PELTIC 2023

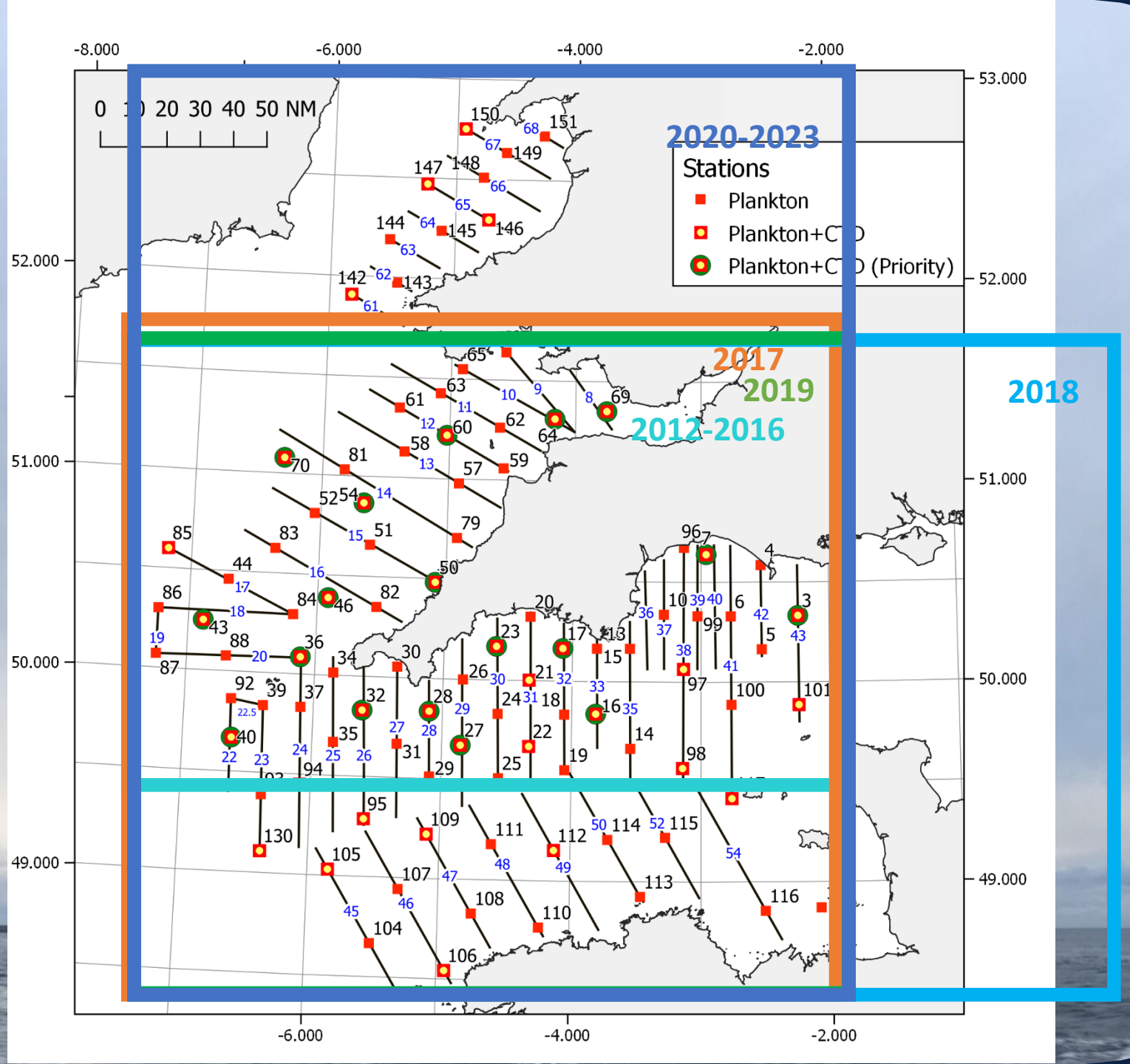
CSMA, 19th January 2024

Jeroen van der Kooij, Fabio Campanella, Jo Silva, Spike Searle

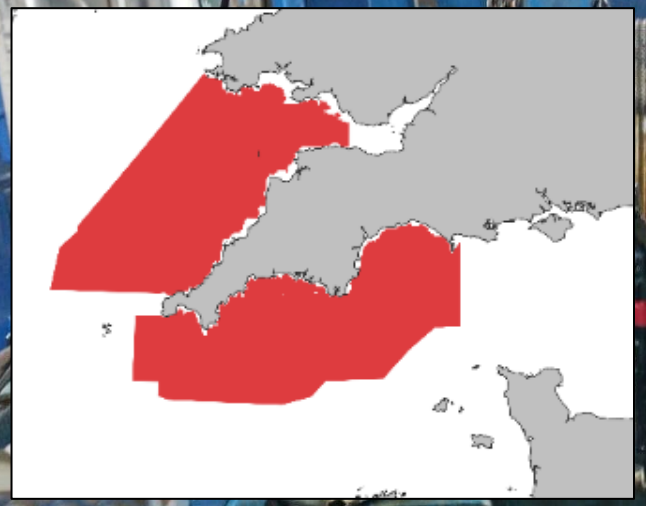
Centre for Environment
Fisheries & Aquaculture
Science

