

{rokbox title=|Conceptualisation of species poleward distribution shift under warmer conditions :: Image: Authors| thumb=|images/stories/ieo/imagenespublicaciones/centro-oceanografico-baleares-ieo-csic-tropicalization-deborealization-european-seas-chust-et-al-2024-thumb.jpg|}images/stories/ieo/imagenespublicaciones/centro-oceanografico-baleares-ieo-csic-tropicalization-deborealization-european-seas-chust-et-al-2024.jpg{/rokbox}

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[Cross-basin and cross-taxa patterns of marine community tropicalization and deborealization in warming European seas](#)

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Abstract: Ocean warming and acidification, decreases in dissolved oxygen concentrations, and changes in primary production are causing an unprecedented global redistribution of marine life. The identification of underlying ecological processes underpinning marine species turnover, particularly the prevalence of increases of warm-water species or declines of cold-water species, has been recently debated in the context of ocean warming. Here, we track changes in the mean thermal affinity of marine communities across European seas by calculating the Community Temperature Index for 65 biodiversity time series collected over four decades and containing 1,817 species from different communities (zooplankton, coastal benthos, pelagic and demersal invertebrates and fish). We show that most communities and sites have clearly responded to ongoing ocean warming via abundance increases of warm-water species (tropicalization, 54%) and decreases of cold-water species (deborealization, 18%). Tropicalization dominated Atlantic sites compared to semi-enclosed basins such as the Mediterranean and Baltic Seas, probably due to physical barrier constraints to connectivity and species colonization. Semi-enclosed basins appeared to be particularly vulnerable to ocean warming, experiencing the fastest rates of warming and biodiversity loss through deborealization.

Keywords: