

SCCWRP #397

## **Impacts of stormwater discharges on the nearshore benthic environment of Santa Monica Bay**

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### **ABSTRACT**

Although large loads of potentially toxic constituents are discharged from coastal urban watersheds, very little is known about the fates and eventual impacts of these stormwater inputs once they enter the ocean. The goal of this study was to examine the effects of stormwater discharges on the benthic environment of Santa Monica Bay. Sediment samples were collected across a gradient of stormwater impact following significantly sized storm events offshore Ballona Creek (a predominately developed watershed) and Malibu Creek (a predominately undeveloped watershed). Sediments offshore Malibu Creek had a greater proportion of fine-grained sediments, organic carbon, and naturally occurring metals (i.e., aluminum and iron) whereas sediments offshore Ballona Creek had higher concentrations of anthropogenic metals (i.e., lead) and organic pollutants (i.e., total DDT, total PCB, total PAH). The accumulation of anthropogenic sediment contaminants offshore Ballona Creek was evident up to 2 km downcoast and 4 km upcoast from the creek mouth and sediment concentrations covaried with distance from the discharge. Although changes in sediment texture, organic content, and an increase in sediment contamination were observed, there was little or no alteration to the benthic communities offshore either Ballona or Malibu Creek. Both sites were characterized as having an abundance, species richness, biodiversity and benthic response index similar to shallow water areas distant from creek mouths throughout the Southern California Bight. There was not a preponderance of pollution tolerant, nor a lack of pollution sensitive, species offshore at either creek mouth.

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