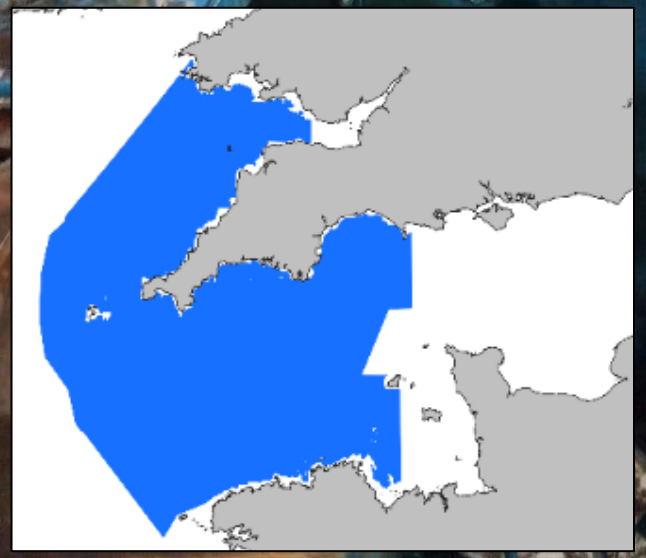
Cefas

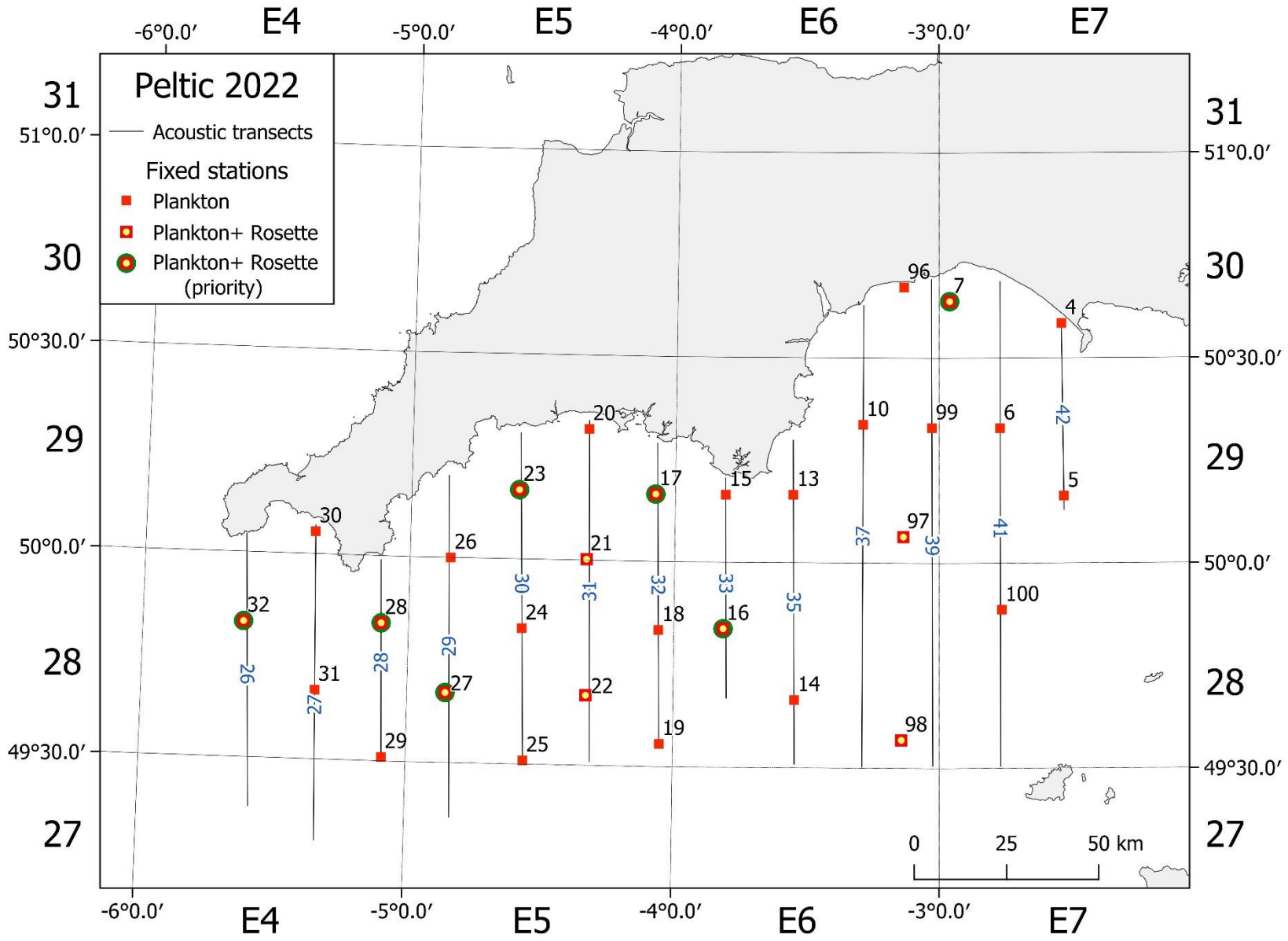
PELTIC survey



Reminder: the disaster of PELTIC 2022





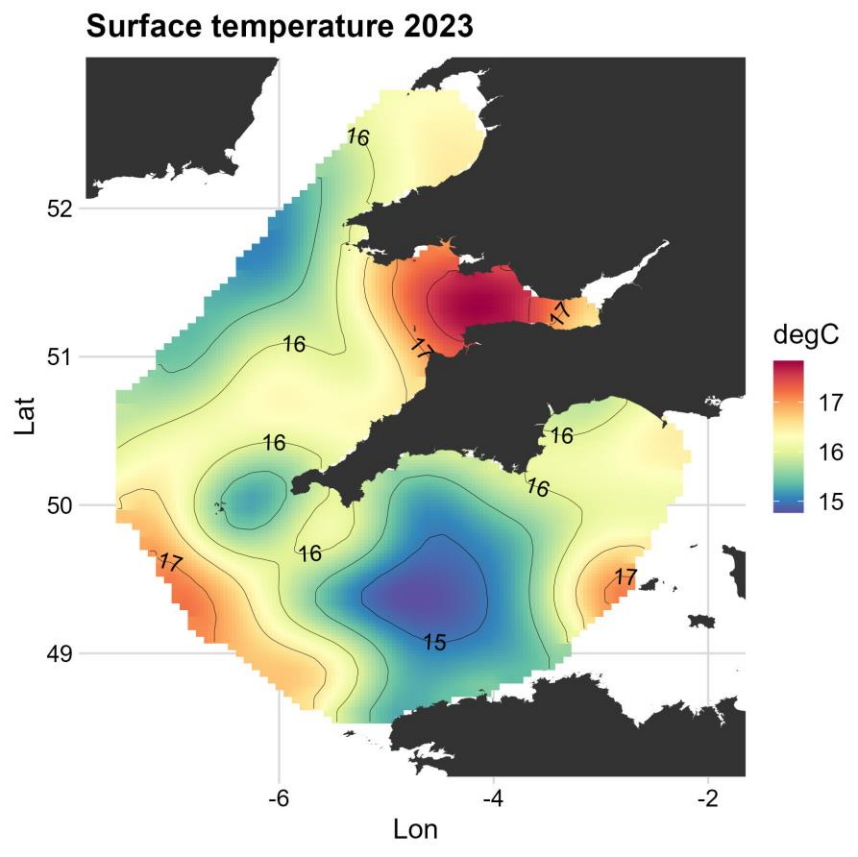


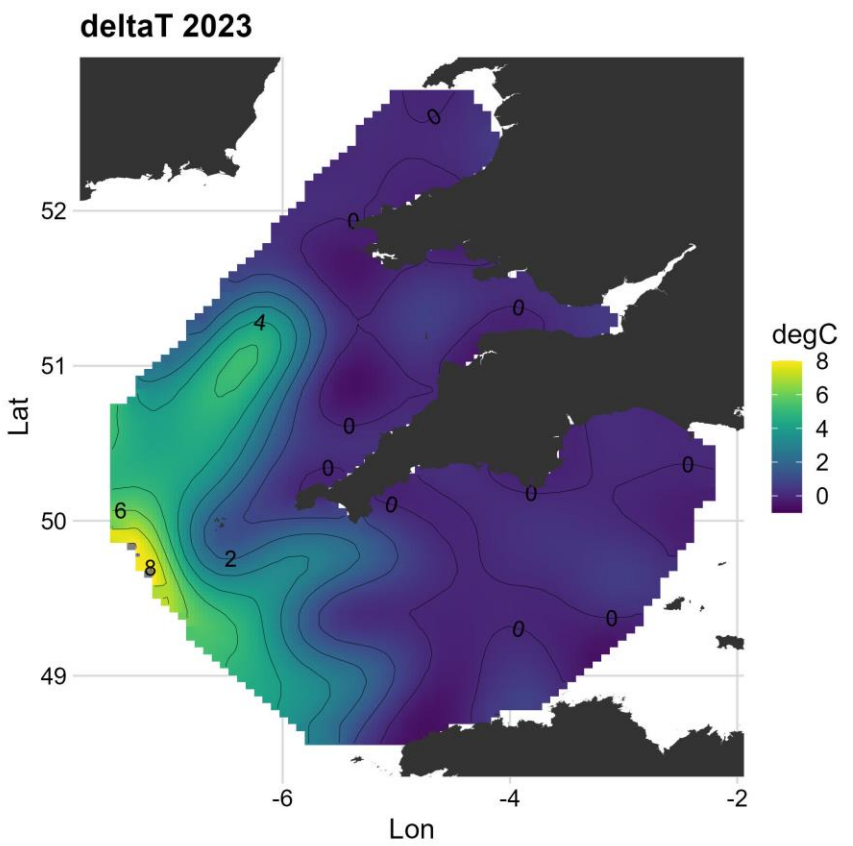
PELTIC 23

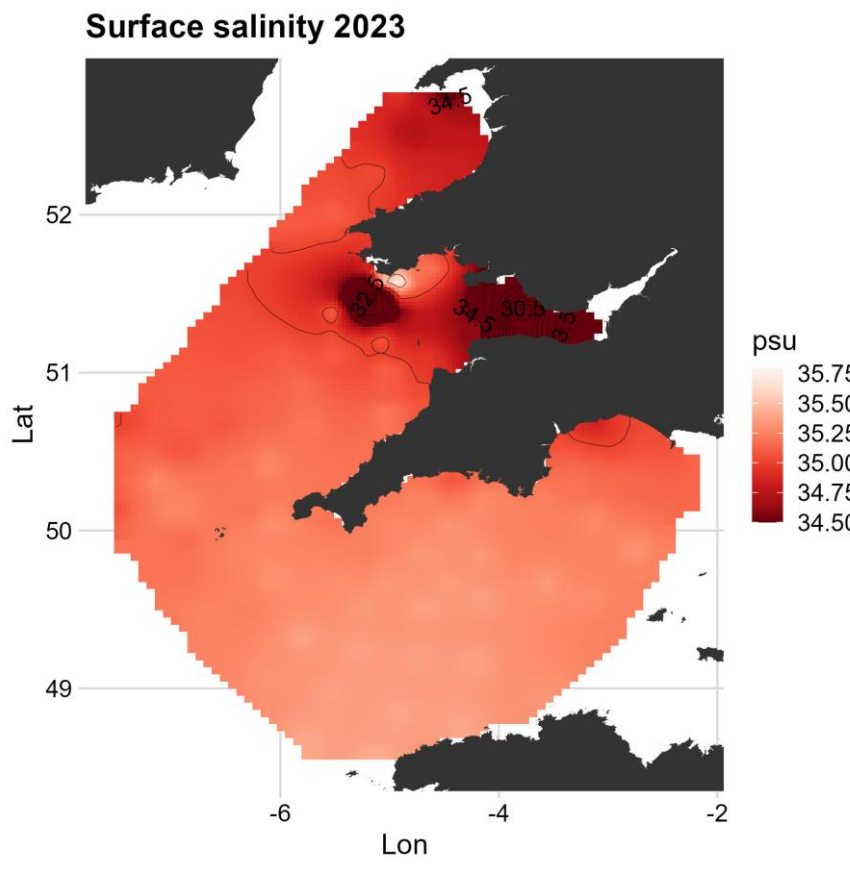
1. Autumn: 28th September - 31st October
2. Aim: map and quantify the SPF community in context of its habitat (StoX)
   a) Sprat in 7de (HAWG)
   b) Sardine in 7 (WGHANSA)
3. 2109 nmi transect
4. 42 Trawls
5. Day: acoustic (EK80: 38, 70, 120, 200, 333), trawl, apex predators
6. Night: ringnet (95 ichthyo-& meso-zooplankton); 36 Rosette/CTD, water (dissolved oxygen, HPLC, inorganic nutrients, phytoplankton, microzooplankton), eDNA

