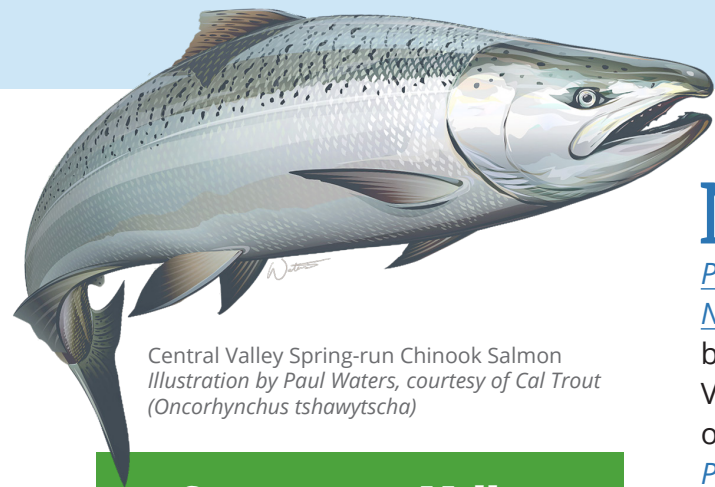




Sacramento Valley Salmon Recovery Program

Local water management entities, conservation organizations and state and federal fisheries and water management agencies in 2014 joined together to form the Sacramento Valley Salmon Recovery Program, a collaborative partnership to complete projects and improve science to promote recovery of salmon and other species of fish in the region. These actions are implementing both the National Marine Fisheries Service's Recovery Plan for the Sacramento River and the California Natural Resources Agency's Sacramento Valley Salmon Resiliency Strategy.



Central Valley Spring-run Chinook Salmon
Illustration by Paul Waters, courtesy of Cal Trout
(*Oncorhynchus tshawytscha*)

Sacramento Valley Chinook Salmon

The Sacramento Valley is home for four runs of Chinook salmon: spring-run, fall-run, late-fall run and winter-run. The spring-run and winter-run Chinook salmon as well as steelhead and green sturgeon are listed as either threatened or endangered by state or federal agencies. All of these fish are anadromous, which means that they move from salt water to fresh water to spawn.

Many of these activities were initially presented by Dave Vogel in his 2011 report, [Insights in to the Problems, Progress and Potential Solutions for Sacramento River Basin Native Anadromous Fish Restoration](#), which outlined the biological priorities for salmon recovery in the Sacramento Valley. Further science from UC Davis and conservation organizations also guide the priorities (see e.g., [Floodplains: Processes and Management for Ecosystem Services](#)).

Building on these reports, the Sacramento Valley Salmon Recovery Program partners have identified almost [50 priority projects](#) to promote salmon recovery in the region. The partners meet regularly to evaluate the priorities and progress towards their completion.

The Sacramento Valley Salmon Recovery Program is a comprehensive effort, addressing all salmon life-cycle stages that occur in fresh water by implementing projects and flows that serve [multiple benefits](#). This program is designed as a proactive and extensive effort, in line with Section 4 of the Endangered Species Act (ESA), to promote recovery of Chinook salmon through the completion of projects to address stressors they are exposed to during the freshwater stages of their life cycle.



Sacramento River Basin

More than 140 projects have been completed in the Sacramento Valley to benefit salmon [since 2000](#). The Recovery Program is building on these efforts by targeting specific river reaches in the Sacramento River Basin to ensure that projects provide maximum benefit to the life-cycle stage intended.

Upper River

In the upper reaches of the Sacramento River and its tributaries, returning adult salmon “hold” while they wait to spawn. Once spawning occurs, egg incubation begins followed by fry and juvenile fish rearing. Projects implemented to benefit fish in the upper river include adding spawning gravel, beds and riffles, developing side channels, refugia projects and other safe habitat for fry and juvenile fish. Water resource managers carefully manage the associated flows and cold water to maximize the habitat value of the projects.

Middle River

This portion of the river serves as a migratory corridor for Chinook salmon to and from the spawning grounds in the upper river. In the middle river, projects are implemented to promote survivability of out-migrating juveniles by preventing entrainment in water diversions by installing fish screens and decreasing the impact of predation through the identification and removal of predator “hot spots.” For returning adult Chinook salmon, projects and pulse flows are targeted to reduce straying from the main channel and to remove barriers that block or delay upstream migration to the spawning grounds.

Lower River

At one time, the lower reaches of the river would spread out during the winter and early spring on a vast floodplain, providing food and ideal shallow water habitat at just the right time for out-migrating juvenile salmon. The construction of flood control infrastructure in the last century disconnected the rivers from the floodplain, restricting fish in a leveed river channel devoid of adequate food and refuge from predators. Today, projects implemented on this portion of the river encourage fish to migrate on the remaining floodplain (i.e., the bypasses), use the historic floodplain (now rice fields and managed wetlands) to feed fish, and manage flows to promote food production and out-migration survival. The value of these floodplains to salmon is described in great detail in the University of California’s [Floodplains: Processes and Management for Ecosystem Services](#).

Butte Creek

Work in the 1990s to improve habitat for spring-run Chinook salmon on Butte Creek provides a good model for salmon recovery in the Sacramento Valley. The [comprehensive effort](#) on Butte Creek joined upstream functional flows for spawning and holding habitat with barrier removal in the middle river that improved connectivity with the Sutter Bypass floodplain in the lower river, which provided food and ideal rearing habitat for out-migrating juvenile fish.



For more information on the Sacramento Valley Salmon Recovery Program, Chinook salmon and other recovery efforts, visit: www.norcalwater.org/salmon.