Centre for Environment Fisheries & Aquaculture Science

Cefas

**RESEARCH VESSEL SURVEY REPORT**

**RV CEFAS ENDEAVOUR**
**Survey: C END 17 - 2025.**

**STAFF:**

| Name | Role | Name | Role |
|---|---|---|---|
| **3rd -20th Oct** | | **20th Oct– 2nd Nov** | |
| **Jeroen van der Kooij** | SIC/Acoustics | **Jeroen van der Kooij** | SIC/Acoustics |
| **Joseph Watson** | Acoustics | **Joseph Watson** | Acoustics |
| **Joana Silva** | SIC/Oceanography | **Elisa Capuzzo** | SIC/Oceanography |
| **Samantha Barnett** | Lead Fish/Acoustics | **Samantha Barnett** | Lead Fish/Acoustics |
| **Richard Humphreys** | Fish | **Richard Humphreys** | Fish |
| **Allen (Spike) Searle** | Fish | **Ben Hatton** | Fish |
| **Eilis Crimmins** | Fish | **Danny Jones** | Fish |
| **Izzy Lake** | Oceanography/eDNA | **Elise Brabben** | Oceanography/eDNA |
| **Nevena Almeida** | Zooplankton | **Nevena Almeida** | Zooplankton |
| **Hannah Lloyd-Hartley** | Zooplankton | **Amy Lovegrove** | Zooplankton |
| **Holly Bateman** | Engineer | **Josh Tate** | Engineer |
| **Philip Dutt** | ML Observer | **Peter Howlett** | ML Observer |
| **Robin Langdon** | ML Observer | **Robin Langdon** | ML Observer |
| **Tim Dunn** | JNCC Observer | **Debbie Welham** | JNCC Observer |
| **Owen Selly** | JNCC Observer | **Anouska Mendzil** | JNCC Observer |

**DURATION:** **3rd October (Falmouth) – 2nd November (Lowestoft): 31 days**

**LOCATION:** Western Channel, Celtic Sea, Cardigan Bay (ICES Divisions 7.e-f and parts of 7.a,g)

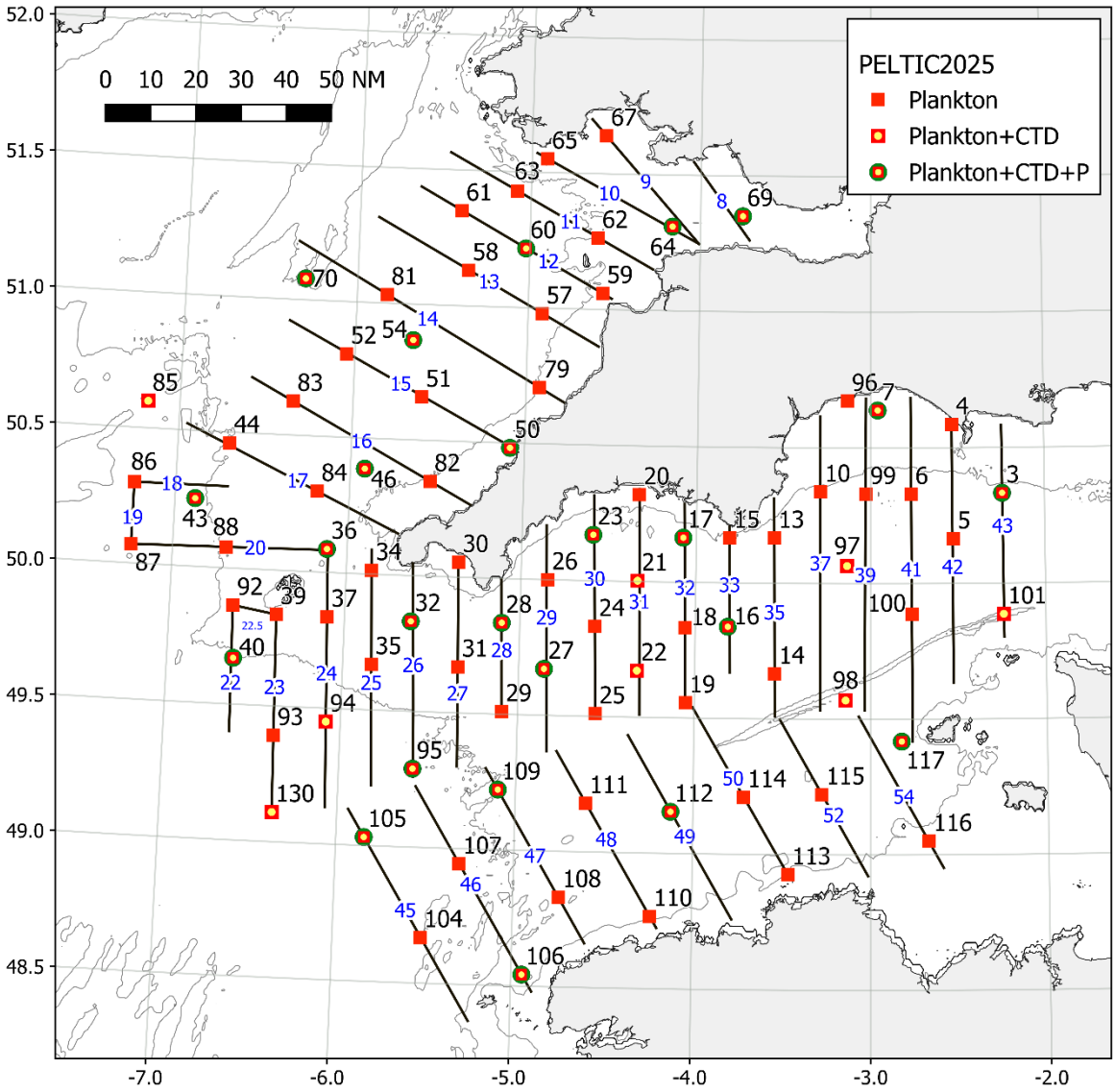


**Figure 1.** Overview of the 2025 PELTIC survey, with the acoustic transect (black lines, numbers in blue), plankton stations (red squares) and hydrographic stations (yellow circles). Priority CTD stations marked in green.

## AIMS:

1. To carry out the fourteenth autumn PELTIC survey: pelagic ecosystem survey of the western English Channel, Celtic Sea, to estimate the biomass of-, and gain insight into the populations of the small pelagic fish community including sprat (*Sprattus sprattus)*, sardine (*Sardina pilchardus*), anchovy (*Engraulis encrasicolus*), herring (*Clupeia harengus*)horse mackerel (*Trachurus trachurus*), mackerel (*Scomber scombrus*), The PELTIC derived sardine biomass in ICES Subarea 7 will feed into its stock assessment (WGHANSA) and sprat biomass data from the western English Channel will feed into the stock assessment of sprat in ICES divisions 7.de (HAWG).
   a. To carry out a fisheries acoustic survey during daylight hours only using four operating frequencies (38, 70, 120, 200 and 333 kHz) to map and quantify the small pelagic species community.

   b. To conduct approximately 45 trawls targeting small pelagic species using a 20x40m VDK herring (mid-water) trawl in order to obtain information on:
      - Species and size composition of acoustic marks
      - Age-composition and distribution, for small pelagic species
      - Length weight and maturity information of pelagic species

2. To Calibrate the Simrad EK80 broadband echosounder at frequencies: 38, 70, 120, 200 and 333 kHz.

3. To collect plankton samples using two ring-nets with 80 µm, and 270 µm mesh sizes at fixed stations (red squares on map below). Carried out at night by vertical haul and samples will be processed onboard:
   a. Ichthyoplankton (eggs and larvae, 270 µm) of pelagic species will be identified, counted and (in case of clupeids) staged and measured onboard to identify spawning areas. Remaining zooplankton will be stored for zooscan processing back in the lab.
   b. Meso-zooplankton (80 µm) will be processed by planktoscope and/or flowcam onboard (N Almeida - Cefas).

4. Water column sampling (yellow stations on map below). At fixed stations along the acoustic transect, a CTD (either an ESM2 profiler or a Seabird mounted on a Rosette sampler) will be deployed to obtain vertical profiles of the environmental properties of the water column. Profiles and water samples will provide information on chlorophyll concentration, dissolved oxygen, salinity, temperature, turbidity, and dissolved inorganic nutrients concentration as well as the relevant QA/QC samples for calibration of the equipment. Water samples will be collected and fixed on board for analysis post-survey. Relevant data within UK EEZ will feed into the eutrophication assessment under the SLA25 eutrophication monitoring programme (N. Greenwood – Cefas). Samples for analysis of the phytoplankton and microzooplankton communities will also be collected at the subsurface at fixed sampling stations.

5. Seabirds, Marine Mammals and tuna. Locations, species, numbers and activities observed will be recorded continuously during daylight hours by external observers located on the bridge.

6. Ferrybox Continuous CTD/Thermo-salinograph. Continuously collect oceanographic data at 4 m depth during steaming, including chlorophyll concentration (from calibrated fluorescence).

7. Flowcytometry: high frequency sampling of the functional groups and size of phytoplankton community (V. Creach– Cefas)

8. Plankton Imager (PI): to collect continuous high frequency data on the sub-surface copepod composition (S. Pitois & J. Scott – Cefas).

9. eDNA: collect water-samples for ongoing studies to assess method as validation tool for acoustic data and to collect information on biodiversity (T. Gibson - Cefas)

10. To collect biological data (size, weight, age and maturity) on range of data-limited fish species, including John Dory (*Zeus faber*), European seabass (*Dicentrarchus labrax*), black seabream (*Spondyliosoma cantharus*), striped red mullet (*Mullus surmuletus*), garfish (*Belone belone*), saury pike (*Scomberesox saurus*).

11. Monitoring the critically endangered Balearic shearwater (*Puffinus mauretanicus*) as well as other seabirds and marine mammals using ESAS methodology by JNCC observers on the bridge (T Dunn - JNCC).

12. Collect (bag and freeze) three specimens each of Sardine (*Sardina pilchardus*), Anchovy (*Engraulis encrasicolus*), Sprat (*Sprattus sprattus*), Mackerel (*Scomber scombrus*), Horse mackerel (*Trachurus trachurus*), Boarfish (*Capros aper*) and Herring (*Clupea harengus*) for *in vitro* mock community studies (T. Gibson - Cefas).

13. To collect a zooplankton sample using the 200 µm mesh ring-net at the West Gabbard2 SmartBuoy, for the Lifeform project (Defra) as part of the UK monitoring network of zooplankton (S. Pitois – Cefas).

14. To collect between 25-50 specimens per species (anchovy, mackerel, sardine) and freeze for further analysis in the lab supporting a study on microplastics in fish stomachs (A. Bakir/ A. McGoran - Cefas).

15. Record macro-litter observations in the trawl (B. Silburn - Cefas)

16. Sample and (where possible) process fish larvae using the Methot Isaac Kidd (MIK) midwater plankton trawl at approximately one station per night. (R Nash – Cefas, Lowestoft)

17. Collect additional length-weight measurements (mm and 0.1g) where still required and/or for rare species encountered in surveys. (J. Silva – Cefas)

18. Collect additional information on garfish (Family Belonidae) and saury pike (*Scomberesox saurus*) including total length (mm), body length (mm) and total weight (0.1g). (J. Silva - Cefas)

19. Collect uterine fecundity data (female maturity stage D-F) for dead elasmobranch species such as spurdog Squalus acanthias, tope Galeorhinus galeus and starry smooth-hound Mustelus *asterias*, in support of stock assessment within ICES Working Group for Elasmobranch Fishes. (J Silva, J Ellis, S Phillips – Cefas, Lowestoft)

***Opportunistic Survey Aims***

20. Collect isopod parasites from specimens of black seabream, European seabass and other fish species when seen, photograph in situ and freeze the isopod. (P Barry – Cefas, Lowestoft)

21. All diadromous species (including allis shad *Alosa alosa*, twaite shad *Alosa fallax*, lampreys (Petromyzontidae), Atlantic salmon *Salmo salar*, sea trout *Salmo trutta*, European eel *Anguilla anguilla* and European smelt *Osmerus eperlanus*) found dead on capture are to be frozen and returned to the lab for analyses, marking samples with the survey, station, and date to support DiadES project. (T Basic, M Ives & S Roslyn – Cefas)

22. Tag and release specimens of the following fish species in support of studies on stock identification, and in support of the ICES Working Group for Elasmobranch Fishes work (J Silva, J Ellis, S Phillips – Cefas, Lowestoft):
    a. Tope *Galeorhinus galeus*,

b. Common skate complex (and related species) *Dipturus* spp
c. Blonde ray *Raja brachyura*,
d. cuckoo ray *Leucoraja naevus*,
e. shagreen ray *Leucoraja fullonica*,
f. undulate ray *Raja undulata*,
g. and small-eyed ray *Raja microocellata*,
h. Starry smooth-hound *Mustelus asterias* (focusing on large females),
i. Spurdog *Squalus acanthias* (focusing on large females),
j. Greater-spotted dogfish Scyliorhinus stellaris.

23. Retain any dead specimens (frozen, whole) of tope *Galeorhinus galeus*, common skate complex (and related species) *Dipturus* spp., shagreen ray *Leucoraja fullonica* and other less commonly caught elasmobranch species for biological studies. (J Ellis, S Phillips, J Silva – Cefas, Lowestoft).

