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Health and Physical Effects of Elevated Water Temperatures on Merced River Juvenile Chinook during the Parr-Smolt Transformation: Daily Fluctuation and Range Representation of Spring Water Temperatures in the San Joaquin River System and Delta.

This study will provide useful information to water agencies, state biologists and fish hatcheries on the potentially detrimental effects of temperature fluctuations often experienced below dams where water flows are manipulated for agriculture, flood control, etc. Data from the higher temperature profile would be insightful for drought years where cold water pools are rapidly depleted from reservoirs.

The study is well designed. I might suggest the addition of a constant temperature group at mid-temperatures (18.5 and 20.5) for comparison to the temperature fluctuation group. (Natural fish may be able to seek those constant temperature areas; hatchery fish would not). Study results may result in water releases to optimize fish health and physiological performance. Benefits may be increased adult escapement in the future.

Dr. Foott's qualifications and supportive staff at CNFHC are excellent. The study is well thought out and designed. Monitoring, data gathering and reporting are good. This project is technically feasible, with Dr. Foott being perhaps the best qualified health professional in the state to conduct the physiological tests of parr-smolt readiness.

Overall rating: excellent.