

TITLE: “ForaNISTIS: Foraminiferal Non-Indigenous Species in the Tyrrhenian and Ionian Seas”

Description: The project concerns the issue of biological invasions in the Mediterranean Sea and is mainly focused on benthic foraminifera. It aims at filling the knowledge gaps on foraminiferal non-indigenous species (fora-NIS) in the western Mediterranean Sea in order to obtain the first comprehensive baseline on the occurrence, abundance and distribution of fora-NIS (in particular the highly invasive species *Amphistegina lobifera* Larsen, imaged below) in an area so far poorly investigated and, consequently, to establish high-resolution prognostic scenarios, understand the future dynamics of fora-NIS spread, as well as to assess the possible impacts on native microbiota. For the first time, the dynamics of fora-NIS invasion processes in the Tyrrhenian and Ionian longshore areas is reconstructed through the micropaleontological analysis of historical sediment records (sediment cores) containing fora-NIS.



Methods:

- a) Collection of bottom sediment samples from longshore localities in the Tyrrhenian and Ionian Seas (6-8 replicates per locality).
- b) Quantitative analysis of foraminiferal assemblages from bottom sediment samples in order to check for the presence/absence of fora-NIS and assess the absolute and relative abundances of foraminiferal species as well as the ratio between non-indigenous and native foraminifera.
- c) Collection of sediment cores from those localities where fora-NIS are known to occur and quantitative analysis of foraminiferal assemblages from core sediment samples.
- d) Dating of the sediment cores through radiometric methods (fallout of the radiogenic isotope ^{210}Pb) in order to chronologically constrain the first occurrence of fora-NIS in the investigated areas, to assess the progressive phases of colonization and the subsequent impacts on native habitats.

Working group and collaborations: The project is developed by the Department of Earth and Environment Sciences of the University of Pavia (N. Mancin-Project manager, Agnese Marchini and Jasmine Ferrario) in collaboration with different national and international University and Research Centres such as: the University of Malta (P.J. Schmebri, J. Evans), the University of Bonn (M. Langer), the University of Palermo (A. Caruso) and the Marine Environment Research Centre-ENEA (C. Lombardi).