

FEEDING GUILD COMPOSITION OF A GASTROPOD MACROBENTHIC COMMUNITY IN THE NORTH AEGEAN SEA

Irini Tsikopoulou^{1*}, Chryssanthi Antoniadou¹, Eleni Voultziadou¹ and Chariton Chintiroglou¹
¹ Department of Zoology, School of Biology, Aristotle University of Thessaloniki - etsikopo@bio.auth.gr

Abstract

The aim of this study was to examine temporal changes in feeding type composition of a macrobenthic gastropod community in Thermaikos Gulf, north Aegean Sea. Throughout the sampling period a gradual increase in the abundance of carnivores was observed, which implied a natural or anthropogenic disturbance in the area during the study period.

Keywords: Aegean Sea, Gastropods, Mollusca

Introduction

Hydrodynamics and other environmental parameters may induce temporal and spatial changes in feeding guilds composition in marine sediments, eventually modifying the structure of macrobenthic communities [1]. Moreover, trophic type composition of benthic mollusc communities has been used as indicator of environmental stress induced by organic enrichment [2]. This study investigates temporal modifications of macrobenthic mollusc communities in the north Aegean Sea on the basis of feeding guild composition.

Materials and Methods

Three annual samplings were carried out from summer 2001 to winter 2004. Three vertical transects along the NE coasts of Thermaikos Gulf were set up and six stations were selected for benthic macrofauna sampling using corers, at depths between 3 and 10 m. Gastropods were classified into five feeding guilds: carnivores, detritus feeders, herbivores, suspension feeders and parasitic species ([1], [2], [3], [4]). The non-parametric Kruskal-Wallis test was used to confirm or reject the null hypothesis that the distribution of each feeding type was the same during the sampling period [5].

Results and Discussion

In total, 6931 gastropods were collected and identified in 62 species. Of these, 33 were assigned to carnivores, 14 herbivores, 7 detritus feeders, 2 suspension feeders and 6 parasites. The different feeding guilds were unevenly distributed in the three sampling periods in terms of numbers of individuals and species richness (Figure 1). The abundance of carnivores increased though time ($H_{kruskal-Wallis} = 45.02$; $p < 0.01$), whereas species richness did not follow a specific pattern ($H_{kruskal-Wallis} = 65.07$; $p < 0.01$). Adversely, detritus feeders showed a decreasing trend in their abundance ($H_{kruskal-Wallis} = 59.15$; $p < 0.01$) but there was no specific pattern in species richness ($H_{kruskal-Wallis} = 32.94$; $p < 0.01$) (Figure 1). The increasing dominance of carnivores against detritus feeders might be a result of natural or anthropogenic disturbances in the sampling area [1], thus confirming the observations of Antoniadou et al. [6] who attributed such changes to the increase of organic pollution in the northern transect of the study area. In conclusion, the feeding guild composition of a macrobenthic gastropod community can be a useful tool for biodiversity studies and monitoring surveys in marine coastal ecosystems.

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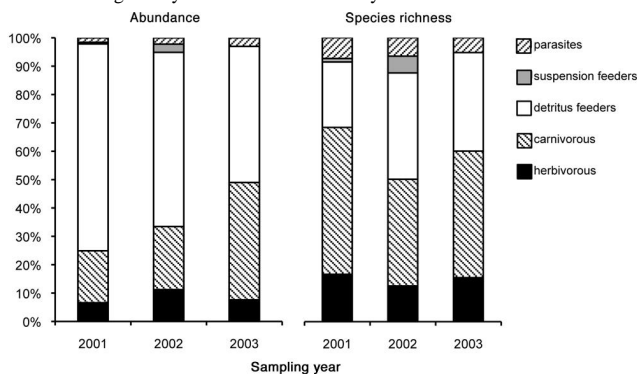


Fig. 1. Temporal variation in feeding guild composition of a gastropod macrobenthic community

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