

# IMPACT OF CLIMATE CHANGE ON FOUR SOCIOECONOMICALLY IMPORTANT SPECIES OF BIVALVES FOR RÍAS BAIXAS

Adrián Castro\*, Marisela Des, Maite deCastro  
 Centro de Investigación Mariña, Universidade de Vigo, Environmental Physics Laboratory (EPhysLab),  
 Campus As Lagoas s/n, Ourense, 32004, Spain  
 \*adrian.castro@uvigo.es



## CURRENT CONTEXT

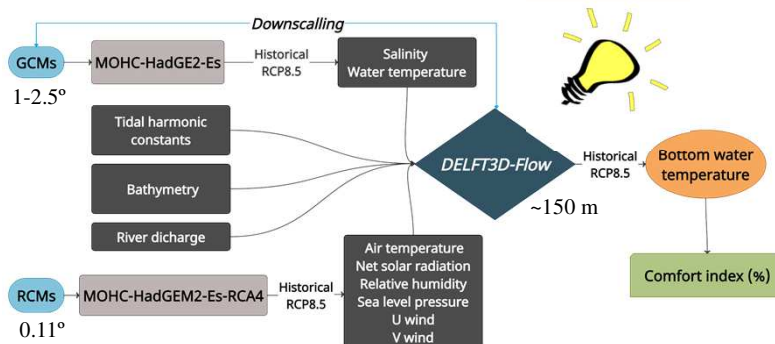
The increase in the global average ocean temperature due to greenhouse gas emissions **threatens species** with high socioeconomic weight such as *Cerastoderma edule*, *Ruditapes decussatus*, *Venerupis corrugata* and *Ruditapes philippinarum* (~7,900 tonnes with a value of ~74 million euros and ~7,100 shellfish gatherers in 2019, www.pescadegalicia.com) in the Rías Baixas, Galicia.

## OBJECTIVES

To analyze the possible impacts of bottom water temperature increase on *C. edule*, *R. decussatus*, *V. corrugata* and *R. philippinarum* under the RCP8.5 scenario in the Rías Baixas.

- To simulate bottom water temperature for July and August for the historical (1990-2018) and future (2080-2099) periods.
- To calculate the comfort index (% of time during which the bottom water temperature remains within the optimal range of the species) for each period.

## METHODS



## RESULTS

### *R. decussatus*

### *V. corrugata*

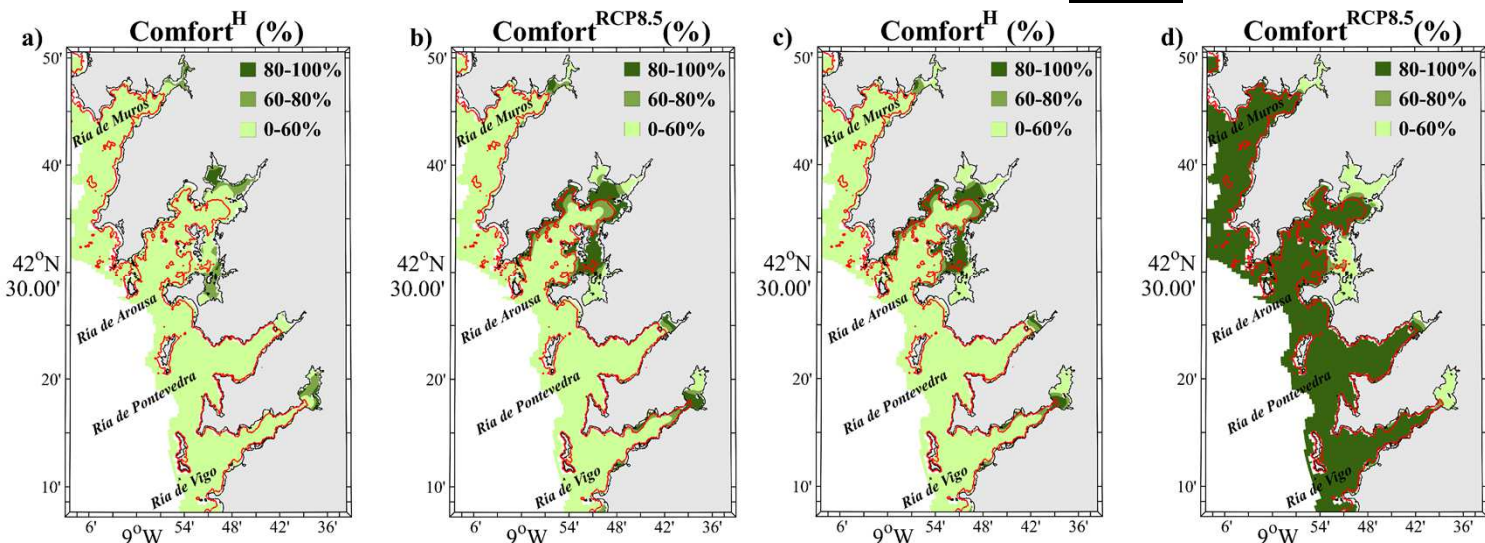


Fig. 1. Percentage of time (July-August) during which bottom water temperature is within the optimal range for *R. decussatus* (18-24 °C) and *V. corrugata* (15-20 °C) for the historical (1999-2018), a) and c) and, for the future (2080-2099) b) and d) periods. The red line represents the 10 m bathymetry (maximum depth at which the species are cultivated).

## CONCLUSIONS

The increase in water temperature may **modify the areas of thermal comfort** for *C. edule*, *R. decussatus*, *V. corrugata* and *R. philippinarum*.

- ✓ During the **historical period**, the areas where comfort exceeds 60% are found in the **inner zones** of the four rias and, in **areas shallower than 10m**. This may be due to the upwelling events occurring in summer, which pump cold water helping to keep bottom water temperature between 12 and 14 °C (below the optimal lower limit of the species).
- ✓ In general, the **comfort area extent may increase moving towards deeper and outer areas** by the end of the century due to the projected increase in water temperature.
- ✓ **Oceanic warming may negatively impact the productivity of the species** analyzed in inner and shallower areas of the rias, as the comfort index is projected to decrease in these areas. The prolonged increase in exposure to heat stress may have a direct impact on their growth (longer time to reach commercial size) and reproductive success (lower larva number and size).



adrian5villena@gmail.com

¡Visualiza el póster en tu móvil!



¡Conócenos!



CIM  
 Centro de Investigación Mariña  
 Universidade de Vigo