

---

# 7-21 - Booth No. 55: CHARACTERIZATION and QUANTIFICATION OF MICROPLASTICS AT CORAL GARDENS and ROCKY POINT, BELIZE



Thursday, 20 March 2025



8:00 AM - 12:00 PM



*Shenandoah ABC (Hotel Madison & Shenandoah Valley Conference Center)*

---

## Booth No. 55

---

### Abstract

---

Microplastics are emerging contaminants found in water, sediment, air, and even animal tissues. Multiple studies have shown microplastics can be carriers of trace metals, contaminants that typically come from manufacturing or other urban sources. This study aims to quantify and characterize microplastics within Coral Gardens, which was a refugium for endangered *Acropora cervicornis* corals prior to a mass mortality event in 2023. Coral Gardens is off the coast of San Pedro, Belize, a town in Ambergris Caye that has many dive shops and fisheries. For comparison, another site in Ambergris Caye called Rocky Point was selected due to the substantial accumulation of macroplastics, the result of the reef crest intersecting with the island, creating a funnel for debris and trash onto the shore. Water samples were collected at both sites using 363  $\mu\text{m}$  and 180  $\mu\text{m}$  mesh plankton nets that were cast and dragged  $\sim 6$  m lengths 20 times. 20 water samples of 50 mL each were also collected for trace metal analysis using inductively coupled plasma mass spectrometry. Sediment samples were collected by inserting test tubes into sediment approximately 5 cm deep. Sediment samples were sieved into four size fractions (4.75 mm, 2.00 mm, 212  $\mu\text{m}$ , and 38  $\mu\text{m}$ ) prior to hydrogen peroxide digestion. In addition, dead coral from Coral Gardens was scraped to isolate algae, which were digested for organic matter using hydrogen peroxide. Each water, sediment, and algal sample was then density separated followed by microscopic analysis and microplastic categorization. Identified plastics were extracted when possible, and polymers were classified using Fourier transform infrared spectroscopy. Sediment samples from Rocky Point were found to have an average of  $5 \pm 4$  microplastics per  $27.5 \text{ cm}^3$  following blank subtraction and will compare these results to those of Coral Gardens. We aim to better characterize the distribution of microplastics from shoreline sediment, offshore sand, and water in this coral reef environment.

---

Geological Society of America Abstracts with Programs. Vol. 57, No. 2, 2025  
doi: 10.1130/abs/2025SE-408830

© Copyright 2025 The Geological Society of America (GSA), all rights reserved.

### Author

---



**Kylie Therrien**  
Washington and Lee  
University

## Authors

---



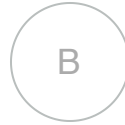
**Margaret Anne Hinkle**  
Washington and Lee  
University



**Lisa Greer**  
Washington and Lee  
University



**Astrid Schurr**  
Washington and Lee  
University



**Alessandra Baz-Aguilar**  
Washington and Lee  
University



**Adrienne Krone**  
Beloit College



**Alicia Gonzalez**  
Washington and Lee  
University



**Ariel Strubel Iram**  
Pitzer College



**Sofia Garza**  
Trinity University



**Cheyenne Wentz**  
College of Wooster



**Karl R. Wirth**  
Keck Geology at Macalester  
College

---

## View Related

---

---