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## Scientific context

Trawling activities are considered as one of the main source of disturbance for the seabed worldwide. In the context of the gradual implementation of the Ecosystem Approach to Fisheries, vulnerability of the communities to trawling has to be characterised.

## Objective

Disentangling the influence of environmental variation and trawling intensity to explain the distribution of vulnerability patterns

## Methodology

### 1) An underwater video survey

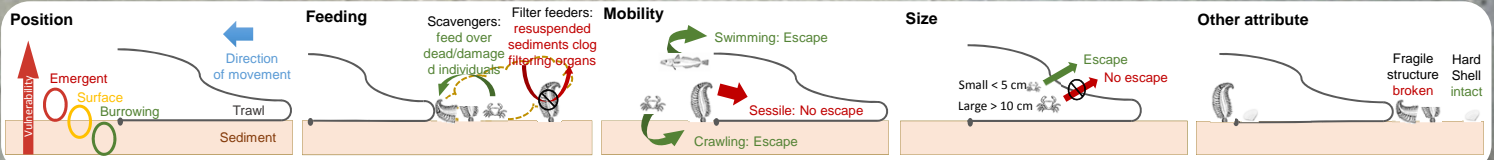


### 3) Explaining spatial patterns of vulnerability

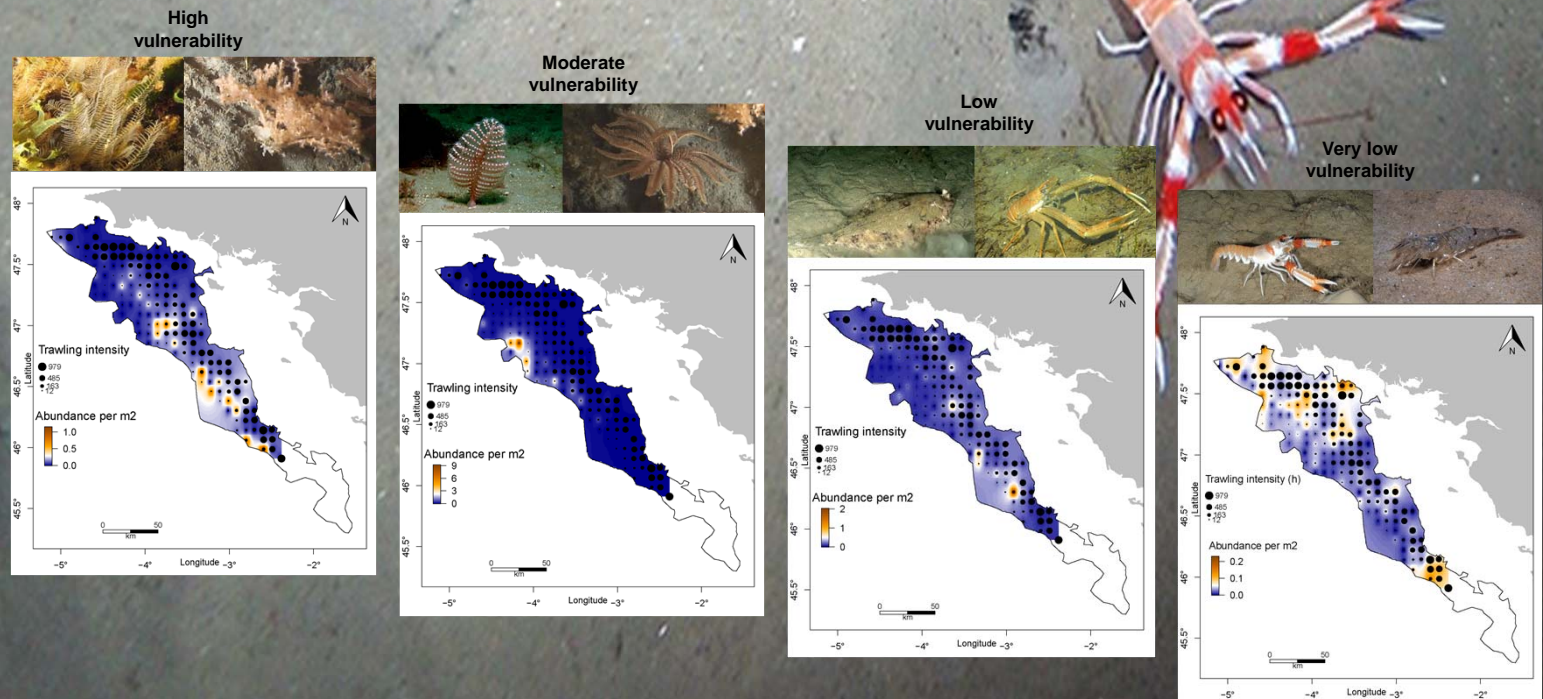
- Density of vulnerability group at each sampling site
- GLM
- Environmental variables: Depth, Sediment type, Salinity, Temperature, Current speed
  - Fishing effort variable (VMS)
  - Geographical variables

### 2) Vulnerability assessment based on biological traits (Juan & Demestre 2012)

4 vulnerability groups



## Results



### Factor influencing vulnerability patterns

- The distribution of high vulnerability group varies according to all variables, except current, and is the only group significantly influenced by trawling intensity and sediment type.
- Both depth and current have a positive relation with the density patterns of the moderate vulnerability group.
- The distribution of the low vulnerability group is positively influenced by longitude only.
- Likewise, the distribution of the very low vulnerability group is influenced negatively by depth only.

### Conclusion

- Only the distribution of the more vulnerable group is impacted by trawling effort.
- Selected models highlighted the complexity of relationships between the distribution of each group and environmental and fishing variables.
- Distribution of vulnerable species is a valuable information for integrated management of fisheries in the Grande Vasière.

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