Centre for Environment Fisheries & Aquaculture Science

Cefas

RESEARCH VESSEL SURVEY REPORT

RV CEFAS ENDEAVOUR
Survey: UK (England) International Bottom Trawl Survey Q3 - CEND152025.

STAFF:

Name	Role	Name	Role
Nicola Hampton	**SIC**	**Nicola Hampton**	**SIC**
Richard Humphreys	**2IC**	**Richard Humphreys**	**2IC**
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Zach Radford		**Zach Radford**	
Ben Hatton		**Georgia Robson**	
Charlie Hobbs		**Wendy Edwards**	
Tom Gibson		**Pedro Warner**	
Johnathan Ball		**Aaron Brazier**	
Eric Payne			
Josh Tate (Onboard engineer)		**Josh Tate (Onboard engineer)**	

DURATION: 10 August – 07 September 2025 (29 days at sea)

LOCATION: North Sea (ICES divisions 27.4a, b and c)

PRIMARY AIMS:

1. To carry out a groundfish survey of the North Sea as part of the ICES coordinated IBTS, using a hybrid GOV trawl in order to obtain information on:
   a) Distribution, size composition and abundance of all fish species caught.
   b) Age – length distribution of selected species.
   c) Distribution of fish in relation to their environment.
   d) Distribution of macrobenthos and anthropogenic debris.
   e) Surface and bottom temperature and salinity data using ESM2 profiler/mini-CTD logger and Niskin Bottle.
   f) Length weight & maturity information using individual fish measurements, in support of the EU Data Regulation.
   g) To conduct marine litter surveys of seafloor macro-litter (following the ICES guidelines) to gather data towards the OSPAR Commission Common Indicator for seafloor litter and UK Evidence Group marine litter indicators.

SECONDARY AIMS:

2. Tag and release specimens of starry smooth-hound *Mustelus asterias*, spurdog *Squalus acanthias*, tope *Galeorhinus galeus*, common skate *Dipturus batis species-complex*, blonde ray *Raja brachyura* and cuckoo ray *Leucoraja naevus,* in support of the ICES Working Group for Elasmobranch Fishes work to inform on stock units for demersal elasmobranchs. (J Ellis/S Phillips – Cefas, Lowestoft)

3. To freeze any unusual fish species for subsequent identification / verification in the laboratory, including specimens of eelpout *(Zoarces, Lycodes* and *Lycenchelys*), sea scorpions (Cottidae, sub-area IVa only), and any unusual fish species, which may also be used in otolith research. (J Ellis – Cefas, Lowestoft)

4. To retain any dead specimens of tope *Galeorhinus galeus*) and common skate *Dipturus batis species-complex* for biological studies. Collect additional reproductive data from skates and rays, including outer clasper length (from live and dead males), testes weight (from dead males), ovary weight and shell gland width (from dead females), and collect a section of vertebral column (comprising ca. 6-8 vertebrae from that part overlying the body cavity; samples to be kept frozen) (J Ellis/S Phillips – Cefas, Lowestoft)

5. Retain any dead specimens of shad, lamprey and sea trout for biological studies.

6. Collect fisheries acoustic data continuously at five operating frequencies (38, 70, 120, 200 and 333kHz), using the Simrad EK80 split beam sounder. The data will contribute to the existing 20+ year time series of acoustic data in the North Sea and will be used as part of Cefas' Mackerel Science Reference Group to monitor changes in mackerel distribution and abundance (J van der Kooij–Cefas, Lowestoft).

7. Cetacean observations will be recorded where possible and sent to the Sea Watch Foundation.

8. Identification, count, measure and weigh all jellyfish caught in GOV trawl this will allow the continuation of the North Sea August Jellyfish dataset started in 2012; As the dataset grows from year to year, this should allow the evaluation of changes in jellyfish community and biomass with time. (S Pitois – Cefas, Lowestoft)

9. Collect squid egg samples to map spawning grounds. This could be highly relevant in studying squid stock's structure. Retain any specimens of *Loligo* (not L. forbesi – keep all if in doubt) and all *ommastrephid* squids (*Illex, Todaropsis, Todarodes*) for maturity and age analysis, respectively. Keep frozen all cuttlefish *Sepia officinalis* (Max 20) (V Laptikhovsky - Cefas, Lowestoft)

10. Collect, retain and filter surface water samples from Ferrybox underway water supply for subsequent chlorophyll sampling in support of SLA25. Two samples during the hours of

darkness would be preferable, e.g. before sunrise and after sunset. If not possible one before first light and one during daylight hours. (E Brabben – Cefas, Lowestoft)

11. Zooplankton plankton sampling using ringnet to collect sample from the Gabbard smart buoy site. (S Pitois – Cefas, Lowestoft)

12. Collect queen scallops (queenies) *Aquipecten opercularis* to allow for experimental work on ageing, for L/W relationship analysis, development of length to height parameters and, to provide specimens to Bangor University for further work which will be made available to ICES WGScallop. (J Harvey – Cefas, Lowestoft)

13. Collect additional information on garfishes *(Family Belonidae) and saury pike (Scomberesox saurus)* in terms of total length (mm), body length (mm) and total weight (0.1g). (J Silva – Cefas, Lowestoft)

14. Maturity photos for specific species for future reference guides. (S Barnett/B Hatton – Cefas, Lowestoft)

15. Stomach sampling, EU has approved the plans for a pilot on collecting stomach data (as discussed during IBTSWG 2021). For this a 5-year rolling scheme of species is proposed. According to the new scheme, haddock and mackerel should be collected in 2025.

16. Collection of cadavers for training opportunities back in the lab; Roundfish– 40 specimens over 20cm, Flatfish – 40 specimens over 20cm, Non LSD elasmobranch – any dead specimens not used in other objectives (S Roslyn – Cefas, Lowestoft)

17. Euthanasia training for all staff involved with fisheries sampling - training of all willing staff on the correct process of concussion followed by destruction of the brain for fish species, and Cefas' current process for killing of decapods (S Roslyn – Cefas, Lowestoft)

18. Retain 25 dead starry ray *Amblyraja radiata*, with greater focus on north-west North Sea, for biological and genetic sampling (J Ellis – Cefas, Lowestoft)

19. Collect tissue samples/ vertebrate from dead cuckoo ray (J Ellis – Cefas, Lowestoft)

20. Collect additional herring otoliths and genetic samples (A Brazier, D Murray – Cefas, Lowestoft)

21. Collect additional chlorophyll samples at each prime station where possible, especially those on the priority list. (V Creach - Cefas, Lowestoft)

22. To collect any parasitic isopods. If the isopods are on a fish, take a photograph of the fish and parasite in situ, and then carefully remove the parasite and freeze the specimen (recording station and host details). (P Barry and J Ellis, Cefas, Lowestoft).

NARRATIVE (All times stated are GMT)

"RV Cefas Endeavour", henceforth referred to as CEND152025, sailed from Lowestoft at ~1150hr on Sunday 10 August. There were ten Cefas scientific staff on board.

A standard day consisted of collecting surface and bottom water samples at the start and end of the day to provide salinity samples and chlorophyll samples as part of the primary aim, along with deployment of an ESM2 profiler to measure environmental parameters through the water column (temperature, salinity, fluorescence, light, turbidity, and dissolved oxygen). Between these deployments, up to four 30-minute tows with the standard IBTS rigged GOV (Grand Overture Verticalé) trawl were planned. Since 2014, the net used during this survey has been a polyethylene net with nylon sleeve and cod-end. Throughout the survey, fisheries acoustic data were collected continuously at five operating frequencies (38, 70, 120, 200 and 333kHz), using the Simrad EK80 split beam sounder.

On 10 August CEND152025 departed the port of Lowestoft and transited to prime station 1 to begin this year's survey. Due to the need to use as much of the available daylight hours as possible, the vessel did not divert to the West Gabbard smart buoy site to collect a plankton sample. Once at prime station 1, a GOV trawl was attempted but unfortunately there was not enough daylight left to complete a valid tow, however this deployment was used to test the new Marport sensors.

On 11 August a GOV trawl was attempted at prime station 1, however due to issues with the starboard winch and erratic sensor readings this was hauled early and work was paused until the winch issue was fixed. Once fishing operations could continue another attempt was made to deploy the GOV at prime station 1, however following erratic sensor readings the decision was made to haul early and the kite was found to be damaged. Due to the lack of daylight available the GOV was deployed a third time with the cod end open to test the Marport sensors.

On 12 August CEND152025 started the day with a GOV deployment to further test the Marport sensors. This was followed by a successful GOV trawl, the catch (162.102 kg) consisted mainly of moon jellyfish *Aurelia aurita* (83.52 kg) and starry smooth-hound *Mustelus asterius* (29.46 kg). The RV Cefas Endeavour then transited to prime station 2, where the catch (257.399 kg) consisted mainly of pilchard *Sardinia pilchardus* (155.42 kg) and mackerel *Scomber scombrus* (97.1 kg).

13 August saw CEND152025 start the day at prime station 3, where the catch (103.769 kg) consisted mainly of mackerel (84.44 kg). CEND152025 then transited to prime station 6, where the catch (35.277 kg) again consisted mainly of mackerel (11.08 kg), and dab *Limanda limanda* (8.12 kg). Of note was a lesser weever fish *Echiichthys vipera* with external and internal parasites (Figure 1).

Figure 1. Weever fish caught at prime station 6, with two parasites.

CEND152025 commenced 14 August with a successful trawl at prime station 5, the catch (396.547 kg) consisted mainly of horse mackerel *Trachurus trachurus* (207.594 kg), mackerel (83.86 kg), and pilchard (61.0 kg). CEND152025 then transited to prime station 4 where the catch (408.021kg) consisted mainly of whiting *Merlangius merlangus* (390.14 kg), with some mackerel (11.62 kg).

On 15 August CEND152025 started the day at prime station 9, this provided the largest catch of the survey so far (2529.306 kg). This consisted mainly of whiting (1882.752 kg) and dab (393.165 kg). CEND152025 then completed prime stations 10 and 11, where the catch again consisted mainly of whiting and dab. The RV Cefas Endeavour then transited to prime station 12, where the catch (630.73 kg), consisted mainly of sprat *Sprattus sprattus* (539.875 kg).

CEND152025 started 16 August at prime station 18, where the catch (180.261kg) consisted of mainly of whiting (127.67 kg). This was followed by a successful trawl at prime station 19, where the catch (312.926 kg), consisted mainly of sprat (178.748 kg). The RV Cefas Endeavour then moved on to prime 20 for the last GOV trawl of the day, where the catch (121.178 kg) consisted mainly of dab (65.64 kg) and whiting (18.48 kg).

On 17 August the RV Cefas Endeavour began the day at prime station 21, where the catch (236.223 kg) consisted mainly of horse mackerel (143.285 kg) and mackerel (52.885 kg). This was followed by prime stations 30 and 29, where the catch consisted mainly of sprat.

On 18 August CEND152025 started the day at prime station 39, the catch (300.099 kg) consisted mainly of mackerel (156.64 kg) and haddock *Melanogrammus aeglefinus* (90.26 kg). CEND152025 then transited to prime station 38, where the catch (615.466 kg) consisted mainly of sprat (254.92 kg), haddock (145.16 kg) and herring *Clupea harengus* (112.952 kg). The following GOV deployment at prime station 37 yielded a catch of 588.236 kg, consisting mainly of haddock (356.236 kg), dab (108.07 kg) and herring (74.1 kg). Two Spurdog *Squalus acanthias* were also tagged and released (Figure 2). Prime station 36 was the last station of the day, where the catch (215.976 kg) consisted mainly of whiting (77.862 kg) and haddock (74.79 kg).

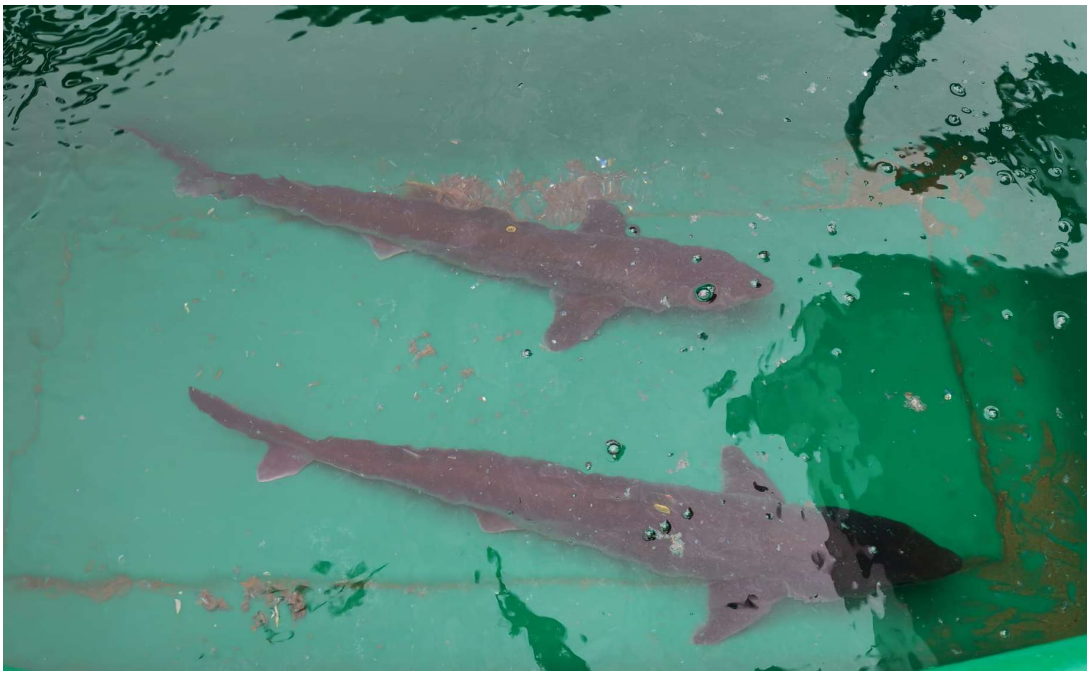


Figure 2. Two Spurdog caught and tagged at prime station 37

The RV Cefas Endeavour started 19 August at prime station 28 where the catch (2183.635 kg) consisted mainly of haddock (1746.065 kg). CEND152025 then transited to prime station 27, where the catch (663.039 kg) consisted mainly of mackerel (583.312 kg). The following GOV deployment at prime station 26 yielded a catch of 627.996 kg, again consisting mainly of mackerel (565.04 kg). This was the last station of the day, where the catch (210.554 kg) consisted mainly of haddock (125.65 kg) and whiting (47.18 kg).

