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Marian Peña, Jorge Cabrera-Gómez, Antonio C. Domínguez-Brito, 2020. [Multi-frequency and light-avoiding characteristics of deep acoustic layers in the North Atlantic.](#)

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Abstract: This study aimed to add light-avoidance as a categorizing technique for the study of mesopelagic acoustic layers. Data recorded along the 20° W parallel from 20° N to Iceland showed three types of mesopelagic layers: the non-avoiding non-migrant deep scattering layer (NMDSL), which dropped its intensity toward the north, the avoiding migrating fish layers (MDSL), which were more intense at upwelling areas and toward the north, and a secondary deeper NMDSL at the southern part. Light avoidance was only discernible at 18 kHz within the main NMDSL when this layer was intense, suggesting that migrants are barely seen at 38 kHz when other resonant scatterers occupy these depths. These results highlight the importance of employing the 18 kHz frequency from a vessel borne echosounder or lowered echosounders attached to a probe to study gas-bearing migrants.

Keywords: Artificial light, avoidance, frequency response, mesopelagic, migration, deep scattering layers