LA GRANGE HYDROELECTRIC PROJECT
FERC NO. 14581

UPDATED STUDY REPORT

APPENDIX L

UPDATES ON NMFS SOUTHWEST FISHERIES SCIENCE CENTER PROJECTS PERTAINING TO THE UPPER MERCED RIVER AND UPPER TUOLUMNE RIVER WATERSHEDS

Updates on NMFS Southwest Fisheries Science Center Projects pertaining to the Upper Merced and Upper Tuolumne watersheds. January 23, 2017

Genetic Evaluation of *O.mykiss* Populations in the Upper Tuolumne and Merced Watersheds

In 2015, NMFS initiated a field based study to collect Tuolumne and Merced River specific *O.mykiss* genetic data that will allow for population level genetic analyses and evaluate variation in genomic regions. NMFS collected field samples of *O.mykiss* populations in the upper Tuolumne and Merced watershed during the summers of 2015 and 2016. Samples were collected from the Tuolumne, Clavey, Merced, and South Fork Merced rivers, as well as several tributaries. A total of 835 unique samples were collected during the two field seasons. DNA has been extracted from all the samples. Genotyping and preliminary analyses are complete for all samples collected in 2015. Genotyping and analysis of samples collected in 2016 will be completed in spring of 2017; including further refinement of 2015 results based on additional information provided from 2016 samples. A technical memorandum detailing the methods and results is anticipated to be available in July 2017.

Estimation of Steelhead and Spring-run Chinook salmon Habitat Capacity in the Upper Tuolumne and Upper Merced Rivers

In 2014, NMFS initiated a study to estimate the present habitat capacity for steelhead and spring-run Chinook on the Upper Tuolumne River upstream of Don Pedro Reservoir and the Upper Merced River upstream of Lake McClure. Primary investigations of the study include estimating overall amount and extent of useable habitat for steelhead and spring-run Chinook, and estimating the population sizes of steelhead and spring-run Chinook that could be supported if this habitat was accessible. The first phase of the Study will characterize the available habitat using a combination of geospatial data analysis, field work, and numerical modeling. This phase is primarily complete. The one primary exception is related to numerical modeling of estimated gravel quantity and grain size. NMFS is hoping and anticipating to utilize spawning gravel data collected by the Districts in the summer of 2016 to help calibrate / validate numerical model predictions on the Tuolumne River. NMFS is hoping this data will be made available with release of the Updated Study Report. The second phase of the Study will simulate the habitat carrying capacity as a function of habitat types and quantity, thermal suitability and an estimated species density per habitat type. This phase is ongoing and expected to be completed in late spring 2017. A technical memorandum detailing the methods and results is anticipated to be available in July 2017.