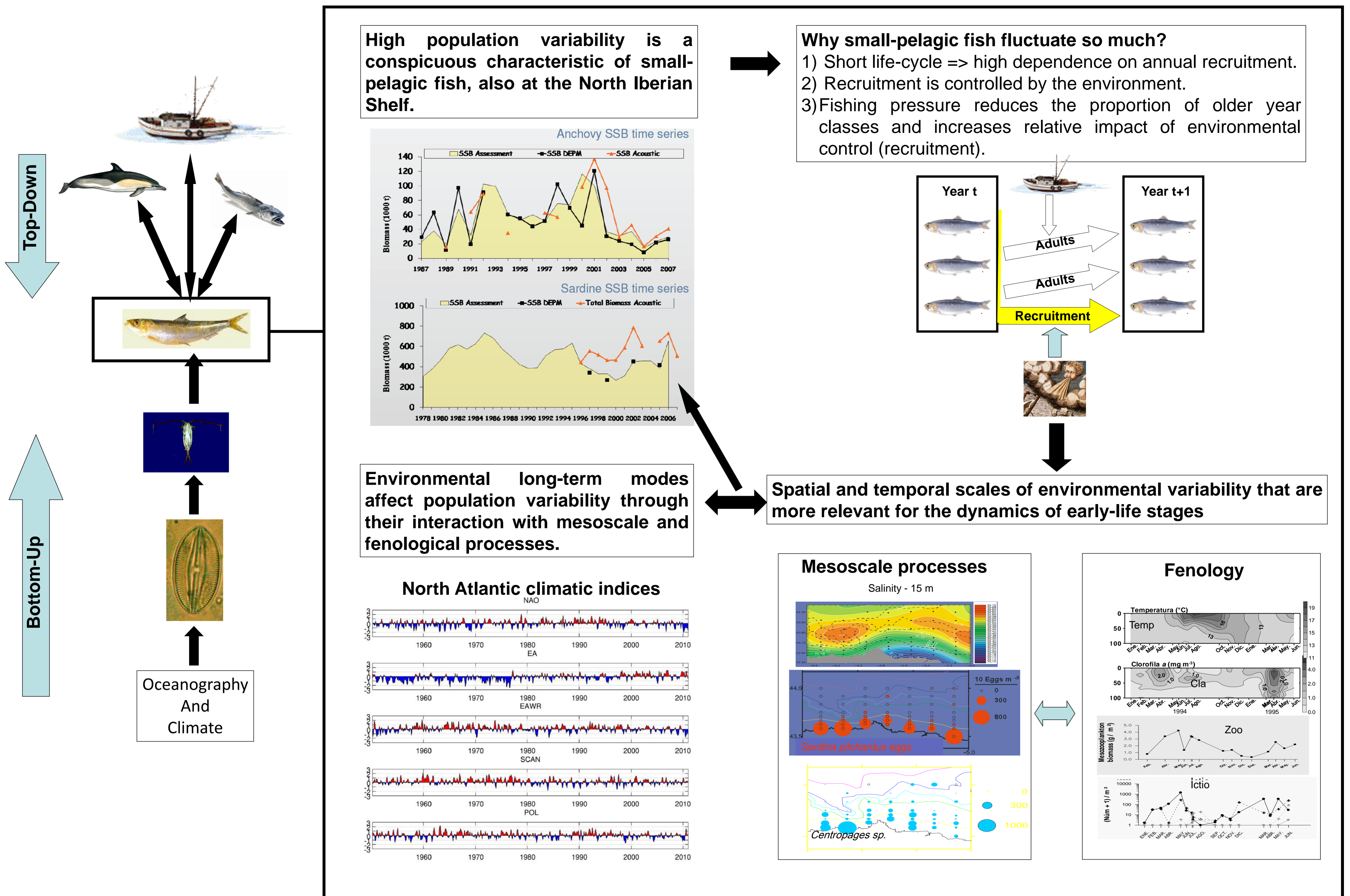


The LOTOFPEL project (2011–2013): An integrative ecosystem analysis of the bi-decadal (1990–2009) dynamics of small-pelagic fishes at the North Iberian shelf.

