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United Kingdom Report for data collection in the fisheries and aquaculture sectors, 2025

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Introduction

As an independent coastal State, the UK is responsible for meeting a wide range of domestic and international agreements and commitments which involve the collection of fisheries data. Clause 1 of the Fisheries Act 2020 provides for a "scientific evidence objective" where:

1. scientific data relevant to the management of fish and aquaculture activities is collected,
2. where appropriate, the fisheries policy authorities work together on the collection of, and share, such scientific data, and
3. the management of fish and aquaculture activities is based on the best available scientific advice.

In order to meet the Fisheries Act 2020 scientific evidence objective, and to ensure the continuity and consistency of fisheries data collection in the short-term, the UK will follow the data collection requirements of:

- Regulation (EU) 2017/1004 of the European Parliament and of the Council of 17 May 2017 on the establishment of a Union framework for the collection, management and use of data in the fisheries sector and support for scientific advice regarding the common fisheries policy and repealing Council Regulation (EC) No 199/2008 (recast) ' (as amended in retained EU law) hereafter referred to as the Data Collection Framework.

Under the Data Collection Framework, each Fisheries Administration may establish a multiannual programme for the collection and management of fisheries data, currently it comprises:

- Commission Implementing Decision (EU) 2019/909 of 18 February 2019 establishing the list of mandatory research surveys and thresholds for the purposes of the multiannual Union programme for the collection and management of data in the fisheries and aquaculture sectors (as amended in retained EU law), and
- Commission Delegated Decision (EU) 2019/910 of 13 March 2019 establishing the multiannual Union programme for the collection and management of biological, environmental, technical and socioeconomic data in the fisheries and aquaculture sectors (as amended in retained EU law).

The current multiannual programme is being extended for the period of 1 January 2025 to 31 December 2026[1]. This document sets out in detail the data collection activities to be carried out in line with the multiannual programme in 2024, as well as detailing responsibility for this data collection. The UK Work Plan will be reviewed on an annual basis.

Where an administration is unable to fulfil a data collection activity as set out in this Work Plan, the UK Fisheries Science and Evidence Steering Group (UKFSESG) will be advised

[1] Extension under SI "The Sea Fisheries (Amendment) Regulations 2024 No. 231"

of the deviations as soon as possible and as practicably feasible to seek agreement on the deviation across all four administrations. UKFSESG may seek advice from the UK Fisheries Science Advisory Panel (UKFSAP) as required. Deviations and the associated rationale will be reported on in the annual report of the Work Plan at the end of the year.

Note: Deviations from the Work Plan will be reserved for exceptional cases only. Accepted rationale for deviations may include, but are not limited to, unforeseen issues that impede data collection such as survey vessel breakdown; poor weather for at sea surveys; impacts of Covid 19 and changes to responsibilities for data collection between fisheries administrations.

Section 1: Biological Data

Section 1A: Sampling Plan Description for Biological Data from Commercial Catches

Ref Tables 1A, 1B, 1H, 1J

International and domestic commitments

This forms the basis for the fulfilment of paragraph 2 point (a)(i) of Chapter III of the multiannual programme.

These sampling schemes primarily provide the source data, estimates and indices that relate to the removals (landings and dead discards) by commercial fisheries from UK stocks and are required for international assessments. These data are processed and submitted for use at ICES expert groups and for other RFMO assessments including ICCAT and to the IOTC for some distant water fishing. Bycatch data from the at-sea observer trips are used in national and international assessments on the impact of fishing on protected, endangered, and threatened species. These programmes are also used to derive UK Marine Strategy indicators on current environmental status and provide the source information for national assessments on management measures - for example changes in gear selectivity and impact of the landing obligation.

Key end users

ICES, ICCAT, IOTC, UK Fisheries Administrations

Data collection

The fishing industry activity and sampling activity was affected by the COVID19 pandemic from March 2020. Most market and onshore sampling schemes were back up to speed and operating at pre-COVID19 levels in 2023. Interim methods for collecting the same at sea data, developed by administrations as a consequence of COVID 19, have continued to be used beyond 2023 to manage logistical restrictions on sampling, and these are also summarised below.

ALL REGIONS IV, VI, VII, VIII

Northern Ireland sampling schemes: All regions

UK-NIR-Market: “Market sampling schemes undertaken by UK Northern Ireland (AFBI lead)”

NIR-N1: Area frame of sampling main ports with > 90% of landings. Providing access to vessels using otter trawlers, seine netters and dredge. Sampling events identified at random on days ports are active.

NIR-N2: Area frame of peripheral locations with < 10% of landings, active for 45 days a year each. Sampling of these is not currently undertaken.

UK-NIR-Selfsampling: “Fishery self-sampling schemes undertaken by UK Northern Ireland (AFBI lead) ”

NIR-N3: A reference fleet of vessels for Nephrops catch sampling through fisher self-sampling. Selected vessels are from main Northern Irish ports. The reference vessels selection is designed to be representative of the entire fleet with systematic rota sampling.

UK-NIR-Observer at Sea: “Observations at sea undertaken by UK Northern Ireland (AFBI lead) ”

NIR-N5: List frame of GBN - registered vessels operating out of Northern Irish ports, for use in selecting vessels for at sea sampling of the mid-water trawl fleet segment. Vessels must apply for permit from control authority for any trip. A condition of this permit is a requirement to be observed. Observations are systematically identified to ensure equal coverage.

NIR-N6: List frame of GBN registered vessels operating from Northern Irish ports, with targeted selection of vessels engaged in seasonal queen scallop fishery.

NIR-N9: Unsampled GBN registered restricted to infrequent small-scale fisheries, poly-valet gears and those trips perusing pelagic mid-water fisheries landing into other EU countries.

NIR-N4; NIR-N7; NIR-N10; NIR-N11: List frame of GBN registered vessels operating from Northern Irish ports, with random selection of vessels.

UK-NIR-Processor: “Sampling at fish processors undertaken by UK Northern Ireland (AFBI lead) ”

NIR-N8: Samples taken at processors of herring, from identifiable landings

Scotland sampling schemes: All regions

Scottish at-sea sampling

“UK-SCT at-sea catch sampling scheme” code in table 1H

The at-sea sampling design collects biological data for fish species for the otter trawler fleets targeting demersal fish and shellfish. The catch components recorded are landed, unwanted catch and BMS fractions. The trawler fleets sampled account for approximately 91% of the demersal fish species landed and ~ 66% of the total demersal and shellfish landings from the Scottish fleet. The non-sampled components are mainly small, often single manned under 10m vessels operating pots and trap which account for ~ 25% of the landed shellfish

The vessels are divided into 9 sampling strata, based on their target species and main operating area: North Sea, West Coast and Rockall demersal trawlers; and inshore trawlers targeting Nephrops in their predominant Nephrops functional unit (Clyde, Firth of Forth, Moray Firth, North Minch, and South Minch) and offshore trawlers targeting Nephrops (mainly in Fladen). Currently Marine Directorate (MD) observers mostly carry out inshore trips and staff from the Scottish Fishermen's Federation (SFF) carry out both inshore and offshore trips.

*A*t-sea observers use a randomised vessel selection form for each scheduled trip. This form consists of a uniquely randomised draw from the sampling frame for the stratum. The observer contacts the vessels in the randomised order, recording the outcome of the contact for each vessel, until a trip is arranged and conducted. Non-response and refusal rates are calculated from the vessel selections forms.

When at-sea, a sample of the unwanted catch and BMS fraction is collected for each haul, usually two mixed species baskets, from which all individuals are identified to species and length measurements are taken. Length stratified collection of age structures is undertaken for 7 predetermined species. For trawlers targeting *Nephrops* the sampling of *Nephrops* and fish is by alternate days. Incidental by-catch is recorded for each haul as encountered.

A ratio estimator is used to estimate the total weight and numbers-at-age or length of unwanted catch by species, and bootstrapping is used to estimate corresponding standard errors and confidence intervals for these estimates. Data are stored in the national database and in spreadsheets and are compiled into a documented R package for analyses. At each stage, rigorous quality checking procedures are followed.

On-shore market sampling

"UK-SCT on-shore market sampling" scheme code in table 1H

The six main Scottish fish markets provide the access points for the landings of demersal species, and collectively account for 68% of the Scottish landings of these species. Non-sampled landings are largely non accessible; a percentage is from foreign or national vessels with point of first sale out with Scotland. A further 16% are sold direct to buyers and don't appear at fish markets. Approximately 65 demersal species are landed into Scotland, of which 45 are sold at the markets, the remainder mainly being relatively small landings of deep-water species. The 6 markets in Scotland are stratified into 4 mainland and 2 Shetland markets. Each stratum is sampled 36 weeks of the year, with one Shetland market and 3 randomly selected mainland market being sampled each week. At the market landings are selected at random using a vessel selection form, on which non-response and refusals are recorded. Vessels are not stratified. The species to sample are selected at random using a species selection form, stratified into common, less common and rare species, in which non-response and refusals are recorded. One box of fish is sampled from each sales category – these boxes are selected at the discretion of the sampler. The lengths of each fish in the box are recorded, and if otoliths are taken, the first otolith from each cm length class is selected. A ratio estimator is used to estimate landed

numbers-at-age or length and bootstrapping is used to estimate corresponding standard errors and confidence intervals for these estimates. Data are stored in the national database and also in spreadsheets and are compiled into a documented R package for analyses. At each stage, rigorous quality checking procedures are followed.

On-shore pelagic sampling

“UK-SCT pelagic onshore” scheme code in table 1H

The pelagic co-sampling sampling scheme, which is part of the Scottish Pelagic Industry Science Data Collection Programme (SPISDCP) collects biological data for landings of pelagic species. 20 Scottish SPFA vessels participate in this scheme. The main pelagic species are mackerel, herring, and blue whiting, with some horse mackerel and sprat (landed by other vessels). Landings are stratified by fishery (target species). The landings of the pelagic species caught by other fleets amount to around 0.38% of the total pelagic landings by weight.

Each fishing trip is entered into a randomised selection process to determine whether a sample is required. As this process is not automated but carried out in person, some fishing trips are missed for logistical reasons, e.g. at weekends.

One small box of mixed unsorted catch is sampled from each haul of a selected trip on board. The sample is frozen by the vessel and collected from the processor for sampling in the laboratory. All fish in the sample are identified and recorded for length. The first individual from each cm length class is selected for the collection of otoliths, and the recording of sex and maturity. A ratio estimator is used to estimate landed numbers-at-age or length and bootstrapping is used to estimate corresponding standard errors and confidence intervals for these estimates. Data are stored in the national database and also in spreadsheets and are compiled into a documented R package for analyses. At each stage, rigorous quality checking procedures are followed.

Shellfish onshore sampling

“UK-SCT on-shore Shellfish sampling” scheme code in table 1H

The onshore shellfish sampling scheme collects biological data on five shellfish species, *Nephrops*, Scallops, Lobster and two species of Crab (Edible and Velvet).

Two distinct schemes are used on mainland Scotland and on the Shetland Isles. The scheme on mainland Scotland, which includes sampling in the Orkney Islands and the islands off the west of Scotland, is divided into 15 sampling strata, where any and all of the 5 shellfish species encountered will be sampled. The mainland sampling strata are based on the geographical region and contain landing ports and the local processors that receive shellfish landings from these ports. Collectively the scheme has the potential to cover 78% of the shellfish landed into Scotland, the remaining 22% is typically by small, mainly under 10m, vessels landing infrequently into small and often remote ports. Visits to sampling strata are by designated sampling weeks with observer directed sampling to determine

locations and opportunities for data collection. There are at present no probability-based selection methods employed, sampling being ad hoc and opportunistic.

Shellfish sampling in Shetland is sub-contracted and the MOU governing its operation sets out target numbers by species of the data to be collected. Data on the landings of 4 species are collected (there are no *Nephrops* landings into Shetland)

For all individuals the appropriate carapace/shell length measures are taken, for *Nephrops* sex and breeding condition is recorded and for scallop the meat weight is recorded.

A ratio estimator is used to estimate landed numbers-at-age or length and bootstrapping is used to estimate corresponding standard errors and confidence intervals for these estimates. Data are stored in the national database and also in spreadsheets and are compiled into a documented R package for analyses, at each stage, rigorous quality checking procedures are followed.

Rockall demersal co-sampling pilot

“UK-SCT Rockall co-sampling pilot” scheme code in table 1H

A pilot scheme to collect samples from demersal otter trawlers fishing at Rockall was introduced in 2024 to improve sample sizes from this area. Currently a small group of vessels from the Rockall fleet used in the at-sea observer scheme are trialling the scheme. The vessels follow an agreed protocol to record data from the trip, and collect representative samples of unwanted catch from selected hauls to bring back for processing onshore.

***Nephrops* trawlers Co-sampling scheme**

“UK-SCT *Nephrops* trawlers co-sampling scheme” scheme code in table 1H

A pilot scheme to collect samples from demersal otter trawlers fishing for *Nephrops* was introduced in August 2021. This is being continued with a small selection of vessels in the Moray Firth fleet and may be extended to other fleets to supplement observer samples. The vessels follow an agreed protocol to record data from the trip, and collect representative samples of catch unwanted catch from selected hauls to bring back for processing onshore by scientists.

English and Welsh sampling schemes: All regions

Schemes are run concurrently to collect size data from all categories of commercial catch. Other data collected is dependent on species but will include age, sex, maturity and weight.

Offshore sampling scheme: UK-E+W Observer at sea

Access to the population is through a regularly updated list frame of fishing vessels, from which a stratified random selection is made for direct observation by Cefas observers. The sampling frame is a virtual frame of all fishing trips of the vessels in the list, which

comprises all commercial fishing vessels [registered in E&W]. The list of active vessels is updated quarterly to capture the polyvalent and seasonal nature of regional fisheries.

The overall sampling effort is largely constrained by financial and staff resources – currently ~350 staff days are available for at-sea observer sampling.

The list of vessels in the sampling frame is stratified by coastal region; 2 strata in the North Sea and Eastern Arctic and 3 in the North Atlantic and predominant fishing method (nets, trawls, lines and beam trawl). In addition, some region / fishing method strata are further stratified by vessel LOA (<=10m; 10m+). In most regions the nets, trawls and lines are combined into single strata but in some regions where gear specific fisheries are more distinct Nets and Trawl are separated. Beam trawlers are also kept distinct but cover all regions - the North Sea and North East Atlantic to capture the nomadic nature of a lot of these vessels.

Some vessels are excluded from the sampling frame

1. vessels less than 7m, excluded for health & safety reasons
2. vessels considered unsafe to take observers for reasons other than size.
3. vessels specialising in fishing methods or target species for which a derogation has been granted:
    a. scallop, clam, oyster and cockle dredgers
    b. some pelagic vessels
    c. potting vessels
4. vessels fishing from foreign ports or outside England and Wales. Vessels subject to bilateral agreements to be sampled in another country, or where the metier is effectively sampled by another country.

Teams of regionally based observers work to quarterly targets and use an app to randomly draw vessels from a shared list of vessels. Each vessel in turn is approached and non responses and refusals are recorded.

<u>Co-sampling pilot – November 2020 to 2024</u>

Vessels are selected in the same way from the same strata described above and arrangements are made for the vessel to follow an agreed protocol to record data from the trip, and collect representative samples of unwanted catch from selected hauls to bring back for processing ashore by Cefas observers. Not all strata are sampled for logistical reasons and not all the data an observer would normally collect are collected by the industry. This may limit what estimates might be derived for some species but estimates for most of the assessed stocks can be derived from the information collected.

Onshore sampling schemes: UK-E+W Crustacean on shore; UK-E+W Demersal on shore; UK-E+W Pelagic on shore

Target population is all fish and shellfish species landed into England and Wales for which estimates of length and/or age composition for the landed component are required.

Access to the population is through a list frame of fishing ports at which all or a defined proportion of the total landings are accessible at auctions, processors, or other onshore locations, and from which a stratified random selection of ports and days is made for sampling trips by Cefas staff. The overall sampling effort is largely constrained by the financial and staff resources made available for this work – currently ~ 1200 staff days are available for port sampling.

The Primary Sampling Unit (PSU) is a port (or harbour or processor) on a specific day when landed catch is available. Landings into many small ports are transported to neighbouring larger ports where they can be sold by auction. A PSU is therefore a port where landings are available and implicitly includes all satellite ports from which catch is transported. Ports with auctions vary widely in size, from Lowestoft which deals with irregular infrequent landings from a dispersed fleet of under 10m vessels to Brixham which deals with regular large landings from a large fleet of over 10m vessels and a large fleet of inshore vessels.

The sampling frame is a frame comprising auction ports and ports of sale in England and Wales, and days of the year. The frame excludes the following locations:

1. very small ports, harbours, or other landing sites including beaches, where fish are disposed of locally rather than at auction sites, and where considerable effort would be required to sample very small amounts.
2. ports where access has been denied may be excluded within the frame.

The Cefas port sampling programme currently targets three distinct types of fishery, each will effectively have its own separate sampling programme. These are:

1. demersal onshore (including cephalopods and Nephrops)
2. crustacean onshore
3. pelagic

Whilst there is some overlap (many ports land finfish and shellfish), this does not represent overlapping PSUs as each of the three fishery groups is treated as an independent frame with an independent sampling scheme and the access points are often quite distinct.

The list of ports in each of the three sampling frames is stratified by:

1. quarter,
2. coastal region (6 strata) Lists of ports that map closely to ICES divisions, stock boundaries and fleet activities - 1Northeast, 2East, 3Southeast…
3. port “size” based on the relative importance of that port within that region
4. gear group although only 1 or 2 groups may be specific to the frame.
    E1 - Demersal trawlers, netters + liners
    E3 - Pelagic ring netters, liners and trawlers
    E4 - Shellfish pot & trap vessels
    E5 - Beam trawlers

On the given day at the auction site a sampler will use a unique randomised list of numbers to select the trip to sample and then a similar list to sample the species available.

Non-response rates and refusals will be recorded. The vessel selection scheme works in large auctions but at merchants, staff are often limited to sampling what arrives or is available at the time they are there. Therefore, the port and day selection process differs between regions.

The pelagic scheme includes directed sampling at fish markets and for biological data where scheduled samples are bought from merchants and processors to be sampled remotely.

Onshore self sampling schemes - UK-E+W Nephrops on shore; UK-E+W Pelagic self sampling; UK-E+W Scallop self sampling

Three species specific self sampling schemes run concurrently with the landings sampling schemes and have been adopted either as the only access to particular fisheries or other biological parameters not available on the market; to guarantee catch samples from domains within other onshore programmes. In the Nephrops scheme and Scallop the scheme the vessels are contacted whilst at sea or before heading to sea to bring back samples from particular hauls or areas where they are fishing. The scallop vessels are contacted by their agents if they are seen, on AIS, to be fishing in the required areas.

The pelagic self sampling is dependent on scheduled sampling by processors and fishers: Fishers in the sardine ringnet fishery and sprat trawl fishery collect logbook data which includes catch and bycatch data for every trip. A vessel-tailored random calendar schedules the collection of length data from a fixed volume of each species.

Processors as part of their normal QA procedures collect individual weights from each sprat and pilchard landing. For a minimum of 2 trips per species per month, length data is also collected by the processors with the weights.

Summary of outcomes and deviations from the workplan

Not all species and parameters of interest from all data sources were included in the submitted and approved WP (Table 1B). These have been added as additional rows (highlighted in grey) at the bottom of the table. AR comments to the right of the table are used to highlight or identify any significant deviations from the planned or expected sampling. Typographical errors in the WP were corrected.

Deviations from planned sampling by Scheme are summarised here by Scotland. These are covered by England, Wales and Northern Ireland by region below with further comment by Scotland on species specific issues.

Scotland

Demersal and Nephrops at-sea sampling scheme

Due to shortages of observer staff, and the requirement to train recently appointed observers, in 2025 SEDD at-sea trips were limited to inshore Nephrops vesssels and no

demersal observer trips were carried out by SEDD staff. SFF observers carried out the majority of their planned trips, although coverage was substantially reduced in quarter 4 due to staffing issues. Sampling of the Clyde fleet was less successful, due to issues with both staff resourcing and vessel availability issues.

Demersal and Nephrops co-sampling pilots

In Scotland in 2025, the inshore Nephrops fleet co-sampling pilot was continued, focusing on the Moray Firth, since it can be difficult to access small vessels in this fleet. These trips supplemented observer trips carried out by both SEDD and SFF. SFF continued a pilot scheme for co-samples from the demersal fleet, focussing on 11 vessels fishing at Rockall. However in 2025, the main fisheries at Rockall were limited and so samples were fewer than expected.

Commercial sampling onshore data:

Onshore demersal commercial sampling trips to North Sea ports on the mainland were reduced by approximately one third in 2025, due to staff resources. Despite this, the planned number of visits to markets was almost achieved, however these were mainly at Peterhead and Fraserburgh, due to staff availability to sample the sites on the West Coast. Only 13 out of a planned 24 visits to the West Coast were attempted.

Onshore shellfish sampling on the mainland were largely achieved. Two out of 15 strata were undersampled mainly due to lack of landings or poor weather.

The strata "_SUHI" are sampled in the Shetland Isles on contract to SEDD. The planned sampling was adapted in 2024 to better reflect the fisheries to be sampled, and the required levels were mostly achieved. Onshore shellfish sampling was under sampled in general. This is due in part to staff resourcing issues and in part due to lack of landings available due to the sporadic nature of the fisheries. Ports on the West Coast and islands of Scotland are difficult to access and so are sampled less frequently.

Commercial pelagic sampling:

In this scheme, vessels in the Scottish Pelagic Fishermen's Association, which comprises the majority of the Scottish pelagic fleet, bring back boxes of frozen fish from each haul of a fishing trip when requested to do so. Fishing trips were monitored by a colleague at SUHI and trips were selected at random. Frozen samples landed on the mainland were defrosted and sampled in the laboratory by SEDD staff, those landed on Shetland were sampled by SUHI staff. Sampling was achieved as planned.

England and Wales

The onshore demersal and crustacean sampling schemes in England were affected by departures of key sampling staff. A reduction in numbers of trained observers affected achievements onshore in both the Northern and Southern regions.

Access to reduced landings onshore in the East 2E and Southeast 3SE stratum has not improved since 2022. Effort directed at some of the minor demersal ports in the East had little success and was redirected to major ports to capture data from overlanded minor port landings. Sampling in the South East (3SE) is dependent on access to local markets and merchants premises. Access to merchants is very variable. Observer and correspondent access to one local market was withdrawn in 2022 and this is still ongoing. New sampling opportunities were sourced during 2022 and the sampling programme for 2023 revised. However, access to merchants in the area continues to be variable and dependant on fishing activity. Consequently sampling opportunities in this area are variable and unpredictable.

Access to landings has been complicated by a significant proportion being overlanded from these ports to Brixham fish market in the Southwest (4W_D1). During 2025 41 sampling trips to Brixham fish market were dedicated to sampling overlanded fish from East 2E and Southeast 3E regions.

For the offshore programme, there were no significant deviations from the annual workplan. A pilot approach employing contract observers was evaluated as a means for Cefas to address long-term staffing requirements. Following this, a full tendering exercise was conducted in early 2026 to secure contractor support for approximately one third of the observer programme, with scope to expand this provision in the future. The contract observers do not contribute to the onshore programme.

The directed Nephrops catch sampling programme in both the north east 1NE_NEP and north west 6NW_NEP are dependent on maintaining regular visits and good relations with the industry in both areas. Local staff were employed in 2025 to better adapt to the irregular changes in access there. However, since March 2025 all Nephrops catch sampling was suspended until further notice in consideration of shellfish welfare. Alternative approaches are being considered to collect the same data through new technologies.

Deviations from the sampling of particular stocks and parameters:

Ammodytes spp, IV*, Anarhichas spp*, IV. Sampling these is dependent on availability and none were encountered on the trips sampled.

Clupea harengus, IV, VIId. Unable to establish another source for biological (length, age, sex and maturity) samples from the limited activity in the Thames fishery. Landings for other areas within IV, VIId were sampled for length but the future collection of biological data from the Thames fishery is dependent on need, a consistent fishery and establishing access to the catches for sampling. This sampling continues to be under review.

Mustelus asterias, IIIa, IV, VIId. None encountered in the landings selected for sampling.

Redirecting effort to sampling overlanded demersal fish in the SW reduced sampling opportunities for shellfish in the SE in the earlier part of the year. *Nephrops norvegicus*,

functional units 5. Sampling FU5 Nephrops is dependent on their availability, and none were encountered when sampling landings through current access points.

Pecten maximus, VIId. Shells continue to be collected for ageing from the self-sampling programme, ageing is now being carried out but as they have only partially been processed the actual number of scallops aged, at the time of press, arent currently available.

Pollachius pollachius, IV. Sampling these is dependent on availability and none were encountered on the trips sampled.

Psetta maxima, IV, VIId. Sex and maturity collected with age data and vessels only allow length sampling of turbot due to the value of the fish.

Selachii, Rajidae, VIId. None encountered on the trips selected for sampling onshore from this region.

Solea solea, IV. No discarded sole available for sampling for age or sex on the observer trips sampled.

Sprattus sprattus, VIId, *Squalus acanthias,* IV, VIId. None encountered on the trips selected for sampling in this region.

North-East Atlantic and Western Channel

Scotland (see general text under North Sea)

Observer sampling was mainly undertaken by the Scottish Fishermen's Federation (SFF).

Deviations from the sampling of particular stocks and parameters:

ICES area Va, Vb

There were very few landings into Scotland from area Vb (Faroe). One observer trip took place and onshore samples were taken from one fishing trip.

ICES area VI

Clupea harengus – There is currently no targeted herring fishery in 6aN.

