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Concentrations of methyl-*tert*-butyl ether (MTBE) in inputs and receiving waters of Southern California

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ABSTRACT

The occurrence and concentration of methyl-*tert*-butyl ether (MTBE) was measured in dry-weather runoff, municipal wastewater and industrial effluents, and coastal receiving waters in southern California. MTBE was detected in the effluents of refineries and publicly owned treatment works (POTWs) discharging to coastal waters in southern California. Combined, these point source discharges release approximately 214 kg/day of MTBE into the marine environment. Santa Monica Bay receives most (98%) of the MTBE discharged from point sources, with the majority from POTW effluent discharges. This situation is the result of most refineries in Los Angeles County discharging wastewater to the municipal sewer system, rather than through industrial outfalls. Dry-weather urban runoff was analyzed for samples collected from 25 streams and rivers. Dry-weather stream flow accounted for less than 0.5% of the mass of MTBE discharged to coastal waters. The amount of MTBE contributed by stormwater discharges was estimated to be approximately 5% of the amount discharged by point sources. Receiving water samples were collected from 23 stations in Santa Monica Bay, Los Angeles Harbor, Mission Bay, and San Diego Bay. MTBE was detected at low concentrations near effluent discharges; however, no evidence was found of bay-wide MTBE contamination related to these outfalls. Marinas and areas used intensively for recreational boating had the highest average MTBE concentration (8.8 mg/L). Surface water contamination was most widespread in San Diego Bay and Mission Bay, areas with no refinery or POTW inputs.

Full Text

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