



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

June 11, 2021

Mr. Mike Wallace
Stanford Vina Ranch Irrigation Company
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Dear Mr. Wallace,

Re: Deer Creek, Drought Year 2021

Thank you for your letter dated May 11, 2021, and its enclosure titled “Outline of Key Terms for Drought Year 2021 Actions on Deer 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 Deer Creek during this latest drought, we commend Stanford Vina Ranch Irrigation Company’s (SVRIC) rapid response in proposing these terms. NOAA’s National Marine Fisheries Service (NMFS) would like to continue discussion with SVRIC to reach agreement on terms that are more 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 Deer 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 Deer 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. The spring-run Chinook salmon population in Deer Creek is particularly important because it is one of just three extant independent CV spring-run Chinook salmon populations, along with the populations in Mill and Butte creeks. The abundance of Deer Creek spring-run Chinook salmon has diminished greatly over the past decade, with an average annual run size reduced to only 276 adults. The 2020 run size was the lowest on record with just 96 adults and the extinction risk for the population has moved from moderate to high in the last five years. The Deer 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 Deer 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 Deer Creek as juveniles (Phylliss *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 Deer 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 Deer Creek as a key stressor to spring-run Chinook salmon and steelhead population viability in the watershed. Deer 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 Deer 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 Deer Creek should be provided to "... *meet flow criteria identified in recent technical flow studies by DFW's Instream Flow Program*" (i.e., CDFW 2017) (CNRA 2017).

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 SVRIC Dam May 15 to June 15 and October 15 to November 30"*
- b. *Four Pulse Flows for a 48-hour period including two Pulse Flows during the May 15 to June 15 period and two Pulse Flows during the October 15 to November 30 period. DFW may request the pulse flows with twenty-four hours' notice."*

CDFW's Instream Flow Evaluation: Temperature and Passage Assessment for Salmonids in Deer Creek, Tehama County (CDFW 2017) describes instream flow and fish passage for Chinook salmon and steelhead that can be used for proposing science-based instream flow conditions. This flow evaluation suggests that flow volumes higher than 25 cfs are required to support adult salmonid passage at critical riffles and maintain aquatic ecosystem function in Deer Creek. Based on interpretation of this flow study, the minimum flow conditions identified in Table 1 should be met in critically dry years such as 2021.

Table 1. Lower Deer Creek minimum flows for fish passage and aquatic ecosystem function under critically dry conditions.

Month(s)	Minimum Flow (cfs)
October and November	145 or 80% unimpaired flow if unimpaired flow is less than 145
December through February	180
March	200
April through June	145
July through September	23

NMFS appreciates the term proposing pulse flows in the spring and fall as previous pulse flows have successfully stimulated Chinook salmon fish passage in Deer Creek.

Temperature Monitoring for Cessation Forbearance

The Outline states the following term related to water temperature: *“A temperature monitoring program will be implemented in Deer Creek. Forbearance measures will cease when water temperatures below SVRIC 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 Deer Creek water temperatures, additional flow will slow the increase in Deer 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 has documented adult fish passage when water temperatures were above that temperature.

NMFS supports more discussion on temperature issues on Deer 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 forbearance 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 Deer 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 Deer 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 Deer Creek.*"

Your Outline listed 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 approach 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 best 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 on the table for this action, however, we believe that as a matter of policy, public funds for Deer Creek water conservation should result in a clear commitment for improvements in instream flows to meet science-based instream flow objectives.

We look forward to working through your interests to seek solutions for salmon and steelhead in Deer 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
Assistant Regional Administrator
California Central Valley Area Office

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