Sprattus sprattus, VIa – There is a small fishery in VIa. Samples have been collected by fishers but have not yet been processed.

Micromesistius poutassou – Landings by Scottish vessels are mainly into Ireland. Samples from these are now collected via the pelagic co-sampling scheme.

Loligo vulgaris - were not selected for sampling by the 4S system in area VI.

England and Wales

See the general comment in North Sea section about the significant impacts of in year staff changes.

Sampling onshore at Brixham market was increased in 2023 to improve sampling coverage and capture their increasing market share of landings overlanded from other ports in the Southwest and further afield (see comment in North Sea section above). Increased levels of sampling at Brixham were maintained in 2025.

Onshore data collection in the South West was further complicated when Plymouth fish market closed at the end of the 2nd Quarter 2024. Sampling effort was redirected to other ports in the region.

In the Northwest (6NW) declining landings, local sales and loss of key staff affected achievements in this area. Recruitment of additional samplers in the North East, who also cover the North West, improved target achievement in 2025.

See the general comment in the North Sea section about the directed Nephrops catch sampling programme.

Sampling is currently being re-established in Wales by the Welsh Fisheries Monitoring Programme. Due to staffing and resource constraints, Welsh Government have commissioned APEM to carry out sampling and deliver the required data. This contract is due to run until March 2027. The programme is currently in its early stages, with APEM engaging in public outreach with fishers, and finalising onshore and at sea sampling plans. The current aim is to conduct 60 days of at sea and 30 days of onshore sampling, aiming to cover 10% of the Welsh commercial fishing fleet. The first set of preliminary data is expected in Q2 or Q3 2026.

Pelagic self sampling - The sprat fishery continued to be effectively inactive as the fish were too small to land commercially so no self-sampling was possible. The sampling by sardine processors continued with them providing both routinely collected weight and associated length measurements.

For the monitoring of small scale pelagic fisheries for biological data (1NA_P3) there has been year on year adjustments to improve the spatial coverage and manage expectation. The revised pilot continued in 2025: each month at two locations, length and age data was to be collected from commercially caught horse mackerel, anchovies and mackerel, for the expected duration of the fishery (July 2025 – February 2026). Only mackerel samples were available from these merchants in 2025 and limited availability meant samples were collected from July - November.

Scallop self-sampling - The target of 250 trips for the scallop dredge self-sampling programme which has been running since 2017 remains optimistic, the backlog of samples from previous years has been resolved and in 2025 samples are being processed although priority is being given to processing the two scallop surveys shells for ages.

Deviations from the sampling of particular stocks and parameters:

Clupea harengus, VIIj. None encountered on observer trips fishing in VIIj or in the landings selected for sampling.

Gadhus morhua and Merlangius merlangus, VIIe-k. Sex and maturity parameters not available from gutted fish landed for sale. Included in WP in error.

Lophius piscatorius and budegassa, IV, VI. All E&W sampling in area IV are included with the North Sea IV, VIId stock achievements.

Lophius piscatorius and budegassa, VIIb-k, VIIIabd. Not collected on fish sampled for age.

Molva molva, all areas. Sex, maturity and age data not collected from retained ling by observers at sea yet.

Nephrops norvegicus, VI Functional unit 14 & 15. No routine catch sampling achieved in 2025. See above for mitigations re Nephrops Catch Sampling programme..

Pecten maximus, VI, VII. 3 age samples collected and partially processed – actual numbers sampled not currently available.

Reinhardtius hippoglossoides, VI. Only 3 significant landings of Greenland halibut into England or Wales in 2025, none from area VI.

Sardina pilchardus, VII. None encountered in the demersal landings selected for sampling.

Scomber scombrus, II, IIIa, IV, V, VI, VII, VIII, IX. Sex and maturity data is no longer collected routinely with length, weight and age as part of the directed Small Scale Pelagic sampling scheme (1NA_P1).

Sprattus sprattus, VII. Self-sampling by fishers and processors was not possible with the fishery inactive. Fish too small to target commercially.

Trachurus trachurus, IIa, IVa, Vb, VIa, VIIa-c, e-k, VIIIabde. No landings available for purchase and processing as part of the directed Small Pelagic sampling scheme (1NA_P1).

Trisopterus spp., all areas. Age data – not collected routinely for any of these species.

<u>*Northern Ireland*</u>

Apparent general deviations from the work plan occur where species that would be sampled if encountered have not been encountered in a given sampling scheme, this is not a systematic deviation but reflects fishery characteristics.

The on-shore sampling (NIR-N1) achieved 240% of its target of 15 market days. Visits to ports to conduct on-shore sampling (NIR-N1) were increased by AFBI in 2024 in order to increase the likelihood of obtaining biological samples of *Gadus morhua* (cod) and *Melanogrammus aeglefinus* (haddock), following the observed declines in stock sizes and changes in fishery and market practices. This was successful

for *Melanogrammus aeglefinus,* but biological samples from this source for *Gadus morhua* in 2025 could not be obtained due to low catch numbers. As in 2023 and 2024, it is noted that changing market processes are reducing access to landings as fish/shellfish are commonly sold and transferred directly to transport vehicles in contrast to sales through public / open markets. NIR – N8, which samples from processors onshore continues to report a high sampling achievement (200%). Sampling under schemes NIR-N5, mid-water demersal fleets, this sampling scheme was impacted by a continued decline in reference fleet activity in 2024, in response to changing fisher behavior, declining fish stock sizes and socio-economic forces. In total, only 3 trips were reported in the landings data for this fleet for 2024 (all of which were sampled). This is compared to 69 trips in the reference year (2019). In future years, sample targets for NIR-N5 will need to be adjusted downwards, or set based on a percentage of trips with landings to reflect the reduced activity of this fleet. No samples were obtained in NIR-N6, otter trawlers targeting queen scallops, due to very low levels of fishing by the reference fleet (5 trips only). This is an intermittent fishery in Northern Ireland, where fishing levels depend highly on stock levels and socio-economic forces in a given year. Sampling is likely to increase in years where greater fishing activity is reported in this fleet.

NIR-N4, observer-at-sea sampling of *Nephrops* fleet, achieved 83% of its target, however, this fleet is also well sampled by NIR-N3, self-sampling of nephrops fleet, which overachieved at 129% of its target level.

NIR-N11, pot vessels targetting mixed crab and lobster, achieved 140% of its target. The at-sea programmes NIR-N7, mid-water pelagic fishery, and NIR-N10 dredge scallop fishery; achieved over-target sampling rates.

In 2024, the research vessel RV Corystes was unable to enter Republic of Ireland waters due to technical issues with the vessel. This affected research surveys to varying degrees, and are detailed in Section 1B below.

Deviations from the sampling of particular stocks and parameters:

Aequipecten opercularis, VII Maturity and weight data were not collected on the NIR-Observer-at-sea sampling program. This species is rarely observed in this sampling program, and maturity and weight data were not recorded for logistical reasons. Sufficient samples were obtained on surveys targeting shellfish NIKSDS, NCQSS

Lepidorhombus whiffiagonis & Microstomus kitt VIIa Sex, maturity and weight data for these species were not collected on NIGFS Q1. This data is not required for stock assessment.

Gadus morhua VIIa Otolith samples were not taken from 133 fish for which length measurements were taken in the ‘UK-NIR – Market sampling’ programme, as it was not possible to obtain these fish for sale.

Melanogrammus aeglefinus, VIIa Maturity samples were not taken for 21 individuals on the of this species on the ‘UK-NIR - Self-sampling’ programme for practical reasons. Sex

and maturity data were also not taken from this species in the ‘UK-NIR - Observer at sea’ programme for practical reasons. Sufficient maturity and sex data for ICES fish stock assessments for these species were obtained through the ‘NIGFS Q1’, ‘NIGFS Q4’, and ‘UWTV (FU15)’ programs (total = 687 individuals).

Merlangius merlangus, VIIa Maturity data for this species was not taken on the ‘UK-NIR – Self-sampling’ programme for logistical reasons. Sufficient maturity for ICES fish stock assessments for these species were obtained through the ‘NIGFS Q1’, ‘NIGFS Q4’, and ‘UWTV (FU15)’ programs (total = 1,128 individuals).

Pecten maximus, VIa/VIIa Age and weight data were not collected for 2 individuals caught on the NIGFS Q4 survey. Sufficient samples for assessment of age structure were obtained on surveys targeting shellfish stocks NIKSDS, ISQSS, NCQSS (total n = 3,166).

Psetta maxima, VIIa Weight data for this species was not collected for the 2 fish of this species caught on NIGFS Q4. Biological data for this species is not normally collected on this survey. This data is not required for stock assessment.

Scophthalmus rhombus or *Zeus faber,* VIIa Sex, maturity and weight data for this species were not collected on NIGFS Q1 or NIGFS Q4. Biological data for these species is not normally collected on this survey. This data is not required for stock assessment.

Indian Ocean Western and Eastern

No vessels registered in the UK held a license to fish in the Indian Ocean Tuna Commission (IOTC) region in 2025.

Section 1B: Research Surveys at Sea

Ref Tables 1A, 1B, 1F, 1G

International and domestic commitments

This fulfills Chapter IV of the multiannual programme. This section lists ongoing fishery independent research surveys at sea grouped by sea region and provides information on objectives, coverage, and coordination supplementary to the survey details provided in Tables 1F and 1G of the Workplan. The biological data collected on these surveys from the commercial stocks listed in Table 1A of the workplan are summarised by survey in Table 1B.

These surveys primarily provide population data and indices for UK commercial fish stocks, other species of interest and regional ecosystems required for international stock and ecosystem assessments. Some of these surveys are coordinated internationally at ICES and indices and raw data from some of these surveys are submitted to them, published, and made available through their databases. Environmental data from these surveys are submitted to OSPAR. These surveys are also used to derive UK Marine Strategy indicators for the UK on current environmental status.

Key end users

ICES, OSPAR, UK Fisheries Administrations. Details are provided for each survey in Ref tables and text below.

Data collection

Research surveys undertaken across the UK's Fisheries Administrations are set out in this section.

Summary of outcomes and deviations from the workplan

Not all species and parameters of interest from all data sources were included in the submitted and approved WP (Table 1B). These have been added as additional rows (highlighted in grey) at the bottom of the table. AR comments to the right of the table are used to highlight or identify any significant deviations from the planned to expected sampling. Typographical errors in the WP were also corrected.

All planned Scottish, English and Northern Irish surveys were completed aside from the Scottish blue whiting survey. In its stead, as with in previous years, Marine Directorate staff participated in other International blue whiting survey efforts.

The triennial NSMEGS and MEGS surveys took place this year both completed successfully although incorporating the survey English NSMEGS survey into the RV vessel schedule did impact on the Nephrops FU6 UWTV survey.

Technical issues that stopped the RV Corystes from being able to work in Republic of Ireland (ROI) waters in 2025 this affected the coverage of the AFBI NI-MIK (90% coverage) and the NIGFS Q1 and Q4 (63% coverage). The FSP (Fisheries Science Partnership) survey was not able to enter the Republic of Ireland waters in 2025 which resulted in a 60% coverage of the survey area.

North Sea (ICES areas IIIa, IV and VIId) and Eastern Arctic (ICES Areas I& II)

Scottish RV surveys: No significant deviations from the schedule or workplan.

English RV surveys: Scheduling constraints to accommodate the triennial NSMEGS survey led to the Nephrops FU6 UWTV survey and NSMEGs survey being combined. An alternative standard approach for Nephrops UWTV surveys was adopted to ensure sufficient coverage of the area within a 4 day window on the ground. For all other surveys there were no significant deviations from the schedule or workplan. IBTSQ3 were unable to complete all the planned trawl stations because of weather and gear damage but those missed were picked up by other countries as part of the Internationally Coordinated survey.

International Bottom Trawl Survey, IBTS Q1; UK Scotland component IV

1. Survey objectives

A pre-recruit survey undertaken during Q1 in the North Sea as one component of the ICES International Bottom Trawl Survey (IBTS). The survey is targeted towards young (1-group) cod, haddock, whiting, saithe, Norway pout, herring, and mackerel by utilising a GOV trawl fitted with an internal 20 mm liner. In addition, pre-metamorphosing herring larvae are sampled at night by deploying a Methot mid-water net.

2. Survey methods

The survey will be undertaken by MRV Scotia. Approximately 57 pseudo-random stations will be surveyed for hydrographic information coupled with the deployment of a GOV trawl for 30 minutes within the allocated area plotted below. Numbers at length and age will be acquired for all target species with all other fish species being measured and counted. All marine litter encountered within the bottom trawl or MIK samples will be recorded and weighed.

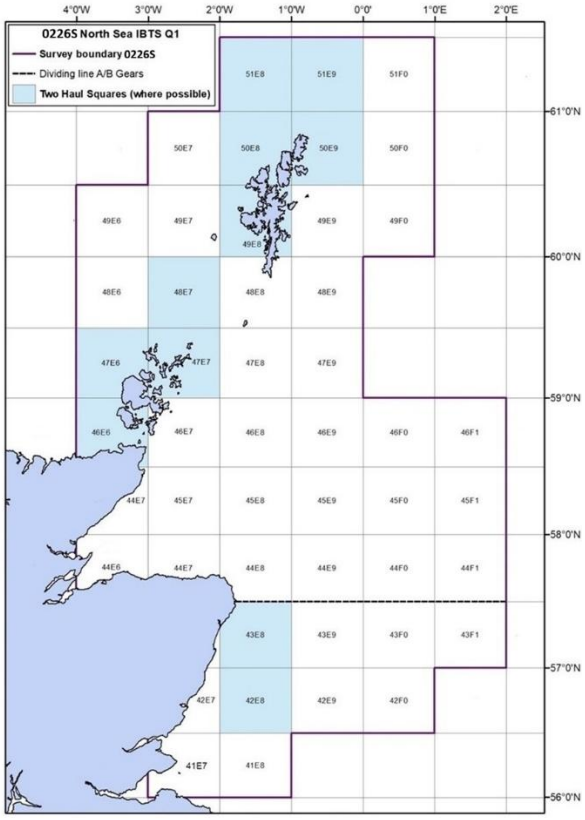


Figure 1. Map showing survey area for IBTS Q1; UK Scotland component

Data will be stored electronically in the Marine Directorate FSS system and uploaded to the ICES DATRAS database. Plankton samples (from Methot net) will be stored locally prior to being uploaded to the ICES Egg and Larval Database.

3. For internationally coordinated surveys - Countries/vessels and relevant international group in charge of planning the survey

ICES International Bottom Trawl Survey Working Group IBTSWG

Data used by WGNSSK for assessments.

Svea (Sweden); Dana (Denmark); Scotia (UK-Scotland); Thalassa (France); Tridens (Netherlands); Walther Herwig III (Germany); G.O Sars (Norway)

4. Graphical representation (map) showing the position (location) of the realized samples. Provide maps presenting the spatial distribution of the main sampling types obtained during the survey.

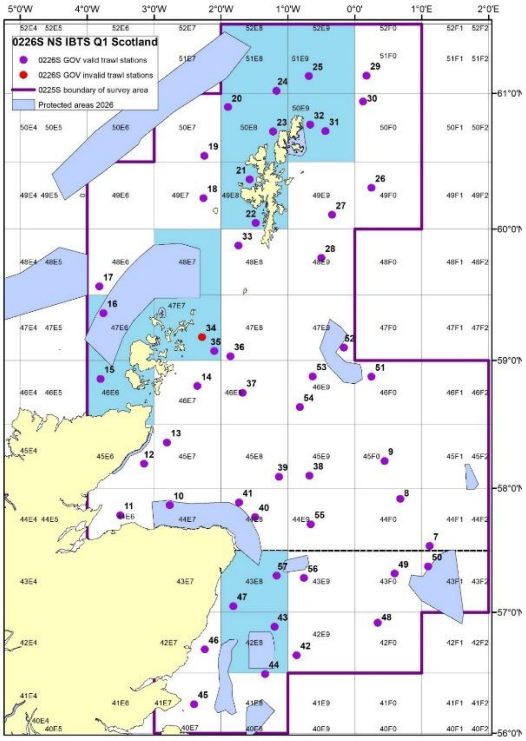


Figure 2. Achieved stations 2026

Outcomes: Over the course of 21 survey days 50 valid fishing hauls were achieved and 1 invalid. No MIK sampling was carried out in Q1 during 2026 due to the plankton crane being unavailable for towing. The CTD was deployed at 18 out of a possible 50 valid GOV trawl stations. Age at length, sex, maturity and weight data were collected for cod, haddock, whiting, saithe, Norway pout, plaice, herring, mackerel and sprat.

Additional research requests met: Fish and benthic catches were screened for non-indigenous species and the data were sent to the Cefas coordinator. Marine litter was classified, quantified and stored and the data sent to DATRAS from where OSPAR can access them. Fish <15 cm total length of all species available were collected and frozen for a study into the wintering ecology of guillemots and razorbills.. All shelled molluscs were retained frozen for identification and distribution mapping.

5. For internationally coordinated surveys, provide a link to the latest meeting report of the coordination group. Provide a hyperlink to the meeting report from the body coordinating the survey (ICES, MEDITS coordination group, MEDIAS coordination group etc.). For non-international coordinated surveys, refer to any status report (e.g. Cruise report) if available on line.

International Bottom Trawl Survey Working Group (IBTSWG; outputs from 2024 meeting)

6. List the main use of the results of the survey (e.g. indices, abundance estimates, and environmental indicators). Specify in which context the results are used (on routine basis), both on an international as well as on a national context.

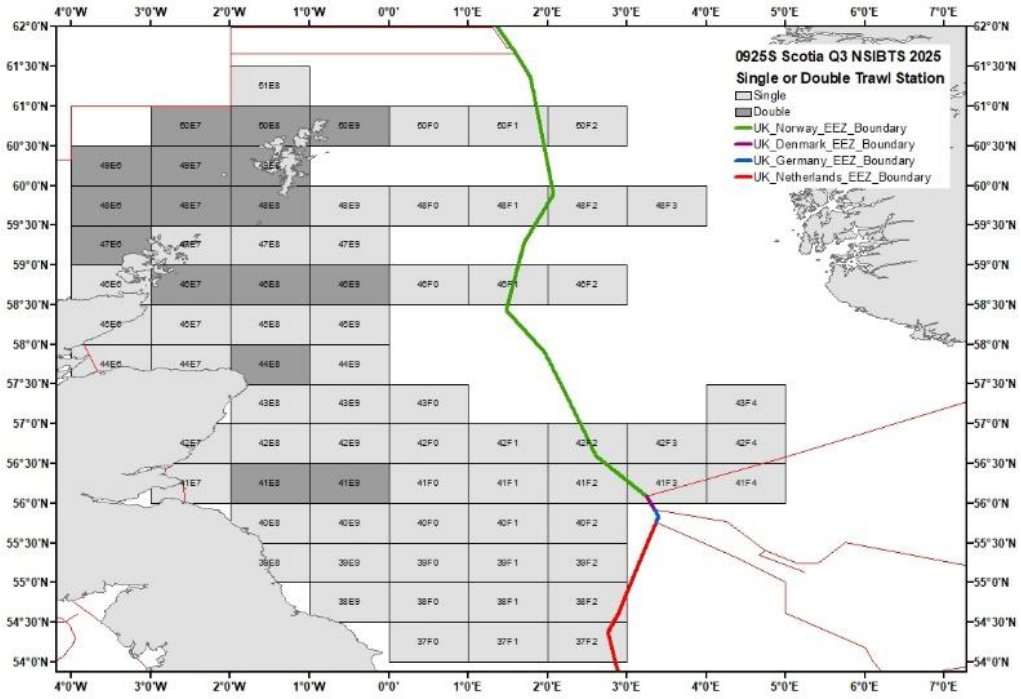
Main uses of the of the data collected from the *IBTS Q1 North Sea* survey

Type of data collected	**Assessment type**
Biological sampling	Biological sampling for Annual International Stock assessments (Cod, Haddock, Whiting, Saithe & Norway pout). – used for advice.
Biological sampling	Biological sampling: National assessments (Herring, sprat, Mackerel, Hake & Plaice)
CTD by Haul	CTD by Haul: National and international. Produces qualifiers to link biological and environmental indicators. MSFD
Other fish spp in haul	Other fish species in haul National and international data use. Predator-prey interaction/ecosystem model for biodiversity (Skates, Squalus acanthias, Mustelus asterias and other fish species), collaborative genetics research projects to determine sub-stock discrimination of key target species (anglerfish, horse mackerel, hake and cod)
Litter items in trawl	National and international. Anthropogenic monitoring.

International Bottom Trawl Survey, IBTS Q3 (SCO); North Sea; UK Scotland component IV

1. Survey objectives

A pre-recruit survey undertaken during Q3 in the North Sea as one component of the ICES International Bottom Trawl Survey (IBTS). The survey is targeted towards young (0 and 1-group) cod, haddock, whiting, saithe, Norway pout, herring, and mackerel by utilising a GOV trawl fitted with an internal 20 mm liner.



2. Survey methods

Figure 3. Map showing positions of survey area for IBTS Q3 (SCO); UK Scotland component IV

The survey will be undertaken by MRV Scotia. Approximately 90 pseudo-random trawl stations will be surveyed for hydrographic information coupled with the deployment of a GOV trawl for 30 minutes within the allocated area plotted below. Numbers at length and age will be acquired for all target species with all other fish species being measured and counted. All marine litter encountered within the bottom trawl will be recorded and weighed.

Data will be stored electronically in the Marine Directorate FSS system and uploaded to the ICES DATRAS database.

3. For internationally coordinated surveys, describe the participating Countries/vessels and the relevant international group in charge of planning the survey

ICES International Bottom Trawl Survey Working Group IBTSWG

Data used by WGNSSK for assessments.

Svea (Sweden); Dana (Denmark); Walther Herwig III (Germany); G.O.Sars (Norway); CEFAS Endeavour (UK-England); Scotia (UK-Scotland)

4. Graphical representation (map) showing the position (location) of the realized samples. Provide maps presenting the spatial distribution of the main sampling types obtained during the survey.

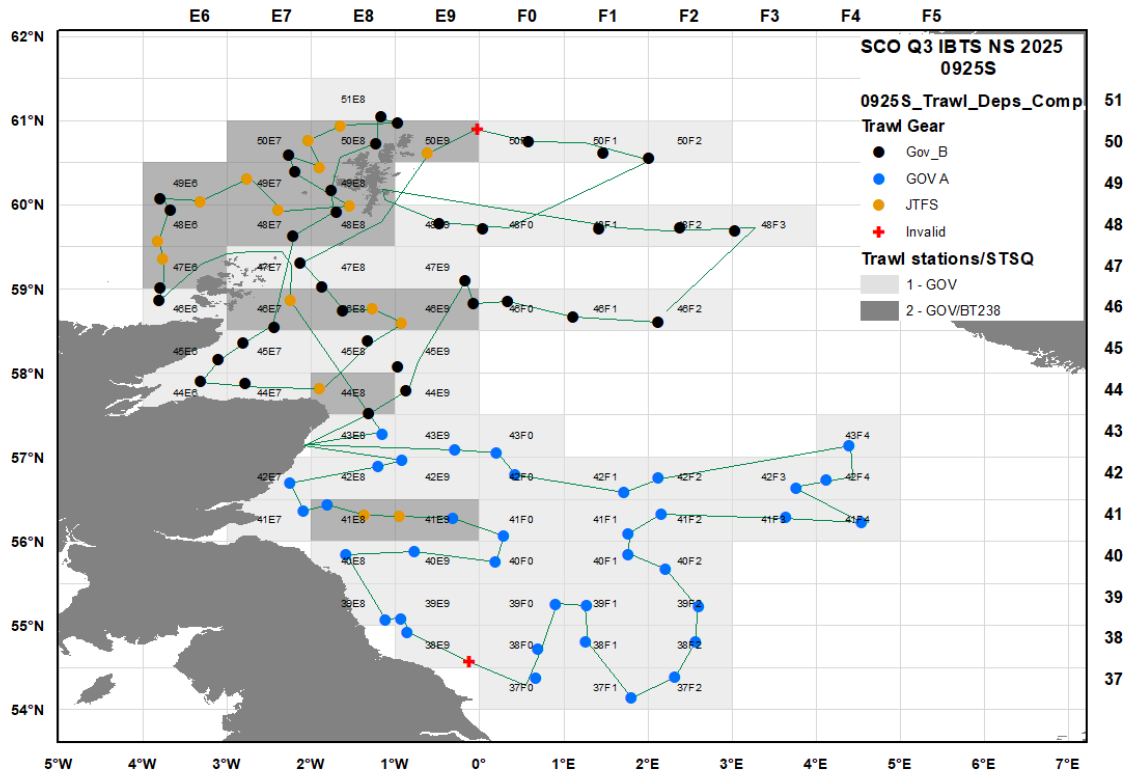


Figure 4. Track of realised stations IBTS Q3 North Sea

Outcomes: Over 23 survey days the GOV and JTFS trawls were deployed on 92 occasions. A total of 90 valid hauls were achieved and with all the 69 statistical rectangles allocated to Scotland being successfully sampled at least once. 91 species were observed. Age at length, sex and weight data were collected for cod, haddock, whiting, saithe, Norway pout, plaice, herring, mackerel and sprat. Maturities were recorded for non-gadoid species. The CTD was deployed at only 89 of the 90 valid trawling stations.

Additional research requests met: Marine litter was classified, quantified and stored. Data were uploaded to DATRAS & OSPAR can access them, as required. All trawl caught gelatinous zooplankton were identified to species (where possible), weighed and quantified. Cod genetic samples were taken to support the Northern Shelf cod benchmark (WKBCOD). Fish <15 cm were retained for a project investigating non-breeding seasonal ecology of seabirds. Genetic samples retained from 98 hake, 45 anglerfish, looking at population structure of these species within the Northeast Atlantic. All shelled molluscs were retained for distribution mapping and examination for NIS.

