

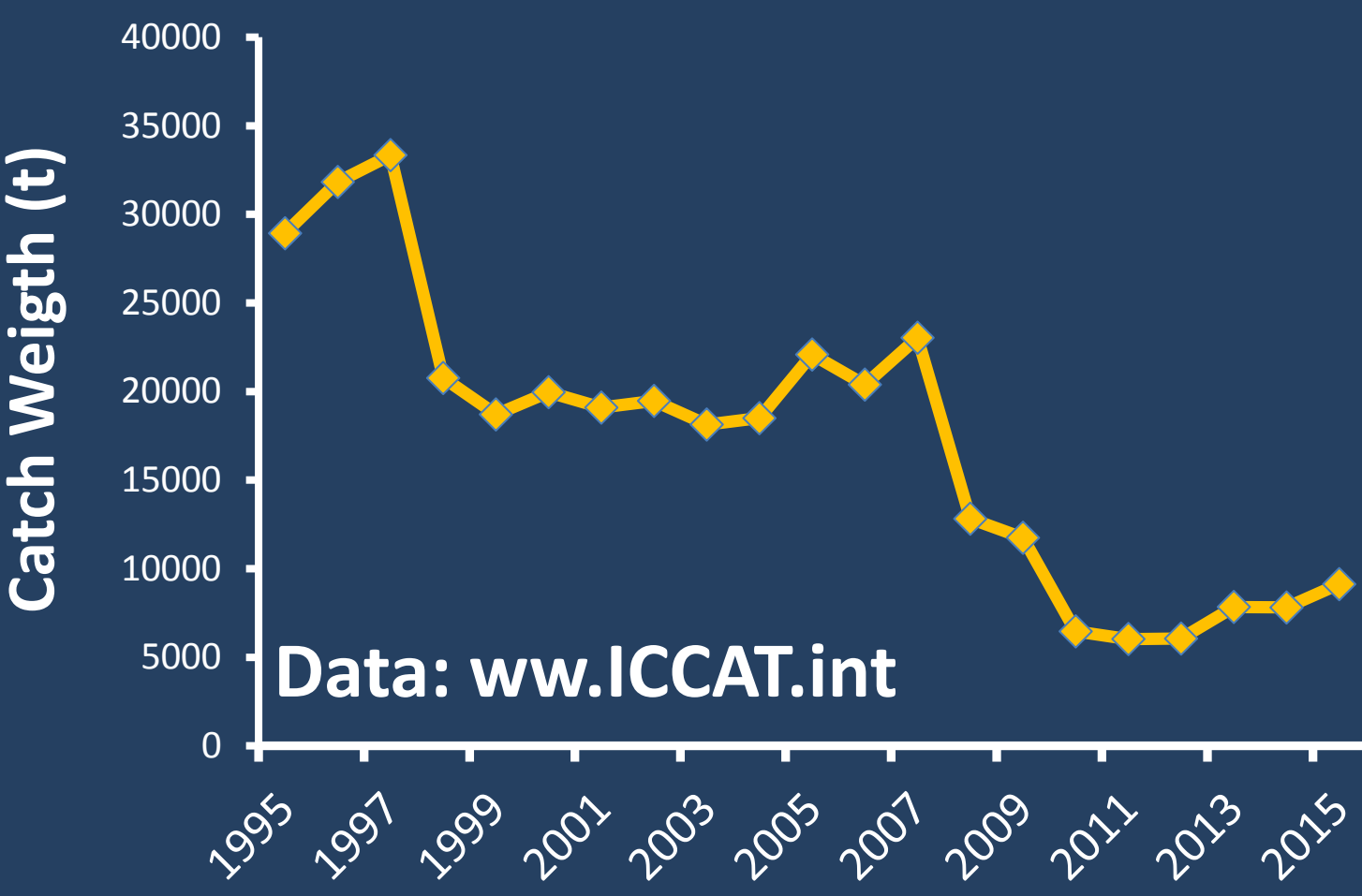
Operational oceanography for sustainable fisheries

Application to bluefin tuna in the Western Mediterranean.

