Tracy Research Technical Report Abstract

* Technical Bulletin 2010-1  
  Sutphin, Z.A. and J. Morinaka. 2010. Evaluation of Calcein Immersion for Batch-Marking Fish: Survivability and Mark Retention in Delta Smelt and Sacramento Splittail. Tracy Technical Bulletin 2010-1. U.S. Bureau of Reclamation, Mid-Pacific Region and Denver Technical Service Center. 19 pp.

We evaluated performance of calcein for batch-marking juvenile Sacramento splittail (*Pogonichthys macrolepidotus*) and adult delta smelt (*Hypomesus transpacificus*). We completed 3-d experiments to measure retention rates and survival of calcein marked splittail and smelt, and a 42-d experiment to measure long-term mark retention and survival of calcein marked delta smelt. Calcein marks were consistently bright and distinguishable 3 d after marking. Calcein marks on delta smelt after 42 d were less brilliant compared to marks after 3 and 21 d, but were still clearly distinguishable compared to unmarked smelt. Our results indicate calcein has no negative effect on 3-d survival of splittail or delta smelt. Mean 3-d survival of splittail marked with calcein or calcein + NaCl (at 8‰) solutions were 99%, whereas mean 3-d survival of delta smelt marked with the same solutions ranged from 84.3 to 96.7%. Mean 42-d survival of delta smelt was 80%. Our results suggest batch-marking of calcein may be a suitable technique and agent for mass marking fish. (Updated January 29, 2013)