Oceanography

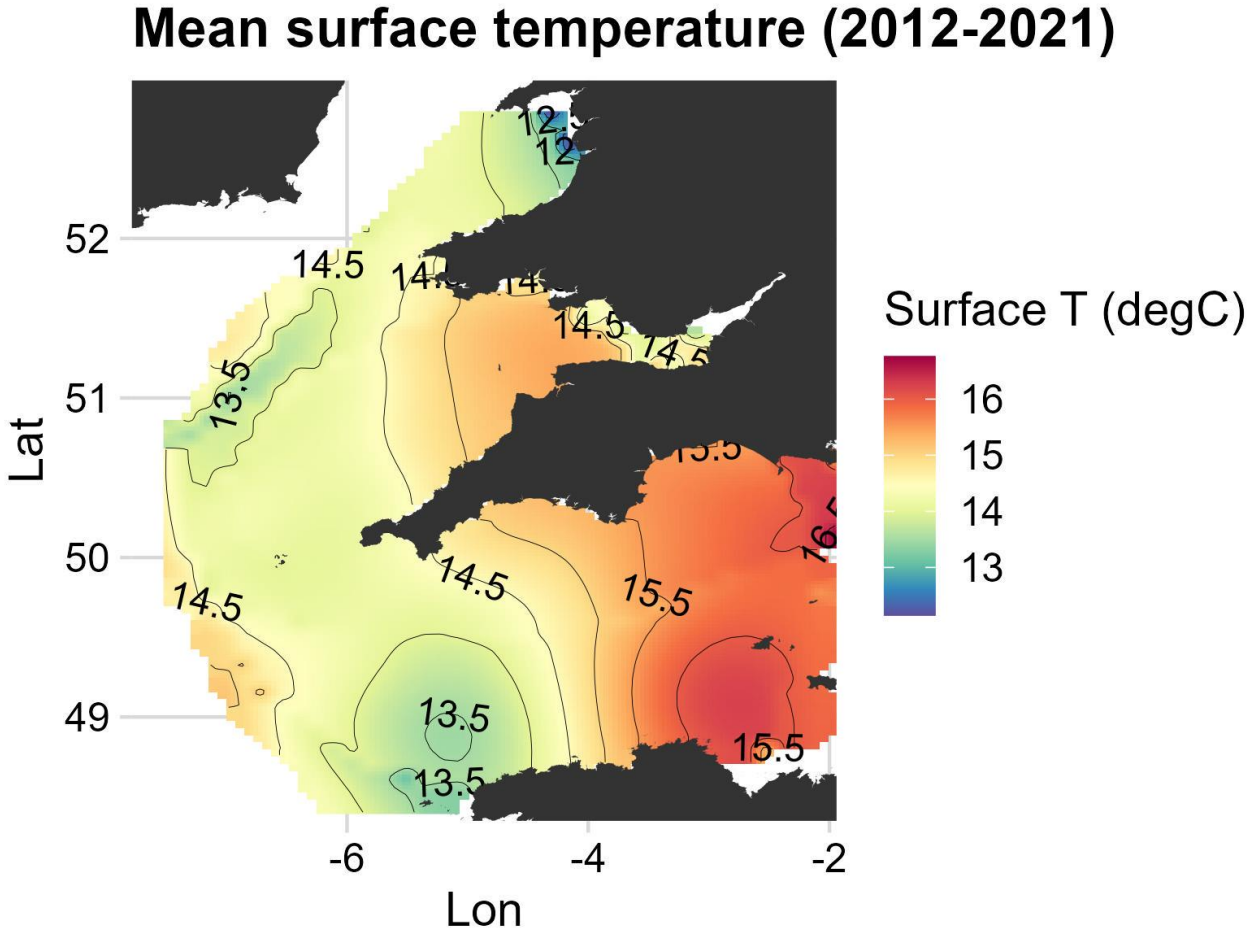
Oceanography

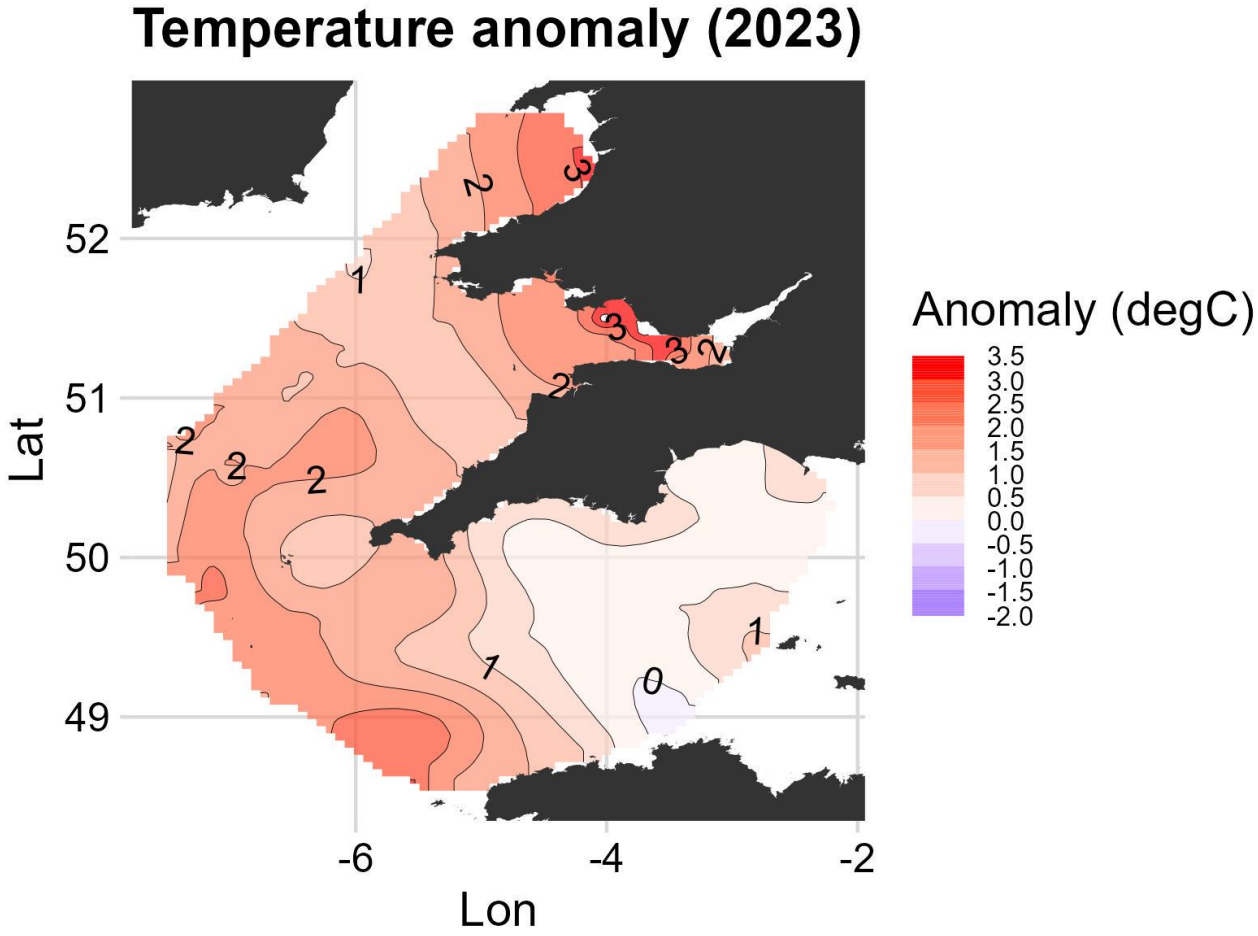




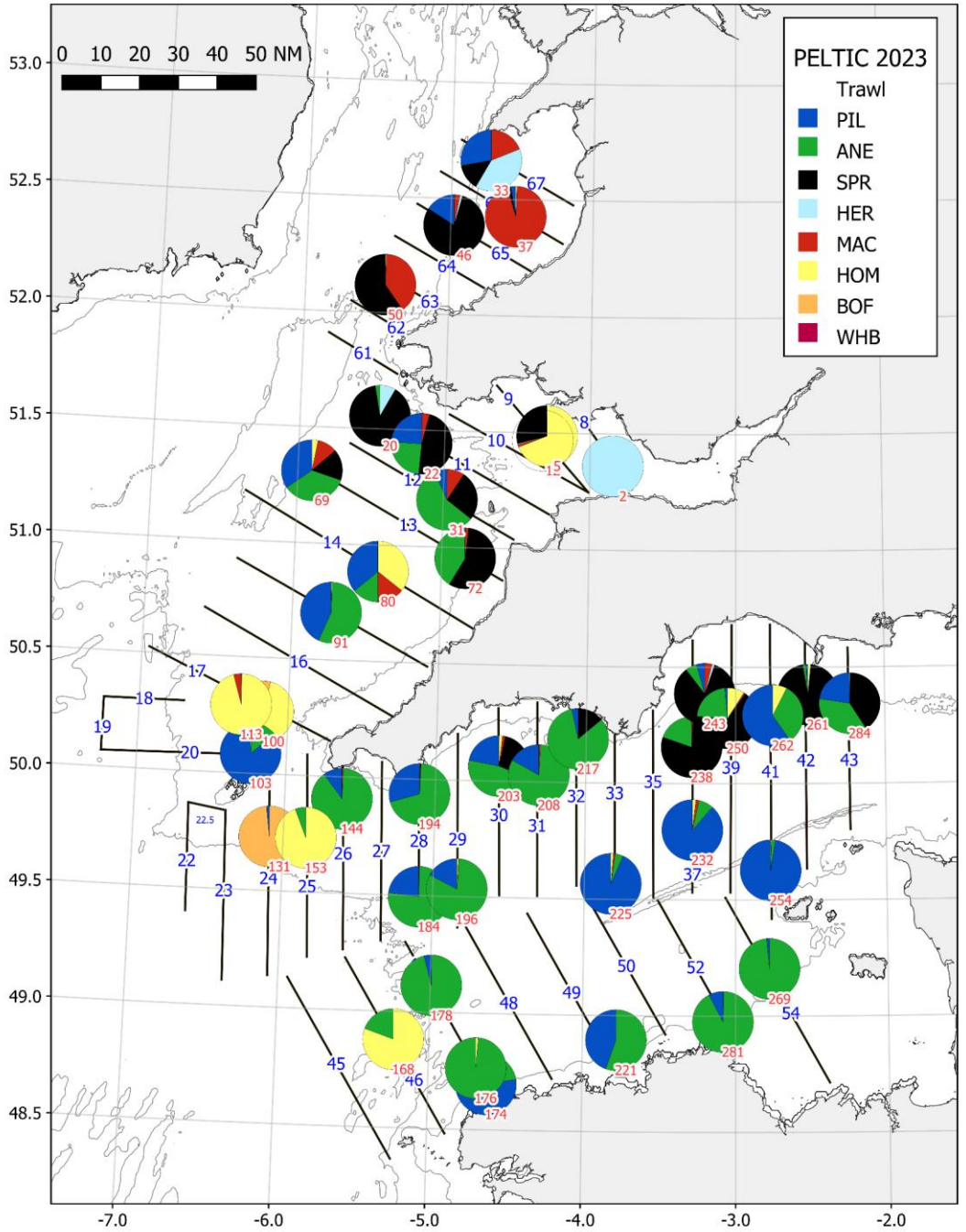


Oceanography

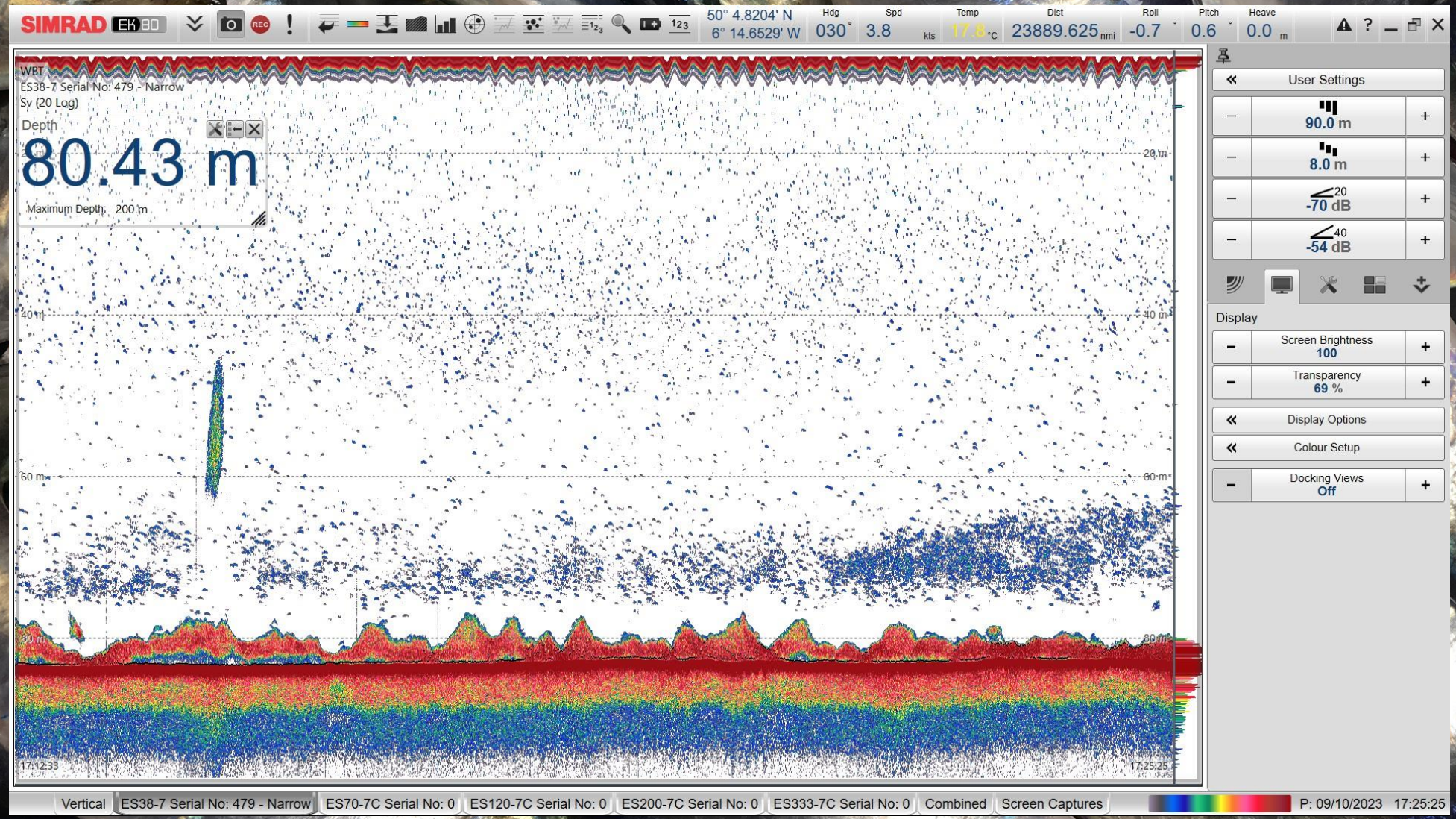




Trawl Catches

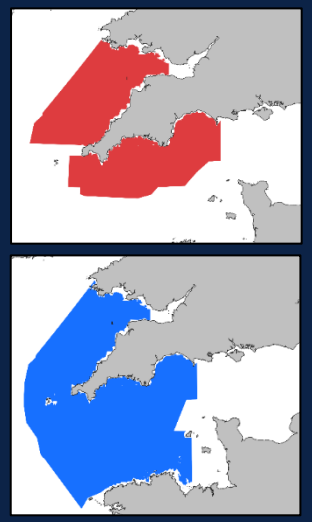


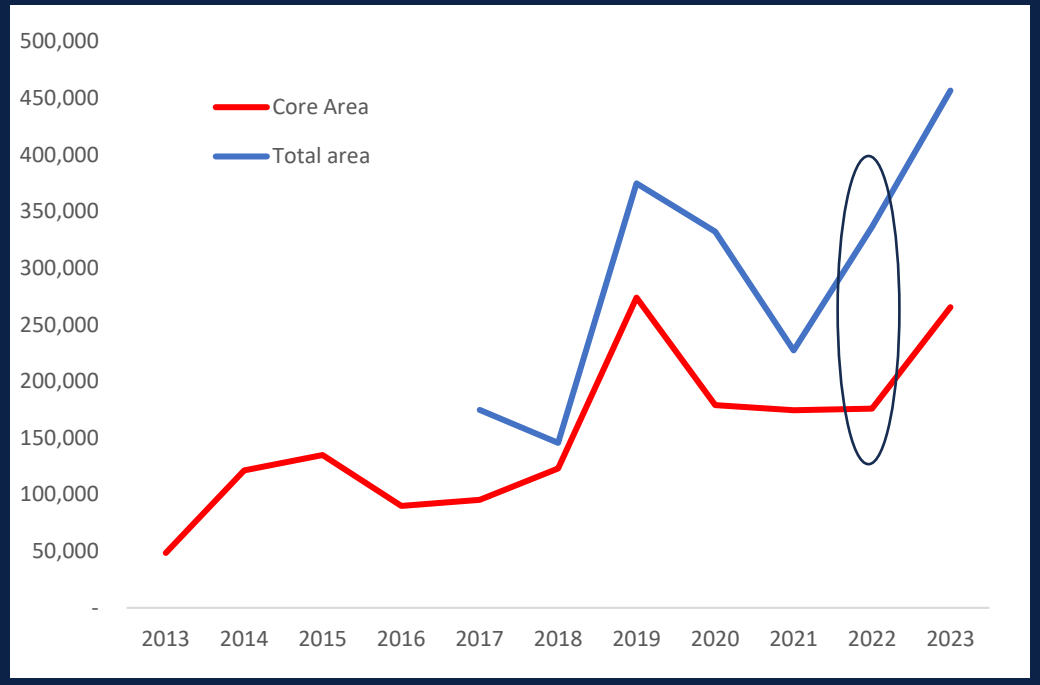
Sardine (*Sardina pilchardus*)

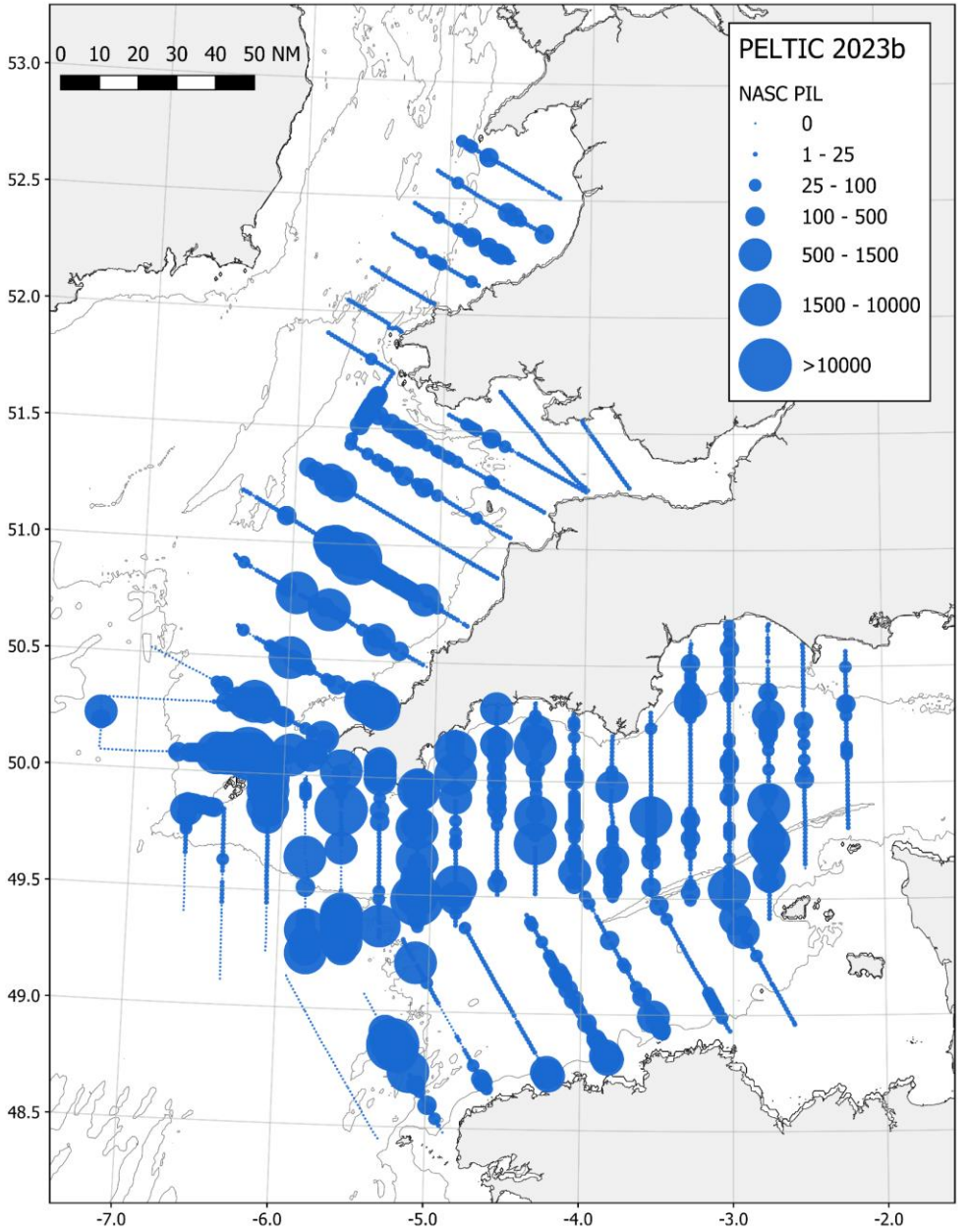


Sardine

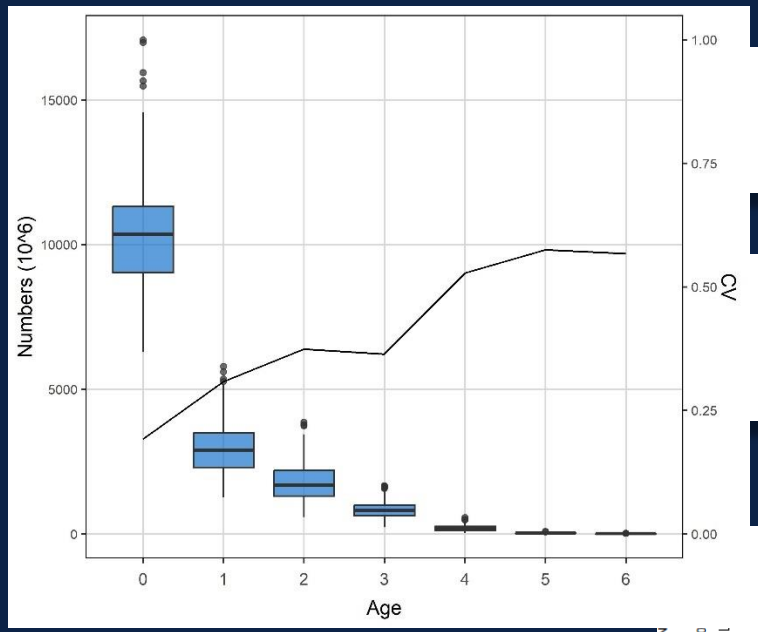
Biomass (TA): 456,482 (CV 0.19)

