

{rokbox title=| Sampling populations of *Liocarcinus depurator* in the Atlantic-Mediterranean transition :: Image:

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[Interannual fluctuations in connectivity among crab populations \(*Liocarcinus depurator*\) along the Atlantic-Mediterranean transition.](#)

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Abstract: An interesting evolutionary question that still remains open is the connectivity between marine populations. Marine currents can favour the dispersal of larvae or adults, but they can also produce eddies and gyres generating oceanographic fronts, thus limiting gene flow. To address this subject, we selected the Atlantic-Mediterranean transition, where several fronts are located: Gibraltar Strait (GS), Almeria-Oran Front (AOF) and Ibiza Channel (IC). Seven populations of the marine crab *Liocarcinus depurator* (Cadiz, West and East Alboran, Alacant, Valencia, Ebro Delta and North Catalonia) located along this transition were analysed in six consecutive years (2014–2019) using a fragment of the COI (

Cytochrome Oxidase

subunit I) gene. All sequences (966) belonged to two well defined haplogroups: ATL (most abundant in Atlantic waters) and MED (predominant in Mediterranean waters). Following a geographic variation, the frequency of ATL decreased significantly from Cadiz to North Catalonia. However, this variation presented steps due to the effect of oceanographic restrictions/fronts. Significant effects were recorded for GS (2015, 2017, 2018 and 2019), AOF (all years except 2018) and IC (2016). The intensity and precise location of these fronts changed over time. Multivariate analyses distinguished three main population groups: Cadiz, Alboran Sea and the remaining Mediterranean populations. These findings could be relevant to properly define Marine Protected Areas and for conservation and fisheries policies.

Keywords: Evolution, Genetics, Zoology.