{rokbox title=|Cumulative frequency curves of the ratio of repletion relative to eviscerated weight :: Image: Authors|
thumb=|images/stories/ieo/imagenespublicaciones/centro-oceanografico-baleares-ieo-csic-protect-area-bottom-trawling-trophic-relationships-demersal-species-valls-et-al-2025-thumb.jpg|}images/stories/ieo/imagenespublicaciones/centro-oceanografico-baleares-ieo-csic-protect-area-bottom-trawling-trophic-relationships-demersal-species-valls-et-al-2025.jpg{/rokbox}

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Protecting an area from bottom trawling affects trophic relationships in demersal species
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Abstract: This study examines how protecting the Site of Community Importance Menorca Channel (western Mediterranean) from bottom trawling affects the feeding behaviour of commercially exploited species. We examined taxonomic diet composition, prey quality (caloric value) and stable isotope signatures ($\delta^{13}C$ and $\delta^{15}N$) across protected, moderately fished, and heavily trawled areas. Fish species *Mullus surmuletus* and *Serranus cabrilla* benefited from protection by consuming more high-energy prey resulting in higher caloric intake. Other species, such as
Chelidonichthys lastoviza
,
Scorpaena notata
, and
Octopus vulgaris
, showed more variable or limited responses, due to opportunistic feeding habits or prey preferences less affected by trawling. The combination of stomach content analysis and prey calorimetry provided better insights into energy intake than prey composition alone, which may miss short-term or fine-scale dietary changes. $\delta^{15}N$ revealed no clear overall shifts in trophic level after protection from trawling, but isotopic niche width did vary, reflecting different foraging strategies and habitat use. The relationship between body size and trophic level was evident in protected areas for
M. surmuletus
and
C. lastoviza
, suggesting ontogenetic dietary shifts supported by increased prey availability. Overall, the study highlights species-specific trophic responses to fishing closure and suggests that diet tracing methods should be combined to better understand the ecological effects of marine

protected areas.

Keywords: stomach contents, stable isotopes, prey abundance, prey caloric density, marine protected areas