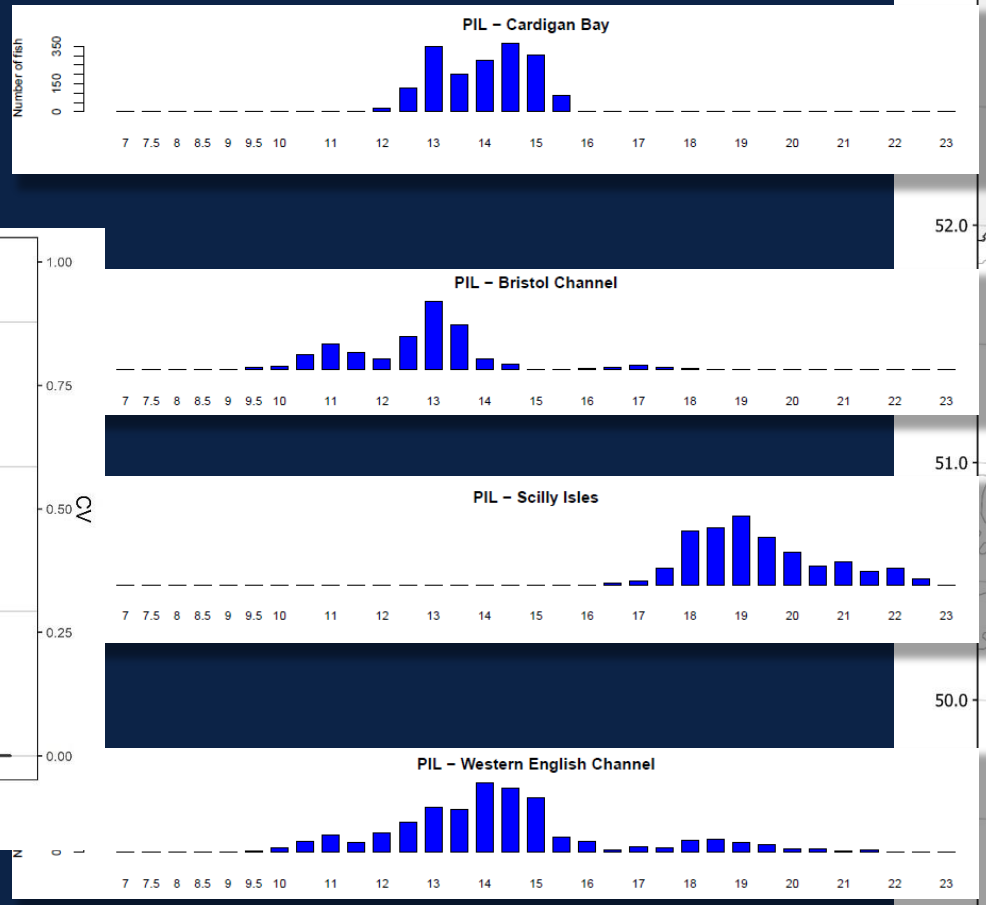


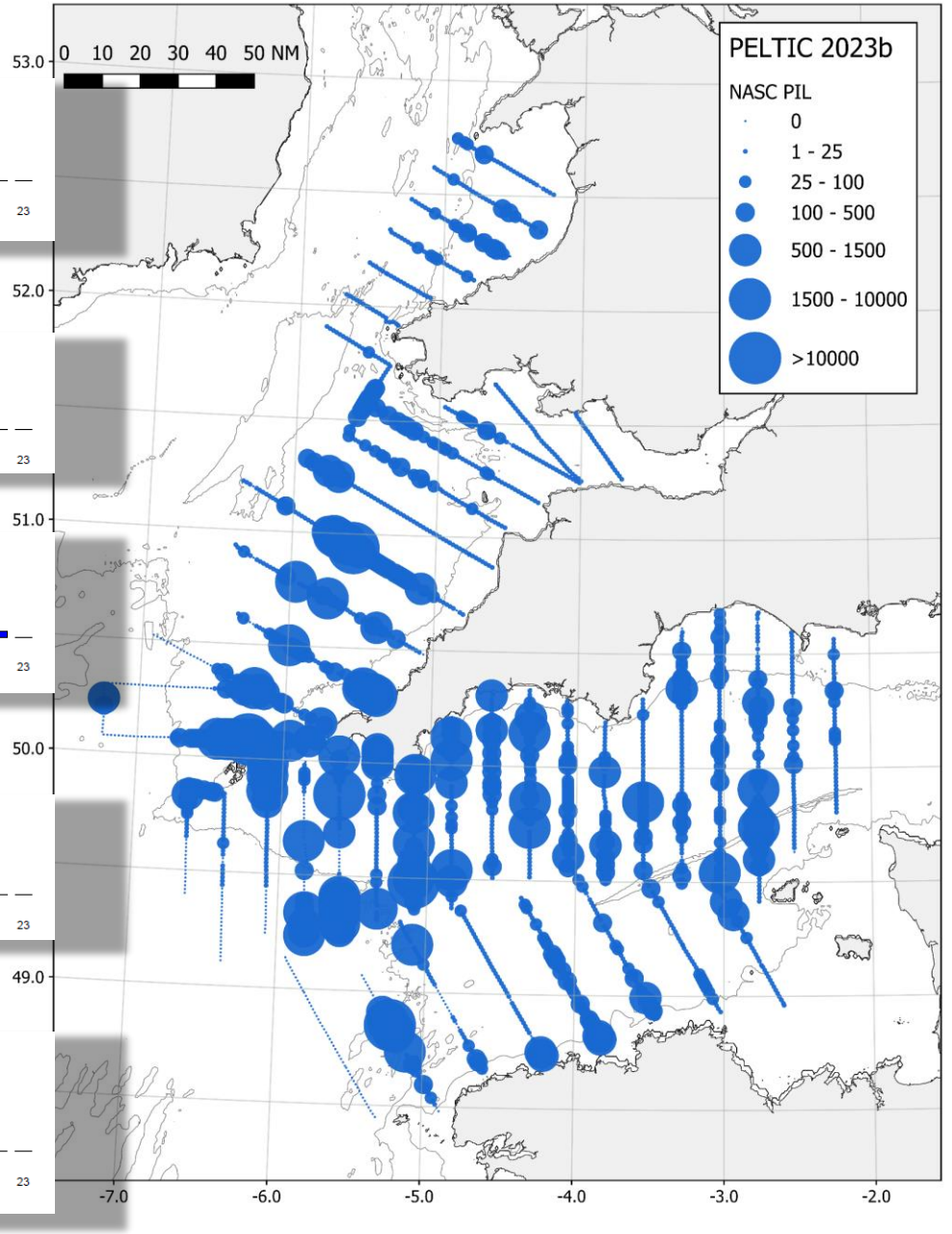


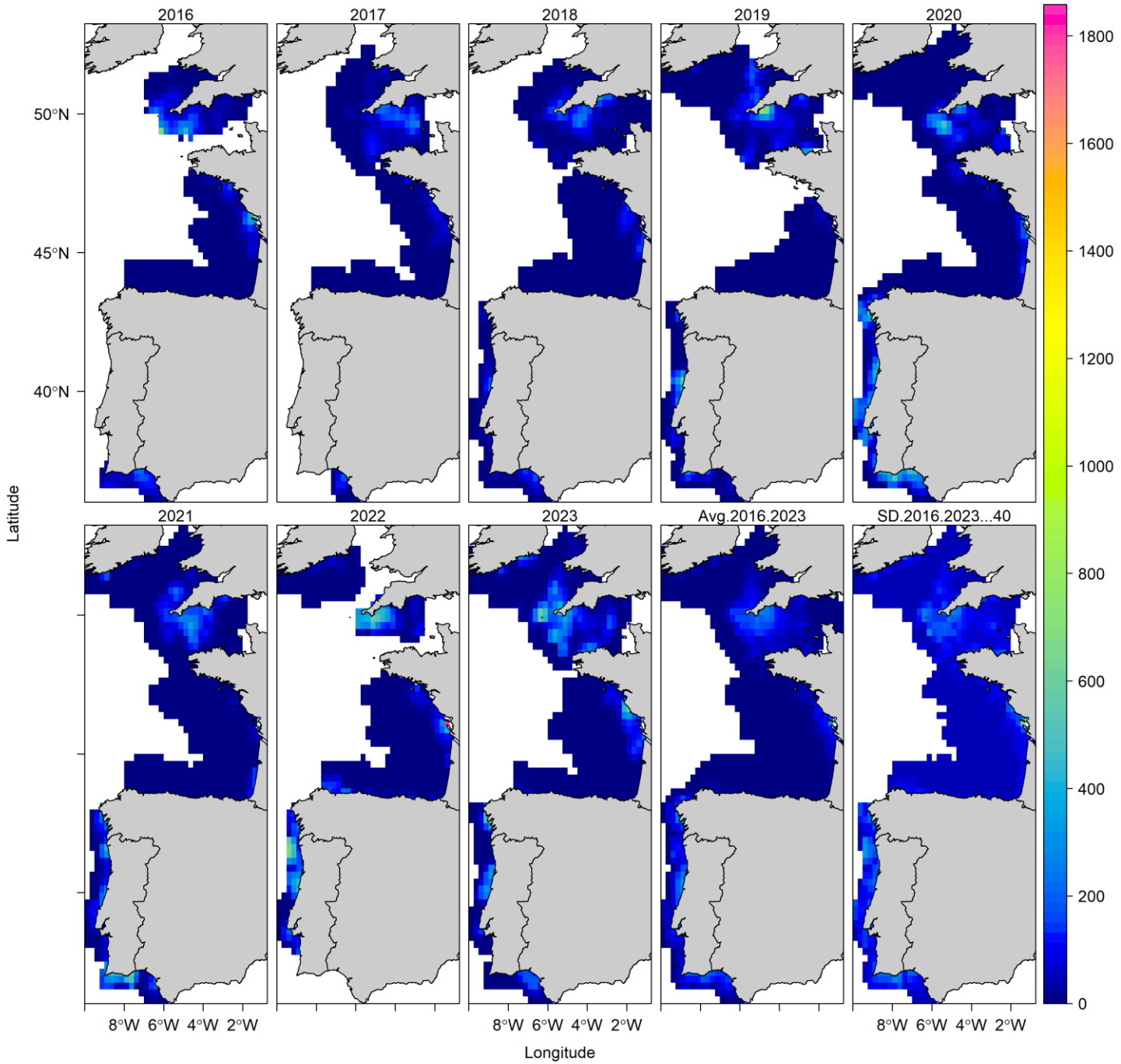


Sardine


Numbers (10^6)
CV
Age
0
1
2
3
4
5
6
15000
10000
5000
0
1.00
0.75
0.50
0.25
0.00

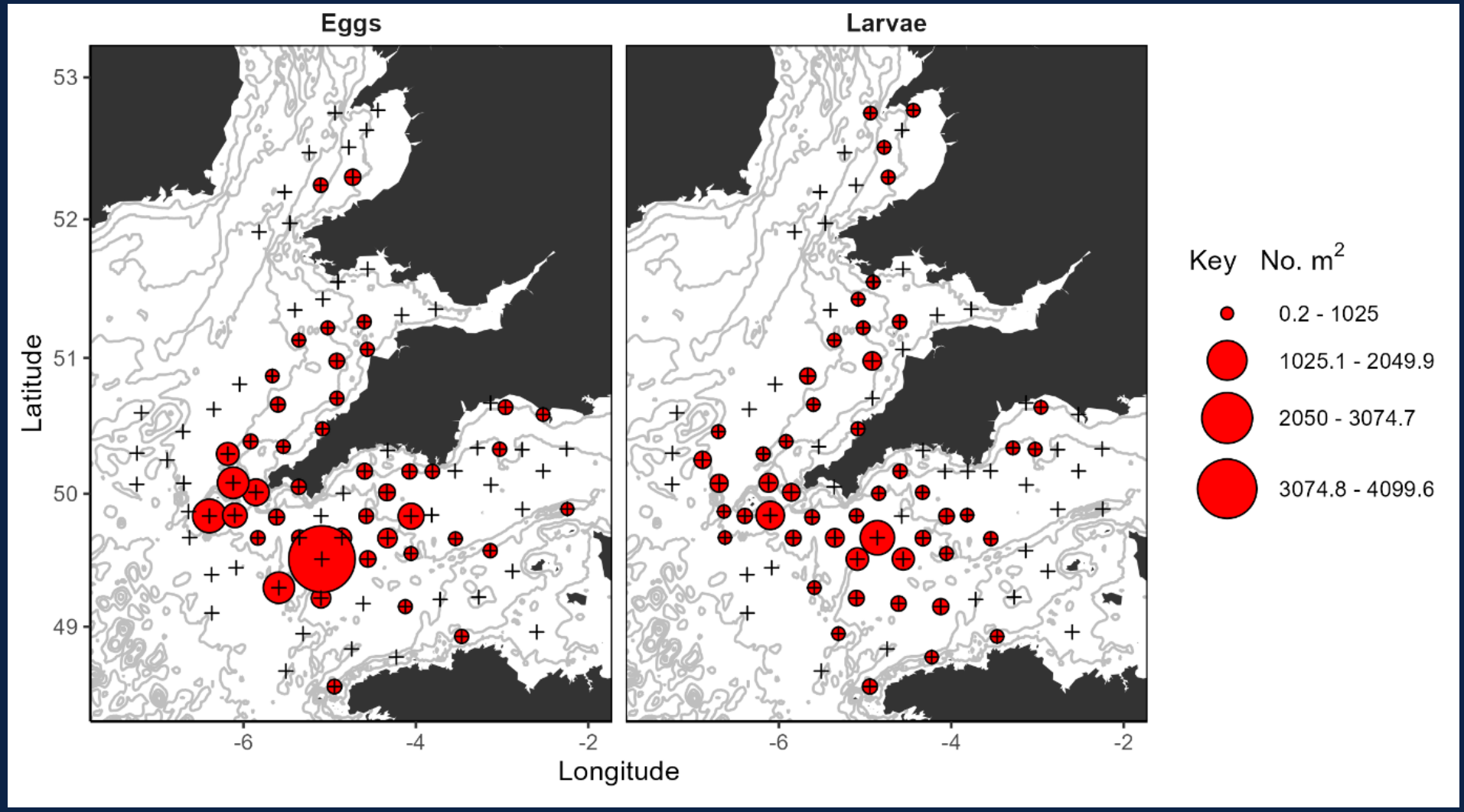

PIL – Cardigan Bay
PIL – Bristol Channel
PIL – Scilly Isles
PIL – Western English Channel
PIL – Western French Channel
Number of fish
7 7.5 8 8.5 9 9.5 10 11 12 13 14 15 16 17 18 19 20 21 22 23


0 10 20 30 40 50 NM
PELTIC 2023b
NASC PIL
0
1 - 25
25 - 100
100 - 500
500 - 1500
1500 - 10000
>10000
53.0
52.0
51.0
50.0
49.0
-7.0
-6.0
-5.0
-4.0
-3.0
-2.0

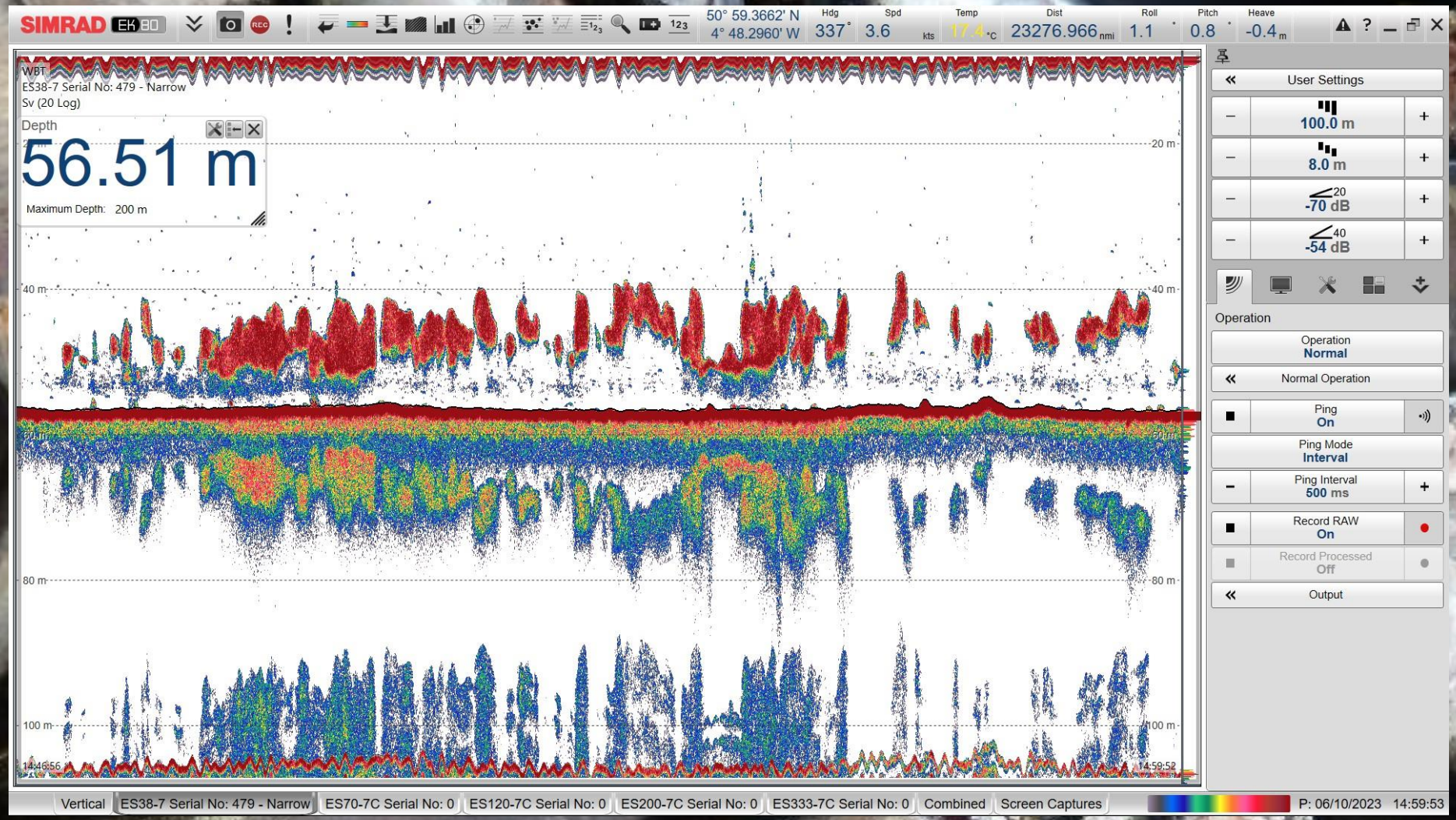

2016
2017
2018
2019
2020
2021
2022
2023
Avg.2016.2023
SD.2016.2023...40
50°N
45°N
40°N
8°W 6°W 4°W 2°W
Latitude
Longitude
1800
1600
1400
1200
1000
800
600
400
200
0

