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Response of meiofaunal communities to environmental perturbations, have been less studied than those of the macrofauna, despite of numerous advantages over it (HEIP *et al.*, 1988). Absence in meiofaunal response to seasonal anoxia (GRAY *et al.*, 1988) one can explain by less sensitivity of meiofaunal taxa, or faster recovery time in comparison to macrofauna. Heavy disturbance in meiofauna community structure, provoked by anoxic stress noted in the eastern and central part of North Adriatic, suggested the accuracy of the first possibility. Comparative analyses, carried out in November 1989, immediately after the stress detection, showed a stirring response of meiofauna to anoxic conditions. It was expressed by drastic decrease in nematodes (Ne) copepodes (Co) and total meiofauna densities, a significant increase of Ne/Co ratio, and in an expressive dominance of nematodes in relation to other meiofaunal taxa (TRAVIZI, 1990).

Recovery of meiofauna has been monitored at station SJ-005 (45° 18.4' N, 13° 08.0' E), about in the middle of the area which suffered from bottom anoxia in the autumn 1989. The station is characterized by the 30 m depth, and silty-sand sediment.

According to our results, the recovery of sediment meiofauna consumed a fairly short time, and it occurred very swiftly. Yet about six months after the stress, meiofaunal community structure showed insignificant signs of improvement. Abundance values of main groups remained fairly stable, and manifested only a very slow increase until June 1990 (Fig. 1), when total density increased nearly six times related to that of the preceding month. The Ne/Co ratio, still was distinguished by a very high value.

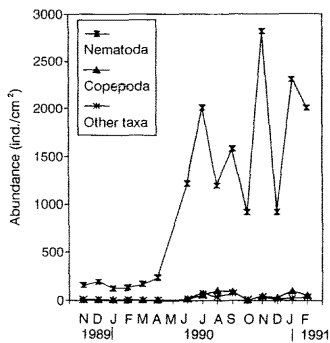


Fig. 1. Densities of meiofaunal taxa in recovery period 1989-1991.

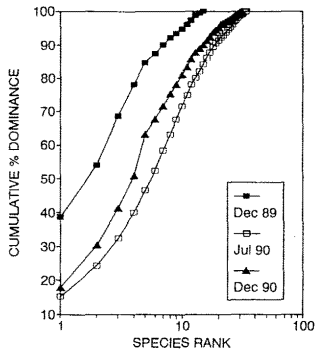


Fig. 2. Recovery steps of nematofauna associations at station SJ 005.

In July, the signs of intensive recovery were noted in nematodes, copepodes, and other taxa densities, and in decrease of percentage nematodes participation in total meiofauna. Total meiofauna and nematofauna densities increased more than 70 %, so in comparison to densities registered immediate after the stress event amounted about thirteen times higher values. Contemporary, copepoda abundance increased about ten times, while Ne/Co ratio decline from 226 to 38. In August a phase of stabilization was achieved, i.e. a phase of normal density oscillations, shortly intensified in October, when hydrographical data suggested the appearance of hypoxia. In December 1990, the oxygen depletion was not registered, but according to structural changes in meiofauna community, it seemed that hypoxia occurred, although it was less expressed, and perhaps shorter in time than one year ago.

The process of nematofauna recovery showed evolution strategy similar to that of total meiofauna. After the initial period of recovery, the species number increased more than 100%. Species dominance decline, and all diversity indices, increased and stabilized, suggested the reestablishment of dynamic ecological balance. The changes in shape and position of k-dominance curves indicate the apparent tendency to a associations recovery. According to some changes surveyed after the subsequent hypoxia appearances, the established equilibrium is not so stable to stand a test of a long-term, or an expressive oxygen depletion.

It is possible that repeated oxygen depletions, which in the North Adriatic recently increased in frequency, resulted in certain modification of benthic communities, in sense of increasing resistance toward certain levels, and duration of oxygen deficiencies. It seems that shortlived hypoxic conditions, as a slightly form of oxygen subsaturation, not significantly influence to meiofaunal community structure, and that could be espied only by repeated, monthly sampling.

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