Estuarine keystone species in a changing world:
how early life-history stages of fiddler crabs will respond to coastal ocean warming and acidification?

Juan C. F. Pardo [1,2] *, Stefano Cannicci[3], Tânia M. Costa [1,2]

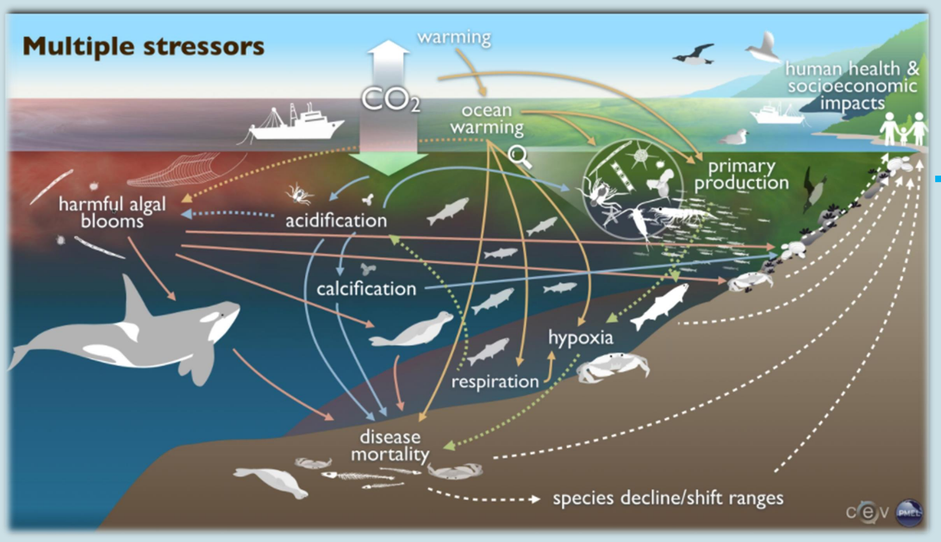
[1]Biosciences Institute, São Paulo State University (UNESP), Botucatu, SP, Brazil
[2]Coastal Campus, Biosciences Institute, UNESP, São Vicente, SP, Brazil
[3]The Swire Institute of Marine Science, School of Biological Sciences, The University of Hong Kong, Pokfulam, Hong Kong, China

*pardojcf@yahoo.com.br

FAPESP
CAPES
#15/50300-6
#17/00802-0

Background

The oceanic **coastal warming and acidification** affect the ecosystem structure and functioning



Estuarine and coastal organisms
=
complex to predict the effects of climate changes

ABIOTIC AND BIOTIC FACTORS

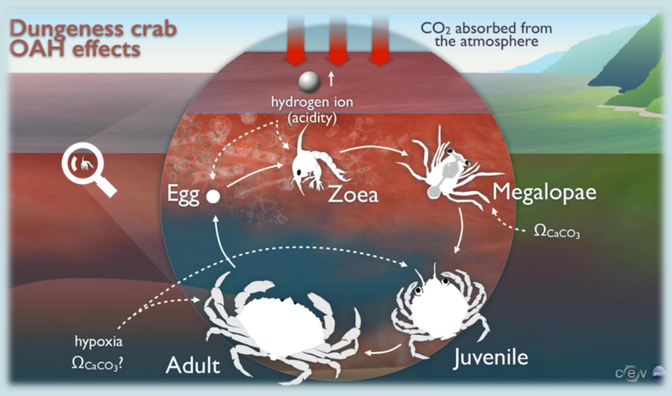
Addictive effect | **Antagonistic effect** | **Synergic effect**

and/or

Early life-history stages
POTENTIALLY VULNERABLE
to the stressors

Goal

Analyze the effects of climate changes on **behavior, physiology and predator-prey interaction** on early life-history stages (embryo and larvae) of *Leptuca thayeri*



Responses to stressors are species-specific and related to their own habitat

Material and Methods

1) Abiotic parameter sampling - *in situ*

Temperature, pH, alkalinity and salinity

burrows (microhabitat) of ovigerous females and mangrove area

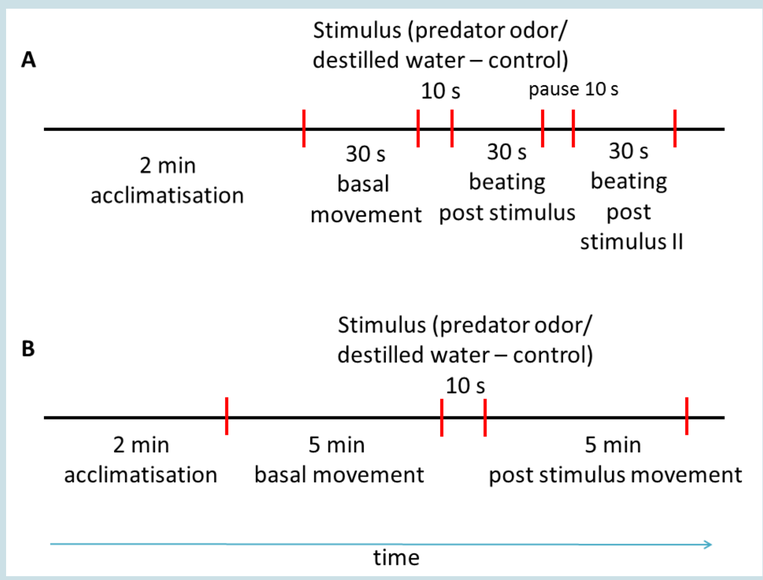
2) Effect of temperature increase and pH decrease on embryos and larvae Zoea I

6 factorial combinations (2x3)
mean temperature [control, + 7,0 degrees] and **pH** [control, - 0,4 units and - 0,7 units]

3) Effect of pH decrease on predator-prey interactions

Detection of predator odour
puffer fish *Spheoroides greeleyi* Gilbert 1900.

Response variables:
Behavioural (swimming activity)
physiological (heart beating)



Response variables:
Survivorship and eclosion rate – Morphometric - Oxygen Consumption

The aim of this project is to bridge some gaps concerning **estuarine and coastal organisms**, two understudied groups in the South Atlantic

References

'Multiples stressors' and 'Dungeness crab' images were obtained in CEV-PMEL

Are you interested on more information about fiddler crabs? Enjoy this informative video from New Atlantis WILD!

*'Barcode Scanner' is a good reading QR code app!

Acknowledges

We thank all members of LABECOM for both lab and field assistance. This project is funded by São Paulo Research Foundation (FAPESP) and Coordination for the Improvement of Higher Education Personnel (CAPES) (grant #15/50300-6 and #17/00802-0).