

{rokbox title=|Heatmap of species annual mean biomass evolution :: Image: Authors|
thumb=|images/stories/ieo/imagenespublicaciones/centro-oceanografico-baleares-ieo-csic-envir
onmental-anthropogenic-driven-transitions-demersal-ecosystem-cantabrian-sea-polo-et-al-2022
-thumb.jpg|}images/stories/ieo/imagenespublicaciones/centro-oceanografico-baleares-ieo-csic-
environmental-anthropogenic-driven-transitions-demersal-ecosystem-cantabrian-sea-polo-et-al-
2022.jpg{/rokbox}

J Polo, A Punzón, P Vasilakopoulos, R Somavilla, **M Hidalgo**, 2022. [Environmental and anthropogenic driven transitions in the demersal ecosystem of Cantabrian Sea.](#) ICES Journal of Marine Science, 2022; fsac125. <https://doi.org/10.1093/icesjms/fsac125>

Abstract: In the framework of global human-induced change, marine communities' often respond to changing conditions abruptly reorganizing into new equilibria. These shifts are difficult to predict and often imply irreversible adjustments due to hysteresis. Unraveling the role of the forces leading regime shifts is a major challenge. We explored the temporal evolution of 63 fish species representing the Cantabrian benthic-demersal community in response to environmental changes and fishing pressure in the period 1983–2018, using survey data. Via multivariate analysis and non-additive modeling of a community index and the system's main stressors, two decadal-scale regimes were revealed, suggesting a non-linear response of the community to its environment. The Integrated Resilience Assessment framework elucidated the response mechanism to the candidate stressors and allowed quantifying resilience dynamics. The decline in fishing pressure in the 1990s was associated with a gradual transition of the system, while further decline during the 2000s eroded the resilience of the system towards changes in its stressors, leading to a discontinuous response expressed as an abrupt, possibly irreversible shift in the 2010s. Given the teleconnected character of marine ecosystems, this regional study endorses the scientific effort for actions facing the dynamic impacts of climate change on exploited marine ecosystems.

Keywords: Cantabrian Sea, climate change, demersal community, fishing pressure, Integrated Resilience Assessment (IRA), multivariate analysis