

Integrated Pelagic Ecosystem survey

in the western Channel and eastern Celtic Sea

Jeroen van der Kooij

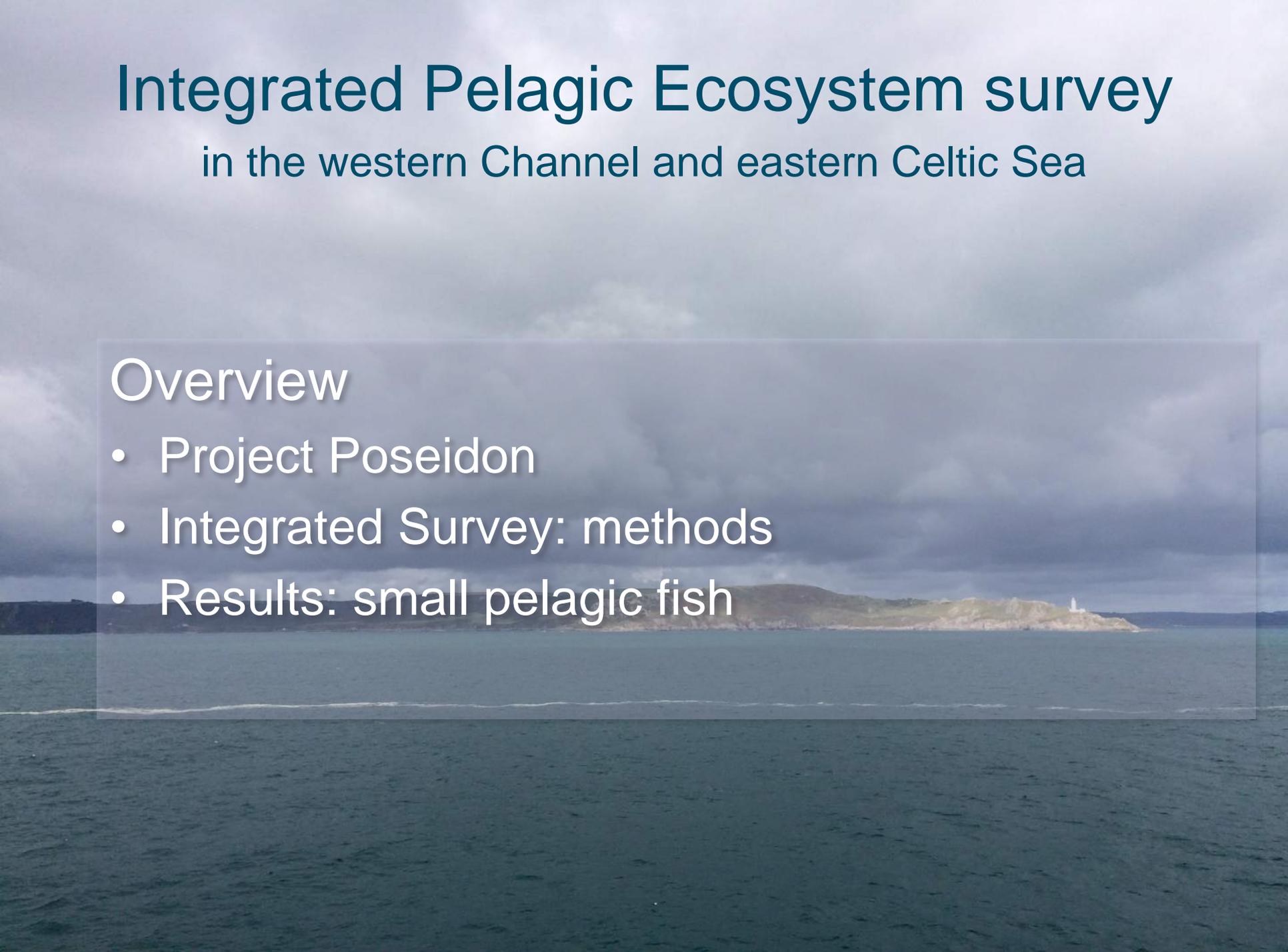


Integrated Pelagic Ecosystem survey

in the western Channel and eastern Celtic Sea

Overview

- Project Poseidon
- Integrated Survey: methods
- Results: small pelagic fish



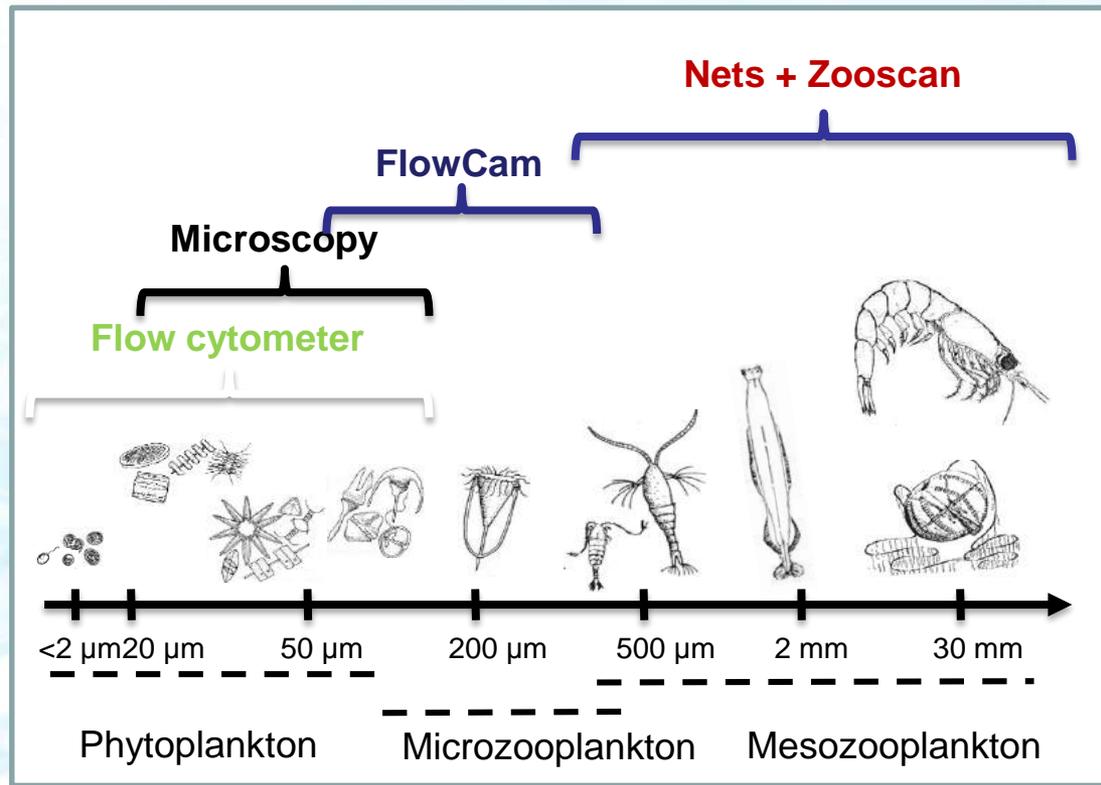
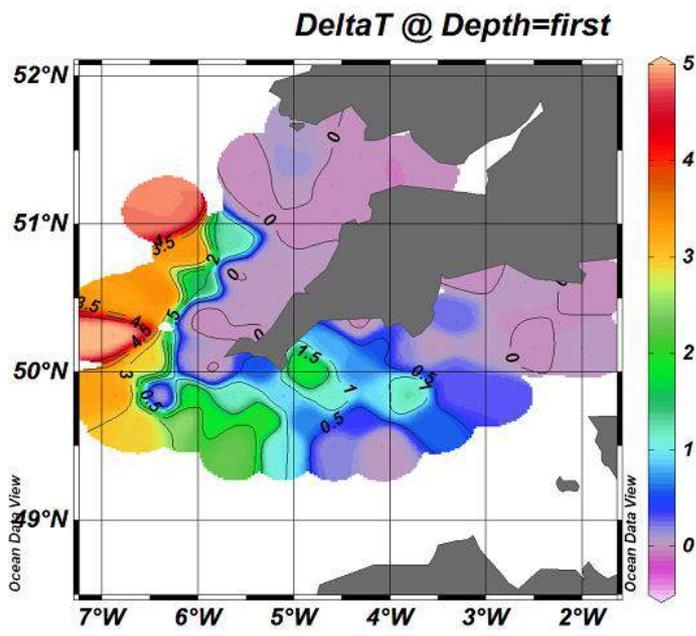
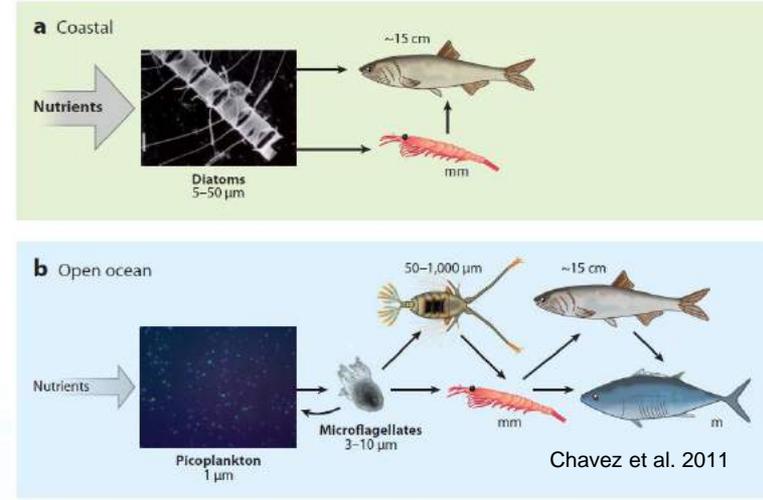
Small pelagic species in SW UK

