Life-history diversity of *O. mykiss* in a coastal California watershed.

Thomas H. Williams, Dave E. Rundio, and Steve T. Lindley.

Fisheries Ecology Division (Santa Cruz), Southwest Fisheries Science Center, National Marine Fisheries Service

Abstract - The Southwest Fisheries Science Center initiated a long-term study of *Oncorhynchus mykiss* in Big Creek, a small basin in the Big Sur coast of California, in 2005. Our primary goal is to develop a stage-structured population model to determine population dynamics and to assess the importance of life-history strategies to overall population viability; but a more overarching purpose of our research is to better understand the ecology of *O. mykiss* within and among coastal watersheds along the central coast of California.

*Oncorhynchus mykiss* populations throughout the Big Sur coast exhibit partial migration, however both the range of life-history tactics present and their roles in population dynamics and persistence are poorly understood. Occupancy rates and juvenile densities are relatively high in these streams despite small basin sizes and relatively high rates of natural disturbances such as fire and landslides that would be expected to lead to large variability in population dynamics and frequent local extirpations over ecological and evolutionary time scales. We suspect that life-history diversity is important to the persistence and resilience of populations in this environment.

Our research effort includes a wide range of methods and interests including biannual capture/recapture surveys, PIT tagging, diet studies, food-web studies, otolith microchemistry, genetic analyses, surveys of parasite prevalence, growth, and movement within and among watersheds.

We will review the research efforts underway, present research results to date, and present preliminary findings from many of the research activities.