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Pacific sardine behavior related to tidal current dynamics in Bahía Magdalena, Mexico

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The behaviour, distribution and abundance of the Pacific sardine *Sardinops sagax*, detected by acoustics, was studied in relation to the pelagic environmental conditions of water temperature, fluorescence and dissolved oxygen concentration induced by tidal currents in Bahía Magdalena, México (24°32' N; 112°01' W). Sampling was along an 18 km long transect covering an area inside the bay (mean depth 20 m), the main entrance to the bay (mean depth 35 m), and the continental shelf (mean depth 100 m). The main entrance to the bay was the most dynamic area along the hydrographic transect, where the Pacific sardines tended to aggregate, probably to feed on the phytoplankton accumulated during the receding tide. With the flood tide, a high-speed tidal current is generated, introducing cool water with low oxygen concentrations into the bay. During the ebb tide, a tidal wave is also formed, but the warm and relatively well oxygenated bay water mass is transported towards the open sea. Acoustic records showed that whatever the tidal current direction (inflow or outflow), no fish schools were detected within the area of more intense tidal current speeds ($>120 \text{ cm s}^{-1}$).

Palabras clave: Pacific sardine, hydroacoustics, fish school behaviour, tidal stream

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