**SEASONAL AND SPATIAL DYNAMICS OF LATE LARVAE AND JUVENILE FLATFISHES ALONG THE DUTCH COAST, SOUTHERN NORTH SEA**

Pérez-Domínguez R.1, Borst W.2, and van Tongeren O3.

1 Institute of Estuarine and Coastal Studies (IECS), Department of Biological Sciences, University of Hull, Hull, HU6 7RX, United Kingdom

2 Projectorganisatie Maasvlakte 2 (Port of Rotterdam), Postbus 6622, 3002 AP Rotterdam, Rotterdam, The Netherlands

3 Port of Rotterdam. Data-Analyse Ecologie, Vrij Nederlandstraat 57, 6826 AW Arnhem, The Netherlands

Abstract text: Current paradigms regarding recruitment success of flatfish populations suggest a functional and direct relationship between the location of spawning and nursery grounds. Successful settlement of larval fishes and subsequent growth in the favourable environment of the nursery habitat could be traced by the number and condition of juvenile fish. Similarly redundancy analysis (RDA) between larval community (explanatory variables) and juvenile abundances (response variables) could provide preliminary evidence of such a functional relationship. The goal of this study is twofold; 1- to assess the distribution and temporal dynamics of flatfish species through the late spawning and juvenile period in the near shore (<30km) zone along the southern North Sea, and 2- to interrogate the observed patterns for functional linkages between larval and juvenile assemblages as well as explanatory environmental variables (seasonality, temperature salinity, chlorophyll a concentration, total suspended matter and bottom silt content). Late flatfish larvae and juveniles were collected simultaneously using pelagic and demersal gear sets in three separate cruises and included 100 stations sampled in April, July and October 2007 covering an area of 200 km x 30 km. A total of 8 larval fish species were encountered during the surveys with greater larval densities in April (*Arnoglossus laterna. Limanda limanda, Microchirus variegatus, Platichthys flesus, Pleuronectes platessa*, and *Solea solea*) followed by July (*A. Laterna, Buglossidium luteum and Psetta maxima*) and no species found in October. All but *M. variegatus* were also present as juveniles. A statistically significant seasonal effect in assemblage composition was found (PERMANOVA p<0.0001) and residual analysis showed changes in distribution across seasons for all species. No linkages between larval and juvenile assemblages were found in the RDA analysis suggesting that juvenile flatfish distribution is mainly controlled by juvenile growth and/or mortality patterns, and probably associated to habitat (nursery) characteristics and not to larval supply. Similarly juvenile seasonal changes are probably controlled by nursery-related mechanism while larval changes are most likely associated with spawning processes.