**NARRATIVE[1]:**

Scientists joined the RV Cefas Endeavour in Falmouth on 2 October at 16:00 with the intention to sail at 01:00 on 3 October. However, due to weather conditions (Storm Amy) the vessel sailed instead at 08:00 and headed east to seek shelter off Torbay. Late on 4 October after safety briefings and drills, the vessel lifted anchor and steamed overnight to the first working area in the very east of the survey grid. There survey operations started on 5 October at 07:00, with a plankton deployment before first light, followed by the first acoustic transect (Tr42). Transect 43 and CTD/plankton station 101 were dropped due to the delay in sailing time. Operations progressed well over the first week, with acoustic transects being run during the day, regularly interrupted for a pelagic trawl deployment, and consistent plankton and rosette sampling at night. On the morning of 8 October, the conditions were sufficiently calm to schedule the EK80 calibration. This was successfully conducted on the drift in Lyme Bay and completed early afternoon. The first leg continued productively through 12–19 October, with extensive acoustic coverage and trawling in the western Channel, although some trawling opportunities were lost due to heavy vessel traffic and static fishing gear. Despite these interruptions, objectives for the first leg were achieved successfully. A mid-survey break occurred on 20 October, when the vessel docked at 08:00 in Fowey for a scheduled personnel changeover (most crew and 9 of 15 scientists replaced). No scientific activities took place during this day, and the team resumed work after sailing at 19:00 that evening, continuing the survey by completing the western-most transects of the English Channel and those around the Isles of Scilly. Post-break operations resumed smoothly, with strong catches and continued acoustic and plankton work. However, Storm Benjamin forced the vessel to suspend all scientific work from 23–24 October, sheltering on the east side of Lundy Island. Fieldwork resumed after midnight on 25 October, starting in the inner Bristol Channel and gradually working to the west. Due to significant reduction in workable survey days, all acoustic transects in Bristol Channel were truncated (offshore) to ensure priority areas were surveyed. Deteriorating weather continued to limit operations over subsequent days, with 24 hours lost over two nights. In total, 16 CTD/plankton stations were abandoned in the Bristol Channel area due to weather. By 30 October, with another storm forecasted to arrive imminently, field operations were abandoned and at 11:00, the

[1] All times in BST

vessel started the return transit to Lowestoft. The premature departure meant that there was time to include an *ad hoc* service of the West Gabbard SmartBuoy (at 8:00 on 1 November) followed by the collection of a plankton sample in support of the timeseries. The vessel docked at 18:00 on 1 November.

**RESULTS:**

All aims were successfully completed. A summary of the echosounder calibration settings is provided in Table 1. Biological data (some or all of the following parameters: size, weight, age and maturity) of the following data-limited species were collected (objective 10): 9 European seabass; 34 John dory; 1 black seabream. eDNA samples (objective 9) were collected at 17 fishing stations (see section Oceanography) and three specimens each of the main pelagic fish species were collected for *in vitro* mock community analysis (objective 12; Annex 1). Details of the ESAS observations (objective 11) will be reported separately. A plankton sample was collected at the West Gabbard2 SmartBuoy (objective 13) on the steam back to Lowestoft. In total 11 samples of 25 whole specimens of small pelagic fish (3 species) were collected from 9 different stations for micro-litter analysis (objective 14, Annex 1). Macro-litter observations in the trawl were recorded (objective 15) and will be reported on at a later stage. Due to significant weather-induced loss of core survey time, The Methot Isaac Kidd deployment (objective 16) was not possible. Data on a single snake pipefish specimen were collected (objective 17) but no body length (and associated total length) data were collected for garfish or saury pike as neither species was caught (objective 18). No uterine fecundity data (objective 19) or whole elasmobranch specimens were collected (objective 23) as all elasmobranchs were released alive. No isopod parasites were observed (objective 20) and no dead diadromous fish were caught for collection (objective 21). A single 136 cm male tope was tagged and released (objective 22). (More details on the other aims are provided in the relevant sections below.

**Table 1.** Summary of echosounder (EK80 in CW mode) calibration settings obtained on 8 October while on drift in Lyme Bay, and applied during PELTIC 2025. The 333 kHz was not calibrated. *Drop-keel down

| Variable | 38 kHz | 70 kHz | 120 kHz | 200 kHz | 333 kHz |
|---|---|---|---|---|---|
| Transducer type | ES38-7 | ES70-7C | ES120-7C | ES200-7C | ES333-7C |
| Transducer depth (m) | 5.3 (8.3)* | 5.3 (8.3)* | 5.3 (8.3)* | 5.3 (8.3)* | 5.3 (8.3)* |
| Transducer power (W) | 2000 | 750 | 250 | 120 | 50 |
| Pulse length (milliseconds) | 0.512 | 0.512 | 0.512 | 0.512 | 1.024 |
| 2-way beam angle (dB) | -20.7 | -20.7 | -20.7 | -20.7 | - |
| Transducer gain (dB) | 27.13 | 27.97 | 27.26 | 27.76 | - |
| Sa correction (dB) | -0.5291 | -0. 4380 | -0.2694 | -0.3472 | - |
| 3dB beam along (°) | 6.52 | 7.09 | 6.45 | 5.32 | - |
| 3dB beam athwart (°) | 6.72 | 6.73 | 6.41 | 5.97 | - |
| Along offset (°) | -0.03 | 0.08 | 0.05 | -0.09 | - |
| Athwart offset (°) | -0.05 | -0.02 | 0.10 | 0.06 | - |
| RMS (Root Mean Square error) | 0.0579 | 0.209 | 0.069 | 0.2108 | - |

**Pelagic Ichthyofauna**

All acoustic transects were surveyed, although the loss of six days due to weather meant that survey effort had to be reduced during the survey. Offshore areas in the western part of the Bristol Channel were therefore sacrificed as this area tends to have limited fish backscatter. Overall, 1710 (out of a total of 1900) nm of acoustic sampling units were collected. A total of 31 trawl hauls were conducted (Fig 2) to provide ground-truth information about the species and size composition and to collect biological information.

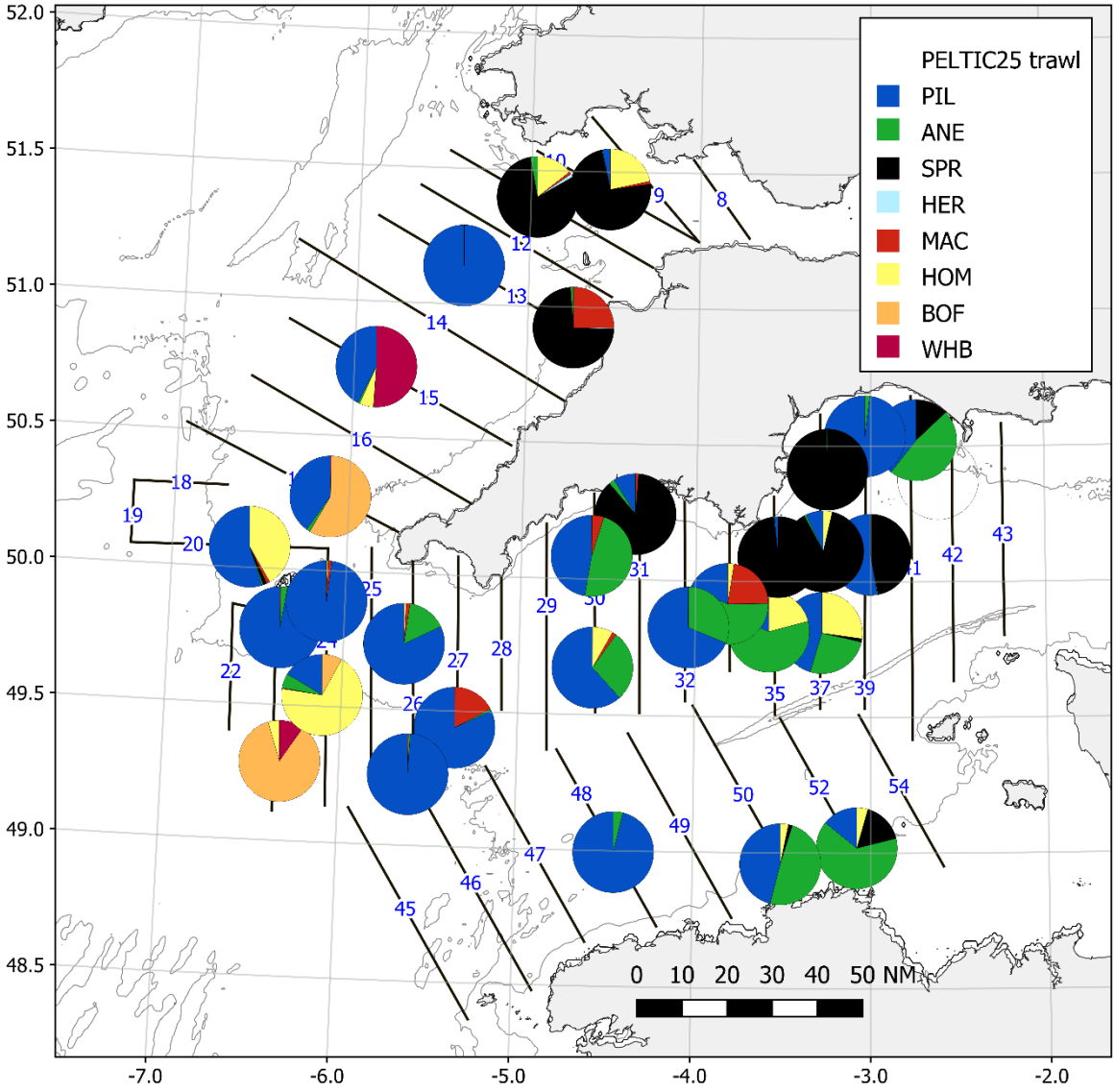


**Figure 2**. Overview map of the adjusted PELTIC25 survey area. Acoustic transects (black lines) and Trawl stations (pies) with relative catch composition by key species. Three letter codes: PIL=sardine, ANE=anchovy, SPR=sprat, HER=herring, MAC=mackerel, HOM= horse mackerel, BOF=boarfish and WHB=Blue whiting.

A summary of the number of individuals sampled for length and biological parameters is provided for key species (Table 2).

**Table 2**. Summary of number of fish measured (not raised) and where additional biological parameters (including weight, age, maturity) were collected for small pelagic fish species.

| Species | Scientific name | Measured | Biological samples |
|---|---|---|---|
| Sprat | *Sprattus sprattus* | 2,461 | 280 |
| Sardine | *Sardina pilchardus* | 5,492 | 914 |
| European anchovy | *Engraulis encrasicolus* | 3,304 | 522 |
| Horse mackerel | *Trachurus trachurus* | 1,549 | 280 |
| European mackerel | *Scomber scombrus* | 1,092 | 187 |
| Herring | *Clupea harengus* | 160 | 49 |
| Boarfish | *Capros aper* | 694 | 62 |
| Blue whiting | *Micromesistius poutassou* | 71 | 32 |

**Sprat *Sprattus sprattus*** biomass in the western Channel was estimated at 91,577 t (CV 0.45). This was the second highest since the start of the time series in 2013 (Fig. 3). As was the case in recent years, the 2025 age composition was again driven by 0-group with negligible numbers of fish older than age 1 absent. As is typical, highest densities were found in Lyme Bay and in the Bristol Channel (Fig. 4).

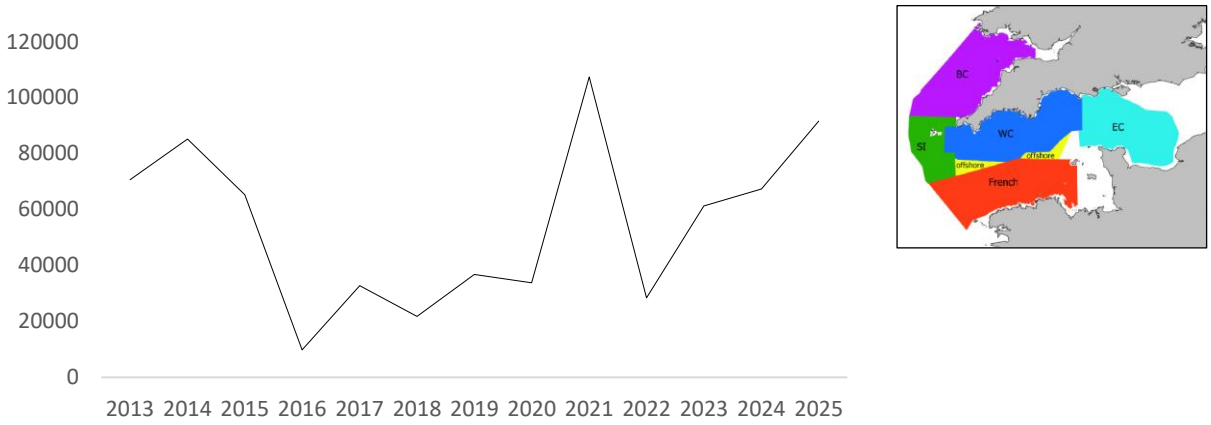


**Figure 3**. Sprat biomass trend (left) for the consistently sampled stratum in the western Channel: WC (blue) in map of strata (right).

Bristol Channel sprat size distribution showed two modes at ~6 and 8 cm total length ($L_T$). Sprat form the Isles of Scilly included the largest specimens although numbers were very low there. Western Channel fish on both English and French side had modal length of 8 cm total length ($L_T$) (Fig 5).

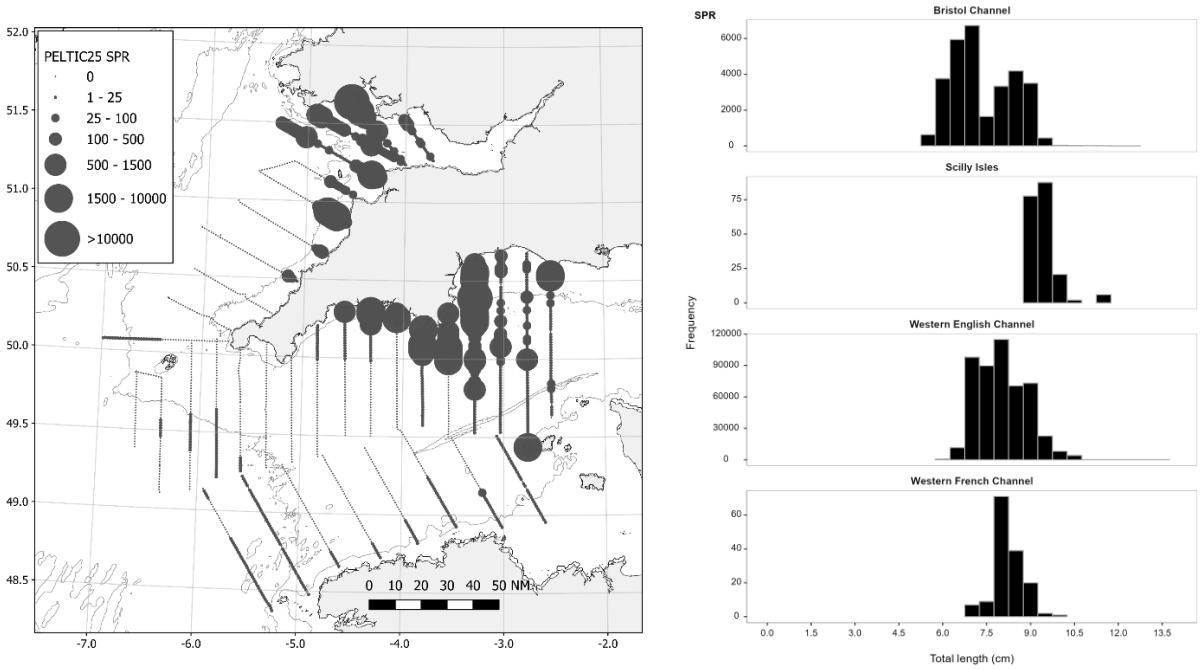


**Figure 4**. Relative acoustic sprat density distribution (Nautical Area Backscattering Coefficent – NASC, left) and trawl-derived length frequency distribution by region (right) attributed to sprat as observed during PELTIC. Note that the histograms have not been raised by acoustic densities.