On 20 August CEND152025 started the day at prime station 17, where the catch (352.082 kg) consisted mainly of haddock (127.338 kg), sprat (94.608 kg) and whiting (93.759 kg). CEND152025 then transited to prime station 16, where the catch (173.105 kg) consisted mainly of mackerel (94.66 kg). At prime station 8 the catch (139.53 kg) consisted mainly of whiting (85.44 kg). Prime station 7 was the last station of the day, where the catch (253.017 kg) consisted mainly of whiting (137.826 kg) and dab (50.355 kg).

On 21 August CEND152025 began the day at prime station 15, where the catch (866.312 kg) consisted mainly of horse mackerel (659.362 kg), of note a large tope *Galeorhinus galeus* (1.501m, 15.420kg) was tagged and released (Figure 3). CEND152025 then transited to prime station 14, where the catch (740.412 kg) consisted mainly of herring (357.165 kg), haddock (209.082 kg) and whiting (155.105 kg). Prime 13 was the last station of the day, where the catch (~5465.253kg) consisted mainly of herring (~5125.52kg), this large catch posed safety issues to handle as usual, so a subsample was taken for processing and the total catch weight estimated.

Figure 3. Tope caught and tagged at prime station 15.

The RV Cefas Endeavour started 22 August at prime station 77, where the catch (627.352 kg) consisted mainly of haddock (285.859 kg), and mackerel (152.667kg). The following two prime stations; 22 and 23 also consisted of mostly haddock. Prime station 24 was the last station of the day, and the catch (304.787 kg) consisted mainly of herring (202.260 kg) and haddock (48.785 kg).

On the 23 August prime stations 35, 44, 43 and 42 were completed. The largest catch of the day (1108.365 kg) was caught at prime station 42. This consisted mainly of herring (632.137 kg), whiting (259.327 kg) and haddock (122.914 kg).

On the 24 August prime stations 34, 33, 76 and 41 were completed. The first two catches consisted mostly of herring and haddock. The third station at prime station 76 was the largest catch of the day (1140.15 kg), and this consisted mainly of haddock (358.858 kg), mackerel (296.492 kg) and herring (119.954 kg). The last haul of the day at prime station 41 provided the smallest catch of the day (217.648 kg), consisting mainly of mackerel (69.860 kg), haddock (49.52 kg) and whiting (44.879 kg).

On the 25 August prime stations 32, 31 and 40 were completed. Prime station 31 provided the largest haul of the day (967.305kg), which consisted mainly of mackerel (794.965kg). CEND152025 then transited to Aberdeen for a scheduled crew change.

The RV Cefas Endeavour began 27 August at prime station 46, the catch (279.301 kg) consisted mainly of haddock (109.142 kg) and herring (83.06 kg). CEND152025 then transited to prime station 47, where the catch (283.805 kg) consisted mainly of haddock (143.984 kg) and whiting (52.825 kg). CEND152025 then transited to prime station 78. As this was a new tow a suitable location was found and looked at using the multibeam before fishing. The catch (233.154 kg) again consisted mainly of haddock (166.473 kg). Prime station

48 was the last station of the day, where the catch (667.297 kg) consisted mainly of haddock (278.919 kg) and herring (217.322 kg).

On 28 August the RV Cefas Endeavour started the day at prime station 49, where the catch (353.995 kg) consisted mainly of haddock (240.165 kg), saithe *Pollachius virens* (31.82 kg) and cod *Gadus morhua* (31.82 kg). Unfortunately, on hauling it was noticed that there was a tear in the starboard wing. Looking at the sensor readings, it was likely this happened at the end of the tow and as the catch composition was similar to recent years the station was deemed valid. CEND152025 then transited to prime station 50 while the net was being mended. Once the survey resumed, the catch at prime station 50 (237.424 kg) consisted mainly of haddock (80.835 kg) and mackerel (70.62 kg). CEND152025 then transited to prime station 58, where the catch (457.582 kg) consisted mainly of mackerel (245.82 kg) and horse mackerel (120.06 kg). Prime 57 was the last station of the day, where the catch (171.459 kg) consisted mainly of mackerel (46.62 kg), Norway pout *Trisopterus esmarki* (44.045 kg) and saithe (26.76 kg).

The RV Cefas Endeavour started 29 August at prime station 56, where the catch (375.105 kg) consisted mainly of haddock (321.56 kg). CEND152025 then transited to prime station 55, where the catch (1078.426 kg) consisted mainly of herring (403.08 kg), haddock (311.365 kg) and whiting (278.209 kg). Prime station 54 was the last station of the day, where the catch (457.156 kg) consisted mainly of herring (286.387 kg) and Norway pout (70.854 kg).

CEND152025 began the day at prime station 45, where the catch (439.624 kg) consisted mainly of haddock (254.154 kg) and whiting (98.215 kg). This was followed by prime station 53, where the catch (2132.919 kg) consisted mainly of herring (1433.2 kg), Norway pout (284.183 kg) and whiting (135.958 kg). Prime station 52 was the last station of the day, where the catch (804.746 kg) consisted mainly of haddock (332.266 kg), whiting (225.3 kg) and Norway pout (187.261 kg).

The RV Cefas Endeavour began 31 August at prime station 51, where the catch (434.699 kg) consisted mainly of haddock (142.94 kg), horse mackerel (107.13 kg), mackerel (60.445 kg) and northern squid *Loligo forbesi* (51.799 kg). CEND152025 then moved on to prime station 59 and deployed the GOV. Unfortunately on hauling it was discovered there was significant damage to the net. As repairing the net would take longer, it was decided that the best course of action was to changeover to the spare net. Due to this, and the adverse weather conditions no further operations could commence until 2 September.

The RV Cefas Endeavour started the day at prime station 59. Due to some anomalies seen on the EK80 and the fact that the gear was significantly damaged on the last attempt at this location, the tow was reduced to 15 minutes. The catch (326.528 kg) consisted mainly of haddock (131.225kg) and also included two female flapper skate *Dipturus intermedius* (TL 192cm WW 160cm, TL 174cm WW 127cm (~88.0 kg, Figure 4). CEND152025 then transited to prime station 60, where the catch (418.727kg) consisted mainly of mackerel (132.530kg) and herring (94.520kg). CEND152025 then moved on to prime station 61, where the catch (934.125kg) consisted mainly of herring (453.867kg) and mackerel (269.613kg). Fishing operations concluded early due to sensor equipment malfunction.

Figure 4. Flapper skate tagged and released at prime station 59.

The RV Cefas Endeavour started 3 September at prime station 62, where the catch (67.140kg) consisted mainly of haddock (15.480kg) Norway pout (11.780kg) and saithe (11.420kg). CEND152025 then transited to prime station 63, where the catch (194.768kg) consisted mainly of haddock (119.440kg), epibenthos (21.160kg) and cod (18.160kg). CEND152025 then moved on to prime station 64, where the catch (212.738kg) consisted mainly of haddock (118.466kg) and epibenthos (21.219kg).

CEND152025 began 4 September at prime station 67, the catch (334.937kg) consisted mainly of saithe (176.960kg) and herring (68.060kg). CEND152025 then transited to prime station 68, where the catch (291.927kg) consisted mainly of herring (116.380kg), saithe (54.280kg) and haddock (20.420kg). CEND152025 then moved on to prime station 75, where the catch (722.875kg) consisted mainly of mackerel (300.680kg), blue whiting *Micromesistius poutassou* (291.541kg) and Argentines *Argentina spp* (55.530kg).

On 5 September CEND152025 started the day at prime station 69, where the catch (207.087kg) consisted mainly of haddock (83.230kg) and herring (52.050kg). CEND152025 then transited to prime station 70 where the catch (205.106kg) consisted mainly of mackerel (90.780kg) and epibenthos (35.079kg). CEND152025 then moved on to prime station 65, where the catch (410.627kg) consisted mainly of mackerel (337.920kg). This marked the end of fishing with 73 of 78 planned fishing stations completed. Unfortunately, due to time lost during the survey it wasn't possible to complete prime stations 66, 71, 72, 73 and 74, although the ICES rectangles associated with these stations were sampled by other IBTS members

RESULTS:

PRIMARY AIMS:

1. To carry out a groundfish survey of the North Sea as part of the ICES coordinated IBTS.

Due to time lost due to weather and gear damage/ equipment set up, approximately two days of survey time was lost this year. Due to the time lost only 73 stations out of 78 were completed. A valid haul with the GOV trawl was completed at 73 prime stations (Table 1). There were also 4 invalid stations, one due to sensor malfunction, one due to net damage, two due to problems on deployment. Surface and bottom salinity samples were collected at 43 sites by ESM2 and Niskin water sampler.

Gear: The survey was fished using a hybrid GOV trawl (polyethylene trawl with a nylon sleeve and cod-end). GOV working trawl #1 was used until gear damage was sustained at prime station 59, after this working trawl #2 was used. Net geometric sensors were used to monitor headline height, wing spread, and door spread (Figure 8).

Catches: At each station, the catch of each species was weighed and all fish, or representative sub-samples, were measured. Table 2 ranks the top 15 fish species by weight, compared to that seen over the previous four years, whilst Table 3 lists the species that were weighed and measured/counted across the survey's prime stations. Table 4 shows the number of fish sampled for age determination and other biological information. All data were recorded to computer database using Cefas' Electronic Data Capture system and uploaded to the Scientific Fisheries System (SFS). Figure 9 shows the length distribution of cod, haddock, whiting, saithe, Norway pout, herring, mackerel, sprat, plaice and hake, with the distribution and relative abundance (raised numbers per hour) of these species given in Figures 10–19.

Table 1: Gear deployments on the English IBTS Q3 2025 survey.

Gear	Valid	Shakedown	Invalid	Total
GOV (IBTS standard gear)	73	1	4	78
ESM2+Niskin	43			43

Table 2: Top 15 fish species (by total catch weight, standardised to 30-minute tows) in 2025 and corresponding catch weights in preceding years. Note: Species that were ranked in the top 15 species in earlier years, but were outside the top 15 in 2025, are not shown.

Common English Name	Scientific Name	2025 weight (kg)	2024 weight (kg)	2023 weight (kg)	2022 weight (kg)	2021 weight (kg)
Herring	*Clupea harengus*	11125	9088	15727	14211	7863
Haddock	*Melanogrammus aeglefinus*	8451	10090	13405	14209	6572
Whiting	*Merlangius merlangus*	5967	8800	5412	7044	5653
Mackerel	*Scomber scombrus*	5461	7370	3888	7068	4841
Sprat	*Sprattus sprattus*	2519	956	1970	1993	3446
Horse mackerel	*Trachurus trachurus*	1461	892	1651	2249	955
Dab	*Limanda limanda*	1435	1745	1993	2866	3102
Norway pout	*Trisopterus esmarkii*	945	183	902	1418	2338
Saithe	*Pollachius virens*	518	750	642	232	319
Blue whiting	*Micromesistius poutassou*	337	336	1008	123	758
Plaice	*Pleuronectes platessa*	267	345	516	430	374
Lesser-spotted dogfish	*Scyliorhinus canicula*	215	222	229	193	227
Grey gurnard	*Eutrigla gurnardus*	205	266	401	625	561
Pilchard	*Sardina pilchardus*	195	123	47	108	12
Flapper skate	*Dipturus intermedius*	180	80	20	39	97

Table 3: Fish, cephalopods and commercial shellfish caught and number of prime stations where they were recorded.

Scientific Name	Common English Name	Stns	Scientific Name	Common English Name	Stns
Hippoglossoides platessoides	American plaice (long rough dab)	48	*Scyliorhinus canicula*	lesser-spotted dogfish	28
Lophius piscatorius	anglerfish (monkfish)	22	*Trachinus vipera*	lesser weever	7
Argentinidae	argentines	26	*Homarus gammarus*	lobster	1
Clupea harengus	Atlantic herring	56	*Cyclopterus lumpus*	lumpsucker	2
Trisopterus luscus	bib pouting	3	*Lepidorhombus whiffiagonis*	megrim	6
Galeus melastomus	blackmouthed dogfish	1	*Illex (loligo) illecebrosus*	northern shortfin squid	6
Raja brachyura	blonde ray	2	*Loligo forbesi*	northern squid	38
Helicolenus dactylopterus	blue mouth redfish	8	*Nephrops norvegicus*	Norway lobster	13
Micromesistius poutassou	blue whiting	10	*Trisopterus esmarki*	Norway pout	35
Capros aper	boarfish	7	*Sardinia pilchardus*	pilchards	7
Scophthalmus rhombus	brill	2	*Pleuronectes platessa*	plaice	59
Illex coindetii	broadtail shortfin squid	6	*Agonus cataphractus*	pogge (Armed bullhead)	4
Myoxocephalus scorpius	bullrout	1	*Trisopterus minutus*	poor cod	32
Gadus morhua	cod	25	*Aequipecten opercularis*	queen scallop	14
Callionymus lyra	common dragonette	15	*Ammodytes marinus*	Raitts sandeel	1
Molva molva	common ling	4	*Sebastes viviparus*	redfish	1
Leucoraja naevus	cuckoo ray	4	*Aspitrigla cuculus*	red gurnard	3
Sepiolidae	cuttlefish (without cuttlebone)	1	*Mullus surmuletus*	red mullet	11
Limanda limanda	dab	60	*Pollachius virens*	saithe	21
Solea solea	Dover sole	5	*Arnoglossus laterna*	scaldfish	15
Cancer pagurus	edible crab	15	*Pecten maximus*	scallop	3
Engraulis encrasicolus	European anchovy	1	*Gadiculus argenteus*	silvery pout	7
Alloteuthis subulata	European common squid	18	*Lumpenus lampretaeformis*	snake blenny	1
Merluccius merluccius	European hake	20	*Buglossidium luteum*	solenette	11
Scomber scombrus	European mackerel	67	*Callionymus maculatus*	spotted dragonette	15
Dicentrarchus labrax	European seabass	1	*Raja montagui*	spotted ray	5

Loligo vulgaris	European squid	1	*Sprattus sprattus*	sprat	25
Dipturus intermedia	flapper skate	2	*Squalus acanthias*	spurdog	13
Platichthys flesus	flounder	1	*Amblyraja radiata*	starry ray	25
Todarodes sagittatus	flying squid	1	*Mustelus asterius*	starry smooth-hound	12
Enchelyopus cimbrius	four-bearded rockling	12	*Lithodes maja*	stone crab	11
Belone belone	garfish	2	*Rossia macrostoma*	stout bobtail	12
Gobius spp.	gobies	5	*Microchirus variegates*	thickback sole	1
Hyperoplus lanceolatus	greater sandeel	4	*Raja clavate*	thornback ray	5
Maja squinado	greater spider crab	2	*Galeorhinus galeus*	tope	1
Trachinus draco	greater weever fish	2	*Trigla lucerne*	tub gurnard	5
Eutrigla gurnardus	grey gurnard	61	*Scophthalmus maximus*	turbot	2
Melanogrammus aeglefinus	haddock	56	*Necora puber*	velvet swimming crab	3
Myxine glutinosa	hagfish	4	*Lophius budegassa*	white anglerfish (black bellied)	2
Hippoglossus hippoglossus	halibut	2	*Merlangius merlangus*	whiting	71
Trachurus trachurus	horse mackerel	55	*Glyptocephalus cynoglossus*	witch	12
Zeus faber	John dory	4	*Anarhichas lupus*	wolf-fish	3
Microstomus kitt	lemon sole	55	*Octopodidae*		12
Todaropsis eblanae	lesser flying squid	1			

Table 4: Number of biological samples taken for ageing by species.

