Tracy Research Technical Report Abstract

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Z.A. Sutphin and B.J. Wu. 2008. Changes in Water Quality During Fish-Hauling Operations at the Tracy Fish Collection Facility. Tracy Fish Collection Facility Studies. Tracy Technical Bulletin 2008-2. U.S. Bureau of Reclamation, Mid Pacific Region and Denver Technical Service Center. 18 pp.

A short-term pilot study was conducted between June 2005 and 2006 to measure the effects of fish density on important water quality parameters during fish transport in fish-hauling trucks from the U.S. Bureau of Reclamation’s Tracy Fish Collection Facility (TFCF; Byron, California). Fish density (0.3–64.5 grams [g] of fish/liter [L]) and water quality parameters of concern during the transport of fish generally remained within acceptable ranges over the duration of our study. Ranges of temperature, dissolved oxygen (DO), free hydrogen ion activity (pH), total ammonia nitrogen (TAN), and percent total gas saturation (TGS) were 15.2–25.3 degrees Celsius (oC), 5.8–>19.0 milligrams (mg) oxygen/L, 6.5–7.9 standard pH units, 0.2–2.0 mg TAN/L, and 101–106% TSG, respectively. On one occasion, fish transport densities were above recommended (64.5 g of fish/L), and resulted in elevated carbon dioxide (CO2) levels of 20 mg/L. However, the efficiency of the transport truck oxygenation system maintained DO levels above saturation, and therefore counteracted the possible negative effects of mild hypercapnia. Data collected from this study support the continuation or redevelopment of a large-scale TFCF fish-hauling truck water quality monitoring program. (Updated January 29, 2013)