**Sardine *Sardina pilchardus*** was again the most abundant small pelagic fish species in the study area with a biomass of 502,312 t (CV 0.14) estimated for the Total Area (Fig 5), the highest value in the time series.

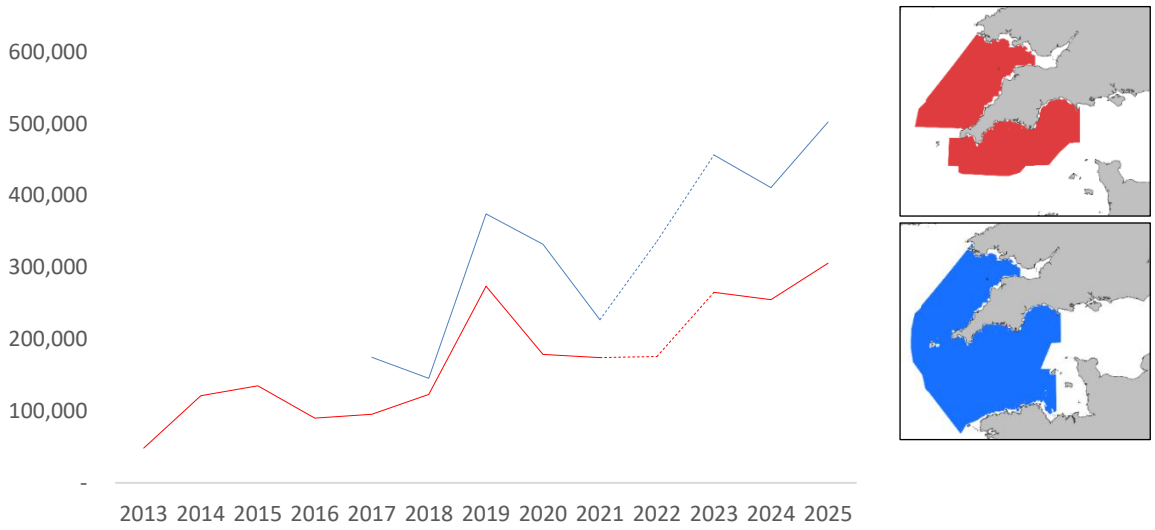


**Figure 5**. Sardine biomass (tonnes) trends (left) based on two available survey strata: the core area, consisting of the English waters of the western Channel and the Bristol Channel, surveyed consistently from 2013 (top right, red) and the total area, which also includes the Isles of Scilly and French waters of the western Channel, surveyed from 2017 (bottom right, blue). Note that the dashed lines reflect the limited coverage in 2022: "Core Area" biomass was representative of only the western Channel stratum, a smaller area than indicated in the map. Also, the 2022 Total Area biomass was extrapolated based on the ratio of biomass observed in the surveyed area.

Highest sardine densities were found around the Isles of Scilly and in the Western parts of the Channel, which is also where the largest sardines were found (> 17 cm $L_T$) (Fig 6).

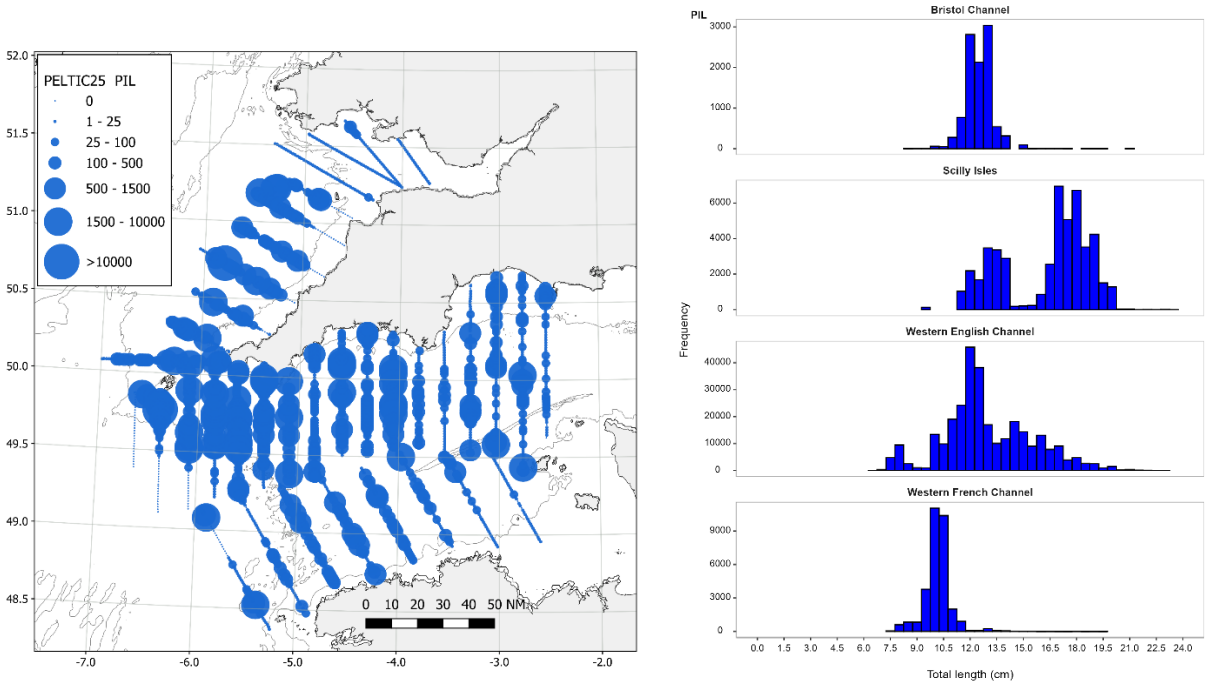


**Figure 6.** Relative acoustic sardine density distribution of 2025 sardine (Nautical Area Backscattering Coefficient - NASC, left), and trawl-based length frequency histogram for sardine in the subareas of the PELTIC survey (right). Note that the histograms have not been raised by acoustic densities.

The sardine population was made up of fish between 0-group and six years old, with the 0-group the most abundant. The smallest sardines were found in the western Channel, primarily in English waters (Fig 6).

**Anchovy *Engraulis encrasicolus*** biomass in 2025 increased to 75,579 t (0.19 CV) after the particularly low biomass in the 2024 survey. Small numbers of post-larval, early juvenile anchovy were again encountered although in contrast to previous years, on the English side.

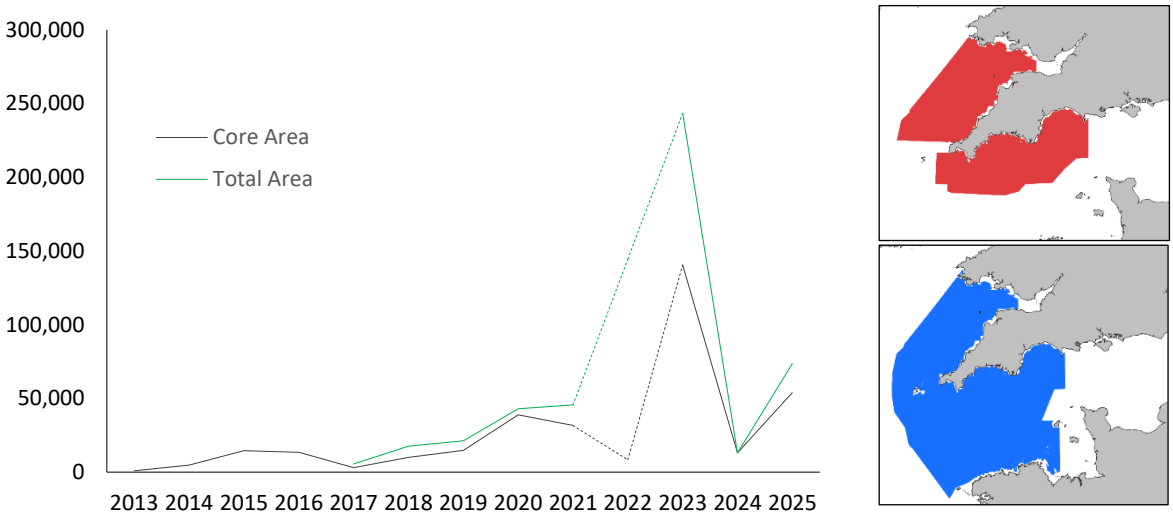


**Figure 7**. Anchovy biomass (tonnes) trends (left) for total area (in green, equivalent to area on map bottom right in blue) and the core area (equivalent to map on top right). Note that the dashed lines reflect the limited coverage in 2022: biomass is representative of only the western Channel stratum and therefore a smaller area than the red core area indicated in the map. Total area estimate was not calculated for 2022 due to incomplete survey coverage and in 2024 due to low biomass.

Anchovy in 2025 were mainly distributed in the central Western Channel, with largest fish found in the Isles of Scilly and the English waters of the Western Channel. Smallest fish were found in Bristol Channel which showed to modes in total length (Fig 8).

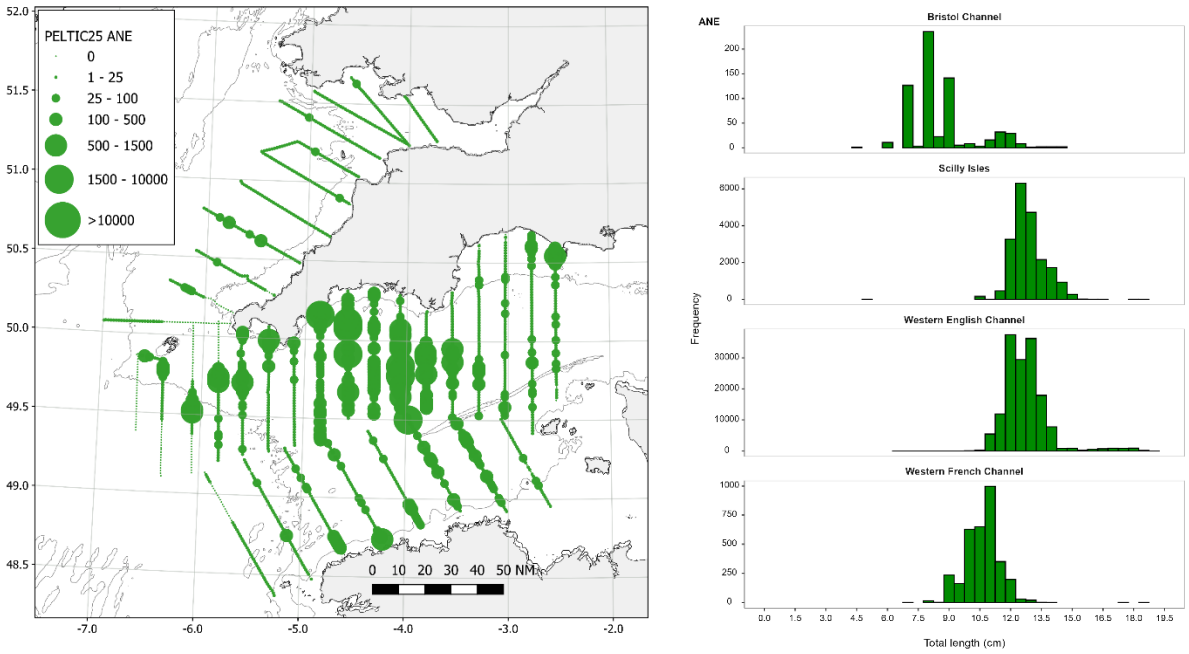


**Figure 8.** Relative acoustic anchovy density distribution (NASC, left), and trawl-based length frequency histogram for anchovy in the subareas of the PELTIC survey (right). Note that the histograms have not been raised by acoustic densities.

Specimens of up to age 3 were found although the dominant age were 0 group fish.

Other pelagic fish species (no biomass estimates available at the time of reporting): no clear patterns in **Mackerel *Scomber scombrus*** distribution were observed as it was found in relatively low numbers in the area. Length frequency of mackerel suggested the presence of primarily age 0 fish with some age 1 (Fig 9). **Horse mackerel *Trachurus trachurus*** was widespread, although typically in deeper waters of the survey area. Unlike in previous years, multiple length modes were observed (Fig 9) including fish at modes of 30 and 40 cm Total Length ($L_T$). At least two clear cohorts of **boarfish *Capros aper*** were found, one consisting of juveniles of 2-3 cm $L_T$ and one with mode at 13 cm $L_T$, the latter mainly around the Isles of Scilly. Small specimens were found more widespread in deeper waters of central western Channel. **Herring *Clupea harengus*** were again found mixed in among the sprat schools, primarily in the inner Bristol Channel and with only a handful of specimens in Lyme Bay. Herring size appeared to consist of one main size mode at ~12 cm $L_T$ (Fig 9). **Blue whiting *Micromesistius poutassou*** was found in deeper waters of the Celtic Sea including near the Celtic Deep. Two cohorts were seen although numbers were very low.