Common English Name	Number of samples taken
Whiting	1656
Haddock	1313
Plaice	1162
Herring	1023
Mackerel	432
Norway pout	357
Saithe	210
Lemon sole	175
Dab	173
Hake	170
Grey gurnard	168

Cod	124
Sprat	91
Anglerfish (monkfish)	48
Sole	31
Blue-mouth redfish	28
Red Gurnard	24
Striped red mullet	24
Witch	21
John dory	8
Ling	7
Wolf fish	5
Tub gurnard	5
Turbot	4
Flounder	4
Brill	3
Black-bellied anglerfish	2
Starry smooth-hound	98
Starry ray	49
Spurdog	41
Thornback ray	36
Spotted ray	13
Cuckoo ray	7
Blonde ray	2
Blackmouthed dogfish	1
Tope	1
Flapper skate	3
Total	7053

NB. All catch weights and number of fish caught are standardised to a full 30-minute tow

Gadiformes

Total cod catches during the 2025 survey (117 kg) were much lower compared to 2024 (629 kg). This was also true of their distribution (Table 3), seen at 10 fewer prime stations than last year (25, compared to 35 in 2024). The number of individuals caught across the survey was also much lower than in the previous year (n = 147, compared to n = 192 in 2024). However, the numbers of <15 cm cod was slightly higher in comparison to previous years (n= 15 individuals compared to n = 1 individuals in 2024 and n = 12 individuals in 2023). It should be noted that this is still very low when compared to catches in earlier years (n = 77 in 2021 and n = 295 in 2020). Individuals >35cm made up 41% of the total catch weight this year (73.5% in 2024), and individuals between 15cm & 35cm made up 49% of this year's total weight compared to 25.9% in 2024 (Figure 10a). The lower catch numbers this year has resulted in a lower number of biological samples collected, with 124 taken, compared to 184 last year (Table 4). Cod <12 cm are not sampled for age (assigned as 0-groups).

Haddock catches were also down with 8.45 t caught compared to 10.09 t in 2024 but was still higher than the catch of 6.57 t in 2021. The overall distribution was much higher this year, with haddock caught at 56 stations (36 in 2023). Similarly, as with the total catch weights, biological samples were also down with 1313 compared to 1627 last year. There was also a decrease in the number of individuals recorded (n= 27426 compared to n=35147 in 2024). Catches containing 0-group haddock have increased slightly compared with 2023 and 2024 (Figure 10b). Individuals <15cm accounted for 4.5 % of the numbers measured compared to 0.8% in 2024 and 2.6% in 2023.

Whiting catches also slightly decreased this year, with 6.0 t caught, compared to 8.8t in 2024, however this is still in increase on the 5.41 t caught in 2023. Whiting were caught at more prime stations than in 2024 (71 compared to 58 in 2024). Despite the decrease in catch weight, the increase in catch distribution meant the numbers of biological samples collected increased slightly (1656 in 2025 compared to 1570 in 2024). The numbers of individuals recorded this year, however decreased (n=58075 compared to n=82192 in 2024) but this is still higher than in 2023 (n=47969). In total, 2.8% of all whiting caught this year were under <14cm compared to 13.0 % in 2024 and 12.5 % in 2023. Whiting <12 cm were caught at 40 of the 73 prime stations fished, compared to 39 of the 77 prime stations in 2024

The total saithe catch weight 518 kg decreased from the 750 kg caught in 2024, however this is still higher than in 2022 and 2021. The spatial distribution increased (21 prime stations, compared to 20 last year). It is worth noting that almost half the saithe catch weight (49%) was caught at prime station 67. The increased spatial distribution this year resulted in an increase in biological samples with 210 otoliths collected, compared to 173 in 2024.

Norway pout catches (945 kg) were significantly higher than in 2024 (184 kg), and similar to 2023 (903 kg). The spatial distribution has also increased, with Norway pout caught at 35 stations compared to 23 last year, however this is still lower than the 41 stations in 2023. It is also worth noting that fewer stations were completed this year, with five prime stations being missed in areas where Norway pout have been caught in previous years. Norway pout have a limited length range and so otolith sample numbers are normally consistent year on year, but with the increased spatial distribution and catch weights this year, more otoliths were taken (357 compared to 235 in 2024). However, this is still lower than the 434 taken in 2023. Norway pout had two distinct length cohorts (5–10 cm and 13–21 cm; Figure 10e), as seen in previous years. Norway pout under <10 cm are not sampled for age (assigned as 0-groups) and this year n =153302 individuals were recorded as such, compared with n=5279 in 2024 and n= 22923 in 2023. The total number of individuals recorded this year is much higher than in 2024 (n=163511 compared to n=10297 in 2024 and n=57133 in 2023). 94% of the total Norway pout caught this year were <10 cm compared to 51.3% in 2024 and 40.1% in 2023.

Hake caught this year (52 kg) was only slightly lower than in 2024 (57 kg) but higher than in 2022 (112 kg in 2023, 38kg in 2022). For the seventh year running hake was not in the top 15 fish species by total catch weight (ranked 26 compared to the rank of 29 in 2024, and 20 in 2023). Hake were also caught at fewer prime stations than last year, being seen at only 20 prime stations compared to 21 in 2024 and 30 in 2023. A higher number of individuals were also caught (n=255) and biologically sampled (n=170), compared with 2024 (n=91) and

biologically sampled (n=89) and in the preceding two years (n=121 and 112, respectively and n = 40 and 40, respectively).

Pleuronectiformes

Plaice catches were lower this year than in previous years (267 kg compared to 345 kg in 2024 and 516 kg in 2023). The spatial distribution was only slightly lower than in 2024, with plaice present at 59 prime stations (61 in 2024, 62 in 2023). Maturity stages for plaice remained mixed, as observed in previous years, with stages at this time of year normally being seen as spent, however both mature and spawning individuals were all recorded this year. The number of individuals caught decreased from the previous year (n = 1976 compared to n= 2660 in 2024 n = 4389 in 2023). With smaller catch weights and a decreased spatial distribution, the numbers of otoliths taken decreased to 1162 (1411 in 2024 and 1554 in 2023). Length distributions this year were similar to last year, and continue to show a decline in the "0- group" plaice (n=34 individuals <15 cm, compared to n= 72 in 2024, n=340 in 2023, n= 138 in 2022).

Total lemon sole catch weight this year of 119kg was a decrease on the last few years (132 kg in 2024, 195 kg in 2023). There was also a decrease in the spatial distribution with lemon sole recorded at 55 stations, compared to 62 last year, although it is worth noting that only 73 out of the 78 prime stations were completed this year. Due to the decrease in total catch weight fewer individuals were caught this year (n=1059 compared to n=1376 in 2024 and n=2199 in 2023) fewer biological samples were also taken (n=175) compared to (n=215) in 2024.

Dab catches have continued to decline with 1.44 t caught this year compared to 1.745 t in 2024 and 1.993 t in 2023. However, the spatial distribution increased with dab caught at 60 prime stations, compared to 51 the previous year. With a decrease in weight caught, fewer numbers were measured (n = 26230 compared to n = 32500 in 2024) and as a result, a decrease in otoliths collected this year. Length distributions remained similar to the previous years, but with a further decrease in ≤10 cm individuals this year (n=73 compared to n=135 in 2024).

Pelagic fish

Herring was ranked first for catch weight on this year's survey after being third last year. The total catch weight of herring increased to 11.13 t, compared to 9.088 t in 2024, however this is still lower than the 15.727 t in 2023. However, it is worth pointing out that nearly half of the total herring catch weight this year was seen at just one prime station; 13 (5.125 t). The spatial distribution only differed slightly from 2024 with herring caught at 56 compared to 57 last year, this is again much lower than in 2023 where herring were caught at 70 prime stations. Despite the increased catch weights and similar spatial distribution fewer individuals were measured this year (n=5410) compared to n=5503 in 2024 and n=8550 in 2023 with actual numbers caught also being lower this year (n=~78677) compared to 2024 (n=104000) and 2023 (n=~198000). This could be due to the fact more larger herring were

caught this year and fewer small fish. The numbers of biological samples taken increased slightly (n=1023) compared to n=1018 last year.

Sprat catches have increased this year, and the catch weight is the highest it has been since 2021 with 2.52 t caught this year compared to 956 kg in 2024 and 1.97 t caught in 2023. The spatial distribution has also increased with sprat caught at 25 stations compared to 18 last year. Individuals caught this year also increased n= 276869 compared to n~ 228000 in 2024 n~ 183000 in 2023. 91 biological samples were taken from sprat this year.

Mackerel catches were lower than last year with 5.46 t caught (7.37 t in 2024) however this is still higher than the 3.88 t in 2023. However, the spatial distribution increased with mackerel present at 67 stations, compared to 65 in 2024. The number of individuals recorded decreased (n=24331) compared to (n=28310 in 2024). A larger number of biological samples were taken(n=432) compared with 2024 (n=390) this could be down to the larger size range observed. The number of mackerel catches over 100 kg also decreased this year, with 12 stations this year compared to 17 in 2024.

1.46 t Total catches of horse mackerel in 2025 (1.46 t) showed an increase compared to 2024 (892 kg) however this is still lower than the preceding years (1.651 t in 2023, 2.249 t in 2022). The spatial distribution also increased with horse mackerel present at only 55 prime stations compared to 43 in 2024. This is much lower than in 2023 where horse mackerel were caught at 71 of the stations, but higher than in 2022 where horse mackerel was present at 46 prime stations. Due to the higher catch weights and spatial distribution, numbers of individuals recorded was higher than in 2024 (n = 59188) compared to n=14058 in 2024.

Elasmobranchs

A total of 678 kg of elasmobranchs were caught this year, which is an increase from 772 kg seen in 2024. Three flapper skate were caught during the survey (180.48 kg, up from 85.3 kg in 2024). Lesser-spotted dogfish, *Scyliorhinus canicula* were the top caught species this year (total catch weight was 215 kg, compared to 222 kg in 2024), followed by starry smooth-hound (149 kg, down from 332 kg in 2024). Spurdog (52 kg, down from 66 kg in 2024), starry ray *Amblyraja radiata* (16 kg, compared to 18kg in 2024) and cuckoo ray *Leucoraja naevus* (3 kg down from 10 kg in 2024). One black mouth dogfish *Galeus melastomus* was also caught (0.036 kg). A total of 20 individuals were tagged with Petersen discs and released.

Cephalopods and commercial shellfish

The highest cephalopod catch weight this year was northern squid *Loligo forbesii*, this was an increase in the catch weight from last year (124 kg compared to 66 kg in 2024), the spatial distribution also increased (38 prime stations, compared to 27 in 2024). Length distributions were similar to that of 2024, but the number of individuals measured at length decreased slightly (n= 4045 compared to n=4205 in 2024). Broadtail shortfin squid *Illex coindetii* catch weights were much lower at 1.02 kg compared to 12 kg in 2024. European common squid *Alloteuthis subulata* weights were noticeably smaller compared to last year (5.9 kg,

compared to 46.2 kg in 2024). Curled octopus *Eledone cirrhosa* numbers have also decreased to 12 individuals compared to 17 individuals recorded in 2024.

Edible crab *Cancer pagurus* catch weight were slightly higher than last year (19.3 kg, compared to 14.4 kg in 2024), however this is still much lower than the 37.8 kg in 2023. Velvet swimming crab *Necora puber* catches decreased (6.9 kg compared to 11.7 kg in 2024) and over half of this weight was caught at prime station 3 (4.32 kg). One European lobster *Homarus gammarus* was caught on the survey this year, while stone crab *Lithodes maja* catch weights were much lower (8.6 kg compared to 15.4 kg last year).

Ichthyological observations

70 fish species were recorded on the survey this year, Species of note were the blue-mouth redfish *Helicolenus dactylopterus*, flapper skate *Dipturus intermedius* and black-mouthed dogfish *Galeus melastomus*.

Macrobenthos

95 taxa of macrobenthos were recorded on this year's survey, compared to 132 in 2024. The common starfish was the most widely distributed, found at 54 of the 73 stations. This was closely followed by the sand star *Astropecten irregularis,* which was found at 53 stations.

Marine litter

Over all there were 110 seafloor litter items logged, totalling 75.705 kg, noting that 2 items accounted for 85.85 % (2 x A 16, whelk pots weighing 65 kg) of the total weight of litter collected, which is quite unusual. Of those 110 items, 86 were plastic, which is 78.18 % of all the litter collected. Out of the 78 trawls conducted, 30 trawls contained no litter items, meaning litter was found in 61.45 % of trawls (48 trawls) and averaged 2.29 items per positive litter trawl.