- Defra funded
- 5 years (2012-2016)
- Primary aims: small pelagic fish
 - SW: Important pelagic fishery: sprat, sardine
 - New fisheries emerging (anchovy, boarfish)
 - Important forage fish
 - Data-limited – fisheries sustainable?
 - Climate indicators?

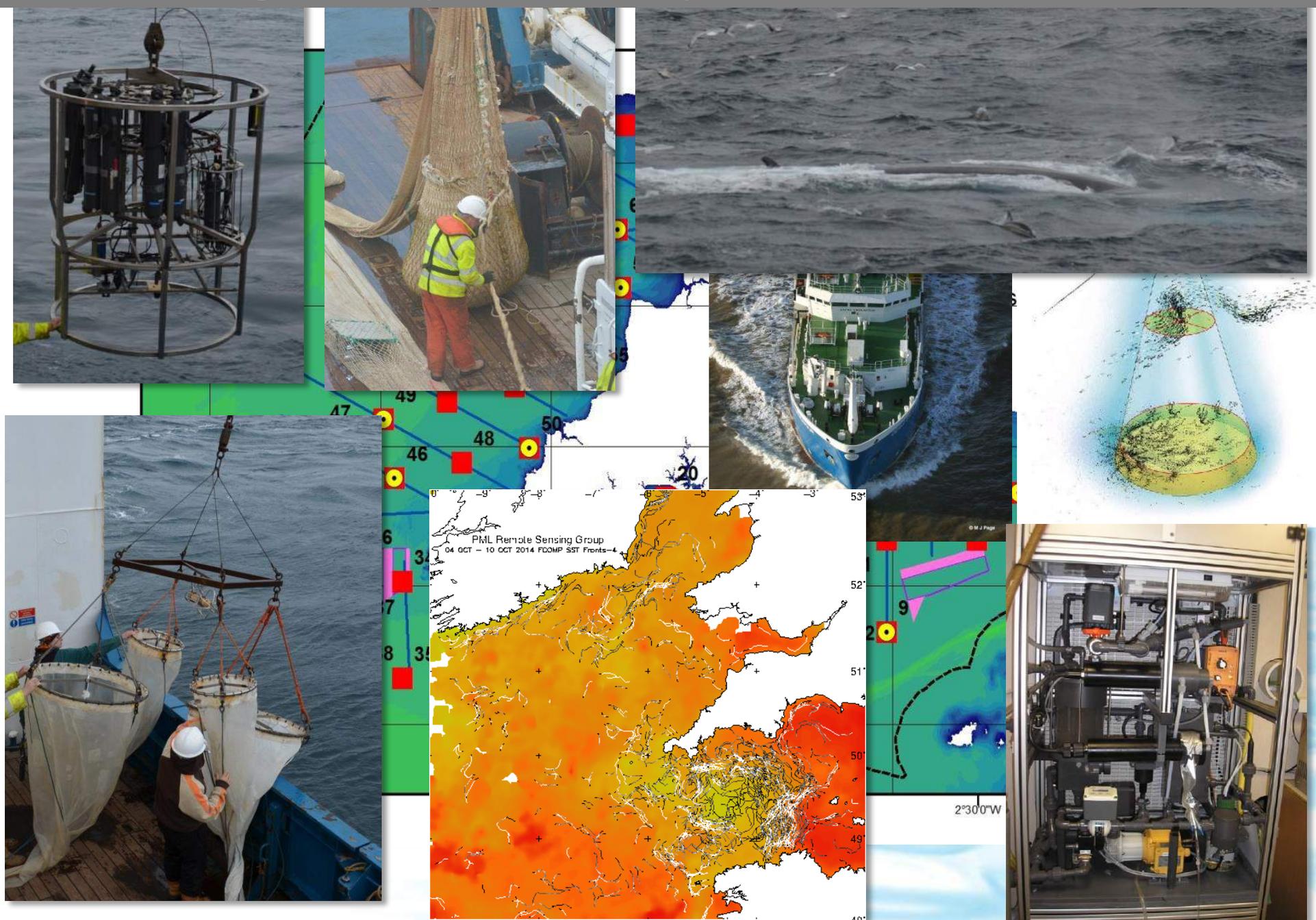


The importance of biological and environmental data

- Food quality and availability for fish and larvae
- Efficiency of the food web
- Physical and chemical conditions affect fish behaviour, spawning, distribution and success of eggs and larvae
- Ecosystem and size-based model parameterisation and validation