01

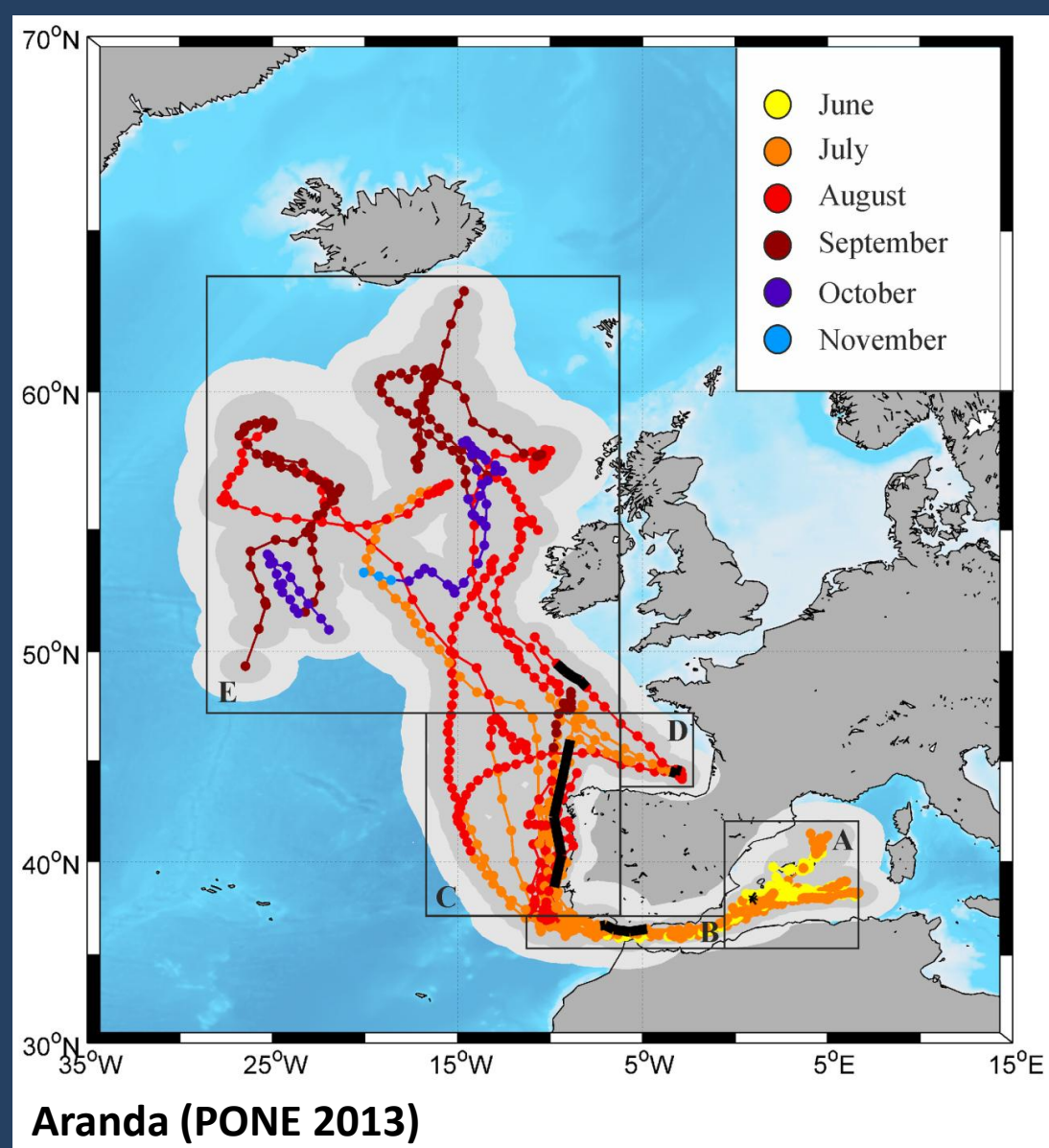
LINKING FISHERIES ASSESSMENT & SPECIES ECOLOGY & OPERATIONAL OCEANOGRAPHY

A highly valued species under strong catch restrictions



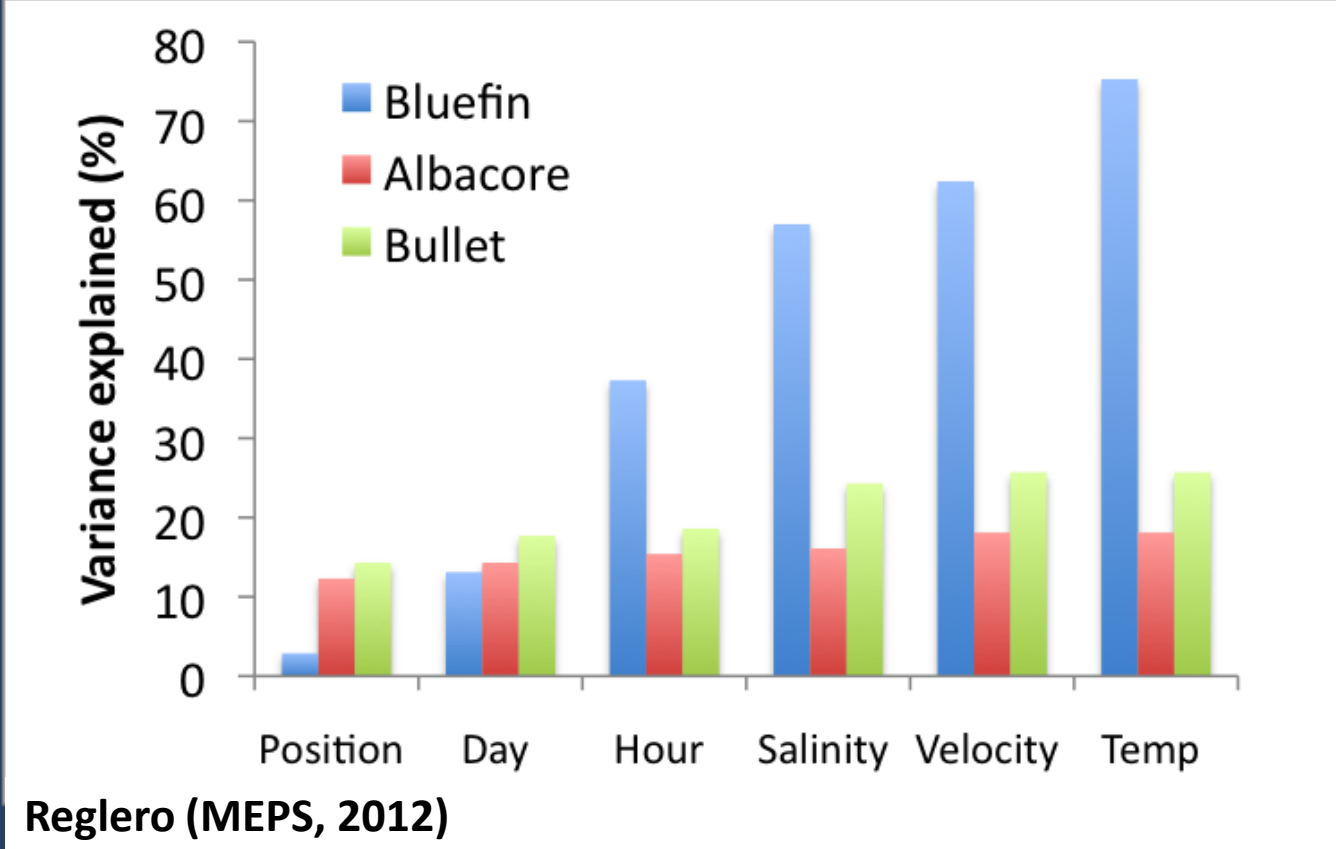
Reduction in total allowable catches (TACs) derived from population assessments

