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## Daily vertical migration of dense scattering layers related to shelf-break area along the northwest coast of Baja California, Mexico

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Echo signals were collected with a Simrad 200 kHz transducer across the shelf-break features off the northwest coast of Baja California (30°05'-30°42'N, 115°50'-116°26'W) during two diel cycles (July 1995) with the objective of describing vertical migrations of two dense deep scattering layers (DSL) found near the shelf break. DSL records were made within an area  $\pm 50$  m in the neritic zone,  $\pm 200$  m at the shelf break and  $\pm 1000$  m depth in the offshore station. Using an Isaacs-Kidd midwater net and Bongo nets, we inferred that the DSL were composed mainly of juveniles and adults of the euphausiids *Nyctiphanes simplex* Hansen and *Euphausia pacifica* Hansen. These aggregations have a close interaction with the ocean bottom during the daytime and display a vertical migration, rising near to the surface at night where a progressive horizontal dispersion then occurs. The DSL measured 3.5-6.0 km horizontally during the night. The ascent and descent migrations of the DSL were significantly fitted to a polynomial function of the second order, suggesting different swimming behavior during these two processes. Vertical migrations of the DSL were between 60 and 90 m. During the descent migration, maximum instantaneous speeds reached  $-0.7 \text{ cm s}^{-1}$ , and during the ascent, maximum instantaneous speeds were  $-0.3 \text{ cm s}^{-1}$ . These coastal euphausiid species, along with other macrozooplankton and nektonic organisms, have a daily close interaction with the ocean bottom and also with the pelagic environment, suggesting that they play an important role providing food for demersal and pelagic organisms on the slope and shelf break in the upwelling region off the northwest coast of Baja California.

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