

THE HYPERBENTHIC FAUNA OF THE  
BELGIAN CONTINENTAL SHELF:  
SPATIAL VARIABILITY  
IN COMMUNITY STRUCTURE

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Vlaams Instituut voor de Zee  
Flanders Marine Institute

Ann DEWICKE and Jan MEES

The hyperbenthos of the Belgian coastal waters, the Westerschelde estuary and part of the Dutch delta was sampled within a 2-week period at 41 locations in the summer of 1993 (figure 1). At each location sampling was done at two depth strata, covering all major sandbanks in the area, and the gullies separating them. Sampling depth ranged from 6 to 40 meter.

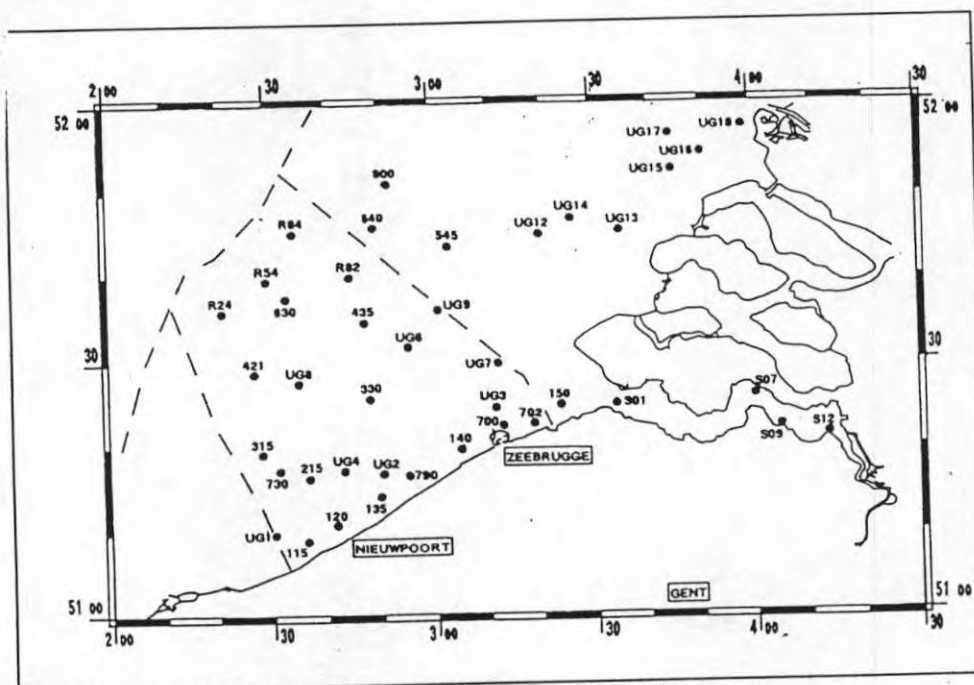


Figure 1: Location of the sampling stations on the Belgian continental shelf

Keywords: hyperbenthos, community structure, North Sea

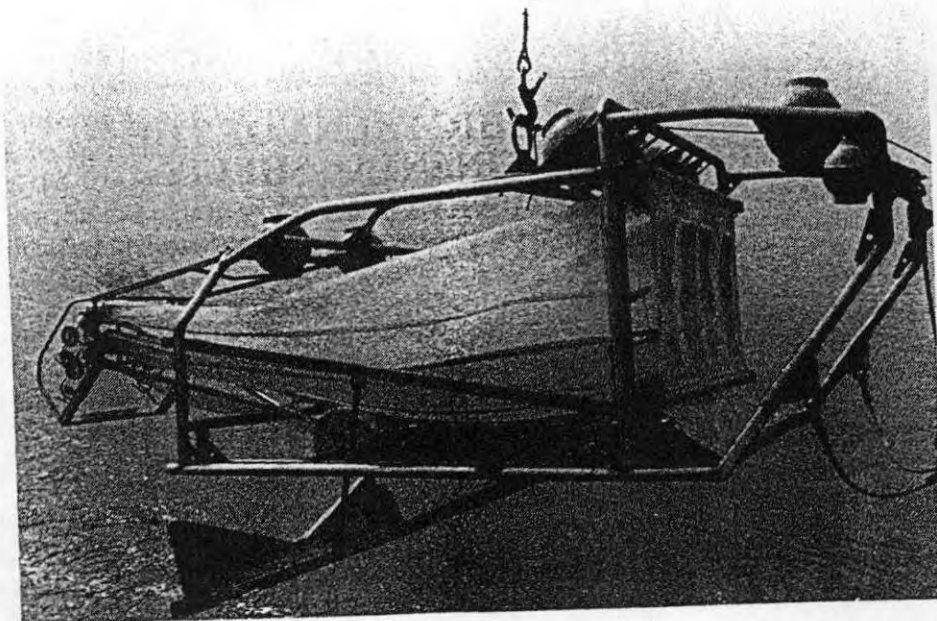


Figure 2: The hyperbenthic sledge (modified sledge described by Sorbe J.-C. , 1983)

The samples were taken with a hyperbenthic sledge (figure 2) equipped with four nets (1 mm and 0.5 mm mesh size), covering two lower strata of the watercolumn: 0 to 0.5 meter and 0.5 to 1 meter above the bottom. Trawling (5 minutes at 1.5 knots: approx. 200 meter per trawl) was always done during daylight and against the tide. The sledge was equipped with an automatic opening-closing device, an odometer and a current meter. In addition, sediment and water samples were taken at each station for grain fraction analysis and pigment analysis.

