P3.18

Beta diversity in coastal macroinvertebrate assemblages from the semi-enclosed harbor area of Trieste (northern Adriatic sea).

Federica. NASI[1], Ida Floriana ALEFFI[2], Nicola BETTOSO[2], Lisa FARESI[2], VIVIANNE SOLÍS-WEISS[3]

[1]Istituto di Oceanografia e di Geofisica Sperimentale-OGS, Italy. [2]Regional Environment Protection Agency-ARPA-FVG, Italy. [3]Instituto de Ciencias del Mar y Limnología, UNAM, Mexico

Abstract

We analyse the diversity of benthic macrofaunal assemblages collected during the last 20 years in the Port of Trieste which is subjected to industrial and other anthropogenic pressures that lead to high accumulation of contaminants. With the assessment of α (Shannon 'diversity) and β (BD_{area} and BD_{total}) diversities, and the Species Contribution to Beta Diversity (SCBD), we can understand the biodiversity conservation of the local macrofaunal communities influenced by contaminants. We analysed these assemblages from two macrosites, characterized by different anthropogenic pressures: the 'industrial plants' site, with 6 stations which corresponded to the heavy contaminated part of the port, whereas the less impacted stations (4 in total) were gathered in the 'residential' microsite. The abundance ranged from 996.2±558.0 to 1507.2± 705.9 ind. m^{-2} at the 'industrial plants' site and 'residential' one, respectively. For α diversity, a low value (H'=3.7±0.6) was observed at the heaviest contaminated area, whereas the highest diversity was noticed at the 'residential' one (H'=4.6±0.5). The two areas significantly differed in terms of total number of species, H' and species composition. BD_{total} was equal to 0.73, whereas the values of each area varied from BD_{area}=0.62 in the 'industrial plants' area to BD_{area}=0.67 in the 'residential' one. Surface deposit feeders (SDF) contributed to the highest SCBD values, indicating that SDF strongly influenced the β diversity in two microsites. However, in the 'industrial plants' area, we observed the highest contribution of SDF to SCBD, whereas, in the 'residential' one, a more balanced role of other feeding guilds contributing to β diversity was noticed. In the 'industrial plants' area the presence of contaminants might have influenced the local (α) and regional (β) diversity. Furthermore, the high contribution of SDF to SCBD could be linked to the presence of stress-tolerant species that are mostly deposit feeders.

Keywords

benthic assemblages, Beta Diversity, port of Trieste, industrial pollution