

Coupling gut content DNA metabarcoding and stable isotope analysis to reveal potential importance of fisheries discards consumption in marine fauna

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Fishing is considered one of the most important threat to marine ecosystems worldwide. One aspect of fisheries activities, that could significantly impact food web structure and ecosystem functioning, is fisheries discards (i.e. animals caught, but returned to the sea, dead or alive). The European Union adopted a discard ban under the reform of its Common Fisheries Policy. However, fishing has impacted marine food webs since ancient times, potentially supporting some species through discards consumption, and the environmental effects of reducing fishing discards remain uncertain since their degree and pathway of reintegration into marine food webs are understudied. We aimed to quantify the reliance of marine fauna on discarded fish at a community-wide scale in the Bay of Biscay (France) and the potential impact of discards reintegration on food web structure by using a combination of gut content metabarcoding and stable isotope analysis.

Our results suggest that discarded fish consumption is widespread and potentially supporting functionally important taxa, reflecting in trophic position and benthic-pelagic reliance of some species. Our study highlights that dependence on discards by marine fauna may be more important than previously assessed and that, while reducing fisheries discards remains a conservation priority, it may trigger unanticipated effects potentially affecting entire communities.