In the laboratory all animals were identified, if possible to species level, counted and measured. Density was calculated and biomasses were derived from ash-free-dry-weight regressions. Density and biomass data were subjected to multivariate statistical analysis: a classification (clustering based on the Bray-Curtis similarity index and Group Average Sorting), an ordination (Canonical Correspondance Analysis) and a hybrid technique (Two-way Indicator Species Analysis).

A total of 135 species were recorded in the hyperbenthic fauna of the Belgian continental shelf. The most abundant faunistic taxa include Mysidacea (10 species), Brachyura (20 species), Amphipoda (33 species) and Caridea (14 species). Chaetognatha, Pisces, Anomura, Polychaeta, Isopoda, Copepoda and Cumacea were caught to a lesser extent. The hyperbenthos of the Belgian coastal area can be divided into 6 geographically defined communities (figure 3), characterised by their species composition, diversity, density and biomass. In the eastern part of the Westerschelde, a typical brackish water community was found ('ws'). Two communities were found onshore: 'onshore east' is located on the east coast (from Oostende to Zeebrugge) including the marine part of the

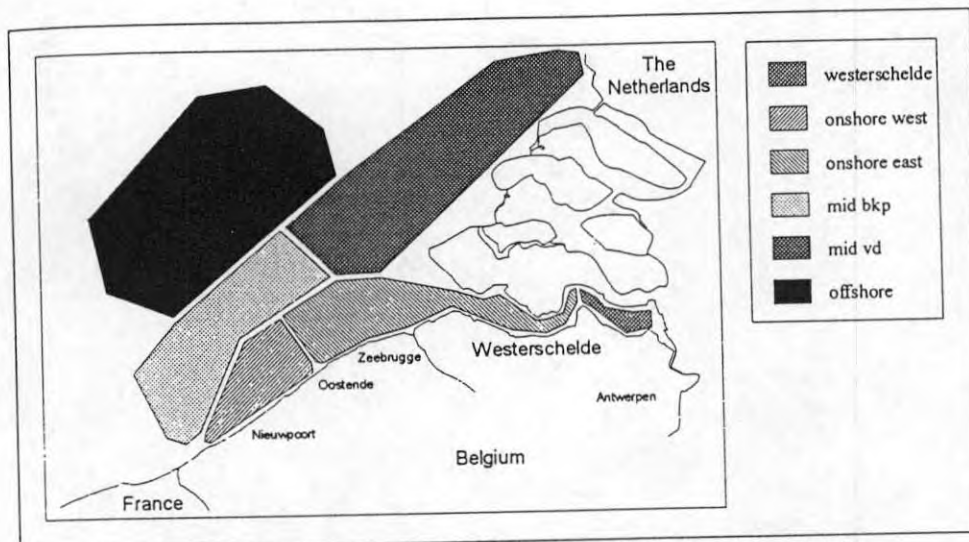


Figure 3: Geographical location of the hyperbenthic communities on the Belgian continental shelf

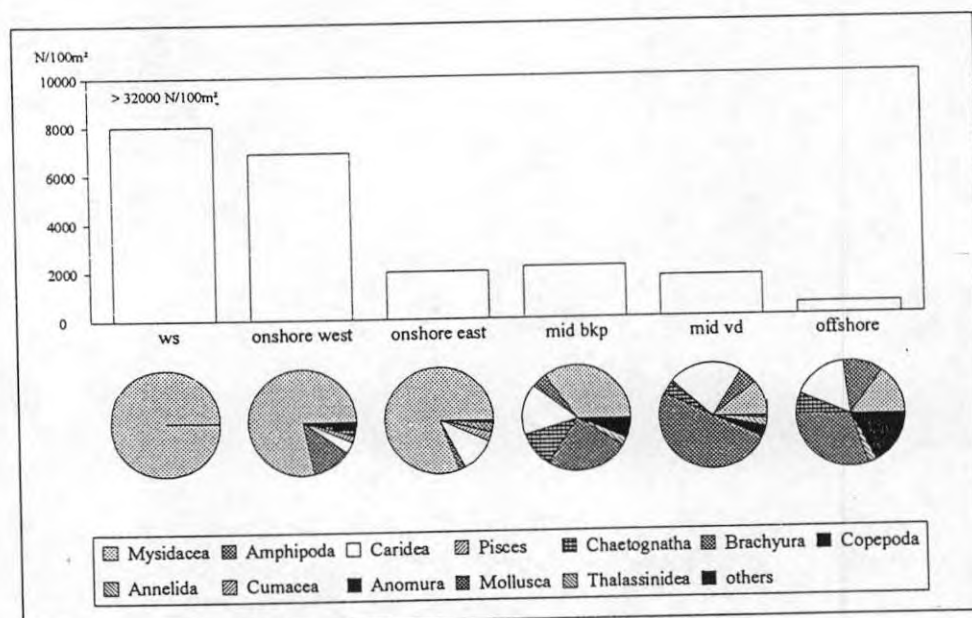


Figure 4: Average density and taxonomic composition of the hyperbenthic communities



Westerschelde; on the west coast (from Oostende to De Panne) the community 'onshore west' was found. 'Mid bkp' and 'mid vd' are the two transition communities between the onshore and more offshore area. The 'offshore' community occurs towards the open sea.

The community structure changes sharply along a gradient perpendicular to the coastline: highest densities and biomasses were recorded onshore (figure 4). The onshore communities (and the 'ws' community) were characterised by a low diversity and consist mainly of Mysidacea. Diversity increased offshore and the species composition of the hyperbenthic fauna is changed: more faunistic groups became almost equally represented, especially the Brachyura being dominant.

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#### References

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*University of Gent, Marine Biology Section, Institute of Zoology  
K.L. Ledeganckstraat 35, B-9000 Gent, Belgium  
E-mail: Ann.Dewicke@rug.ac.be / Jan.Mees@rug.ac.be*