5. For internationally coordinated surveys, provide a link to the latest meeting report of the coordination group. Provide a hyperlink to the meeting report from the body coordinating the survey (ICES, MEDITS coordination group, MEDIAS coordination group etc.). For non-international coordinated surveys, refer to any status report (e.g. Cruise report) if available online.

International Bottom Trawl Survey Working Group (IBTSWG; outputs from 2024 meeting)

6. List the main use of the results of the survey (e.g. indices, abundance estimates, and environmental indicators). Specify in which context the results are used (on routine basis), both on an international as well as on a national context.

Main uses of the of the data collected from the *IBTS Q3 North Sea* survey

Type of data collected	**Assessment type**
Biological sampling	Annual international Stock assessments (Cod, Haddock, Whiting, Saithe & Norway pout). – used for advice
Biological sampling	Biological sampling National assessments (Herring, sprat, Mackerel, Hake & Plaice)
Other fish spp in haul	National and international. Predator-prey interaction/ecosystem model for biodiversity (Skates, Squalus acanthias, Mustelus asterias and other fish species).
CTD by haul	Produces qualifiers to link biological and environmental indicators. MSFD
Litter items in trawl	National and international. Anthropogenic monitoring.

International Bottom Trawl Survey, IBTS Q3 (ENG); UK England component IV

1. Survey objectives

The survey provides estimates of abundance of recruiting year classes and CPUE-at-age series for cod, haddock, whiting, saithe and Norway pout to the North Sea and Skagerrak Demersal Working Group (WGNSSK). These are used for tuning purposes.

2. Survey methods

The survey will be conducted on the RV Cefas Endeavour. A total of 77 prime stations over 29 days are planned in area IV between 51 to 62 deg. N, and between 4 deg. W to 8 deg. E. All fish caught will be identified to species and measured. Age samples and biological parameters will be taken from all target species and species listed in DCR Appendix VII. Benthic by-catch information is collected at each station. Hydrographic data will be collected at two stations per day. Any anthropogenic waste material will be recorded and weighed. As time permits during night-time transits, deployments of the Methot Isaac Kidd (MIK) midwater plankton trawl will be conducted to collect samples of sprat larvae servicing a WGIBTS survey requirement.

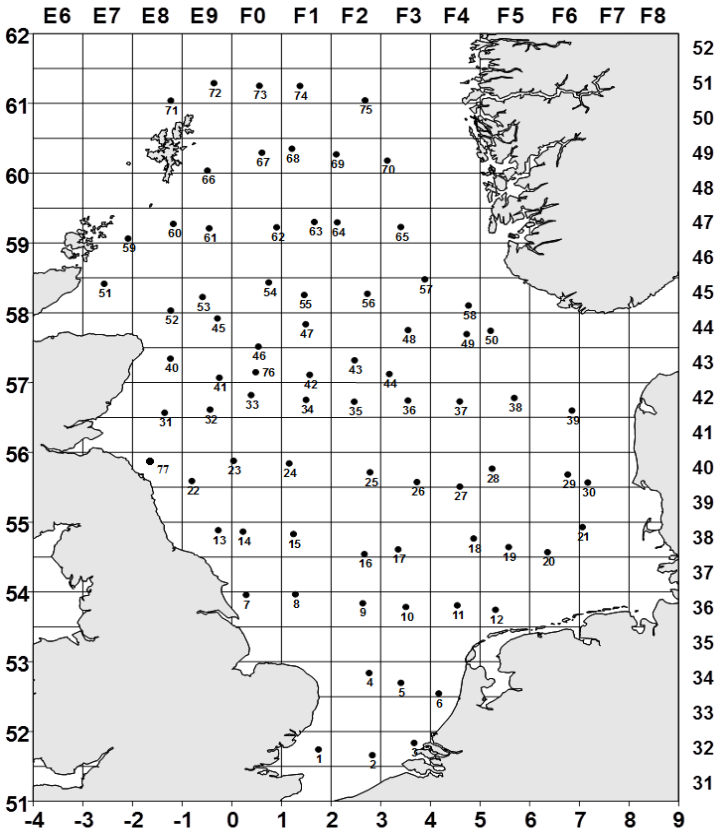


Figure 5. Map showing positions of survey stations IBTS Q3 (ENG); UK England component IV

The resultant data will be input to a Cefas surveys database (SFS) using the Cefas Electronic Data Capture (EDC) System. All data will also be transmitted to ICES for input to the DATRAS database.

3. For internationally coordinated surveys, describe the participating Countries/vessels and the relevant international group in charge of planning the survey

ICES International Bottom Trawl Survey Working Group IBTSWG

Data used by WGNSSK for assessments.

Svea (Sweden); Dana (Denmark); Scotia (UK-Scotland); Thalassa (France); CEFAS Endeavour (UK-England); Walther Herwig III (Germany)

4. Graphical representation (map) showing the position (location) of the realized samples. Provide maps presenting the spatial distribution of the main sampling types obtained during the survey.

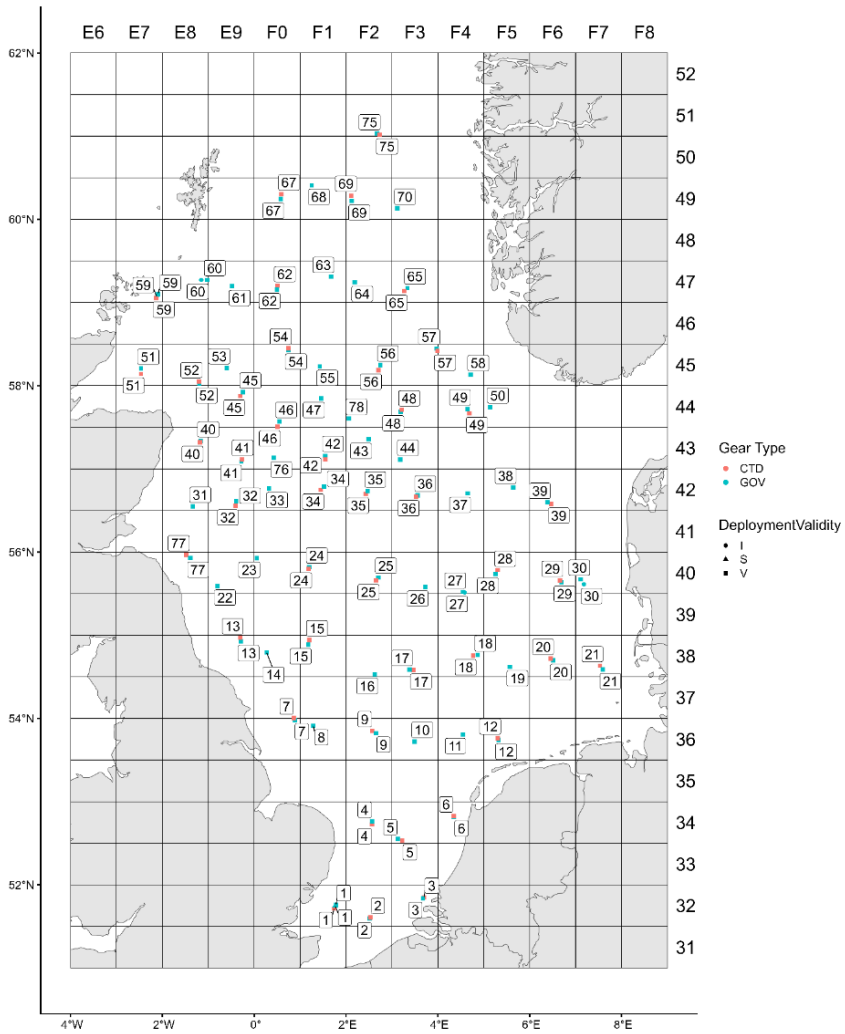


Figure 6. IBTS Q3 2023 completed survey area

Outcomes: A total of 73 of the planned 77 prime stations were completed over 29 survey days.

Additional research requests met: Fifteen of twenty-one additional survey aims were completed, including collection of chlorophyll samples as part of the UK's seawater monitoring report to OSPAR, and providing additional information on jellyfish to continue a dataset populated since 2012.

5. For internationally coordinated surveys, provide a link to the latest meeting report of the coordination group. Provide a hyperlink to the meeting report from the body coordinating the survey (ICES, MEDITS coordination group, MEDIAS coordination group etc.). For non-international coordinated surveys, refer to any status report (e.g. Cruise report) if available online.

Item - International Bottom Trawl Survey Working Group (IBTSWG; outputs from 2024 meeting) - International Council for the Exploration of the Sea - Figshare

Item%20-%20International%20Bottom%20Trawl%20Survey%20Working%20Group%20(IBTSWG;%20outputs%20from%202024%20meeting)%20-%20International%20Council%20for%20the%20Exploration%20of%20the%20Sea%20-%20Figshare**6. List the main use of the results of the survey (e.g. indices, abundance estimates, and environmental indicators). Specify in which context the results are used (on routine basis), both on an international as well as on a national context.**

The UK-England IBTS Q3 survey data feeds into Indices, spatial and temporal changes in the distribution and relative abundance of fish and fish assemblages for the relevant species to assessment Working Groups (WGs) and science groups. The UK-England Norway pout age data is the only survey data used for this assessment whereas for all other stocks the IBTS Q3 data is combined from all contributors. In addition to this, CTD (temperature and salinity) data are collected but these are not used in the assessments. Marine litter and additional biological data from the surface and seabed at each trawling station were collected.

Main uses of the of the data collected from the IBTS Q3 (ENG) survey

Type of data collected	**Assessment type**
Biological sampling	Stock assessments WGNSSK, WGEF +
Biological sampling	National assessments, HAWG
CTD by Haul	National and international. Produces qualifiers to link biological and environmental indicators.
Other fish spp in haul	National and international. Predator-prey interaction/ecosystem model for biodiversity (Skates, *Squalus acanthias, Mustelus asterias* and other fish species).

Litter items in trawl	National and international. Anthropogenic monitoring – used in regional and environmental planning.

North Sea Beam Trawl Survey, BTS; Q3 Southern North Sea; UK England component IV

1. Survey objectives

To provide estimates of abundance of recruiting year classes and CPUE-at-age series for plaice and sole to the North Sea and Skagerrak Demersal WG. (WGNSSK). These are used for tuning purposes.

2. Survey methods

The survey will be conducted on the RV Cefas Endeavour. A total of 79 prime stations over 13 days are planned, and all fish caught will be identified to species and measured. Age samples and biological parameters will be taken from all target species and species listed under Appendix VII of the DCR which are caught. Benthic by-catch information is collected at each station. Hydrographic data will be collected at a minimum of two stations per day. Any anthropogenic waste material will be recorded and weighed.

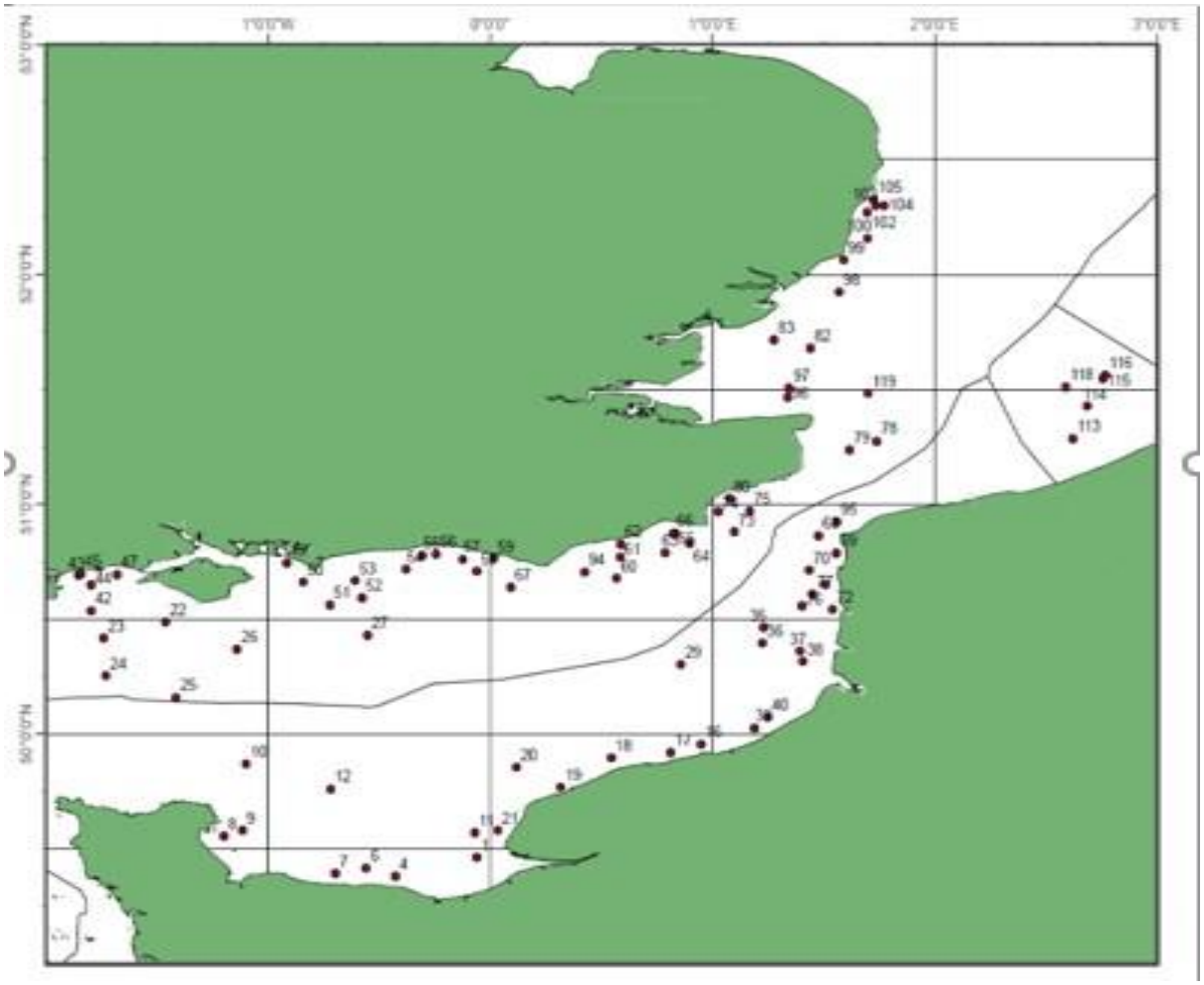


Figure 7. Map showing positions of survey stations BTS, Southern North Sea; UK England component IV

The resultant data will be input to a Cefas surveys database (SFS) using the Cefas Electronic Data Capture (EDC) System. All data will also be transmitted to ICES for input to the DATRAS database.

3. Participating Countries/vessels and the relevant international group in charge of planning the survey - internationally coordinated surveys

Standardised and agreed methodologies are coordinated at Beam Trawl Working Group (WGBEAM) to assure independent indices for each national survey.

Data used by WGNSSK for assessments.

No other countries/vessels participate in this survey.

4. Graphical representation (map) showing the position (location) of the realized samples. Provide maps presenting the spatial distribution of the main sampling types obtained during the survey.

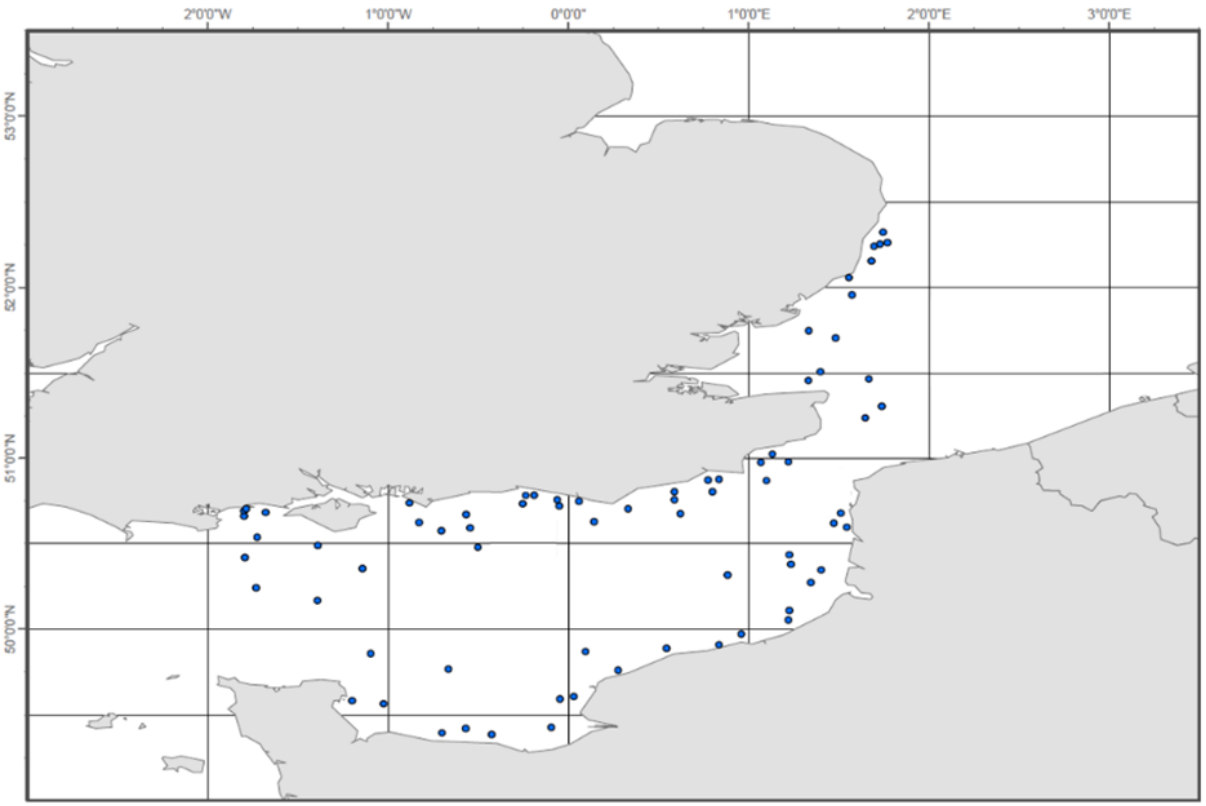


Figure 8. North Sea Q3 BTS completed survey area

Outcomes: 74 of 79 primary stations were completed over the 13 day survey period. Nineteen hauls were reduced below the standard 30-minute duration due to a history of large sediment or epibenthic catches, or presence of commercial static gear.

Additional research requests met: Nine of ten additional survey aims were completed, including collecting continuous mesozooplankton digital data via the onboard flowthrough Plankton Imager System (PIS) for abundance analysis and collection of chlorophyll samples as part of the UK's seawater monitoring report to OSPAR

5. For internationally coordinated surveys, provide a link to the latest meeting report of the coordination group. Provide a hyperlink to the meeting report from the body coordinating the survey (ICES, MEDITS coordination group, MEDIAS coordination group etc.). For non-international coordinated surveys, refer to any status report (e.g. Cruise report) if available online.

Working Group on Beam Trawl Surveys (WGBEAM) (figshare.com)

6. List the main use of the results of the survey (e.g. indices, abundance estimates, and environmental indicators). Specify in which context the results are used (on routine basis), both on an international as well as on a national context.

The UK-England BTS Q3 survey data feeds into indices, spatial and temporal changes in the distribution and relative abundance of fish and fish assemblages for the relevant species to assessment Working Groups (WGs) and science groups. In addition to this, CTD (temperature and salinity) data are collected, but these are not used in the assessments. Marine litter and additional biological data from the surface and seabed at each trawling station were collected.

Main uses of the of the data collected from the *BTS Q3* survey

Type of data collected	**Assessment type**
Biological sampling	Annual international Stock assessments (sole, plaice, spotted ray, LSD and smoothhound) – used for advice
Biological sampling	National assessments
CTD by Haul	National and international. Produces qualifiers to link biological and environmental indicators.
Other fish spp in haul	National and international. Predator-prey interaction/ecosystem model for biodiversity (Skates, *Squalus acanthias, Mustelus asterias* and other fish species).
Litter items in trawl	National and international. Anthropogenic monitoring – used for regional and environmental planning.

International Ecosystem Survey in Nordic Seas (IESNS) – Atlanto-Scandian Herring/Norwegian Spring Spawning Herring (ASH/NSSH).

International Ecosystem Survey in Nordic Seas in the Northeast Atlantic covering the distribution and abundance of the northern herring stocks. The UK (Cefas, England) will contribute 13 days, surveying the southern portion of the Norwegian Sea/northern North Sea (north of 62ºN).

1.Survey objectives

To carry out an annual herring (ASH/NSSH) acoustic survey for the purposes of determining the size, distribution, and migrations of the herring stock for input to the annual stock assessment. Concurrent trawling will be conducted to collect information on the biological characteristics and stock structure of herring in the survey area. This survey also contributes to a recruitment index for blue whiting. Additional sampling of the hydrographic conditions and plankton abundance in the area are used to monitored and investigate the how the distribution and migration of herring and other pelagic fishes are influenced by environmental conditions.

The survey estimates are submitted annually to the ICES Working Group on Widely distributed Stocks (WGWIDE) for inclusion in the assessment of ASH/NSSH.

2. Survey methods

The survey will be conducted on the MFV Resolute. In 2025 the acoustic survey will be conducted between 62ºN and 66ºN and 4.5ºE and 15ºW in the southern Norwegian Sea (See Figure 5), the exact sample coverage by the UK will be determined though consultation with ICES WGIPS and the survey co-ordinator. Abundance will be determined using internationally accepted acoustic methodologies and protocols and biological samples will be collected using a trawl. The survey will be conducted using the ICES protocols adopted for the IESNS (see ICES 2015).

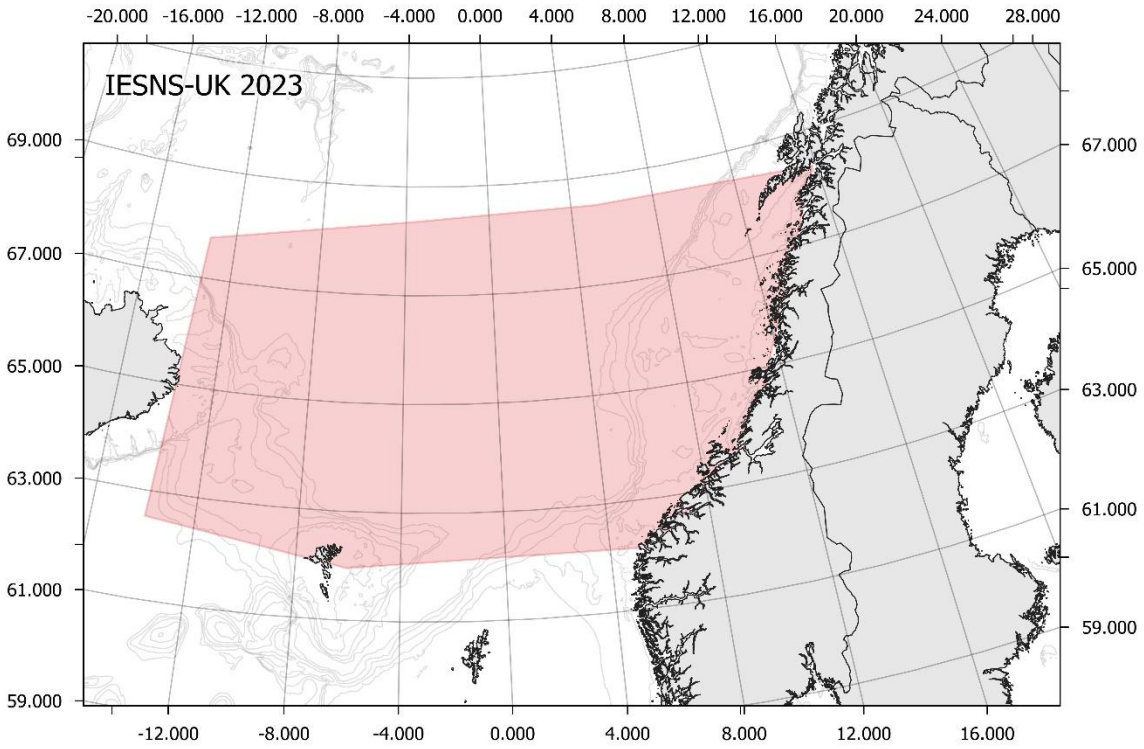


Figure 9. Map showing 2023 acoustic survey coverage with actual Cefas coverage within the highlighted area (outlined in red) to be determined on an annual basis.

3. For internationally coordinated surveys, describe the participating Countries/vessels and the relevant international group in charge of planning the survey

Other countries participating in the international survey are the EU-Denmark, Norway, Faroe Islands, and Iceland. The international ICES planning group for this survey is ICES WGIPS (the working group of international pelagic surveys).

4. Graphical representation (map) showing the position (location) of the realized samples. Provide maps presenting the spatial distribution of the main sampling types obtained during the survey.

