

{rokbox title=|Map of the study sites in the Mediterranean Sea and the north-eastern Atlantic ::

Image: Authors|

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Luis Cardona, **Olga Reñones**, Adam Gouraguine, Fabiana Saporiti, Asunción Borrell, Alex
Aguilar and **Joan Moranta**, 2022. [Effects of fishing on the](#)

[trophic structure of carnivorous fish assemblages from shallow rocky bottoms of the
Mediterranean Sea and the temperate Atlantic Ocean.](#)

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Abstract: Here, we assess whether fishery exploitation affects the trophic structure of carnivorous fish. We censused fish and analysed the stable isotope ratios of C and N of species targeted by fishermen in areas open to fishing and marine protected areas (MPAs) in the Mediterranean Sea and the north-eastern Atlantic Ocean. Results demonstrated a major impact of fishing on the biomass and size structure of nekto-benthic carnivorous fish. However, those changes did not modify the diversity of the trophic resources used by the assemblage, the pattern of resource partitioning between species, or the degree of trophic redundancy. These results add to recent evidence suggesting that MPAs implemented in fished seascapes may fail to restore the original structure of the food webs that once existed in pre-fished ecosystems because regional decimation and extinction of highly mobile predators prevent recovering the original diversity of predators at local scales, even in no-take areas. If so, more strict local fishing regulations are unlikely to restore the original diversity of high trophic level carnivores and restoration goals should be reframed in terms of an objective that is less unrealistic than restoring the pre-fished condition while still recovering aspects of the historical trophic structure.

Keywords: fishing, food web structure, marine protected areas, predation, stable isotope analysis