

## 2021 Microplastic Analysis of Bed Sediments in Elliott Bay, Near Seattle, WA

Olivia Kirby & Julie Masura

Due to the substantial increases in plastic use through modern living, microplastics, plastic particles smaller than 5mm, are becoming a common threat to the health of aquatic ecosystems. To better understand how microplastics accumulate and move through the environment, thirty-seven samples were collected from Elliott Bay in the Puget Sound to test for microplastic concentrations in 2021. The greatest observed microplastic type was fibers (86%), the most abundant color was clear/transparent (59%), and the most common length was <1mm (46%). When median grain size was plotted against microplastic abundance, a weak negative correlation was observed with an  $R^2$  value of 0.0218. As median grain size increased, microplastic abundance decreased. Samples with higher concentrations of microplastics were located closer to the shoreline. Microplastics were the highest east of Harbor Island and along the shoreline south of Belltown, near downtown Seattle. This may suggest that recreational areas like Pike Place Market and commercial and industrial activities in Harbor Island, could be contributing to increased plastic pollution in these areas. To make broader conclusions about locations that are more susceptible to microplastic accumulation, more samples in these areas should be collected and compared. Data and information obtained from this study could create policies for pollution prevention and development plans to decrease microplastic concentrations in Elliott Bay and the greater Puget Sound region.