The riverine inflow has generally a strong influence on the neighbour continental shelf because of the sediments, nutrients and detritus input that may produce anoxic or disoxic conditions at the sea bottom, especially in the areas of organic-rich, fine-grained sediments. Benthic foraminifera are useful proxies for evaluating the development of marine eutrophication and, eventually, its intensification due to anthropogenic factors like agriculture and wastewater disposal. Normally, well-defined benthic assemblages characterise these environments, showing a typical zonation corresponding to increasing stress degree. Assemblages with low diversity and high percentages of opportunistic species mark high levels of environmental stress. Moreover, the distributional patterns of benthic assemblages may be considered like a tool for the comprehension of the past and recent sedimentary processes.

The vertical distribution of benthic foraminiferal assemblages has been studied in nine cores collected near the Ombrone River mouth, on the delta body and in the neighbour area, in order to describe the temporal changes of the eutrophication degree. Seven cores were collected on a transect, from coast to off-shore, in correspondence of the river mouth, while two cores were sampled on the continental shelf, as a witness of assemblages scarcely or not at all influenced by the fluvial run-off. They were collected, during two long cruises, by the Urania oceanographic vessel in 1993 and 1996 in the ambit of the “Ombrone project”, an important interdisciplinary project promoted by the National Research Council (CNR) and by the University of Rome “La Sapienza”, aimed to reconstruct the paleoenvironmental and paleogeographic evolution during last climatic/eustatic semi-cycle. This area was selected for three main reasons: the presence of a small delta that includes all the typical morpho-depositional elements of larger delta complexes; the basin is well protected by external influence for its geographical setting; large part of the Ombrone River drainage basin is not conditioned by human activity for the presence of the “Uccellina” natural park.

The statistical analysis (PCA and R-mode CA) performed on the quantitative results singled out the main environmental features that characterise the semi-enclosed basin in which the Ombrone River runs off. The organic matter is the most important ecological parameter that conditions the distributional patterns of foraminifera while factors linked to water-depth are of secondary
importance. The fine-grained belt corresponding to the prodelta area shows a strong eutrophication, evidenced by the densely populated assemblage dominated by the opportunist *Valvulineria bradyana*. Such assemblage marks the most stressed area for the disoxic or anoxic episodes at the sea bottom that receive the highest amounts of organic matter through irregular inputs. This model well reflects one of the two sediment dispersion mechanisms ("long-term" and "single-event dispersion") supposed for the Ombrone River (Tortora, 1999). The organic matter is mainly deposited on the prodelta, bypassing the delta front, transported by the “single-event dispersion”. Such depositional mechanism develops in conditions of calm-seas, when the fluvial plume can extend offshore.

No important temporal changes of benthic assemblages are recorded in the cores located along the transect. One core from the southern continental shelf shows a fair development of the deep infaunal microhabitat in the lower part, while in the upper part the shallow infauna prevails. This difference testifies the raising of the redox surface from the deep sediments towards the sediment-water interface, due to the increased supply of organic matter. As the dispersion of fine sediments is conditioned by the interplay of sedimentary feeding, geostrophic currents and coastal morphology, a change of one or more of these elements may be supposed, with the consequence of such faunal shift. Soon, detailed studies on the sedimentary rates in the Ombrone basin will be available and will give some time references of the cores.

Foraminifera of the Adriatic Sea have recorded a steadily increasing of nutrient load due to the anthropogenic eutrophication since 1930 (Barmawidjaja et al., 1995). In the Ombrone basin, in spite of the intense agriculture interesting the Grosseto plain, no important signals of human pollution are evident, testifying the present good ecological health of the coastal marine areas.

**References**
