

## **Mapping Microplastics in Georgia's Estuaries: Engaging the Citizen Scientist**

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Marine micro-plastic (particles smaller than 5 mm in length) pollution is a recently recognized, and growing, threat to the environment. Microplastic particle estimates number in the trillions, and are undersampled in many ecosystems worldwide. Also, public interest in the issue is high and growing. A primary challenge in mapping microplastic concentrations is collecting and processing samples in a manner that minimizes contamination, and in collecting enough samples to obtain statistically-relevant data. The challenge is especially acute in coastal ecosystems, where the interplay between human activities, tides, currents and ecosystems makes for a very heterogeneous distribution of microplastics. Our initial efforts in mapping microplastics in Georgia's intercoastal estuaries indicate the presence of a trillion or more microplastic particles in the region, primarily of the microthread category. However, spatial heterogeneity was high, with counts ranging from zero to over 80 microplastics per 4 l sample. In order to increase both spatial and temporal sampling of microplastics in Georgia's 100 mile (160 Km) coastline, we have engaged interested citizen-scientists and other environmental groups in collection efforts. These groups range from Riverkeepers (who monitor the health of specific river ecosystems within Georgia), boating and fishing enthusiasts, and volunteers with an interest in helping to understand the level and types of microplastics in their local environments. After training in clean sampling protocols, these citizen-scientists are outfitted with kits that allow them to collect from locations near their homes, and process the samples to the point where they can be collected in vials and transported to our main laboratory in Savannah. In addition, we are working with educators to transfer the information we collect to the K-12 community, and building an understanding of the distributions and likely sources of microplastics in Georgia's waters that can then be relayed back to the public and other stakeholders.