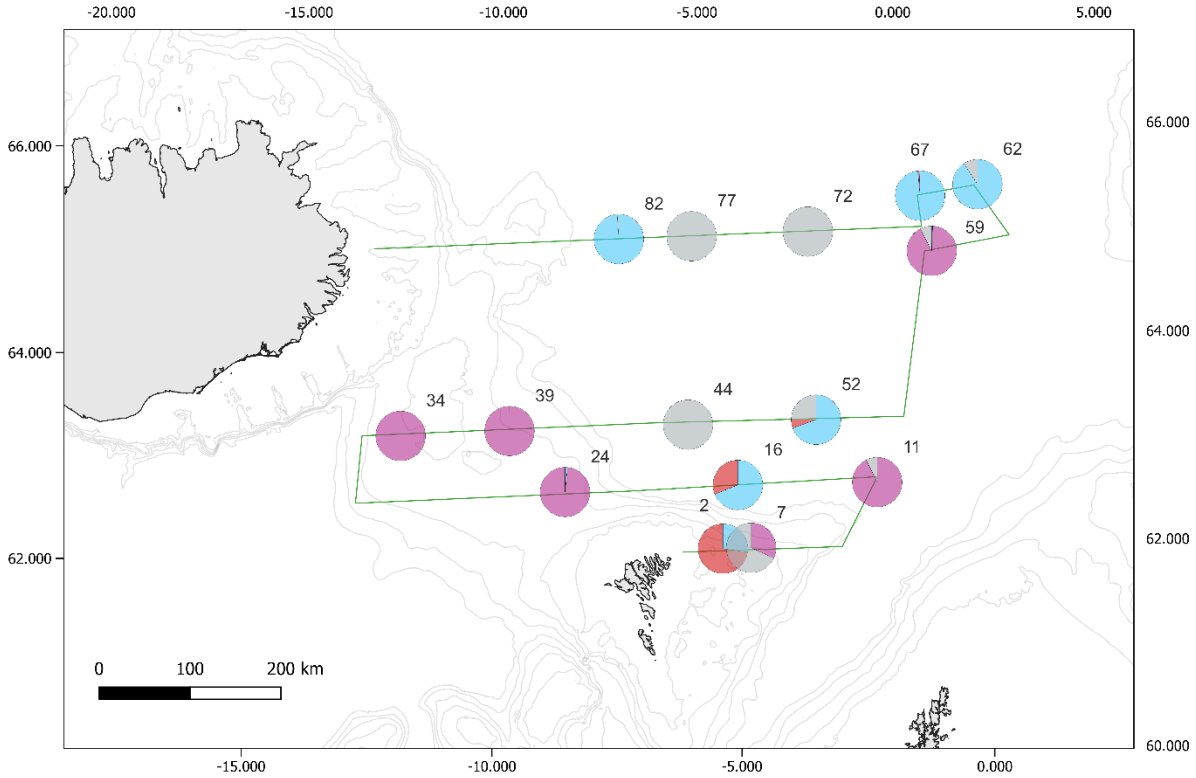


Figure 10. UK-IESNS 2024 completed survey area. Transects (magenta) and trawl locations and relative catch composition (pies), including herring (blue), blue whiting (purple), mackerel (red) and "others" (grey).

Outcomes: The UK component of the 2025 International Ecosystem Survey of the Nordic Seas (IESNS) was successfully completed, with all six transects covered, covering 1151 nmi, and all plankton and CTD stations sampled. A total of fifteen trawl hauls were conducted providing useful information on the species composition as well as biological data. One of those was an additional trawl northeast of the planned UK grid and was requested by the survey coordinator to obtain additional biological samples. Both herring and blue whiting backscatter values were relatively low in the UK-covered survey area, with main herring densities found in the northeastern areas and blue whiting in the south. These results matched those from the Faroe Island vessel which sampled alternate transects in the same area. Sea surface temperatures were warmer and less variable compared to those at depth. Salinity was higher at the sea surface compared to at depth and lowest salinities (at all depths) were found in the northwestern part of the survey off Iceland. Plankton biomass was higher in the eastern parts of the survey although this was predominantly driven by two stations with high biomass. The trawl and acoustic data from the UK component were submitted to the survey database with those from other IESNS participating vessels and the biomass index was calculated based on the combined dataset. The final estimate was presented at the virtual post cruise meeting 18-20 June 2024 and in the WGIPS report of January 2025 (in prep.).

Additional research requests met: Genetic samples of herring were collected as part of an international initiative and will help distinguish between the different herring stocks which mix in the survey area. Genetic samples were processed and will be contributed to the international database.

5. For internationally coordinated surveys, provide a link to the latest meeting report of the coordination group. Provide a hyperlink to the meeting report from the body coordinating the survey (ICES, MEDITS coordination group, MEDIAS coordination group etc.). For non-international coordinated surveys, refer to any status report (e.g. Cruise report) if available online.

Working Group on International Pelagic Surveys (WGIPS)

6. List the main use of the results of the survey (e.g. indices, abundance estimates, and environmental indicators). Specify in which context the results are used (on routine basis), both on an international as well as on a national context.

The biomass estimated for herring during the survey feeds into the stock assessment of the NSSH (Norwegian Spring Spawning Herring). Blue whiting biomass is used as a recruitment index within the stock assessment of the blue whiting stock in subareas 27.1–9, 12, and 14 (Northeast Atlantic). Both stocks are assessed within the ICES WGWIDE.

Type of data collected	Assessment type
Acoustic + Biological sampling	Stock assessment NSSH and blue whiting stock in subareas 27.1 9, 12, and 14 (Northeast Atlantic)
CTD by Haul	National and international. Eutrophication monitoring; zooplankton monitoring. Produces qualifiers to link biological and environmental indicators
Other fish spp in haul	National and international. Biological data Mackerel
Litter items in trawl	National and international. Anthropogenic monitoring.

Mackerel egg Survey (triennial), NSMEGS; North Sea, England component IV.

International Mackerel Egg Survey in the North East Atlantic and North Sea which Cefas, England will conduct the North element along with Denmark (May/June). This is a triennial survey with the UK contribution that started in 2022. The UK (England) will contribute to this survey by conducting a 24 day survey in the North Sea in 2025.

1.Survey objectives

To carry out mackerel egg surveys (ICES Triennial Survey) within allocated sampling periods of the MEGS survey plan in the North Sea carrying out analysis of mackerel eggs and larvae on survey.

To collect adult fish samples, by trawling and/or rod/line fishing, for atresia and fecundity samples for later analysis.

2. Survey methods

Egg survey will be conducted between 53˚N and 62˚N in the North Sea, the area to be confirmed, will be based on the area covered in 2022. The sample coverage by the UK will be determined based on a collaborative plan for coverage between Denmark, and the UK. Samples will be collected using a Gulf VII plankton sampler and samples will be analysed on board for mackerel eggs and larvae. Fishing will take place to collect fecundity samples using either rod/lines or a pelagic net. Methods for survey design and sampling will follow processes outlined in ICES SISP6 – MEGS V2.2.

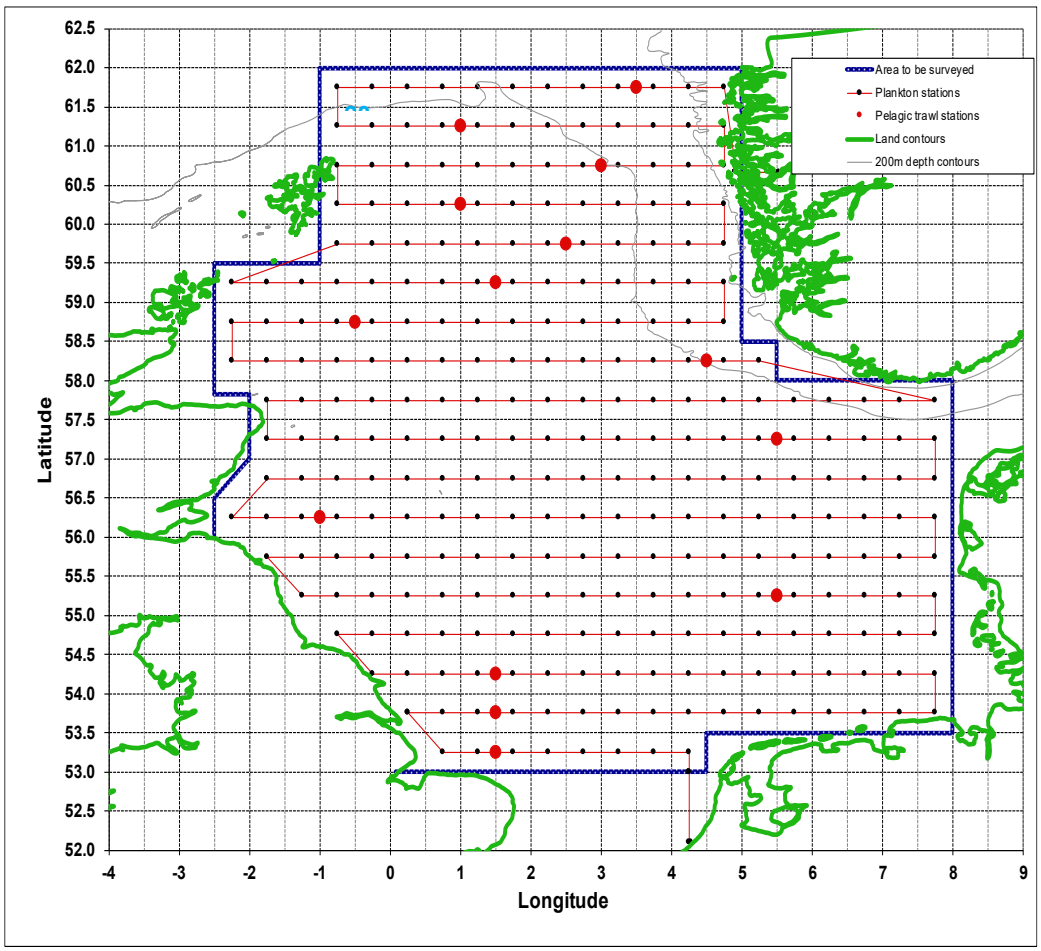


Figure 11. Map showing positions of survey stations NSMEGS; North Sea, England component IV

3. For internationally coordinated surveys, describe the participating Countries/vessels and the relevant international group in charge of planning the survey

Other countries participating in international survey are Portugal, Spain (IEO), Germany, Netherlands, Spain (AZTI), Norway, Ireland, Scotland, Faroe Islands, with just England (Cefas) and Denmark conducting the survey in the North Sea. The international ICES planning group for this survey is WGMEGS (the working group on mackerel and horse mackerel egg surveys).

4. Graphical representation (map) showing the position (location) of the realized samples. Provide maps presenting the spatial distribution of the main sampling types obtained during the survey.



Figure 12. NSMEGS completed survey area

Outcomes: 132 of 189 survey sites were completed successfully, with others missed due to poor weather and time constraints. Distribution and abundance of Atlantic mackerel eggs were largely seen west of- and around the Dogger bank, where horse mackerel eggs were largely seen in the Netherlands coast and German bight areas.

23 fishing stations were completed, with thirteen stations being positive for Atlantic mackerel. Due to shallow depths across much of the survey grid, only two mid-water trawls were completed, with the rest sampled by rod-and-line. Over 91 kg adult mackerel (345 individuals) were measured, biologically sampled and otoliths extracted across the survey area. A total of 109 individual adult Atlantic mackerel (36.74 kg) were sampled for fecundity analysis, with “spawning” stage the most prevalent. No horse mackerel were caught.

Additional research requests met: All four secondary survey aims were completed, including collection of continuous mesozooplankton digital data via the onboard flowthrough Plankton Imager System (PIS) for abundance analysis and collection of chlorophyll samples as part of the UK’s seawater monitoring report to OSPAR.

5. For internationally coordinated surveys, provide a link to the latest meeting report of the coordination group. Provide a hyperlink to the meeting report from the body coordinating the survey (ICES, MEDITS coordination group, MEDIAS coordination

group etc.). For non-international coordinated surveys, refer to any status report (e.g. Cruise report) if available online.

Working Group on Mackerel and Horse Mackerel Egg Surveys (WGMEGS)

6. List the main use of the results of the survey (e.g. indices, abundance estimates, and environmental indicators). Specify in which context the results are used (on routine basis), both on an international as well as on a national context.

The data collected will be used by the Working Group on Mackerel and Horse Mackerel Egg Surveys (WGMEGS), the Working Group on Widely Distributed Stocks (WGWIDE), and more broadly by the Working Group on Atlantic Fish Larvae and Eggs Surveys (WGALES).

Main uses of the of the data collected from the *NSMEGS* survey

Type of data collected	**Assessment type**
Biological sampling	Mackerel
Biological sampling	N/A
CTD by Haul	N/A
Other fish spp in haul	N/A
Litter items in trawl	N/A

Herring Acoustic Survey, HERAS. UK Scotland component IV; ICES Q2/3 Coordinated Acoustic Survey in the Skagerrak and Kattegat, the North Sea, West of Scotland, and the Malin Shelf area; Areas III, IV, VIa, VIIb

1. Survey objectives

To conduct an acoustic survey to estimate the abundance and distribution of herring in the north western North Sea. The results will be combined with those of Germany, Netherlands, Norway & Denmark to produce an age disaggregated abundance index for North Sea herring. Data collected west of the 4-degree line will be combined with those of Ireland to provide the same for 6a.

2. Survey methods

Scotia will undertake an extended acoustic survey by following a pattern of parallel transects running east to west. It is projected that in excess of 2250 nautical miles will be surveyed at four different frequencies (18, 38, 120 and 200 kHz). A pelagic trawl will be deployed approximately 38 times to 'ground truth' the acoustic data and provide biological samples of herring and sprat. This survey now extends into ICES area VIa, as indicated on the map.

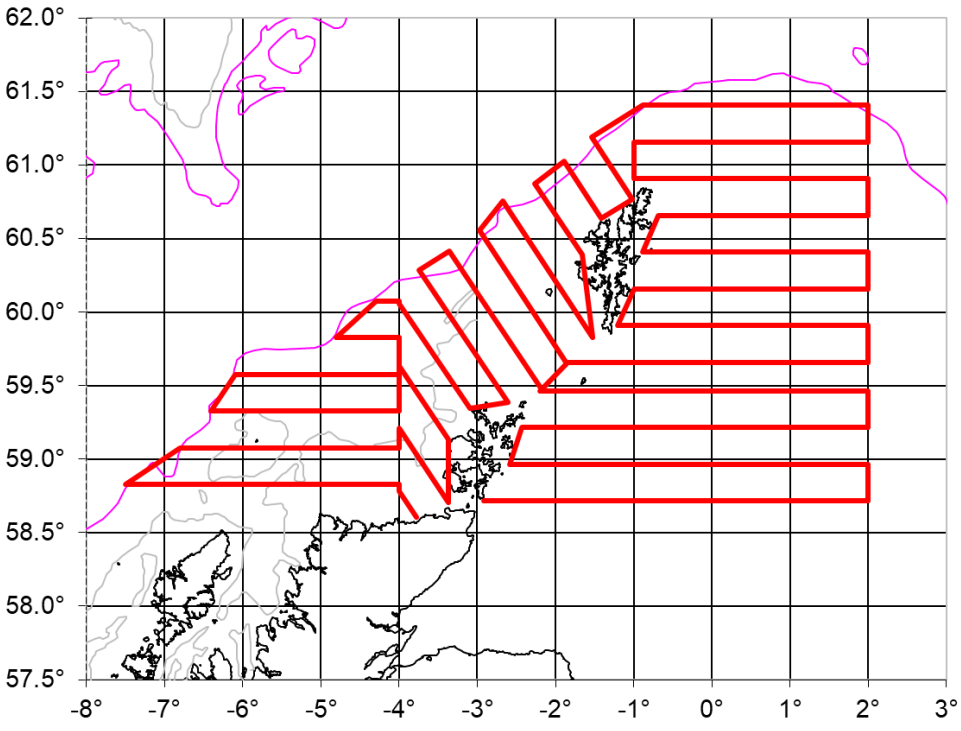


Figure 13. Map showing North Sea and North Atlantic herring acoustic survey transects NHAS; UK Scotland component IV, VIa

All acoustic data will be stored in databases at MD as well as the ICES acoustic database. Subsequent post survey analysis will be provided to the relevant ICES working groups.

3. For internationally coordinated surveys, describe the participating Countries/vessels and the relevant international group in charge of planning the survey

ICES Working Group on International Pelagic Surveys WGIPS

Data are used in stock assessments

Celtic Explorer (Ireland); Scotia (UK-Scotland); G.O. Sars (Norway); Tridens (Netherlands); Solea (Germany); Dana (Denmark)

The coverage of the west of Scotland is shared by UK Scotland (MD) and Ireland (Marine Institute)

Graphical representation (map) showing the position (location) of the realized samples. Provide maps presenting the spatial distribution of the main sampling types obtained during the survey.

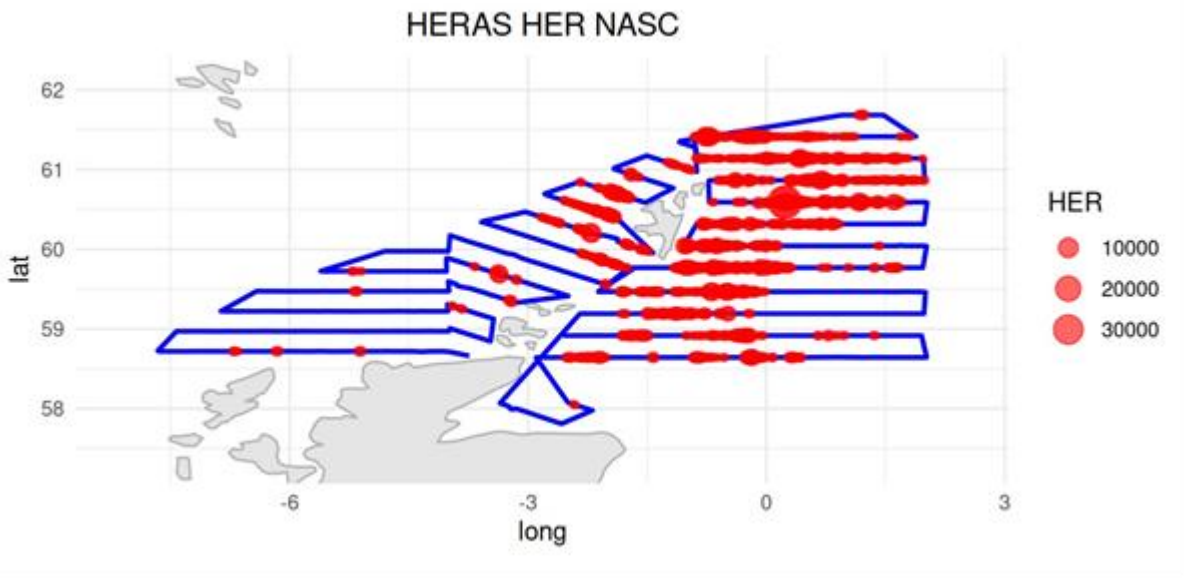


Figure 14. Herring Acoustic survey cruise track 2025

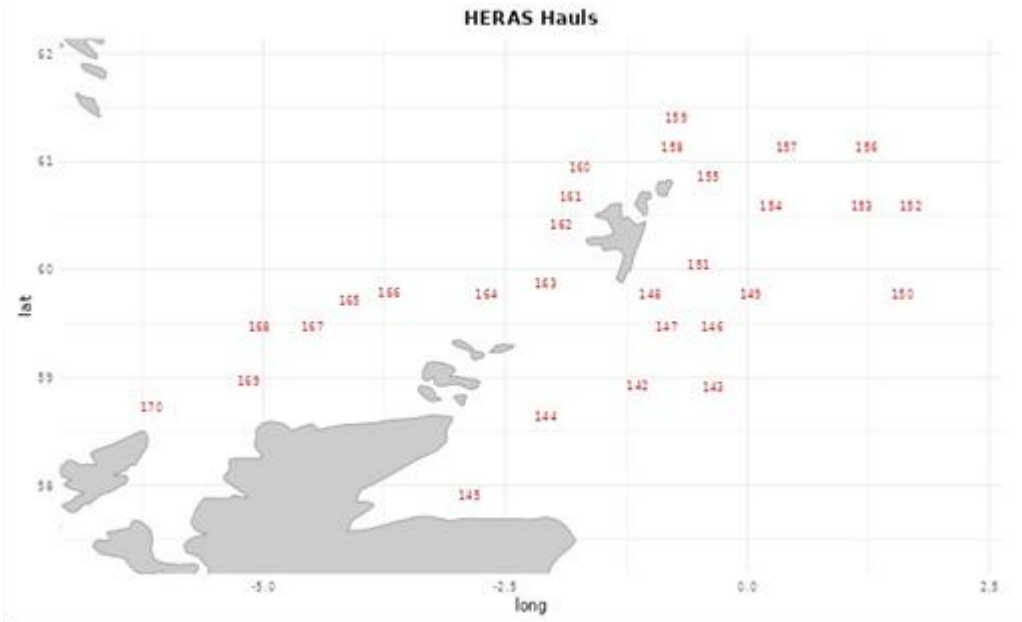


Figure 15. Herring Acoustic survey Fishing hauls 2025

Outcomes: 22 days survey were achieved plus 29 fishing hauls and 2254 Nmi track covered. 5440 herring were recorded for length and 1671 herring were sampled for other bio parameters – age, weight, sex and maturity.

A total of 33 vertical hydro dips were carried out over the survey area. Data collection parameters were conductivity, temperature, and oxygen. Water samples were collected at the surface for all dips for calibration of salinities.

Additional research requests met: NA

5. For internationally coordinated surveys, provide a link to the latest meeting report of the coordination group. Provide a hyperlink to the meeting report from the body coordinating the survey (ICES, MEDITS coordination group, MEDIAS coordination group etc.). For non-international coordinated surveys, refer to any status report (e.g. Cruise report) if available online.

Working Group on International Pelagic Surveys (WGIPS)

Herring Assessment Working Group for the Area South of 62°N (HAWG)

6. List the main use of the results of the survey (e.g. indices, abundance estimates, and environmental indicators). Specify in which context the results are used (on routine basis), both on an international as well as on a national context.

Main uses of the of the data collected from the *Herring Acoustic* survey

Type of data collected	**Acoustic**
Biological sampling of herring and sprat	International stock assessment of herring and sprat – HAWG. Used for advice. Also used by WGIPS

Acoustic data	integrated ecosystem assessment – used for advice
Bio-genetic data & morphometrics of herring for stock separation	National investigations into stock separation. Biological sampling – length, weight, sex, maturity, age
CTD by Haul	National and international. Produces qualifiers to link biological and environmental indicators.
Litter items in trawl	National and international. Anthropogenic monitoring.

Nephrops UWTV survey (FU6), NTV6; UK England, IVb, Farne Deeps.

1. Survey objectives

To obtain estimates of distribution and abundance of Nephrops in the Farne Ground using underwater television. This survey will be conducted by RV Endeavour undertaking one extensive survey on the Farne Deep Grounds. To conform with the list of mandatory surveys under the Data Collection Framework in which separate surveys are listed for these functional units, the physical survey will be FU6.

2. Survey methods

It is planned to complete 110 TV Survey Stations. Additionally, information on swathe data and water samples was also collected.

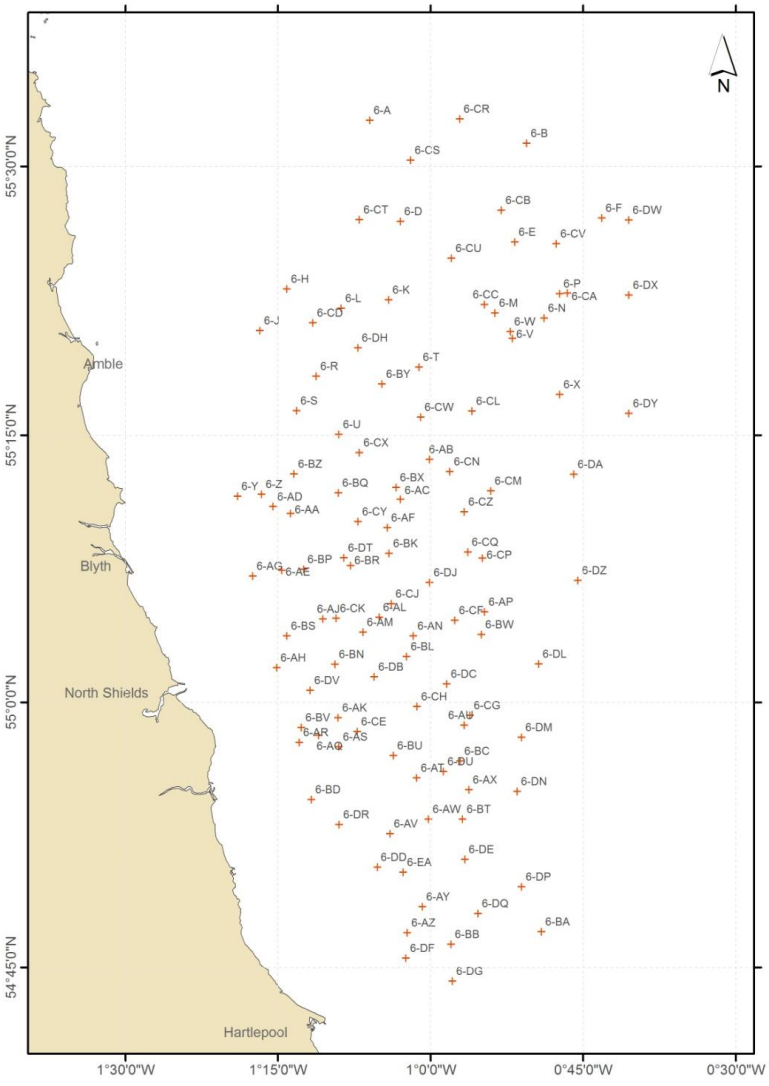


Figure 16. Map showing the location of the surveyed area NTV6; UK England, Farne Deeps

Video recordings are stored in DVD format and other data in an ACCESS database (WGNEPS is currently seeking to develop an international UWTV database and English data will be transmitted to it when/if it is developed). Video recordings will be analysed,

and the results conveyed to the ICES Working Group on the Assessment of Demersal Stocks in the North Sea and Skagerrak (WGNSSK).

