



# Relationship between anchovy (*Engraulis encrasicolus*) recruits and anchovy spawners estimated from acoustic surveys in Northwestern Mediterranean Sea

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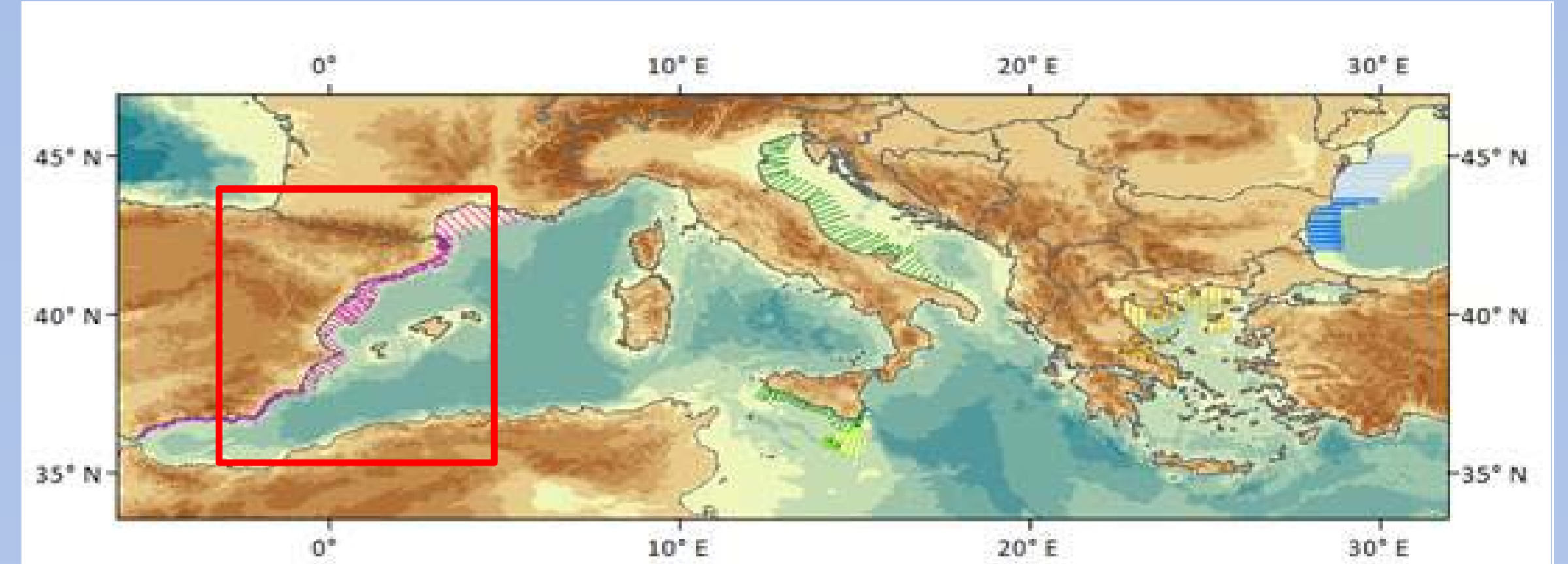
## Introduction

Anchovy supports large fisheries in the Mediterranean Sea and recruitment plays a major role in setting year-to-year changes in the level of the stock.

In the Spanish Mediterranean Sea:

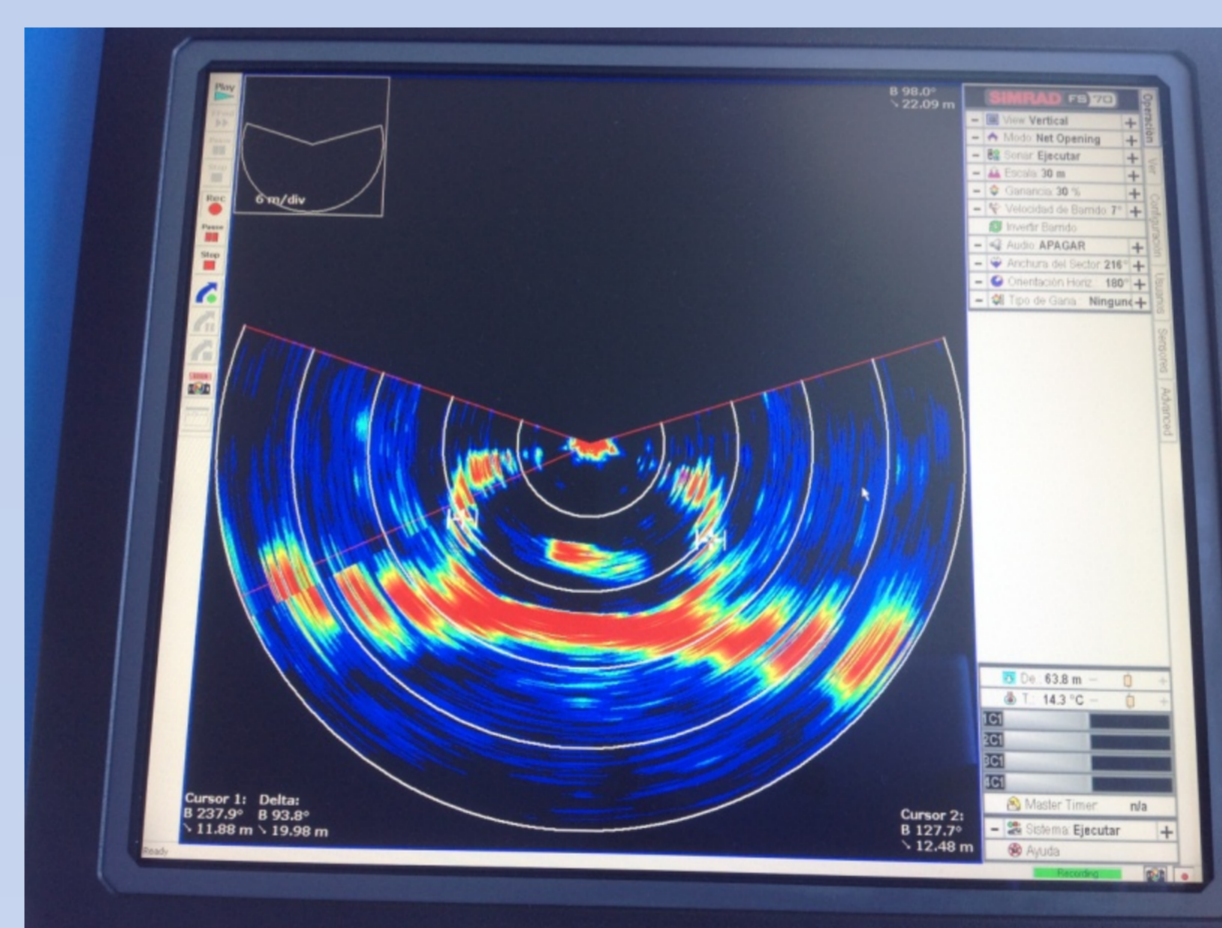
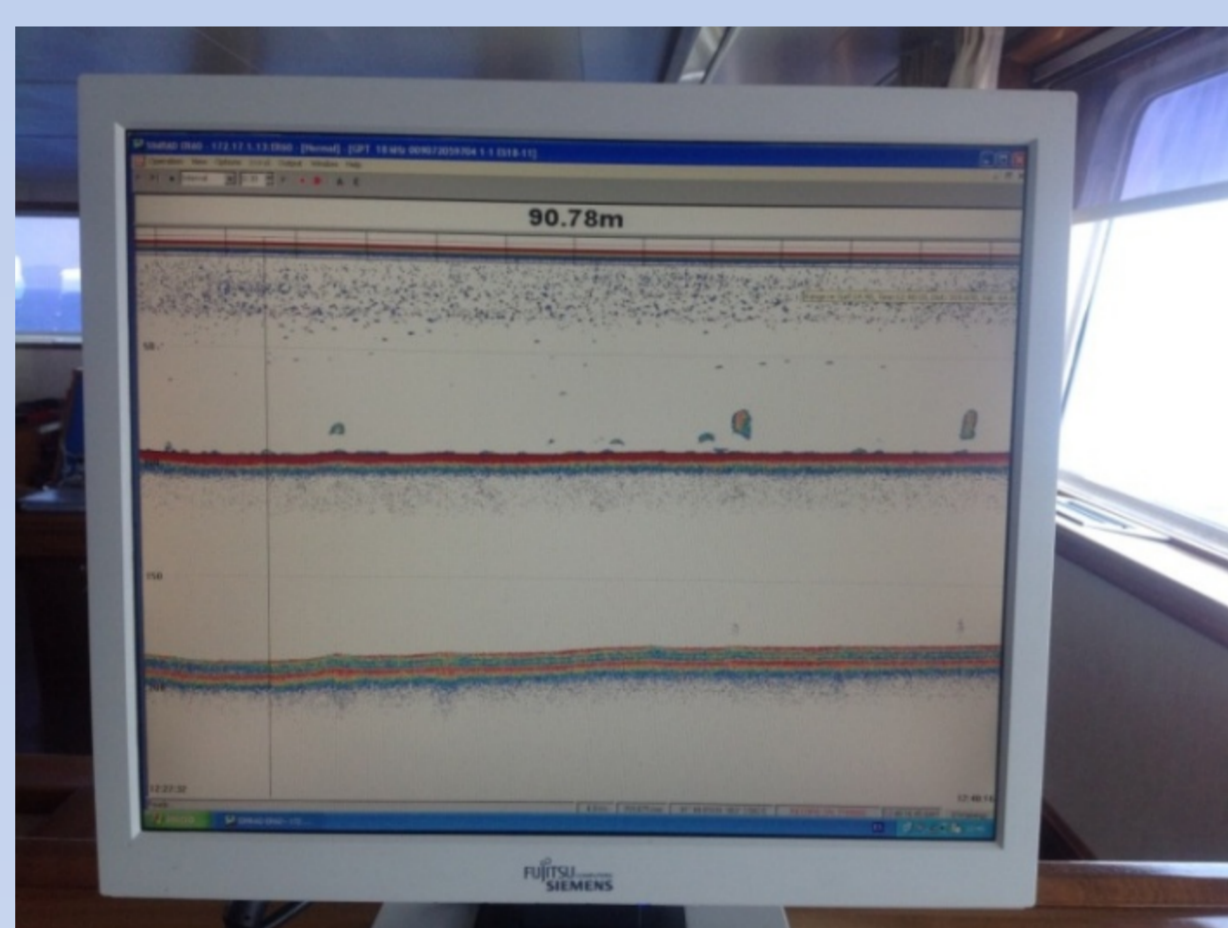
- anchovy spawning takes place from April to October with a peak in June-July and
- recruitment occurs from September to February with a peak in December.

