SCCWRP #0257

Sublethal Effects of Hydrogen Sulfide in Sediments on the Urchin *Lytechinus pictus*

Bruce Thompson[1], Steven Bay[1], Darrin Greenstein[1] & Jim Laughlin[1]

[1]*Southern California Coastal Water Research Project, Long Beach, CA*

ABSTRACT

Laboratory exposures of the urchin *Lytechinus pictus* to sediment dosed with varying concentrations of hydrogen sulfide (H_2S), but without elevated organic material were conducted Changes in mortality, behavior growth and gonad production were measured during 49 days' flow through exposures. Hydrogen sulfide concentrations of 165 * 8 uM liter^{-1} in pore water caused significant changes in all parameters measured. Concentrations as low as 32 * 9 uM liter^{-1} caused significant decreases in wet weight and male gonad production. A concentration of 91 * 8 uM liter^{-1} caused the mortality rate to increase 100-fold over control exposures (0 * 63 uM liter^{-1}). Sublethal effects on growth and gonad production could have been caused by either direct biochemical inhibition by H_2S or secondarily through behavioral modifications. Hydrogen sulfide concentrations above 165 * 8 uM liter^{-1} are common near sewage outfalls and could contribute to changes in species composition and sediment toxicity that occur there.