3. For internationally coordinated surveys, describe the participating Countries/vessels and the relevant international group in charge of planning the survey

ICES Working Group on Nephrops Surveys (WGNEPS). Data are used in functional unit assessments

Although Nephrops UWTV surveys are coordinated via WGNEPS, the surveys are generally carried out by individual countries sampling Functional Units in their own ‘back yards’ rather than defining multi-vessel surveys across entire sea areas.

No other countries/vessels participate in this survey of this FU.

4. Graphical representation (map) showing the position (location) of the realized samples. Provide maps presenting the spatial distribution of the main sampling types obtained during the survey.

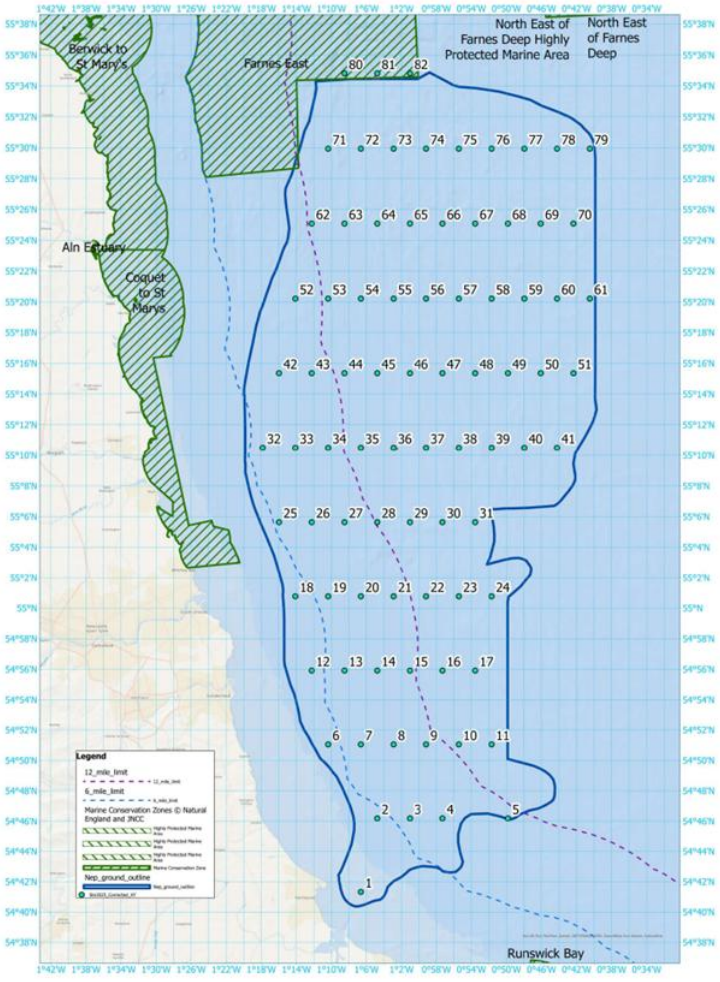


Figure 17. Map showing the location of the surveyed area NTV6; UK England, Farne Deeps

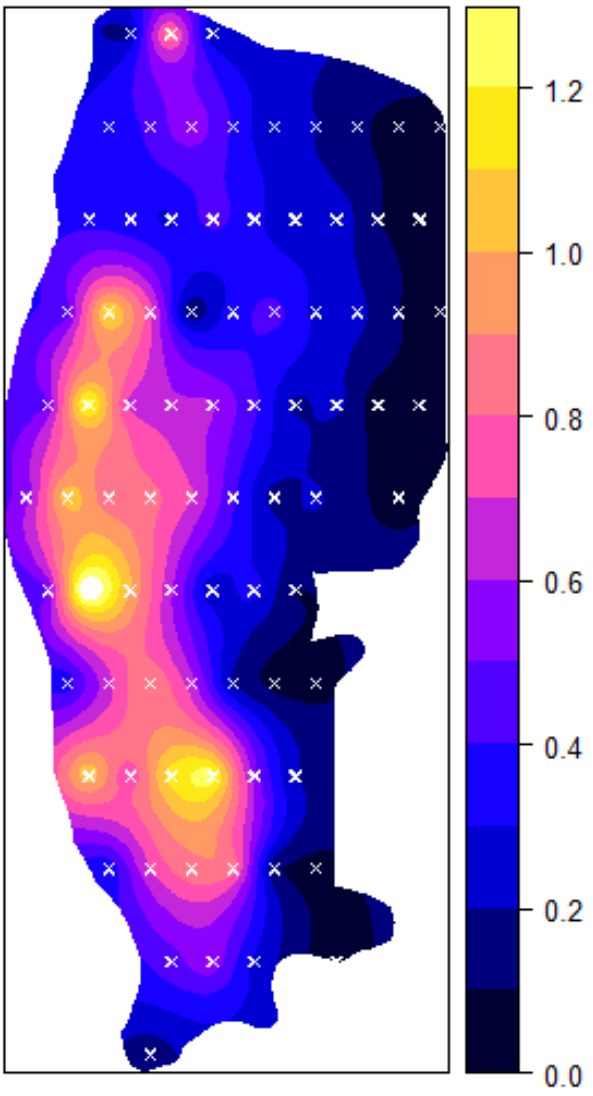


Figure 18. Surveyed area in Functional Unit 6 Geostatistical output for 2025 showing map of Nephrops density distribution (Abundance in millions and density colour scale in numbers m^2)

Outcomes: Due to rescheduling of the research vessel calendar to accommodate the triennial NSMEGs survey, fewer days were going to be available to cover the standard survey in the WP. An alternative standard approach for Nephrops UWTV surveys was adopted which ensured sufficient coverage of the area within a 4 day window available on the ground. 82 stations were planned and 81 successfully achieved. This approach has been adopted for the 2026 AWP.

Additional research requests met:

Chlorophyll samples were collected twice daily at dawn and dusk using the surface water flow pipe.

5. For internationally coordinated surveys, provide a link to the latest meeting report of the coordination group. Provide a hyperlink to the meeting report from the body coordinating the survey (ICES, MEDITS coordination group, MEDIAS coordination group etc.). For non-international coordinated surveys, refer to any status report (e.g. Cruise report) if available online.

ICES Working Group on Nephrops Surveys (WGNEPS)

6. List the main use of the results of the survey (e.g. indices, abundance estimates, and environmental indicators). Specify in which context the results are used (on routine basis), both on an international as well as on a national context.

The UK-England *Nephrops norvegicus* TV survey data is used to generate abundance estimates, feeding into the stock assessment for the FU6 stock and used at the ICES Working Group for the Assessment of Nephrops Stocks (WGNEPH).

Main uses of the of the data collected from the survey

Type of data collected	Assessment type
Biological sampling	No biological sampling in relation to Nephrops stock assessments is carried out as part of the UWTV survey
Biological sampling	No trawling is carried out
CTD by Haul	One CTD at start of survey
Other fish spp in haul	No other species are being sampled
Litter items in trawl	No litter is being sampled

Nephrops UWTV survey), (FU7), NTV7; UK Scotland, IVa, Fladen Ground, FU10 (Noup Head) and (FU34), NTV34, IVa, Devil's Hole

1. Survey objectives

To obtain estimates of distribution and abundance of Nephrops burrows in the Fladen Ground using underwater television. This survey will be conducted by Scotia undertaking one extensive survey that includes FU7, FU10 & FU34 in the North Sea (IVa) and FUs11-13 in the North Atlantic (VIa). To conform with the list of mandatory surveys under the Data Collection Framework in which separate surveys are listed for these functional units, the physical survey will be divided into two and reported separately by FU7, FU10 & FU34 and FU11-13.

2. Survey methods

It is planned to complete around 70 TV tracks in FU7, 10 TV tracks in FU10 and 17 TV tracks plus 2 fishing hauls in FU34. Additionally, information on size at maturity will be obtained.

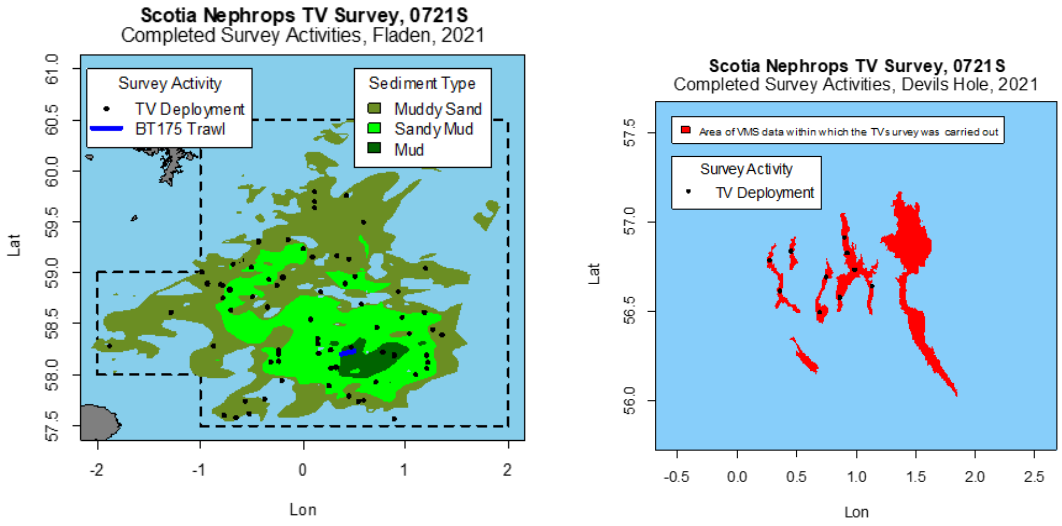


Figure 19. Plots of the Fladen & Devil's Hole grounds showing the location of the TV survey sites (in black) and the trawl (in blue), within the extent of muddy sediments.

Video recordings are stored in DVD format and other data in an ACCESS database (WGNEPS is currently seeking to develop an international UWTV database and Scottish data will be transmitted to it when/if it is developed). Video recordings will be analysed, and the results conveyed to the ICES Working Group on the Assessment of Demersal Stocks in the North Sea and Skagerrak (WGNSSK).

3. For internationally coordinated surveys, describe the participating Countries/vessels and the relevant international group in charge of planning the survey

ICES Working Group on Nephrops Surveys (WGNEPS). Data are used in functional unit assessments

Although Nephrops UWTV surveys are coordinated via WGNEPS, the surveys are generally carried out by individual countries sampling Functional Units in their own 'back yards' rather than defining multi-vessel surveys across entire sea areas.

No other countries/vessels participate in the survey of these FUs.

4. Graphical representation (map) showing the position (location) of the realized samples. Provide maps presenting the spatial distribution of the main sampling types obtained during the survey.

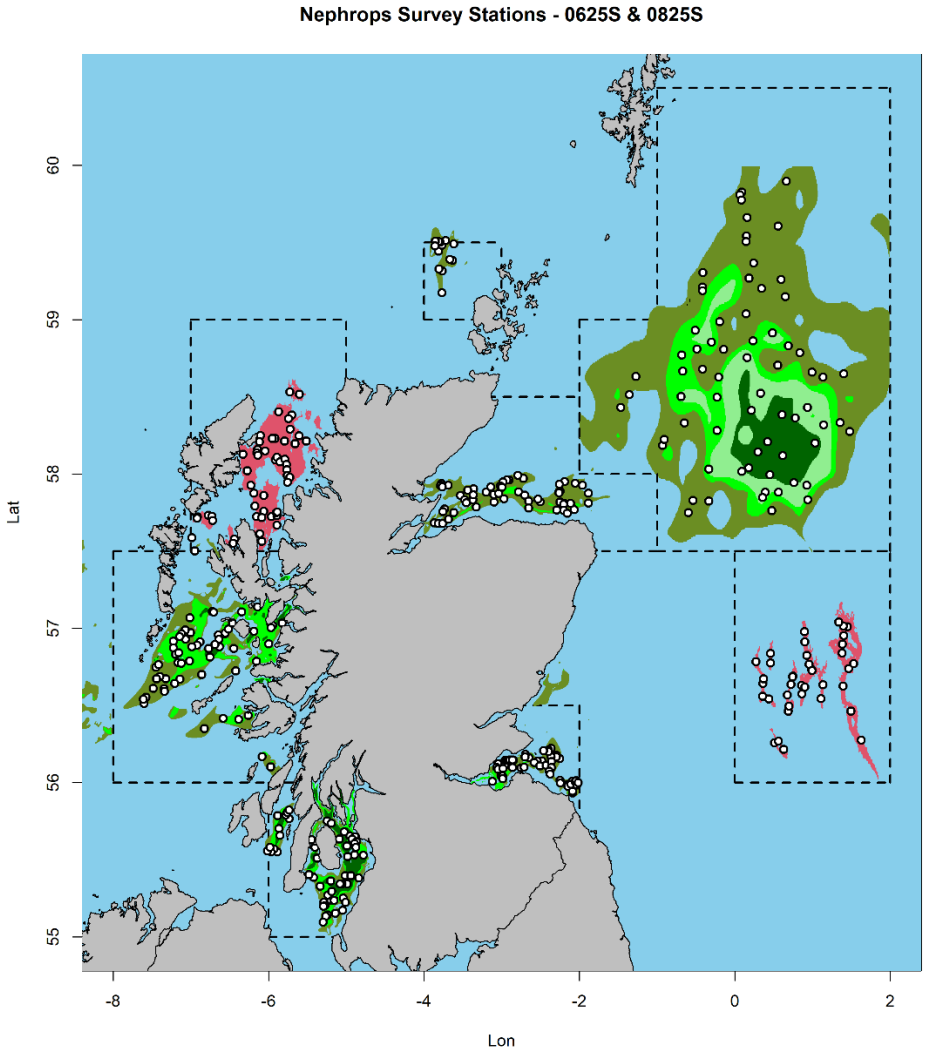


Figure 20. Realised stations for all FUs across 2 surveys

<u>*Outcomes:*</u> *Fladen* - 70 TV stations were completed. No trawling was planned for this FU.

Devil's Hole - 38 TV stations were completed. Two trawls were undertaken.

Noup – 12 TV stations were completed. No trawling was planned for this FU.

The structure of the surveys was such that FUs 7, 9, 10, 11, 12, 13 and 34 were sampled on the first survey and FUs 8 and further stations at 34 on the second survey.

Additional research requests met: None.

5. For internationally coordinated surveys, provide a link to the latest meeting report of the coordination group. Provide a hyperlink to the meeting report from the body coordinating the survey (ICES, MEDITS coordination group, MEDIAS coordination group etc.). For non-international coordinated surveys, refer to any status report (e.g. Cruise report) if available on line.

Working Group on Nephrops Surveys (WGNEPH)

6. List the main use of the results of the survey (e.g. indices, abundance estimates, and environmental indicators). Specify in which context the results are used (on routine basis), both on an international as well as on a national context.

Main uses of the of the data collected from the Nephrops tv survey

Type of data collected	**Assessment type**
UWTV stations for Nephrops burrows.	Annual international Stock assessments – used for advice
Occurrence of benthic fauna	Used by external units for species spatial analysis.
Sediment samples (from all stations)	Analysed for particle size analysis: relationship between particle size and nephrops burrow density and changes over time.
Litter items in trawl	Litter items in trawl National and international. Anthropogenic monitoring.

Nephrops UWTV survey, NTV8, NTV9; UK Scotland, IVa FU8&9; Moray Firth & Firth of Forth

1. Survey objectives

To obtain estimates of the distribution and abundance of Nephrops burrows in the Firth of Forth, and the Moray Firth using underwater cameras.

2. Survey methods

The survey will be carried out on MRV Alba-na-Mara. It is planned to complete over 50 TV tracks in each of FU8 and FU9 and 1 fishing haul in FU9 on this combined survey. Additionally, information on size at maturity will be obtained.

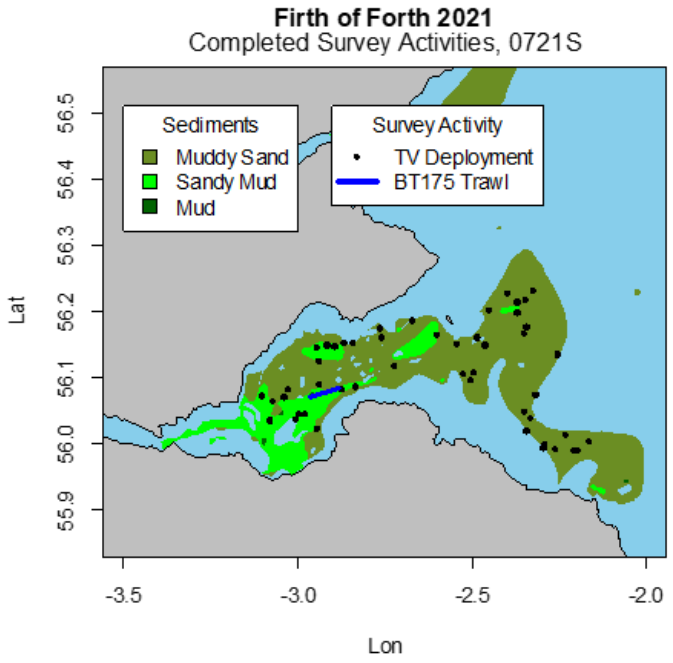


Figure 21. Map showing the location of the Firth of Forth TV survey sites (in black) and the trawl (in blue), within the extent of muddy sediments.

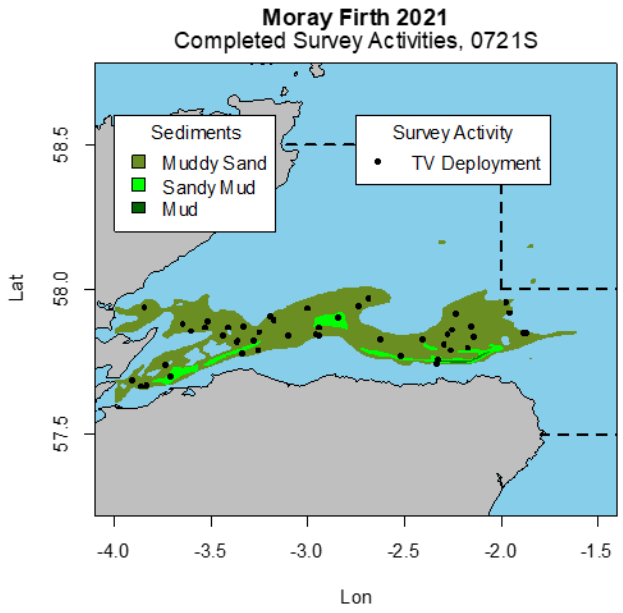


Figure 22. Map showing the location of the surveyed area in the Moray Firth showing the location of the TV survey sites (in black), within the extent of muddy sediments.

Video recordings are stored in DVD format and other data in an ACCESS database (WGNEPS is currently seeking to develop an international UWTV database and Scottish data will be transmitted to it when/if it is developed). Video recordings will be analysed, and the results conveyed to the ICES Working Group on the Assessment of Demersal Stocks in the North Sea and Skagerrak (WGNSSK).

3. For internationally coordinated surveys, describe the participating Countries/vessels and the relevant international group in charge of planning the survey

ICES Working Group on Nephrops Surveys (WGNEPS)

Data are used in functional unit assessments

Although Nephrops UWTV surveys are coordinated via WGNEPS, the surveys are generally carried out by individual countries sampling Functional Units in their own ‘back yards’ rather than defining multi-vessel surveys across entire sea areas.

No other countries/vessels participate in the surveys of these FUs.

4. Graphical representation (map) showing the position (location) of the realized samples. Provide maps presenting the spatial distribution of the main sampling types obtained during the survey.

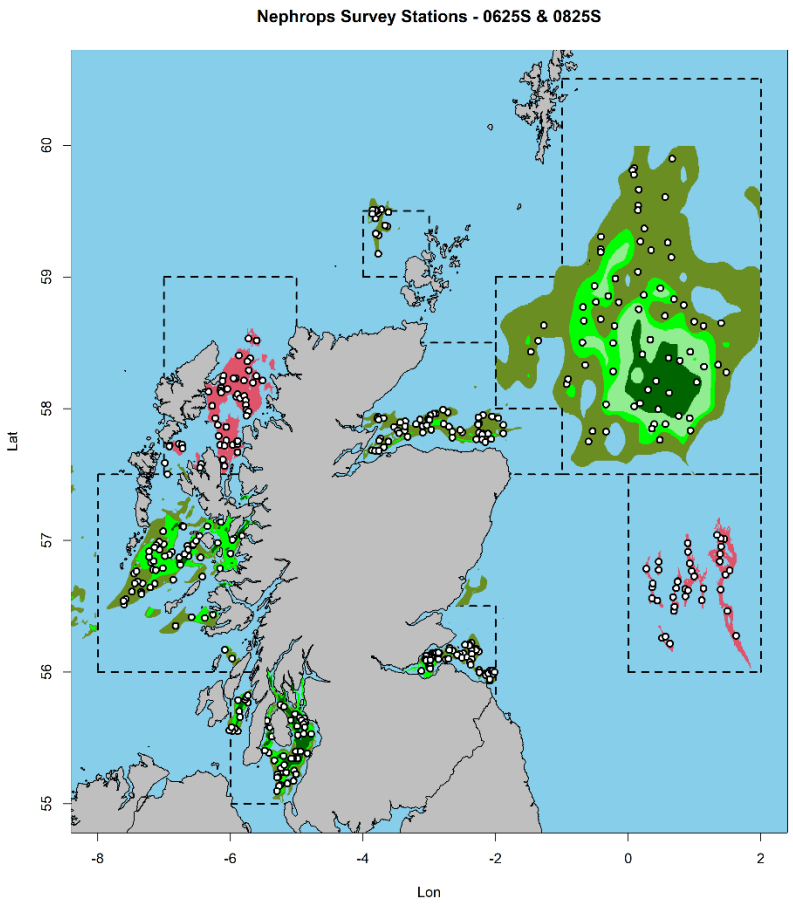


Figure 23. Realised stations for all FUs across 2 surveys

Outcomes: FU8 - 49 TV stations were successful, with 1 trawl completed.

FU9 - The Moray Firth FU9 completed 54 TV deployments. No trawling was undertaken, as priority was given to camera work and the weather was unsuitable when trawling may have been possible.

The structure of the surveys was such that FUs 7, 9, 10, 11, 12, 13 and 34 were sampled on the first survey and FUs 8 and further stations at 34 on the second survey.

Additional research requests met: None.

5. For internationally coordinated surveys, provide a link to the latest meeting report of the coordination group. Provide a hyperlink to the meeting report from the body coordinating the survey (ICES, MEDITS coordination group, MEDIAS coordination group etc.). For non-international coordinated surveys, refer to any status report (e.g. Cruise report) if available online.

Working Group on Nephrops Surveys (WGNEPH)

6. List the main use of the results of the survey (e.g. indices, abundance estimates, and environmental indicators). Specify in which context the results are used (on routine basis), both on an international as well as on a national context.

Main uses of the of the data collected from the Nephrops tv survey

Type of data collected	**Assessment type**
UWTV stations for Nephrops burrows.	Annual international Stock assessments – used for advice
Occurrence of benthic fauna	Used by external units for species spatial analysis.
Sediment samples (from all stations)	Analysed for particle size analysis: relationship between particle size and nephrops burrow density and changes over time.
Litter items in trawl	Litter items in trawl National and international. Anthropogenic monitoring.

North Sea sandeel survey, NSSS; UK Scotland component Area IV (Firth of Forth & Turbot Bank)

1. Survey objectives

To determine the abundance, length and age of sandeels (Ammodytes marinus) in the sediment in regions east of Scotland covering the Firth of Forth and Turbot bank areas. (ICES IVa).

The AWG splits the North Sea into 7 distinct management areas, 5 of which are commercially fished. Scotland samples SA 4.

2. Survey methods

MRV Alba na Mara will use a modified scallop dredge with 6” teeth, camera trolley with light source and DST logger (temperature and depth). The areas will be surveyed by camera and the dredge deployed 70-75 times to catch samples for biological parameters. Sediment is collected at each station.

TV data are stored in DVD format and other data are stored in data banks at Marine Directorate (MD).

Subsequent post survey analysis and age data will be provided to ICES HAWG.

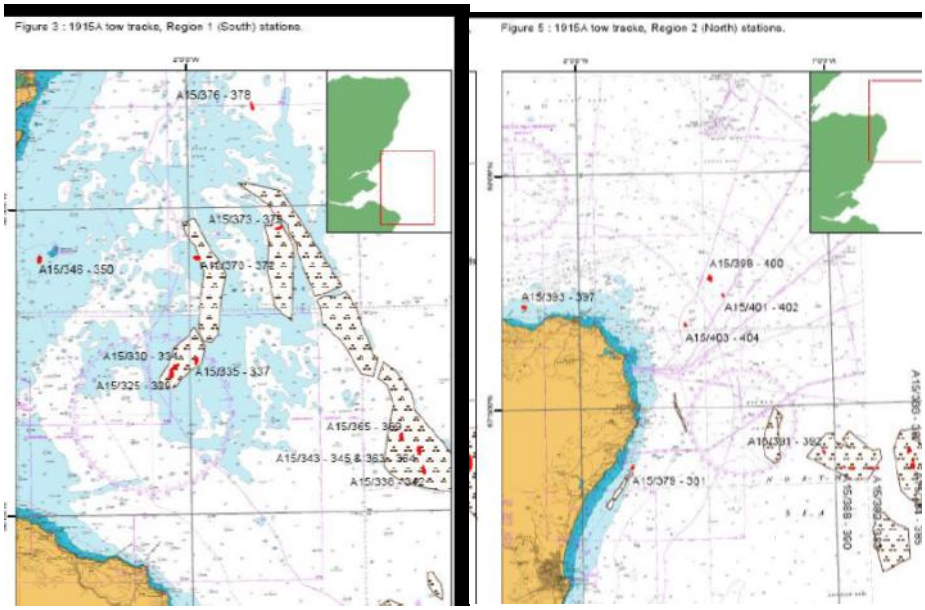


Figure 24. Maps showing the location of the surveyed area NSSS; UK Scotland component Area IV

3. For internationally coordinated surveys, describe the participating Countries/vessels and the relevant international group in charge of planning the survey

ICES Herring Assessment Working Group (HAWG).