For sustainable management of fish stocks, it is necessary to understand the dynamics of populations and their fluctuations over time. In the case of anchovy, this fact is crucial because most of the spawners come from the previous recruitment.



## Material and methods

Acoustic surveys were carried out in GSA06 in December 2008 (anchovy recruitment: R), June 2009 (spawners stock biomass: SSB), December 2009 (R) and July 2010 (SSB) providing anchovy abundance estimates (n° individuals and tons) by length and age. EK60 (Simrad) scientific echosounder (five frequencies); pelagic trawls; FS20/25 netsounder.



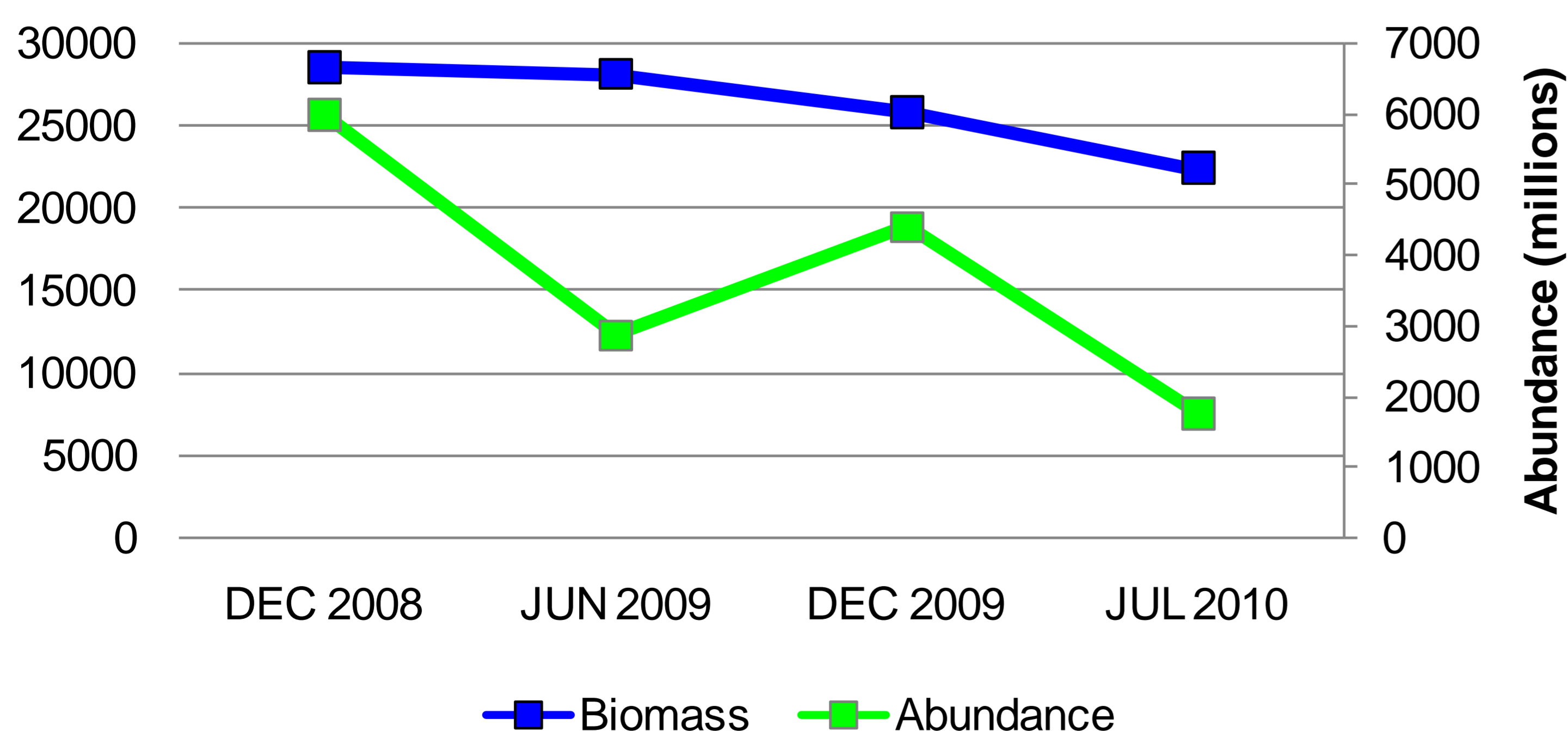
## Results

Anchovy recruitment abundance (in number of individuals) estimated in the GSA06 in December 2008 and 2009 (age 0) dropped nearly to half, six months later, in June 2009 and June 2010 (anchovy spawners, age 1), respectively.

