



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
West Coast Region
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June 11, 2021

Bill Hardwick
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Re: Mill Creek, Drought Year 2021

Dear Mr. Hardwick:

Thank you for your letter dated May 13, 2021, and its enclosure titled “*Outline of Key Terms for Drought Year 2021 Actions on Mill Creek*” (Outline). Given the urgent need for actions to protect the Federally-threatened Central Valley spring-run Chinook salmon (CV spring-run Chinook salmon) and California Central Valley steelhead (CV steelhead) populations in Mill Creek during this latest drought, we commend Los Molinos Mutual Water Company’s (LMMWC) rapid response in proposing these terms. NOAA’s National Marine Fisheries Service (NMFS) would like to continue discussion with LMMWC to reach agreement on terms that are more science-based and protective for salmon and steelhead adult and juvenile fish passage and juvenile rearing than the terms in the Outline. Below we discuss the importance of Mill Creek salmon and steelhead, the need to address instream flow conditions in the creek, and the Outline’s terms relating to flow, temperature, restoration, permitting, and funding.

The CV steelhead and CV spring-run Chinook salmon populations in Mill Creek are among the most important salmonid populations in the Central Valley, as demonstrated by their high priority standing in the 2014 NMFS Recovery Plan and the 2017 California Natural Resources Agency (CNRA) Sacramento Valley Salmon Resiliency Strategy (CNRA 2017). The spring-run Chinook salmon population in Mill Creek is particularly important because it is one of just three extant independent CV spring-run Chinook salmon populations, along with the populations in Deer and Butte creeks. The abundance of Mill Creek spring-run Chinook salmon has diminished greatly over the past decade, with an average annual run size reduced to only 135 adults. The 2020 run size was the lowest on record with just 73 adults and the extinction risk for the population has moved from moderate to high in the last five years. The Mill Creek spring-run Chinook salmon population has survived for at least thousands of years and we are greatly concerned about their recent increasing extinction risk.

New information shows that Mill Creek is also important for Federally-endangered Sacramento River winter-run Chinook salmon (winter-run Chinook salmon) recovery. Research from the NMFS Southwest Fisheries Science Center in collaboration with the Metropolitan Water District of Southern California, the University of California at Davis, and the Lawrence Livermore



National Laboratory found that 44 to 65 percent of adult winter-run Chinook salmon that returned to spawn in the Sacramento River used non-natal rearing habitats such as Mill Creek as juveniles (Phyliss *et al.*, 2018). Most of these non-natal habitats were not previously known to be important for winter-run Chinook salmon recovery.

The need to address instream flow conditions for anadromous fish in Mill Creek is well documented and critically important to reverse the declining status and improve the viability of CV spring-run Chinook salmon and CV steelhead (NMFS 2014; State Water Resources Control Board [SWRCB 2010]; U.S. Fish and Wildlife Service [USFWS 2001]; California Department of Fish and Wildlife [CDFW 2018]). The NMFS Recovery Plan for the Evolutionarily Significant Units of Sacramento River Winter-run Chinook Salmon and Central Valley Spring-run Chinook Salmon and the Distinct Population Segment of California Central Valley Steelhead (Recovery Plan, NMFS 2014) describes insufficient streamflow for adult salmonids migrating through lower Mill Creek as a key stressor to spring-run Chinook salmon and steelhead population viability in the watershed. Mill Creek is identified as a priority stream in the SWRCB's Instream Flow Studies for the Protection of the Public Trust Resources: A Prioritized Schedule and Estimate of Cost (SWRCB 2010); and Mill Creek is also identified as a priority stream in the USFWS Final Restoration Plan for the Anadromous Fish Restoration Program: A Plan to Increase Natural Production of Anadromous Fish in the Central Valley of California (USFWS 2001). Further, the CNRA's Sacramento Valley Salmon Resiliency Strategy states that instream flows in Mill Creek should be provided to “*... meet flow criteria identified in recent technical flow studies by DFW's Instream Flow Program*” (*i.e.*, CDFW 2018) (CNRA 2017).

CDFW has developed Draft Instream Flow Criteria (CDFW 2018) for lower Mill Creek, from the Upper Diversion Dam, operated by LMMWC, downstream to the confluence with the Sacramento River. The criteria are based on migration periods of adult Chinook salmon and steelhead, and include a criteria for critical water years and low flow threshold for preserving ecosystem function such as riparian habitat and aquatic macroinvertebrate production. NMFS believes the draft instream flow criteria represent the best available scientific information that should be used for developing any instream flow proposals in Mill Creek including voluntary actions in response to drought.

