

Analysis of Microplastics on St. Simons Island, Georgia, USA

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Plastic particles of many shapes and sizes are currently wreaking havoc on aquatic ecosystems across the globe. Although research behind this field of study is still developing, larger pieces of plastic often degrade into microscopic pieces 5 millimeters or smaller in length. These particles have been termed “microplastics” and are very harmful to aquatic life. Because all plastic is extremely durable and easy to manufacture, microplastics are very prevalent in waterways and oceans. The goal of this study is to analyze the prevalence of microplastics in both sediment and water samples from the coastal area of St. Simons Island, Georgia. This area is a large attraction to tourists where significant human activity occurs, and it is expected that this area will contain a high concentration of microplastics. Water samples were collected in sampling bottles, and sediments were obtained at several sites across the island in January of 2019. Sediments were dried and 100 g of the sample was mixed with 250 milliliters of salt solution and left to settle for 2 hours. Both sediment and soil samples were then vacuum filtered through 55 mm filter paper and assessed under dissecting microscopes, and microplastics were identified using a microscope and based on methods published in literature. Initial findings on the island revealed that water samples contained 2-9 microplastics per liter of water, and soil samples containing 3-20 microplastics per gram of soil. The highest quantity of microplastics was discovered in sediment samples rather than water samples. The most microplastics were found in environments in close proximity to beaches implying that sand might be accumulating the plastics and in the future act as hot spot sources. Research is currently being continued to determine change over time and whether seasonality also impacts the prevalence of microplastics in this area.