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BASQUE RESEARCH
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Universidad del País Vasco
Euskal Herriko Unibertsitatea

Pelagic trophic interactions in the Bay of Biscay: implications for ecosystem-based management

Beñat Iglesias

Supervisors: Maite Louzao (AZTI) and Izaskun Preciado (IEO)

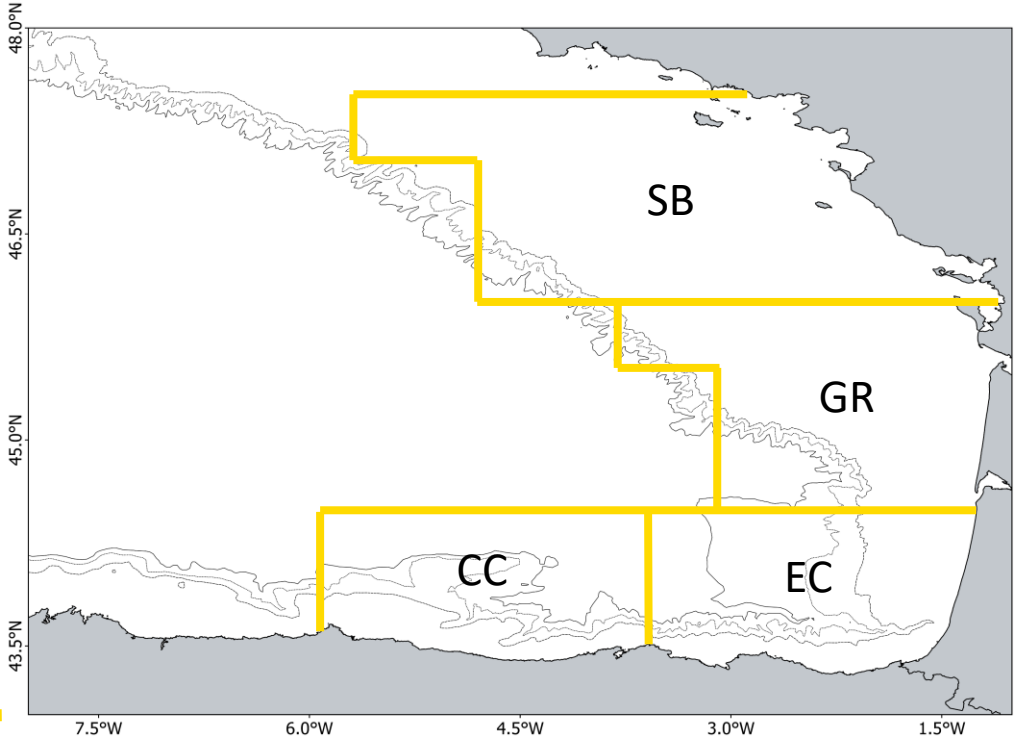
Objectives

Main goal

To develop a spatially-explicit framework to better understand the trophic relationships between the different pelagic components belonging to different trophic levels in the food web.

1. To analyse trophic interactions of pelagic organisms in the Bay of Biscay
2. To develop an integrative approach to assess the spatial co-occurrence of pelagic fish and predators
3. To study the influence of the oceanography on the spatial and seasonal variability of trophic interactions
4. To develop community and trophic indicators that respond to anthropogenic pressure to know the state of pelagic ecosystems

Study area



Bay of Biscay

CC: Central Cantabrian
EC: East Cantabrian
GR: Garonne Area
SB: South Britain

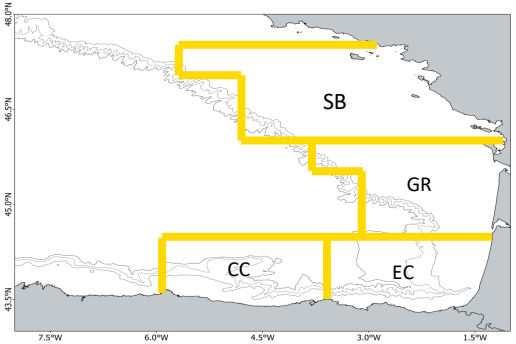
Data collection

- Top-predators (High TL)

- Pelagic fish and cephalopods (Medium TL)

- Plankton (Low TL)

Data collection



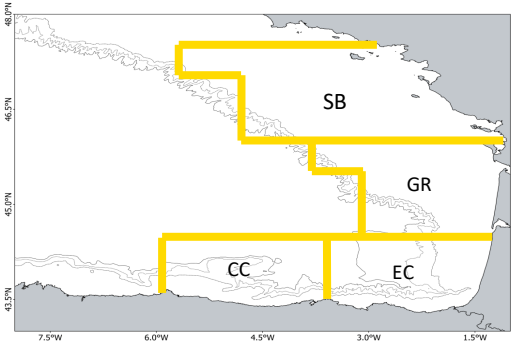
Top-predators (high TL)

Observations on board using the distance sampling methodology to stimate the spatial distribution and abundance.