Surface and bottom temperature and salinity

Environmental data, including surface water samples, vertical profiles from the ESM2 profiler/mini-CTD logger and bottom water samples from Niskin water sampler, were collected at 43 stations.

SECONDARY AIMS:

2. Tag and release specimens of starry smooth-hound *Mustelus asterias*, spurdog *Squalus acanthias*, tope *Galeorhinus galeus*, common skate *Dipturus batis species-complex*, blonde ray *Raja brachyura* and cuckoo ray *Leucoraja naevus*, in support of the ICES Working Group

for Elasmobranch Fishes work to inform on stock units for demersal elasmobranchs. (J Ellis/S Phillips – Cefas, Lowestoft)

Of the species targeted for tagging, 20 individuals were deemed appropriate to attach Petersen discs, tagged and release (Table 5).

Table 5: Species tagged and released.

Scientific Name	Common English Name	Cefas code	Numbers tagged
Raja brachyura	Blonde ray	BLR	1
Leucoraja naevus	Cuckoo ray	CUR	2
Squalus acanthias	Spurdog	DGS	12
Galeorhinus galeus	Tope	GAG	1
Mustelus asterias	Starry smooth-hound	SDS	1
Dipturus intermedius	Flapper skate	SKF	3
		Total	**20**

3. To freeze any unusual fish species for subsequent identification / verification in the laboratory, including specimens of eelpout (Zoarces, Lycodes and Lycenchelys), sea scorpions (Cottidae, sub-area IVa only), and any unusual fish species, which may also be used in otolith research. (J Ellis – Cefas, Lowestoft)

Four samples of unusual fish/epibenthos were retained for further analysis, including greater weever fish *Trachinus draco*.

4. To retain any dead specimens of tope (*Galeorhinus galeus*) and common skate (*Dipturus batis species-complex*) for biological studies. Collect additional reproductive data from skates and rays, including outer clasper length (from live and dead males), testes weight (from dead males), ovary weight and shell gland width (from dead females), and collect a section of vertebral column (comprising ca. 6-8 vertebrae from that part overlying the body cavity; samples to be kept frozen) (J Ellis/S Phillips – Cefas, Lowestoft)

Although tope and common skate were caught on this survey, they were deemed lively enough to tag and release.

5. Retain any dead specimens of shad, lamprey and sea trout for biological studies.

None were caught on CEND152025.

6. Collect fisheries acoustic data continuously at five operating frequencies (38, 70, 120, 200 and 333kHz), using the Simrad EK80 split beam sounder. The data will contribute to the existing 20+ year time series of acoustic data in the North Sea and will be used as part of Cefas' Mackerel Science Reference Group to monitor changes in mackerel distribution and abundance (J van der Kooij–Cefas, Lowestoft).

Acoustics data was recorded for the entire survey.

7. Cetacean observations will be recorded where possible and sent to the Sea Watch Foundation.

With no dedicated marine mammal observer on board, observations were limited to *ad-hoc* sightings by bridge crew and SICs and no observations were recorded.

8. Identification, count, measure and weigh all jellyfish caught in GOV trawl will allow the continuation of the North Sea August Jellyfish dataset started in 2012; As the dataset grows from year to year, this should allow the evaluation of changes in jellyfish community and biomass with time. (S Pitois – Cefas, Lowestoft)

In total, 786 individual jellyfish (from a total of six species) were measured on the survey (Table 6). Total catch weight (186 kg) was higher than recorded in 2024 (153 kg). Moon jellyfish *Aurelia aurita* was the dominant species, with a total catch weight of 84.096 slightly higher than the 81.376 kg caught in 2024. Lion's mane jellyfish *Cyanea capillata* saw an increased catch weight this year 57 kg up from 19 kg in 2024, however this is still slightly lower than the 60 kg in 2023. Lion's mane jellyfish had the largest size and weight range (7 –40.5 cm; 24–1947 g). Crystal jellyfish *Aequorea* spp and compass jellyfish *Chrysaora hysoscella* showed increased catch weights compared to the previous years (Table7). Blue jellyfish *Cyanea lamarckii* however showed a decrease on last year's catch weight.

Table 6. Details of jellyfish caught and measured during the survey.

Scientific Name	Common English Name	Total weight caught (g)	No. caught	Minimum length (cm)	Maximum length (cm)	Minimum weight (g)	Maximum weight (g)
Aurelia aurita	moon jellyfish	84096	1141	4	17	8	267
Cyanea capillata	lion's mane jellyfish	57831	102	7	40.5	24	1947
Aequorea spp.	crystal jellyfish	27830	948	2	14.5	3	135
Chrysaora hysoscella	compass jellyfish	20740	1024	2	23.5	1	349
Cyanea lamarckii	blue jellyfish	926	36	3.5	12.5	6	97
Rhizostoma octopus	Barrel jellyfish	858	5	7	14	46	478
	Total	192281	3256				

Table 7. Jellyfish species (by total catch weight) in 2022 and corresponding catch weights in preceding years.

Scientific Name	Common English Name	2025 weight (g)	2024 weight (g)	2023 weight (g)	2022 weight (g)	2021 weight (g)
Aurelia aurita	moon jellyfish	84096	81376	9204	47345	27234
Cyanea capillata	lion's mane jellyfish	57831	19228	60422	150130	285090
Aequorea spp.	crystal jellyfish	27830	9202	2557	3650	15717
Chrysaora hysoscella	compass jellyfish	20740	14986	5226	24698	19046
Cyanea lamarckii	blue jellyfish	926	2443	2076	72144	27234
Rhizostoma octopus	Barrel jellyfish	858				
	Total	192281	153132	89245	278495	379973

9. Collect squid egg samples to map spawning grounds. This could be highly relevant in studying squid stock's structure. Retain any specimens of Loligo (not *L. forbesi* – keep all if in doubt) and all ommastrephid squids (Illex, Todaropsis, Todarodes) for maturity and age analysis, respectively. Keep frozen all cuttlefish Sepia officinalis (Max 20) (V Laptikhovsky - Cefas, Lowestoft)

No squid eggs were caught during the 2025 survey. No squid were retained.

10. Collect, retain and filter surface water samples from Ferrybox underway water supply for subsequent chlorophyll sampling in support of SLA25. Two samples during the hours of darkness would be preferable, e.g. before sunrise and after sunset. If not possible one before first light and one during daylight hours. (E Brabben – Cefas, Lowestoft)

45 chlorophyll samples were collected from surface water, one before first light and one at the middle of each day throughout the survey.

11. Zooplankton plankton sampling using ringnet to collect sample from the Gabbard smart buoy site. (S Pitois – Cefas, Lowestoft)

A ring net deployment at the West Gabbard site was not completed due to time constraints.

12. Collect queen scallops (queenies) Auquipecten opercularis to allow for experimental work on ageing, for L/W relationship analysis, development of length to height parameters and, to provide specimens to Bangor University for further work which will be made available to ICES WGScallop. (J Harvey – Cefas, Lowestoft)

It was requested that samples would only be collected where 50-200 queen scallops were caught, unfortunately there were no catches of that size. 178 length measurements were recorded on the EDC.

13. Collect additional information on garfishes (Family Belonidae) and saury pike (Scomberesox saurus) in terms of total length (mm), body length (mm) and total weight (0.1g). (J Silva – Cefas, Lowestoft)

Additional information was collected for the three garfish caught.

14. Maturity photos for specific species for future reference guides. (S Barnett/B Hatton – Cefas, Lowestoft)

Maturity photos of herring were taken during CEND152025

15. Stomach sampling, EU has approved the plans for a pilot on collecting stomach data (as discussed during IBTSWG 2021). For this a 5-year rolling scheme of species is proposed. According to the new scheme, haddock and mackerel should be collected in 2025.

Haddock and mackerel stomachs were collected from 8 stations

16. Collection of cadavers for training opportunities back in the lab Roundfish – 40 specimens over 20cm, Flatfish – 40 specimens over 20cm, Non LSD elasmobranch – any dead specimens not used in other objectives (S Roslyn – Cefas, Lowestoft)

Successful collection of suitable cadavers was achieved, which enables the continued training and improvement of staff across the organisation, with further plans to do more training using these cadavers in 2026

17. Euthanasia training for all staff involved with fisheries sampling - As a kick off for future in lab training for staff on correctly killing live animals on the RV. (S Roslyn – Cefas, Lowestoft)

Successful training and sign off of staff on board to correctly follow and implement correct methods of killing animals deemed unfit to return to sea that would otherwise return alive. Staff were taught the techniques required by Cefas which, though not required, follow the schedule 1 regulations in the Animals (Scientific Procedures) Act 1985 (ASPA) and requirements of Welfare At Time Of Killing 2015 (WATOK). This also combines with Objective 16 enabling this training on land using cadavers brought back from the survey. This training will be on-going, but this first step has setup the future training for success.

18. Retain 25 dead starry ray, with greater focus on NW North Sea, for biological and genetic sampling (J Ellis – Cefas, Lowestoft)

20 dead starry ray were collected for biological and genetic sampling.

19. Collect tissue samples/ vertebrate from dead cuckoo ray (J Ellis – Cefas, Lowestoft)

One dead cuckoo ray was brought back for sampling.

20. Collect additional herring otoliths and genetic samples (A Brazier, D Murray – Cefas, Lowestoft)

Tissue (fin clips) samples and corresponding otoliths (n=16) from deceased herring were successfully collected to support ongoing population and genomic studies. Sampling protocols have been collated and are ready for application to other small pelagic fish e.g., horse mackerel, going forward.

21. Collect additional chlorophyll samples at each prime station where possible, especially those on the priority list. (V Creach - Cefas, Lowestoft)

52 additional chlorophyll samples were collected.

22. To collect any parasitic isopods. If the isopods are on a fish, take a photograph of the fish and parasite in situ, and then carefully remove the parasite and freeze the specimen (recording station and host details). (P Barry and J Ellis, Cefas, Lowestoft).

Six parasitic isopods were collected.

ACKNOWLEDGEMENTS

The survey team would like to acknowledge the outstanding work by the officers and crew of RV Cefas Endeavour, not only helping us successfully carry out the survey, while doing so with the mindset of maintaining safety as the number one priority on board. In addition, the efforts by Brian Salter and the rest of the AWSM management team in securing the delivery of the survey and all required accompanying gear was much appreciated.

Nicola Hampton
Scientist in Charge
19.01.2026

DISTRIBUTION:

BODC
Participants of survey
Marine Operations
J Thompson (PM)
I Holmes (PI)
R Clarke (PL)
Cefas Fisheries surveys SICs/2ICs
Cefas CDP (Gary Burt)
AWSM - Pinbush
Fishing Skipper/Master Cefas Endeavour
FCO (Overseas EEZ's)
Kai Wieland (IBTSQ3 co-ordinator)

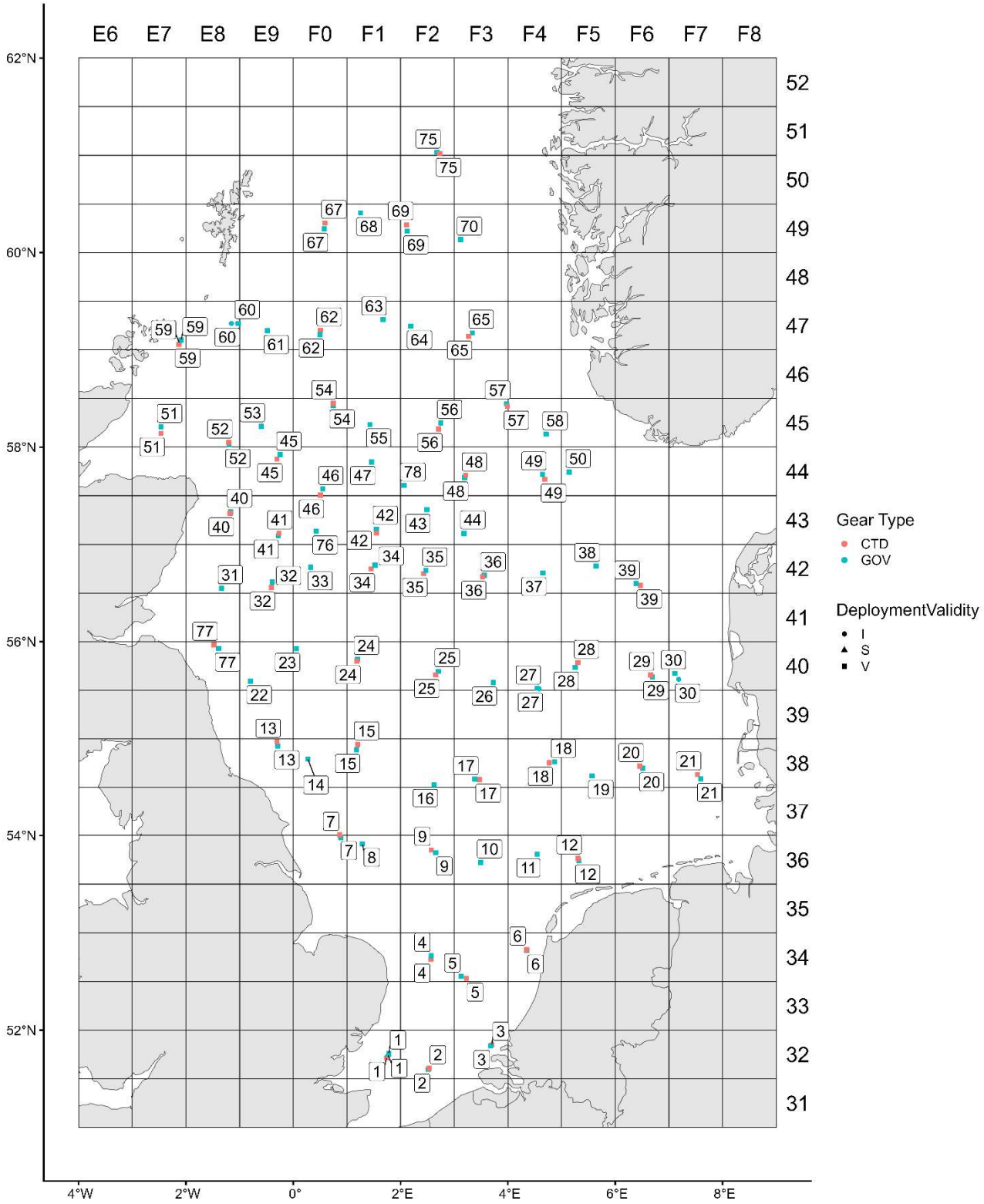
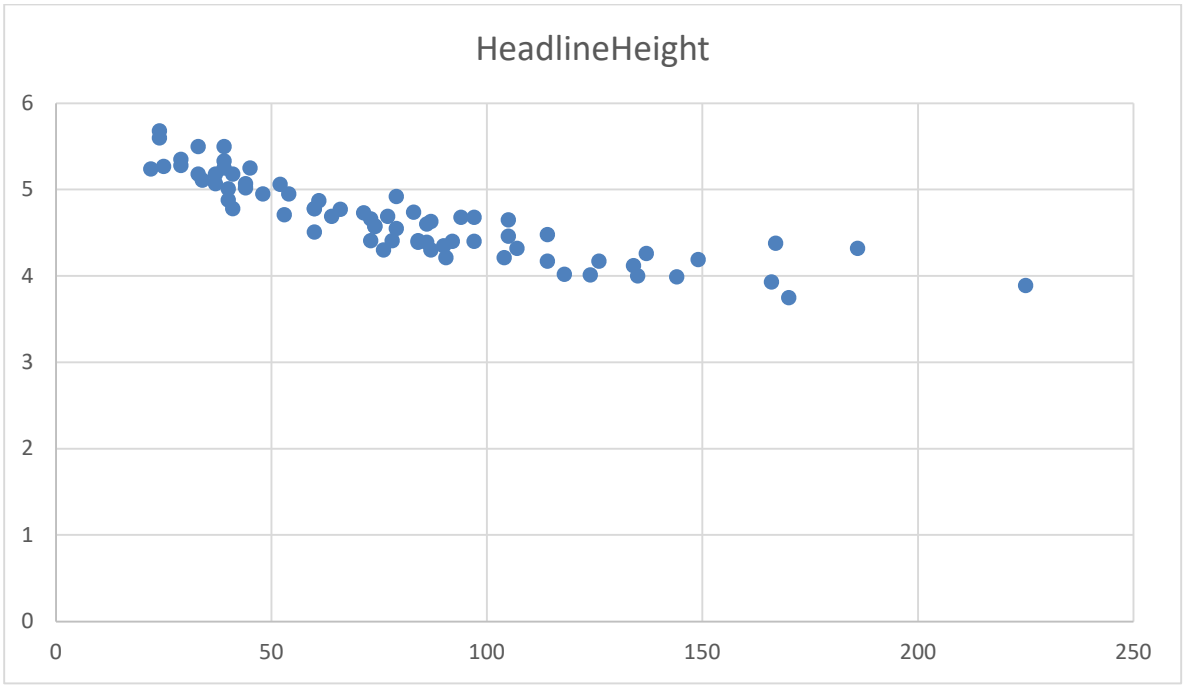


