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South Delta Salmon Smolt Survival Studies

The escapement of adult salmon to the San Joaquin basin appears to be related to flow during their spring smolt migration period. Studies estimating salmon survival in the south Delta have been ongoing since about the mid - 1980's. The results of early studies indicated that coded wire tagged (CWT) juvenile salmon released in the San Joaquin River just downstream of the junction at the head of Old River (near Lathrop), usually survived at a higher rate to Chipps Island than those released in Old River. Additional studies also indicated that survival to Chipps Island increased as flows increased for CWT fish released near Lathrop, or for CWT fish released at Mossdale or Durham Ferry with a rock barrier at the head of Old River. Survival from Mossdale or Durham Ferry to Chipps Island has been measured using CWT methodology between 1994 and 2006 and has ranged between 0.01 and 0.80. Survival at similar flow levels appears to be decreasing over time. Modeling using the CWT data suggested that survival was higher through the Delta when the rock barrier was installed as it reduced the proportion of water and fish entering Old River where survival was lower. Lastly, survival to Chipps Island was estimated in 2010 using acoustic tags with a non-physical barrier installed at the head of Old River. Survival from Mossdale to Chipps Island in 2010 was estimated at 0.05 when removing detections from suspected predators. Survival was higher in the San Joaquin River compared to Old River for only one of the seven releases in 2010. Results obtained from studies in 2011 and planned studies in 2012, may provide further insight regarding survival through the Delta for juvenile salmon originating from the San Joaquin basin and how survival might be improved in the future.

Statement of Relevance: These studies have estimated salmon smolt survival through the Delta for juvenile salmon originating from the San Joaquin basin for use in modeling and decisions on water and environmental policy and management.