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**TOTAL DISSOLVED SOLIDS CONCENTRATIONS OF TECOLOTE CREEK, SAN DIEGO, CA:
EFFECTS ON SENTINEL AND NATIVE SPECIES**

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ABSTRACT: Identification and measurement of ionic strength as a causative agent of toxicity is difficult due to site-specific, species-specific, and ion-specific responses by freshwater biota. Additionally, concentration and composition of ionic strength (i.e., total dissolved solids or salinity) are influenced by the localized topography and geology of the drainage, atmospheric deposition, changes in land use, storm water management, irrigation, agricultural activities, industrial effluents, salting of roads, and other anthropogenic activities which can alter the associated hydrology of the watershed. The objective of these experiments was to measure potential effects of total dissolved solids (TDS) concentrations of Tecolote Creek (San Diego, CA) during dry weather on both native and sentinel laboratory species that represent the macroinvertebrate diversity and sensitivity residing within the Tecolote Creek Watershed. Serial dilutions (i.e., six concentrations) were prepared with high conductivity water ($> 5,000$ to $11,000 \mu\text{S}/\text{cm}$) collected from Tecolote Creek tributaries and diluted with reference water from Los Penasquitos Creek (approximately $300 \mu\text{S}/\text{cm}$). Toxicity bioassays with sentinel laboratory species included *Ceriodaphnia dubia* (48-h survival and 7-d reproduction), *Hyalella azteca* (48-h survival), *Chironomus tentans* (48-h survival), *Rhaphidocelis subcapitata* (96-h growth), and an *Isonychia* spp. (48-h survival) and native test organisms including both an Ephemeroptera (mayfly) and Plecoptera (i.e., stonefly) species (48-h survival). *C. dubia* reproduction was the most sensitive endpoint to increased ionic strength compared to *H. azteca* and *C. tentans* survival which was not observed to be affected in this high TDS water. Preliminary results of water chemistry and benthic community assessment will also be discussed as part of this presentation.