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Organic enrichment effects on a marine meiofauna community, with focus on Kinorhyncha

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Highlights

- Organic enrichment effects on meiofauna and kinorhynchs.

Abstract

Within the framework of a programme aimed at monitoring the impact of fish farming on the marine biota, we have had the opportunity to study the effect of the organic enrichment caused by the fish farm on meiofauna abundances and Kinorhyncha communities' structure over two farming cycles. Up to now, studies on kinorhynchs have focussed mostly on the taxonomy, biogeography, and the ultrastructure, and, more recently, on the phylogenetic aspects of the taxon. Only few studies have dealt with the ecology of these creatures and studies focusing on the response of these animals to disturbances of anthropogenic origin are rare. The study took place in the Western Mediterranean and fauna was investigated based on three replicate cores collected from eight sites: one beneath the farm, four along a transect with increasing distances from the farm, and three control sites. Density data from beneath the cage and the three control sites was analysed within a beyond-B.A.C.I. (Before-After, Control-Impact) with asymmetrical sampling design, while a Before-After approach was used to analyse data from other sites. The latter approach was applied also to investigate the environmental variables from all the surveyed sites. Overall, 21 major meiofaunal groups were found in the area, with total densities ranging from 595 to 6818 ind/10 cm^2. We recorded a variation of the densities of several taxa after each cycle. In particular, we observed a significant increase of the total meiofauna and nematodes abundances, and a marked decrease of kinorhynchs diversity and density at the sites beneath and near the farming