ABSTRACT

Microplastics (MP) are synthetic polymers that are < 5 mm in length. They have been found in a range of aquatic environments and inside the organs of human and aquatic species. There have been a number of studies surveying waterways for MP presence and abundance using microscopic analysis, however there is limited research findings on MP polymer identification. For this project, surface water samples were collected from 5 unique sites in the Pacific Northwest, extraction was done using wet peroxide oxidation, and Fourier Transformed Infrared (FTIR) spectrometry was used to identify the polymers. Microplastics were found in all 5 sites, with the dominant polymer being polyethylene (> 65%), fragment was the most common morphology type (> 74%), black was the most common color making up at least 33% of the total composition, and the most common lengths were below 1 mm (>50%). Understanding the MP composition in surface waters can help direct policies related to reduction of plastic pollution in aquatic environments. Furthermore, knowing the chemical composition of polymers can help researchers understand how MPs influence the physiology and ecology of biota. Future research should investigate if spatiotemporal variables influence the results.