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Net and Acoustic Examination of Bathypelagic Nekton on the Mid-Atlantic Ridge

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Net and acoustic examination of bathypelagic nekton on the mid-Atlantic Ridge

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Spatial distributions of organisms play a key role in facilitating trophic interactions, which influence pelagic ecosystem structure and function. This study combines discrete net trawl sampling with continuous acoustic measurements to investigate the distribution of bathypelagic (1000- 3000 m depth) nekton biomass along the Mid-Atlantic Ridge from Iceland to the Azores. Two, previously unknown, acoustic scattering layers (ASLs) were observed using 18 kHz echosounder data. The first extended approximately 200 m from 2000 m depth and was ubiquitous wherever bottom depth allowed. The second, found within the 1500-2000 m depth stratum, only occurred south of the Sub-Polar Front. Backscatter from the 2000 m ASL was attributed to fish from a suite of bathypelagic species observed throughout the study area, rather than any specific group. No general increase in backscatter, as a proxy for pelagic nekton biomass, was observed in close proximity to the bottom (≤ 200 m), but previously unreported localized concentrations of backscatter were observed when bottom topography was steep. Together these observations demonstrate higher complexity in the spatial structuring of bathypelagic ecosystems than has been previously reported and is likely to affect local ecosystem function.