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## Influence of tidal fronts of surface zooplankton aggregation and community structure in a subtropical bay, Bahía Magdalena, México

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Zooplankton abundance and community structure were recorded across small thermo-haline fronts forced by tides in summer in the subtropical Bahía Magdalena, Mexico, during spring and neap tides. During spring tides, significantly greater plankton biomass occurred along the 300 m width of the tidal front as compared to locations over the continental shelf and the inner part of the bay. Hydrographic records indicate that the tidal front was more intense during spring tides than during neap tides, transporting zooplankton from the continental shelf to ~6 km inside the bay, based on a hydroacoustic survey. Dense surface aggregations, <15 m deep, of the temperate zone copepod *Calanus pacificus* occurred along the front during spring tides, which attracted zooplankton predators from throughout the water column, seabirds, and marine mammals. During neap tides, the front was weak. Contrary to expectations, zooplankton communities during neap tides along the front were similar to zooplankton in the lagoon and were composed mostly of *Paracalanus* spp. and *Clausocalanus* spp. Multivariate non-parametric analysis showed that variability of the zooplankton community was primarily related to a gradient across the mouth of the bay (continental shelf to tidal front to bay), followed by a secondary mode of variability of semi-diurnal and spring-neap tide time scales. We provide a conceptual model that integrates physical, chemical, and biological information to explain mechanisms of eutrophication coupled with zooplankton biodiversity and abundance that is promoted by tidal currents and supports higher trophic levels.

Palabras clave: parámetros texturales, Hidroacústica, copepods, Tidal currents, Tidal front, Surface aggregation

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