

DISTRIBUTION OF PLANKTON PARAMETERS IN THE NORTH EASTERN NORTH SEA IN RELATION TO VERTICAL PHYSICAL STRUCTURES

**Christine VEESCHKENS, Sami BELKHIRIA,
Anne GOFFART and Jean-Henri HECQ***

Abstract

The distribution of the phytoplankton pigments has been investigated in relation to physical vertical structure and the zooplankton distribution along three transects across the Norwegian Coastal Current in the Northeastern North Sea. Pigments have been analysed by High Performance Liquid Chromatography (HPLC) and used as bio-indicators to estimate the quantitative and qualitative algal composition. The vertical structure due to the strong salinity gradient appear to be a major factor controlling the distribution of pigments in the water column. In the upper Norwegian Coastal Current, flagellates, prymnesiophyceae, and copepods, as grazers, dominate and seem to correspond to a regenerated production. However, below the pycnocline due essentially to a strong haline gradient, in Atlantic origin waters, diatom pigments are dominant acting as new producers and macrozooplankton grazers are dominant. It seems that Atlantic waters reaching the euphotic zone in the sub-surface can maintain a nutrient support to the new production during the summer. Despite a distance of 100 km between the transects, a constant pattern has been observed.

KEY WORDS: Ecohydrodynamics - Vertical distribution - Front - Plankton - Norwegian Coastal Current

MOTS CLES: Ecohydrodynamique - Distribution verticale - Front - Plancton - Courant Côtier Norvégien

* Chercheur Qualifié du FNRS