Red Bluff Technical Report Abstract

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Tucker, M.E., Williams, C.M., and R.R. Johnson, 1998. Abundance, Food Habits and Life History Aspects of Sacramento Squawfish and Striped Bass at the Red Bluff Diversion Complex, Including the Research Pumping Plant, Sacramento River, California, 1994-1996. Red Bluff Research Pumping Plant Report Series, Volume 4, United States Department of the Interior, Fish and Wildlife Service and Bureau of Reclamation, Red Bluff, California. 63 pp.

The Red Bluff Research Pumping Plant (RPP) is being evaluated by the Bureau of Reclamation (Reclamation) to determine if pumping water through either Archimedes or internal helical pumps is a viable method for meeting water delivery requirements to the TehamaColusa Canal system. The U. S. Fish and Wildlife Service (Service) is contracted to determine the in-river biological implications of the Research Pumping Facility.

This report summarizes Sacramento squawfish, Ptychocheilus grandis, and striped bass, Morone saxatilis, monitoring activities around Red Bluff Diversion Dam (RBDD) and the RPP on the Sacramento River, California, from April, 1994, through July, 1996. Both Sacramento squawfish and striped bass were sampled by angling and electrofishing. The main areas targeted for sampling included RBDD, the RPP, the bypass outfall structure, and a relatively undisturbed area downstream. Sampling occurred weekly, with intermittent periods of higher frequency (2 to 3 times per week). Data and tissues were collected to determine growth rate, age structure, reproductive condition (relative gonad weight), and diet of Sacramento squawfish and striped bass. Most of the fish were tagged and released to estimate population size, movement patterns and actual growth. Data are also presented from the 1st and 2nd Annual Red Bluff Squawfish Derbies.

Sacramento squawfish relative abundance estimates were lower than those reported from previous studies of the area. The highest densities for both Sacramento squawfish and striped bass occurred in the spring and early summer when the dam gates were in and an apparent Sacramento squawfish spawning migration was under way. Nearly all striped bass were captured directly behind the dam while the gates were in (90 percent, N = 89). Diet analysis showed that juvenile salmonids outweighed other food sources in Sacramento squawfish stomachs only during summer, gates in periods. In striped bass stomach samples, juvenile salmonids outweighed other food types by a three to one margin. Other life history parameters were examined and compared to the findings of other authors.