Ichthyoplankton

Sardine spawning



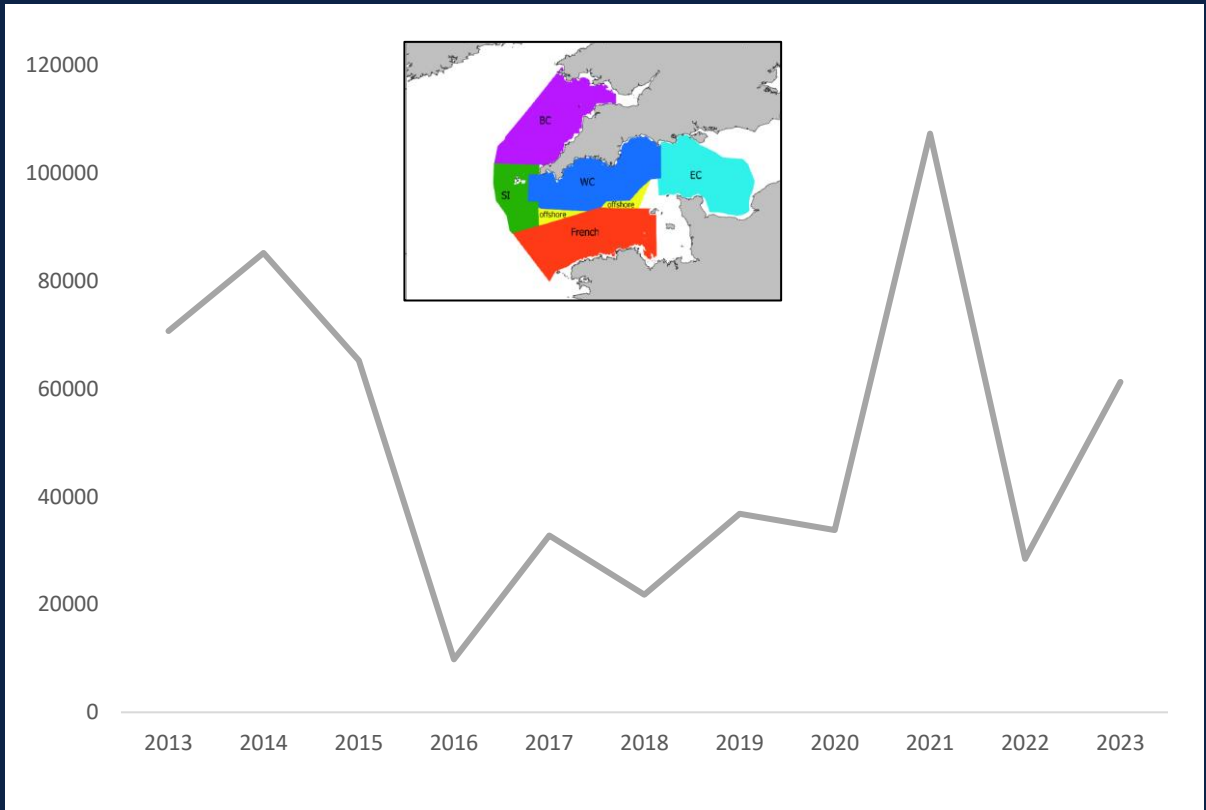
Sprat (*Sprattus sprattus*)

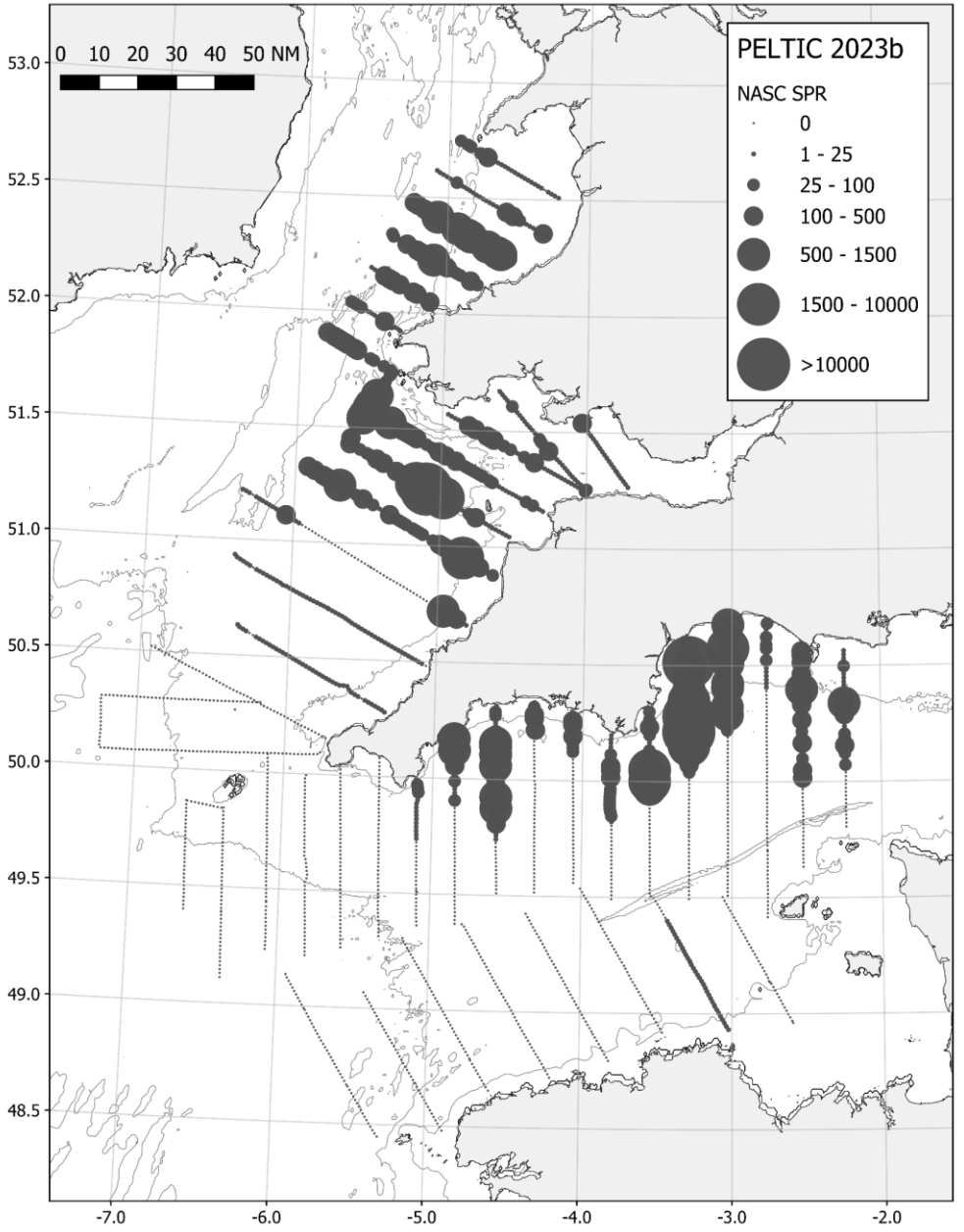


Sprat

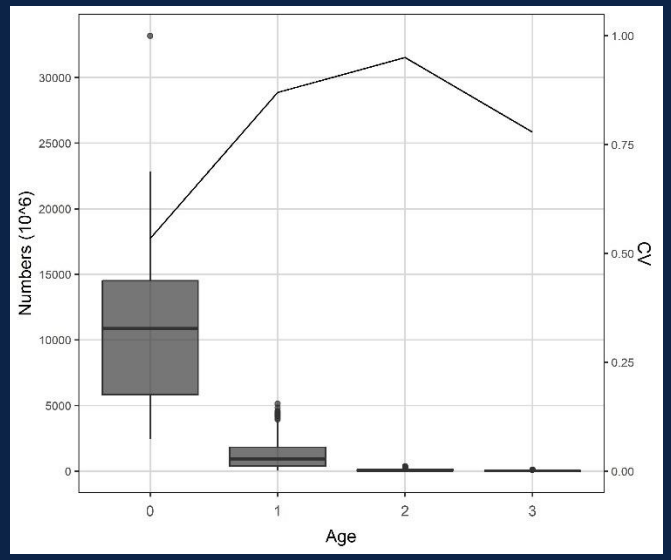
Biomass (WC): 61,270 (CV 0.53)

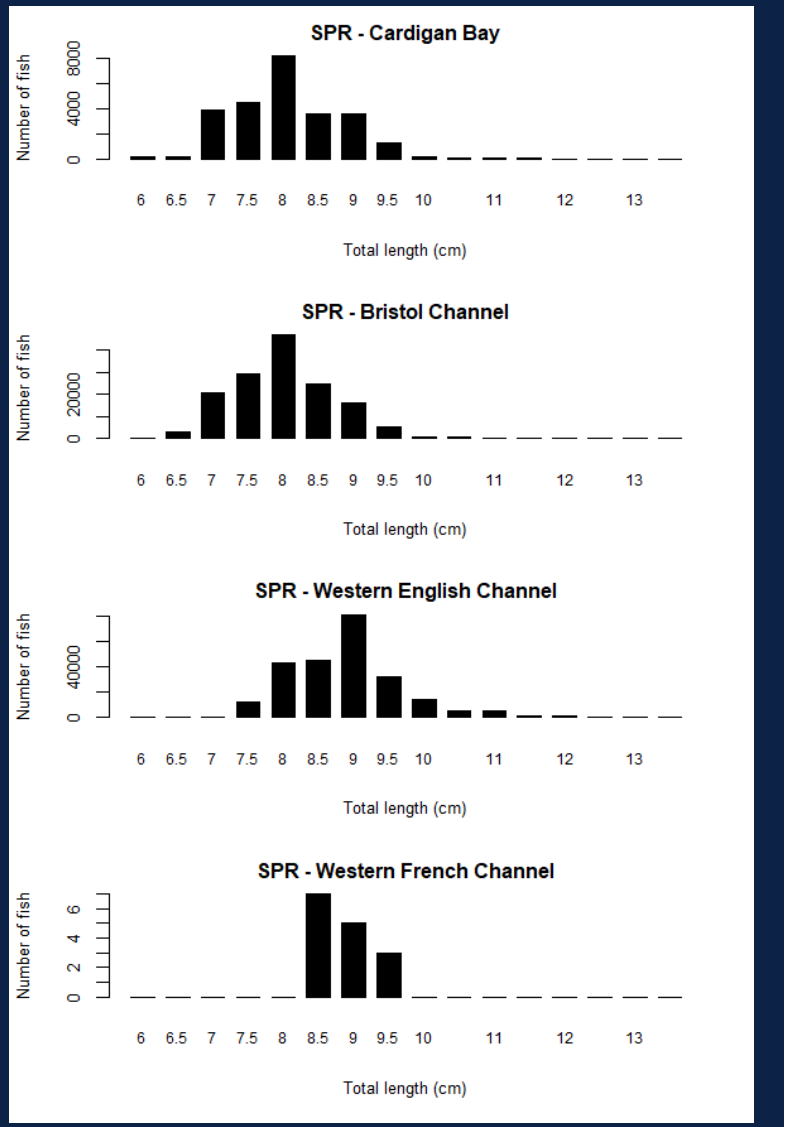
HAWG: Constant-Harvest Rate (8.57%)

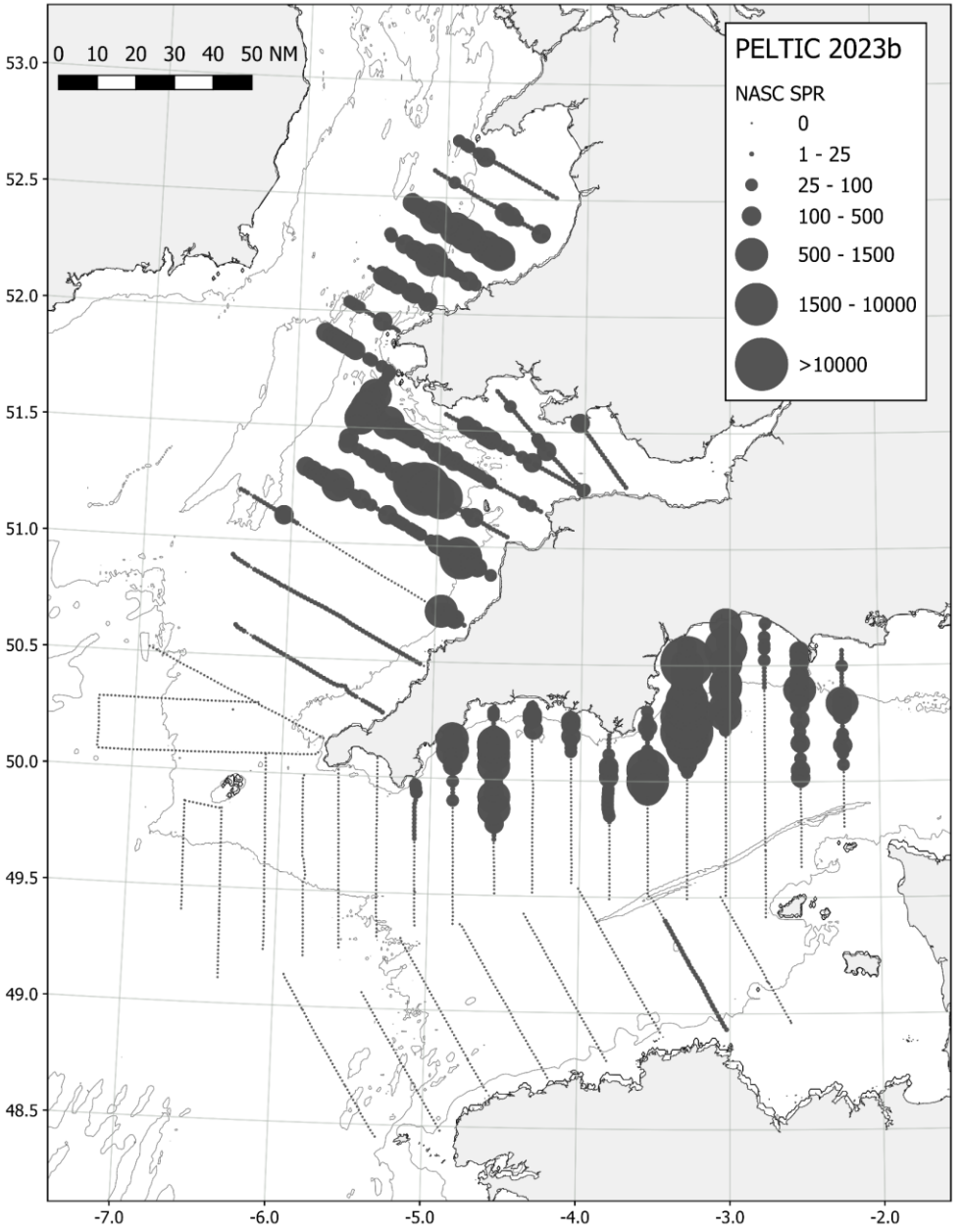




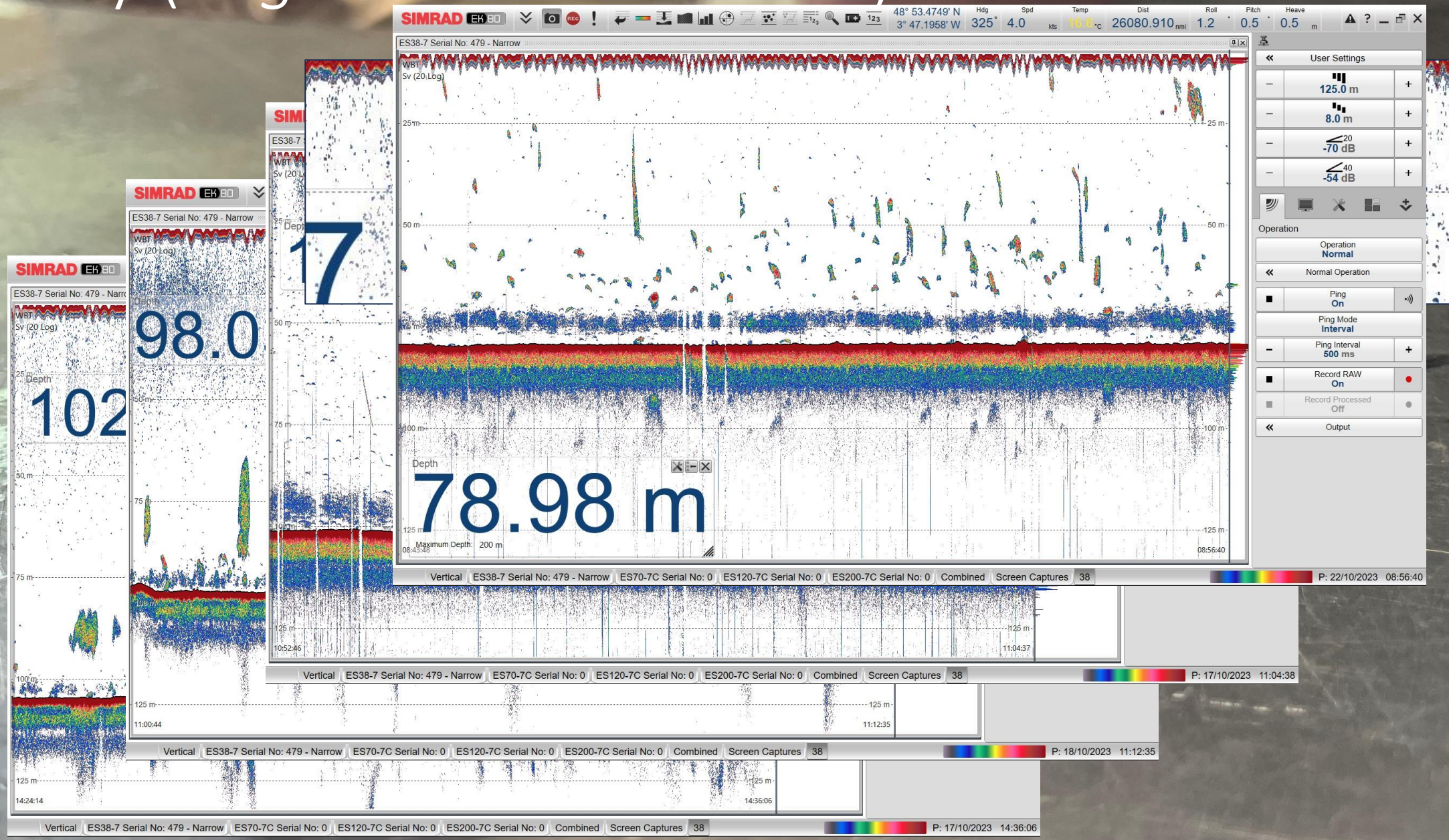
Sprat


Numbers (10^6)
CV
Age
0
1
2
3
0
5000
10000
15000
20000
25000
30000
0.00
0.25
0.50
0.75
1.00


