

# Quantification of Microplastics from Bed Sediments from Commencement Bay, Puget Sound Washington

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## Abstract

Microplastics (polymers <5mm) are found throughout marine and freshwater environments through pollution pathways such as storm water runoff and industrial activities. Microplastics that carry additives and harmful chemicals may cause harm to aquatic ecosystems through all trophic levels as microplastics are easily ingested. The main source of microplastics is from stormwater runoff and degradation of larger plastic pollution. Here we study microplastic abundance in bed sediment samples from Commencement Bay, Puget Sound which is a major industrial zone as well as where the Puyallup River enters the Bay. The sediment samples were provided by the Washington State Department of Ecology's Marine Sediment Monitoring Group, members of the Puget Sound Environmental Monitoring Program. Through lab analysis of the samples the abundance of microplastics was determined by size and density separations to determine the concentration of common types of plastics. Microplastics were present at every station with concentrations ranging from 135-64557 microplastics per square meter wet weight (76-28273 dry weight). 90.21% of the microplastics isolated were fibers. These results provide a baseline to compare future microplastic abundance and track changes in marine microplastic pollution.