Tracy Research Technical Report Abstract

***Volume 11***  
Bowen, M.D., B.B. Baskerville-Bridges, K.W. Frizell, L. Hess, C.A. Karp, S.M. Siegfried, and S.L. Wynn. 2004. *Empirical and Experimental Analyses of Secondary Louver Efficiency at the Tracy Fish Collection Facility, March 1996 to November 1997*. January 2004. Tracy Fish Facility Studies. Volume 11. U. S. Bureau of Reclamation, Mid-Pacific Region, Denver Technical Service Center. 33 pp + Figures.

The Bureau of Reclamation operates the Tracy Fish Collection Facility (TFCF) to remove fish from San Francisco Bay-Delta water before that water is diverted south. We obtained empirical measurements of secondary louver efficiency at the TFCF for 33 species of fish. We also conducted insertion experiments with splittail, *Pogonichthys macrolepidotus*. In this study we found mean louver efficiency for chinook salmon, *Oncorhynchus tshawystcha*, juveniles to be 85.1 percent. We found the mean louver efficiency for striped bass, *Morone saxatilis*, juveniles to be 61.5 percent. Both of these efficiencies are lower than historical values (Bates et al., 1960). For four species of fish, splittail, delta smelt (*Hypomesus transpacificus*), chinook salmon, and striped bass, we analyzed three independent variables and their influence on secondary louver efficiency. None of these independent variables (time of day, debris load, average channel velocity) was statistically significantly related to or a strong predictor of secondary louver efficiency. Splittail insertion experiments showed secondary louver efficiency was significantly higher during the day, and during the daytime a simulated heavy debris load significantly reduced efficiency. Combined empirical and experimental approaches provide the best approach to evaluation of factors influencing louver efficiency at the TFCF.