
Forams as Observers of Anthropogenic Microplastics (FORAMS)

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Key topics: *plastic, environmental impacts, micropalaeontology*

Project description:
Microplastics are now pervasive across all corners of the global environment with very few, if any, ecosystems being able to avoid plastic becoming part of the food chain. Foraminifera (forams) are microscopic organisms that are most commonly used in Earth Sciences as a means to define a geological age or reconstruct changing environmental conditions. Today, forams are widely distributed across the global ocean and are key in marine food webs. To date, only four studies of microplastics in forams exist and all of those were conducted on benthic species, with no studies on planktic species. In order to address this gap in knowledge, the student will 1) ascertain whether and to what extent open-ocean planktic foraminifera already contain microplastics, 2) determine if there is a link between microplastic concentrations in forams to surrounding seawater and 3) determine the impact microplastics have on sinking rates of foraminifera.

Skills and knowledge gained:
The student will develop a range of skills including analytical techniques concerned with microplastic identification and quantification using both microscopy and spectroscopy (FTIR). The student will also receive training in foraminiferal taxonomy, with the possibility that the student may be able to grow live forams to test their response in microplastic contaminated waters.

Skills starting point:
This would suit those with a degree either in earth or marine sciences, geography or environmental science. A general interest in marine science, oceanography, contemporary issues such as ocean pollution. An interest in developing multiple hands-on skillsets is critical.

Suggested Further reading:
https://www.sciencedirect.com/science/article/pii/S0269749123003676
https://www.science.org/doi/10.1126/science.adl2746

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