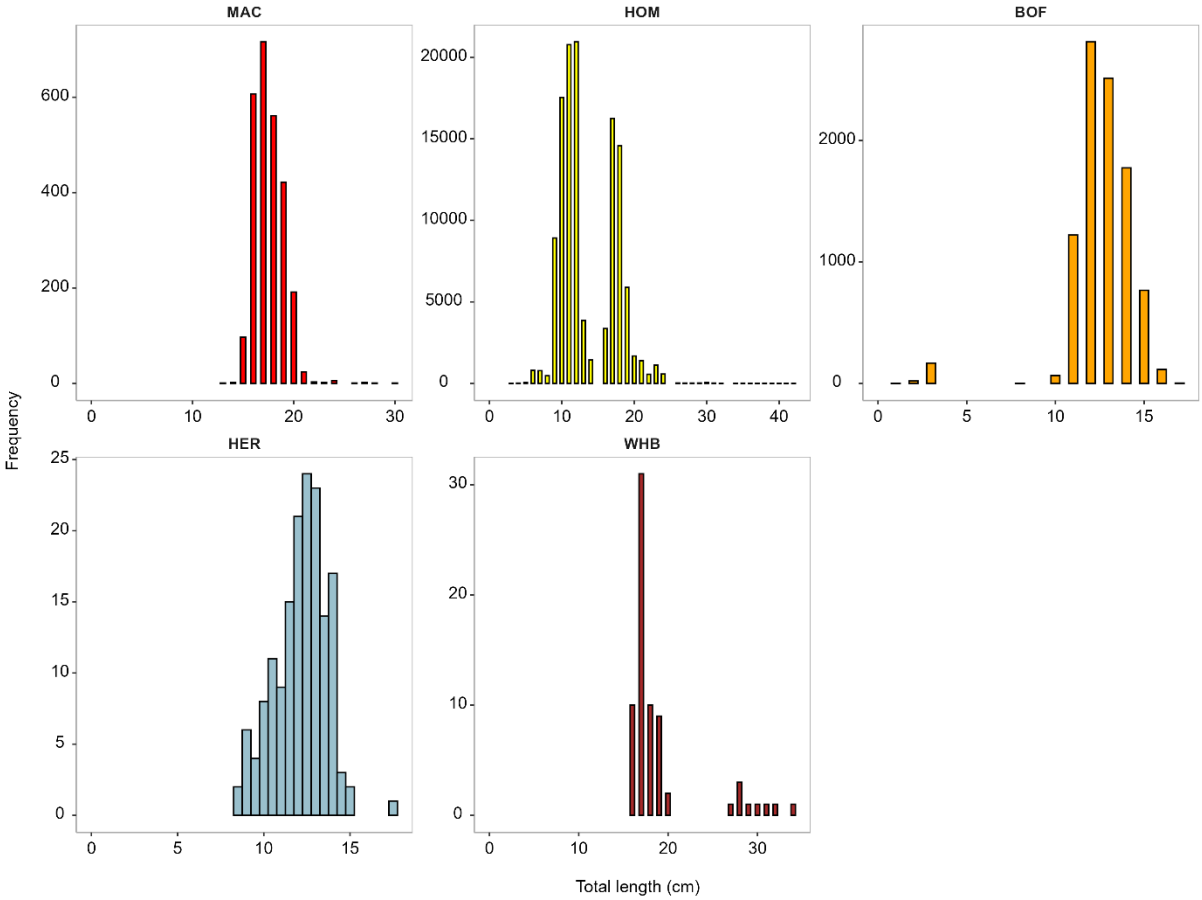


**Figure 9.** Length frequency histograms for mackerel (MAC), horse mackerel (HOM), boarfish (BOF), herring (HER), and blue whiting (WHB) derived from the PELTIC25 trawl catches. Note that these have not been raised by acoustic densities.

**Plankton and Oceanography**

Mesozoo- and ichthyoplankton samples were collected at 74 stations with ring nets with 80 µm and 270 µm mesh, respectively (Table 3). Of these 74 sampling events, 6 were invalid, resulting in 68 samples collected with the 80 µm net and 69 with the 270 µm net. Reasons for invalid sampling included damaged to ring net, and incorrect cod ends mounted on the nets (swapping 80 µm and 270 µm). Prime station 118 has now been formally removed from the list of sampling stations due inaccessibility (windfarm), and prime station 116 was shifted further north along the transect for the same reason. During the first half of the survey prime station 101 was dropped to make up for time lost due to poor weather at the start of the survey. For the same reason (loss of time due to storm Benjamin, requiring sheltering off Lundy Island) multiple plankton stations could not been sampled during the second half of the survey. These included prime stations: 44, 50 (priority), 51, 52, 59, 61, 63, 70 (priority), 79, 81, 83, 85, 86, 87, 88, and 92. Prime stations 50, 70, 85 and 101 are also oceanography stations so associated water samples could not be collected. In total 17 prime stations could not be sampled due to loss of time caused by adverse weather conditions.

All samples from the 270 µm ring net were processed microscopically aboard for ichthyoplankton analysis with all fish eggs and larvae staged and measured respectively. Furthermore, 14 (priority stations) of the 69 270 µm ring net samples were analysed on board for full zooplankton community (i.e. including also gelatinous organisms and large zooplankton). The samples from the 270 µm ring nets were stored in 4% buffered formaldehyde for ZooScan processing post-survey. All results will be stored on the EcoTaxa database (https://ecotaxa.obs-vlfr.fr/). The samples from the 80 µm ring nets were processed on board using the Planktoscope and were also stored in 4% buffered formaldehyde.

Sardine eggs and larvae dominated the ichthyofauna. Sardine eggs were more abundant in 2025 (maximum values around 1400 eggs $m^{-2}$; Figure 10), compared to maximum value observed in 2024 (just under 500 eggs $m^{-2}$). However, values were still substantially lower compared to abundances seen in the 2023 survey (maximum values up to just over 4000 eggs $m^{-2}$). The highest densities of sardine eggs were observed south of Land's End, the Lizard peninsula, and Plymouth, while sardine larvae were most abundance offshore, south of Plymouth (Figure 10). As expected, sardine larvae were more widespread in the survey area although they were absent from the south-western offshore stations and the most eastern stations, as well as the inner Bristol Channel (Figure 10).

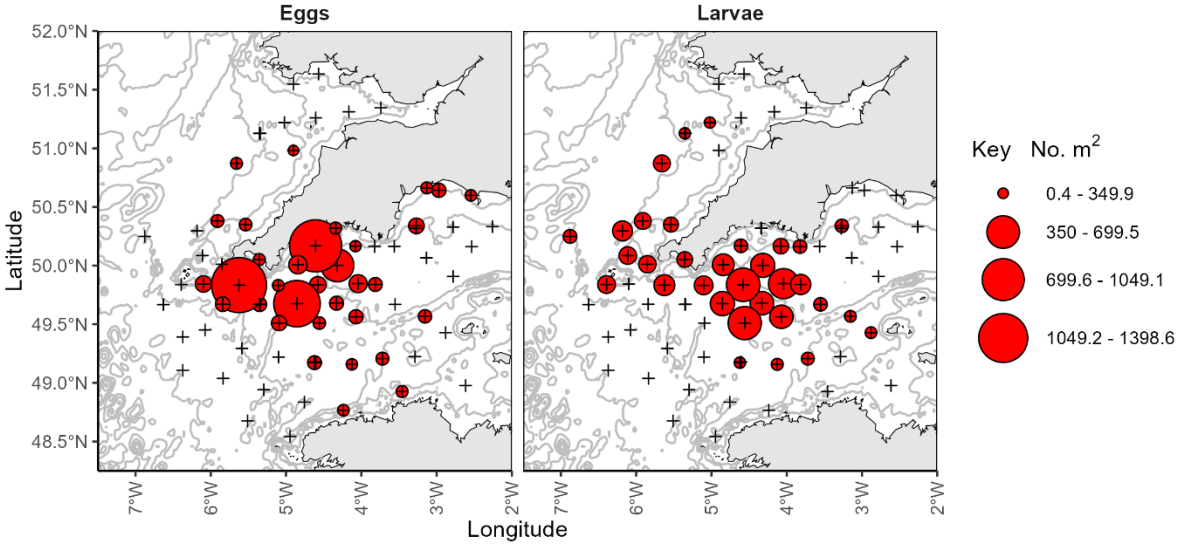


**Figure 10**. Distribution of 2025 sardine eggs (left) and larvae (right) at the sampling stations derived from samples collected with the 270 µm ring net and analysed on board.

No fish larvae samples were collected with the Methot Isaac Kidd (MIK) net sampler this year, due to the time loss caused by adverse weather conditions during the survey.

**Oceanography**

Vertical profiles of temperature and salinity of the water column were carried out at 73 plankton stations (including 6 invalid stations which were then repeated) using a SAIV MiniCTD. No salinity profile was recorded by the MiniCTD at prime 4.

At a subset of 27 of the sampling stations a Rosette sampler with a SeaBird CTD and Niskin bottles was deployed to collect data on temperature, salinity, dissolved oxygen, turbidity and fluorescence through the water column. At these stations, water samples were also collected at the surface (approximately 4 m depth) for analysis of phytoplankton and microzooplankton communities, salinity, phytoplankton pigments (including chlorophyll-a) and dissolved inorganic nutrients (nitrate, nitrite, ammonium, phosphate, silicate), with more samples collected near the seafloor for dissolved oxygen analysis (Table 3).

Due to adverse weather conditions at station prime 60, an ESM2 deployment was attempted instead of the Rosette; however, both the ESM2 in use, and the spare ESM2, could not be switched on so no profile was completed at the station, and the surface water samples were collected from the FerryBox flowthrough (at 4 m depth).

The FerryBox system worked generally well, almost continuously until the end of the survey. The flow cytometer had periodic issues (related to out-of-focus images and clogging) but ran fine otherwise, as did the Plankton Analyser.

Dissolved oxygen samples from water near the bottom were analysed on board by the Winkler method using an auto-titrator, while salinity and inorganic nutrient samples were stored for analyses in the Laboratory. Dissolved inorganic nutrient samples were filtered and frozen. Phytoplankton pigments samples (including chlorophyll-a) were collected in duplicates and stored at -80 °C for future HPLC (High Performance Liquid Chromatography) analysis by DHI (Denmark). Phytoplankton samples were fixed with Lugol for processing in the Lowestoft Laboratories using an inverted microscope, while microzooplankton samples (also fixed with Lugol) will be analysed with the FlowCam at a future time. Samples for dissolved oxygen,

salinity and chlorophyll were collected to calibrate sensors on the FerryBox and on the SeaBird profiler mounted on the Rosette sampler.

**Table 3.** Number of samples collected and number of profiles carried out during PELTIC25.

| | **Total** |
|---|---|
| Salinity | 29 |
| Dissolved oxygen (triplicates) | 24 |
| Chlorophyll/Pigments analysis (HPLC – duplicates) | 28 |
| Inorganic nutrients (with 1 sample in duplicate) | 29 |
| Phytoplankton | 28 |
| Microzooplankton | 28 |
| Mesozooplankton (80 µm) | 68 |
| Mesozooplankton (270 µm) | 69 |
| eDNA flowthrough (triplicates) | 17 |
| | |
| CTD profiles with SeaBird (Rosette) | 27 |
| CTD profiles with ESM2 | 0 |
| CTD profiles with SAIV MiniCTD | 73 |

eDNA sampling was carried out from the flowthrough system of the RV Cefas Endeavour at 17 fishing stations (Figure 11). eDNA samples were stored at -80 °C for future analysis in the Cefas Laboratory.

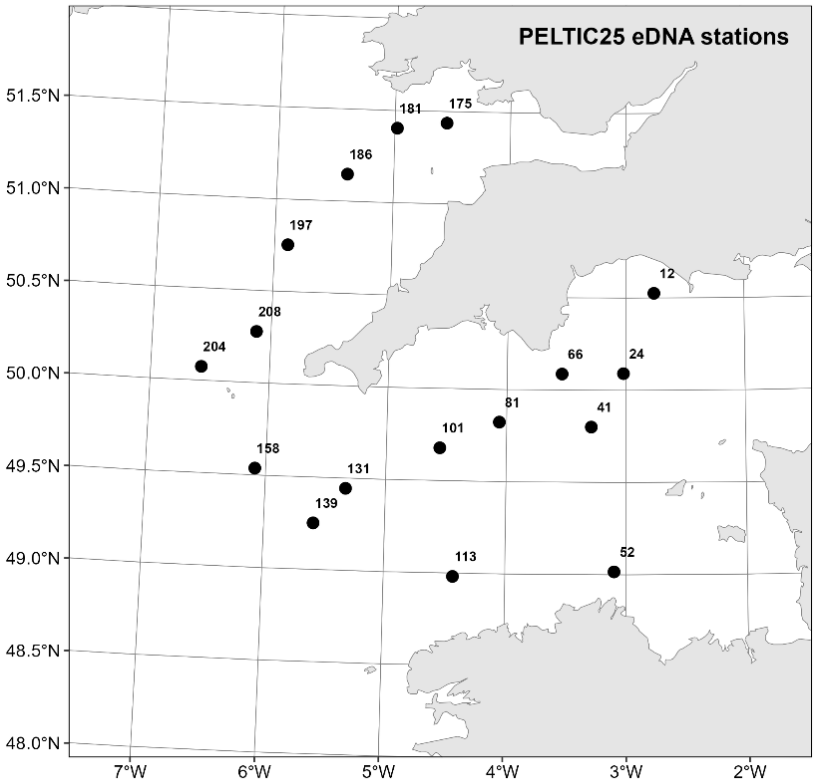


**Figure 11.** Distribution of 2025 eDNA sampling locations from flow through during trawl operations.

Sea surface temperature was highest near the Channel Islands, in the easternmost area of the survey area (Figure 12); this agrees with the average sea surface distribution recorded in previous surveys between 2013-2024 (Figure 13). Contrarily the Bristol Channel area was cooler, possibly because this part was sampled during the 2nd half of the survey so later in October and after a couple of storms affected the area. The maximum sea surface temperature recorded by the SAIV MiniCTD during the survey was 16.85 °C, which was slightly higher than the maximum sea surface temperature recorded during PELTIC 2024 (16.5 °C). Lowest sea surface temperatures were recorded north of the Isles of Scilly (Figure 12), with a minimum value of 13.72 °C. Near-bottom temperatures recorded by the SAIV MiniCTD varied between 11.99 °C and 16.81 °C. Interestingly, the lowest bottom temperature in 2025 was higher and almost 1°C warmer than the lowest value recorded in 2024 (10.96 °C in 2024 vs. 11.99 °C in 2025).

The temperature anomaly map comparing sea surface temperatures during the survey in 2024 with the 2025 survey (Figure 13), highlights temperatures in the English Channel, particularly off the coast of France, were higher (over 1 °C) this year compared with the same period in 2024. This was markedly different from previous years where a patch of cooler surface water has been regularly observed off the northern coast of Brittany. At the same time waters north of Cornwall and in the inner Bristol Channel were cooler in 2025 compared with the same areas in 2024 (Figure 13).

