ICES/PICES 6ZPS 2016/S1

Title of abstract

Distribution of mesozooplankton assemblages based on optical analysis of samples collected during an ichthyoplankton monitoring in the southern North Sea

Name(s) of authors and their affiliations

Cyrielle Bandura[1,4], Cindy VanDamme[2], Dorothée Vincent[1], Nicolas Spilmont[3], Elvire Antajan[4]

[1] Université du Littoral Côte d'Opale (ULCO), Laboratoire d'Océanologie et de Géosciences (LOG), UMR CNRS 8187, 32 avenue Foch, F-62930 Wimereux, France

[2] Institute for Marine Resources and Ecosystem Studies (IMARES), Haringkade 1, 1976 CP IJmuiden, The Netherlands

[3] Université Lille 1 Sciences et Technologies, Laboratoire d'Océanologie et de Géosciences (LOG) UMR CNRS 8187, 28 avenue Foch, F-62930 Wimereux, France

[4] Institut Français pour l'Exploitation de la MER (IFREMER), 150 quai Gambetta, F-62200 Boulogne-sur-Mer, France

Many oceanographic laboratories have archived large numbers of zooplankton samples that have only been analysed partially, because the associated scientific programmes were focused on one species or a zooplankton key group. The potential information contained in these samples is enormous and could contribute fundamental insights into the responses of zooplanktonic communities to natural and human-induced environmental change. Here we demonstrate the advantages of using optical approach to fully and quickly analyse a monthly zooplankton survey carried out from April 2010 until March 2011 in the southern North Sea. The aim of this study was initially to collect data on the temporal and spatial distribution of fish eggs and larvae, but the associated mesozooplankton groups were not considered during microscopic identification due to lack of time and taxonomic skills. These samples have been subsequently analysed with the ZooScan which has allowed the identification of about 60 mesozooplankton groups, whose 16 different copepod genus, for which the spatial distribution of monthly abundance have been mapped and compared with those of fish eggs and larvae. The characterisation of spatial and seasonal patterns of mesozooplankton assemblages has allowed identifying potential predator-prey relationships between mesozooplankton and ichthyoplankton. Our results demonstrate how optical analyses of samples could be useful to acquire complementary information on samples collected during regular ichthyoplankton monitoring and sustain an ecosystem-based approach to fisheries.

Keywords: ZooScan, zooplankton, spatio-temporal distribution, North Sea

Contact author: Name of contact author, affiliation, and contact details.

Cyrielle Bandura
Institut Français pour l'Exploitation de la MER (IFREMER)
150 quai Gambetta
F-62200 Boulogne-sur-Mer
France
Phone: +33 (0)3 21 99 56 78
Fax: +33 (0)3 21 99 56 00
Email: cyrielle.bandura@ifremer.fr