CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE STATUS UPDATE ON SACRAMENTO RIVER WINTER CHINOOK

The California Department of Fish and Wildlife (CDFW) is providing an update on Sacramento River winter-run Chinook salmon (SRWC) 2016 spawner escapement, juvenile production, and juvenile outmigration. This report is intended as a follow up to the September 2016 Supplemental Report (Agenda Item H.1.a, Supplemental CDFW Report, September 2016 Council Meeting).

Final SRWC escapement in 2016 amounted to 924 adults and 622 grilse for a total of 1,546 fish (Agenda Item E.2, Table B-3, Review of 2016 Ocean Salmon Fisheries). This is the second lowest escapement number on record, with the lowest being 824 in 2011. Despite relatively suitable river conditions in 2016, as evidenced by markedly improved egg-to-fry survival rates compared to the previous two years, it is likely that low spawner escapement and unusually low fecundity contributed to low egg production in-river.

Estimates of juvenile passage at Red Bluff Diversion Dam (RBDD) are conducted routinely to determine annual fry production and egg-to-fry survival. The latest estimate for brood year (BY) 2016 is 523,800 juveniles, with most of the outmigration complete. Though the estimate is slightly higher than those of BY 2014 (411,322) and BY 2015 (338,904), this marks the third consecutive year where the number of SRWC juveniles passing RBDD is well below the average of about 1.4 million fish (Table 1).
Changes to Livingston Stone National Fish Hatchery (LSNFH) broodstock selection criteria were implemented last summer to increase egg collection in an effort to reach the usual production target of 200,000 SRWC juveniles. LSNFH was able to produce roughly 139,500 BY 2016 juveniles, which were released into the Sacramento River on February 2, 2017.

A new SRWC harvest control rule (HCR) that will employ a forecast of age-3 abundance is currently in development. It is expected that this abundance forecast will be largely informed by BY-specific estimates of juvenile abundance in the upper Sacramento River. Subsequent survival and maturation terms associated with outmigration and ocean life history will also be applied. This new HCR is anticipated to be ready for use in the next salmon fishery planning cycle. Presuming it is approved by the Council for use in 2018, management measures resulting from application of the HCR will directly account for the low SRWC juvenile production in 2016.

Table 1. Sacramento River winter Chinook estimated annual juvenile passage at Red Bluff Diversion Dam.

Year	Juvenile Passage Estimate
2007	1,440,563
2008	1,244,990
2009	4,402,322
2010	1,285,389
2011	848,976
2012	1,349,819
2013	1,773,878
2014	411,322
2015	338,904
2016*	523,800
Average	**1,361,996**

*Juvenile passage estimate is preliminary and subject to change.