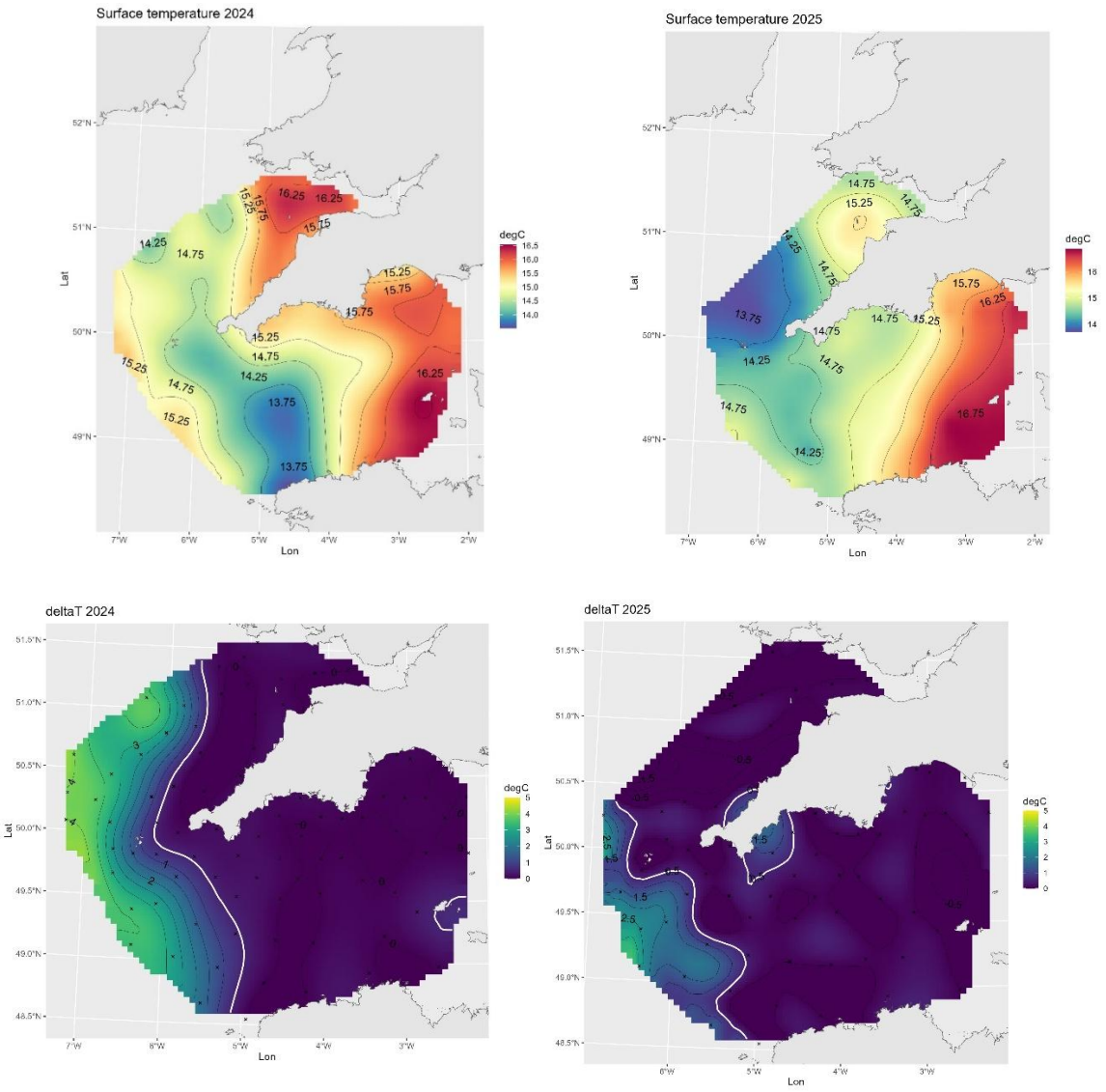


**Figure 12** Sea surface temperature (°C ,top), and ΔT (°C), difference in temperature between surface and bottom as recorded by the SAIV MiniCTD at the sampling stations in 2025 (right) and 2024 (left) for comparison. The isotherm of ΔT = 0.5 °C (in white) distinguish between mixed (ΔT < 0.5 °C) and stratified water columns (ΔT > 0.5 °C). Note that the isotherm around the Channel Islands in 2024 is an artefact of the interpolation algorithm as no stratification was present in this area. Equally, in 2025, the isotherm north of the Cornish coast closer to land is likely an interpolation artefact.

Westernmost stations in the Channel were vertically stratified as was as a coastal area off Plymouth: the difference between surface and bottom temperature (ΔT) was more than 0.5 °C (Figure 12). Stratification was strongest in the westernmost stations with a maximum ΔT value of 2.97 °C. Stratification was generally weaker and further west compared with 2024 when the maximum ΔT was over 4 °C

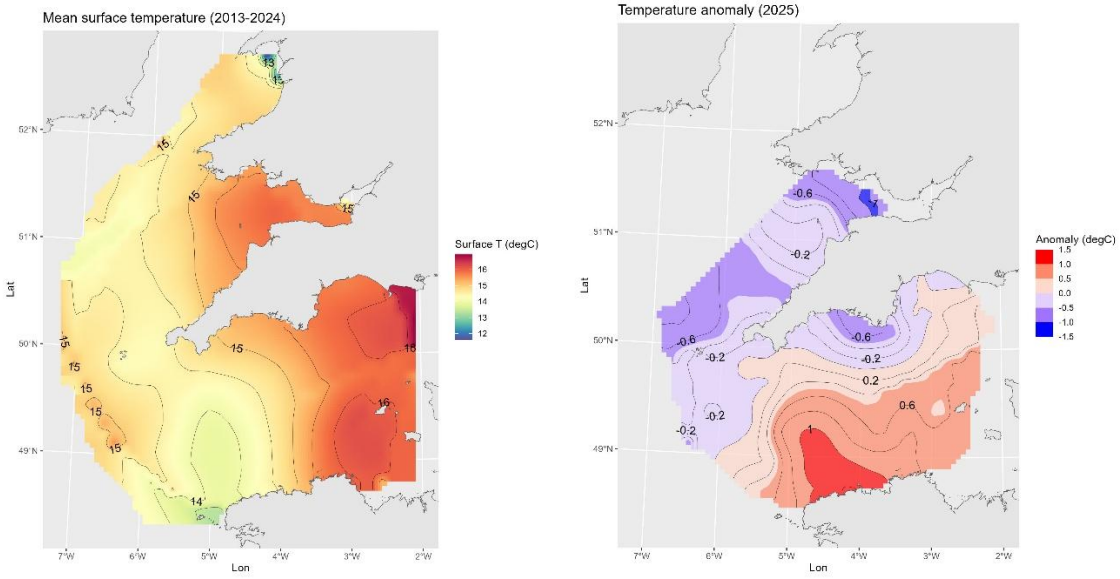


**Figure 13** Mean Sea Surface Temperature for 2012-2024 PELTIC surveys (left) and 2025 temperature anomaly map (right).

Offshore salinity showed little variation (Figure 14). Highest surface salinity (35.5) was recorded in the south-west corner of the study area, off the coast of France, and lowest (33.14) in the inner Bristol Channel, likely as result of freshwater run off from the River Severn.

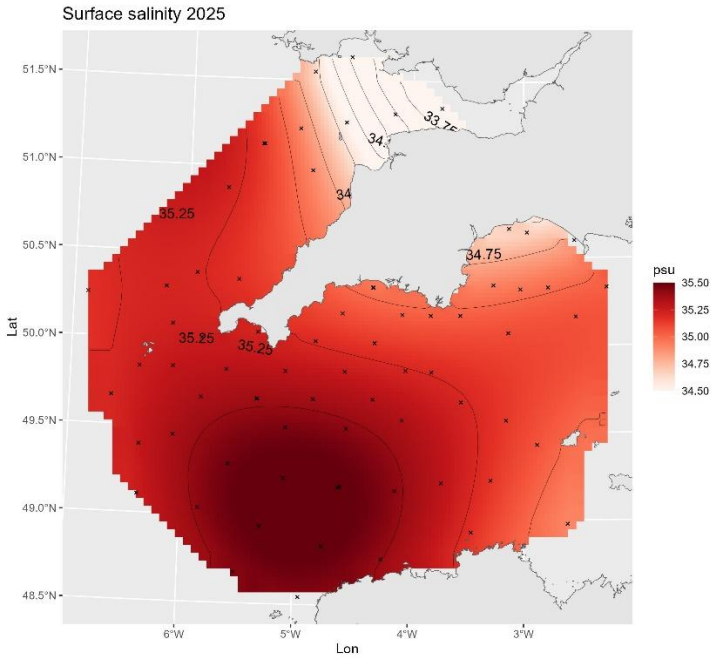


**Figure 14** Sea surface salinity, as recorded by the SAIV MiniCTD at the sampling stations in 2025.

As the FerryBox data has not yet been QA/QC'ed, no *in situ* surface distribution of chlorophyll was available. Images of surface chlorophyll distribution from satellite remote sensing prior the start of the survey (Figure 15) suggested the presence of bloom/s in an area off Land's End

Peninsula and Plymouth. Highest chlorophyll was associated with frontal systems and cooler patches of water around the Cornish peninsula (Figure 15). Highest values of chlorophyll concentration in the Inner Bristol Channel are probably an artefact of the high concentration of suspended particulate materials in this area. Unfortunately, due to continuous cloud cover, the satellite coverage of the study area was poor for most of the survey.

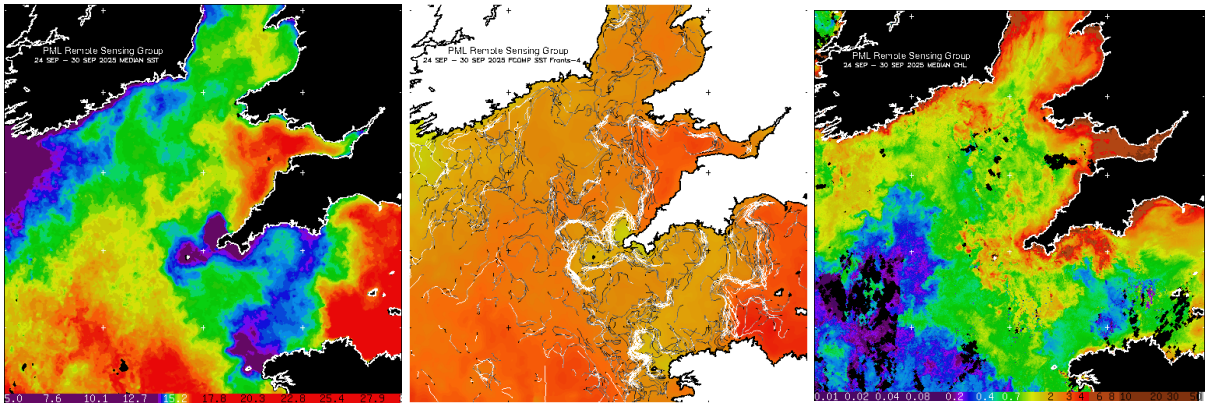


**Figure 15** From left to right, sea surface temperature, position of frontal systems, and satellite derived surface chlorophyll distribution (OLCI) between 24-30 September 2025 from https://data.neodaas.ac.uk/.

**Observer data: apex predators**

For the thirteenth year running, two MARINElife surveyors were stationed on the bridge in a central position and employed an effort-based 300m box methodology for recording birds, marine mammals and tuna (an adapted version of ESAS methodology) with an additional 180° area scanned to survey each transect line. During transits between transects, the team recorded incidental observations when possible, logging significant species only. Furthermore, casual observations were recorded during the net-retrieval stage of trawls to identify species of birds associated with the fishing activity of the survey vessel but only where there was a significant gathering of birds. During survey transects, all species of birds (both seabirds and terrestrial migrants) were recorded, along with all sightings of marine mammals and large pelagic fish such as tuna. The effort-based 300 m box methodology employed was developed by the Cetacean Group of the Mammal Society for use from platforms of opportunity such as commercial ferries. The aim of this method is for the observer to record and identify as many seabirds and cetaceans as possible that pass through the 300 m box while recording birds and marine mammals outside the box out to a distance of 1 km. In 2025 both surveyors recorded cetaceans, other marine animals and seabirds.

MARINElife surveyors are encouraged to use a mix of scanning with binoculars and using naked eye observation. In addition to cetaceans, specific effort was made to detect Balearic Shearwater *Puffinus mauretanicus* by distance sampling, and any other birds, both within and outside of the 300m 'box'.

Survey effort is paused during the deployment of the trawl as the vessel deviates from the transect line during these operations.

Data recorded for sightings by MARINElife methodology includes:

1. Time of recording (start and end time for cetacean observations)
2. Number of individuals
3. Species (or family group)
4. Behaviour (flying/searching/feeding/sitting on water)
5. Plumage/age
6. In or out of the 300 m box
7. Angle of sighting (for cetaceans and Balearic Shearwater)
8. Distance of first sighting (for cetaceans and Balearic Shearwater)

Survey effort was made on 23 days from 4-30 October by Robin Langdon (4-30 October) and Phillip Dutt (4-19 October) and Peter Howlett (21-30 October). Approximately 3016km of transect line was sampled with 153 hours and 40 minutes spent on survey effort.

The transect pattern was the same as last year, although due to adverse weather conditions more than 500km, and around 25 hours, of survey effort was lost.

Around 58% of the survey effort was carried out in a sea state four or less, 30% three or less and 12% six or above (Table 5). However, patterns differed between the two halves of the survey. In the first half (4-19 October) mean wind speed was 16 knots resulting in almost 73% of survey effort conducted with a sea state of four or less. For the second half (21-30 October) mean wind speed was almost 20 knots resulting in 70% of survey effort conducted in sea state five or above. There was also a distinct bias in wind direction between the two halves. In the first the wind had an easterly component for 51% of survey effort with 25% from the west. In the second the wind had a westerly component for almost 82% of survey effort, with just under 4% from the east.

