{rokbox title=|Figure :: Image: Authors| thumb=|images/stories/ieo/imagenespublicaciones/centro-oceanografico-baleares-ieo-csic-potential-factors-influencing-condition-demersal-sharks-mediterranean-deep-sea-ecosystems-ordines-et-al-2021-thumb.jpg|}images/stories/ieo/imagenespublicaciones/centro-oceanografico-baleares-ieo-csic-potential-factors-influencing-condition-demersal-sharks-mediterranean-deep-sea-ecosystems-ordines-et-al-2021.jpg{/rokbox}

Francesc Ordines, **Maria Valls**, María José Meléndez, **Sergio Ramírez-Amaro**, Eduardo López, Josep Lloret, Mariel Rodríguez,
M. Teresa Farriols
,
Beatriz Guijarro
, Cristina García-Ruiz,
Enric Massutí
, 2021.

Potential factors influencing the condition of demersal sharks in the Mediterranean deep sea ecosystems.

Deep Sea Research Part I: Oceanographic Research Papers. Volume 176, October 2021, 103603. https://doi.org/10.1016/j.dsr.2021.103603

Abstract: The Alboran Sea and the Balearic Islands are two contrasting areas in terms of primary productivity. The former is among the most productive areas of the whole Mediterranean Sea, whereas the Balearic Islands is among the less productive ones in the western Mediterranean. The two areas also show different patterns in the bottom trawl fishing footprint. In the Alboran Sea, the fishing effort on the upper slope is much higher than in Balearic Islands. However, the opposite applies to the middle slope, the vast majority of it remaining unexploited in Alboran Sea, whereas a widespread fishery targeting blue and red shrimp Aristeus antennatus develops in Balearic Islands. *Galeus melastomus* is a small demersal shark species inhabiting slope bottoms, where adults and juveniles are segregated and concentrate in the middle and upper slope, respectively. It feeds intensively on mesopelagic preys which, in turn, feed on low trophic level organisms close to primary producers. In this work we aimed to study the effect of surface primary production on the condition of deep sea demersal communities. We compared the condition, diet and potential intra- and inter-species competition for feeding resources in the juveniles of
G. melastomus
between Alboran Sea and Balearic Islands. The comparisons of Le Cren's relative condition factor, and hepatosomatic and digestivosomatic indices evidenced an opposite pattern to that a priori expectable: better condition in the less productive area. The analysis of stomach contents showed similar diets in both areas, but lower food ingestion in Alboran Sea than in Balearic

Islands. Different abundances of potential intra- and inter-specific competitors for feeding resources in the two areas, apparently linked to the different fishing footprints, seems the most likely explanation for the better nourished individuals in Balearic Islands. Whereas juveniles of *G. melastomus* dominate the shark community in the Balearic Islands upper slope, where the presence of adults of this species is almost negligible, in Alboran Sea this stratum is dominated by adults and potential competitors of other small demersal shark species. All shark species together, including *G. melastomus*, showed abundances 38% higher in Alboran than in Balearic Islands. Our results show that condition of deep sea demersal fish is ruled by complex inter-relationships among different factors, needing the combination of biological, ecological and fisheries knowledge to understand its variability.

Keywords: Demersal sharks, *Galeus melastomus*, Fish condition, Feeding, Productivity, Bottom trawl footprint