

CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE SUPPLEMENTAL REPORT  
SACRAMENTO RIVER WINTER CHINOOK – UPDATE ON CURRENT ACTIVITIES

Due to continued concerns regarding the status of Sacramento River winter-run Chinook salmon (SRWC), the California Department of Fish and Wildlife (CDFW) is providing an update on preliminary 2016 spawner escapement, recent changes to broodstock selection criteria at Livingston Stone National Fish Hatchery (LSNFH), and the number of SRWC coded-wire tags (CWTs) recovered in 2016 ocean fisheries to date.

Presently, spawning activity for SRWC in 2016 is in its early stages and carcasses are now appearing in the upper Sacramento River system. The SRWC carcass survey commenced in early May and as of June 20<sup>th</sup>, 58 carcasses have been encountered. This represents the second lowest number of carcasses observed through mid-June on record. The lowest number observed was in 2011 (n=32) and resulted in a total SRWC escapement of 824 fish. Since SRWC carcass surveys began in 2001, 424 carcasses have been collected through mid-June on average. It is premature to make assumptions regarding total escapement at this time as it is still relatively early in the spawning season. Carcass counts through mid-June have not been demonstrated as a reliable indicator of the strength of the run. However, early signs of a possibly low return may warrant concern.

After increasing production of juvenile SRWC at LSNFH the past two years in response to severe drought conditions (n=600,000 for brood year 2014, and n=400,000 for brood year 2015), a decision was made earlier this year to return to the normal hatchery production target of roughly 200,000 smolts. This decision was made in light of improved reservoir conditions and associated operational expectations related to meeting minimum water quality criteria. In addition, the heavy reliance on hatchery-origin broodstock in recent years to bolster production raised domestication concerns and further motivated a return to normal broodstock collection criteria, which calls for using almost entirely natural-origin fish to reach the 200,000 smolt production target. Trapping of potential SRWC broodstock at Keswick Dam began in late February. In early spring 18 natural-origin females and only 5 natural-origin males had been collected for broodstock. This discrepancy resulted in a decision to use hatchery-origin males to increase the total number of male spawners to at least equal that of the natural-origin females. Historically, an average of 80 adults with typically 10 percent or less hatchery-origin contribution has been used as broodstock to achieve the production goal of 200,000 smolts. As of late May this year it was estimated that the current broodstock collection level (n = 42) would only produce 72,000 smolts, despite the supplementation from hatchery-origin males.

In early June, concerns were raised by CDFW regarding this low production estimate and a formal request was issued to immediately retain all adult salmon (hatchery- and natural-origin) in efforts to maintain the target production of 200,000 SRWC juveniles. In response to CDFW's request, the U.S. Fish and Wildlife Service (USFWS), with National Marine Fisheries Service (NMFS) approval, began retaining all trapped fish at LSNFH, regardless of origin or sex. This joint agreement between CDFW, NMFS, and USFWS to amend the LSNFH spawning protocol is intended to uphold the original target production of 200,000 smolts. Achieving this production goal is important given the possibility of low natural area spawner abundance in the Sacramento River and mounting concerns related to the water operations and drought outlook. The SRWC stock has suffered catastrophic brood failures over the course of the last two years (Agenda Item E.1.e, Supplemental CDFW Report, April 2016 Council Meeting). Early

indications suggest concern is warranted regarding escapement in 2016, suggesting brood year (BY) 2013 also fared poorly.

Additionally, recoveries of SRWC CWTs from ocean fisheries are critical in evaluating the success of management measures implemented prior to ocean fishing seasons. Releasing less than 200,000 tagged SRWC smolts will reduce the probability of BY 2016 CWT recoveries in the 2018 ocean fisheries. Consequently, this will impede the ability of fishery managers to assess the effectiveness of 2018 fishing regulations developed in compliance with SRWC consultation standards to conserve this ESA-listed stock.

This year, it is anticipated that there may be more SRWC CWT recoveries in ocean fisheries due to higher production from LSNFH in 2014 and 2015. To date, there have been four SRWC CWTs (BY 2014, age-3 fish) collected in the recreational charter boat and private skiff fisheries and it is likely that additional recoveries will occur during the remainder of the season. Two of these CWT recoveries occurred in the Half Moon Bay area during mid-April, while the other two were taken in the San Francisco area north of the Golden Gate Bridge during mid-May. In comparison, only one age-3 SRWC was recovered in all 2015 ocean fisheries (BY 2013). No SRWC CWTs have been recovered in the 2016 commercial fishery.

Additional measures have already been taken to protect SRWC spawning grounds and optimize survival of BY 2016, including temporary fishery closures, strategic water flow regimes, and temperature compliance criteria in the upper Sacramento River. At this time, it is still too early to draw conclusions about final escapement numbers or make predictions regarding the success of the 2016 brood, but the aforementioned efforts as well as the changes to LSNFH spawning protocols are intended to enhance the abundance of both hatchery- and natural-origin SRWC populations.