



UNITED STATES DEPARTMENT OF COMMERCE  
National Oceanic and Atmospheric Administration  
NATIONAL MARINE FISHERIES SERVICE  
West Coast Region  
650 Capitol Mall, Suite 5-100  
Sacramento, California 95814-4700

March 1, 2023

Ms. Eileen Sobeck  
Executive Director  
State Water Resources Control Board  
1001 I Street  
Sacramento, California 95814

Re: Flow Recommendations for the Lower Merced River to Support Fisheries

Dear Ms. Sobeck:

In a letter dated October 27, 2022, NOAA's National Marine Fisheries Service (NMFS) informed you that on August 23, 2022, NMFS staff observed that the lower Merced River, Merced County, California, was dewatered and dry from bank-to-bank. The California Department of Fish and Wildlife (CDFW) reported similar observations in a letter dated November 22, 2022. NMFS has recently engaged with CDFW and State Water Resources Control Board (SWRCB) staff to discuss concerns over these conditions and potential for their reoccurrence in future dry water years. As part of ongoing discussions, NMFS understands that, pursuant to the Governor of California's May 10, 2021, drought proclamation, the SWRCB is in the process of considering emergency drought regulations for priority watersheds across the State of California. We write this letter to (a) encourage the SWRCB to adopt emergency regulations, or regulations as needed if the drought proclamation is no longer in place, and (b) provide a recommendation for dry-season baseflows conditions in the lower Merced River down to its confluence with the San Joaquin River.

The Merced River contains migration, holding, spawning, and rearing habitat for State and federally threatened Central Valley (CV) spring-run Chinook salmon (*Oncorhynchus tshawytscha*) and federally threatened California Central Valley (CCV) steelhead (*O. mykiss*) as well as CV fall-run Chinook salmon (*O. tshawytscha*). Additionally, the lower Merced River is designated as Essential Fish Habitat (EFH) under the Magnuson-Stevens Conservation and Management Act. The Merced River populations of these species, once present in large abundance (Yoshiyama *et al.*, 2001), have been adversely impacted from anthropogenic alteration to the watershed, including blockage of fish passage to the upper watershed, changes to water quality and quantity, *et cetera*. Ensuring adequate flows are present for the length of the lower Merced River during the dry season (and year-round) is critical for salmonid conservation, protection of EFH, and maintenance of ecological processes. We encourage the SWRCB to adopt regulations protective of native species and their habitats in the lower Merced River.

NMFS recommends that the SWRCB adopt a dry-season minimum baseflow requirement for the Merced River and consider, at least preliminarily, setting the target pursuant to results derived



from California Environmental Flows Framework (CEFF). The CEFF uses a functional flows approach to efficiently develop scientifically defensible environmental flow recommendations statewide and has been developed in cooperation with CDFW, SWRCB, technical experts and affected stakeholders (CEFF 2021). The framework identifies key functional flow components that sustain physical and biological processes that support native species. One of these functional flow components is dry-season (approximately July 1 to October 31) baseflow. A query of the natural flows database (<https://rivers.codefornature.org/#/home>) for the Merced River<sup>1</sup>, under historical conditions during dry water years, yielded the following results for dry-season baseflow:

- 10<sup>th</sup> percentile -  $\approx$  7 cubic feet per second (cfs)
- 50<sup>th</sup> percentile – 66 cfs
- 90<sup>th</sup> percentile – 306 cfs

Based on these results, NMFS recommends the SWRCB adopt a preliminary minimum baseflow target of 66 cfs during the dry-season in dry water years at the Stevinson gage to protect EFH, fish passage and ecological process in the lower Merced River.

Upon adoption of a dry-season baseflow target, NMFS suggests the SWRCB conduct an *in-situ* evaluation of the efficacy of reestablished baseflows to provide conditions necessary to facilitate fish passage, protect native fish species, and maintain ecological functions (including protection of riparian vegetation). NMFS recognizes the effectiveness of our recommendation has not been verified through field studies. However, we do not believe it advisable to postpone establishing a dry-season minimum baseflow target while awaiting completion of such studies because the studies could take a protracted period of time. A protracted study and evaluation period would likely result in prolonged adverse impacts to the lower Merced River. Absent such studies, we believe our flow recommendations based on the natural flow regime of the Merced River provide a reasonable flow target that is based on sound scientific principles and resemble conditions appropriate for the survival of native species.

According to CDFW (Steven Tsao, pers. comm. 2023), adult CV fall-run Chinook salmon have been documented in the San Joaquin River tributaries in the month of September. Therefore, future field studies should incorporate a critical riffle analysis in the lower river to ensure adequate passage to upstream spawning areas. Adoption of methods and criteria outlined by CDFW (CDFG 2012 and updated in 2013) are anticipated to identify flow depths necessary to facilitate the migration of CV fall-run Chinook salmon to their Merced River spawning grounds.

NMFS also encourages the SWRCB to expand necessary monitoring requirements, evaluation and reporting of water diversions in order to ensure compliance with existing water rights in the Merced River watershed. Compliance with existing water rights is likely a critical component to

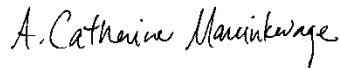
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<sup>1</sup> As calculated for the nearest reference gage: Merced River near Stevinson (MST) operated by the California Department of Water Resources. This gage is the closest gage to the Merced/San Joaquin River confluence.

ensure adequate baseflows are available in the river, regardless of water year type or seniority of water right.

Please direct questions regarding this letter to Jon Ambrose, San Joaquin River Branch Chief, NMFS California Central Valley Office, at (916) 930-3717 or via e-mail at jonathan.ambrose@noaa.gov.

Sincerely,



Cathy Marcinkevage  
Assistant Regional Administrator  
California Central Valley Office

cc: Diane Riddle, SWRCB  
Erin Foresman, SWRCB  
Erik Ekdahl, SWRCB  
Eric Oppenheimer, SWRCB  
Julie Vance, CDFW  
Gerald Hatler, CDFW  
Steve Tsao, CDFW  
Steve Edmondson, NMFS

References cited:

California Department of Fish and Game. 2012, update 2013. Standard Operating Procedure for Critical Riffle Analysis for Fish Passage in California. Instream Flow Program, Sacramento, CA. DFG-IFP-001.

California Environmental Flows Framework Technical Team. (2021). The California Environmental Flows Framework website. <http://ceff.ucdavis.edu>

Tsao, Steven. California Department of Fish and Wildlife, Region 4, La Grange Office, La Grange, CA. January 6, 2023. Personal communication with Jonathan Ambrose, National Marine Fisheries Service, California Central Valley Office, regarding impacts of dewatering in the Merced River.

Yoshiyama, R. M., E. R. Gerstung, F. W. Fisher, and P. B. Moyle. 2001. Historical and present distribution of Chinook salmon in the Central Valley. Pages 71-176 in R. Brown, editor. Contributions to the biology of Central Valley salmonids. California Department of Fish and Game, Fish Bulletin 179, Sacramento.