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A comparative study of trace metal contamination in the Southern California and New York Bights

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ABSTRACT

Estimated annual inputs of trace metals to the New York Bight are from four to thirty-four times higher than those for the Southern California Bight. Typical seawater concentrations of dissolved and particulate metals in major harbors adjacent to these regions are remarkably similar and usually are at least several times higher than those for non-contaminated control sites. However, reported concentrations of dissolved metals above the New York Bight dumpsites are sometimes one or more orders of magnitude above values measured in the vicinity of submarine municipal wastewater discharges off southern California. In contrast, sediment concentrations of metals around the two major southern California outfalls are from two to five times higher than those at the New York dumpsites for dredged materials and sewage sludge. Metals levels in flocculent material inshore of one California outfall often are an order of magnitude above those at control sites; such particulates may be a significant vector for metals contamination of filter- and deposit-feeding invertebrates in this discharge zone. However, it is not known yet whether elevated tissue burdens are damaging to invertebrates from the vicinity of the outfalls. Fishes from the same area exhibit little or no metals contamination of their tissues; a similar finding is reported for the New York Bight. With the exception of mercury, concentrations of target trace metals do not appear to increase with trophic level in marine food webs.