Forbearance/Flow Measures for 2021

The Outline identifies the following two flow terms:

- a. *“Base Flow of not more than 25 cfs measured at the Ward Dam from May 15 to June 15, and not more than 50 CFS from October 15 to November 30,*
- b. *One Pulse Flow of not more than 50 cfs for a 48-hour period during the May 15 to June 15 period.”*

These two flow terms do not meet the Draft Instream Flow Criteria for Mill Creek developed by the CDFW, and thus implementation of the two flow terms are not based on the best available scientific information, would not provide flows suitable for adult salmonid migration and would not provide a low flow threshold necessary to sustain ecological function when flows for adult salmonid passage are not required (CDFW 2018). CDFW's draft instream flow criteria for critical water years identified in Table 1 are applicable instream flow levels for this water year to

support fish passage for adult migration in the spring and fall, and adult holding and juvenile rearing in the summer.

Table 1. Lower Mill Creek minimum flow criteria in cubic feet per second (cfs).

| Month | Water Year Type | | | | |
|--------------|---------------------------------------|-----|--------------|--------------|-----|
| | Critical | Dry | Below Normal | Above Normal | Wet |
| October | < 140 cfs → 80% UF*; ≥ 140 cfs → UF** | | | | |
| November | < 140 cfs → 80% UF*; ≥ 140 cfs → UF** | | | | |
| December | 190 | 190 | 190 | 190 | 190 |
| January | 190 | 190 | 190 | 190 | 190 |
| February | 190 | 190 | 190 | 190 | 190 |
| March | 180 | 260 | 260 | 260 | 260 |
| April | 180 | 260 | 260 | 260 | 260 |
| May | 180 | 260 | 260 | 260 | 260 |
| June | 140 | 180 | 260 | 260 | 260 |
| July 1 - 15 | 30 | 30 | 140 | 140 | 220 |
| July 16 - 31 | 30 | 30 | 30 | 30 | 30 |
| August | 30 | 30 | 30 | 30 | 30 |
| September | 30 | 30 | 30 | 30 | 30 |

* When USGS 11381500 is less than 140 cfs, 80 percent of the unimpaired flow (UF) is recommended.

** When USGS 11381500 is equal to or greater than 140 cfs, the full amount of unimpaired flow (UF) is recommended. Once flow levels naturally recede below 140 cfs, flow reduction will not exceed 10 cfs with a minimum 3-hour period between adjustments until flow levels return to 80 percent of the UF (i.e., a maximum daily flow alteration of 20 percent or less).

To maintain aquatic ecosystem function after adult salmonid migrations have ended and to help support the adult holding and juvenile rearing life stages, a 30 cfs or higher ecological flow is needed. We recommend reconsidering your flow measures to be in greater alignment with the CDFW Draft Instream Flow Criteria for Mill Creek.

Cessation of Forbearance Due to Temperature

The Outline states the following term related to water temperature. “*A temperature monitoring program will be implemented in Mill Creek. Forbearance measures will cease when water temperatures below Ward Dam are no longer conducive for fish passage including water temperatures that exceed the EPA guideline of 68 degrees Fahrenheit.*”

We understand the intention to not forego water diversions if the resultant instream flow will not benefit salmon and steelhead passage. However, two main reasons suggest that salmon and steelhead would benefit from additional flow at water temperatures at or above 68 degrees Fahrenheit. First, because summer air temperatures are warmer than Mill Creek water temperatures, additional flow will slow the increase in Mill Creek water temperatures caused by warm ambient air temperatures, potentially lessening detrimental effects to salmon and steelhead and avoiding lethal levels. In fact, the scientific literature suggests that juvenile steelhead tolerate

mean daily water temperatures exceeding 68 degrees Fahrenheit and (Myrick and Cech 2001; Stanislaus River Scientific Evaluation Process [SEP] 2019). Second, 68 degrees Fahrenheit does not cause a thermal barrier as CDFW's real-time spring-run Chinook salmon migration monitoring at Ward Dam has documented fish passing through the system when water temperatures were above that temperature.

NMFS supports more discussion on temperature issues on Mill Creek both from an unimpaired perspective as well as under current diversion practices to protect fish migration, spawning and rearing. We note that the metric (e.g., mean daily, 7 day average of the daily maximum, daily maximum) is not identified in the Outline's Cessation of Forbearance Due to Temperature term, and being clear on the metric along with any particular temperature management values (e.g., 68 degrees Fahrenheit) will be important for further discussions.

NMFS recommends against using temperature thresholds to trigger cessation to forebearance and instead base the cessation on real-time monitoring of fish presence much like the approach that was implemented during 2014 and 2015.

Multi-Benefit Channel Restoration Project

The Outline identifies a multi-benefit channel restoration project on Mill Creek. Channel restoration projects are not specifically identified in the Recovery Plan as a recovery action for addressing threats to fish passage and juvenile rearing. However, if designed with integrated practices of stream habitat restoration and science-based instream flows, instream channel modification may offer solutions that meet the interests of all parties.