SPR - Cardigan Bay
Number of fish
0
4000
8000
6
6.5
7
7.5
8
8.5
9
9.5
10
11
12
13
Total length (cm)
SPR - Bristol Channel
Number of fish
0
20000
Total length (cm)
SPR - Western English Channel
Number of fish
0
40000
Total length (cm)
SPR - Western French Channel
Number of fish
0
2
4
6
Total length (cm)

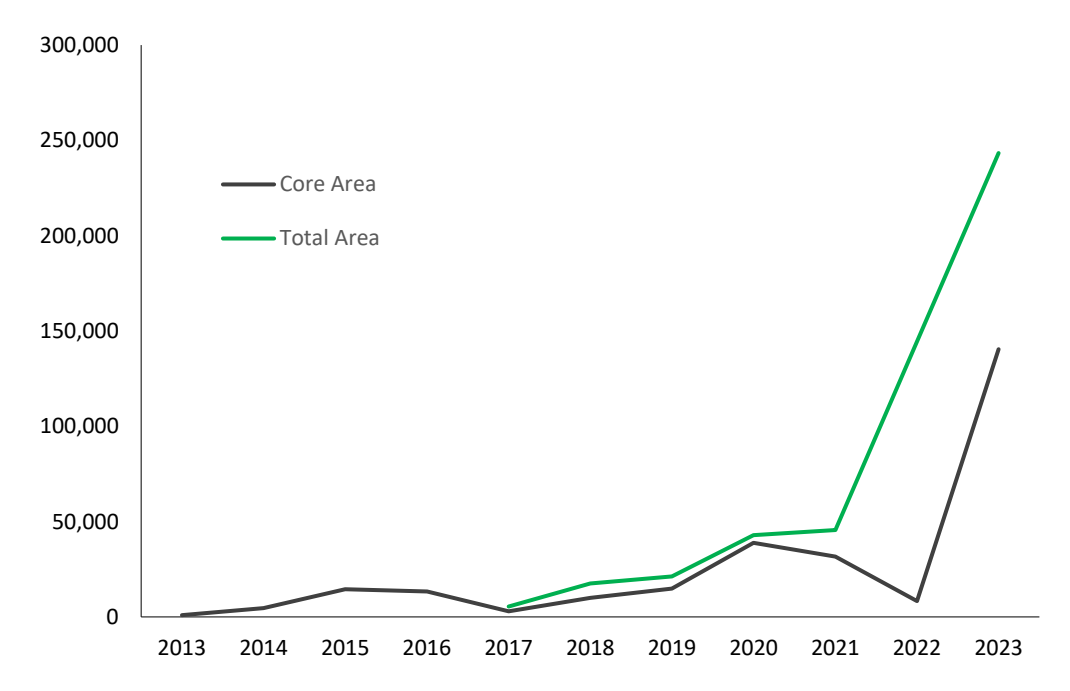

0 10 20 30 40 50 NM
PELTIC 2023b
NASC SPR
0
1 - 25
25 - 100
100 - 500
500 - 1500
1500 - 10000
>10000
53.0
52.5
52.0
51.5
51.0
50.5
50.0
49.5
49.0
48.5
-7.0
-6.0
-5.0
-4.0
-3.0
-2.0

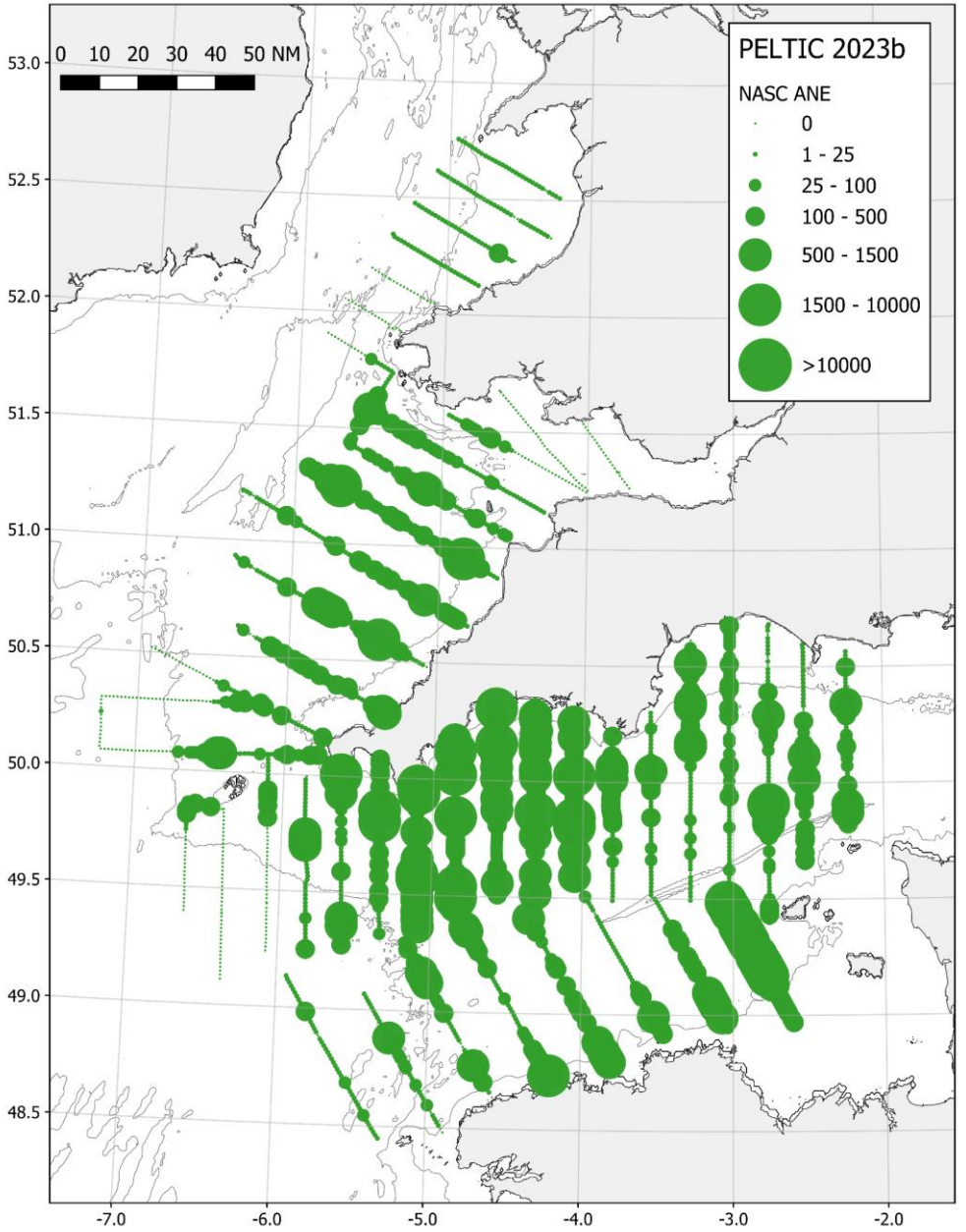
Anchovy (*Engraulis encrasicolus*)



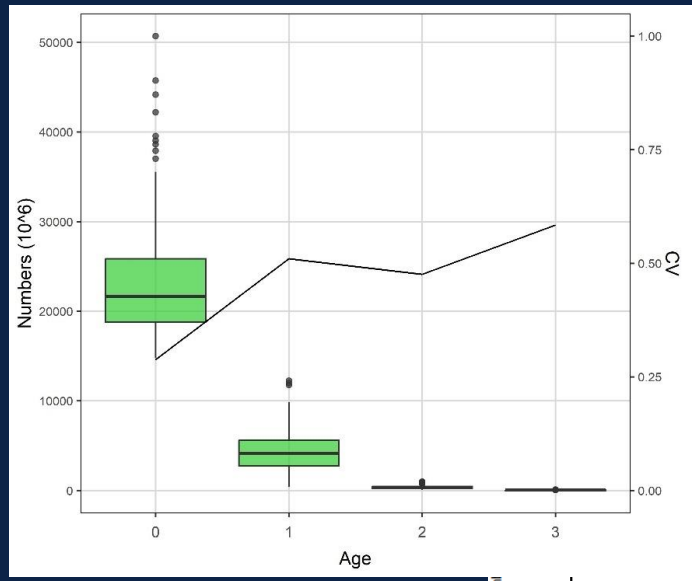
Anchovy

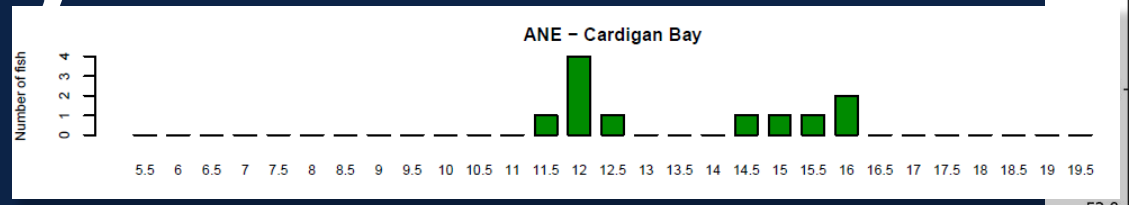
Biomass (TA): 243,392 (CV 0.22)

