

{rokbox title=|Localization of the six marine protected areas studied in France and Spain in the Mediterranean Sea. :: Image:

Authors|images/stories/ieo/imagenespublicaciones/centro-oceanografico-baleares-ieo-csic-species-specific-spillover-reñones-2024-thumb-et-al.jpg|images/stories/ieo/imagenespublicaciones/centro-oceanografico-baleares-ieo-csic-species-specific-spillover-reñones-2024-et-al.jpg{/rokbox}

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Abstract: The aim of this paper is to provide evidence of the species-specific export of adult fishes for some species or group of species from six well-enforced Mediterranean marine protected areas (MPAs): Cerbère-Banyuls and Carry-le-Rouet in France and Medes, Cabrera, Tabarca, and Cabo de Palos in Spain. We estimated the distance at which spillover of those individual or groups of species occur by directly assessing the existence of gradients of biomass across the MPA boundaries by means of underwater visual census, assuming that such gradients will be specific in terms of structure (sharpness, slope, and intercept) for every species and group of species. A significant “reserve effect” was observed for biomass of some of the individual and grouped species in all MPAs. Decreasing gradients of biomass differ among taxons and are not related with the insular nature of the location. Different gradients of biomass resulted from the interaction between species characteristics and some ecological and structural drivers, and we did not find regular patterns for each taxa among MPAs, even though the same species can exhibit different gradient structure and/or spillover distances in the same MPA depending on the orientation. Habitat patch distribution and continuity seems the most important environmental factor explaining the existence and pattern of gradients at species level, interacting with fish home range and fishing pressure close to the limits of the MPAs. Managers should take in account the surrounding distribution of habitats in terms of complexity and quality in order to optimize the spillover capacity of the MPAs.

Keywords: fish spillover, adult biomass, marine conservation, visual census, fisheries, management, impact, Mediterranean sea.