

Total and Organic Mercury in Benthic Organisms Near a Major Submarine Wastewater Outfall System

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ABSTRACT

This paper reports levels of mercury measured in tissues of six benthic animals representing four phyla from the vicinity of the Los Angeles County municipal wastewater outfalls off Palos Verdes Peninsula, Calif. (Fig. 1). Past studies (EGANHOUSE, et al. 1976) have shown that surface sediment concentrations in this area reach levels 10 to 100 times the measured background values found for sediments in deeper portions of cores (approximately 0.05 mg/dry kg). We made corresponding measurements on five of the same species collected from an offshore control site (Santa Catalina Island), where sediment concentrations of mercury range from 0.03 to 0.18 mg/dry kg (CHEN and LU 1974). Choice of these study areas was based on the fact that the waters off Palos Verdes Peninsula receive roughly 350 million gallons of municipal wastewater daily. The discharge of this effluent has led to a localized buildup in sediment heavy metal levels over the years (GALLOWAY 1972; SCCWRP 1973; BRULAND, et al. 1974) such that almost four metric tons of anthropogenic mercury are now contained in the upper 30 cm (YOUNG, et al. 1975). In view of the potential for microbially-mediated methylation of mercury in these sediments and subsequent mobilization to benthic organisms, we included total organic mercury measurements in this survey.

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