{rokbox title=|Procedure to derive the Spatial Distribution Models (SDM) from MEDITS surveys :: Image: Authors|
thumb=|images/stories/ieo/imagenespublicaciones/centro-oceanografico-baleares-ieo-csic-warming-promotes-expansion-demersal-fishing-resource-mediterranean-gonzalez-et-al-2024-thumb.jpg|}images/stories/ieo/imagenespublicaciones/centro-oceanografico-baleares-ieo-csic-warming-promotes-expansion-demersal-fishing-resource-mediterranean-gonzalez-et-al-2024.jpg{/rokbox}

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Warming promotes expansion of a key demersal fishing resource of the western Mediterranean.
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Abstract: Climate change is affecting marine ecosystems altering the distribution and abundance of organisms, with implications for fisheries and food security. This warming-induced reshuffle in species abundance could bring threats and opportunities to the fisheries, but needs to be assessed to promote effective actions and to foster resilience. We analyzed the density and distribution patterns of deep-sea rose shrimp (*Parapenaeus longirostris*), as well as identified the main environmental have identified the environmental drivers shaping its habitat along the western Mediterranean (Iberian Peninsula) during the period 2001–2020. Using spatial distribution models developed concurrently with an ensemble of four Regional Climate Models (RCMs), we have projected the density of this species during the next century under two climate scenarios (RCP4.5 and RCP8.5). Bathymetry and sea bottom temperature drove the density of the species, leading to a marked northward expansion during the last two decades. Our results projected an increase in its distribution and especially in density throughout the area along the 21st century, mirroring the effect of global warming. Consequently, the most distant period (i.e. 2100s) and the warmest scenario (RCP8.5) presented also the highest densities and low internal variability of the ensemble. We discussed the power of assessing uncertainties using a RCM ensemble, particularly under complex oceanographic features, to bring robust information for an effective scientific advice to fisheries management.

Keywords: spatial distribution model, regional climate mode, demersal fishing resources,

climate change, fisheries resilience, *Parapenaeus longirostris*