

2023 Analysis of Microplastics in Bed Sediments of the Salish Sea in the Puget Sound

Pollution of bays and estuaries by microplastics is an increasingly pressing concern, especially in bodies of water surrounded by densely populated areas. Microplastics have been found in studied waters virtually everywhere. Microplastics are known to be vectors for harmful chemicals and can impact digestion and other physiological processes in organisms. In partnership with the Puget Sound Ecosystem Monitoring Program, quantifying the number of microplastics in the Puget Sound can give a clearer picture of the local scope of this issue. With this work, we monitored the levels of microplastics in sediments at 50 sites of the Puget Sound and related them to past levels so informed policy decisions can be made. Sediments were disaggregated and density separated to isolate plastics, then samples were examined under light microscope. Plastics were characterized by type, color, and length. Of the 50 samples, which all contained microplastics, 736 total microplastics were counted with an average of 15 plastics per sample and 1.72 mm in length. 66.3% of microplastics found were clear, 95.5% of plastics were fibers and 4.5% were films, the dominance of clear fibers being consistent with past findings. Microplastics from 5 samples were confirmed by FT-IR spectroscopy. The most abundant type of plastic found was polypropylene followed by polyethylene. Other plastics found were styrene, vinyl chloride, nylon, BBP, and poly ethyl methacrylate. Future work will involve additional sampling of the 50 sites for monitoring of pollution levels. Acquiring data on microplastic levels can aid policy makers regarding decisions that reduce pollution.