{rokbox title=|Location of the CTD stations in 2016 and 2017 :: Image: Authors| thumb=|images/stories/ieo/imagenespublicaciones/centro-oceanografico-baleares-ieo-csic-shaping-deep-scattering-layers-seascape-dynamics-canary-islands-pena-et-al-2023-thumb.jpg|}images/stories/ieo/imagenespublicaciones/centro-oceanografico-baleares-ieo-csic-shaping-deep-scattering-layers-seascape-dynamics-canary-islands-pena-et-al-2023.jpg{/rokbox}

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Abstract: Vertical distribution of deep scattering layers (DSL) has been related to dissolved oxygen and illuminance levels as well as to horizontal water mass boundaries. Regional differences have precluded from establishing generic relationships between DSLs vertical distribution and the local hydrographical characteristics. This study used data collected at 18 and 38 kHz (that allow to discriminate between migrant and non-migrant layers) during two surveys carried out in the Canary islands in autumn 2016 and 2017. We evaluated the influence of water masses and their nutrient content, eddies and upwelling areas. While the permanent coastal upwelling increased the scattering of migrant mesopelagic fishes (that are driven through a secondary-order effect by primary production), the non-migrant layers were not affected by it. As in other areas, the main non-migrant acoustic layer (400–600 m depth) was located at horizontal water masses interfaces. The secondary non-migrant DSL, deeper than the main one, was located at depths rich in remineralized nutrients. Eddies modulated the shape of scattering layers into domes (cyclonic) and M-shapes (anticyclonic). This study contributes to a better understanding of how seascape dynamics influence the distribution and shapes of deep scattering layers in the Canary islands.

Keywords: Deep scattering layers, Mesopelagic, Bathypelagic, Water masses interface, Eddies, Upwelling, Inorganic nutrients, Phosphates