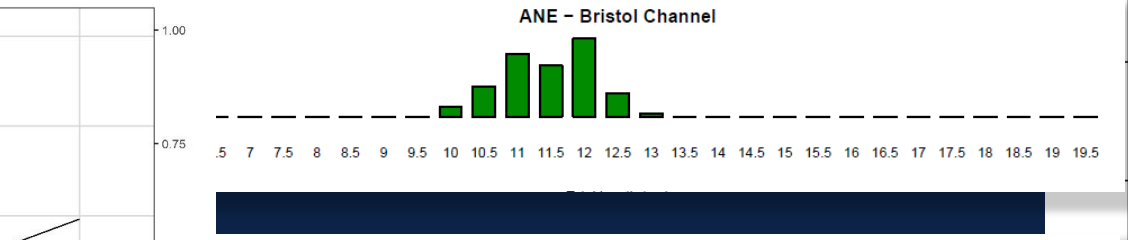


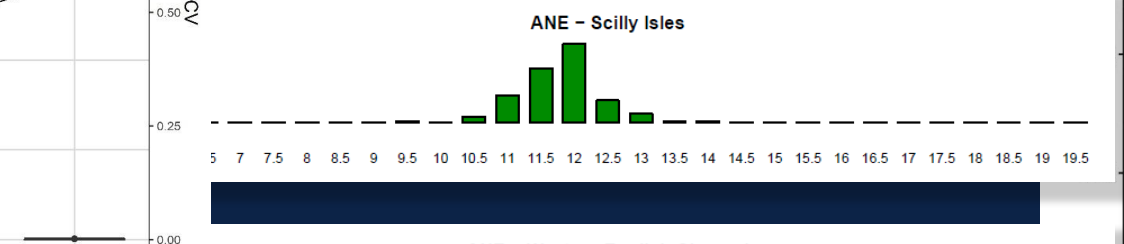


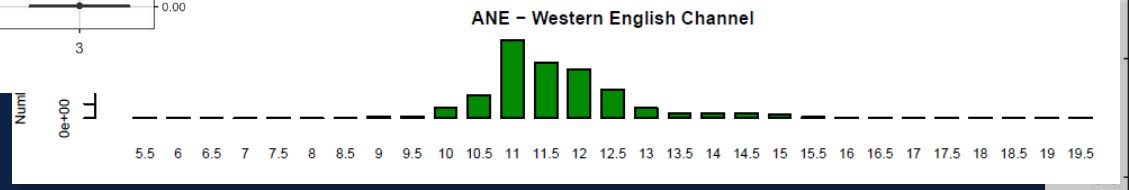
Anchovy

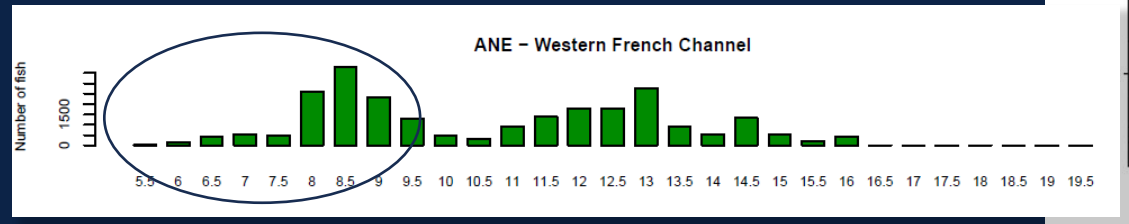

Numbers (10^6)
CV
Age
0
1
2
3

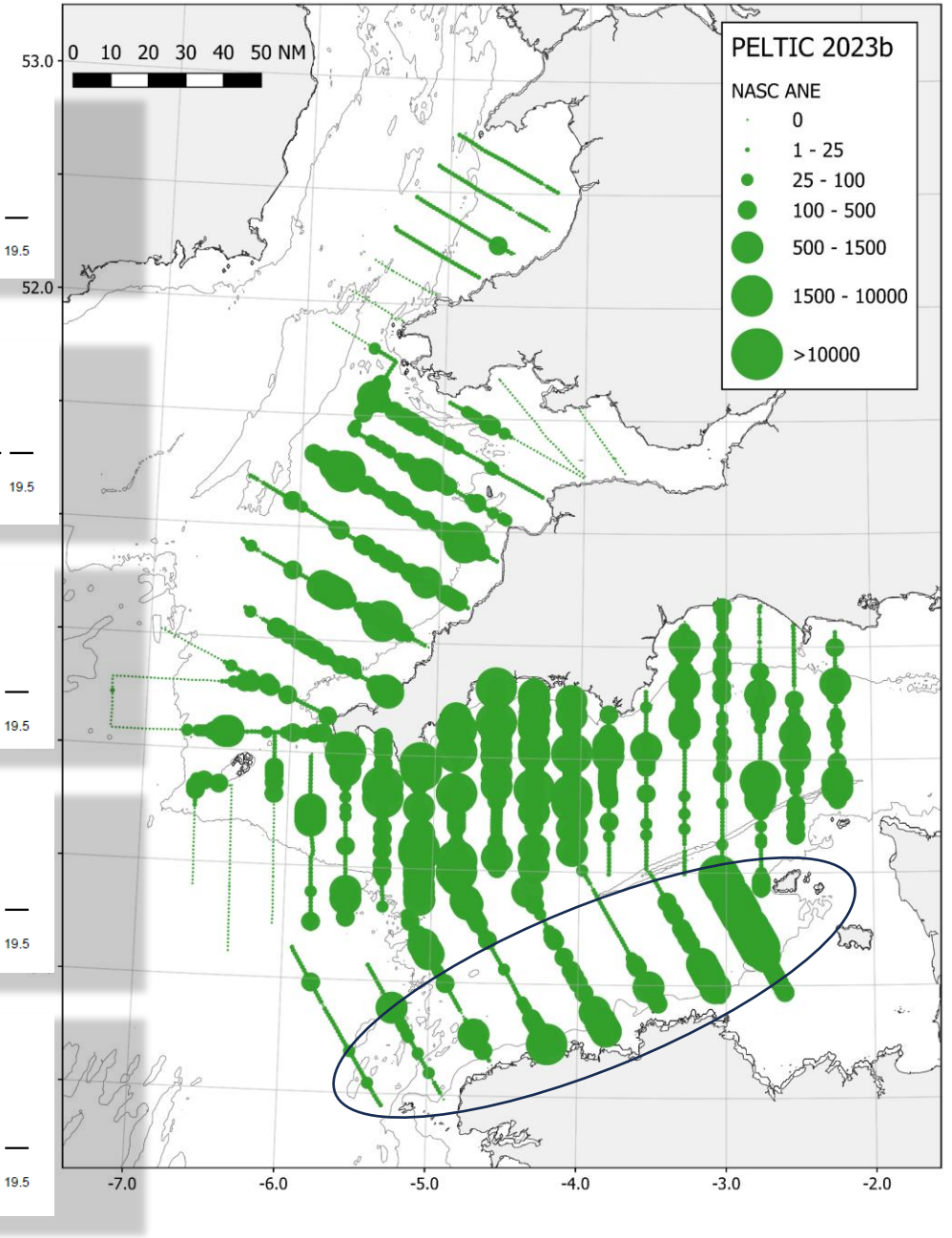

ANE – Cardigan Bay
Number of fish

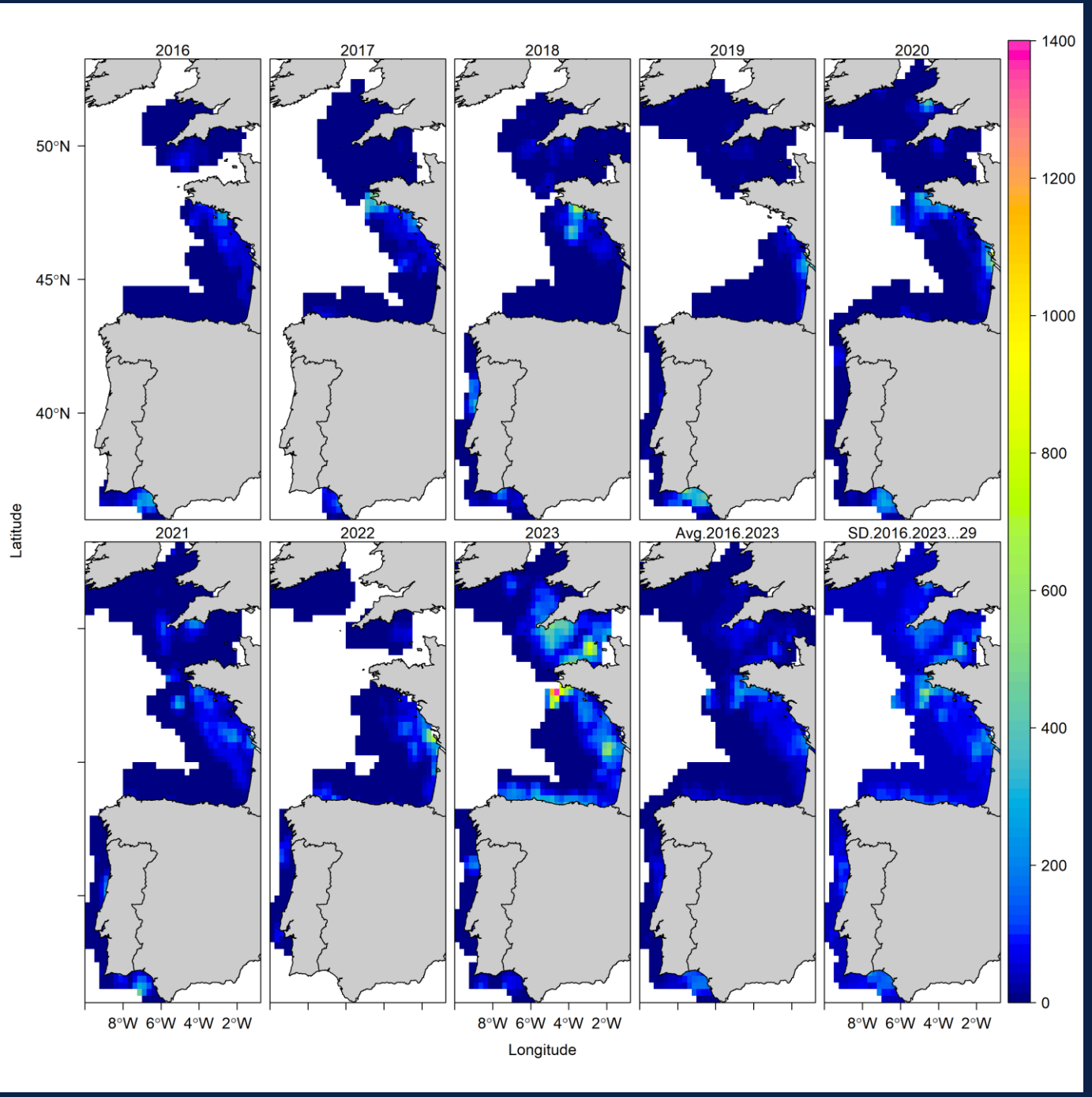

ANE – Bristol Channel


ANE – Scilly Isles


ANE – Western English Channel

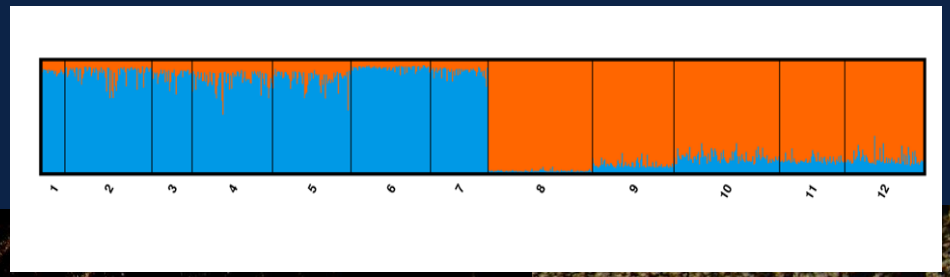

ANE – Western French Channel
Number of fish

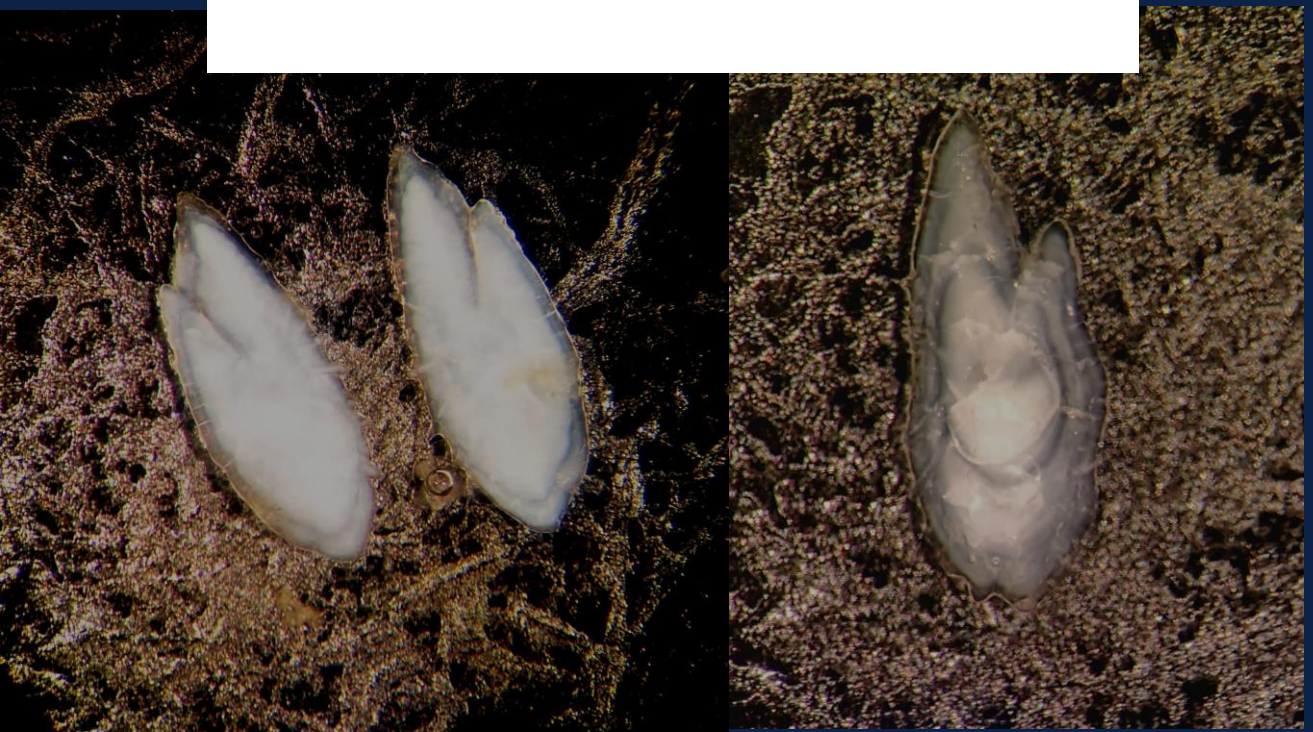

PELTIC 2023b
NASC ANE
0
1 - 25
25 - 100
100 - 500
500 - 1500
1500 - 10000
>10000
0 10 20 30 40 50 NM

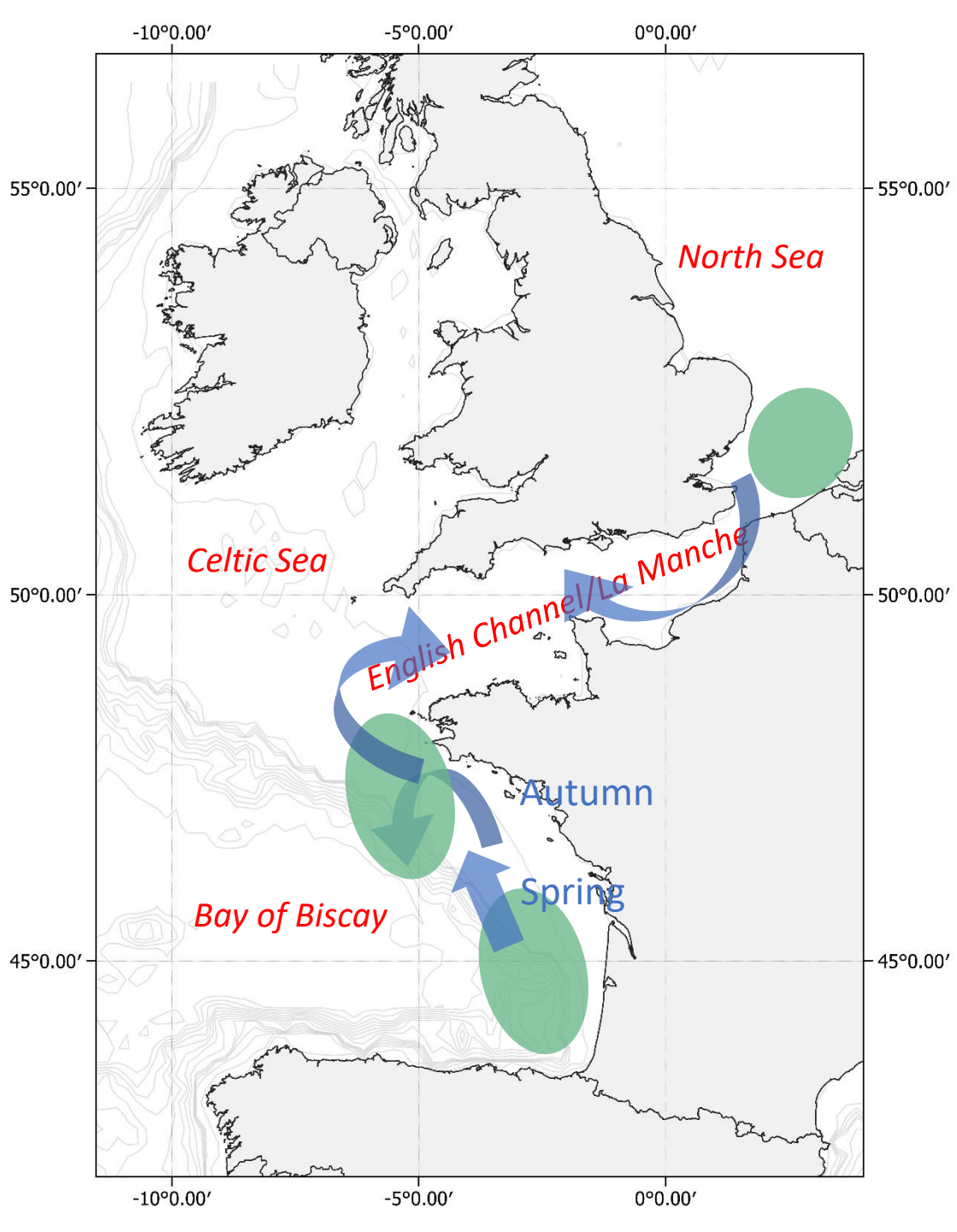

2016
2017
2018
2019
2020
2021
2022
2023
Avg.2016.2023
SD.2016.2023...29
50°N
45°N
40°N
Latitude
8°W 6°W 4°W 2°W
Longitude
1400
1200
1000
800
600
400
200
0

