EEL - Environmental Engineering Lab
Dr. Helena Solo-Gabriele's Research Group

COVID-19 and Beyond
Wastewater Project

Ayaaz (Johann) Amirali, Matthew Roca, Shruti Choudhary (Dr. Biswas). Collaborators from UM Medical campus, Weill Cornell Medicine, Phase Genomics, and Yale University

UM and Weill Cornell Medicine (WCM) collaborated to deploy an extensive human surveillance testing, tracking and tracing system for monitoring SARS-CoV-2 on campus. The goal of the study was to generate, optimize, and compare SARS-CoV-2 human and wastewater surveillance with the aim of developing predictive models. This work has since been expanded to evaluate vectorborne disease through wastewater.
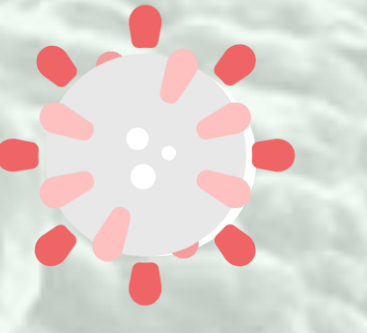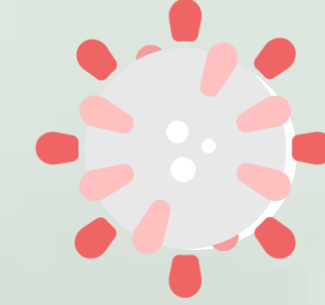
D.I.R.T
Dust Ingestion childRen sTudy

Dr. Maribeth Gidley, Cristina Fayad Martinez, Matthew Roca, Elizabeth Gabriele, Sofia Suarez Barajas, Annabella Cordovez, Ryu Nitta, Kat E. Arista

Dust is a heterogenous mixture and a significant repository of various harmful chemicals. Because of its tendency to adhere to surfaces including skin, children are at risk of contaminant exposure due to their play behaviors. In collaboration with North Carolina Agricultural and Technical State University, and the University of Arizona, the University of Miami collects and analyses dust samples (e.g., particle size, mass) to be used for ingestion rate estimates.

SARGASSUM
Arsenic Risks

Brittany Mc Intyre, Afeefa Abdool-Ghany, Melanie Cerna, Isabela Puente.

