

# Fluctuations of oceanographic barriers and their effect on connectivity between populations of marine crab *Liocarcinus depurator*

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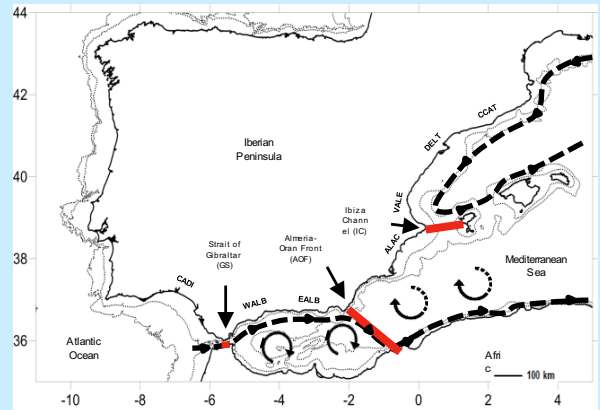


## INTRODUCTION:

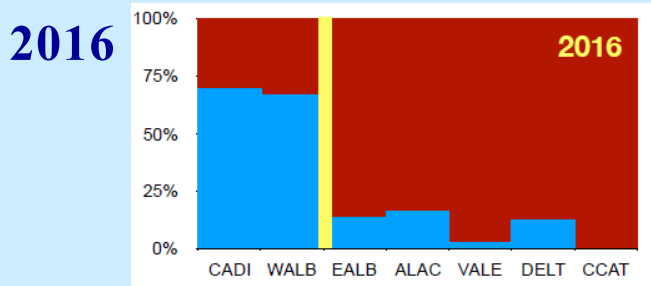
In this research, we have analyzed the spatial and temporal genetic differentiation of the portunid marine crab *Liocarcinus depurator* using a 527 pb fragment of the *Cytochrome Oxidase I (COI)* mitochondrial gene. Two haplogroups were detected: Atlantic and Mediterranean. In 2016, the main oceanographic barrier was located between West and East Alboran, whereas in 2017 it was between East Alboran and Alacant.



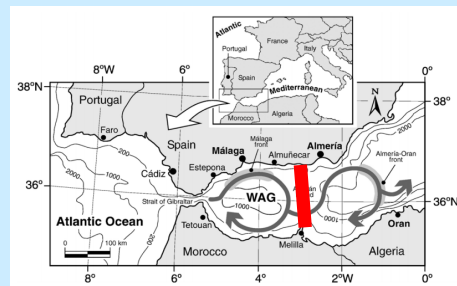
Adult (left) and larva (right) of marine crab *Liocarcinus depurator*.



**Main Marine currents** (black). **Discontinuities** (red): GS (Gibraltar Strait), AOF (Almeria Oran Front) and IC (Ibiza Channel). **Localities:** CADI (Cadiz), WALB (West Alboran), EALB (East Alboran), ALAC (Alacant), VALE (Valencia), DELT (Ebro Delta) and CCAT (Central Catalonia).

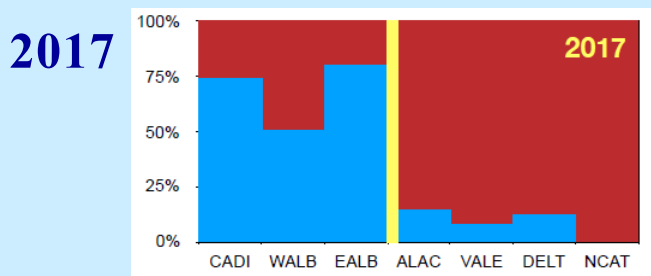


Distribution of **Atlantic** (blue) and **Mediterranean** (red) haplogroups in 2016 samples. CADI and WALB presented Atlantic influence, whereas the other samples were mainly of Mediterranean composition.

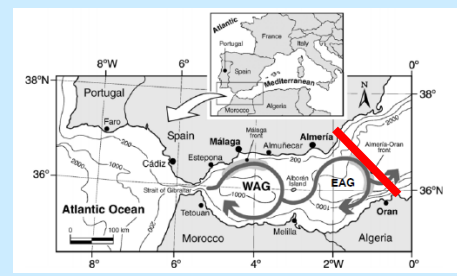


Adapted from Silva et al. (2006)

The **main oceanographic barrier** was located between East and West Alboran. This result could be a consequence of a weakness of the Eastern Gyre.



Distribution of **Atlantic** (blue) and **Mediterranean** (red) haplogroups in 2017 samples. CADI, WALB and EALB presented Atlantic influence. The other populations were mainly of Mediterranean composition.



Adapted from Silva et al. (2006)

The **main oceanographic barrier** was located between East Alboran and Alacant. This is the common location of the AOF (Almeria Oran Front).

## CONCLUSIONS:

1. In 2016 and 2017, two haplogroups were observed: Atlantic and Mediterranean.
2. In 2016, the main oceanographic barrier detected was located between West and East Alboran. However, in 2017 it was detected between East Alboran and Alacant, the common location of AOF (Almeria Oran Front).