

## **COMMENTS ON THE NMFS PROPOSED DESIGNATION OF CRITICAL HABITAT FOR STEELHEAD IN THE LOWER MERCED RIVER<sup>1</sup>**

**The presence of small numbers of rainbow trout near Crocker-Huffman Dam on the lower Merced River appear to be hatchery fish.**

Small numbers of rainbow trout and brook trout have been found in the upper-most reach of the lower Merced River. The available evidence suggests that these fish originated from the Calaveras Trout Farm near Crocker-Huffman Dam. Rainbow trout and brook trout are known to escape from that hatchery facility into the lower Merced River. This is attributable to the facility's Merced River water supply intake and the hatchery effluent entering back into the Merced River. Furthermore, hatchery rainbow trout from the trout farm have historically been planted in Merced River reservoirs (e.g., McSwain and McClure) and planted trout are known to have moved downstream through the reservoirs. It would be erroneous to assume the rainbow trout found immediately downstream of Crocker-Huffman Dam are steelhead without empirical evidence of their origin. The origin of these fish should be determined through genetic evaluations.

**Because chinook salmon exist in the lower Merced River, NMFS should not assume that steelhead could co-exist in the same watershed; the habitat needs for the two species are not identical.**

Although there are general similarities between some habitat characteristics for steelhead and chinook salmon, they are not identical. This fact is particularly important as it relates to the lower Merced River. The low gradient and restricted in-stream cover in the lower Merced River are not the habitat characteristics where steelhead are typically found. Steelhead are known to prefer higher gradient streams and substantially more in-channel structure (e.g., large rocks and boulders) than the channel types preferred by chinook salmon. The lower Merced River does not naturally possess those habitat characteristics necessary to support a self-sustaining steelhead population. As such, the lower Merced River cannot be considered critical habitat for Central Valley steelhead when compared to other areas where steelhead naturally occur (i.e., Sacramento River tributaries).

**The lower Merced River lacks over-summering habitat necessary for steelhead production.**

Unlike juvenile chinook salmon which migrate to the ocean as sub-yearlings during the winter or spring months, the steelhead's freshwater life cycle requires rearing in the riverine environment for one or more years prior to entry into the saltwater environment. The relevance of this fact as it pertains to the proposed designation of steelhead critical habitat is that summer water temperatures in the lower Merced River are unfavorable or lethal for steelhead rearing. During the summer months, nearly the entire lower Merced River possesses very unsuitable or lethal conditions for steelhead because of high ambient air conditions causing warm riverine water. At

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<sup>1</sup> The lower Merced River is defined here as the Merced River between Crocker-Huffman Dam and the confluence with the San Joaquin River.

- *best, under optimal hydrologic and atmospheric conditions, there is only a very small reach immediately downstream of Crocker-Huffman Dam that could theoretically provide tolerable water temperatures for over-summering juvenile steelhead. However, during below-normal or dry hydrologic conditions, the entire lower Merced River would probably be lethal for steelhead during the summer months. This circumstance demonstrates that the lower Merced River would not be critical habitat for steelhead because the species could not sustain itself in the watershed every year.*

**Attempts to introduce steelhead into the Merced River will be counter-productive to chinook salmon production.**

Recent efforts to improve the Merced River fishery resource have focused on improving conditions for fall-run chinook salmon production. Attempts to artificially introduce steelhead in the lower Merced River will result in inter-species competition and predation. Yearling steelhead are known to prey on chinook salmon fry. Unlike the Sacramento River basin where chinook salmon and steelhead co-exist (usually in geographically separate reaches of tributaries), the lower Merced River possesses highly seasonal and very spatially-restricted habitats for salmon. In contrast to the San Joaquin River basin, Sacramento River tributaries provide habitats where steelhead and chinook salmon can co-exist in different portions of the watershed (i.e., steelhead in the upper, high-gradient reaches and chinook salmon in the lower-gradient, valley floor reaches). These geographically separate habitats are not available in the lower Merced River because of the impassable dams in the foothills. Providing upstream and downstream fish passage facilities at New Exchequer Dam is not feasible because of the dam's height and large volume of the reservoir. Introduction of steelhead into the lower Merced River will "force" steelhead to attempt existence in stream reaches currently inhabited by chinook salmon and in habitats unsuitable for their normal freshwater life cycle needs.

**Steelhead exhibit a freshwater life history pattern that is incompatible to the habitats available in the lower Merced River.**

The normal freshwater life history pattern for steelhead does not correspond well with naturally-occurring conditions in the lower Merced River. Because the Merced River is the southern-most range for chinook salmon, the freshwater life cycle timing for chinook salmon is marginal because of warm-water conditions in the late spring, summer, and early fall. Water temperatures measured at various locations in the lower Merced River have empirically documented this fact. Assuming steelhead were artificially introduced into the lower Merced River, steelhead would spawn later than chinook salmon based on their reproductive timing elsewhere in the Central Valley (i.e., winter instead of fall). This circumstance would result in a later timing for steelhead egg incubation into the spring and early summer months. Although water temperatures would be suitable for steelhead egg incubation during the winter, water temperatures during the late spring and early summer would be lethal to incubating eggs which is probably a reason why steelhead reproduction has never been documented in the lower Merced River.

**Conclusions**

NMFS should not rely upon anecdotal information to formulate conclusions concerning the

potential existence of steelhead or potential steelhead habitat in the lower Merced River. There is no empirical evidence to support the premise of steelhead production in the lower Merced River. The available evidence indicates that the lower Merced River could not support a sustained steelhead population.

The California Department of Fish and Game's (CDFG) 1995 report to the U.S. Congress stated:

“Just prior to the construction of Friant Dam, there were no steelhead populations in the upper mainstem San Joaquin River, Merced, Tuolumne, and Stanislaus rivers.”

Also, CDFG's "Central Valley Salmon and Steelhead Restoration and Enhancement Plan" states:

“Steelhead were probably *never* very abundant in any of the drainages except the Sacramento River.” (emphasis added)

This information indicates that steelhead presence in the San Joaquin basin *prior to dam construction* was non-existent or very small. After dam construction in the basin, steelhead were non-existent. Therefore, the San Joaquin basin cannot be considered as critical habitat for steelhead. The focus on Central Valley steelhead habitat should be in the Sacramento River basin, not the San Joaquin basin.

It would be prudent for NMFS to first determine if it is even feasible for steelhead to exist in the Merced River. This approach is important given the fact that natural habitats in the lower Merced River exhibit undesirable conditions to support the steelhead's freshwater life cycle on a sustained basis. Water temperatures during the summer months limit or exclude the potential for steelhead production. Therefore, the Merced River cannot be considered as essential to the conservation of steelhead in the Central Valley.