UK (Scotland) data will be amalgamated with survey data provided by Denmark and Norway.

4. Graphical representation (map) showing the position (location) of the realized samples. Provide maps presenting the spatial distribution of the main sampling types obtained during the survey.

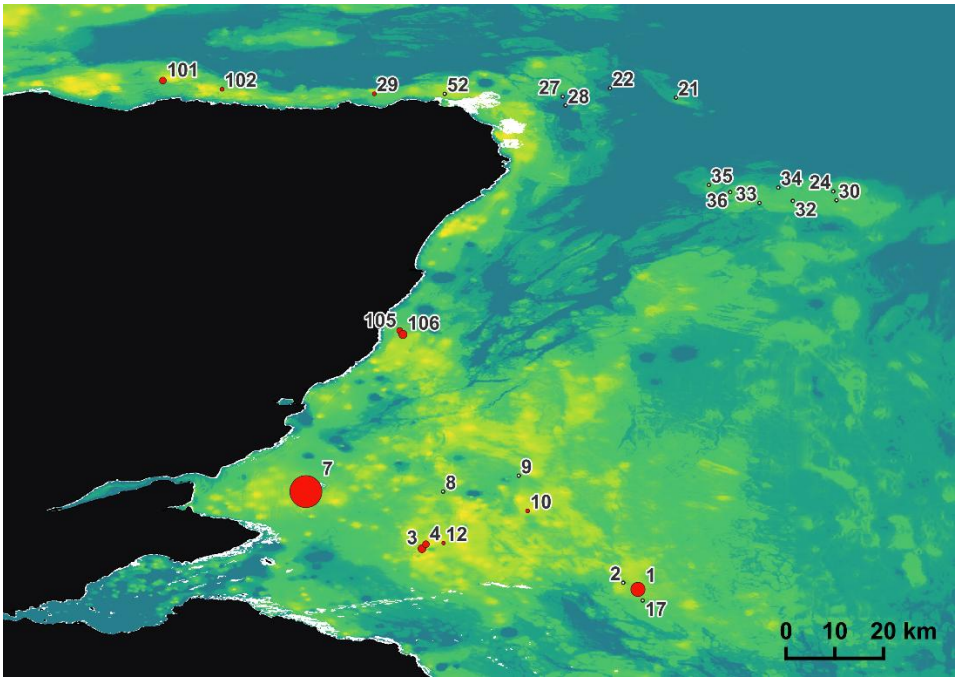


Figure 25. Sandeel achieved stations 2025

Outcomes: 19 days and 78 dredge hauls were completed, all of which were valid. 336 sandeels were biologically sampled and ages determined at sea (343 Firth of Forth, 59 Moray Firth and 0 Turbot bank).

Additional research requests met: Samples of sandeel and other fish bycatch (species known as seabird prey) were collected and frozen for further analyses.

5. For internationally coordinated surveys, provide a link to the latest meeting report of the coordination group. Provide a hyperlink to the meeting report from the body coordinating the survey (ICES, MEDITS coordination group, MEDIAS coordination group etc.). For non-international coordinated surveys, refer to any status report (e.g. Cruise report) if available online.

Herring Assessment Working Group for the Area South of 62°N (HAWG)

6. List the main use of the results of the survey (e.g. indices, abundance estimates, and environmental indicators). Specify in which context the results are used (on routine basis), both on an international as well as on a national context.

Main uses of the of the data collected from the *Sandeel North Sea* survey

Type of data collected	**Assessment type**
Biological sampling	Annual international indices for the assessment of sandeels (area IV) – used for advice Length, age, weight, sex, maturity
Litter items in trawl	National and international. Anthropogenic monitoring.

Solent bass trawl survey, SBTS; England, VIId

1.Survey objectives

To provide estimates of abundance of recruiting year classes and CPUE-at-age series for sea bass from a commercial trawler for provision to the Celtic Seas Ecoregion Working Group (WGCSE). These are used for tuning purposes.

2. Survey methods

The survey will be conducted on the MFV Angelle Marie. A standard grid of stations are fished annually. Age samples and biological parameters will be taken from all target species.

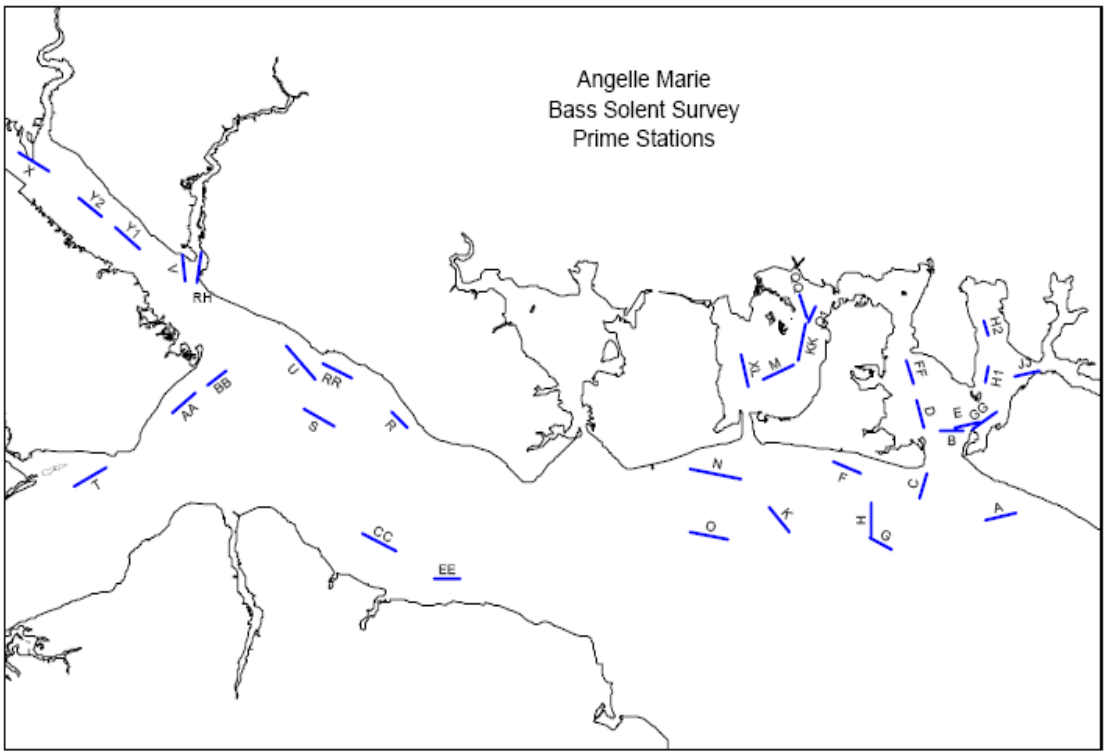


Figure 26. Map showing positions of trawl stations SBTS; UK England, VIId

The resultant data will be input onto the Cefas Fisheries surveys database (FSS).

3. For internationally coordinated surveys, describe the participating Countries/vessels and the relevant international group in charge of planning the survey

N/A

4. Graphical representation (map) showing the position (location) of the realized samples. Provide maps presenting the spatial distribution of the main sampling types obtained during the survey.

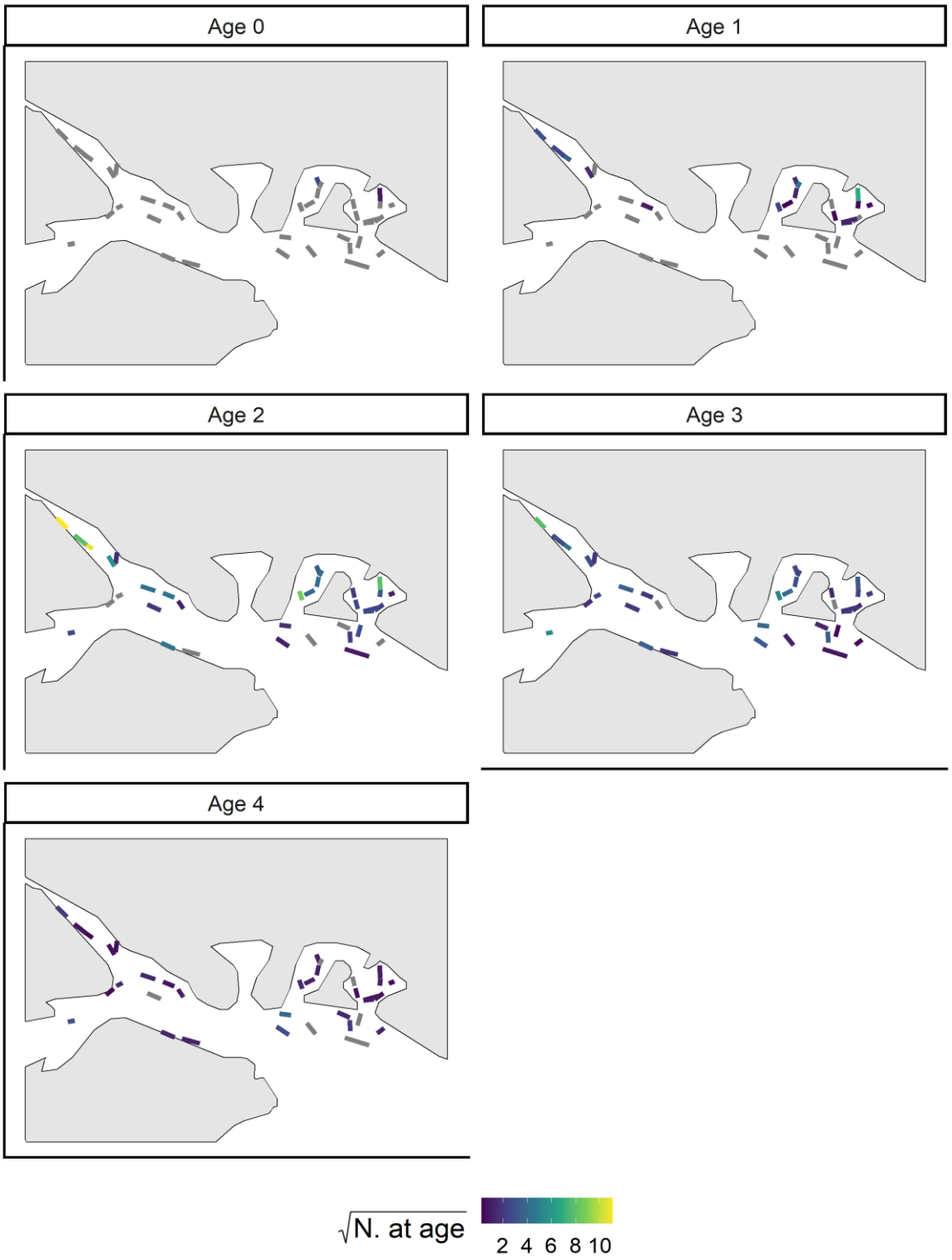


Figure 27. SBTS 2023 completed survey area with the number of bass caught at age.

Outcomes: 35 of 35 stations were sampled (**Error! Reference source not found.**). Bass were caught at 35 of the 35 stations fished. Fish at ages 2–4 that are included in the abundance index were taken at 28 of the 35 stations. A total of 3122 bass were caught on valid tows, within the harbours and outside.

Additional research requests met: N/A

5. For internationally coordinated surveys, provide a link to the latest meeting report of the coordination group. Provide a hyperlink to the meeting report from the body coordinating the survey (ICES, MEDITS coordination group, MEDIAS coordination group etc.). For non-international coordinated surveys, refer to any status report (e.g. Cruise report) if available online.

N/A

6. List the main use of the results of the survey (e.g. indices, abundance estimates, and environmental indicators). Specify in which context the results are used (on routine basis), both on an international as well as on a national context.

The data from this survey are currently included in the assessment of the sea bass stock carried out since 2012 by the International Council for the Exploration of the Sea (ICES). The ICES assessment includes the separate indices for age classes 2 to 4 from the Solent survey. Cefas also produces a combined index for these age classes.

Main uses of the of the data collected from the *SBTS* survey

Type of data collected	**Assessment type**
Biological sampling	International assessment
Biological sampling	N/A
CTD by Haul	N/A
Other fish spp in haul	N/A
Litter items in trawl	N/A

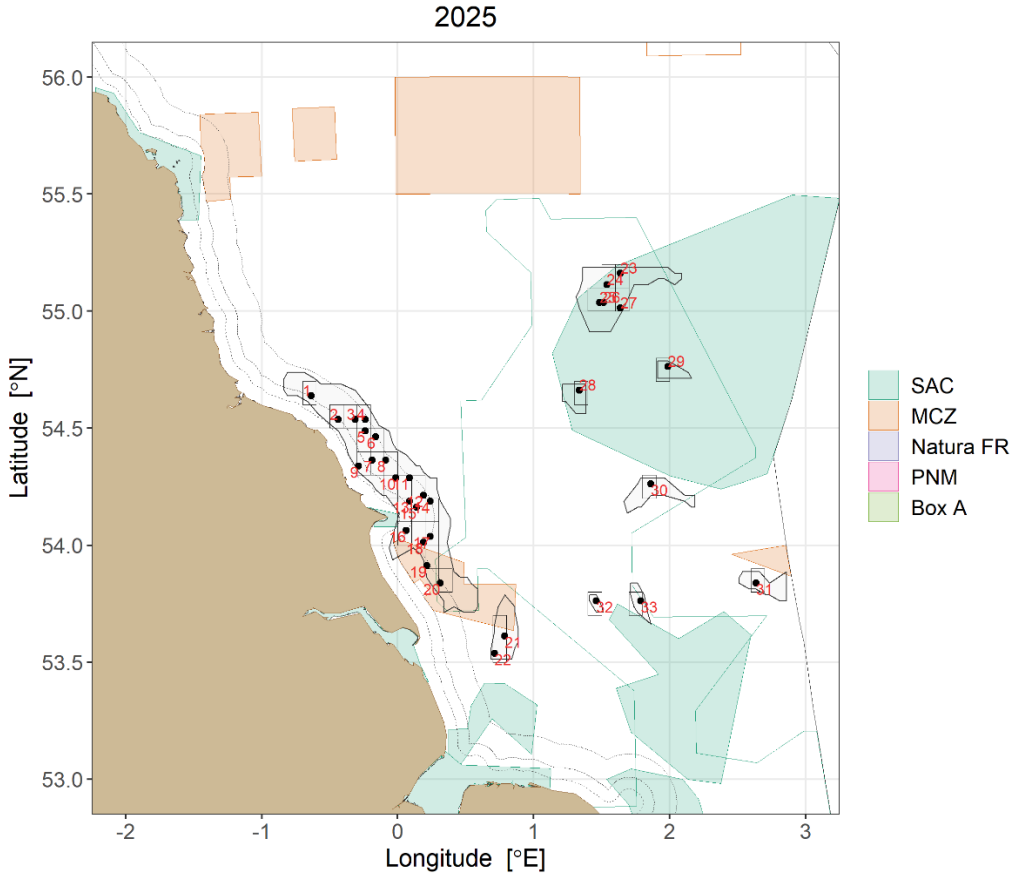
Eastern Channel & North Sea scallop dredge survey, EECSDS; England, VIId, IVb

1. Survey objectives

To obtain estimates of distribution and harvestable biomass of King Scallop in the Eastern English Channel and North Sea. This survey will be conducted annually each September by a chartered commercial vessel using both commercial and modified dredges on exploited grounds described by historic VMS data. The data are the primary input to the annual scallop stock assessments published on the government website in April each year.

2. Survey methods

Approximately 22 tows are carried out in the North Sea and a further 79 tows are carried out in the Eastern Channel (total 101). The survey methodology continues to undergo evolution with redefinition of the assessment areas and exploited beds expected to change with the fishery. The survey is a swept area method relying on substrate specific gear efficiency estimates to convert survey catch rates to density on the seabed. Harvestable biomass is estimated from the size distributions of the catch using L-W factors.



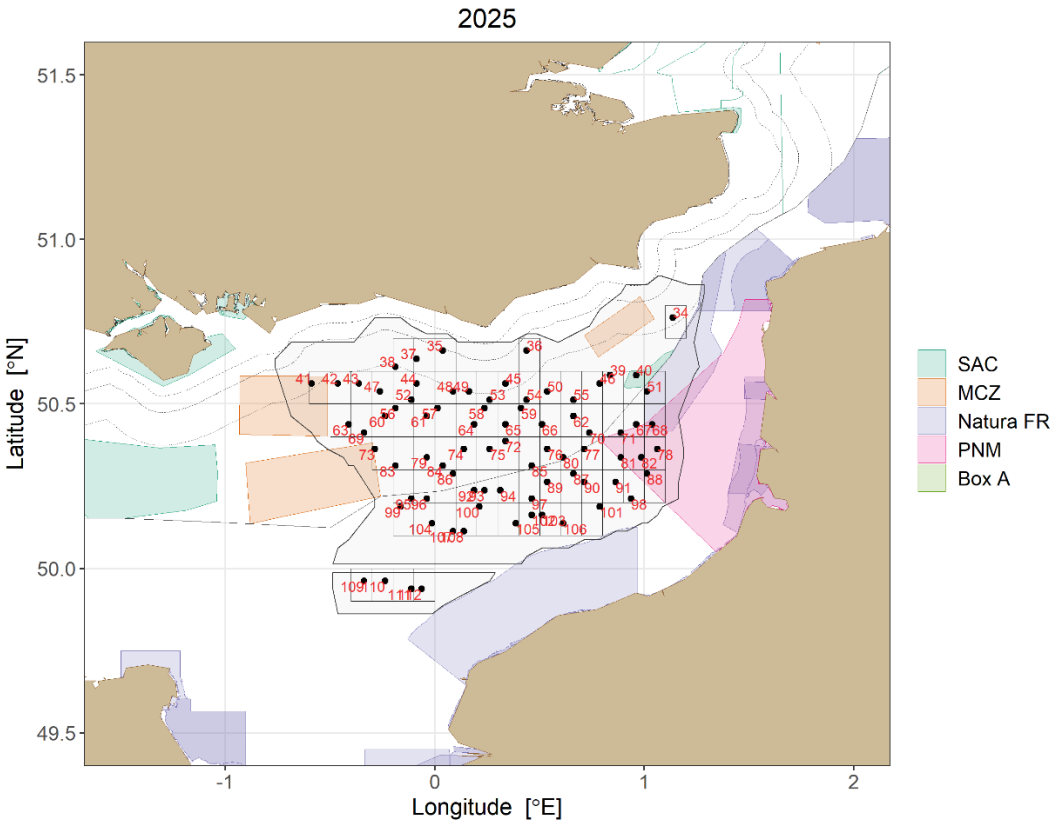


Figure 28. Proposed survey sites in the North Sea (22 stations) and Eastern Channel (79 stations) EECSDS; UK England, VIId, IVb. N.B. Survey sites in the French EEZ and Central North Sea are subject to permissions and may not be carried out.

Exploitation levels are presented in the annual stock assessment as the total realised or estimated removals as a proportion of the estimated harvestable biomass.

3. For internationally coordinated surveys, describe the participating Countries/vessels and the relevant international group in charge of planning the survey

The survey is not internationally coordinated but results are presented, and methodology periodically reviewed by ICES Working Group on scallops (WGScallop).

4. Graphical representation (map) showing the position (location) of the realized samples. Provide maps presenting the spatial distribution of the main sampling types obtained during the survey.

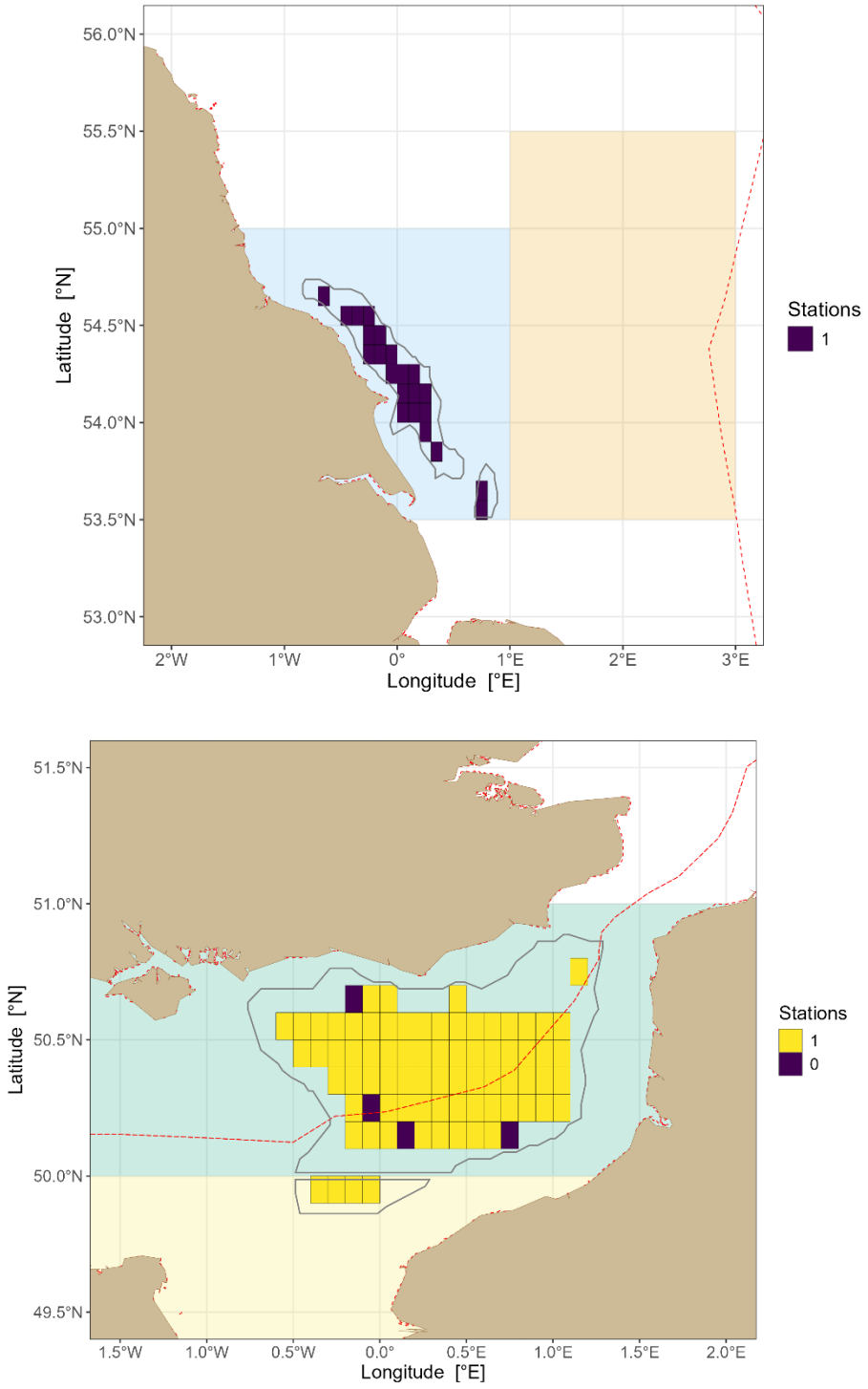


Figure 29. EECDS completed survey area showing the number of stations sampled per grid.

Outcomes: 99 of 102 target stations completed (including areas of the French EZZ). Two stations were abandoned due to rocky ground and two were excluded during QC. Catches were enumerated at each site and tow details collated. Of the four pre-defined beds, four were surveyed..

Additional research requests met: Samples retained for age analysis. Bycatch and yield recording -various.

5. For internationally coordinated surveys, provide a link to the latest meeting report of the coordination group. Provide a hyperlink to the meeting report from the body coordinating the survey (ICES, MEDITS coordination group, MEDIAS coordination group etc.). For non-international coordinated surveys, refer to any status report (e.g. Cruise report) if available online.

ICES (2026). Scallop Assessment Working Group (WGScallop; outputs from 2025 meeting).

6. List the main use of the results of the survey (e.g. indices, abundance estimates, and environmental indicators). Specify in which context the results are used (on routine basis), both on an international as well as on a national context.

The annual dredge surveys are the primary basis for annually published stock assessments. Abundance estimates, in connection with international landings, are used to establish exploitation rates and harvestable biomass. Size sampling data are used in spawner-per-recruit models to establish MSY-proxy biological reference points for harvest rates. Realised harvest rates can then be compared with reference points to assess whether regional commercial exploitation is sustainable.

East Coast Scallop Dredge Survey, ECSS; UK Scotland, ICES area IVa

1. Survey objectives

The objectives of the East Coast king scallop survey are:

- to carry out a survey of scallop stocks around the East coast of Scotland.
- to age, measure and assess shell damage on all scallops caught.
- to collect information on by-catch of other commercial fish and shellfish species.
- to identify and quantify numbers of starfish species in all dredge tows.
- to collect frozen whole scallops for heavy metal testing as part of the OSPAR assessment of hazardous substances in the marine environment.
- to record and retain marine litter obtained during the dredging process (for MSFD).

