

# Benthic Community Structure Studies as Management Tools for the North Sea

Carlo Heip

*Netherlands Institute of Ecology, Yerseke, The Netherlands*

The North Sea is a highly dynamic environment with different water masses flowing in a very complex manner. Subdivisions of such areas, necessary for many management purposes, are necessarily subjective to a certain degree and maps based on chemical or physical characteristics tend to be continuously changing pictures.

The biological characteristics of sediments can be used in order to delimit large areas which show coherent patterns. In order to detect whether such a division was also possible for the North Sea a large international programme coordinated by the International Council for the Exploration of the Sea was set up and executed in 1986.

In this programme a total of over 200 stations on a grid corresponding to degrees latitude and longitude was sampled synoptically by seven vessels. The macrofauna and the meiofauna of this so-called North Sea Benthos Survey were completely analysed and the first results were published in 1992.

These results show that some remarkable patterns and gradients exist. It is possible to delimit large areas of North Sea on the basis of benthic communities but the different divisions depend to a certain degree on the species used and also on the methodology. Nevertheless, the patterns are consistent to a high degree.

The biological characteristics of the communities show latitudinal gradients in diversity, size and biomass. The existence of such gradients complicates the correct interpretation of observed changes in benthic community structure due to human impact. They show that inferences about local change can only be made when enough background information exists.