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## **The Distribution of the Xenophyophore *Syringammina fragilissima* in the Northeast Atlantic and its Influence on the Diversity of Bathyal Foraminiferal Assemblages**

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Xenophyophores, giant, agglutinated rhizopods, are an important component of deep-sea assemblages. The first xenophyophore to be described, *Syringammina fragilissima*, has been recovered only rarely, however, due to the delicate nature of its test, although it appears to be common at bathyal depths in the NE Atlantic. Here, we discuss its distribution and ecology around the Darwin Mounds, an area of carbonate mounds at approximately 1000m depth in the northern Rockall Trough. From seafloor video footage it is evident that *S. fragilissima* was particularly abundant downstream of the mounds, where it reaches abundances of up to approximately 7 individuals m<sup>-2</sup>, although it is not apparent what proportion of these were alive.

We investigated the role of *Syringammina fragilissima* in providing microhabitats for other foraminifera by staining and then carefully dissecting four dead tests. The abundance and species richness of foraminiferal assemblages associated with the xenophyophores were much higher than in the surrounding sediment, suggesting that *S. fragilissima* tests substantially enhance the biodiversity of benthic assemblages in the area, although the distribution of species between xenophyophores was very variable. Several foraminiferal species were particularly abundant inside the tubular branches of the xenophyophore tests. Live specimens of the rotaliid *Chilostomella elongata* were common in one test, although it was absent from the surrounding sediments. Similarly, very high numbers of a small allogromiid (?*Cylindrogullmia* sp.) occurred within another test. In both these cases, the foraminifera were associated with dark grey, fine-grained sediment that may represent the decayed remains of stercomata. In addition, several species of allogromiids and saccamminids lived within the remains of the xenophyophore granellare system, where they may have been grazing on bacteria associated with decayed protoplasmic remnants. For certain species the *Syringammina* tests therefore offer a protected infaunal microhabitat.

**Keywords:** NE Atlantic, Xenophyophore, *Chilostomella*, allogromiids, biodiversity