**Table 5:** Survey effort 2013-2025 by MARINElife teams on the Peltic Survey. *Only parts 1&2 of the 2017 survey during which both survey teams were present are included in this table.

| | **2013** | **2014** | **2015** | **2016** | **2017*** | **2018** | **2019** | **2020** | **2021** | **2022** | **2023** | **2024** | **2025** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Transect length (km)** | 2092 (+278*) | 3058 | 2447 | 2990 | 2644 | 3706 | 3025 | 3741 | 4039 | 882 | 3607 | 3528 | 3016 |
| **No. survey days** | 16 (+2*) | 20 | 18 | 16 | 24 | 32 | 26 | 30 | 29 | 10 | 31 | 26 | 23 |
| **Mean sea state** | 5.01 | 3.78 | 3.08 | 5.34 | 4.32 | 3.86 | 3.24 | 4.83 | 3.92 | 5.1 | 4.47 | 3.96 | 4.14 |
| **Modal sea state (% of total)** | 4 | 3 | 4 | 3 | 3 | 5 | 3 | 5 | 5 | 5 | 4 | 4 | 5 |
| **% Effort sea state 4 or less** | 37 | 67 | 92 | 45 | 53 | 63 | 81 | 39 | 56 | 39 | 54 | 57 | 59 |
| **Modal wind direction (% of effort)** | SW (33) | SW (30) | NE (30) | ENE (24) | SW (40) | NE (28) | TBC | SW (15) | W (17) | SW (31) | SW (27) | SW (27) | W (25) |

*Southern North Sea

## Bird observations

A total of 41 species were recorded on effort during the survey this year (Table 6).

**Table 6:** List of all bird species recorded on effort during PELTIC survey 2025

| Species | Scientific Name | Number of sightings | Number of birds |
|---|---|---|---|
| Common Scoter | *Melanitta nigra* | 3 | 19 |
| Stock Dove | *Columba oenas* | 1 | 1 |
| Grey Phalarope | *Phalaropus fulicarius* | 1 | 1 |
| Kittiwake | *Rissa tridactyla* | 459 | 1208 |
| Black-headed Gull | *Chroicocephalus ridibundus* | 4 | 7 |
| Little Gull | *Hydrocoloeus minutus* | 3 | 3 |
| Mediterranean Gull | *Ichthyaetus melanocephalus* | 4 | 6 |
| Common Gull | *Larus canus* | 19 | 27 |
| Great Black-backed Gull | *Larus marinus* | 78 | 111 |
| Herring Gull | *Larus argentatus* | 105 | 152 |
| Lesser Black-backed Gull | *Larus fuscus* | 56 | 87 |
| Large Gull sp. | | 89 | 1645 |
| Great Skua | *Stercorarius skua* | 27 | 29 |
| Arctic Skua | *Stercorarius parasiticus* | 4 | 5 |
| Guillemot | *Uria aalge* | 492 | 826 |
| Razorbill | *Alca torda* | 101 | 255 |
| Puffin | *Fratercula arctica* | 27 | 49 |
| Auk sp. | | 136 | 521 |
| European Storm Petrel | *Hydrobates pelagicus* | 48 | 876 |
| Petrel sp. | | 1 | 1 |
| Fulmar | *Fulmarus glacialis* | 25 | 27 |
| Cory's Shearwater | *Calonectris borealis* | 6 | 113 |
| Sooty Shearwater | *Ardenna grisea* | 46 | 117 |
| Great Shearwater | *Ardenna gravis* | 96 | 1907 |
| Manx Shearwater | *Puffinus puffinus* | 66 | 315 |
| Balearic Shearwater | *Puffinus mauretanicus* | 18 | 55 |
| Shearwater sp. | | 3 | 4 |
| Gannet | *Morus bassanus* | 1916 | 6398 |
| Cormorant | *Phalacrocorax carbo* | 1 | 1 |
| Shag | *Gulosus aristotelis* | 1 | 1 |
| Grey Heron | *Ardea cinerea* | 1 | 1 |
| Great Egret | *Ardea alba* | 1 | 1 |
| Little Egret | *Egretta garzetta* | 1 | 1 |
| Skylark | *Alauda arvensis* | 1 | 1 |
| Swallow | *Hirundo rustica* | 1 | 1 |
| Chiffchaff | *Phylloscopus collybita* | 2 | 3 |
| Blackcap | *Sylvia atricapilla* | 1 | 1 |
| Song Thrush | *Turdus philomelos* | 2 | 2 |
| Redwing | *Turdus iliacus* | 2 | 2 |
| Black Redstart | *Phoenicurus ochruros* | 2 | 2 |
| Pied Wagtail | *Motacilla alba* | 5 | 5 |
| Meadow Pipit | *Anthus pratensis* | 3 | 3 |
| Chaffinch | *Fringilla coelebs* | 2 | 2 |
| Linnet | *Linaria cannabina* | 1 | 400 |
| Goldfinch | *Carduelis carduelis* | 1 | 3 |
| | | **3,862** | **15,195** |

A total of 3,862 sightings of 15,195 birds were recorded during the survey, which was down again on last year and the lowest total for the last five years. Despite that, there are two species with notably high totals: Gannet (6,398), and European Storm Petrel (876). For European Storm Petrel this is the highest count seen on any PELTIC survey, the only comparable year being 2017 when 846 were recorded. In that year nearly all the birds were seen on the transects in Lyme Bay. This year, while some were seen on those transects, the bulk (72%) were seen on the western-most transect of the two which run north-south between Land's End and the Isles of Scilly. A possible explanation for this is weather pattern, with three depressions running in off the Atlantic during the period of the survey, not dissimilar to the autumn of 2017. An alternative explanation could be that food was plentiful and delayed any movement south.The Gannet total, although not the highest when compared with previous years on number seen/100km travelled (Table 7), shows they were at their highest density since at least 2020. This is welcome news given the impacts of bird flu over the past three years. The age profile of birds in the English Channel was particularly heartening with juvenile (J1) and second year (I2) birds making up 20% of the birds which could be aged (J1 10% and I2 10%), suggesting colonies in the area have had good breeding seasons in the last two years. In contrast in the Celtic Sea and Western Approaches, whilst the proportion of I2 birds was similar at 10%, the percentage of J1 birds was down to 1.6%. The Grassholm Gannet colony was hit very badly by bird flu with the breeding population reduced from 34,000 pairs to about 16,000 when the RSPB carried out a census in 2023. Even with a good breeding season the reduced number of pairs will likely mean there are fewer juveniles to be seen in the vicinity of the colony.

**Table 7:** Comparison of totals for 2020-2025 for 18 common seabird species (numbers per 100 km travelled), ranked by inverse abundance in 2025.

| Species | 2020 | 2021 | 2023 | 2024 | 2025 |
|---|---|---|---|---|---|
| Gannet | 193 | 187 | 162 | 107 | 213 |
| Cory's Shearwater | 0 | 0 | 43 | 77 | 4 |
| Kittiwake | 69 | 82 | 65 | 39 | 40 |
| Guillemot | 53 | 55 | 45 | 29 | 27 |
| Great Shearwater | 3 | 0 | 122 | 26 | 63 |
| Razorbill | 29 | 38 | 50 | 23 | 8 |
| Herring Gull | 8 | 12 | 8 | 18 | 8 |
| Manx Shearwater | 6 | 1 | 16 | 14 | 10 |
| Great Black-backed Gull | 19 | 9 | 8 | 11 | 4 |
| Lesser Black-backed Gull | 13 | 6 | 9 | 6 | 3 |
| Balearic Shearwater | 2 | 9 | 8 | 5 | 2 |
| Little Gull | 2 | 1 | 8 | 4 | <1 |
| Mediterranean Gull | 2 | 5 | 2 | 4 | <1 |
| European Storm Petrel | 5 | 4 | 7 | 2 | 29 |
| Puffin | 1 | 13 | 1 | 2 | 2 |
| Great Skua | 5 | 3 | 3 | 2 | 1 |
| Common Gull | 1 | 1 | 1 | 1 | <1 |
| Sooty Shearwater | 5 | 1 | 7 | 1 | 4 |

The large shearwater species were present again this autumn: Great Shearwater, in particular, with 1,907 specimens, was the second highest count for the survey. This despite

the fact that coastal seawatching records would suggest that numbers peaked in early September when 53,000 were recorded off the Lizard peninsular on the 9th, followed by a count of 17,000 on the 19th. However, the number of Cory's Shearwater seen in last couple of year were not present again, although a count of 113 is still extraordinary given that the first PELTIC record was only in 2023.

Guillemot and Razorbill were two of many species recorded in below average numbers, with Razorbill particularly low with the total just 15% of the average for the previous four years. Kittiwake were also still at low numbers, on a par with last year. However, this may be a matter of timing with the survey missing an influx of auks and Kittiwake into the survey area shortly after the survey was completed. Seawatchers on the coasts of south Cornwall and south Devon recorded large numbers of auks and Kittiwake in the early days of November with estimated counts of 10,000 Razorbill/Guillemot and 20,000 Kittiwake, suggesting that any low counts on the PELTIC survey may not necessarily reflect a decrease in population.

Unfortunately, Great Skua continued the downward trend seen since 2020, with just 29 recorded. There are records from 2017 of this number being seen around one fishing boat in the Celtic Sea, a sign of how far their population has declined due to bird flu. On a more positive note, 12% of that total were juvenile birds, which may perhaps be reflected in more birds being recorded in the coming years. Adult Great Skua tend to winter around the UK so any loss of birds will be very marked, juveniles move south to winter off the coast of west Africa, and it will be two or three years before they are seen in UK waters.

As Europe's most endangered seabird, Balearic shearwater has been a target species of this survey for some years and extra data is recorded for all sightings. This extends to recording 30 minutes effort after any off-transect sightings, where possible, to increase the usefulness of the data. This year a total of 55 birds were recorded, of which seven were recorded as probable, this is the lowest total since at least 2017. Figure 16 shows the distribution of all the sightings recorded in 2025. Up until 2018 there had been a hotspot for sightings to the west of Lundy in the Bristol Channel but once again this year, none were seen that far north. This survey occurs too late in the year to catch anything other than late stayers as Balearic Shearwater are at their peak in the English Channel during July and August. For the last few years, the largest flocks of birds have been around Guernsey, where it was not uncommon to see 2-3000. This year it appears the bulk of the population were in Lyme Bay with MARINElife recording 1920 on a small boat survey on the 24 July. Seawatchers at Berryhead in South Devon recorded 1978 on 7 August at the same time fishermen had reported seeing large rafts well to the east of Berryhead, suggesting total

numbers could be in the region of 3000.

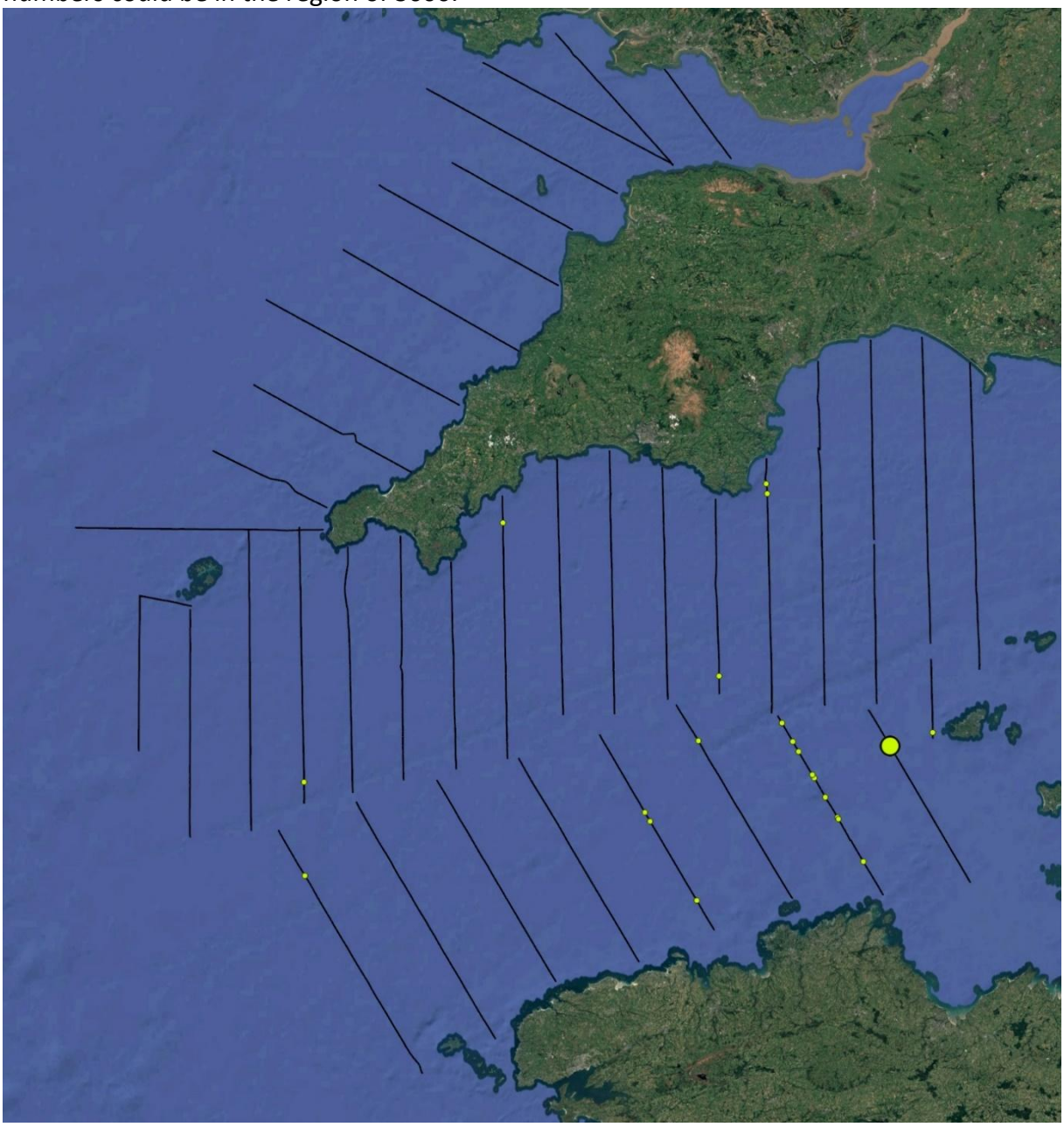

**Figure 16**: Map showing abundance of Balearic Shearwater sightings in 2025. Small to large circles: 1-10, 11-20, 20+. Green dots were birds recorded on transect, orange dot off transect.

In addition to the on-effort observations, off-effort observations of seabirds as well as terrestrial migrants are also recorded (Table 8).