Highly migratory



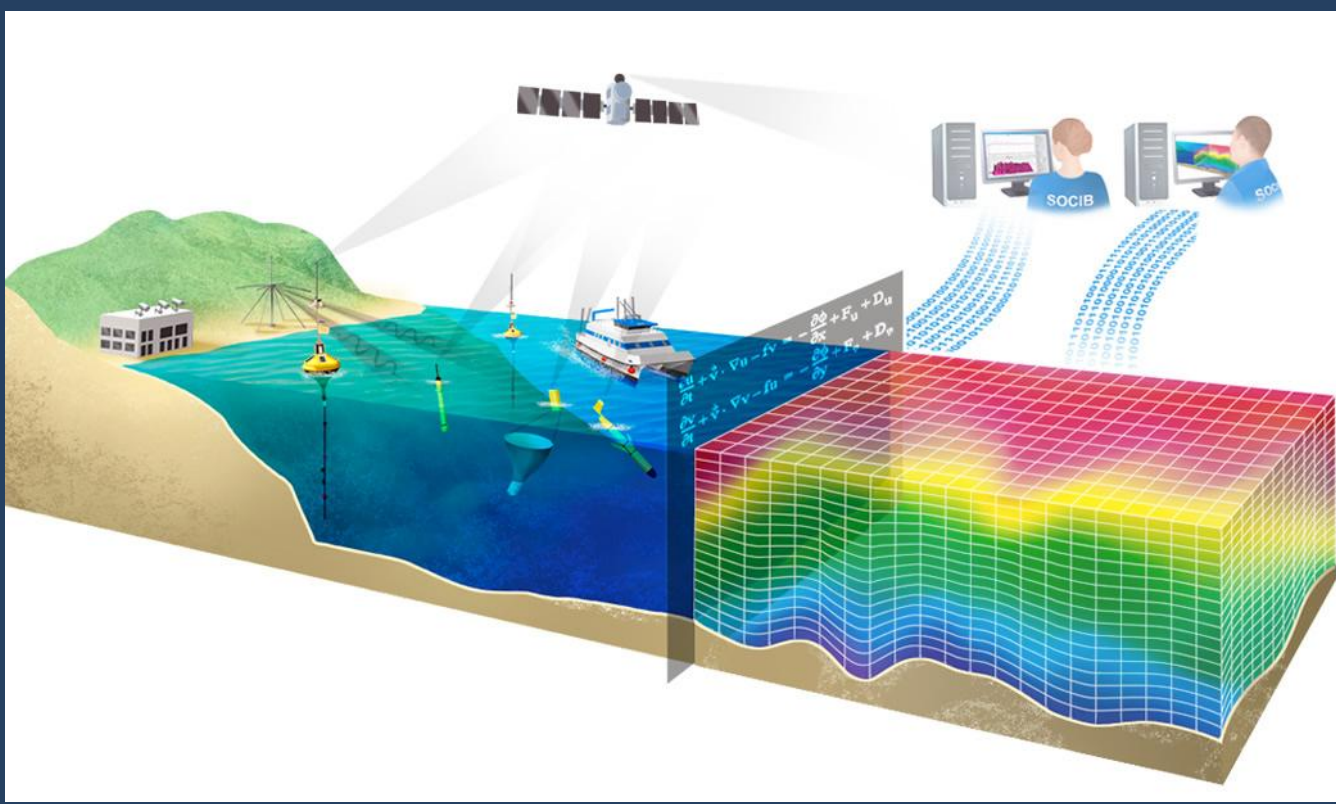
Bluefin tuna perform long migrations. During Spring travels to the Mediterranean. The Balearic Sea is a relevant spawning ground

Spawning ecology strongly influenced by local mesoscale oceanography



Comparison between the effect of different variables on the spawning location of three tuna species. Hydrographic variables (salinity, temperature and current velocities) are more relevant for bluefin tuna