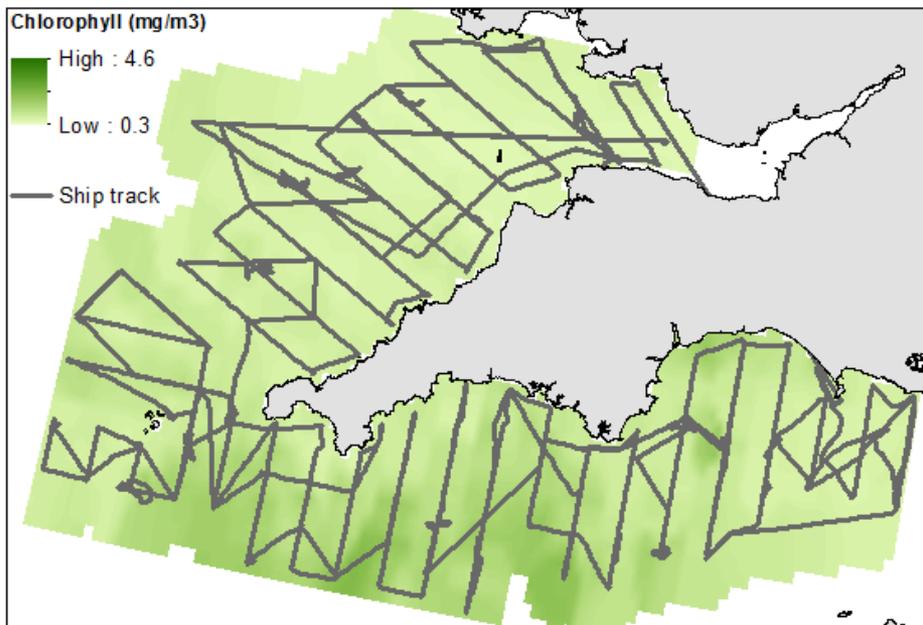
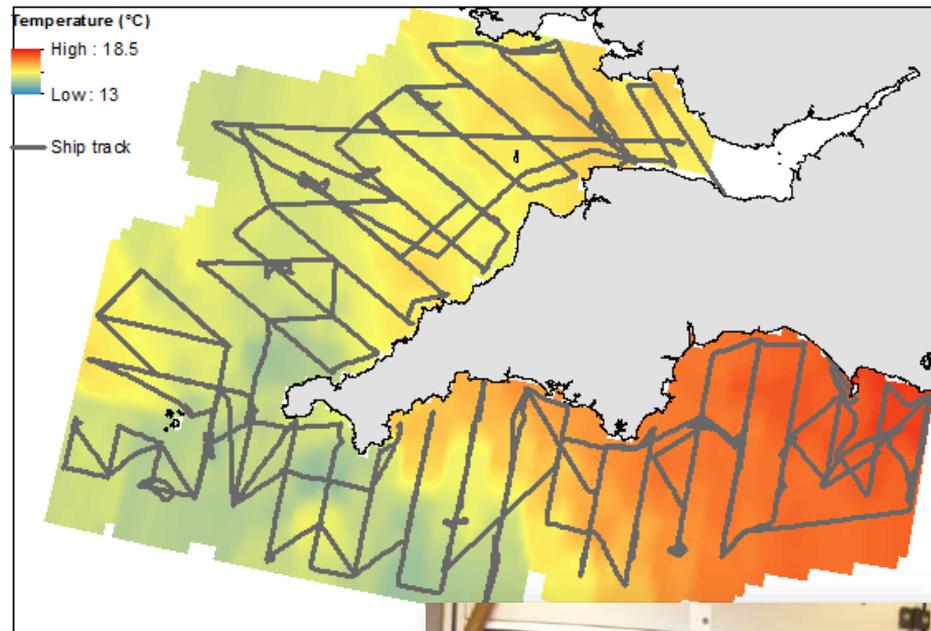
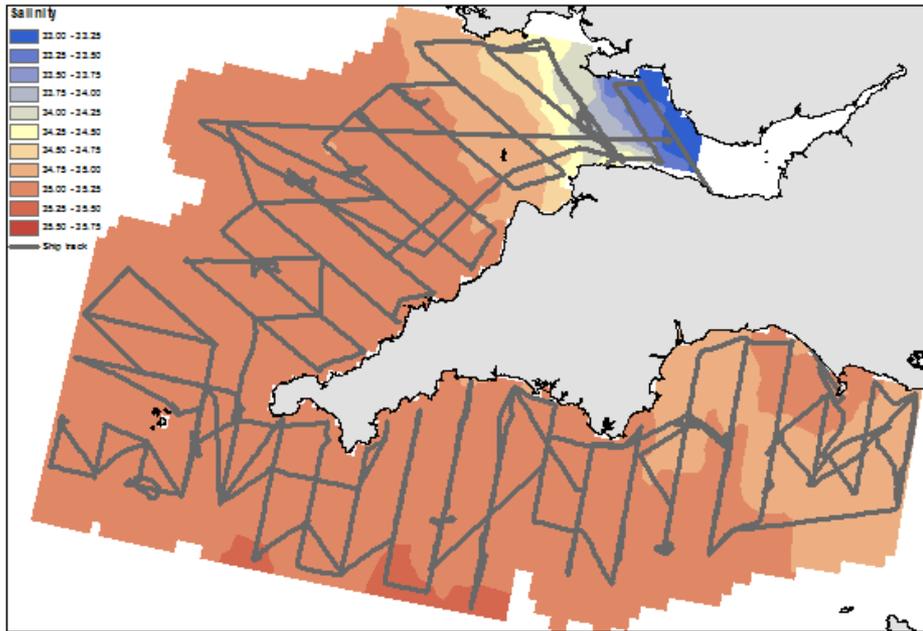
Peltic (Pelagic ecosystem survey in the Celtic Sea)



Environmental data



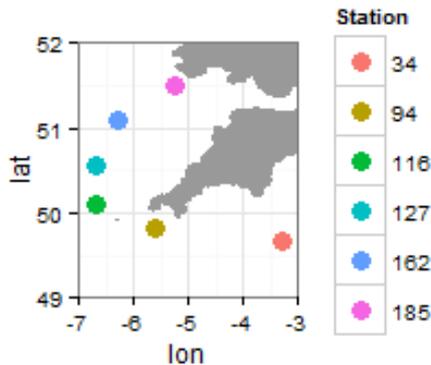
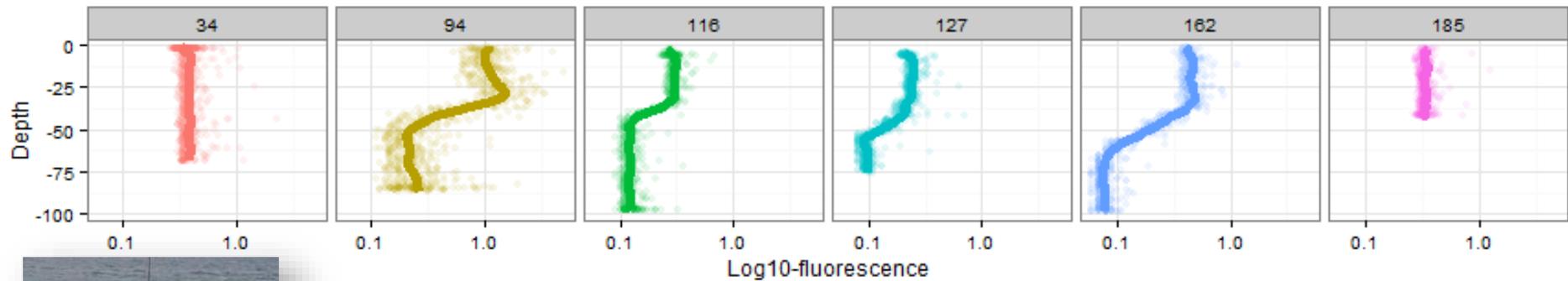
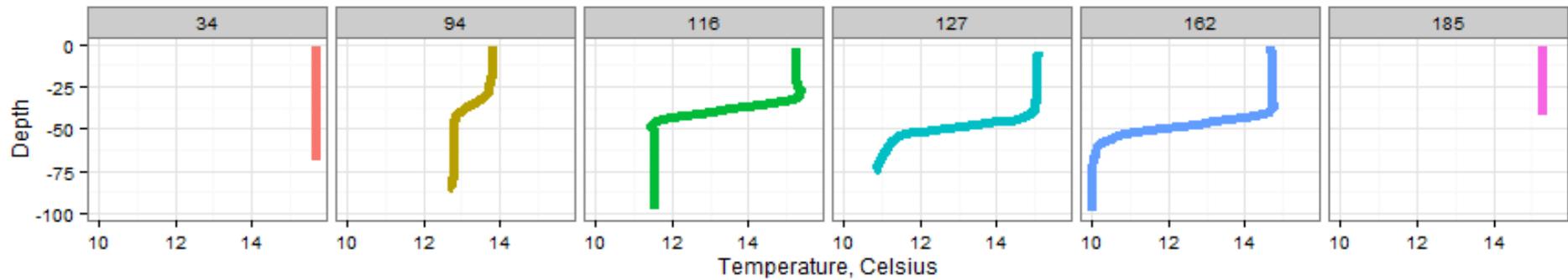
Ferrybox - Surface



