{rokbox title=|Location and bathymetric map of the Seco de los Olivos Bank in the Alboran Sea :: Image: Authors| thumb=|images/stories/ieo/imagenespublicaciones/centro-oceanografico-baleares-ieo-csic-deepsea-ecosystems-northeastern-alboran-sea-quantifying-assemblages-anthropogenic-activity-seco-olivos-puerta-et-al-2025-thumb.jpg|}images/stories/ieo/imagenespublicaciones/centro-oceanografico-baleares-ieo-csic-deepsea-ecosystems-northeastern-alboran-sea-quantifying-assemblages-anthropogenic-activity-seco-olivos-puerta-et-al-2025.jpg{/rokbox}

Patricia Puerta, Rosa M. Cañedo-Apolaya, José L. Rueda, Carlos Dominguez-Carrió, Javier Urra and Covadonga Orejas, 2025. **Deep sea ecosystems in the north eastern Alboran Sea (western Mediterranean): quantifying assemblages and anthropogenic activity in the Seco de los Olivos Bank.**
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Abstract: Seafloor elevations (e.g., seamounts, banks, mounds) are essential underwater features for supporting and maintaining global marine biodiversity. Such geomorphological features might be of particular relevance to preserve biodiversity in the Mediterranean Sea, where a high number of anthropogenic impacts threaten deep-sea ecosystems. Using imagery from a remotely operated vehicle (ROV), deep-sea megabenthic and demersal fish assemblages were identified and quantified in some of the less studied areas of the Seco de los Olivos Bank (also known as Chella Bank), a seafloor elevation considered a hotspot of biodiversity in the Alboran Sea, Western Mediterranean. The 62 taxa identified were grouped into five well-defined benthic and demersal assemblages, mainly influenced by substrate type and typified by massive sponges, cold-water corals, sea pens, and ray-finned fishes. Nine taxa were identified as indicators of vulnerable marine ecosystems (VMEs) and/or endangered species. The heterogeneous distribution of substrate types plays a key role in assemblage composition, with hard substrates enhancing biodiversity at the local scale. A wide variety of indicators of anthropogenic activities were found, including bottom trawling marks, remains of fishing gears, and other types of marine litter, whose presence seemed to reduce the diversity of the observed assemblages. The results presented here improve the still scarce quantitative assessments of deep-sea benthic ecosystems to implement effective management measures in the framework of the main European policies (e.g., Habitats Directive, Marine Strategy Framework Directive) to reach 2030 conservation goals.

Keywords: Benthic communities, Vulnerable marine ecosystems, Remotely operated vehicle, Marine litter