Anchovy

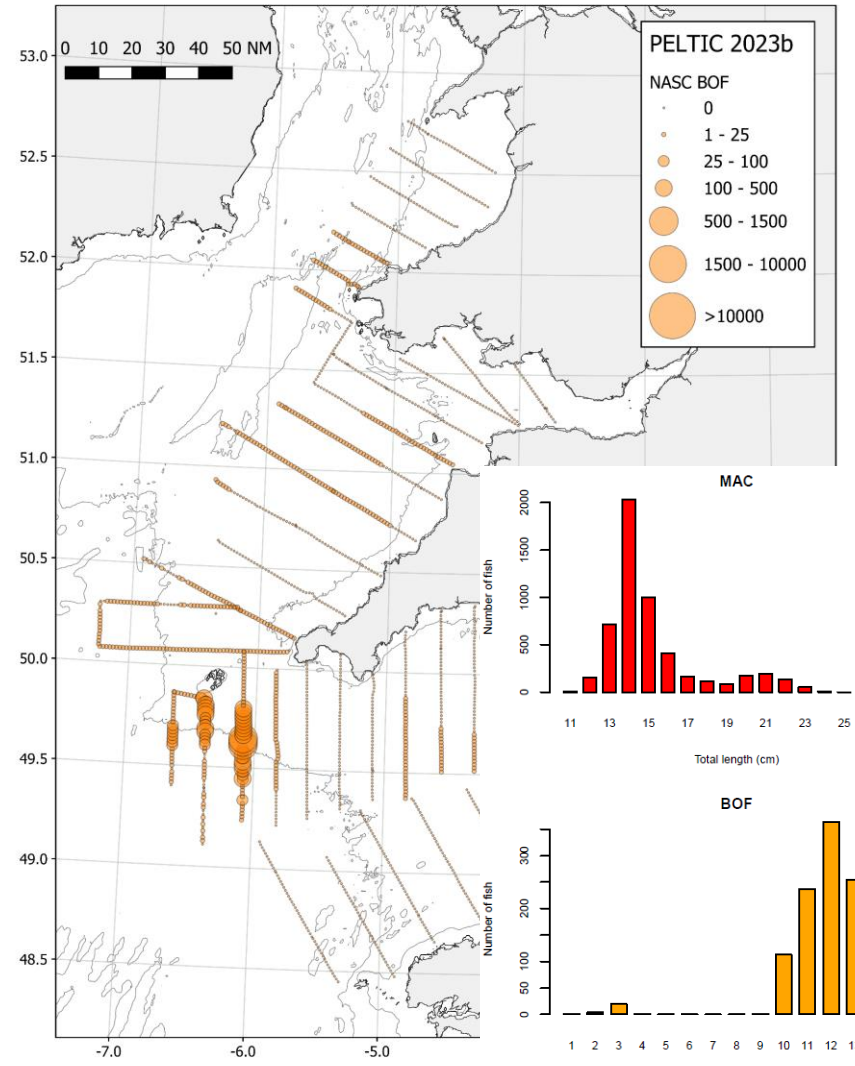
Stock structure conundrum: (presentation Wednesday 9:00)

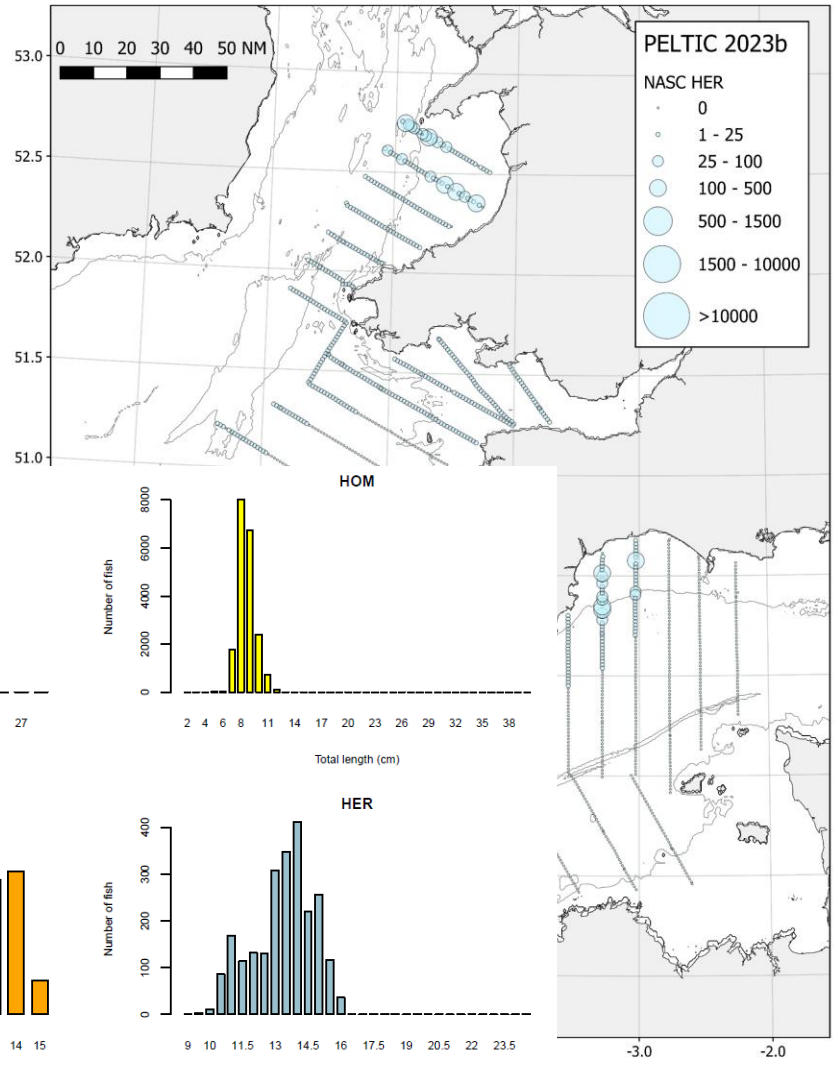


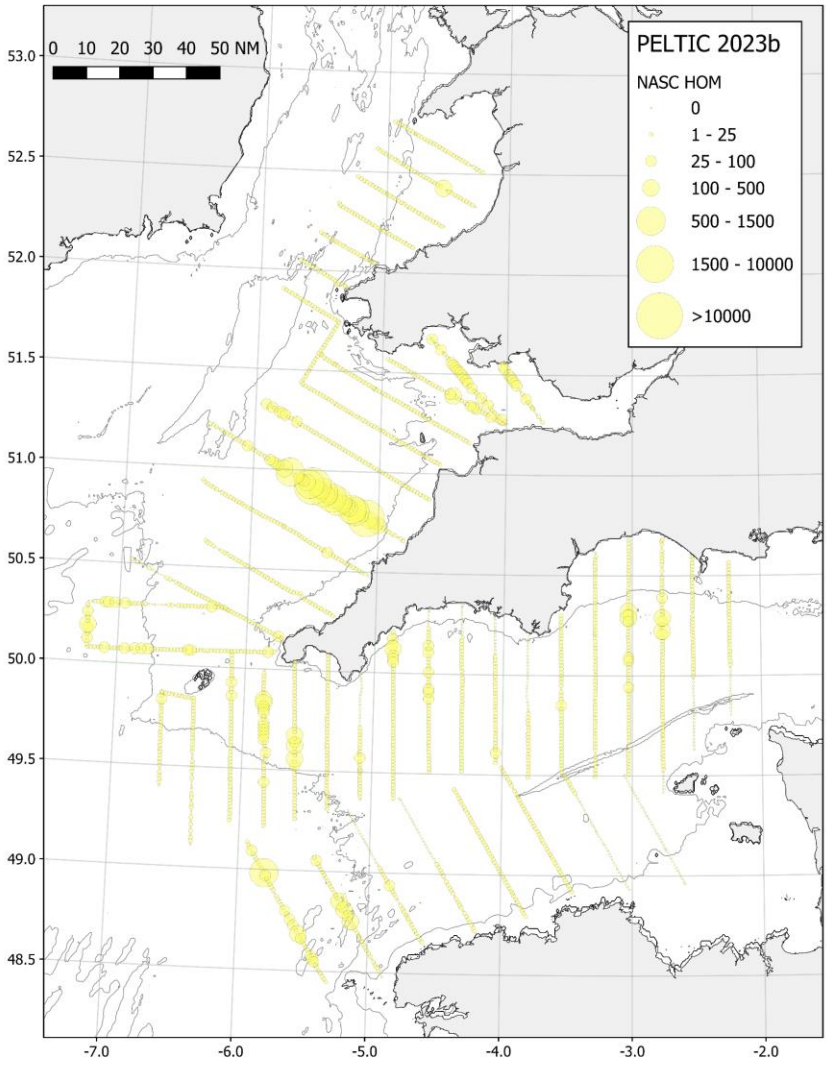




Boarfish, Herring and Horse Mackerel

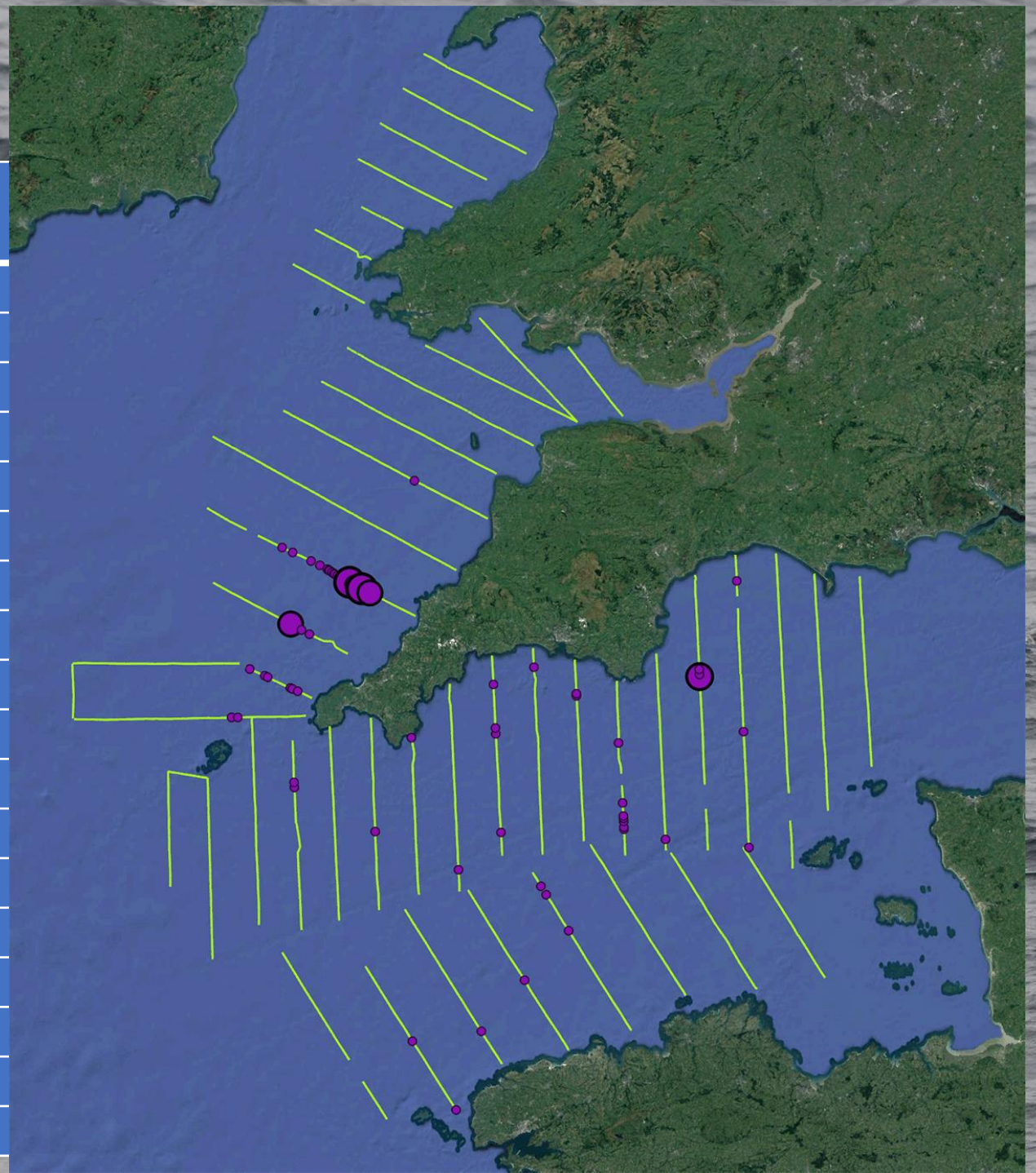






Top predators

Species
Gannet
Great Shearwater
Kittiwake



Summary

1. Successful PELTIC23
2. ~2° C warmer
3. Sardine
   - Biomass highest in time series
   - Further north (including spawning)
4. Anchovy
   - Biomass highest in time series
   - Evidence of (continued) Bay of Biscay “invasion”
5. Sprat (WC): high
6. In progress: Sardine Genetics
7. Self-sampling (Thank you and please keep the data coming)!

ICES Advice on fishing opportunities, catch, and effort
Celtic Seas and Greater North Sea ecoregions
Published 08 December 2023

Sardine (*Sardina pilchardus*) in Subarea 7 (southern Celtic Seas and the English Channel)

ICES stock advice

ICES advises that when the precautionary approach is applied, catches in 2024 should be no more than 13 459 tonnes.

ICES advice on conservation aspects

ICES has not identified any conservation aspects.

Stock development over time

ICES cannot assess the stock and exploitation status relative to MSY reference points bec
size is above I_{stat} (index trigger value for biomass safeguard, a precautionary approach ref

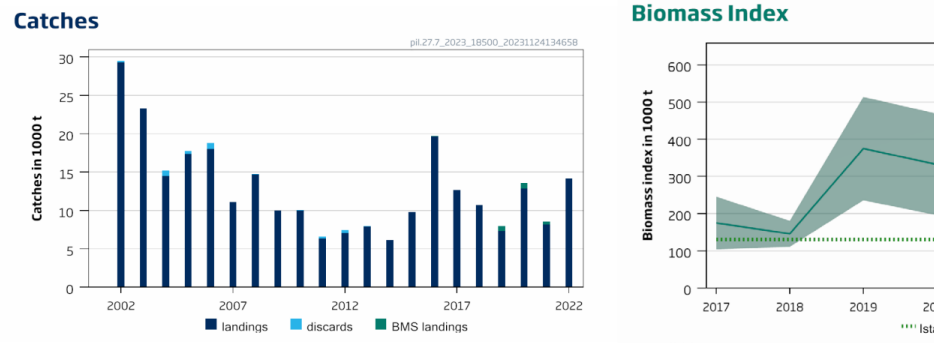


Figure 1 Sardine in Subarea 7. Left: Catches disaggregated by category since 2002, inc landings. Right: Biomass index from the PELTIC acoustic survey, with 95% cor calculation of the 2022 value did not allow to produce a confidence interval). The biomass index for 2023 and the average for 2021–2022.

Conservation status

ICES is not aware of any information on stock-/species-specific conservation status.

Catch scenarios

ICES framework for category 3 short-lived stocks using the 1-over-2 rule was applied (ICES, 2020a). The biomass estimate for the total area of the PELTIC acoustic survey was used as the biomass index. The advice is based on the ratio between

Table 1 Sardine in Subarea 7. The basis for the catch scenarios*.

Index A (2023)		456 482 tonnes
Index B (2021–2022)		281 711 tonnes
Index ratio (A/B)		1.62
Biomass safeguard (I_{stat})		Not applied
Uncertainty cap	Not applied	-
Advised catch for 2023		8 306 tonnes
Discard rate		Negligible
Catch advice 2024**		13 459 tonnes
% advice change		+62 %

* The figures in the table are rounded. Calculations were done with unrounded inputs, and computed values may not match exactly when calculated using the rounded figures in the table.
**[Advice for 2023] × [index ratio]

The advice for 2024 is higher than the advice for 2023 because of an increase in stock size.