- Temperature
- Salinity
- Fluorescence
- Oxygen
- Quantum yield



ESM2 profiler / Rosette – Surface and water column

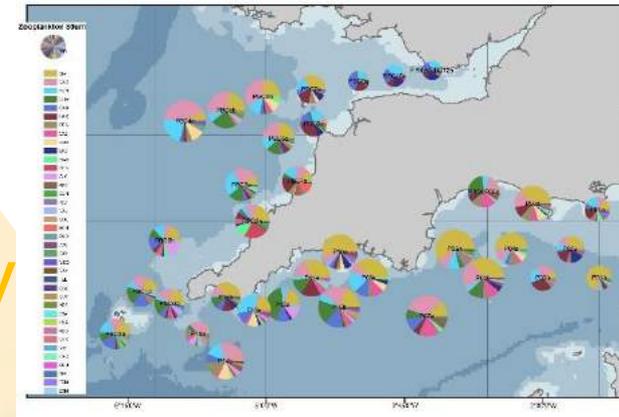


Zooplankton



Zooplankton – Zooscan / Microscopy / Acoustic

Net + Microscopy



Diversity

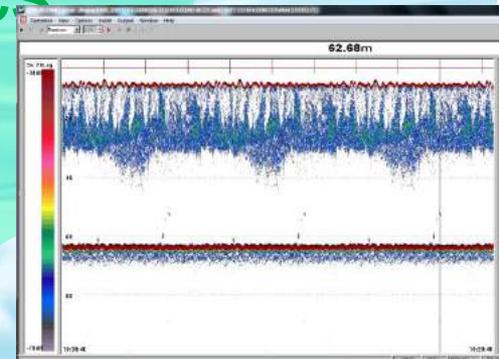
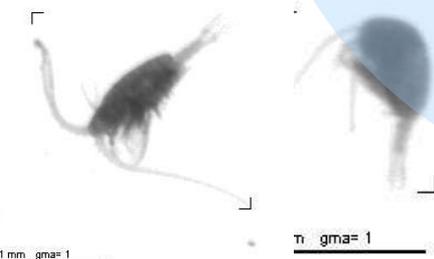
Biomass