Impacts on Air Emissions and Microbes

Collaboration with Dr. Jiayu Li's research group (Shahar Tsameret, Nohhyeon Kwak) and Dr. Helena Solo-Gabriele's Team (Brittany, Rivka, Sofia Hoffman, Isabella J. Tavarez).
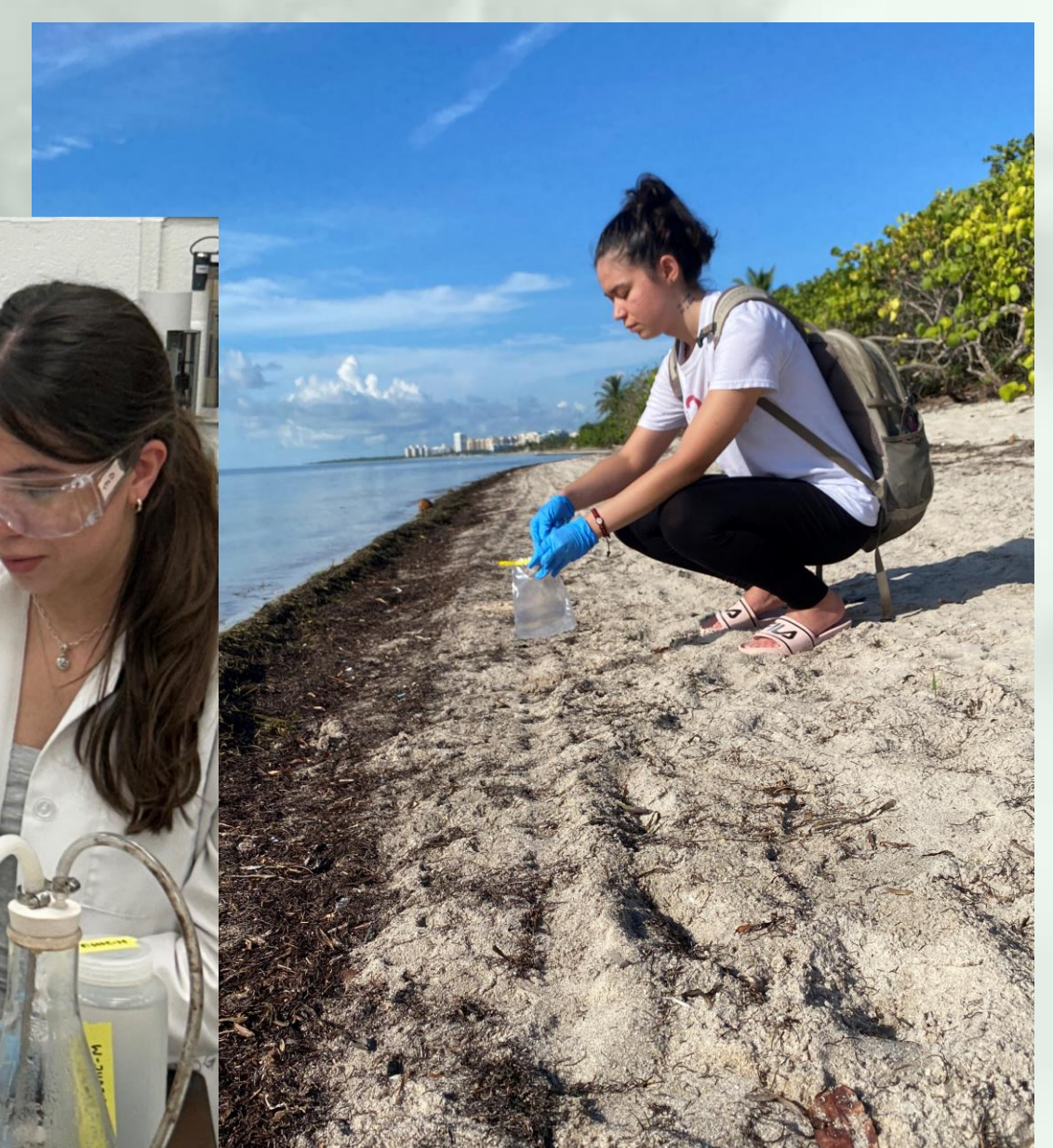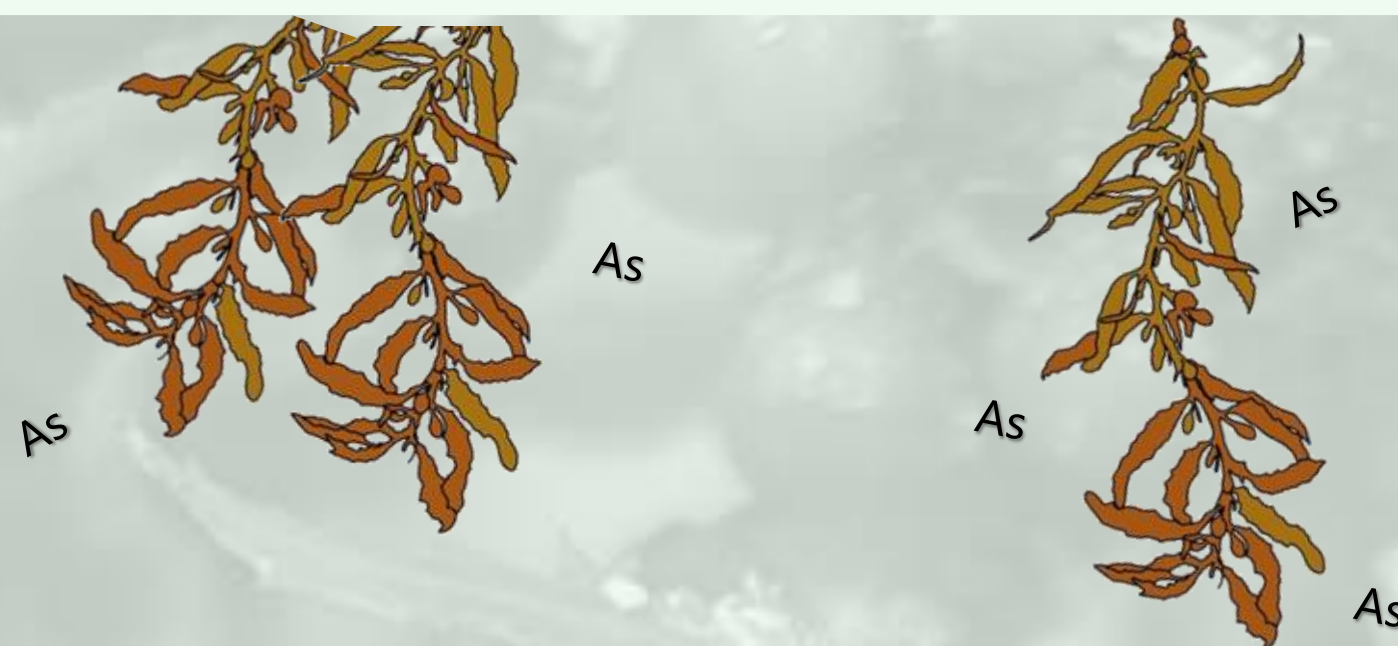
Our research examines elevated arsenic levels in sargassum seaweed on Florida and Caribbean beaches, evaluating associated environmental and human health risks. Currently, we focus on children's exposure to arsenic during beach activities, aiming to establish a safe exposure range. In the future, we plan to extend our study to Caribbean farmers, assessing risks through arsenic species identification and comprehensive risk assessments.
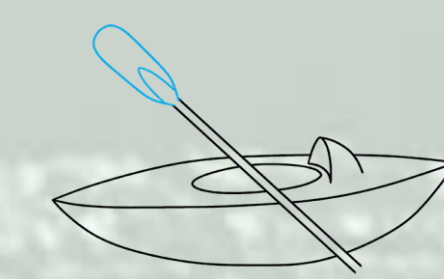
MIAMI BEACH
Enterococci Measurements at the PVC

Ayaaz (Johann) Amirali M.S., Cristina Fayad Martinez M.S., Aarohi Talati, Diego López Oranday, Larissa Montas Ph.D., Isabela Puente, Rivka Reiner, Matthew Roca

This study is a follow up to the University of Miami initial study, conducted during 2022, aimed at identifying the source of enterococci to the Parkview Canal (PVC) located in Miami Beach, Florida. Groundwater and stormwater samples were collected and analyzed for physical-chemical parameters and for enterococci by culture using the most probable number (MPN) method. This also included the analysis of five genetic markers to identify the probable source of enterococci.