# Project ID: 25-15

Characterizing foraminifera, an environmental indicator, in Rhode Island's salt marshes

## Mentor(s)

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## **Location**

University of Rhode Island

### **Abstract**

Foraminifera are important environmental indicators and have been frequently used for assessing environmental health. However, little is known about the abundance and distribution of benthic foraminifera in Rhode Island's coastal environment. In this project, we aim to establish an inventory of local foraminifera using microscopic imaging and molecular biomarker sequencing. Students will gain hands-on experiences in field sampling, microscopic imaging, and various molecular techniques such as DNA extraction, PCR, and sequencing. This study will provide a deeper understanding of morphological and biomarker diversity of foraminifera populations in coastal Rhode Island. The establishment of a wellcurated inventory across different field sites will bring insights into the future applications using foraminifera as environmental indicators.

### **Project Objectives**

Benthic foraminifera are important "environmental sentinels" and are used for the long-term monitoring of ecosystems health. They are reliable indicators of anthropogenic stressors and have been frequently used for the monitoring of organic overloading, sea water intrusion, and sea level rise. However, the diversity and distribution of benthic foraminifera in Rhode Island's coastal environment is largely unknown, limiting their applications in the formulation of an environmental index. This SURF project will fill an important gap in our understanding of local benthic foraminifera by providing a well curated inventory linking foraminifera morphological data with their molecular biomarkers. This inventory will contribute the future development of biomonitoring technologies for enabling the management and informing decision-makings in a blue economy.