Size range

Distribution

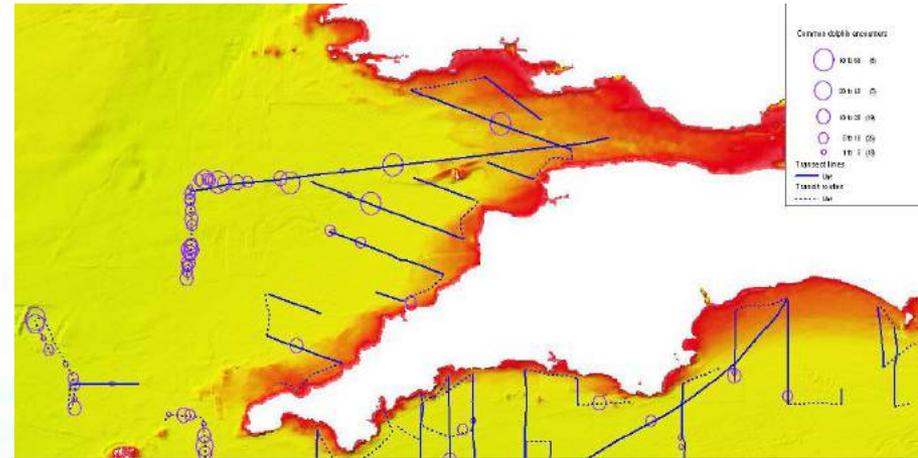
Net + Zooscan

Acoustics

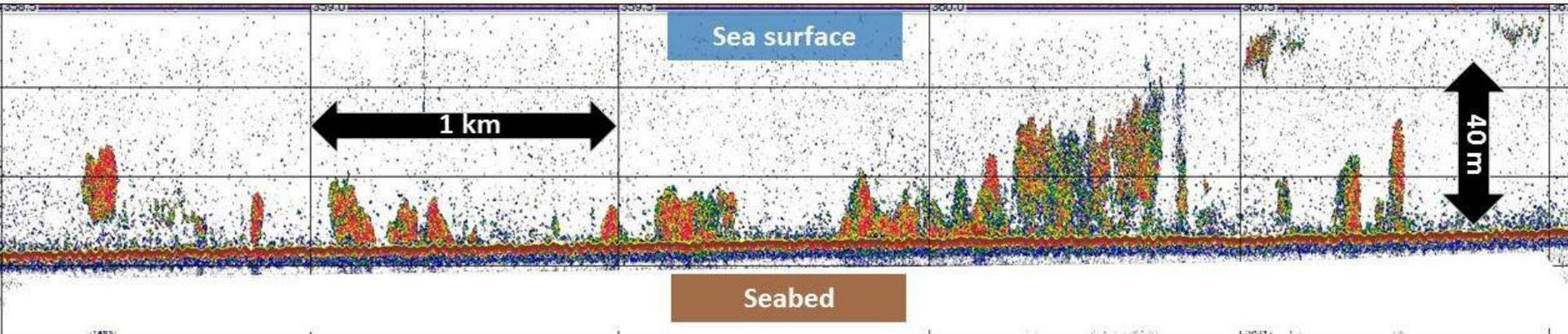


Top predators

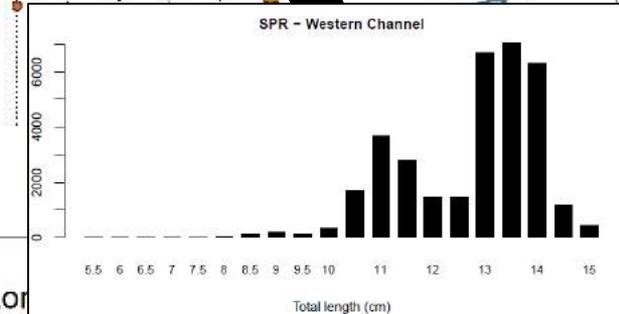
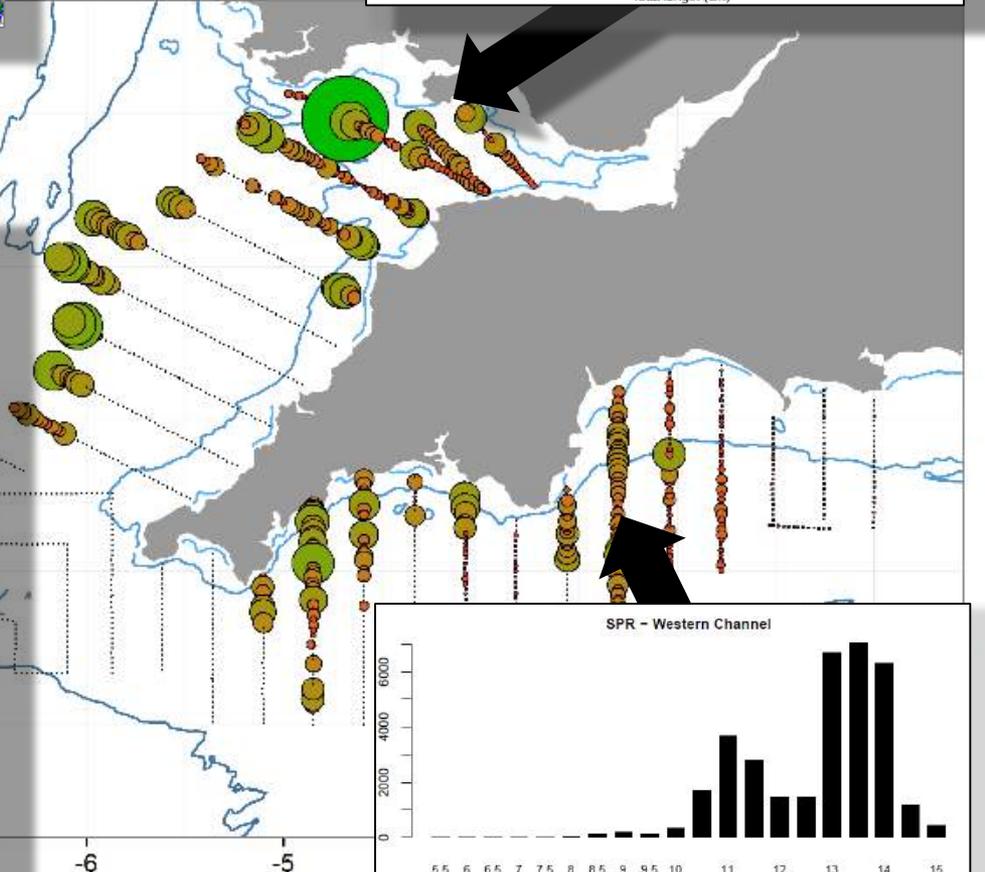
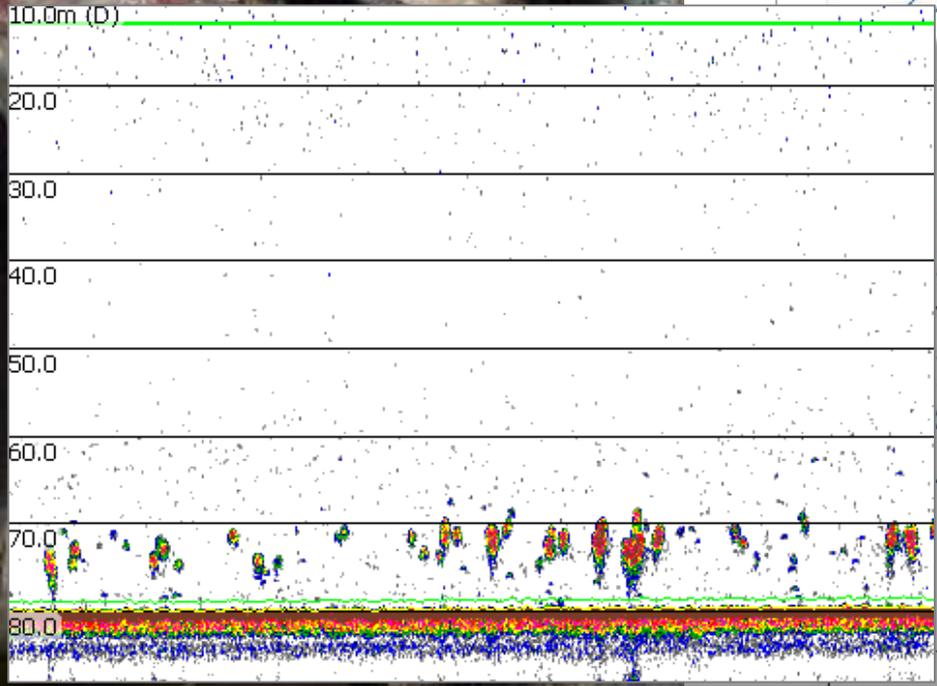
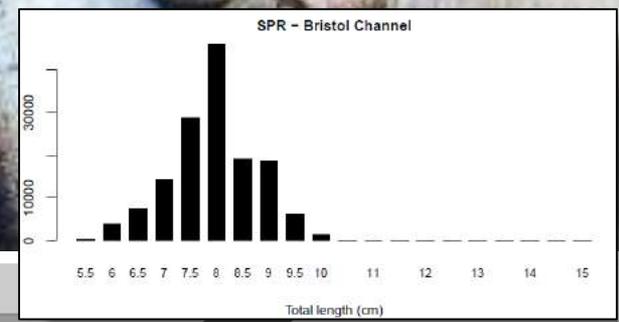
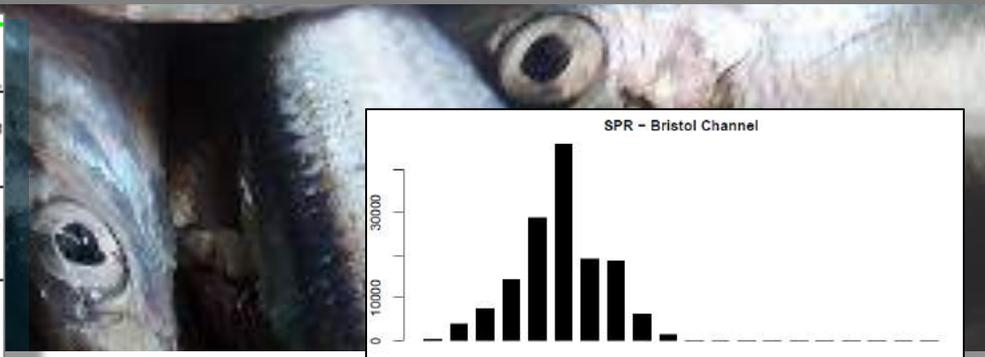
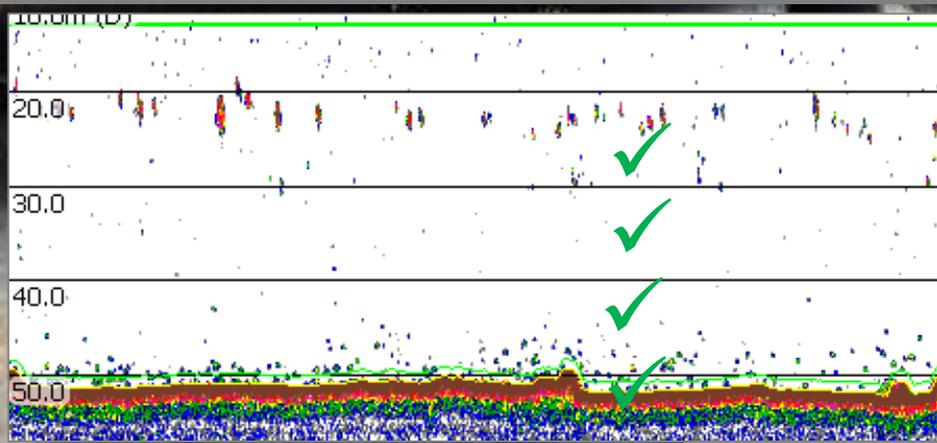
- Collaboration Marinelife, Natural England
- Distribution/abundance
- Habitat
- Predator/prey



