

# Memorandum

**Date:** April 18, 2016  
**To:** Amanda Cranford, NOAA Fisheries  
**From:** Rob Titus, California Department of Fish and Wildlife  
**Subject:** Trends in Central Valley Steelhead Harvest

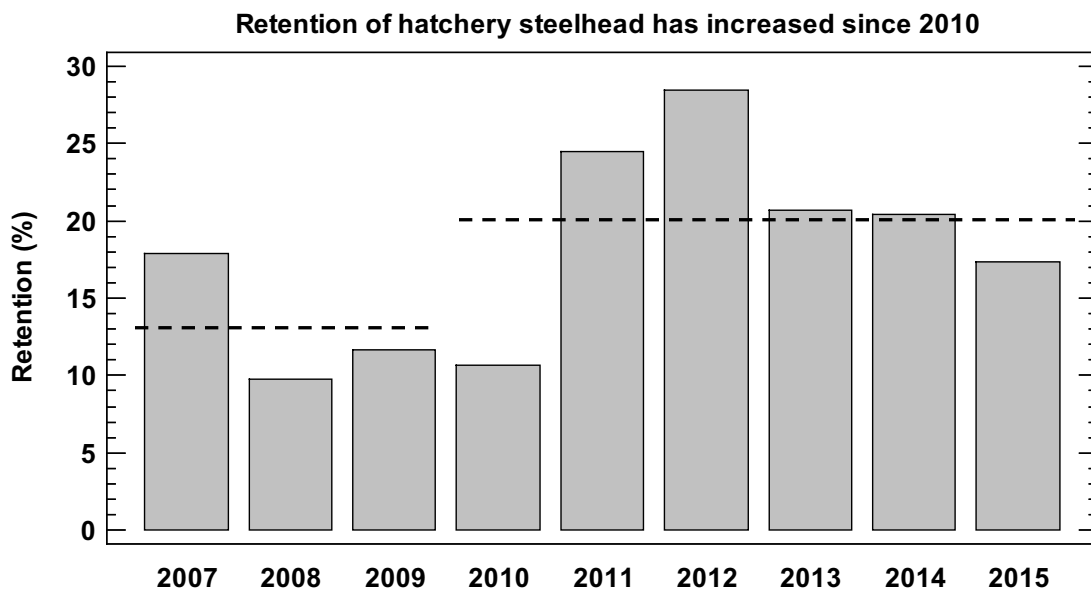
The purpose of this memo is to determine if there have been notable changes in steelhead regulations that would suggest a change in fishing effort or opportunity in the past 5 years or so. California Freshwater Sport Fishing Regulations for Central Valley rivers supporting steelhead fishing were reviewed for the past several years. In addition, steelhead harvest data from the Department of Fish and Wildlife (Department), Central Valley Angler Survey (CVAS) were assessed for trends relative to regulation changes implemented during the period of interest.

Following is a chronological rundown of changes in daily bag and possession limits that have occurred since March 1, 2010, which was the effective date of the 2010-2011 regulations cycle:

- Prior to March 1, 2010, the daily bag and possession limit in the Sacramento River system, including the lower Mokelumne River, was 1 steelhead in the bag and 1 in possession.
- Effective March 1, 2010, the steelhead daily bag and possession limit on the mainstem Sacramento and American rivers increased to a daily bag of 2 hatchery steelhead and a possession limit of 4 hatchery steelhead. On the Feather and Mokelumne rivers, the daily bag and possession limit remained at 1 hatchery steelhead in the bag, and 1 hatchery steelhead in possession.
- On March 1, 2013, the steelhead daily bag and possession limit on the Feather River increased to 2 and 4 hatchery steelhead, respectively.
- In the current regulations cycle with an effective date of March 1, 2016, the steelhead daily bag and possession limit remains at 2 and 4, respectively, on the Sacramento, American, and Feather rivers; and at 1 and 1, respectively, on the Mokelumne River.

The regulation changes reviewed above for steelhead fishing in the Central Valley suggest that there is the potential for a change in harvest dynamic over the past several years. The overall trend has been to incrementally increase the opportunity for harvest of hatchery-origin steelhead by increasing the daily bag and possession limits. The rationale behind encouraging more harvest of hatchery-origin steelhead is to minimize potential negative behavioral and genetic interactions with natural-origin steelhead. In addition, retention of Central Valley steelhead of hatchery origin is typically very low. Yet, the purpose of the hatchery programs is to provide a harvestable fishery resource. Thus, the Department would also like to see more of that resource utilized for its intended consumptive purpose.

Data on angler retention of hatchery-origin steelhead suggest an increase in retention since the 2010-2011 regulatory cycle (Figure 1). Mean retention from 2007-2008 through 2009-2010 was 13.1%, while mean retention from 2010-2011 through 2015-2016 was 20.4%. These means do not differ significantly, however (2-tailed  $t$ -test:  $t = -1.82$ ,  $p = 0.11$ ; no significant departure from normality in sample data; variances not significantly different). This analysis may possibly be improved by using expanded catch and retention data for each regulatory year.



**Figure 1.** Trend in angler retention of hatchery-origin steelhead in the Central Valley steelhead sport fishery. Percent retention is based on unexpanded angler interview data. The dashed lines indicate mean retention prior to liberalization of the daily bag and possession limit (2007 - 2009 regulation years), and afterwards (2010 - 2015 regulation years). Each year shown is a regulations year that covers the period March 1 of the year shown through February 28 of the following year; e.g., 2007 represents March 1, 2007 - February 28, 2008.

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