

EXECUTIVE SUMMARY

Sediment chemistry studies at the Massachusetts Bay Disposal Site (MBDS) have concentrated on the interim disposal area, established in 1977. Prior to the establishment of the interim site, materials may have been released at the site that were more contaminated than those currently being disposed. A survey conducted during June 1989 sampled areas within the MBDS suspected to contain contaminated sediments, and identified potential areas to be capped by future disposal of sediments that are suitable for open ocean disposal.

Sediment samples were taken at twenty-six stations within, or adjacent to, the western half of the MBDS. This area overlaps the old Industrial Waste Site. Samples were analyzed for both trace metal and organic contaminants.

Results of samples from the June 1989 survey showed that contaminant concentrations were primarily influenced by historical dredged material and waste disposal. The spatial distribution of chemical data, especially polynuclear aromatic hydrocarbons (PAHs), indicated that contaminant concentrations were highest along the western edge of MBDS, in the center of the historical waste site.

Concentrations of all trace metals were relatively low compared to MBDS reference areas and regional Massachusetts Bay data. Maximum trace metal concentrations were concentrated in the center of the western half of the MBDS, north of the current disposal point. Of the metals analyzed, measured lead concentrations were highest relative to regional and national coastal data.

PCBs were undetected at stations previously reported to have concentrations of up to 1 ppm. The decrease in concentration of PCBs at the MBDS is possibly due to further disposal of sediments with low concentrations of PCBs; in this case below the detection limit of 20 ppb. Low levels (< 11 ppb) of pesticides (4,4'-DDE) were detected at over half of the MBDS stations. Measured concentrations were within regional ranges measured in Massachusetts Bay.

PAHs were measured above the method detection limit at only three of the twenty-six stations. However, approximately two-thirds of the MBDS stations contained estimated concentrations of PAHs. Maximum measured PAHs (versus estimated values) were present at three stations along the far western edge of MBDS in concentrations higher than those measured in relatively contaminated coastal Massachusetts Bay sediments. PAH results (total PAHs ranging from 1.9 ppm to 5.9 ppm) indicated that the western edge of the MBDS should be further investigated by site managers for receipt of capping material.