Operational Oceanography, a multidisciplinary approach

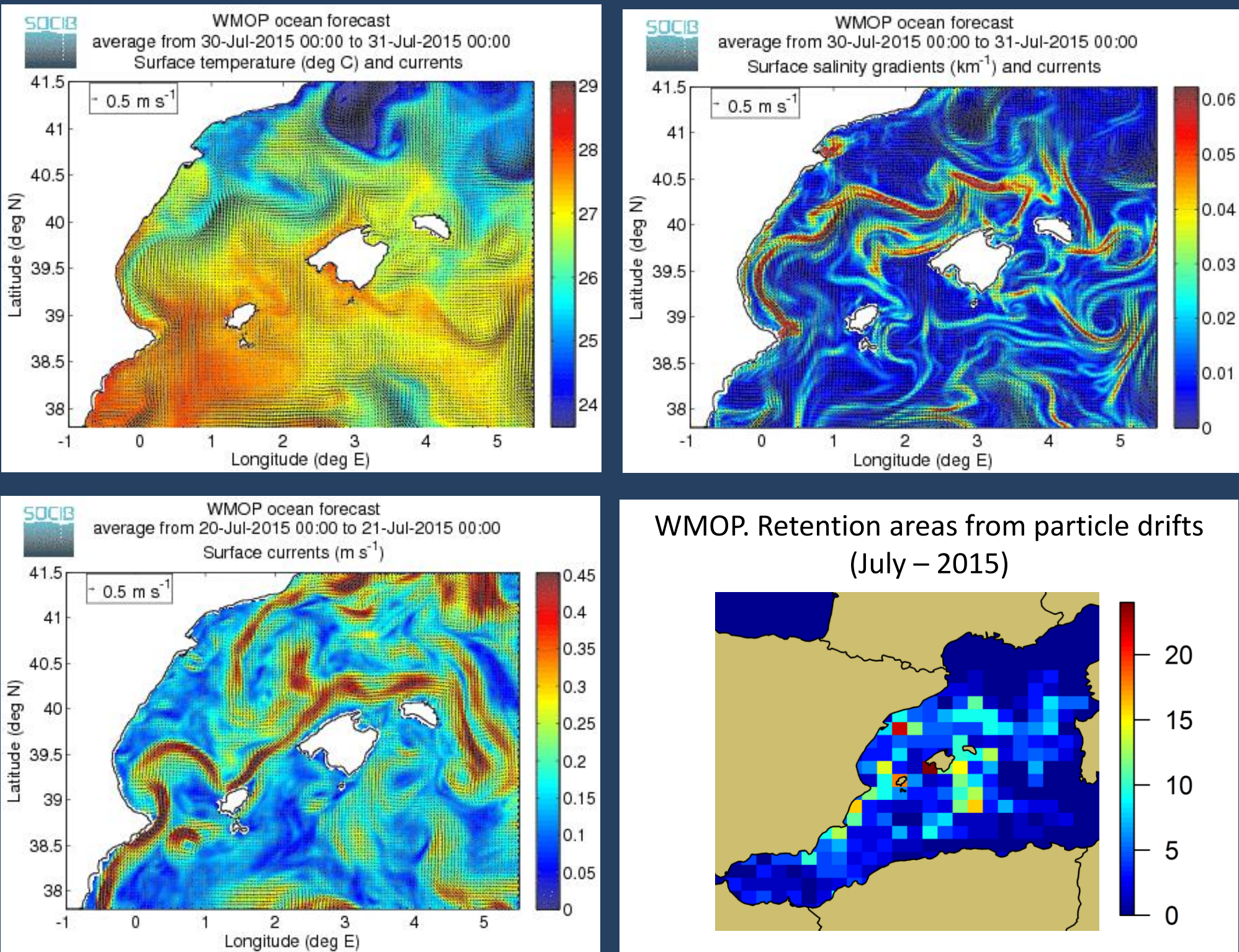


Combining in situ data, remote sensing and hydrodynamic models allow developing specific products to assess inter-annual variability of bluefin tuna ecological processes

