2022 Distribution of Microplastics within Marine Sediments along Puget Sound Bays

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Microplastics (polymers < 5mm) are persistent marine debris that may have detrimental effects on organisms in the world's oceans. Microplastics in the Puget Sound, a region in the Pacific Northwest, have been explored since 2008. This project involves an ongoing collaboration with the University of Washington Tacoma and the Washington State Department of Ecology's Marine Sediment Monitoring Team. In this study, the concentration and distribution of marine sediments from samples within bays in Puget Sound were analyzed. We hypothesized that bays within proximity to increased anthropogenic activity would contain higher concentrations of microplastics. Sediment samples were prepared through a series of density separations, peroxide oxidations, and identifications using a dissecting microscope. Results showed that most microplastics were fibers (91%) and predominantly colors that were clear (44%) and white (43.4%), with an average length of 1.43mm. Concentrations of microplastics ranged from 267 - 6381 microplastics per meter squared (wet) and 140 - 4898 microplastics per meter squared (dry). The results from this study demonstrate the need for continued monitoring of these bays for potential changes in microplastic presence and their likely connection to increased anthropogenic activity.