

{rokbox title=|Overview of the study area with the hauls that were carried out from 1994 to 2017
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Authors|images/stories/ieo/imagenespublicaciones/centro-oceanografico-baleares-ieo-csic-trade-off-between-karetmisidis-2023-thumb-et-al.jpg|images/stories/ieo/imagenespublicaciones/centro-oceanografico-baleares-ieo-csic-trade-off-between-karetmisidis-2023-et-al.jpg{/rokbox}

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[The trade-off between condition and growth shapes juveniles' survival of harvested demersal fish of the Mediterranean sea.](#)

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Abstract:Fish body condition and growth are two interrelated traits closely associated with species life history and fitness, whose trade-off can ultimately impact population dynamics albeit seldom empirically demonstrated. They can intricately affect survival rates, which are particularly relevant for species under exploitation. Using individual spatiotemporal information in Northwestern Mediterranean, we document for the first time the existence of a trade-off between condition and growth in regulating survival dynamics in two important fish species for the Mediterranean fisheries that are characterized by contrasting life histories. For the European hake (*Merluccius merluccius*), a benthopelagic species, juveniles' body condition was detected to be positively linked to survival and negatively associated with the growth of this age group. For the red mullet (*Mullus barbatus*), the same pattern was observed for young adults. We also show that the observed patterns on a regional level have a clear spatial dependence as we found that observed body condition over a local scale had a broad effect on the population dynamics of the whole region, with the Ebro delta area emerging as the demographic engine of the two species. We discuss our results in the context of fisheries management and underline the importance of improving current stock assessment models and spatially based fishery management towards incorporating body condition and growth due to their influence on important parameters such as survival.

Keywords:Life-history parameters,Body condition,European hake,Red mullet,Natural mortality,Demography,Population dynamics.