

Cephalopods of the European Shelf and their associated oceanographic parameters based on occurrence in standardized demersal fishing trawls

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Changing oceans impact the whole marine ecosystem in different ways. Rising ocean temperatures can affect the presence / absence of species, especially when local environmental conditions exceed individual species' physiological tolerances. Accordingly, climate change has caused shifts in distribution and expansions for various cephalopods worldwide. Cephalopods play an important role in the ecosystem, especially in food webs. Consequently, distribution shifts might help explain observed ecosystem changes. Therefore, maps for cephalopod distributions need to be reviewed and updated. Meanwhile, information on the associated environmental conditions will permit future occurrence of cephalopods to be modelled, which is interesting from a fishery and ecological perspective. Some information about physiological tolerances of cephalopods are known from laboratory studies and aquaculture experience, as well as from field observations. Laboratory data are often based on narrow ranges, depending on the experimental design, and can therefore provide only a limited understanding of physiological tolerances. On the other hand, field observations are also limited due to the spatial and temporal limitations of surveys, but these might provide a more realistic picture of natural tolerances. Here, we use the ICES Datras dataset to, first, describe the current distribution of cephalopods associated with the European shelf and, second, advance the knowledge regarding environmental ranges of the various species included in the analysis by combining occurrence data with in-situ oceanographic data. The results allow us to increase the knowledge of physiological tolerances and preferences of various cephalopod species within the North-East Atlantic Ocean. Finally, we will discuss and present potential future trends in cephalopod occurrence within the NE Atlantic.