

SCCWRP #0320

Sediment Chemistry on the Mainland Shelf of the Southern California Bight

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ABSTRACT

To understand large-scale environmental changes and the cumulative effects of multiple discharges, 248 sites on the mainland shelf on the Southern California Bight (SCB) were sampled using a stratified-random study design. Eight-nine per cent of SCB sediments were found to contain evidence of anthropogenic contamination. Eighty-nine percent of the SCB was contaminated with chlorinated hydrocarbons including total DDT (82%) and total PCB (46%). Using iron as a conservative tracer of natural contributions for eight metals of interest, 50% of the SCB was estimated to be anthropogenically enriched in at least one trace metal. Sediments near discharges from publicly owned treatment works (POTWs) and urbanized watersheds had a greater extent and magnitude of contamination than other SCB sediments. Santa Monica Bay, where numerous anthropogenic sources commingle, had significantly higher concentrations of every constituent examined relative to other regions of the SCB.

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