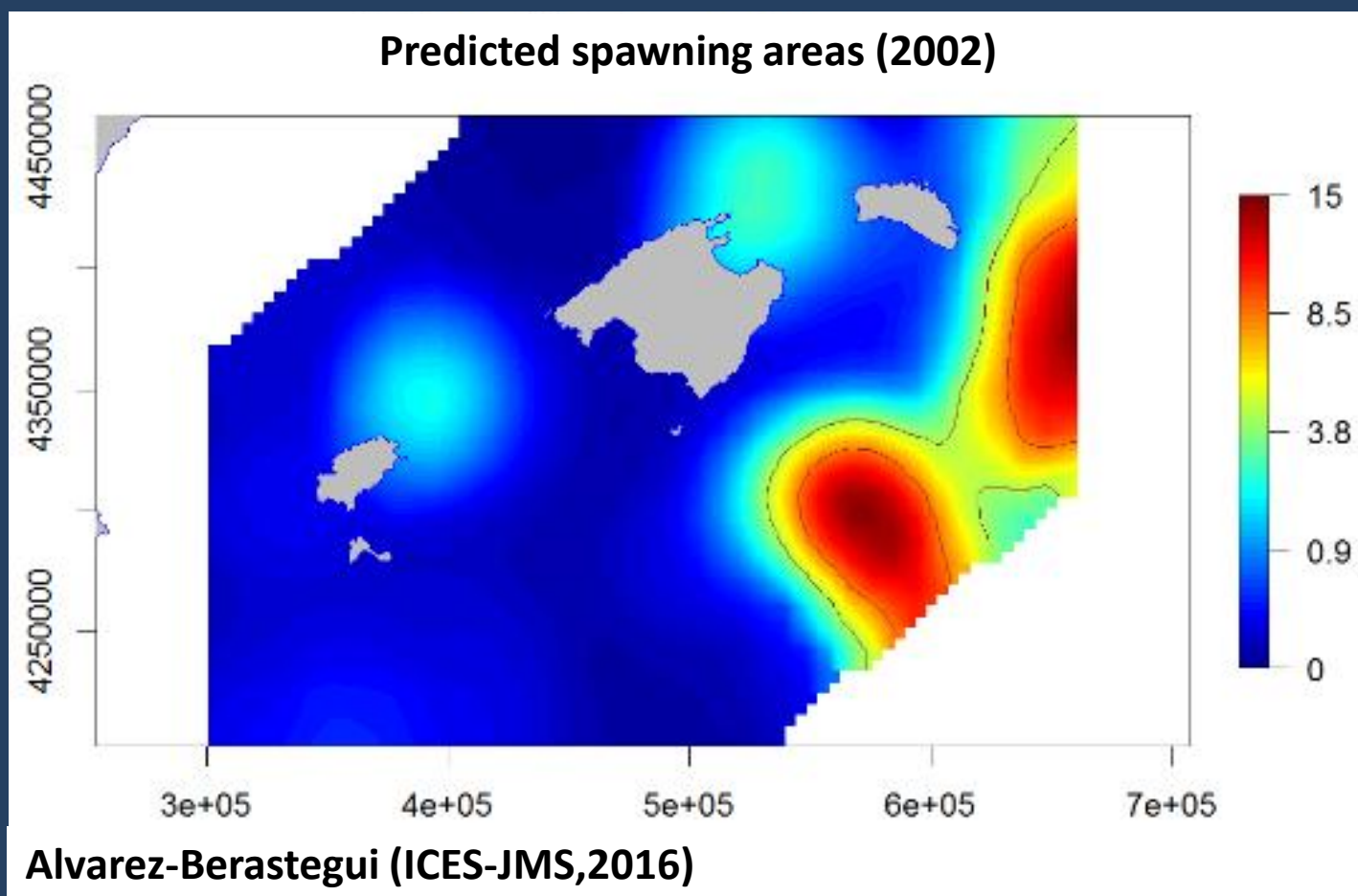
02

OPERATIONAL OCEANOGRAPHY PRODUCTS