Figure 5. Deployment positions for valid, invalid and shakedown GOV trawl and CTD stations giving prime station numbers.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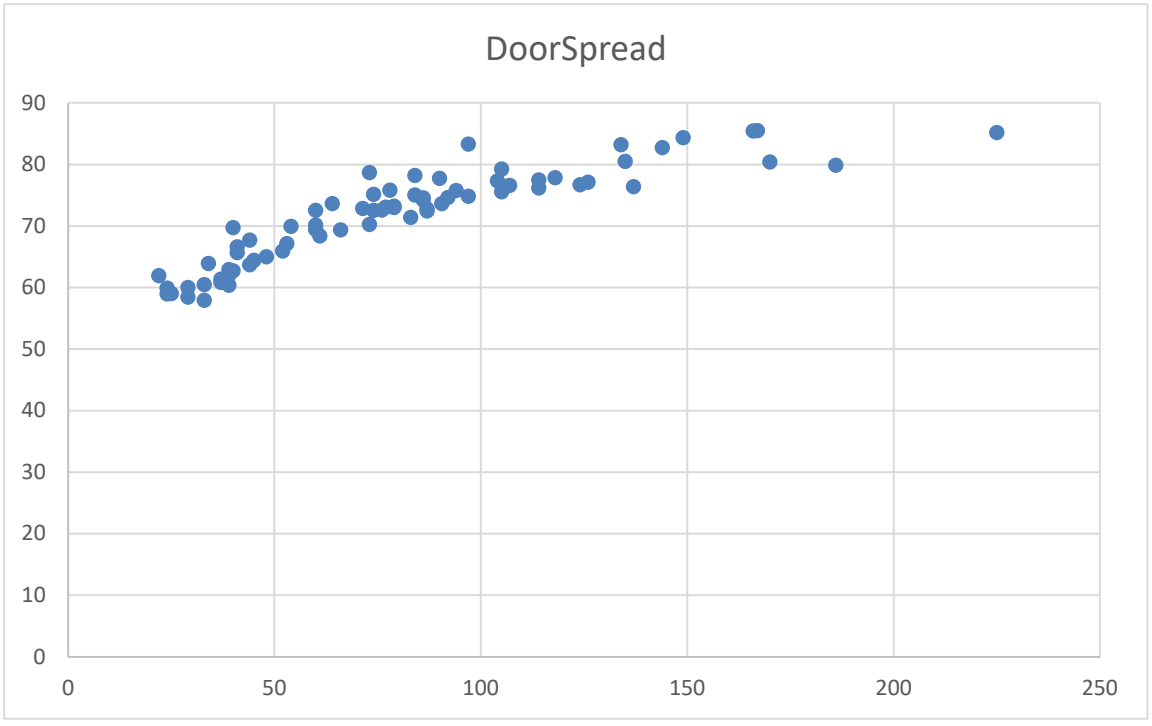
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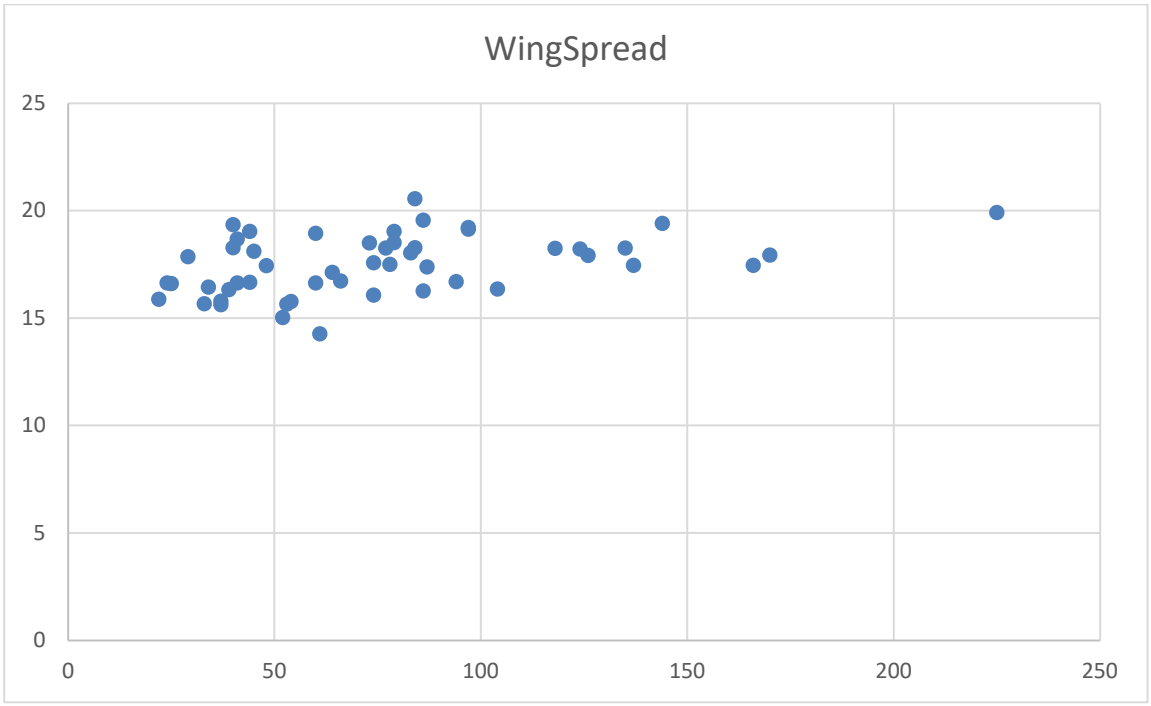

Figure 6. Relationships between door spread, wing spread and headline height with water depth (valid tows only)

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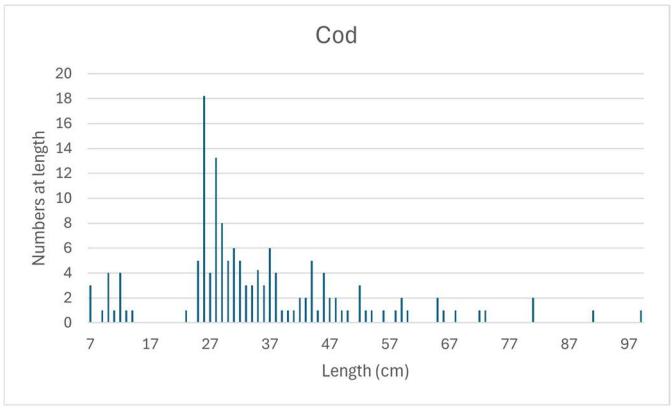

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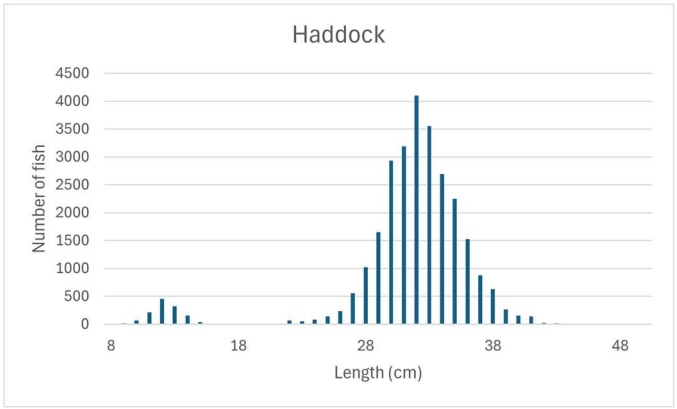

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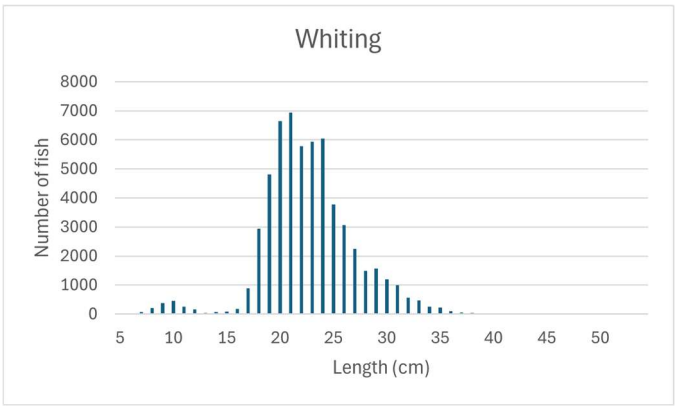

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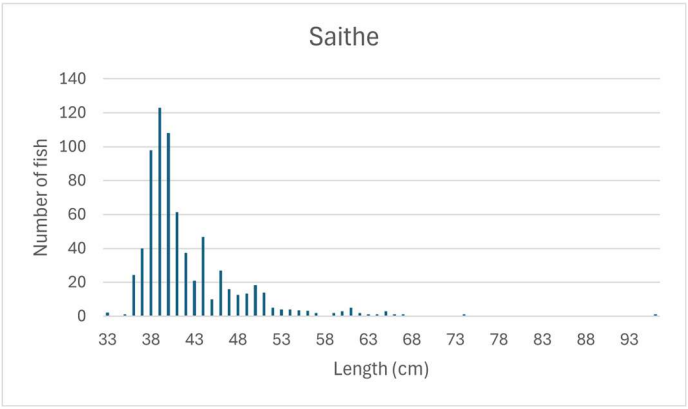

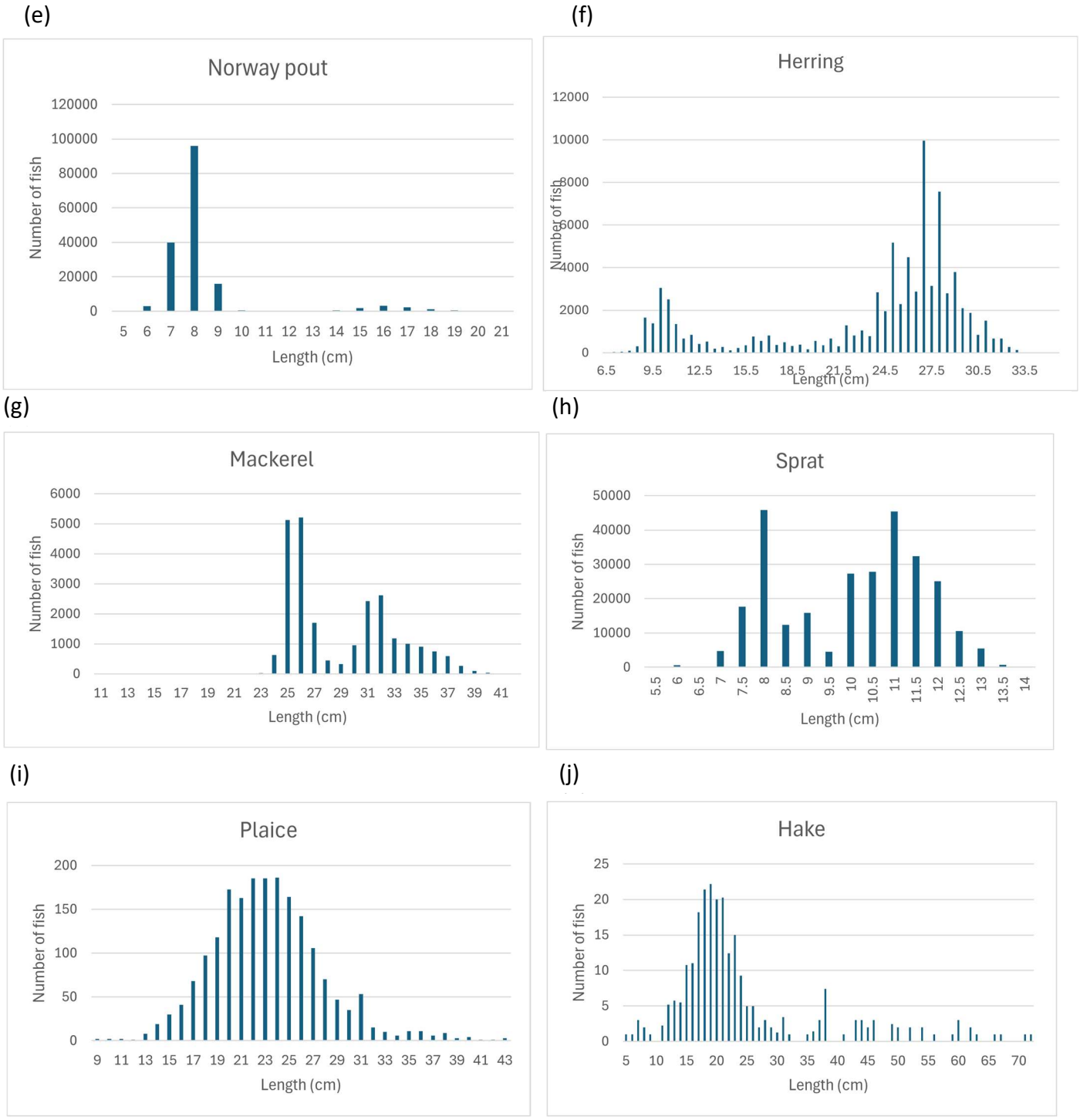

Figure 7. Length distribution plots for (a) cod, (b) haddock, (c) whiting, (d) saithe, (e) Norway pout, (f) herring, (g) mackerel, (h) sprat, (i) plaice and (j) hake.