**Table 8:** List of bird species recorded off-effort either at sea or onboard CEFAS Endeavour

| Species | Scientific name | No rec. 2025 |
|---|---|---|
| Great Shearwater | *Ardenna gravis* | 50 |
| Sooty Shearwater | *Ardenna griseus* | 10 |
| Manx Shearwater | *Puffinus puffinus* | 6 |
| Desertas Petrel | *Pterodroma desertas* | 1 |
| Purple Sandpiper | *Calidris maritima* | 1 |
| Sanderling | *Calidris alba* | 1 |
| Grey Phalarope | *Phalaropus fulicarius* | 1 |
| Great Skua | *Stercorarius skua* | 4 |
| Pomarine Skua | *Stercorarius pomarinus* | 1 |
| Little Gull | *Hydrocoloeus minutus* | 6 |
| Short-eared Owl | *Asio otus* | 1 |
| Cetti's Warbler | *Cettia cetti* | 1 |
| Chiffchaff | *Phylloscopus collybita* | 5 |
| Blackcap | *Sylvia atricapilla* | 3 |
| Song Thrush | *Turdus philomelos* | 1 |
| Redwing | *Turdus iliacus* | 3 |
| Starling | *Sturnus vulgaris* | 80 |
| Black Redstart | *Phoenicurus ochruros* | 2 |
| Pied Wagtail | *Motacilla alba* | 2 |
| Chaffinch | *Fringilla coelebs* | 6 |

The standout bird for this year was the sighting of a Desertas Petrel off the Cornish coast in the Celtic Sea. The bird was initially identified as a Fea's-type Petrel, meaning it could be one of three closely related species; Fea's Petrel from Cape Verde, Desertas Petrel from the Desertas Islands, and Zino's Petrel from Madeira. Until relatively recently all three were considered the subspecies of one species but genetic work has resulted in them being split. Identification at sea is very difficult, hence the standard practice of referring to one a Fea's-type. However, Peter Howlett managed to get some good images of the bird (Fig 17) and showed them to an expert on Pterodroma petrels, who is confident the bird is actually a Desertas Petrel. If accepted as such by the British Birds Rarities Committee, it will be the first record of an identified Desertas Petrel in UK waters.

**Figure 17.** Deserta's Petrel (*Pterodroma deserta;* Photo by Peter Howlett)

## Cetaceans

The MARINElife observers recorded a total of 227 marine mammal encounters, totalling 1,411 animals of six species (Table 9). The range of species is just about average for the survey series, but the number of Common Dolphin have declined again, and this is the first year Harbour Porpoise has not been recorded on a Peltic survey.

**Table 9.** Cetacean species recorded by MARINElife surveyors on effort during PELTIC survey 2025

| Species | Scientific Name | No. sightings | No. animals |
|---|---|---|---|
| Fin Whale | *Balaenoptera physalus* | 1 | 1 |
| Minke Whale | *Balaenoptera acutorostrata* | 2 | 2 |
| Risso's Dolphin | *Grampus griseus* | 3 | 15 |
| Common Bottlenose Dolphin | *Tursiops truncatus* | 1 | 5 |
| Common Dolphin | *Delphinus delphis* | 162 | 1387 |
| Grey Seal | *Halichoerus grypus* | 1 | 1 |
| | Total: | 227 | 1411 |

Common Dolphin was again by far the most frequently recorded species, with 162 sightings of 1387 animals. This sets another new low for the number recorded on a full Peltic survey. Once again, the survey this year was characterised by many sightings of small groups of dolphins (less than 10) with only a small number of mid-sized pods, although unlike last year, there were at least two 100+ pods. Day totals exceeded 100 on five days with a maximum of 275 on 21 October. The maximum count for a single pod was an estimated 200, just to the north of Lundy, a large pod of several hundred animals was seen just to the west of this location in 2016. There was also a pod with an estimated 150 animals in Lyme Bay on 9 October. This is the first time pods of over 100 have been seen since 2021. Table 5 gives some perspective on how pod sizes have varied over the previous four years.

**Table 10.** Comparison of Common Dolphin pod sizes between 2021 – 2025. Note that 2022 data were omitted due to reduced survey coverage.

| Count of pod size | 2021 | 2023 | 2024 | 2025 |
|---|---|---|---|---|
| 1-5 | 79 | 221 | 141 | 100 |
| 6-10 | 77 | 84 | 66 | 39 |
| 11-15 | 37 | 27 | 31 | 9 |
| 16-20 | 16 | 13 | 9 | 6 |
| 21-30 | 5 | 8 | 2 | 3 |
| 31-40 | 16 | | 4 | 1 |
| 41-50 | 3 | 1 | 2 | |
| 51-60 | 2 | 1 | | 1 |
| 61-70 | 4 | | | 1 |
| 71-80 | 1 | 1 | | |
| 110 | 1 | | | |
| 120 | 2 | | | |
| 150 | | | | 1 |
| 180 | 1 | | | |
| 200 | 1 | | | 1 |
| 300 | 1 | | | |

A possible explanation for the preponderance of small pods is that the dolphins spend much of their time split up into smaller groups in the search for food and that large pods are comparatively rare, only being seen at large scale feeding events or particular social events. The fact that the total seen each year can vary quite considerably means it is difficult to place much meaning on a single year being so low. As with previous years the species is widely distributed throughout the survey area (Figure 18) but with numbers concentrated in the northern half of the English Channel, around the Isles of Scilly and offshore in the Celtic Sea.

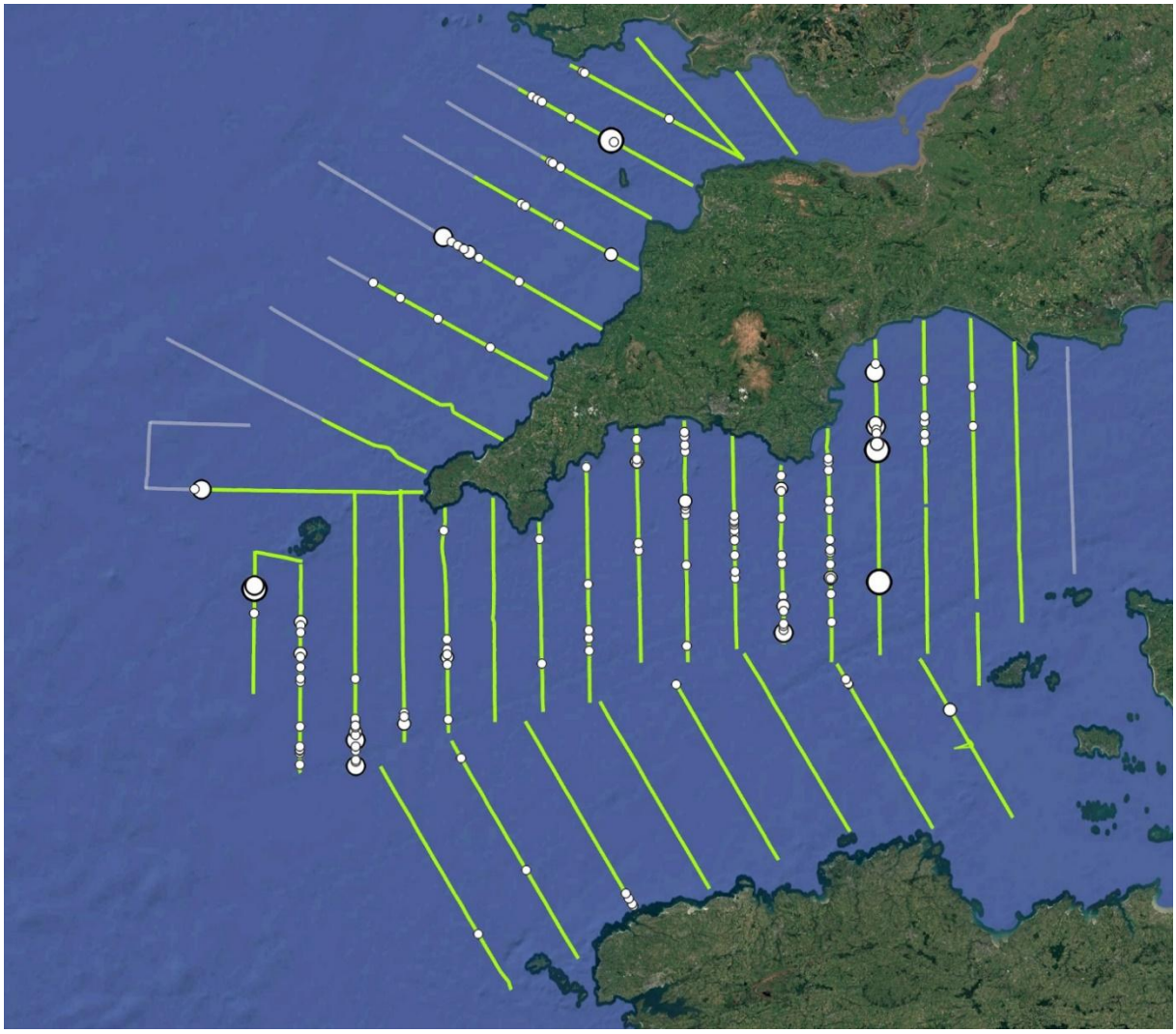

**Figure 18:** Distribution of all Common Dolphin sightings in 2025, scaled to abundance. Abundance categories (small to large dots): 1-10, 11-20, 20+. Green lines mark survey effort.

Harbour Porpoise were notable by their absence this year and this was the first year that none have been recorded, despite some ideal spotting conditions and is a cause for concern.

Sightings of cetacean species, other than Common Dolphin, were few and far between (Fig 19). Three encounters with Risso's Dolphin represents a good year, though none were close or prolonged. Note the sighting of a pod of 10 Risso's Dolphin was at the same time as one of the Minke Whale so the two dots are together. There has been an exceptional influx of Risso's Dolphins into southwest waters in 2025 as far as Portland, noted for example on MARINElife Lyme Bay surveys, coinciding with a huge influx of Mediterranean Octopus, a known prey item.

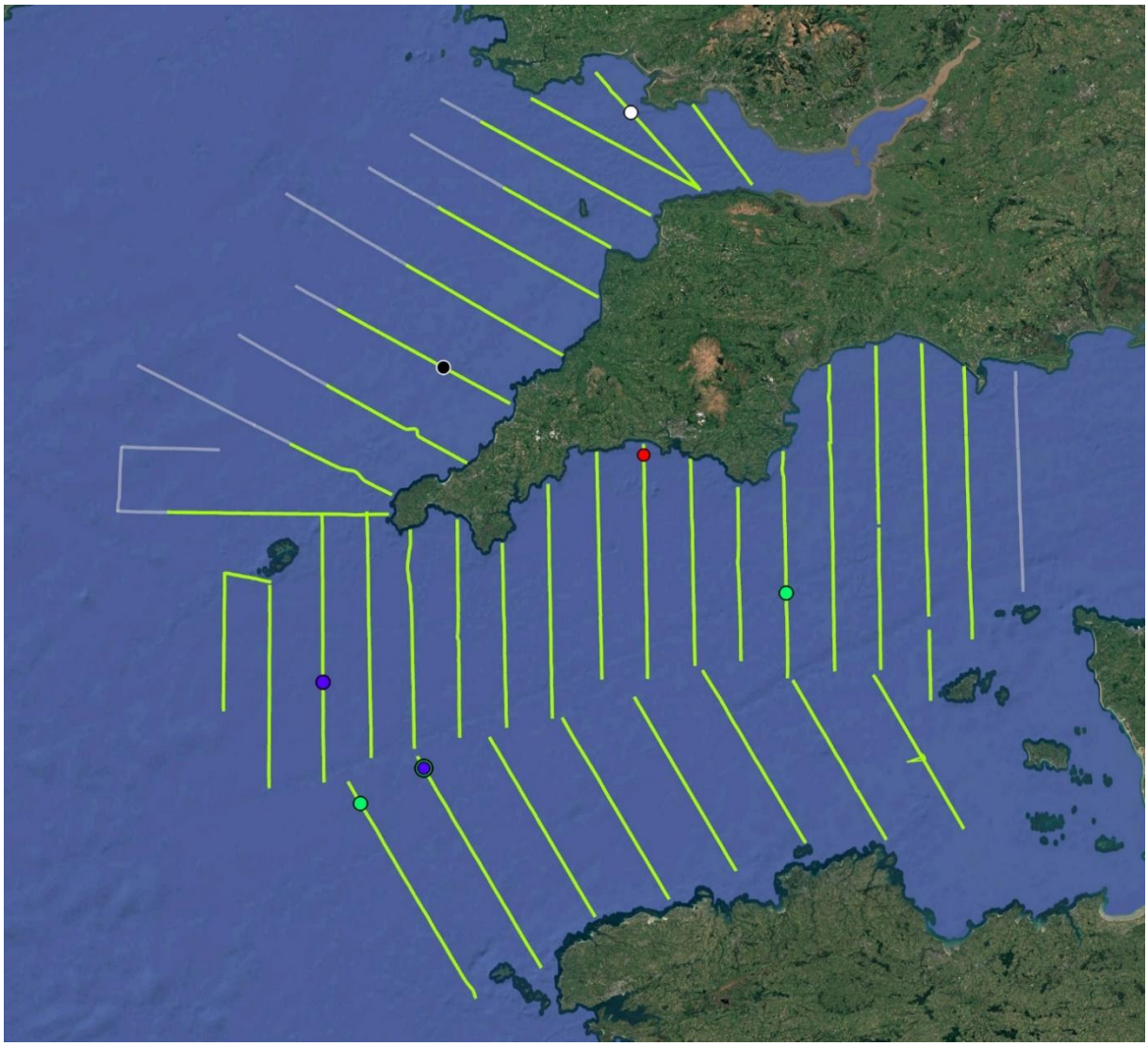

**Figure 19:** Distribution of scarce cetacean species sightings. Black dot = Bottlenose Dolphin, green = Risso's Dolphin, orange = Long-finned Pilot Whale, red = Fin Whale, blue = Minke Whale, pink = Unidentified dolphins, white = Grey Seal

Two sightings of Minke Whale represent a good year for the survey time series and one on the 22 October was amongst the better sightings of this species. There was a single sighting of five Bottlenose Dolphin and just a single Fin Whale this year. Despite being a common animal around the UK coast Grey Seal is rarely seen and this year only one was recorded, just west of the Gower peninsula in south Wales.

