**Tracy Research Technical Report Abstract**

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Portz, Donald E. and Zachary A. Sutphin. 2019. *Effects of Fin-Clipping for DNA Sampling on Tissue Damage, Physiological Stress, Swimming, and Survival of Juvenile Chinook Salmon.* Tracy Fish Collection Facility Studies, Tracy Series Volume 55. Bureau of Reclamation, Mid-Pacific Region, 41 pp.

Collection of tissue samples from Chinook Salmon (*Oncorhynchus tshawytscha*) captured at federal and state fish salvage facilities in California’s southern Sacramento-San Joaquin Delta for genetic tissue analyses are important for species management, as this data provides an understanding of temporal variation in Evolutionarily Significant Unit (ESU)-specific salmon migration and abundance. However, means to acquire tissues (i.e., caudal fin-clipping) should not compromise survival, as this would conflict with conservation efforts. An on-site study at the Bureau of Reclamation’s Tracy Fish Collection Facility (Byron, CA) was completed to quantify effects of handling and fin-clipping procedures on physiological stress, external tissue damage, burst swimming performance, and survival of juvenile Chinook Salmon during three unique sample periods (April, May, and June 2010). In addition, effects of water treatment additives (i.e., NaCl and commercially available slime coat) applied post tissue sampling were evaluated. Survival of Chinook Salmon, regardless of treatment condition, throughout the 168-h post-treatment assessment period was high (> 94%). However, effects of handling and clipping on survival of juvenile Chinook Salmon were influenced by post-treatment holding environment and varied as a function of testing period. Experimental results indicate there was no difference in physiological stress of salmon exposed to handling only or handling and clipping, suggesting fin-clipping alone provided no significant additional stress, and netting, anaesthetization, and handling fish is probably the most stressful component of the fin-clipping process. In addition, within month of testing and sample period (0, 2, or 168 h) clipping did not contribute to an increase in tissue damage compared to handling alone, and the use of treated water did not minimize tissue damage.