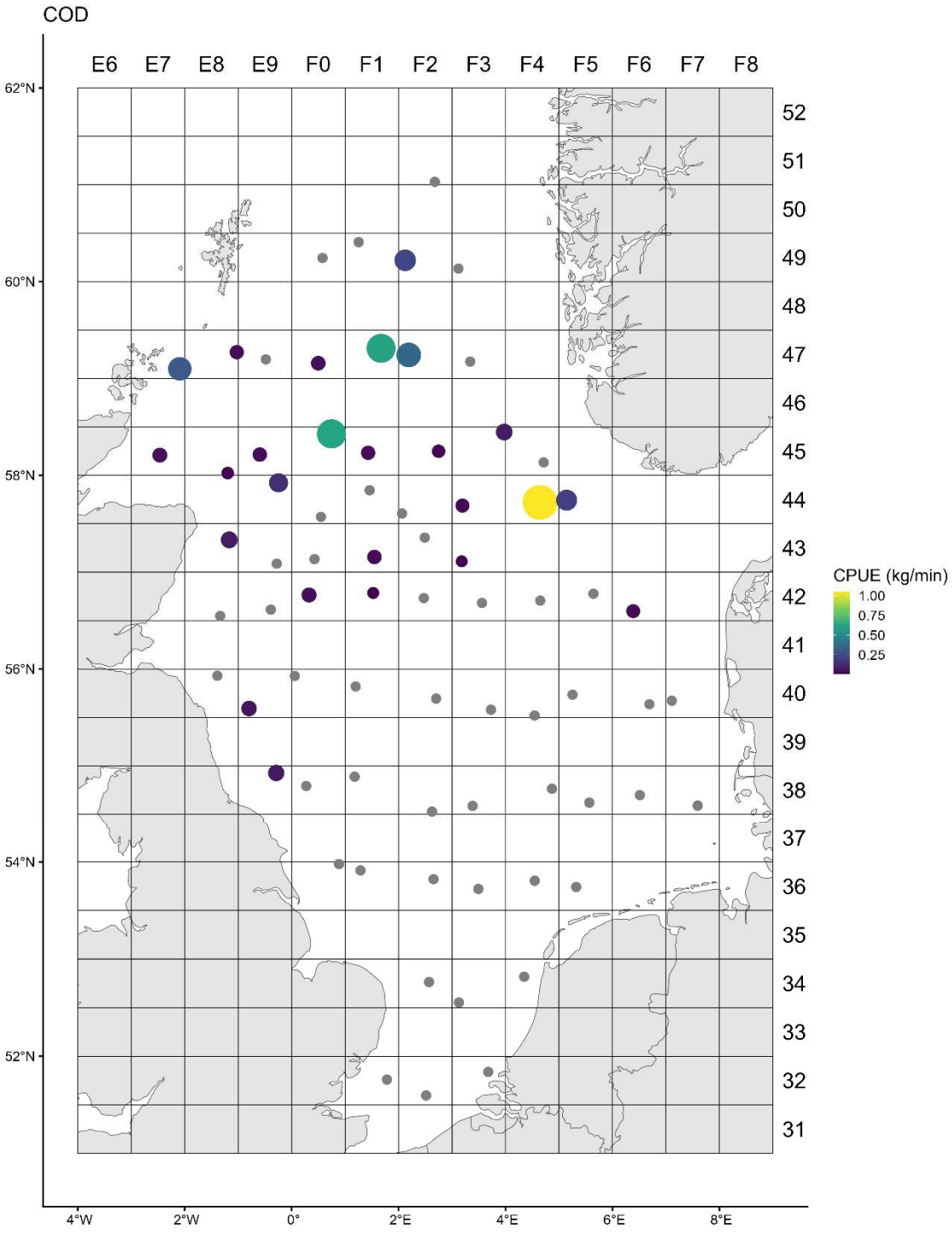

Figure 8. Distribution and relative abundance of cod *Gadus morhua* across the survey.

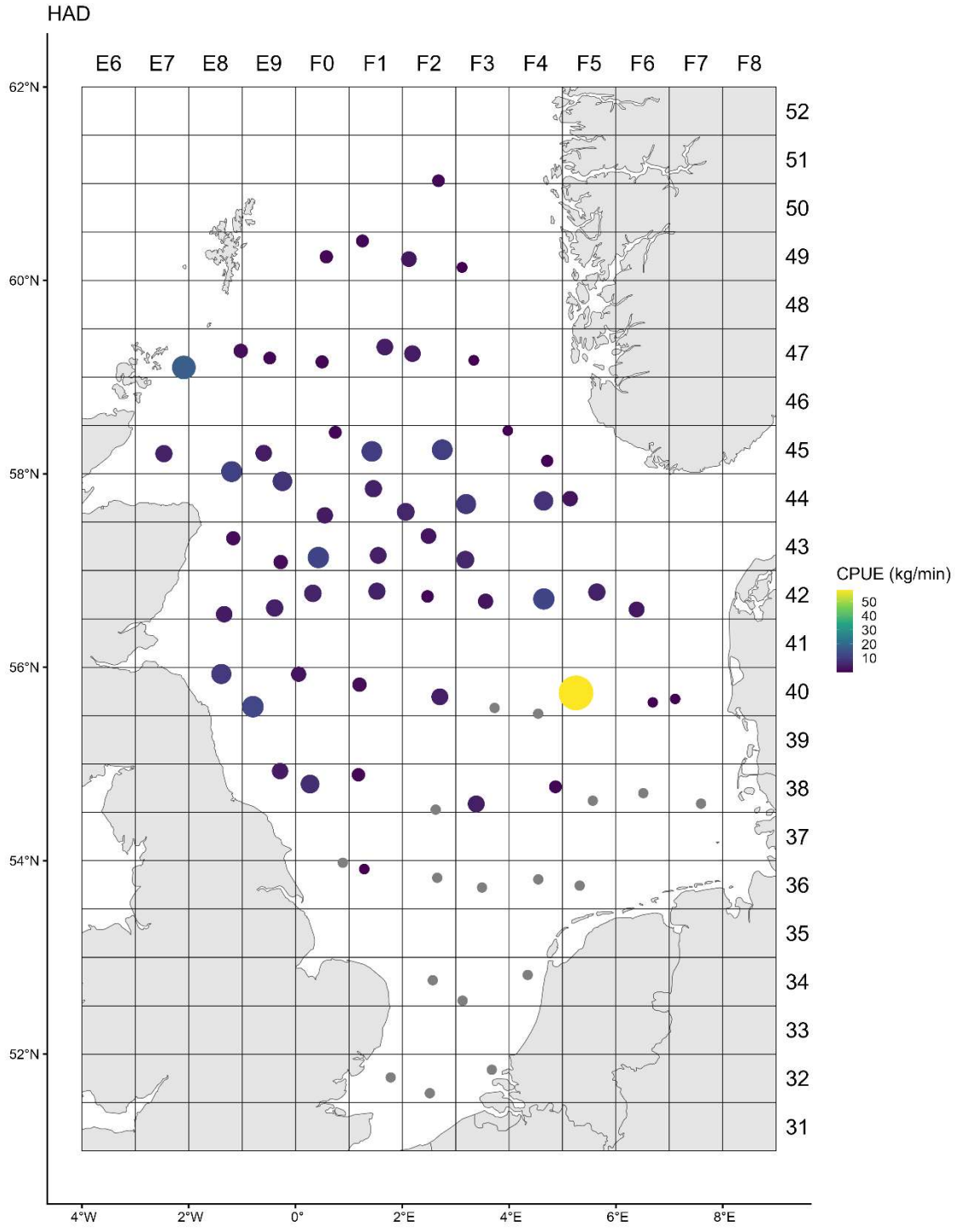

Figure 9. Distribution and relative abundance of haddock *Melanogrammus aeglefinus* across the survey.

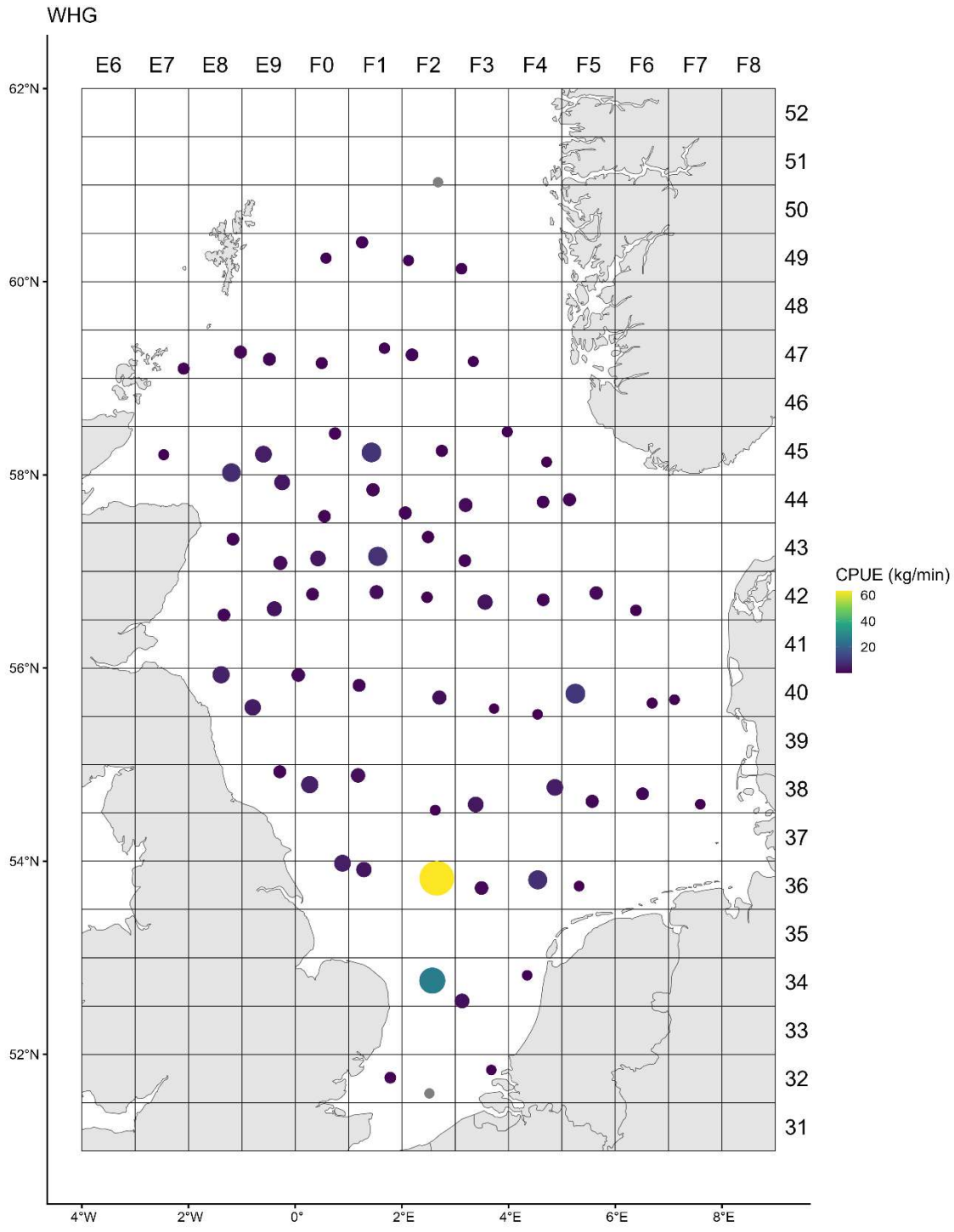

Figure 10. Distribution and relative abundance of whiting *Merlangius merlangus* across the survey.