Small Pelagic Fish



Small Pelagic Fish: sprat

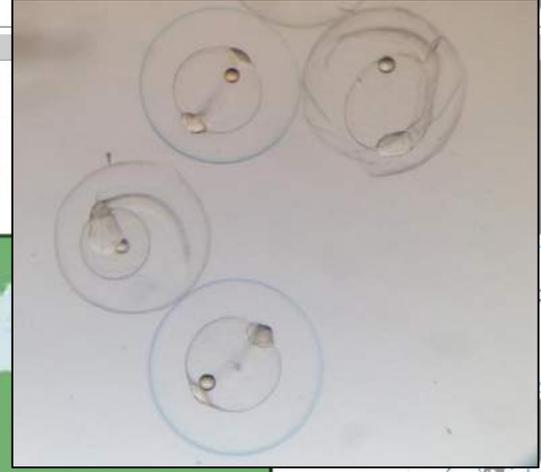
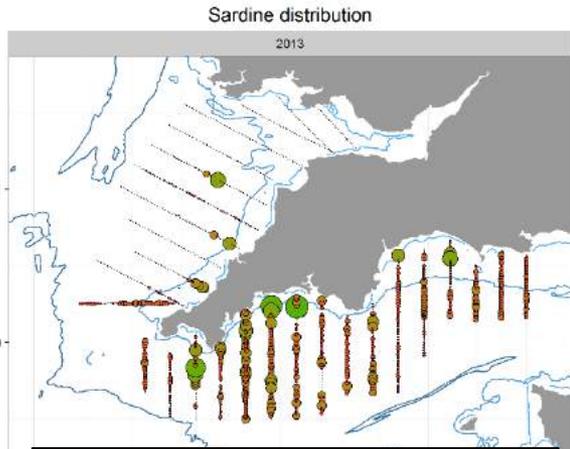


Lon

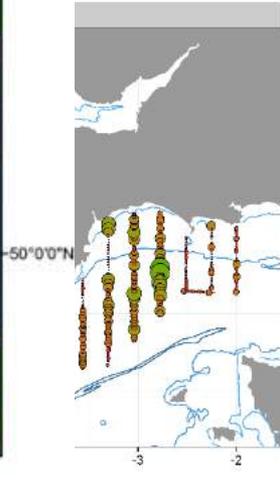
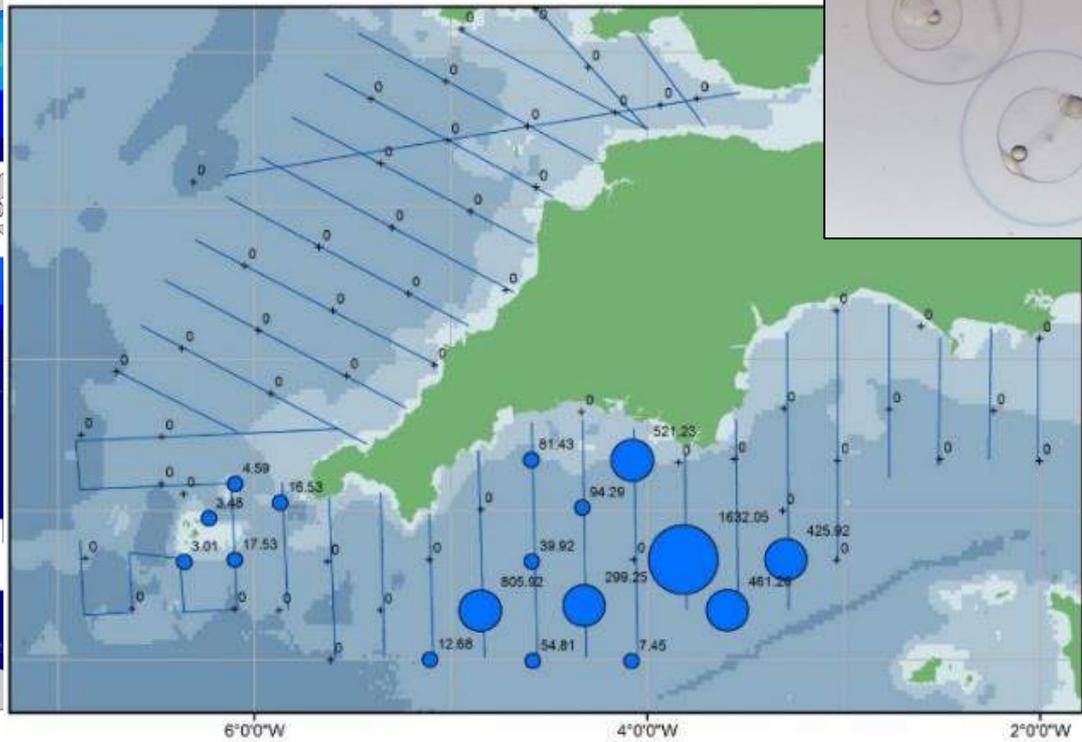
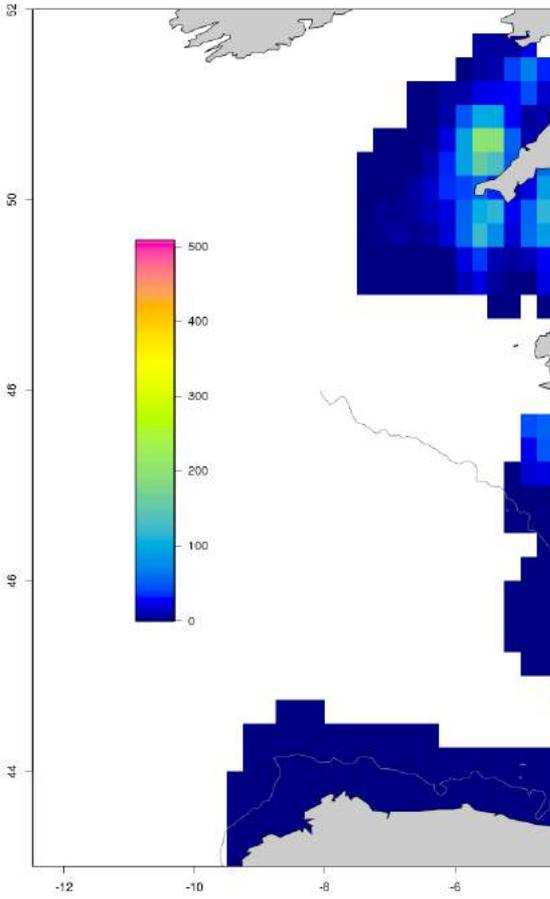
Small Pelagic Fish: sardine

- What do we know?