**Bluefin tuna**

A total of 477 Tuna (the majority likely to be Bluefin *Thunnus thynnus*) were recorded in 57 encounters on the survey transects (Figure 20). Three categories of sighting are distinguished:

- possible – a single erratic splash is seen, nature of splash rules out a cetacean but not another large pelagic fish species.

- probable – multiple erratic splashes with glimpses of animal but not enough to confirm identity as bluefin tuna.
- definite – enough of the animal is seen to identify it as a bluefin tuna species

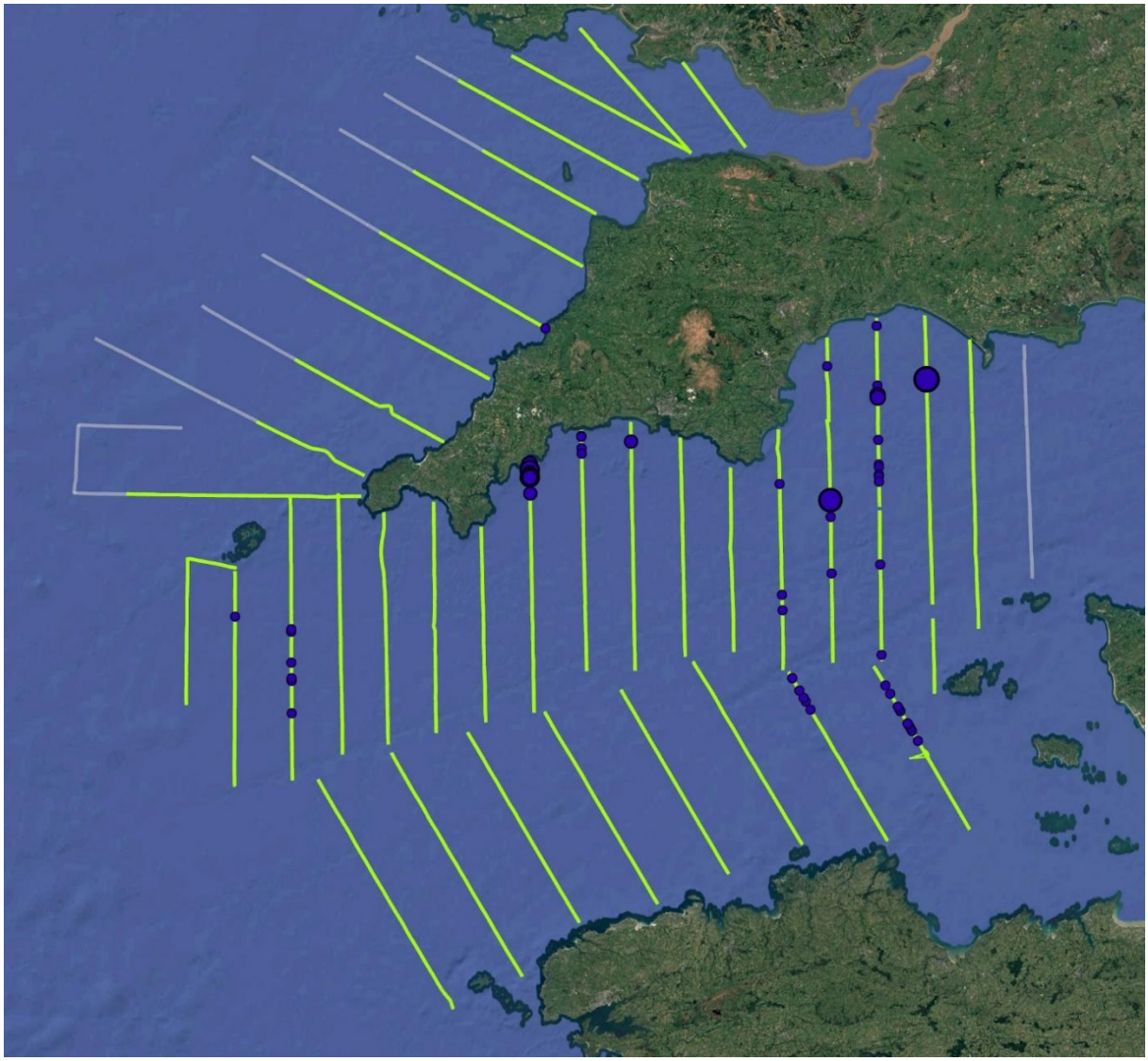

**Figure 20**: Distribution of all tuna sightings in 2025, scaled to abundance. Abundance categories (small to large purple dots): 1-5, 6-10, 10+. Green lines mark survey effort.

This year tuna records were concentrated in Falmouth Bay and in, or south of, Lyme Bay, with a few scattered sightings south of the Isles of Scilly and in mid-English Channel west of Guernsey. All sightings where a fish was seen appeared to be Blue-fin Tuna. As with last year several large feeding frenzies were seen with attendant flocks of Gannet and gulls. Data from MARINElife surveys further shows how widely distributed the species is, with a spread east noted (Figure 21, supplied by Tom Brereton, MARINElife).

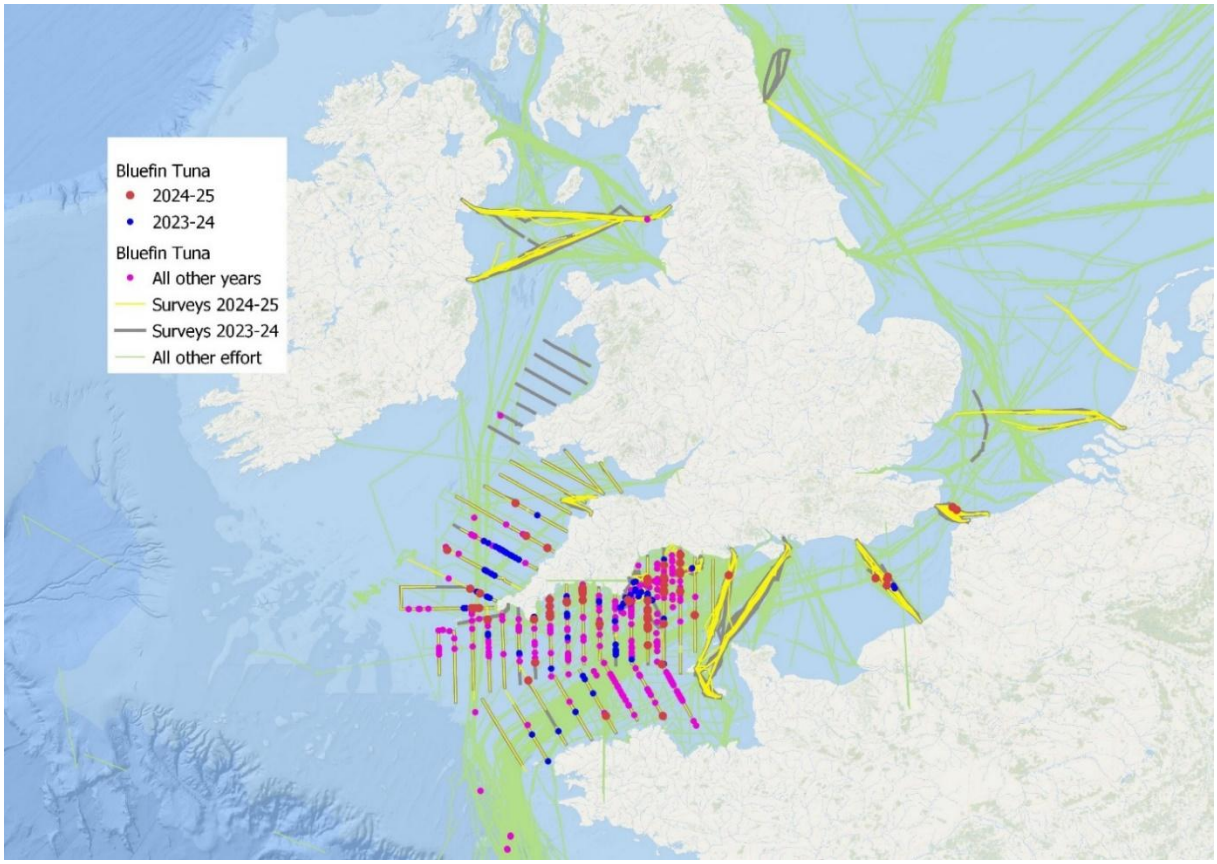


**Figure 21.** MARINElife (including CEFAS Peltic) Bluefin Tuna sightings (excluding the Bay of Biscay)

**Summary.** The 2025 PELTIC survey was successfully completed despite weather significantly reducing the available survey time (by ~6 days). Acoustic sampling (1709 v 1900 nautical miles) and number of trawls (n=31 v 35-40) were below those achieved in previous years but key survey objectives were successfully met. In contrast to 2020, 2021 and 2023, PELTIC was not extended into Cardigan Bay. This year the survey started in the eastern part of the Western Channel and worked in clockwise direction around the area, the opposite direction compared to previous years. Oceanographic conditions (SST and location of Ushant and Celtic Sea fronts) were comparable to long-term average although stratification was weaker due to warmer than average bottom temperatures. Early and persistent storms mixed waters in the Bristol Channel leading to slightly lower than average surface temperatures.

Sardine total biomass was the highest of the time series at 502,312 t (CV 0.14). Sardine was widely distributed but the highest aggregations were again around the Isles of Scilly and south off the southwestern point of Cornwall. The largest numbers of eggs found in plankton samples were found at the same location.

The preliminary 2025 sprat biomass in the western Channel of 91,577 t (CV 0.45) was an increase from previous years and the second highest in the time series. As has been observed in last few years, the total biomass was primarily made up of 0-group sprat, with only negligible numbers of fish from age 2 and older reported.

Anchovy biomass in the survey area in 2025 had increased to 73,579 t (from the low of 13,112t in 2024). It represented the second highest biomass in the time series, only exceeded by the exceptionally high values in 2023. There was an absence of post-larval anchovy in French waters, which had been seen there in some years since 2019 and were confirmed to have originated form the Bay of Biscay. A handful of anchovy larvae were found in the mesh of the trawl at two stations along the south coast of England.

Most notable observations regarding the top predators were the good numbers of bluefin tuna for example off Falmouth Bay and better tan usual minke whale and Risso's dolphin sightings. However, there was an absence of any harbour porpoises and low counts of other cetaceans as well as a significant decrease in Cory's shearwater compared to the previous two years. However, many species, including common dolphin, kittiwakes and gannets were recorded in lower numbers than usual.

Jeroen van der Kooij, Joana Silva and Elisa Capuzzo
Scientists in Charge
20/04/2026

**Acknowledgement**: This report was compiled by JvdK with contributions from EC, JS, JW, NA and PH. We would like to thank all scientists, the officers and crew of the RV Cefas Endeavour for their help, support, advice, skill and cooperation, which were critical to the completion of the survey.

**DISTRIBUTION**:

| | |
|---|---|
| Survey personnel + | Isles of Scilly IFCA |
| R Clarke (Portfolio Lead) | Southern IFCA |
| L Raynes (Programme Manager) | Cornwall IFCA |
| J Thompson (PM) | Devon and Severn IFCA |
| I Holmes (PI) | Welsh Government |
| B Hatton | Marine Management Organisation (MMO) |
| Cefas Fisheries/MPA Survey SICs/2ICs | Master/First Officer (Cefas Endeavour) |
| G Burt (Data Steward) | S Pitois/J Scott/J Ellis/S Phillips/B Silburn/P Barry/T Basic/M Ives/S Roslyn/J Pettigrew/V Creach/R Nash/N Greenwood/T Gibson/A Bakir/A McGoran/E Bell/R Ourens/S Kenyon |
| S Songer (SD) | |
| M Schratzberger (SD) | |
| AW Ship Management | |

# Annex 1

**Objective 12.** Collect (bag and freeze) **three specimens** each of sardine (*Sardina pilchardus*), anchovy (*Engraulis encrasicolus*), sprat (*Sprattus sprattus*), mackerel (*Scomber scombrus*), horse mackerel (*Trachurus trachurus*), boarfish (*Capros aper*) and herring (*Clupea harengus*) for *in vitro* mock community studies (T. Gibson - Cefas).

| Trawl station | Survey stratum | Species code | Common name | Scientific name |
|---|---|---|---|---|
| 40 | Western English Channel (WEC) | HOM | horse mackerel | *Trachurus trachurus* |
| 55 | Western English Channel (WEC) | ANE | anchovy | *Engraulis encrasicolus* |
| 55 | Western English Channel (WEC) | PIL | sardine | *Sardina pilchardus* |
| 65 | Western English Channel (WEC) | HER | herring | *Clupea harengus* |
| 65 | Western English Channel (WEC) | SPR | sprat | *Sprattus sprattus* |
| 65 | Western English Channel (WEC) | MAC | mackerel | *Scomber scombrus* |
| 92 | Western English Channel (WEC) | WHG | whiting | *Merlangius merlangus* |
| 134 | Western English Channel (WEC) | GUG | grey gurnard | *Eutrigla gurnardus* |
| 149 | Scilly Isles (SI) | BOF | boarfish | *Capros aper* |

**Objective 14.** Collect **25 specimens** per species (anchovy, mackerel, sardine) and freeze for further analysis in the lab supporting a study on microplastics in fish stomachs (A. Bakir/ A. McGoran - Cefas).

| Trawl station | Survey stratum | Species code | Common name | Scientific name |
|---|---|---|---|---|
| 11 | western English Channel (WEC) | ANE | anchovy | *Engraulis encrasicolus* |
| 11 | western English Channel (WEC) | PIL | sardine | *Sardina pilchardus* |
| 65 | western English Channel (WEC) | MAC | mackerel | *Scomber scombrus* |
| 84 | western French Channel (WFC) | ANE | anchovy | *Engraulis encrasicolus* |
| 112 | western French Channel (WFC) | PIL | sardine | *Sardina pilchardus* |
| 147 | Scilly Isles (SI) | MAC | mackerel | *Scomber scombrus* |
| 147 | Scilly Isles (SI) | PIL | sardine | *Sardina pilchardus* |
| 157 | Scilly Isles (SI) | ANE | anchovy | *Engraulis encrasicolus* |
| 180 | Bristol Channel (BC) | ANE | anchovy | *Engraulis encrasicolus* |
| 185 | Bristol Channel (BC) | PIL | sardine | *Sardina pilchardus* |
| 207 | Scilly Isles (SI) | ANE | anchovy | *Engraulis encrasicolus* |