Ángeles Alvariño R/V (JUVENA 2020)

Delphinus delphis (Common dolphin)

Data collection



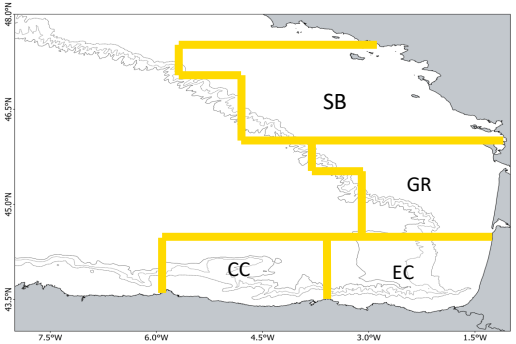
Pelagic fish and cephalopods (medium TL)

Pelagic trawl fishings to stimate the spatial distribution and abundance. 10 individuals of different pelagic species are taken in each area for the stomach and stable isotope content analysis.

Pelagic trawl fishing

Juvenile Engraulis encrasicolus (Anchovy)

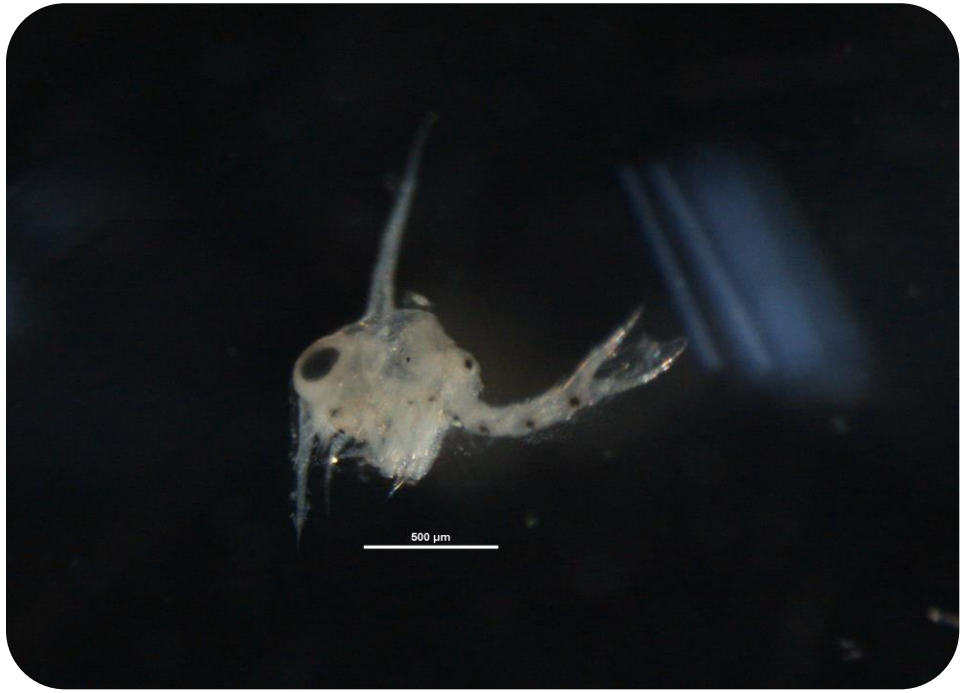
Data collection



Plankton (low TL)

Vertical fishings to stimate the spatial distribution and abundance and to analyse the stable isotopes. 3 samples in each area.

Vertical fishing with a PAIROVET



Decapoda larvae (Zoea stage)

1 Trophic interactions of pelagic organisms in the Bay of Biscay.

1. Trophic interactions of pelagic organisms in the Bay of Biscay

2 METHODS

Stomach contents analysis → Info about previous days diet

Stable isotopes analysis → Info about the food assimilated in recent past

Predator-prey interactions and niche overlaps

1. Trophic interactions of pelagic organisms in the Bay of Biscay

Lab work

644

Stomachs analysed

12

Predator

Engraulis encrasicolus
Scomber scombrus
Trachurus trachurus
Sardina pilchardus

41

Prey

Copepoda
Hyperiidea
Euphausiacea
Gastropoda
Thaliacea
Bivalvia
Anchovy eggs

429

Samples extracted

For the stable isotopes analysis

Fish, cephalopods, krill, zooplankton and POM

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THANK YOU!