- Fishery
- Autumn spawning ✓
- Distribution? ✓

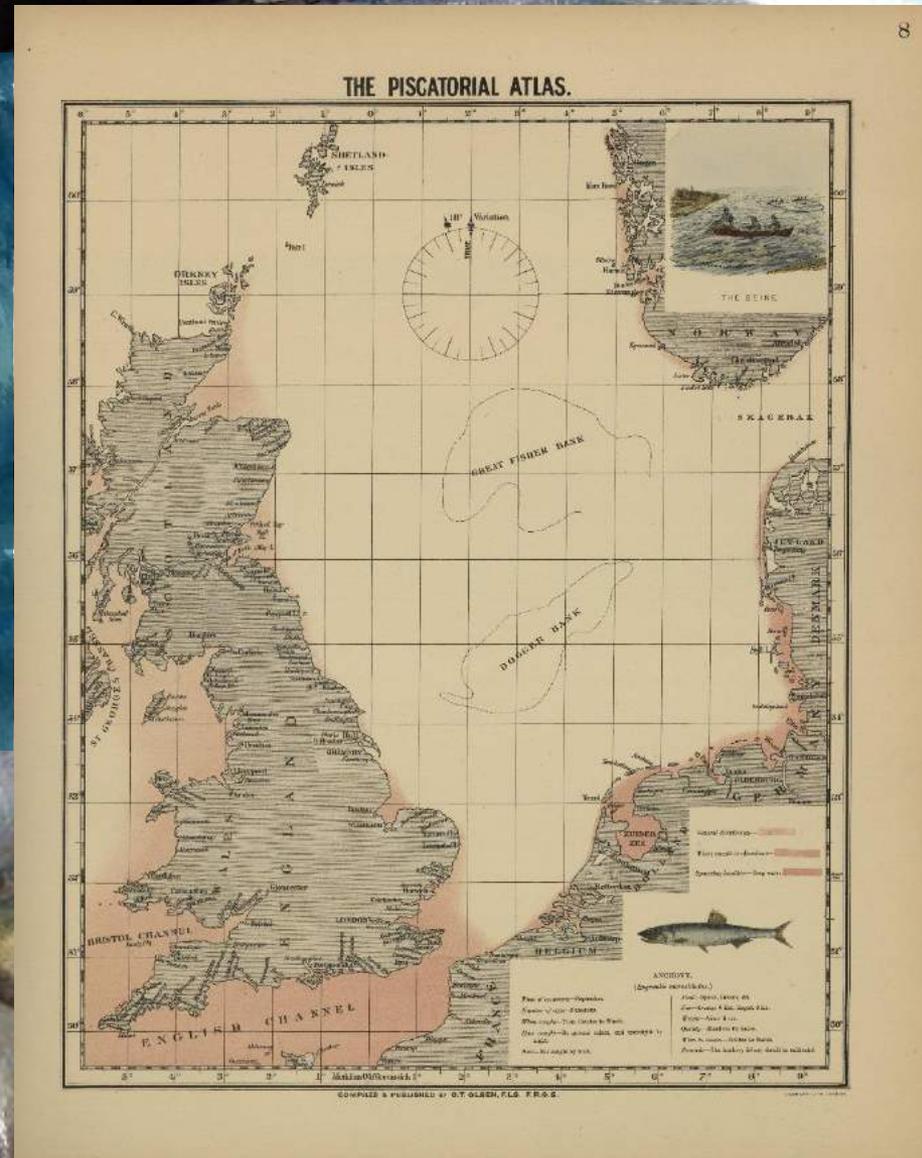


2015 mean NASC SARD-PIL



Small Pelagic Fish: anchovy

- What do we know?
 - Bay of Biscay
 - Increase in North (Beare et al., 2004)
 - Spawning?
 - Stock structure?
 - Distribution?
 - Abundance?

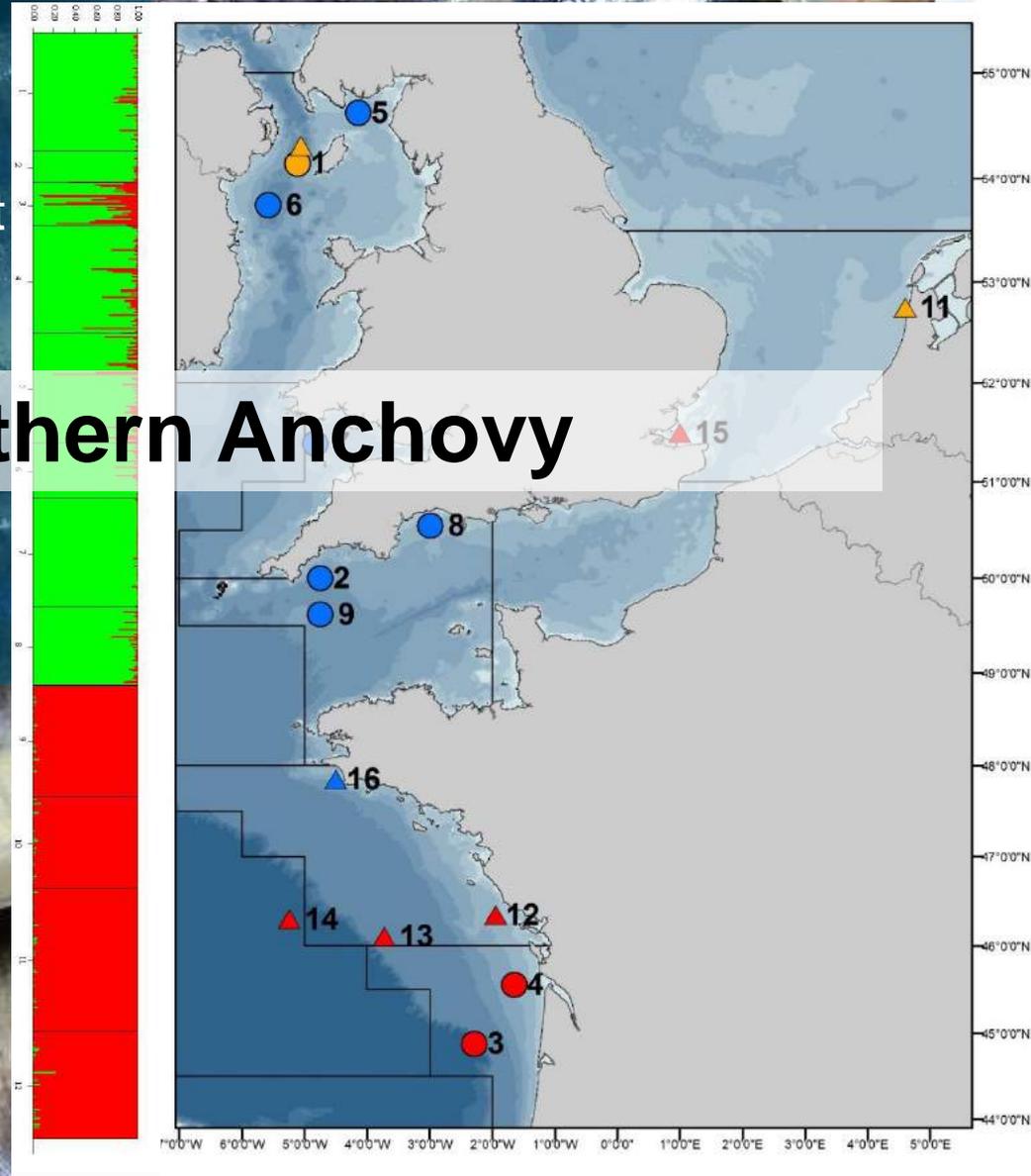


Small Pelagic Fish: anchovy

• What do we know?

