

## SCCWRP Annual Report 2001-02

### Stormwater toxicity in Chollas Creek and San Diego Bay, California

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#### ABSTRACT

Stormwater discharges from Chollas Creek, a tributary of San Diego Bay, have been shown to be toxic to aquatic life. The primary objective of this study was to provide the linkage between in-channel measurements and potential impairments in the receiving waters of San Diego Bay. This study addressed this objective within the context of four questions: (1) How much area in San Diego Bay is affected by the discharge plume from Chollas Creek during wet-weather conditions? (2) How much of the wet-weather discharge plume is toxic to marine aquatic life? (3) How toxic is this area within the wetweather discharge plume? and (4) What are the constituent(s) responsible for the observed toxicity in the wet-weather plume?

The stormwater plume emanating from Chollas Creek was dynamic, covering areas up to 2.25 km<sup>2</sup>, based upon measurements of salinity and turbidity. Approximately half of the plume was estimated to be toxic to marine life, based upon the results of purple sea urchin (*Strongylocentrotus purpuratus*) fertilization tests. The area nearest the creek mouth was the most toxic (NOEC = 3 to 12% plume sample), and the toxicity decreased with distance from the creek mouth. The toxicity of plume samples was directly proportional to the magnitude of plume mixing and dilution until, once outside the plume margin, no toxicity was observed. Trace metals, most likely zinc, were responsible for the observed plume toxicity based upon toxicity identification evaluations (TIEs). Zinc was also the constituent identified from in-channel samples of Chollas Creek stormwater using TIEs on the storms sampled in this study, and in storms sampled during the previous storm season.

#### Full Text

[ftp://ftp.sccwrp.org/pub/download/DOCUMENTS/AnnualReports/2001\\_02AnnualReport/23\\_ar15-ken.pdf](ftp://ftp.sccwrp.org/pub/download/DOCUMENTS/AnnualReports/2001_02AnnualReport/23_ar15-ken.pdf)