NMFS supports the development of a comprehensive flow and passage strategy for Mill Creek that includes meeting instream flow criteria, channel restoration, fish passage improvement at diversion dams and other relevant conditions to improve fish passage, juvenile rearing and improved aquatic function necessary to support anadromous fish. NMFS recommends using the California Salmonid Stream Restoration Manual for developing a multi-benefit channel restoration project. This manual describes the CDFW's recommended approaches and technical methods for anadromous salmonid habitat restoration. The manual describes habitat restoration strategies, techniques and project implementation, evaluation and monitoring.

Environmental Permits, Approvals, and Immunities

Section 6 of the Outline states: "*Safe Harbor Agreement with NMFS under federal Endangered Species Act relating to fish passage in Mill Creek.*"

Your Outline lists a Safe Harbor Agreement with NMFS for fish passage on Deer Creek. Safe Harbor Agreements present a mechanism for pursuing endangered species conservation and recovery by engaging the support of landowners who are critical to species recovery, while also providing assurances that they will not face new restrictions on their land because of their good stewardship practices. If SVRIC would like to pursue a Safe Harbor Agreement, we recommend reviewing the information contained in the NMFS West Coast Region website: <https://www.fisheries.noaa.gov/west-coast/habitat-conservation/safe-harbor-agreements-west->

[coast#:~:text=Safe%20Harbor%20Agreements%20are%20a,of%20their%20good%20stewardship%20practices.](#)

The website provides useful guidance for landowners to assist landowners and includes links to frequently asked questions, an electronic brochure, and examples of Safe Harbor Agreements that have been executed with NMFS.

The general for developing a Safe Harbor Agreement involves NMFS and the interested landowner working together to develop a description of baseline conditions, habitat improvement activities, and land use objectives for the property. Once a draft Safe Harbor Agreement is developed, NMFS will (1) conduct an internal review to determine if the agreement complies with the Endangered Species Act and contributes to the recovery of listed species, (2) make the Safe Harbor Agreement available for public comment, and (3) issue an Enhancement and Survival Permit to the landowner. NMFS recommends that SVRIC consider developing a more comprehensive flow and passage strategy for Deer Creek that is based on the based available scientific information for consideration as a Safe Harbor Agreement.

Funding

Section 7 of the Outline states: “*Water Users will be compensated in the amount of \$2,100,000 for the purpose of implementing, in Water Users’ discretion, water conservation, water efficiency, system improvement, or other water related improvements within their respective service areas.*”

NMFS funding is not being considered to support the water conservation elements described in the Outline. NMFS recommends that if public funding is provided for water conservation, there should be a commitment to improve Mill Creek flows and that instream flow benefits should demonstrate how they will be applied to meet the Draft Instream Flow Criteria.

We look forward to working through your interests to seek solutions for salmon and steelhead in Mill Creek and are available to discuss specific drought measures or development of a comprehensive flow and fish passage strategy. Please contact Howard Brown at (916) 930-3608 or Howard.Brown@noaa.gov if you have any questions about our comments.

Sincerely,

Cathy Marcinkevage
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cc: To the File ARN 151422-WCR2021-SA00088

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Literature Cited

- CNRA. California Natural Resources Agency. 2017. Sacramento Valley Salmon Resiliency Strategy. Available at: <https://files.resources.ca.gov/sacramento-valley-salmon-resiliency-strategy/>
- CDFW. 2018. Instream Flow Criteria, Mill Creek, Tehama County. California Department of Fish and Wildlife Instream Flow Program, Sacramento, CA. Available at: <https://wildlife.ca.gov/Conservation/Watersheds/Instream-Flow/Studies/Mill-Creek-Study>.
- Myrick, C. A., and J. Cech Jr. 2001. Temperature Effects on Chinook Salmon and Steelhead: a Review Focusing on California's Central Valley Populations. Pages 99.
- National Marine Fisheries Service. 2014. Final Recovery Plan for the Evolutionarily Significant Units of Sacramento River Winter-run Chinook Salmon and Central Valley Spring-run Chinook Salmon and the Distinct Population Segment of California Central Valley Steelhead. Pages 427 in. NMFS, Sacramento, California.
- Phillis CC, Sturrock AM, Johnson RC, Weber PK. 2018. [Endangered winter-run Chinook salmon rely on diverse rearing habitats in a highly altered landscape](#). Biological Conservation 217: 358-362.
- SEP. 2019. Conservation Planning Foundation for Restoring Chinook Salmon (*Oncorhynchus tshawytscha*) and *O. mykiss* in the Stanislaus River, Seattle, Washington.
- SWRCB. 2010. Instream Flow Studies for the Protection of the Public Trust Resources: A Prioritized Schedule and Estimate of Cost. Submitted In Accordance with the Requirements of Water Code Section 85087. Available at: https://www.waterboards.ca.gov/waterrights/water_issues/programs/instream_recommendations/
- USFWS. 2001. Final Restoration Plan for the Anadromous Fish Restoration Program: A Plan to Increase Natural Production of Anadromous Fish in the Central Valley of California. Prepared for the Secretary of the Interior by the U.S. Fish and Wildlife Service.