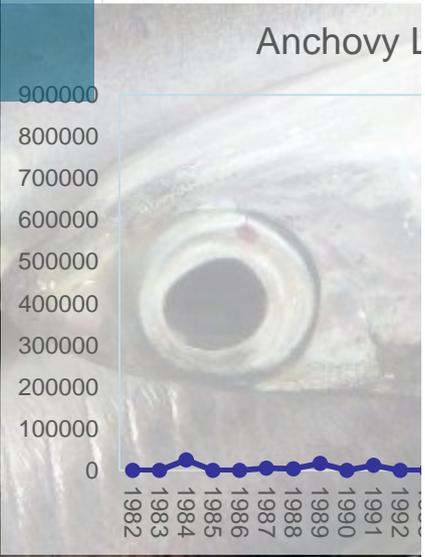
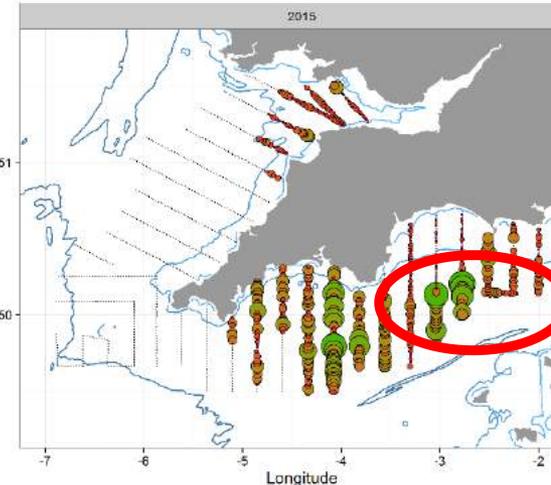
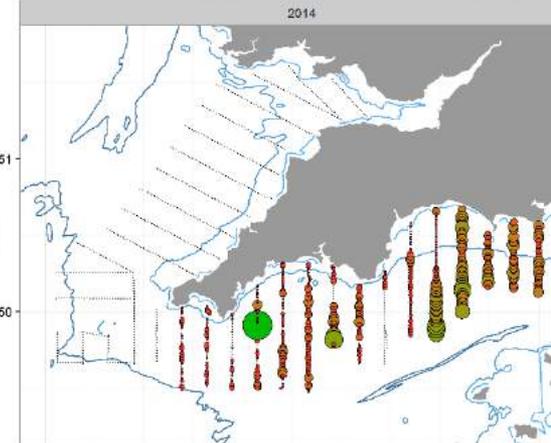
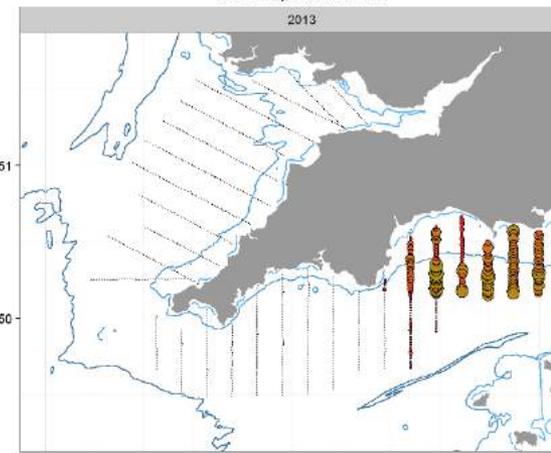
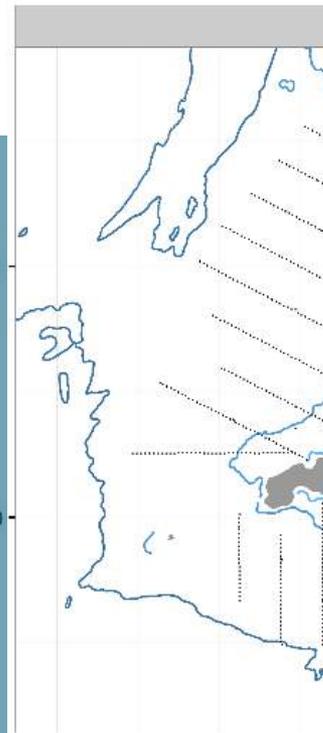
- Bay of Biscay
- Increase in North (Beare et al 2004)
- Spawning? ✓
- Stock structure? ✓
- Distribution?
- Abundance?

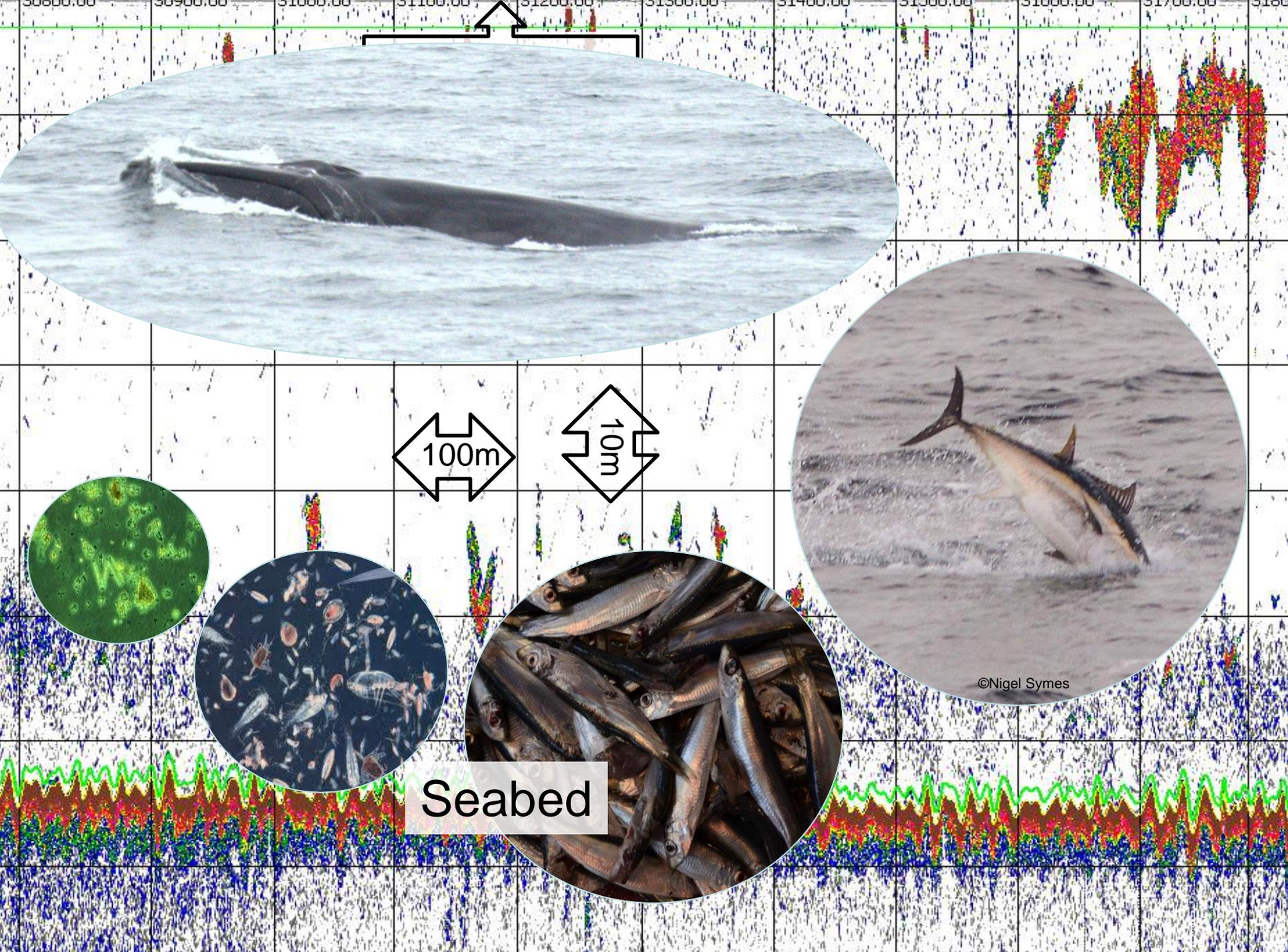
Northern Anchovy



Small Pelagic Fish: anchovy

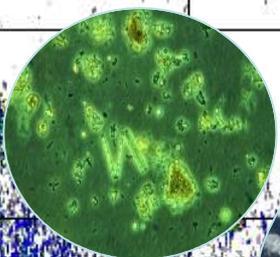
- What do we know?
 - Bay of Biscay
 - Increase in North (Beare et al., 2004)
 - Spawning? ✓
 - Stock structure? ✓
 - Distribution? ✓
 - Abundance? ✓





100m

10m



Seabed

©Nigel Symes

Thank you

Gary Taylor
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Paul Bouch
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Niall McKeown
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