2. Survey methods

The commercial fishery for the king scallop (Pecten maximus) is the second most valuable shellfish fishery in Scotland. Dredge surveys of the major scallops grounds around Scotland have been carried out annually by Marine Directorate (MD) since the mid-1990's. The scallop survey data are used in the regional stock assessments.

The survey gear on the starboard side consists of six standard commercial spring-loaded Newhaven type dredges (75 cm wide, 9 tooth bar, 80 mm internal diameter belly rings). The port side has six smaller configured sampling dredges (75 cm wide, 11 tooth bar, with 60 mm internal diameter belly rings). At each station (Figure 1) the dredges are towed at ~2.5 knots for 30 minutes and all king scallops caught are aged, measured (length to the 0.5 cm below) and damage assessed. All bycatch is identified, measured, sexed where appropriate and damage assessed. All starfish are identified and damage assessed.

The survey is planned for May/June, lasting approximately 20 to 23 days. There are 110 fixed stations to select from, weather dependent.

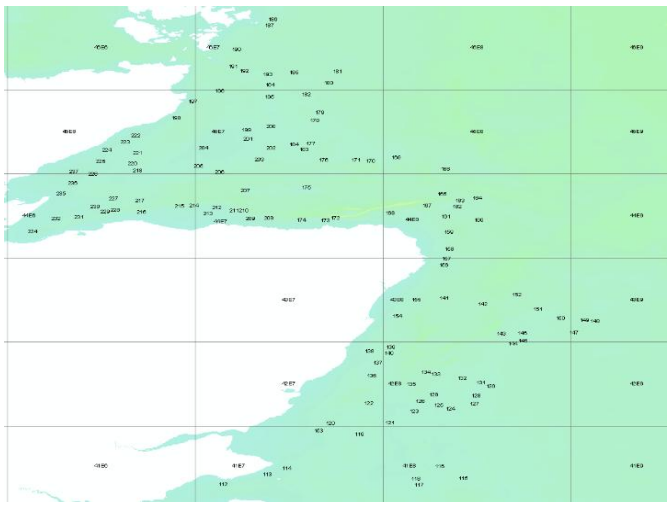


Figure 30. Map of scallop dredge stations; UK Scotland, IVa

3. For internationally coordinated surveys, describe the participating Countries/vessels and the relevant international group in charge of planning the survey

Not internationally coordinated. Data are used in national stock unit assessments

Scallop survey data are discussed and detailed at ICES WGSCALLOP.

4. Graphical representation (map) showing the position (location) of the realized samples. Provide maps presenting the spatial distribution of the main sampling types obtained during the survey.

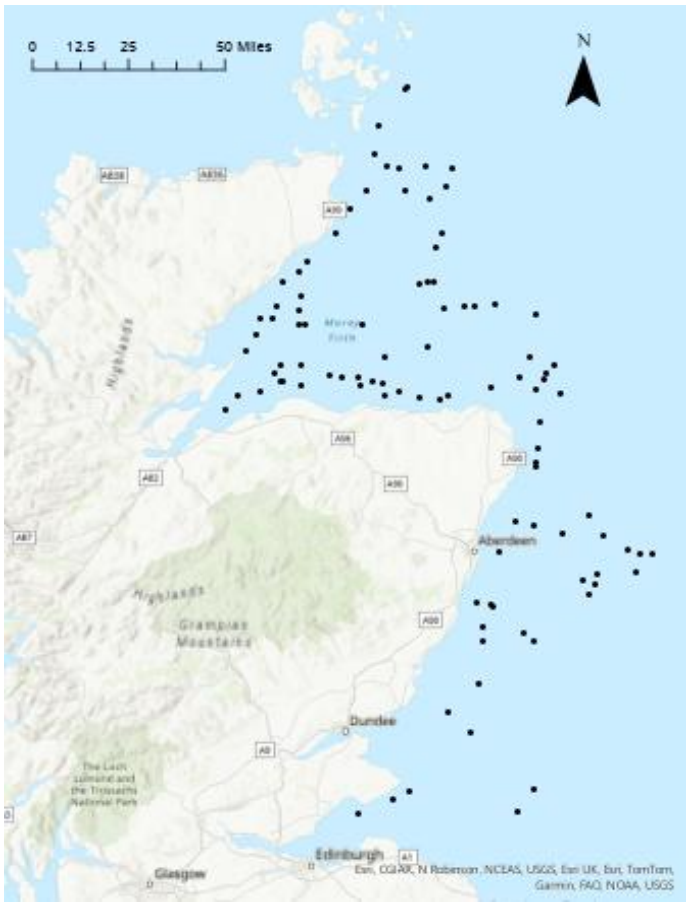


Figure 31. ECSS completed survey area

<u>*Outcomes:*</u> *101* dredge trawl stations were completed. 11,256 scallops were biologically sampled as well as bycatch species: including plaice (129), cuckoo ray (153) and Brown crab (182). 1761 starfish were identified to species. Also dabs, rays, whelks, plaice, queen scallops and lemon sole were measured and recorded.

Additional research requests met: Scallops were collected for heavy metal testing as part of the OSPAR assessment of hazardous substances in the marine environment and for genetic material to assess connectivity among scallop grounds in Shetland.

Marine litter was recorded and retained.

5. For internationally coordinated surveys, provide a link to the latest meeting report of the coordination group. Provide a hyperlink to the meeting report from the body coordinating the survey (ICES, MEDITS coordination group, MEDIAS coordination group etc.). For non-international coordinated surveys, refer to any status report (e.g. Cruise report) if available online.

Scallop Assessment Working Group (WGScallop; Outputs from 2025 meeting)

6. List the main use of the results of the survey (e.g. indices, abundance estimates, and environmental indicators). Specify in which context the results are used (on routine basis), both on an international as well as on a national context.

Main uses of the of the data collected from the East Coast (Scotland) scallop survey

Type of data collected	**Assessment type**
Biological sampling	National assessment. Length, age, meat weight. Shell damage.
Other fish spp in haul	National assessment and long-term trends.
Litter items in trawl	National and international. Anthropogenic monitoring.

Shetland Scallop Dredge Survey, SHETSS; UK Scotland, ICES area IVa

1. Survey objectives

The objectives of the North Sea Shetland king scallop survey are:

- to carry out a survey of scallop stocks around the Shetland Islands.
- to age, measure and assess shell damage on all scallops caught.
- to collect information on by-catch of other commercial fish and shellfish species.
- to identify and quantify numbers of starfish species in all dredge tows.
- to collect frozen whole scallops for heavy metal testing as part of the OSPAR assessment of hazardous substances in the marine environment.
- to record and retain marine litter obtained during the dredging process (for MSFD).

2. Survey methods

The commercial fishery for the king scallop (Pecten maximus) is the second most valuable shellfish fishery in Scotland. Dredge surveys of the major scallops grounds around Scotland have been carried out annually by Marine Directorate (MD) since the mid-1990's. The scallop survey data are used in the regional stock assessments.

The survey gear on the starboard side consists of six standard commercial spring-loaded Newhaven type dredges (75 cm wide, 9 tooth bar, 80 mm internal diameter belly rings). The port side has six smaller configured sampling dredges (75 cm wide, 11 tooth bar, with 60 mm internal diameter belly rings). At each station (Figure 16) the dredges are towed at ~2.5 knots for 30 minutes and all king scallops caught are aged, measured (length to the 0.5 cm below) and damage assessed. All bycatch is identified, measured, sexed where appropriate and damage assessed. All starfish are identified and damage assessed.

The survey is planned for January, lasting approximately 15 days. There are 45 fixed stations to select from, weather dependent.

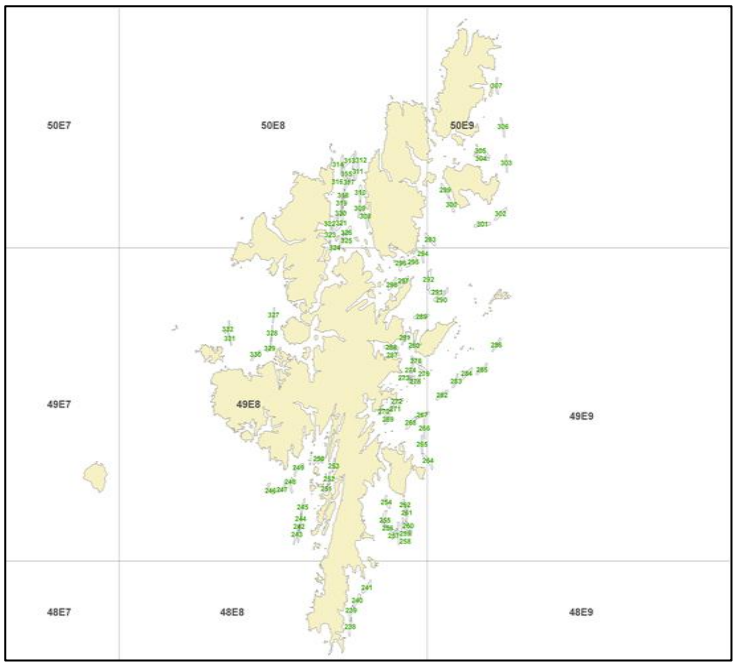


Figure 32. Map of scallop dredge stations; UK Scotland, IVa (Shetland)

3. For internationally coordinated surveys, describe the participating Countries/vessels and the relevant international group in charge of planning the survey

Not internationally coordinated. Data are used in national stock unit assessments

Scallop survey data are discussed and detailed at ICES WGSCALLOP.

4. Graphical representation (map) showing the position (location) of the realized samples. Provide maps presenting the spatial distribution of the main sampling types obtained during the survey.



Figure 33. Completed survey area

Outcomes: *54* stations were fished. 9488 scallops were sampled for biological parameters. A bycatch of queen scallops (831), red whelks (204) & common whelks (109) were measured. 1673 starfish were identified to species and crabs, dogfish, plaice, rays, dragonets were measured.

Additional research requests met: Scallops were collected for metal testing (OSPAR). Marine litter was recorded and retained. Around 40 scallop shells of a variety of ages were collected and cleaned to form a reference set for scallop age-based training for staff at the lab.

5. For internationally coordinated surveys, provide a link to the latest meeting report of the coordination group. Provide a hyperlink to the meeting report from the body coordinating the survey (ICES, MEDITS coordination group, MEDIAS coordination group etc.). For non-international coordinated surveys, refer to any status report (e.g. Cruise report) if available online.

Scallop Assessment Working Group (WGScallop; Outputs from 2025 meeting)

6. List the main use of the results of the survey (e.g. indices, abundance estimates, and environmental indicators). Specify in which context the results are used (on routine basis), both on an international as well as on a national context.

Main uses of the of the data collected from the Shetland scallop survey

Type of data collected	Assessment type
Biological sampling	National assessment. Length, age, meat weight. Shell damage.
Other fish spp in haul	National assessment and long-term trends.
Litter items in trawl	National and international. Anthropogenic monitoring.

North Sea (ICES areas IIIa, IV and VIId) and Eastern Arctic (ICES Areas I& II) and North Atlantic (ICES Areas V-XIV and NAFO areas)

Blue whiting survey, IBWSS; International Blue whiting spawning stock survey Areas I, II, III, IV, VI.

In 2025 UK-Scotland will provide staff to other countries taking part in the International Blue Whiting survey.

1. Survey objectives

An acoustic survey of blue whiting spawning biomass in the northeast Atlantic

2. Survey methods

Figure 17 shows a map of the full survey area historically covered by the Dutch and Irish.

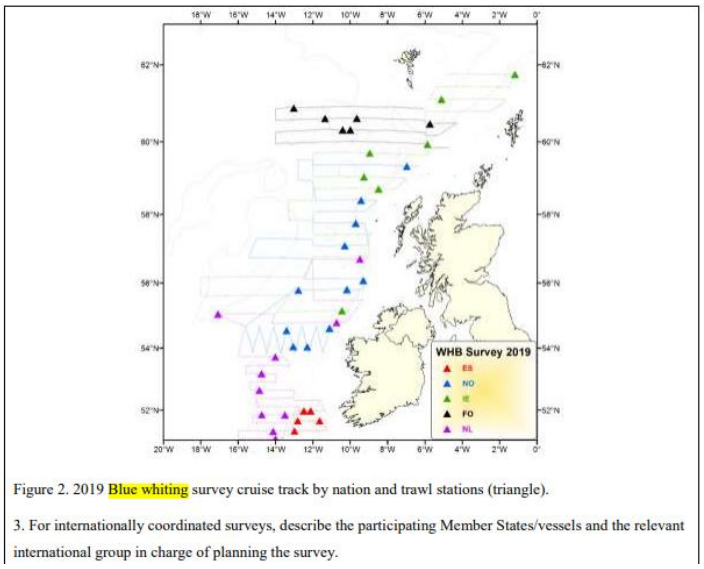


Figure 2. 2019 Blue whiting survey cruise track by nation and trawl stations (triangle).

3. For internationally coordinated surveys, describe the participating Member States/vessels and the relevant international group in charge of planning the survey.

Figure 34. Indicative survey area anticipated based on 2019 survey effort. Precise survey plans for future years are currently under development.

3. For internationally coordinated surveys, describe the participating Countries/vessels and the relevant international group in charge of planning the survey

ICES Working Group on International Pelagic Surveys

UK Scotland; Fritjof Nansen (Russia); Celtic Explorer (Ireland); Magnus Heinason (Faroe Islands); Tridens (Netherlands); G.O. Sars (Norway)

Until 2021 the UK (Scotland) made a financial contribution to the international blue whiting spawning stock survey, co-funding the Dutch and Irish parts of the survey (i.e., the EU participants) and provided one member of staff to participate in the survey.

4. Graphical representation (map) showing the position (location) of the realized samples. Provide maps presenting the spatial distribution of the main sampling types obtained during the survey.

Outcomes: Marine Directorate staff contributed to other International blue whiting surveys.

5. For internationally coordinated surveys, provide a link to the latest meeting report of the coordination group. Provide a hyperlink to the meeting report from the body coordinating the survey (ICES, MEDITS coordination group, MEDIAS coordination group etc.). For non-international coordinated surveys, refer to any status report (e.g. Cruise report) if available online.

N/A

6. List the main use of the results of the survey (e.g. indices, abundance estimates, and environmental indicators). Specify in which context the results are used (on routine basis), both on an international as well as on a national context.

Main uses of the of the data collected from the blue whiting survey

Type of data collected	**Assessment type**
Biological sampling	Any data collected would have been used in Annual international indices for the assessment of blue whiting and used for advice

Scottish Irish Anglerfish Megrim Industry Science Survey - SIAMISS UK Scotland IVa, VIa, VIb

1. Survey objectives

The main objective of the survey is to estimate the distribution, abundance, length structure and biomass of anglerfish and megrim stocks in ICES divisions 27.4.a, 27.6.a, 27.6.b. In addition, information is collected on cod and some skate species. Otoliths are collected for anglerfish and cod. The survey is conducted annually each April.

2. Survey methods

Historically, the Scottish component of the survey has been undertaken in partnership with industry, using MRV Scotia and chartered demersal trawlers, each covering part of the survey area. In 2025 it is planned that alongside Scotia, a Scottish industry vessel will also be present to participate in the survey, providing additional coverage in Scottish waters of 27.4.a and 27.6.a (North of 58^{o}N).

A minimum of 88 one-hour trawl hauls is planned throughout the survey using a bespoke anglerfish trawl, Jackson BT195. The net will be deployed down to a maximum 1000m in the Atlantic and 500m in the North Sea. From each haul full biological sampling will be recorded for Lophius spp. Lepidorhombus spp, cod, and some rarer skate species will be sub sampled, if and when time is available, on Scotia, all other species will be measured for length.

Sampling protocols were agreed between MD scientists and representatives from the fishing industry who specifically target *Lophius*. These protocols also follow the IBTS guidelines.

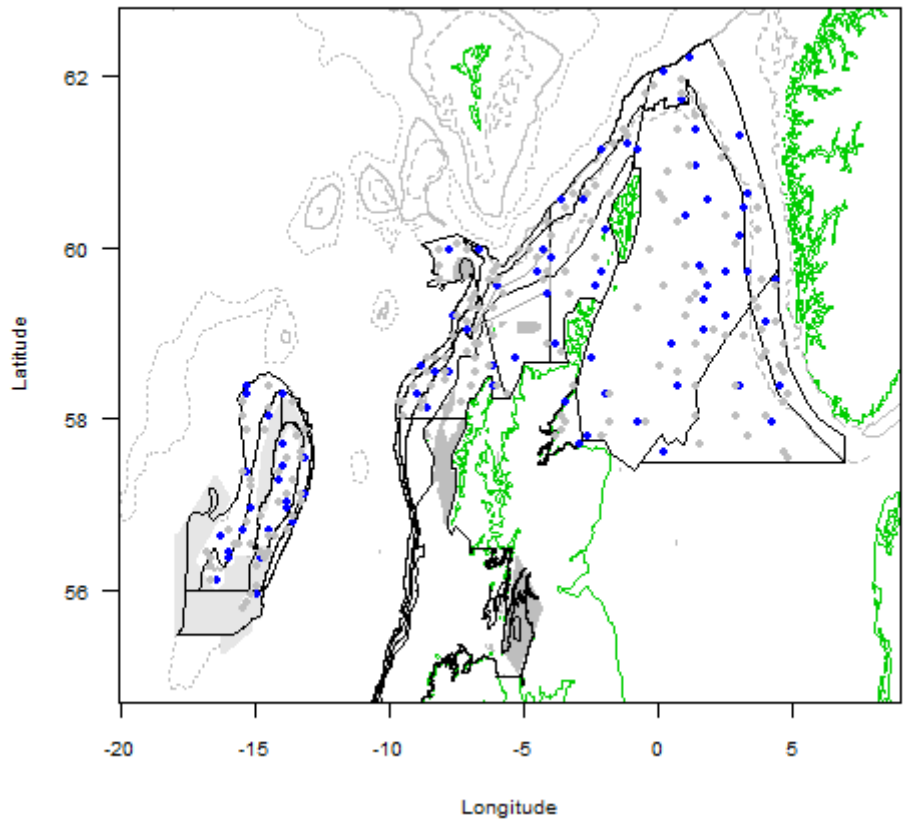


Figure 35. Map showing the SIAMISS survey areas and planned stations for Scotia in 2023.

3. For internationally coordinated surveys, describe the participating Countries/vessels and the relevant international group in charge of planning the survey.

The survey is coordinated with the Scottish fishing industry and with Ireland. Ireland has surveyed 27.6.a South of 58ºN since 2017 with Celtic Explorer. Scotland surveys 27.4.a, 27.6.a North of 58ºN and 27.6.b. There is no official international coordination group, but the protocols follow IBTSWG guidelines.

Data are held in the Marine Directorate FSS database and used at ICES WGCSE to assess anglerfish and megrim stocks.

4. Graphical representation (map) showing the position (location) of the realized samples. Provide maps presenting the spatial distribution of the main sampling types obtained during the survey.

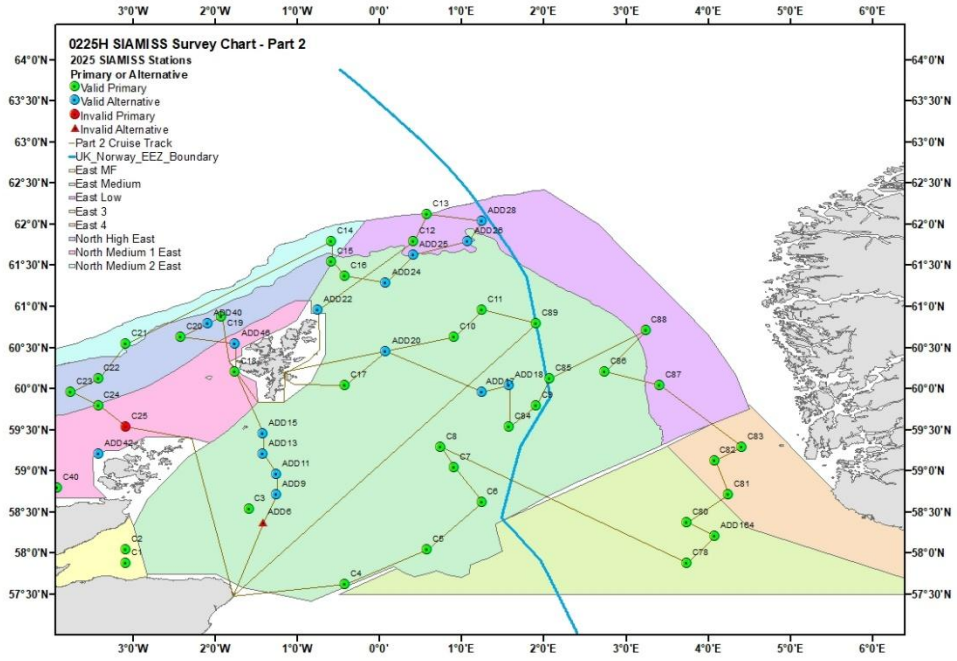


Figure 36. SIAMISS, IVa achieved stations.

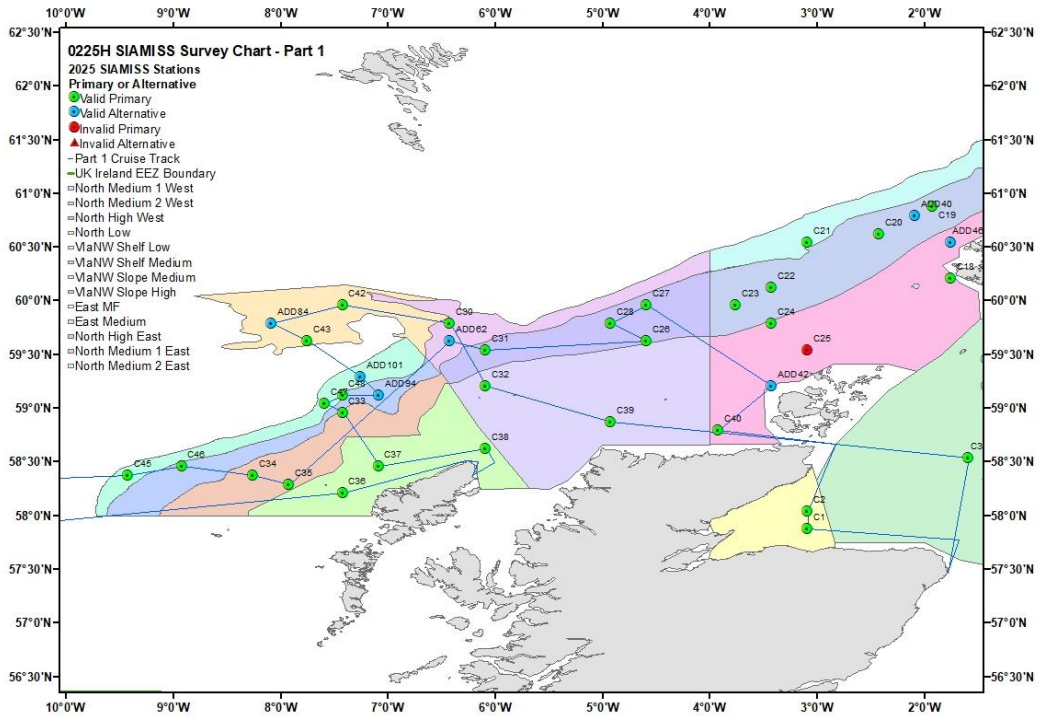


Figure 37. SIAMISS, IVa and VIa achieved stations.

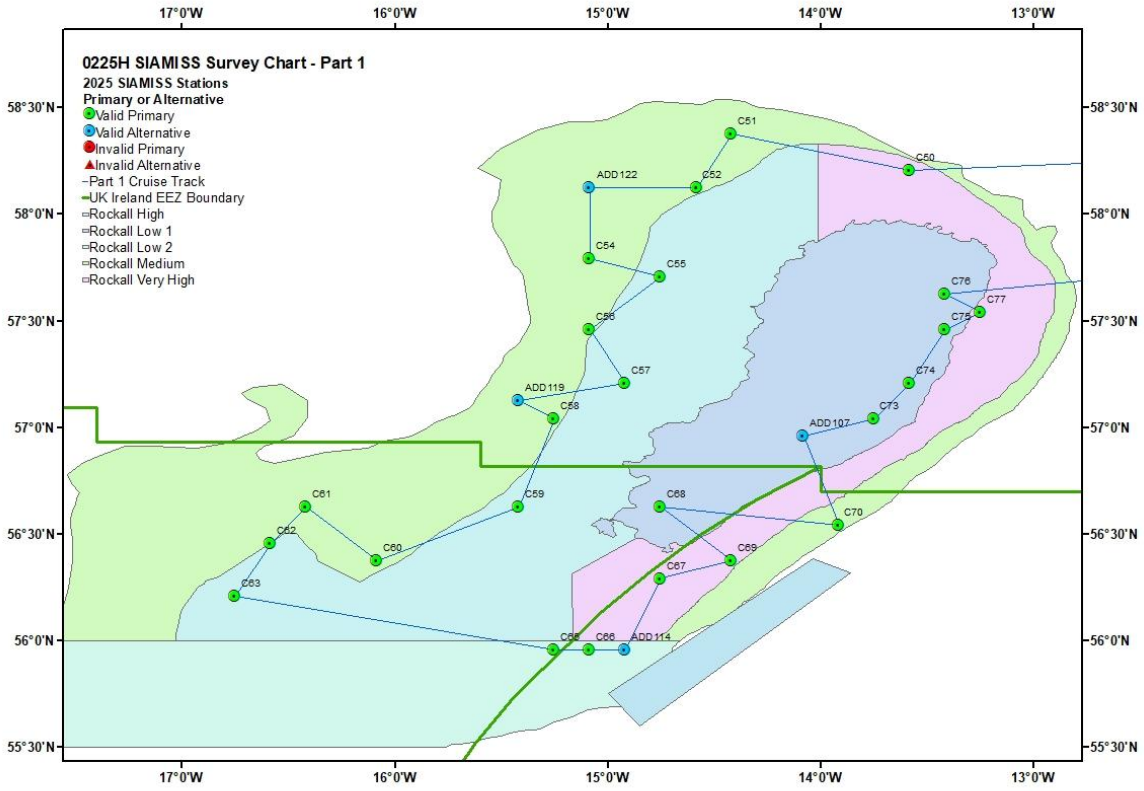


Figure 38. SIAMISS, VIb achieved stations

Outcomes: The survey was initially planned to be split between two trips, one on Scotia and one on a charter ves 12 sel. Ultimately, all areas were covered in one trip on a charter vessel. The survey covered areas IVa, VIa and VIb, completing a total of 111 trawls (103 of which were valid). Age at length, sex, maturity and weight data were collected for all anglerfish, megrim and cod. Length, weight and sex were recorded for elasmobranchs before returning to the sea alive.

