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Larval fish assemblages and circulation in the Eastern Tropical Pacific in Autumn and Winter

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In this work, we linked larval fish assemblages with water masses and circulation in the Eastern Tropical Pacific off Mexico, during autumn 2005 and winter 2007. Four assemblages were defined. (i) The “Transitional” assemblage, with the lowest mean larval abundance and dominated by tropical mesopelagic Vinciguerria Lucelia and Diogenicthys laternatus. It was associated with modified California Current Water in winter and with modified Tropical Surface Water in autumn. (ii) The “Coastaloceanic” assemblage was found off Cabo Corrientes, with high larval abundance, and dominated by Bregmaceros bathymaster; part of this assemblage was trapped by coastal cyclonic eddies. (iii) The “Tropical A” assemblage was associated with Tropical Surface Water. It had the highest abundance and richness, and the largest number of dominant species (e.g. D. laternatus, Auxis spp.); it covered a wider area in winter than in autumn. (iv) The “Tropical B” assemblage, distinguished by the highest abundance of V. lucetia, was present only in autumn; it was associated with overall anticyclonic circulation of warm Tropical Surface Water. The agreement between larval fish assemblage distributions, water masses and mesoscale dynamics indicates that the formation and permanence of assemblages depends on the interaction of spawning strategies of different species with large-scale and mesoscale processes.

Palabras clave: Tendencias espaciales, connectivity routes, Eastern Tropical Pacific

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