FORAMS 2006

Hidden diversity of allogromiid foraminiferans in low-latitude environments

Andrea Habura[1,3]; Susan T. Goldstein[2]; Sarah Broderick[1] & Samuel S. Bowser[1,3]

*[1]Division of Molecular Medicine, Wadsworth Center,
New York State Department of Health, Albany, NY 12201, U.S.A.
habura@wadsworth.org; bowser@wadsworth.org
[2]Department of Geology, University of Georgia, Athens, GA 30602, U.S.A.
[3]Department of Biomedical Sciences, University at Albany,
1400 Washington Avenue, Albany, New York 12222, U.S.A.*

Foraminiferal species distribution and richness is usually judged by examining tests (Sen Gupta, 1999). It has long been known that some groups of foraminiferans, particularly the allogromiid taxa, are not easily identified in this manner (Gooday, Bowser & Bernhard 1996; Pawlowski *et al.* 2002). Previously, an environmental DNA study was used to explore the comprehensiveness of morphological sampling methods. This analysis showed that in a deep-sea-like high-latitude environment (Explorers Cove, Antarctica), at least 75% of the foraminiferal species present were not identified by traditional techniques, and most of these "hidden" species were allogromiids (Habura *et al.* 2004).

In order to investigate whether this domination of the foraminiferal assemblage by allogromiids is a feature of high-latitude environments alone, we used a series of targeted DNA-based surveys and allogromiid-focused morphological searches at several locations along the US eastern seaboard. Both methods of survey revealed the presence of large numbers of new allogromiid taxa. Morphological screens and specific PCR primers targeted against particular foraminiferal clades also documented substantial differences in the allogromiid assemblage between the locations. The fact that these low-latitude sites exhibit considerable cryptic allogromiid diversity has significant implications for nutrient cycling in the benthos and reconstruction of paleoenvironments.