaquin River returned as adults to spawn for the first time in 65 years. Projects include fish screens, passage structures around dams, and other infrastructure efforts in cooperation with the U.S. Bureau of Reclamation.	**PLANNING** DWR investigated and continues to evaluate concepts in the vicinity of Chowchilla Bypass structure to make infrastructure changes to improve ecological outcomes including fish passage.

Sacramento - San Joaquin Delta, Credit: CDFW

Feather River Hatchery, Credit: CDFW

CONCLUSION

Salmon populations that were once estimated to be in the millions are now a fraction of that and depend heavily upon hatcheries. Extreme climate disruption now overlays the land use and water management stressors faced by California salmon. Urgency and focus are needed more than ever to recover salmon populations.

California has made significant progress in furthering the goals outlined in the Salmon Strategy. Key activities outlined in this progress report show that California is taking a multifaceted, strategic approach to salmon conservation. Despite this critical progress, there is no end to the work of safeguarding California's iconic salmon populations. We must continue to prioritize salmon restoration efforts, invest in healthy ecosystems, and work in collaboration with local, statewide, federal, and tribal partners to ensure thriving salmon populations for future generations.