

## B-III12

### Responses of Subtidal Meiofauna exposed to a gradient of organic pollution (Gulf of Salerno, Italy)

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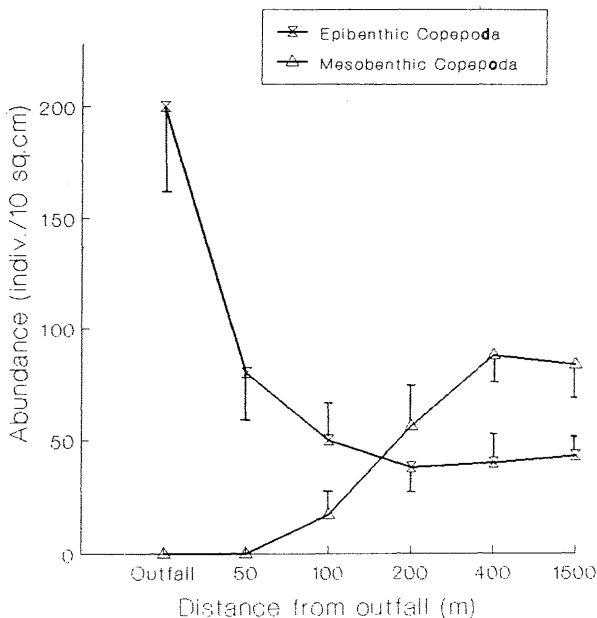
**Résumé :** Nous avons analysé la structure de la méiofaune infralittorale et les paramètres chimico-physiques du sédiment dans une zone du Golfe de Naples exposée à des rejets d'eaux usées urbaines. Nous avons remarqué des altérations biocénétiques caractérisées par les réductions de certains peuplements et l'augmentation d'autres liées aux charges polluantes.

The composition of meiofauna along an organic pollution gradient in the gulf of Salerno (Italy) was studied. Subtidal sediment samples for meiofaunal composition and physico-chemical parameters (Redox potential, particulate organic carbon, pigments) were collected quarterly at various distances from a sewage pipeline outfall at 25 meters depth. Results of the environmental analyses (Table 1) evidenciate the increasingly stressed conditions towards the outfall. Redox values are extremely low up to a distance of 50 m from the outfall and tend to increase far from it. Particulate organic carbon levels, on the other hand, are very high in proximity of the outfall and remain markedly elevated up to 100 m from it; a distinct decline is evident proceeding far away from the source of pollution.

**TABLE 1** - Mean values of environmental factors ( $\mu\text{g}\cdot\text{g}^{-1}$  sediment) measured into the sediment along a gradient of organic pollution.

Distance from outfall	Organic Carbon	Chl. <i>a</i>	Phaeop.	Redox Potential at 1 cm depth (mV)
Outfall	8765	0.27	0.91	-245
50 m	6782	1.23	1.81	150
100 m	4578	1.52	1.44	241
200 m	2374	1.88	1.38	283
400 m	748	2.03	1.57	308
1500 m	806	1.97	1.69	296

Meiofaunal data show that nematodes abundance is enhanced along a gradient of increasing organic enrichment until the environmental conditions deteriorate significantly approaching the sewage outfall, where no nematode is found. Mesobenthic and epi-endobenthic copepods (Fig. 1) showed a differential response: mesobenthic forms decrease markedly and rapidly in abundance closer to the pollution source, while the epi-endobenthic copepods increase their numbers along a gradient of increasing organic enrichment, reaching the highest densities in proximity of the sewage outfall. It is remarkable that the harpacticoid *Bulbamphiascus imus*, an opportunistic species previously recorded in organically enriched environments (Marcotte & Coull, 1974; Sandulli & de Nicola, 1990) composed over 92 % of the total copepod assemblage.



**FIGURE 1** - Mesobenthic and Epi-Endobenthic Copepods abundance along a gradient of sewage pollution. Values represent means between two replicate samples, one of which is shown as bar.

From this study it is evident that the structure of meiobenthic communities along a gradient of organic pollution, results considerably altered and possibly related to the environmental parameters considered. Moreover, the evaluation of the state of such communities may be very important to environmental perturbations assessment.

#### REFERENCES

- Marcotte, B.M. & Coull, B.C. (1974) - Pollution, diversity and meiobenthic communities in the North Adriatic (Bay of Pyran, Yugoslavia). *Vie Milieu*, 22: 281-300.
- Sandulli, R. & de Nicola-Giudici, M. (1990) - Pollution effects on the structure of meiofaunal communities in the Bay of Naples. *Mar.Poll.Bull.*, 21: 144-153.