PARASITIC PEA CRAB: IMPLICATIONS FOR MUSSEL CULTURE

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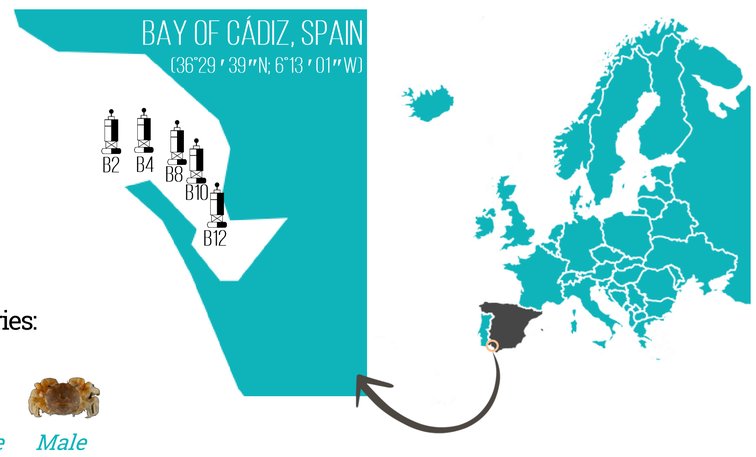
THE HYPOTHESIS

The prevalence of *Afropinnotheres monodi* in subtidal mussels (*Mytilus galloprovincialis*) depends on the degree of exposure-shallowness of their habitats and consequently of the coexistence of hosts of all crab demographic categories in a reduced area.

To test this hypothesis, we assess the prevalence and demographic structure of *A. monodi* in the subtidal mussels attached to the submerged chains of the navigational buoys (lateral marks) of the Cadiz Port Authority, located along the navigable channel of this bay.

M & M

THE AFRICAN PEA CRAB



Demographic categories:

Female *Hard Female* *Male*

In the study area, bivalve hosts of all demographic categories are present.

Cerastoderma edule *Cerastoderma glaucum* *Ruditapes decussatus* *Scrobicularia plana* *Polititapes aureus*

SAMPLING

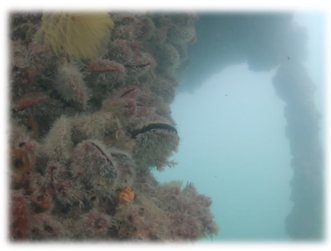
- ✓ Scuba diving
- ✓ 50-150 mussels per buoy
- ✓ 4 Stations
- ✓ From summer 2017 to spring 2018

DATA ANALYZE

- ✓ Chi-square (χ^2)
- ✓ ANOVA

CONCLUSION

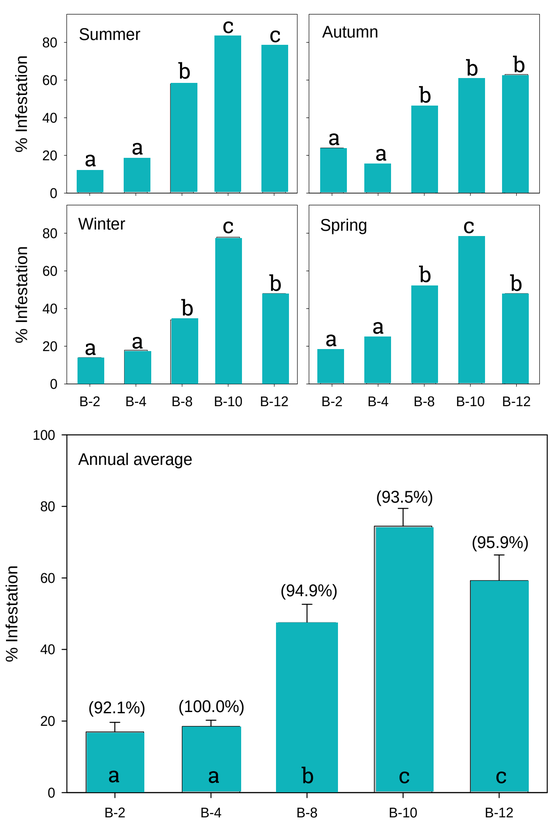
The pea crab *A. monodi* infects subtidal mussels as the cultured mussels in rafts or long-lines. The mussel farms most threatened by *A. monodi* will be those that are located in shallow waters of protected areas, where hosts used by the different demographic categories of this crab species coexist. For reducing at least partially the negative effects of these parasites, mussel farms must be placed offshore. The current scenario of global warming suggests that this pea crab reaches and successful establishes populations at more northern latitudes in the Iberian Peninsula.



Due to the negative effect that *A. monodi* in the condition index of *M. galloprovincialis*, this pea crab constitutes a potential risk for the mussel and shellfish farming of bivalve molluscs.

RESULT

- ✓ 43.3% of mussels hosted the African pea crab.
- ✓ Some temporal variations and high prevalence of infestation along the year at the buoys.
- ✓ Clear spatial pattern from the outer (lower infestation) to the inner buoys.



For each season and for all the study period, prevalence of infestation by *A. monodi* in *M. galloprovincialis* mussels collected at different buoys (B-2, B-4, B-8, B-10, B-12). Up each bar of the annual average values, the percentage of hosts infested by only one crab. Bars marked with a same letters indicated non-significant differences in prevalence (χ^2 tests, $p > 0.05$).

DISCUSSION

The lower infestation of mussels from the outer buoys (B2 and B4) and the higher infestation of mussels from the inner buoys (B10 and B12) could be reflecting the mayor and minor distance, respectively, to the Rio San Pedro Inlet, the area of the bay in which are located the largest natural beds of cockles (*C. edule* and *C. glaucum*) and the clam *S. plana*. In fact, the higher prevalence of *A. monodi* was just found in mussels from B10 (74.5%, on average) which is the buoy located the closest to this main source of the pea crabs that infest subtidal mussels of the Bay of Cadiz.

The similar environmental conditions at the bay of Cádiz and Galician Ria habitats (in summer), where the mussel farms coexist with the neighbouring natural bed of the cockle *C. edule*, suggest that **this African pea crab could cause economic problems in the Galician mussel industry**, in the nearby future.

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