

Central Valley Spring Chinook Salmon

Oncorhynchus tshawytscha



PHOTO: ALLEN HARTHORN

California Trout is There for the Fish!

California Trout led the legal proceedings that established Section 5937 of the Fish and Game Code as a binding doctrine for regulated streams. The historic court order to restore spring run Chinook salmon to the San Joaquin River was based on Section 5937 and its expanded interpretation that originated with California Trout’s efforts.

These fish are one of four genetically distinct runs of Chinook salmon in the Central Valley. Like other Chinook, they are large and often reach 30 to 34 inches in length. At sea they are silver, a color they retain initially in fresh water, but eventually become olive-brown to dark maroon with numerous black spots. The spotted tail and black gums distinguish Chinook from other salmon. They enter fresh water in the spring while immature and hold through the summer in deep cold pools at higher elevations. These Chinook then spawn in the early fall and the young either leave for the ocean in the spring or rear for an entire year in the spawning stream before emigrating to the sea.

DISTRIBUTION: Central Valley spring Chinook salmon historically ranged throughout the Sacramento and San Joaquin watersheds. In the south, they once ascended the

Kings, upper San Joaquin, Merced, Tuolumne, and Stanislaus Rivers. In the north, they once ranged into the Fall, Pit, McCloud, and upper Sacramento Rivers.

CATEGORY	SCORE	EXPLANATION
Range	2	Mainly found in just three adjacent creeks: Butte, Mill and Deer
Population size	4	Populations in the three streams in recent years have had population sizes of 600 to 6,000, lower in other years
Intervention needs	3	Requires continuous protection and monitoring to maintain populations
Tolerance	2	Narrow physiological tolerances for both adults and juveniles in the summer given high temperatures and low water levels of the streams they inhabit
Genetic risk	2	Butte, Deer, and Mill Creek populations appear to be distinct. There is always the risk of inbreeding when populations decline during poor years. The Feather River population has hybridized with fall Chinook
Climate change	1	Extremely vulnerable given the small population sizes and limited range as well as already high summer temperatures of the streams
Overall status	2	
Reliability	4	Well studied by fisheries agencies and scientists

Current distribution is limited mainly to Mill, Deer, and Butte Creeks in the northern Central Valley. The Feather River Hatchery releases about two million spring Chinook smolts per year. However, these fish are hybridized with the hatchery fall-run Chinook with which they are most similar genetically.

ABUNDANCE: Central Valley spring Chinook have been extirpated from the vast majority of their historical range. In the 19th century, combined run sizes were probably in the range of one million fish per year plus or minus 500,000. Excluding the Feather River salmon, total escapement of returning spawners plus the catch in fisheries has averaged about 16,000 fish since 1992. In some years, escapement has been less than 1,000 fish. Butte Creek has the largest adult escapement, averaging around 22,630 individuals, while Mill Creek has an average of 3,360 individuals and Deer Creek on average has 6,320 individuals. In recent years, numbers have been lower, reflecting an overall general decline in Central Valley salmon.

FACTORS AFFECTING STATUS: The single biggest factor affecting Central Valley spring Chinook salmon populations are dams which block access to more than 95% of their historic spawning and rearing areas. Additional factors influencing existing populations include, (1) water diversions, (2) urbanization and rural development, (3) logging, (4) grazing, (5) agriculture, (6) mining, (7) estuary alteration, (8) commercial fisheries, and (9) breeding with hatchery Chinook. The fact that the three existing populations are all in the shadow of Mt. Lassen suggests vulnerability to fire and volcanic eruptions.

STATUS 2: There is a high likelihood of Central Valley spring Chinook going extinct in the next 50 to 100 years. Recent management efforts and protection have somewhat

reduced their vulnerability to extinction, but the probability of the three principal populations plummeting in the future is high. Central Valley spring Chinook salmon are currently listed by both state and federal agencies as threatened. Conservation actions that need to be taken include providing additional protection to the three major refuge streams, restoration of the San Joaquin River and Battle Creek, improving habitat for juveniles in the Sacramento–San Joaquin Delta, and marking all hatchery salmon of all runs to reduce the catch of wild spring Chinook in a fishery aimed at hatchery fall Chinook. Salmon hatcheries need to be managed better to reduce spawning between hatchery and wild Chinook salmon in order to maintain pure strains of spring Chinook.

CONSERVATION RECOMMENDATIONS: Implementation of the settlement agreement for the San Joaquin River will provide nearly 150 miles of restored habitat to reestablish a self-sustaining population of spring Chinook salmon in the Central Valley. Additional habitat expansion for spring run Chinook is also necessary in the Northern Central Valley.



Butte Creek. PHOTO: THOMAS DUNKLIN

chances for survival:
poor

2

1 2 3 4 5

Central Valley Spring Chinook Salmon Likely Historic Distribution

