

## **Field Activity Advisory Central Valley Steelhead Monitoring Plan January 7 – March 15, 2013**

This notice is to inform the public of an upcoming research study to monitor potential Central Valley steelhead in the upper San Joaquin River and its slough tributaries. Central Valley steelhead populations have decreased to the point where monitoring opportunities are limited because sample sizes are too low to use statistical analyses, sometimes even to the point that determining their presence is difficult. Central Valley steelhead are believed to be currently extirpated from all waters upstream of the Merced-San Joaquin River confluence. However, spring interim flows occurring from February 1 through June 2013 could attract adult steelhead into the Restoration Area. Attracted steelhead would not have access to appropriate spawning habitat due to a number of impassable barriers. Therefore, the Bureau of Reclamation implemented a Steelhead Monitoring and Detection Plan (SMP) for the San Joaquin River 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 mouth of the Merced River.

**Who:** Bureau of Reclamation and California Department of Fish and Game (DFG)

**What:** Central Valley steelhead monitoring is an important study for the San Joaquin River Restoration Program (SJRRP) to ensure its commitment to restore and maintain fish populations within the Restoration Area. Although no Central Valley steelhead were detected or captured during past sampling periods, continued monitoring for adult steelhead migration in the Restoration Area is important to provide information regarding the progress of the Restoration Program.



Spring interim flows occurring from February to June could attract adult steelhead into the restoration area if the interim flows are higher than the flows in the other San Joaquin River tributaries. Steelhead abundance and distribution in the San Joaquin River Basin have substantially decreased and steelhead were extirpated from the Restoration Area after the construction of Friant Dam. As more favorable spring water conditions exist, Reclamation proposed a SMP to facilitate detection of steelhead on the San Joaquin River upstream of the Merced River confluence and transport any fish located to suitable habitats downstream of the mouth of the Merced River.

Migrating adult steelhead are difficult to monitor using common techniques (e.g., carcass surveys, snorkel surveys, redd counts) due to their unique life-history traits. 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 flows, high flows (e.g., flood releases), and higher water turbidities.

Three sampling methods will be implemented for the SMP:

1. Electrofishing - Electrofishing is a common method used in monitoring steelhead populations (e.g., Mill and Deer creeks, and Feather, American, Mokelumne, Stanislaus, and Merced rivers). Raft mounted electrofishing vessels will be used to stun and capture fish species in areas potentially inhabited by Central Valley steelhead. Sampling frequency will be continuous for two weeks in the months of January, February, and March. Capture of resident fishes multiple times is anticipated, thus monthly sampling is important to ensure fish recovery from sampling and

handling stress between captures. Electrofishing methods follow National Marine Fishery Service guidelines for sampling waters with anadromous fish.

2. **Fyke traps with wing walls** - Fyke nets with wing walls and traps will be used to sample upstream migrating Central Valley steelhead. Fyke nets have long been used to capture migrating fish to monitor their yearly changes and abundances. These nets are funnel-shaped nets that are held open by hoops and have been constructed specifically for capturing steelhead without inadvertently gilling or injuring fish. Fyke nets will be checked at least once a day. Fluorescent flagging, orange buoys, and flashing amber caution lights will alert recreationists and other river-users to the nets. The wing walls will span only three-fourths of the river width so ample boat passage is available. Nets will be held in place with anchored t-posts and will be deployed in sampling locations (i.e., upstream of the Hills Ferry Barrier location, the mouths of Mud, Slough, Salt Slough, Newman Wasteway, and downstream of Bear Creek near HWY 165 bridge). Fyke nets will be deployed at sampling locations until March 15, 2013.
3. **Steelhead-specific trammel nets** - Trammel nets are most common as stationary gear to block off channels with low velocities or no flows. However, they can also be used to drift in short durations (e.g., 20 minutes) in moving water currents. For this study, short duration drifting of trammel nets will be deployed as well as stationary sets. Short fishing durations prevent fish from being severely entangled and lessen the chance of harm. Trammel nets are advantageous and relatively efficient in turbid waters. The nets consist of three parallel vertical layers of netting; the inner net has a very small mesh size, while the outer nets have mesh size large enough for fish to pass. The larger and smaller mesh size nets form a pocket when fish try to swim through. Colored floats will be attached to the head rope so boaters and other recreationists can be alerted to the nets and avoid entangling themselves, their boats, and/or their fishing gear. To ensure safety of steelhead, fisheries biologists tending the nets will follow at a close distance to observe, reduce risk of entanglement, and retrieve nets in short time intervals. Trammel net sampling will be used during adult steelhead migration from January through March.

**Fish Handling and Relocation** - In the event that Central Valley steelhead are captured during monitoring activities, fish will be recorded, measured, sexed (if possible), sampled for scales and 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 in a 150-gallon fish transport tank. Transported steelhead will be acclimated in the transport tank to receiving water temperature and water quality at the predetermined release location before release.

**When:** January 7 – March 15, 2013. Steelhead monitoring activities will occur for two continuous weeks each of the three months in Reaches 4 and 5 of the Restoration Area.

**Where:** Steelhead monitoring activities are proposed for the area of the San Joaquin River below Sack Dam to the confluence with the Merced River and adjoining sloughs. Sack Dam is considered the furthest upstream extent for Central Valley steelhead migration because it is impassable in low water year types. During the winter and spring of 2011 and 2012, monitoring was confined to the river below Bear Creek as water was too shallow to navigate. Therefore, if the water year-type is similar to last, the extent of the sampling area will most likely be limited to approximately one mile upstream of Highway 165 Bridge to the confluence of the Merced River and slough tributaries.

**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 points-of-contact using the information provided below.

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Questions about the SJRRP's field activities on public and private land should be directed to the SJRRP Outreach Coordinator or Landowner Coordinator using the information provided below.

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**Contact the SJRRP Hotline, 916-978-4398, or email [InterimFlows@restoresjr.net](mailto:InterimFlows@restoresjr.net) if you see any problems or have any concerns.**

**For more information, please visit the SJRRP Web site at [www.restoresjr.net](http://www.restoresjr.net).**

**Field Advisories for activities are available at [www.restoresjr.net/activities/field/index.html](http://www.restoresjr.net/activities/field/index.html)**