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Bioecological Assessment of Cage Farming on the Soft Bottom Benthic Communities of the Vlora Gulf (Albania)

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Abstract : Most of the fishing areas of the Mediterranean Sea are considered to be overfished, consequently fishing has decreased or is static. Considering the continuous increase in demand for fish, the option of aquaculture production has had a growing development in recent decades. The environmental impact of aquaculture in the marine ecosystem has been a subject of study for several years in the Mediterranean. In the case of the Albanian waters, and in particular the Gulf of Vlora, have had a progressive growing of aquaculture activity in the last twenty years. Given the convenient and secluded location for tourist activities, the bay of Ragusa was considered as the most suitable area to install the aquaculture cage system for the breeding of sea bass and sea bream. The impact of aquaculture in on the soft bottom benthic communities has been assessed at the biggest commercial fish farm (Alb-Adriatico Sh.P.K) established in coastal waters of Ragusa bay 30–50 m deep, in the southern part of the Gulf of Vlora. In order to determine if there is a possible impact on the aquaculture cage in benthic communities, a comparative analysis was undertaken between transects and samples with differences in distances between them and with a gradient of distance from the fish cages. A total of 275 taxa were identified (1 Foraminifera, 1 Porifera, 3 Cnidaria, 2 Platyhelminthes, 2 Nemertea, 1 Bryozoa, 171 Mollusca, 39 Annelida, 35 Crustacea, 14 Echinodermata, 1 Hemichordata, and 5 Tunicata). The anaysis showed three main habitats in the area: biocoenosis of terrigenous mud, residual areas with Possidonia oceanica and also residual assemblages of algal coralligenous. Four benthic biotic indexes were calculated (Shannon H ’, BENTIX, Simpson's Diversity and Peilou’s J’) also benthic indicators as total abundance, number of taxa and species frequency to evaluate possible ecological impact of fish cages in Ragusa bay.

Keywords : Bentix index, Benthic community, invertebrates, aquaculture, Raguza bay
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