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ABSTRACT

The abundance, composition and mesoscale variability of the microplankton (53-200 µm) and the mesoplankton (0.2-2 mm) fractions in relation to oceanographic factors and phytoplankton biomass were compared off the Catalan coast (NW Mediterranean) during the summer stratification (June) and autumn mixing (November) periods in 2005. This work aims to determine whether the two plankton fractions that more contribute to fish larval diet respond to a common variable environment, and this study constitutes the first attempt to analyse, in parallel, the spatial structure of both fractions in this area. From June to November microplankton abundance increased mainly by the increase of dinoflagellates, tintinnids and radiolarians, and mesoplankton decreased due mainly to the decrease of large armoured dinoflagellates, cladocerans, doliolids and appendicularians. Plankton mesoscale variability in relation to environmental variables showed higher complexity in June, where environmental horizontal and vertical gradients were more marked than in November. In June, the major mode of variability of the microplankton was mainly accounted by the patchy distribution of several tintinnid species dominated by *Rhabdonella spiralis* associated to the subsurface phytoplankton biomass. The main mode of variability of the mesoplankton was related to the intrusion of the Ebro river plume and the related aggregation of doliolids and cladocerans, dominated by *Evadne spinifera*. In November, the major variability pattern in both fractions was a combination of inshore-offshore and eastern-western gradients in taxa distributions shaped mainly by the course of the Catalan Current along the shelf-break. Spatial differences in planktonic food pathways in each period are discussed on