Bureau of Reclamation
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Field Activity Advisory
California Central Valley Steelhead Monitoring Plan
December 1, 2023 – April 30, 2024

As part of the San Joaquin River Restoration Program (SJRRP), biologists will perform a monitoring effort to identify presence/absence of adult California Central Valley (CCV) steelhead (*Oncorhynchus mykiss;* Figure 1) in the upper San Joaquin River (SJR) and its adjacent sloughs. CCV steelhead are believed to be extirpated upstream of the Merced-SJR confluence. However, recent restored flows reconnecting historically desiccated river sections could attract migrating adult steelhead into the Restoration Area. Adult steelhead accessing the SJR upstream of the Merced River confluence could be exposed to loss into sloughs and would not have access to appropriate spawning habitat due to impassable barriers. As a result, the SJRRP has implemented a steelhead monitoring and detection plan (SMP) for the SJR upstream of the Merced River confluence that would, in the event of a capture, document and transport the fish to suitable habitats downstream of the Merced River confluence.

Figure 1. Adult California Central Valley Steelhead.

Who: Bureau of Reclamation

What: CCV Steelhead Monitoring Plan is an important SJRRP effort to ensure its commitment to restore and maintain fish populations within the Restoration Area. No CCV steelhead were detected or captured during past sampling efforts.

Migrating adult steelhead are difficult to monitor using techniques (*e.g.,* carcass surveys, snorkel surveys, redd counts) commonly used to assess salmon populations due to their unique life-history. Steelhead, unlike salmon, may not die after spawning. Therefore, carcasses may not be available for surveys. In addition, steelhead migrate and spawn during the late-fall, winter, and spring months when rivers have periods of pulse and high flows (e.g., flood releases) resulting in elevated water turbidities.

Three sampling methods will be implemented for the SMP:

1. ***Electrofishing*** — Raft mounted electrofishing vessels will be used to stun and capture fish species in areas potentially inhabited by CCV steelhead. Sampling frequency will be monthly from December – April. Capture of resident non-salmonid fishes multiple times is possible, thus monthly sampling is important to ensure fish recovery from sampling and handling stress between events. Electrofishing methods will follow National Marine Fisheries Service guidelines for sampling waters with anadromous fish.

2. ***Fyke traps*** — Fyke nets with wing walls, or steel fyke traps, will be used to sample upstream migrating CCV steelhead. These traps are funnel-shaped and are held open by hoops and specifically constructed for capturing salmonids without causing inadvertent injury. Traps will be checked at least once a day. Ample boat passage will be made available and fluorescent flagging, orange buoys, and flashing amber caution lights will alert river-users to sample gear.

3. ***Trammel nets*** — Trammel nets consist of three parallel vertical layers of netting; the inner net has a smaller mesh size (small hole spacing to prevent steelhead from becoming gilled), while the outer nets

have mesh size large enough for fish to pass. Trammel nets will be deployed as a stationary gear to sample low velocity habitats difficult to access to deploy other sampling gear. Trammel nets will be monitored continuously for presence of fish (noted by net disturbance) and checked, at a minimum, every hour.

In the event that CCV steelhead are captured during monitoring, fish will be recorded, measured, sexed (if possible), sampled for tissues, and checked for injuries and presence of tags. Fish will be Floy tagged with a unique identification number to document any recaptures that may occur in the study area. Captured steelhead will be transported downstream of the mouth of the Merced River. Transported steelhead will be acclimated in the transport tank to receiving water temperature and water quality at the predetermined release location before release.

Figure 2. Fyke nets used to capture adult California Central Valley steelhead.

Where: Steelhead monitoring activities are proposed for the area below Mendota Dam, or to the uppermost contiguous wetted section of the SJR, from the confluence with the Merced River, including adjoining sloughs.

When: December 1, 2023 – April 30, 2024. Steelhead monitoring activities will occur for two continuous weeks each of the five months in the Restoration Area.

Considerations: Access to the locations will occur from the public right-of-way or in areas where private landowners have granted access.

Questions about this activity should be directed to the study's agency point-of-contact provide below.

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Questions about Program field activities on public and private land should be directed to the Landowner Coordinator and questions about the SJRRP should be directed to the Public Affairs Specialist as listed below.

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Contact the SJRRP Hotline, 916-978-4398, or email RestorationFlows@restoresjr.net if you see any problems or have any concerns.

For more information, please visit the SJRRP Web site at www.restoresjr.net. Field Advisories for activities are available at www.restoresjr.net/activities/field/index.html