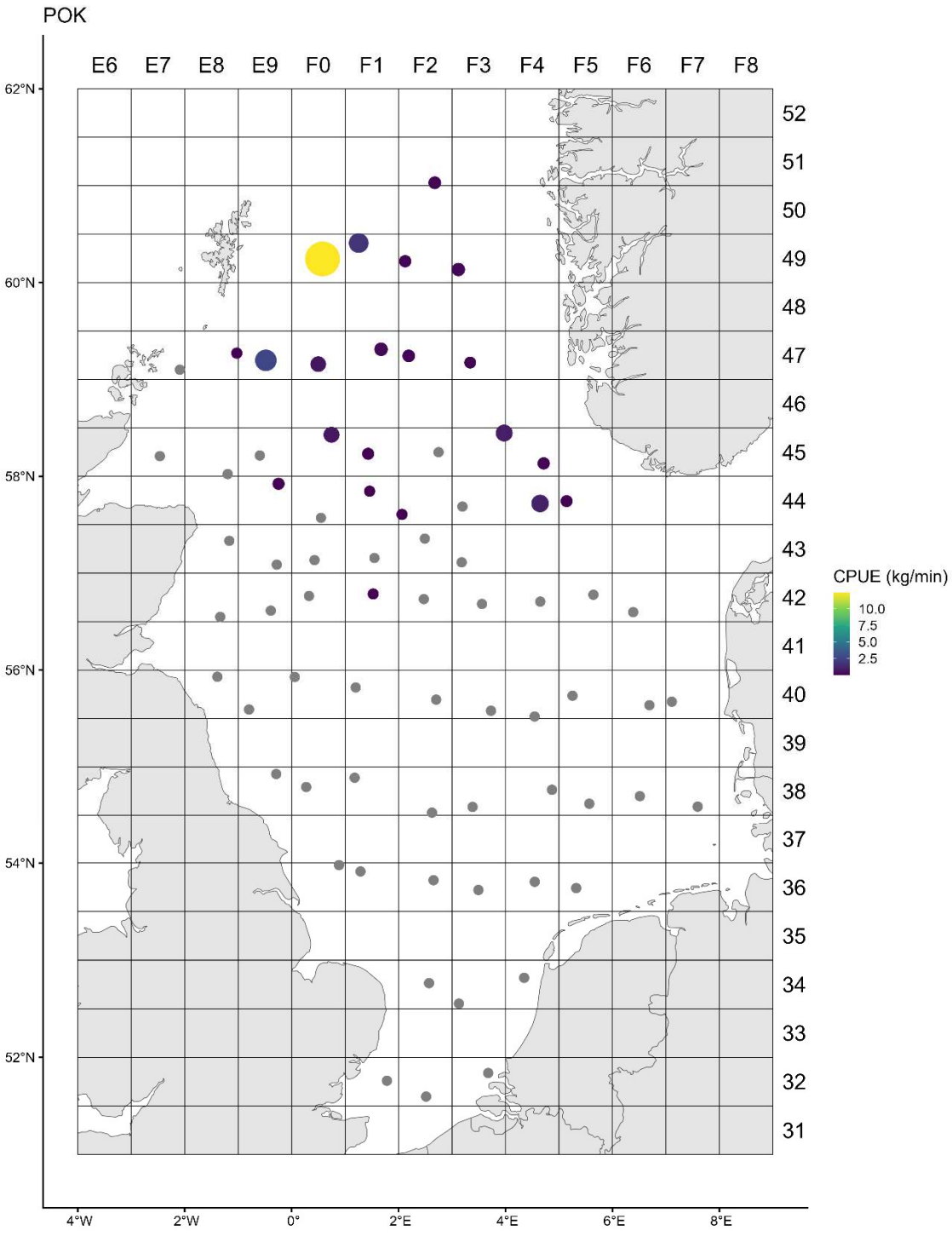

Figure 11. Distribution and relative abundance of saithe *Pollachius virens* across the survey.

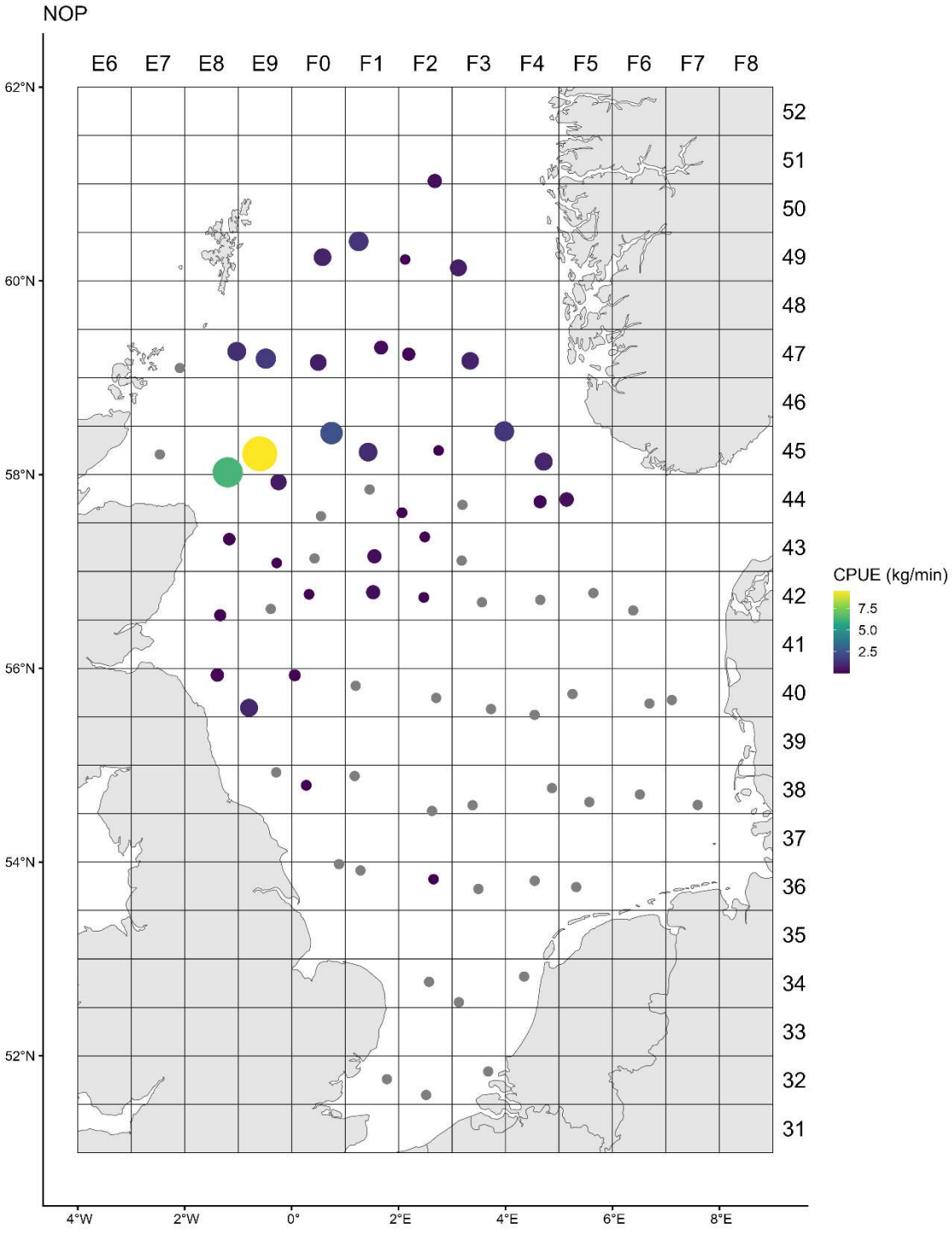

Figure 12. Distribution and relative abundance of Norway pout *Trisopterus esmarkii* across the survey.

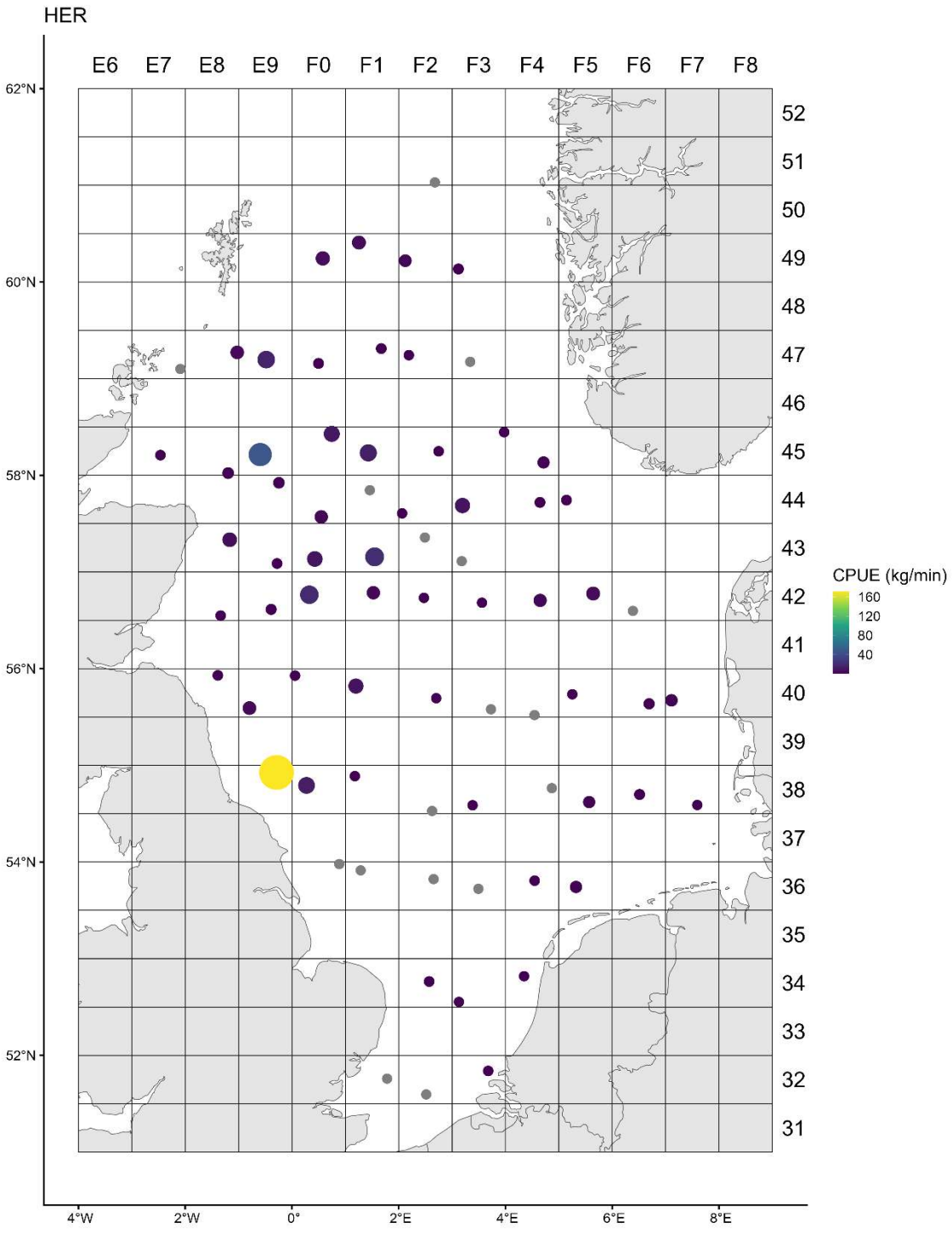

Figure 13. Distribution and relative abundance of herring *Clupea harengus* across the survey.

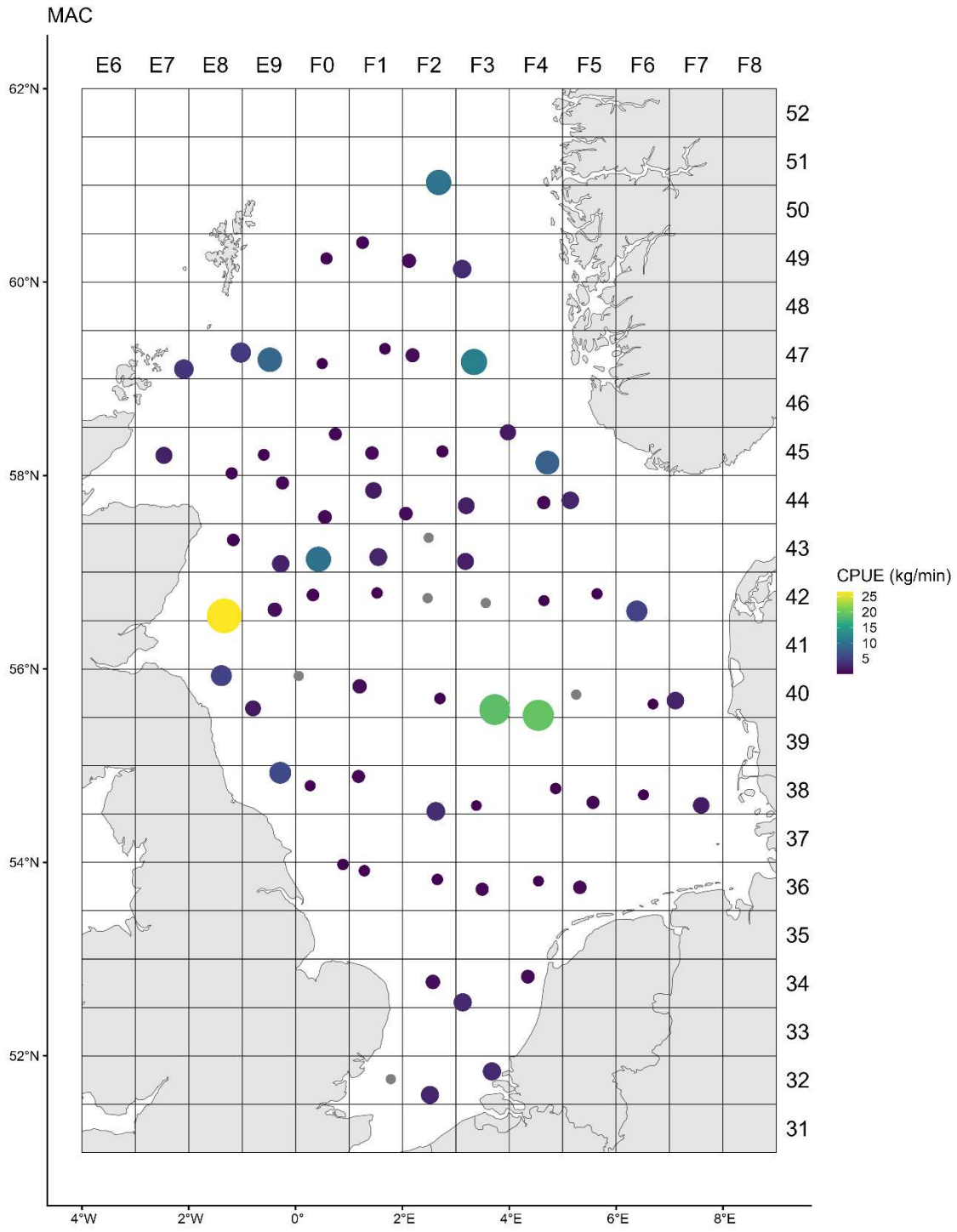

Figure 14. Distribution and relative abundance of mackerel *Scomber scombrus* across the survey.

