

## **Quantifying the threat of plastic pollution ingestion on coastal marine diversity**

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**Keywords:** Mediterranean Sea, risk assessments, plastic debris, habitat, Balearic Islands

### **Abstract:**

Given the ubiquity of plastics in the coastal environment, species in these areas are at the risk of encountering and subsequently ingesting this anthropogenic waste. This study investigates the threat that plastic debris ingestion poses to coastal marine taxa in the Balearic Island Archipelago in the Western Mediterranean Sea. A literature review identified plastic ingestion for 42 fish, shark, and ray species in the Balearic Islands. We used taxonomic occurrence data sets to develop habitat suitability maps for the identified species and a long-term dataset of coastal floating marine debris (2005-2017) to map plastic debris distributions for the Balearic Islands. From these datasets, we assessed the threat of plastic debris ingestion for each species. We then applied ingestion rates of plastic debris for each study taxa with their ecological traits to predict the risk of plastic ingestion for each species across this region. Ingestion risk was particularly high in the north-western and south-eastern regions of the Balearic Islands. Ecological traits correlated with the threat of ingesting plastic debris, particularly for species from higher trophic levels. Extending this work to other coastal regions within the Mediterranean Sea and beyond will allow managers and policymakers to identify the best places and types of interventions to reduce plastic debris before it is lost to the environment where it negatively impacts coastal marine biodiversity.