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**Presentation Title: Response of *O. mykiss* to Removal of San Clemente Dam on the Carmel River, California: Results to Date and Managing Expectations.**

Abstract for the 2018 Pacific Coast Steelhead Management Meeting

In November 2015 on the Carmel River on California’s central coast, engineers removed the San Clemente Dam to address seismic risk and structural concerns. At 32 meters high, the San Clemente Dam was one of the tallest dams yet removed in the U.S. , was the largest dam removal in California to date, and was the largest dam removal in a Mediterranean hydroclimatic setting to date. Along with the dam’s seismic hazards, the dam’s demolition eliminated a barrier to fish migration and an inefficient fish ladder, which had long limited both the upstream and downstream movement by *Oncorhynchus mykiss* and the downstream movement of wood and sediment. The removal of San Clemente Dam included the construction of a re-route channel that bypassed two-thirds of the reservoir sediment. Engineers re-routed the Carmel River through a bedrock ridge that separated it from a tributary, San Clemente Creek, creating a new confluence with that tributary 700 m upstream from the former location. Through this engineering effort, only sediment in the furthest upstream third of the reservoir became available for natural transport by the river. Between 2013 and 2017, we conducted a before-after/control-impact (BACI) study to examine impacts of the dam removal on steelhead and their stream habitat. We sampled *O. mykiss* at four reaches before and after dam removal, the impact reaches were located in areas where we thought an immediate population response to dam removal was most likely.

We observed significant variability in fish abundance in the reaches examined. In the impact reaches, we observed an increase in the breadth of fish sizes and age classes as these areas of the stream shifted from rather simple, static habitats to much more dynamic and diverse habitats. Early indications from our data and other observations are that 1) adult steelhead and Pacific lamprey pass through the re-route channel and access areas upstream of the former San Clemente Dam, and 2) increased size variability of *O. mykiss* in the sampled reaches after dam removal is consistent with observations of more complex and diverse habitat conditions where previously very simplified habitat occurred. However, as with other dam removals, understanding the response of anadromous Carmel River fish populations will require more than just three years post-dam removal.