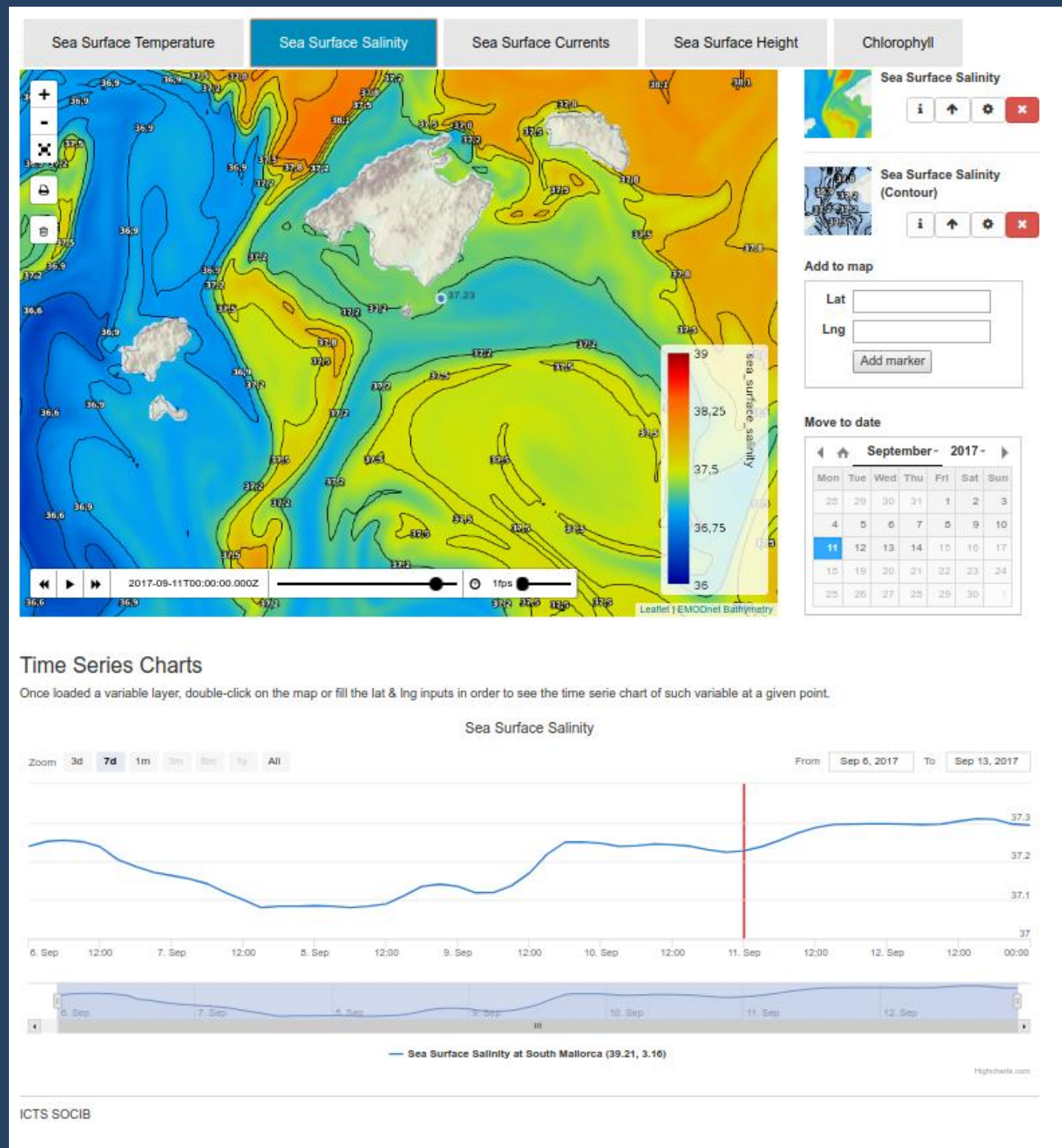
Oceanographic variables driving bluefin tuna spawning ecology