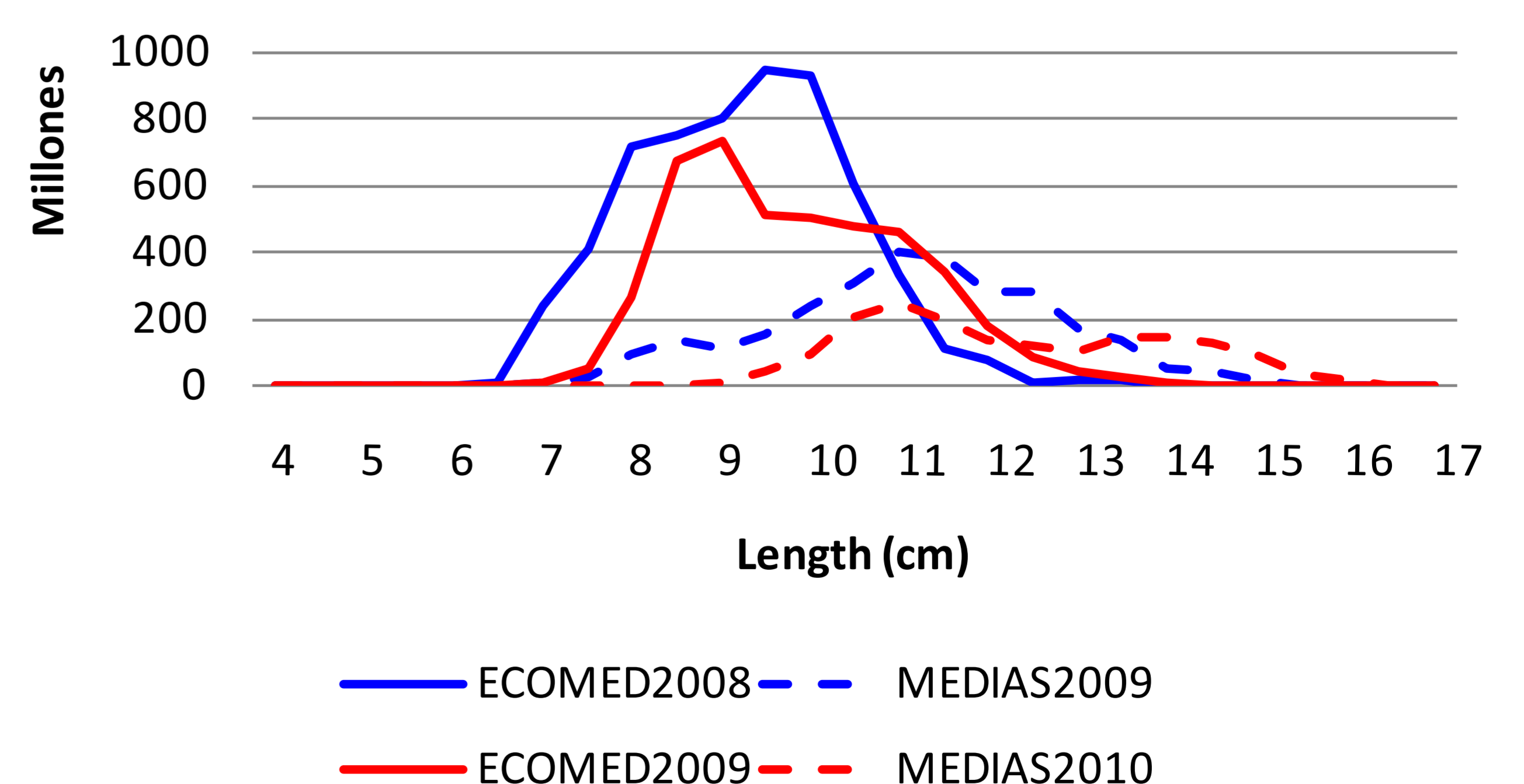
Differences in anchovy recruitment biomass (in tons) and anchovy spawners biomass estimated between seasons are lower due to the growth in length and weight of anchovy individuals which compensates for the loss of individuals.

This relationship permits standardize the data acoustic series collected since 1990 and is a good indicator of the anchovy mortality in this area.

### Engraulis encrasicolus



### Anchovy R/SSB



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