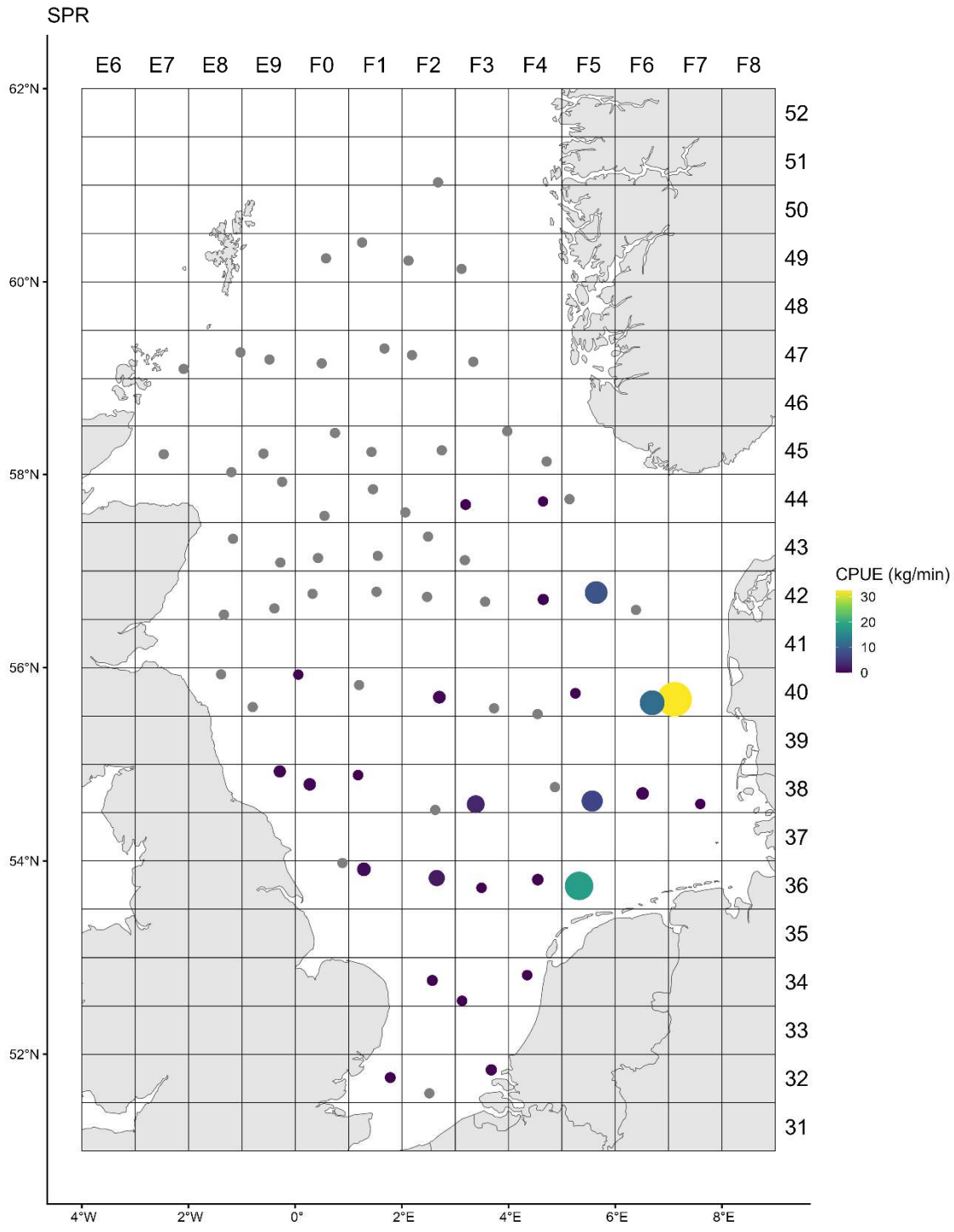

Figure 15. Distribution and relative abundance of sprat *Sprattus sprattus* across the survey.

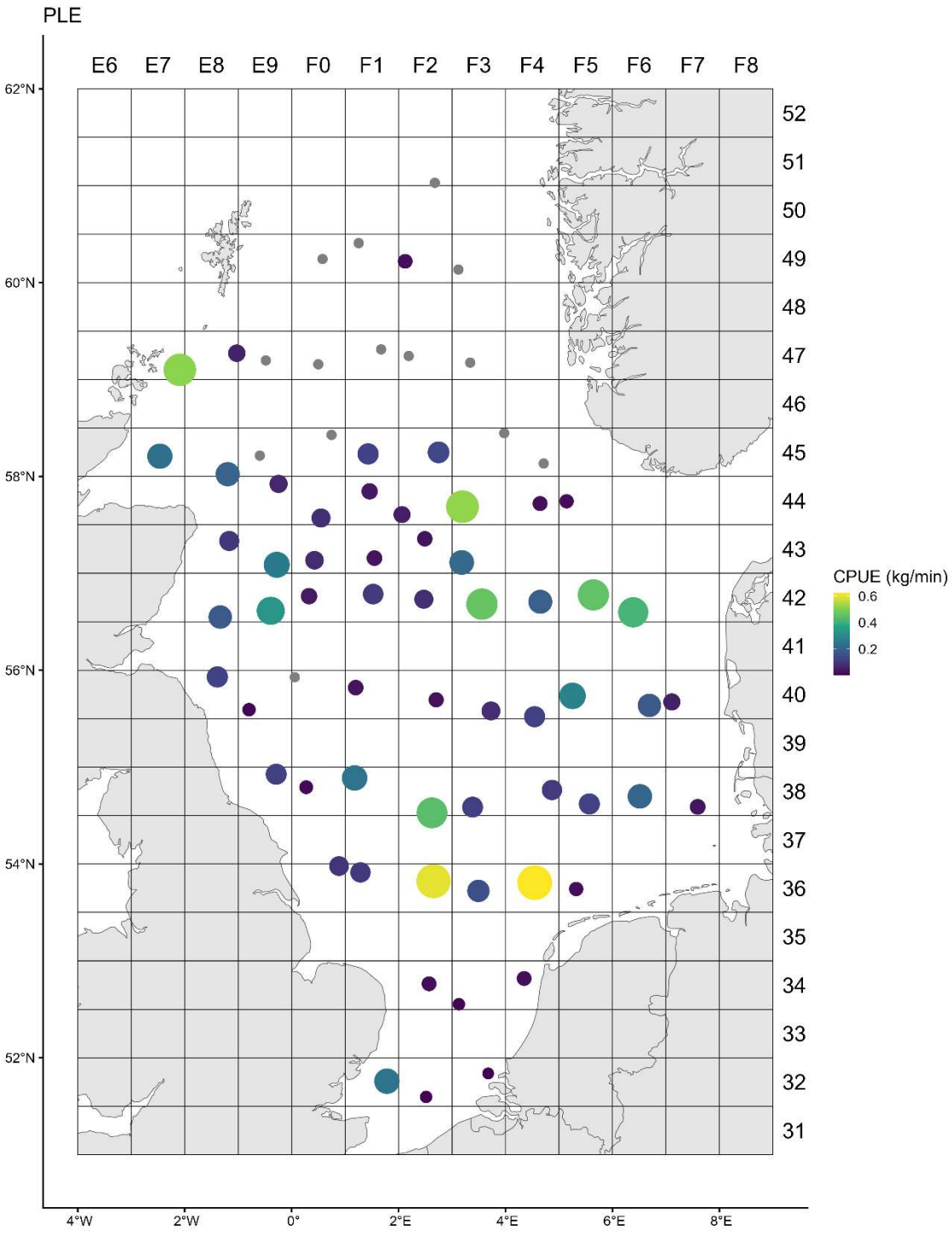

Figure 16. Distribution and relative abundance of plaice *Pleuronectes platessa* across the survey.

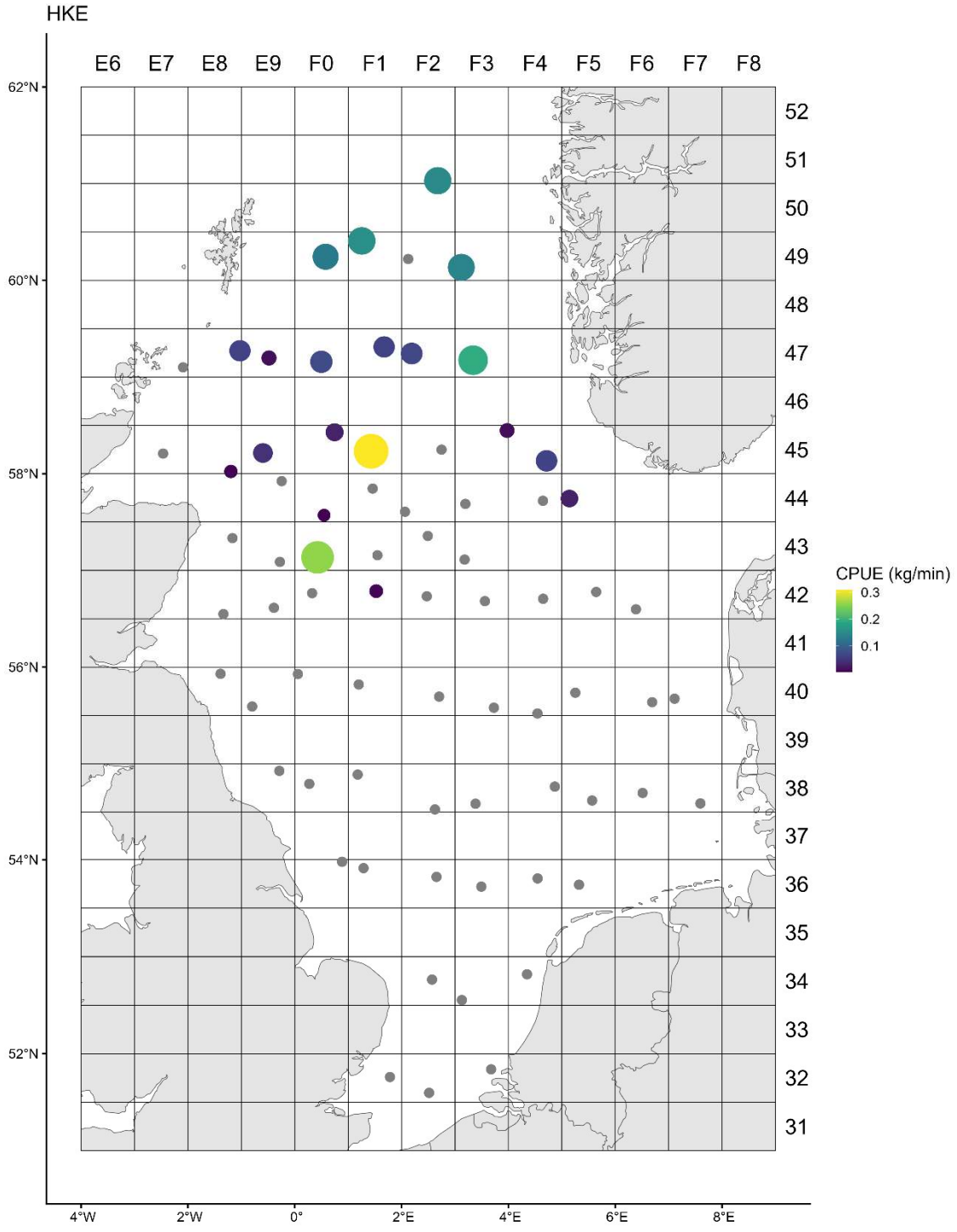

Figure 17. Distribution and relative abundance of hake *Merluccius merluccius* across the survey.

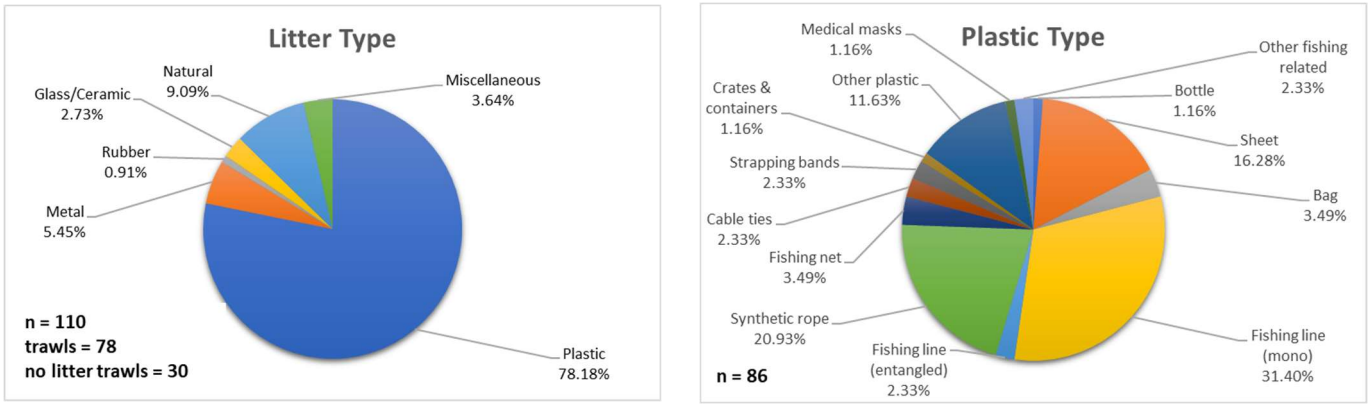

Figure 18. Marine litter collected during the English IBTS-Q3 trawl survey in 2025.