Forecast Spawning locations and larval survival



Data exploration tools



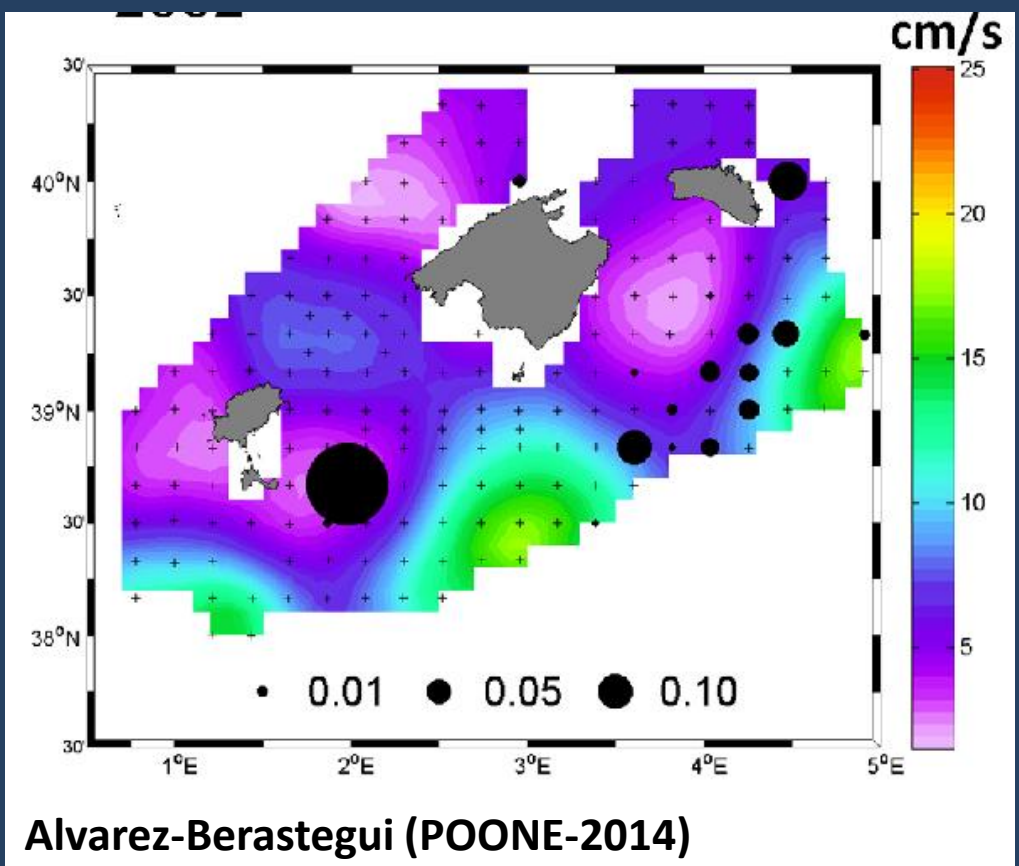
03

IMPLEMENTING “OPERATIONAL FISHERIES OCEANOGRAPHY”: TRANSFERENCE TO FISHERIES ASSESSMENT

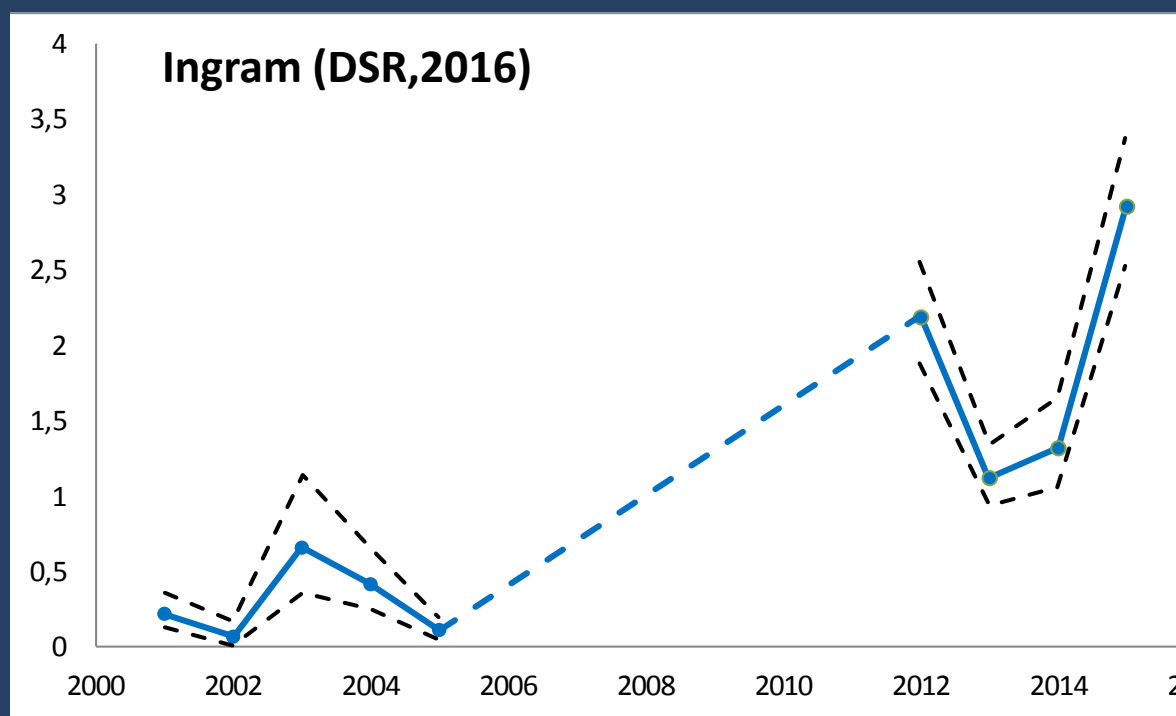
Monitoring larval Abundances & rearing experiments



Modeling spawning and larval habitats

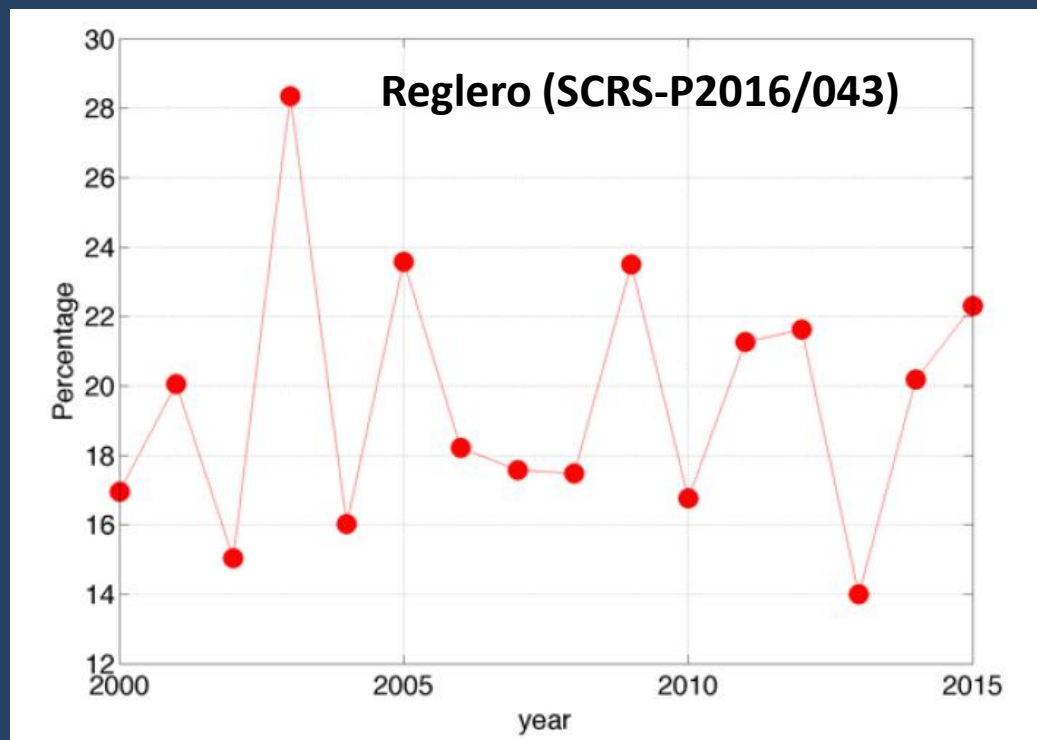


Trends of spawning stock biomass



Relative larval abundances in the Balearic Sea used to assess population status

Trends of larval survival



Larval survival in the Balearic Sea used to assess environmental effects on recruitment

04

GOING FURTHER

knowledge transference
Improving the multidisciplinary approach to other species and fisheries

Resolving the question:
What to research / what to develop?

