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Diversity and assemblage of micronekton in the Mozambique Channel using pelagic trawls and stomach contents of top predators

by

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ABSTRACT

In open ocean ecosystems, micronekton are composed of small crustaceans, fishes, and cephalopods, and form an important link between low trophic levels (zooplankton) and many top predators such as tunas, marine birds and mammals. In spite of their importance, the role of micronekton in the trophic functioning of pelagic ecosystems is poorly documented. Indeed, collecting precise information on the composition of micronekton organisms in the field is still challenging. Pelagic trawls are an efficient way for sampling micronekton, but trawling data cannot reflect the full assemblage of organisms in the environment, because of the selectivity of the gear on small or large organisms (avoidance). In contrast, large pelagic predators such as lancetfish, tuna and swordfish can be efficient biological samplers for collecting information on micronektonic organisms, due to their opportunistic feeding behaviour, but micronekton diversity estimates may be affected by local prey availability and/or the foraging behaviour of predators. Here we combined diet analyses on top predators caught by an industrial longliner (F/V *Manohal*) with pelagic trawls carried out onboard the R/V *Fridtjof Nansen*, in order to investigate new information on micronekton organisms (species composition and size structure) in the Mozambique Channel. The two cruises targeted the same areas and sampling occurred within a few days of each other. Data were analyzed in terms of diversity, compared to each other and related to the mesoscale activity that influences the circulation in the Mozambique Channel. Both large cyclonic and anticyclonic eddies propagate southwards along the western edge of the channel and were sampled during the cruises. Investigations of the micronekton will provide important information for an ecosystem approach assessment of the functioning of the Mozambique Channel and to tuna fisheries management.