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- 1) Understanding pelagic-fish population variability requires an integrative analysis of long-term, mesoscale and phenological patterns of abiotic and biotic components and processes of the ecosystem.
- 2) This understanding is hampered by the paucity of data sets that integrate that information.

The IEO has extensive data sets obtained by means of IEO structural projects (e.g. RADIALES), activities funded by the Data Collection Regulation (EU) and a large number of research projects carried out during the last two decades at the North Iberian Shelf, being directly or indirectly-related with the main species of small-pelagic fish in the area: Namely, *Sardina pilchardus*, *Scomber scombrus*, *Trachurus trachurus* and *Engraulis encrasicolus*.

RADIALES PROJECT
(<http://www.seriestemporales-ieo.net>)

Main features:
Spatial resolution: 5 transects.
Temporal resolution: Monthly.
Characteristics of variables sampled: Hydrography, nutrients and plankton (including ichthyoplankton).

SPRING SURVEYS: 1) Acoustic stock assessment (e.g. PELACUS). 2) DEPM (CAREVA-mackerel, SAREVA-sardine JUREVA-horse mackerel). 3) Other research projects (e.g. SEAMAR).

Cronogram of acoustic surveys for small-pelagic fish assessment

Year	E	F	M	A	M	J	J	A	S	O	N	D
1987												
1988												
1989												
1990												
1991												
1992												
1993												
1994												
1995												
1996												
1997												
1998												
1999												
2000												
2001												
2002												
2003												
2004												
2005												
2006												
2007												
2008												
2009												

Main features:
Spatial resolution: ~ mesoscale (depending on the variable).
Temporal resolution: Annual (acoustic surveys); triannual (DEPM).
Characteristics of variables sampled: Small pelagic fish biomass distribution, fish biological parameters (e.g. size, maturity...), ichthyoplankton distribution and ancillary variables (hydrography, plankton...).

Sampling frequency of CTD and plankton stations over the North Iberian shelf during the last two decades.

INFORMATION FROM LANDINGS: e.g. SAP and BIOPEL projects.

Main features:
Spatial resolution: ~ by harbour.
 Biological parameters at selected sites.
Temporal resolution: Daily, monthly or annual.
Characteristics of variables sampled:
 Fishery data: vessel, fishing gear, weight by species, spatial explicit effort.
 Biological data: Size structure, maturity...

OTHER SOURCES:
TOP PREDATORS: Demersal surveys. Marine mammals dedicated and opportunistic surveys.
CLIMATE and OCEANOGRAPHY: Satellite, moorings, meteo, etc. from a large number of institutions.

- 1) An integrative analysis of these data sets constitutes a unique opportunity to understand the causes of population variability of small-pelagic fish populations at the North Iberian Shelf.
- 2) LOTOFPEL will investigate the long-term variability in the pelagic ecosystem at the North Iberian shelf (NIS) and its consequences on the dynamics of the populations of small pelagic fishes. The analysis will consider the interaction between spatial and temporal scales (mesoscale and regional, and seasonal and interannual), and between the abiotic (meteo-climatic and hydrographic) and biotic components (from plankton to top predators) at different levels of organization (populations, communities and trophic levels).
- 3) It will provide a sound basis for the implementation of an ecosystem-based fisheries management (EBFM) of the stocks of small pelagic fishes and for the application of the Marine Strategy Framework Directive of the European Community in the area.

Acknowledgements: The LOTOFPEL Project is financed by the Ministerio de Ciencia e Innovación (Spanish Government). The data sets that constitute the core of the project (see above) were obtained by the IEO by means of a extensive number of projects and activities in which large number of researchers and technicians were involved.