



## **Benthic Foraminifera as indicators of environmental changes in the central Adriatic Sea**

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Temporal and spatial distribution of benthic foraminiferal (paleo)communities can be used to reconstruct changes in the trophic state and the sea-floor oxygenation. Variations in the abundance and distribution of different benthic foraminiferal taxa from the Adriatic Sea have been intensively studied over the last 20 years leading to the definition of general bioprovinces, microhabitat preferences and relationship with changes in major environmental parameters also on a seasonal base.

In this study we present data on lateral changes in living (Rose Bengal stained) and dead assemblages over a shallow water depositional setting off Ancona. Box cores were collected on February 1997 at different 16 stations organized in five bathymetric transects at depths ranging from 11 to 64 m.

The box cores were sliced in 1-cm intervals and the samples washed over a 63  $\mu\text{m}$  sieve.

$^{210}\text{Pb}$  activity-depth profiles are used to determine sediment accumulation rates and to have a chronological control.

Though with differences in abundance and composition from site to site, assemblages are in general dominated by calcareous-hyaline species, particularly by several various species of *Elphidium* (*E. advenum*, *E. decipiens*, *E. granosum*, *E. jenseni*) and *Ammonia* (*A. parkinsoniana*, *A. perlucida* and *A. toepida*). *Textularia sagittula*, *T. agglutinans* and *Eggerella* spp. are the most abundant agglutinating taxa. The distribution of these species is dominantly correlated with depth and depth-related environmental variables (e.g. trophic state and oxygenation) reflecting a more general pattern controlled by basin-wide circulation and redistribution of Po River sediment and nu-

trient discharge. Our data allows us to identify also a local pattern perpendicular to the coastline interpreted to reflect organic matter blooms induced on surface waters by nutrient-rich fresh waters discharged by the Esino and Musone rivers.

In this complex, but linear framework of distribution, outstanding changes in abundance and composition of benthic foraminiferal assemblages are observed at a station near the Falconara Marittima oil-refinery, which is characterised by a marked decrease in species diversity associated with the presence of opportunistic taxa. This characters, together with the absence of living specimens in the same station, are suggestive of remarkable conditions of environmental stress, likely reflecting pollution derived from the intense industrial activity over the nearby coastal area.