

## **Living and dead benthic foraminiferal assemblages from bathyal environment in the Pontine Archipelago (Tyrrhenian Sea, Italy)**

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The western Pontine Archipelago (Tyrrhenian Sea, Italy), located about 30 km away from the Italian Peninsula, is composed of three volcanic islands (Ponza, Palmarola and Zannone). Sedimentological and micropaleontological characterization of the infralittoral and circalittoral zones in the Pontine Archipelago was already been studied, whereas it is lacking for deeper environments. The present study shows the preliminary micropaleontological results carried out on samples collected in the bathyal zone (at 500 mwd) in the Ventotene basin.

Sediment samples, high resolution multibeam bathymetry, biological and video data were acquired in order to characterise both the morphological and biological features of study area, during the research cruise "BOLLE 2014" carried out on June 2014 aboard to the R/V Urania. Sediment samples were collected with a multi-corer, that allowed sampling of the upper decimetre of the sediments column. Successively, each core was sliced horizontally every 1 cm from the top to the bottom. For micropaleontological analyses, all samples were stained with Rose Bengal to distinguish living and dead assemblages. For each interval of the core all living specimens and 200 dead benthic foraminifera were classified and counted. Diversity index ( $\alpha$ -Fisher, Shannon indices) and Faunal Density (specimens/gr) were calculated to define the structure of the assemblage.

A variable number of living benthic foraminifera (Rose Bengal-stained) were found in all core-intervals (7-155 tests), with the Faunal Density ranging from 3 to 82 specimens/gr. A total of 77 species are recognised from living benthic foraminiferal assemblages, with a range of 4-31 species found in each core-interval. The  $\alpha$ -Fisher index ranges between 3.88 and 43.45, whereas Shannon index shows a more limited variability (1.28-2.92). Among the living foraminifera, calcareous imperforate tests are very abundant, with percentages ranging between 33.3 and 100%; perforate species are subordinate (0-66.7%), whereas agglutinated foraminifera are substantially absent. *Biloculinella depressa*, *Biloculinella labiata*, *Miliolinella subrotunda* and *Quinqueloculina pygmaea* are the more abundant species.

As regard the dead assemblages, the Faunal Density is really high (1733-6273 specimens/gr). A total of 89 species were classified, with a range of 42-52 species in each core-interval. The  $\alpha$ -Fisher index shows values from 14.21 to 22.06 while Shannon index ranges between 2.92-3.31. In the dead assemblage, perforate taxa are very abundant, with percentages between 74.0 and 85.5%. In this case, imperforate (12.3-18.6%) and agglutinated (1.0-7.4%) tests are accessories. *Bulimina marginata*, *Cassidulina carinata*, *Cassidulina crassa*, *Globocassidulina subglobosa* and *Uvigerina mediterranea* are the main constituent of benthic assemblage.

In conclusion, miliolids dominate in the living assemblages while calcareous perforate taxa are more abundant in the dead assemblages.