

Central Valley Steelhead

Oncorhynchus mykiss

chances for survival:
average

3



Adult Central Valley steelhead are sea-run rainbow trout that rarely exceed 24 inches in length. They are silvery, often showing an iridescent pink to red lateral line and have a slightly forked tail fin with radiating spots. Many small, black spots also cover the back, adipose, and dorsal fins.

Juveniles display five to 13 oval parr marks centrally located along the lateral line, with interspaces wider than the parr marks. It is difficult, if not impossible, to reliably distinguish steelhead from resident rainbow trout in the Sacramento River because of the highly variable appearance of both forms. Steelhead are part of a rainbow trout complex that exists in the Central Valley, although the steelhead are recognized as a distinct unit for management. They exhibit flexible reproductive strategies which allow for survival despite variable conditions within California's Central Valley.

At present, the winter run is the only form which migrates upstream to spawn from late September to mid-February. Central Valley steelhead historically spent one to three years in their natal streams before smolting and emigrating to the ocean in December through May. It is not known if their historic life-history diversity is still present or if some steelhead young do not go to sea at all and become resident. It is possible that some steelhead have adapted to the improved conditions in the Sacramento River for rearing (cold water in summer and abundant food in the form of hatchery salmon



PHOTO: ANDREW MAURER

CATEGORY	SCORE	EXPLANATION
Range	4	Multiple populations are present in the Central Valley, but individual viability is not known
Population size	2	Does not include resident fish in Sacramento River and tributaries
Intervention needs	2	Intensive effort required to maintain steelhead life history with appropriate genotype
Tolerance	3	Broad physiological tolerances, but conditions often unfavorable in large rivers and the San Francisco Estuary
Genetic risk	2	Hybridization risk is high with hatchery steelhead of Eel River origin and other non-native strains of trout
Climate change	2	Climate change will likely reduce populations but not eliminate many of them, however, their inability to access historic cold water tributaries makes them more vulnerable
Overall status	3	
Reliability	2	Unequivocal data are not readily available

fry) and simply migrate between River and tributaries, rather than risking emigration through the Sacramento-San Joaquin Delta and adverse conditions in the ocean.

DISTRIBUTION: Historically, steelhead were found in accessible streams throughout the Central Valley. Today they are largely confined to rivers below dams in the Sacramento River Basin, but have been found in the lower Tuolumne River in the San Joaquin River Basin.

ABUNDANCE: There is no good method to accurately estimate past and present abundance of Central Valley steelhead. Crude estimates made in the early 1990s that included both hatchery and wild fish indicated there were about 10,000 adult fish. Incomplete counts of fish returning to the upper Sacramento River show a decline from an average of 6,574 fish in the period 1967 through 1991, to an average of 1,282 from 1992 to present.

FACTORS AFFECTING STATUS: Many stressors have contributed to their decline, including, (1) major dams, (2) water diversions, (3) barriers, (4) levees and bank protection, (5) dredging and sediment disposal, (6) mining, (7) contaminants, (8) alien species, (9) fisheries, and (10) hatcheries. The single most important cause of Central Valley steelhead population decline has been the loss of access to 80 to 95% of their historic habitat above impassable dams.

STATUS 3: Central Valley steelhead do not appear to be in immediate danger of extinction, although this assessment could change with better information on the relationship between anadromous and resident populations and on the status of resident populations below the major dams. The high degree of uncertainty suggests that scoring a "2" might be more conservative. The Central Valley steelhead was first

listed as a threatened species under the Endangered Species Act in 1998 and was re-evaluated and confirmed as such in 2005. The Central Valley steelhead is managed by the California Department of Fish and Game with no legal harvest on wild fish and only hatchery (fin-clipped) fish may be harvested in some areas.

CONSERVATION RECOMMENDATIONS: Because of the lack of information on Central Valley steelhead life history, abundance, and interactions with resident and hatchery rainbow trout, a monitoring program that will reliably estimate numbers of these steelhead entering the Sacramento and San Joaquin Rivers should be developed. In addition, there should be a research program which includes a comprehensive analysis of rainbow trout genetics in watersheds known to contain Central Valley steelhead, as well as a comprehensive habitat improvement program that includes barrier removal, adequate flows, and spawning habitat enhancements.



Lower Tuolumne River. PHOTO: CARL MESICK



Central Valley Steelhead
Likely Historic Distribution