Additional research requests met: Collected Cod tissue from biologically sampled Cod for genetic population studies. All marine litter encountered was identified, recorded, and disposed of with pictures of litter being recorded when possible. Benthic invertebrate observations were recorded at Rockall and deeper North Sea stations.

5. For internationally coordinated surveys, provide a link to the latest meeting report of the coordination group. Provide a hyperlink to the meeting report from the body coordinating the survey (ICES, MEDITS coordination group, MEDIAS coordination group etc.). For non-international coordinated surveys, refer to any status report (e.g. Cruise report) if available online.

Working Group for the Celtic Seas Ecoregion (WGCSE)

6. List the main use of the results of the survey (e.g. indices, abundance estimates, and environmental indicators). Specify in which context the results are used (on routine basis), both on an international as well as on a national context.

Main uses of the of the data collected from the SIAMISS survey

Type of data collected	**Assessment type**
Biological sampling	International stock assessments of Lophius piscatorius, Lophius budegassa and Lepidorhombus whiffiagonis - WGCSE
Biological sampling of cod, Dipturus(batis) flossada and Dipturus intermedia	National assessment
CTD by Haul	National and international. Produces qualifiers to link biological and environmental indicators.
Other fish spp in haul	National assessment and trends
Litter items in trawl	National and international. Anthropogenic monitoring.

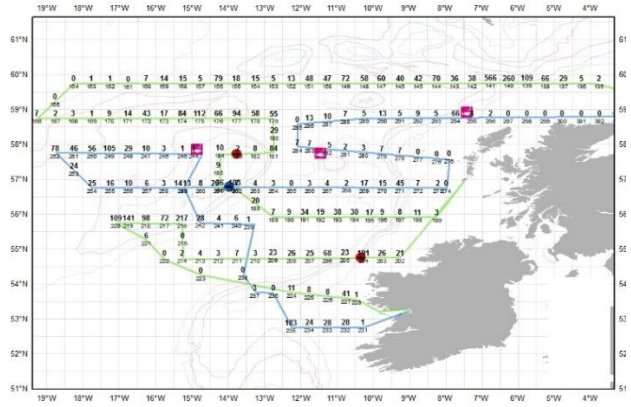
Triennial Mackerel/Horse Mackerel Egg Survey, MEGS; UK Scotland component Areas VI to IX

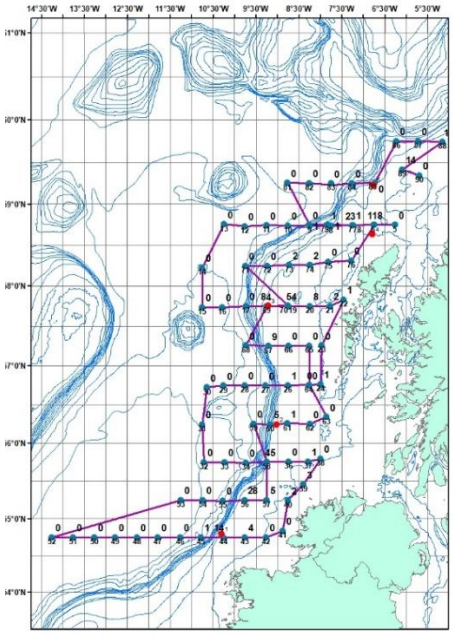
In 2025 Scotland will plan to undertake 3 dedicated MEGS surveys as part of the international triennial MEGS survey programme.

Although the maps shown below correspond to 2019 surveys, they broadly mirror the likely extent of the coverage for the 3 planned MEGS surveys in 2025.

1. Survey objectives

To carry out mackerel and horse mackerel egg surveys (ICES Triennial Survey) within allocated sampling periods of the 2025 MEGS survey plan along the NE Atlantic shelf. To collect adult fish samples, by trawling, for atresia and fecundity analysis back at the laboratory.





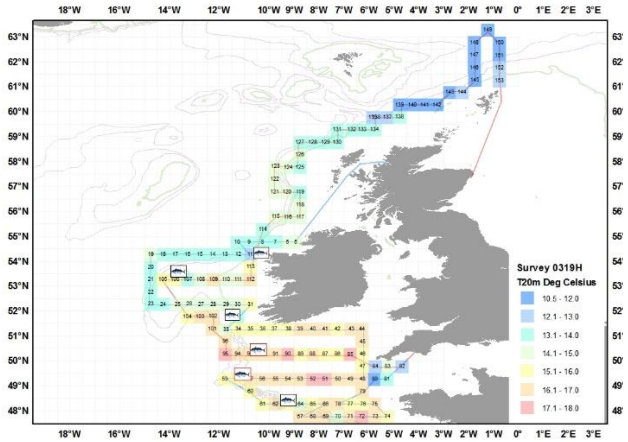


Figure 39. Maps showing positions of survey and track for the 2019 surveys undertaken in (clockwise from top right) April, May and July and reflect the expected periods and areas to be completed during the 2025 MEGS survey programme; MEGS; UK Scotland

2. Survey methods

The Egg survey will be conducted between 36˚N and 66˚N in the Northeast Atlantic, and will be broadly based on the area covered by the MEGS survey in 2022. UK-Scotland will almost certainly be allocated the same areas as previously albeit precise areas to be sampled will be provided by the MEGS survey coordinator during the WGMEGS survey planning meeting in 2024. Samples will be collected using a Gulf VII plankton sampler and samples will be analysed on board for mackerel and other target species of eggs. Fishing will take place to collect fecundity samples using either a pelagic net or rod and lines. Methods for sampler deployment and sample processing will adhere closely to those outlined in ICES SISP6 – MEGS V2.2

3. For internationally coordinated surveys, describe the participating Countries/vessels and the relevant international group in charge of planning the survey.

Working Group on Mackerel and Horse Mackerel Egg Surveys (WGMEGS).

Scotland, Portugal, Spain, Germany, Netherlands, England and Denmark (in the North Sea), Ireland, Faroes

4. Graphical representation (map) showing the position (location) of the realized samples. Provide maps presenting the spatial distribution of the main sampling types obtained during the survey.

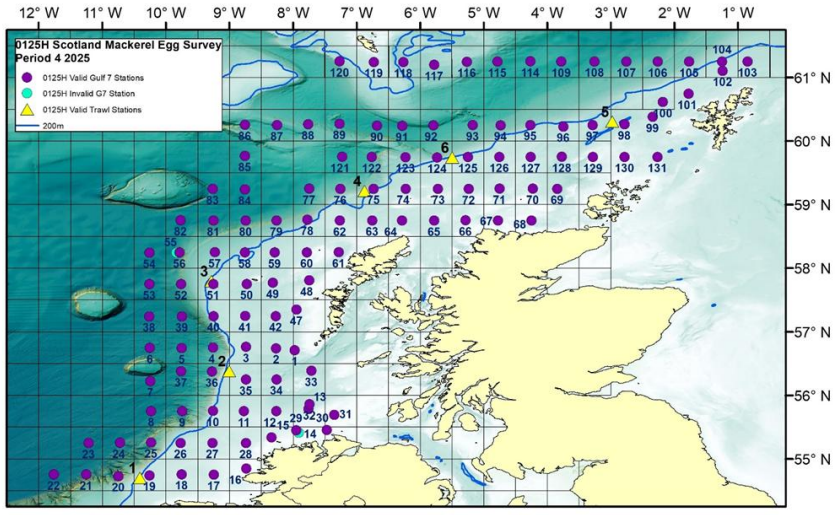


Figure 40. Survey 1 trawl and G7 positions.

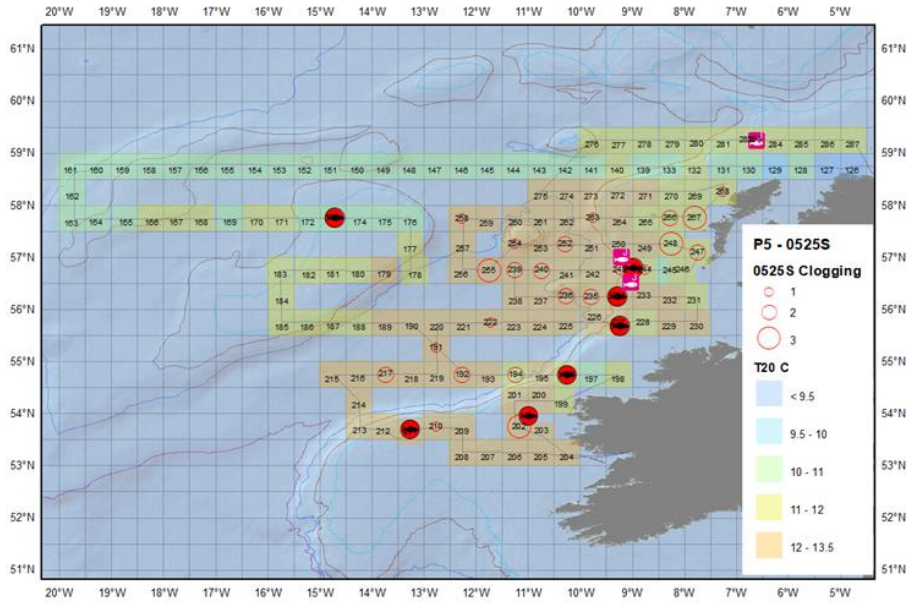


Figure 41. Survey 2 trawl and G7 positions.

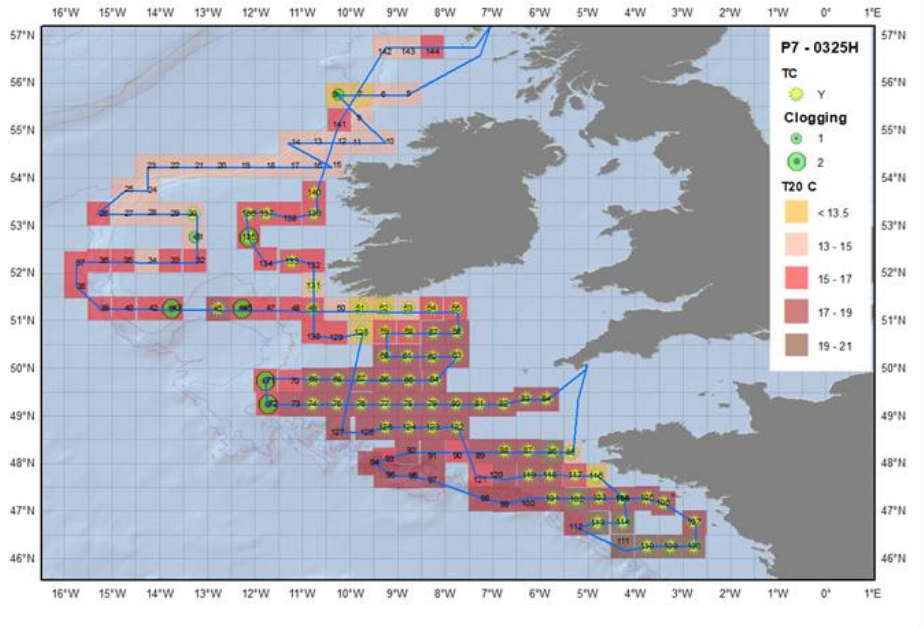


Figure 42. Survey 3 trawl and G7 positions.

<u>Outcomes:</u> *Stations were sampled across three surveys, two aboard charter vessels and one on FRV Scotia,* combining for 61 survey days. There were a total of 426 successful plankton hauls using the Gulf 7 sampler and 24 fishing trawls were undertaken.

In addition to the four target species of mackerel, horse mackerel, hake, and ling, several other species were identified and recorded during the survey, however eggs of these species were not analysed for development stage. These species included pearlside (*Maurolicus muelleri),* anchovy (*E. encrasicolus*), and boarfish *(Capros aper)*.

Additional work: Two NOC Hydrographic gliders released at the start of the survey. *Scotia* successfully serviced the SPAN moorings at Barra and Garenin. Marine mammal sightings were noted.

5. For internationally coordinated surveys, provide a link to the latest meeting report of the coordination group. Provide a hyperlink to the meeting report from the body coordinating the survey (ICES, MEDITS coordination group, MEDIAS coordination group etc.). For non-international coordinated surveys, refer to any status report (e.g. Cruise report) if available on line.

Working Group on Widely Distributed Stocks (WGWIDE)

Working group on mackerel and horse mackerel egg surveys (WGMEGS)

Working Group on Atlantic Fish Larvae and Eggs Surveys (WGALES; outputs from 2022 meeting)

6. List the main use of the results of the survey (e.g. indices, abundance estimates, and environmental indicators). Specify in which context the results are used (on routine basis), both on an international as well as on a national context.

Main uses of the of the data collected from the *Mackerel Egg triennial* survey(s)

Type of data	**Assessment type**
Biological sampling of Mackerel and horse mackerel	International stock assessment
Mackerel and horse mackerel egg production	Stock assessment - Calculation of the spawning stock biomass estimate for NEA mackerel and annual egg production index for western horse mackerel. Used by WGWIDE & WGMEGS
CTD by Haul	Gulf deployment is part of the MEGS egg survey protocol and are incorporated (using the 20m depth temperature) directly into the egg production estimates for both mackerel and western horse mackerel
Other fish species eggs	Abundance data on other species of eggs including hake, ling, boarfish, pearlfish and anchovy. Now uploaded to the ICES egg and larval database

Deepwater Survey, DEEPWATER; UK Scotland VIa; Deepwater slope west of the Hebrides and Rosemary Bank

This is a biennial survey and will take place in quarter 3, 2025.

1. Survey objectives

To map the composition, distribution and abundance of continental slope species including invertebrates on the deep-water slope west of the Hebrides and Rosemary Bank to depths of 2000m. In addition, samples (genetics and otoliths) will be collected for key species for population studies.

This is a biennial survey, with surveys taking place in odd-numbered years (i.e., 2019, 2021, 2023, 2025)

2. Survey methods

Approximately 35 deep-water trawl hauls will be carried out at depths between 500m and 2000m. Catch rate and length-frequency distribution for all fish species are collected and adjusted to a standardised trawl-haul duration. Temperature at depth is collected to characterise the species' environment. Benthic invertebrates are sorted quantified and recorded from trawl hauls.

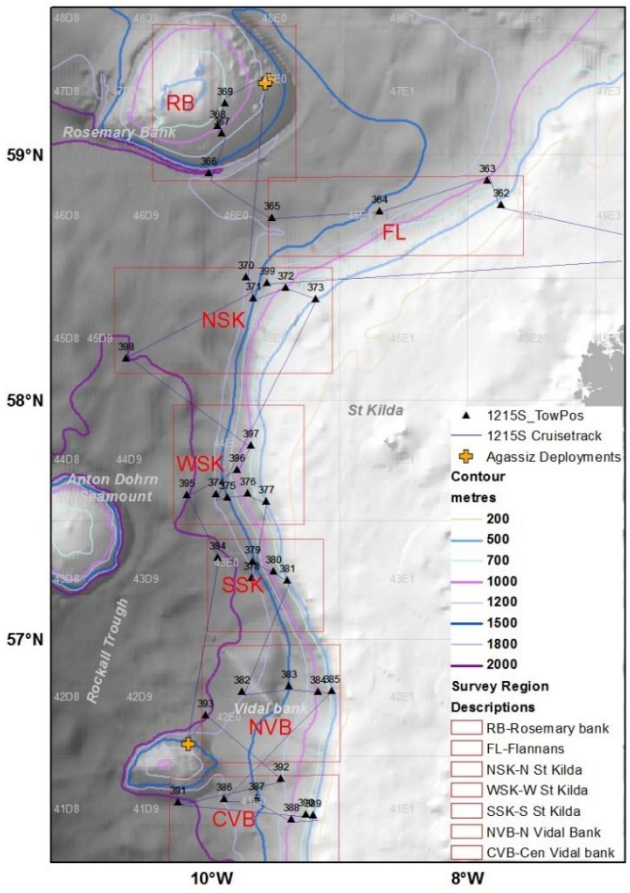


Figure 40. Map showing positions of survey stations DEEPWATER; UK Scotland Vla; Deepwater slope west of the Hebrides and Rosemary Bank

3. For internationally coordinated surveys, describe the participating Countries/vessels and the relevant international group in charge of planning the survey.

Data are held in the Marine Scotland FSS database system as well as being reported to the ICES Deepwater Working Group (WGDEEP) in the form of abundance/biomass indices that feed into the assessment process for several commercial deep-water species. VME data collected from this survey are also routinely submitted to the ICES Working Group on Deepwater Ecology (WGDEC).

4. Graphical representation (map) showing the position (location) of the realized samples. Provide maps presenting the spatial distribution of the main sampling types obtained during the survey.

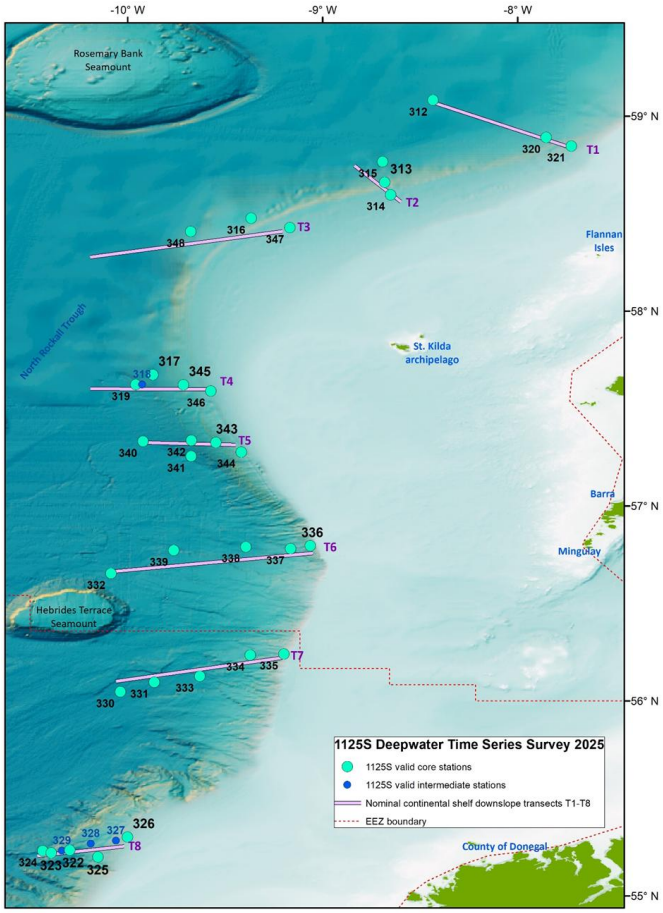


Figure 44. Deepwater trawl survey positions.

Outcomes: 40 valid trawls were completed across 22 survey days. 155 different species were recorded across the survey, including three fish species that had not been recorded during this survey series before.

Additional research requests met: A total of 260 elasmobranchs were sampled to provide material for three research projects in collaboration with Exeter University, Durham University and NHM. Tissue samples and sections of vertebrae were collected from a range of elasmobranch species for molecular analysis and aging at Aberdeen University. Genetic samples of Anglerfish and Hake were collected for research in collaboration with AZTI for GIFAMAN. Specimens were collected for National Museum Scotland. Tetractinellida and related Porifera tissue samples and reference specimens of *Geodia atlantica* and *Stelletta cf normani* were collected for molecular study (MD/University of Uppsala). Cnidaria: Pennatulacea - tissue samples along with reference specimens of *Umbellula "huxleyi"*, *Pseudumbellula sp*, *Anthoptilum sp*, were collected for molecular study (MD/University of Seville). All shelled molluscs were retained frozen for identification and distribution mapping by D Mackay. All marine litter picked up in the trawl was classified, quantified recorded then photographed and retained for appropriate disposal ashore. All fish and macrobenthos were screened as far as possible for the presence of non-indigenous species, with none of these being evident.

5. For internationally coordinated surveys, provide a link to the latest meeting report of the coordination group. Provide a hyperlink to the meeting report from the body coordinating the survey (ICES, MEDITS coordination group, MEDIAS coordination group etc.). For non-international coordinated surveys, refer to any status report (e.g. Cruise report) if available online.

Working Group on the Biology and Assessment of Deep-Sea Fisheries Resources (WGDEEP)

Working Group on Deep-Water Ecology (WGDEC)

6. List the main use of the results of the survey (e.g. indices, abundance estimates, and environmental indicators). Specify in which context the results are used (on routine basis), both on an international as well as on a national context.

Main uses of the of the data collected from the survey

Type of data collected	**Assessment type**
Biological sampling of all deepwater species caught	International assessments of deepwater species.

Benthos data	International assessment - data used by WGDEC. Environmental indicator.
Litter items in the trawl	National and international. Anthropogenic monitoring.

Scallop UWTV Survey, UWTVScallop; UK England, IVb, VIId, VIIe-g; Bristol Channel and Western approaches; Eastern English Channel; North Sea

1. Survey objectives

Carry out UWTV survey for scallop in undredged areas for biomass estimates to be used in English Scallop assessment and advice for the UK Fisheries Management Plans.

2. Survey methods

The survey is undertaken in the second quarter. Sea areas are surveyed on a rotational basis. Within each bed to be surveyed, stations are set using randomised algorithms (see map). Where time allows some additional stations are placed in dredged areas to allow direct comparison with the dredge surveys (WECSDS, EECSDS) results. Video footage is saved in high definition and replicate counts and verification QC undertaken to assess scallop abundance on footage. The STR SeaSpyder drop frame camera system consists of HD video and stills capability attached to surface via optical fibre umbilical. The drop frame is towed with the tide at 0.4 knots approximately 0.5m off the seabed for 20 minutes at each site. Different camera and scallop detection systems can also be fitted to available frame and trialled at selected sites (Rayfin, RFID etc).

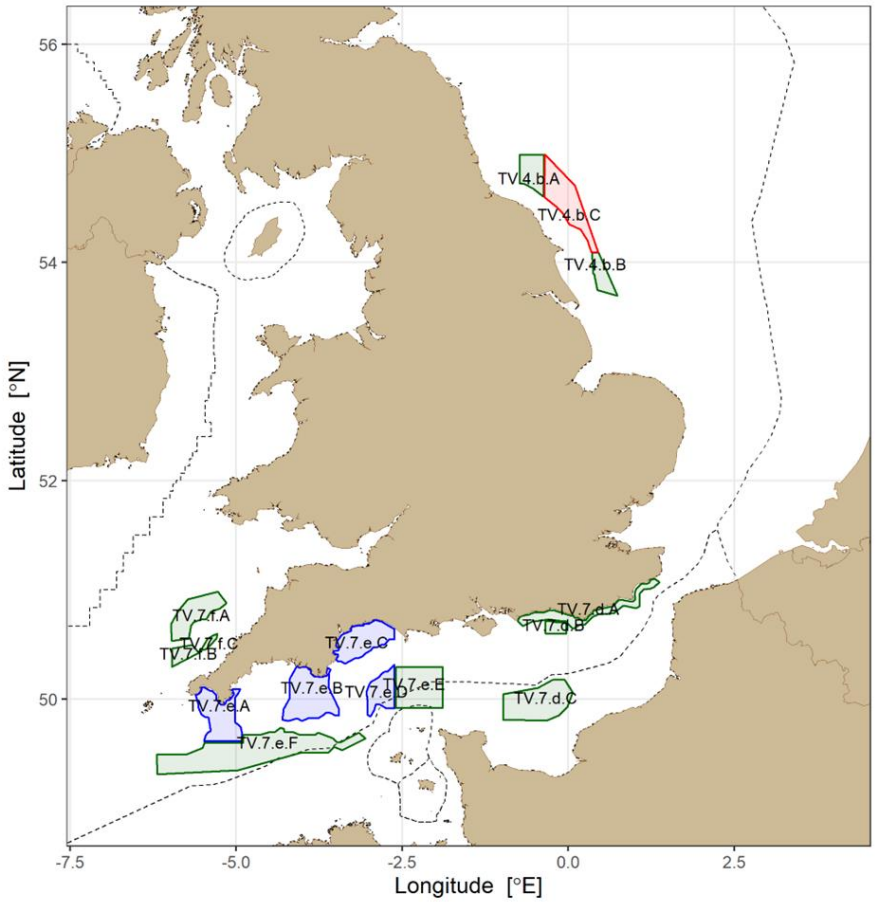


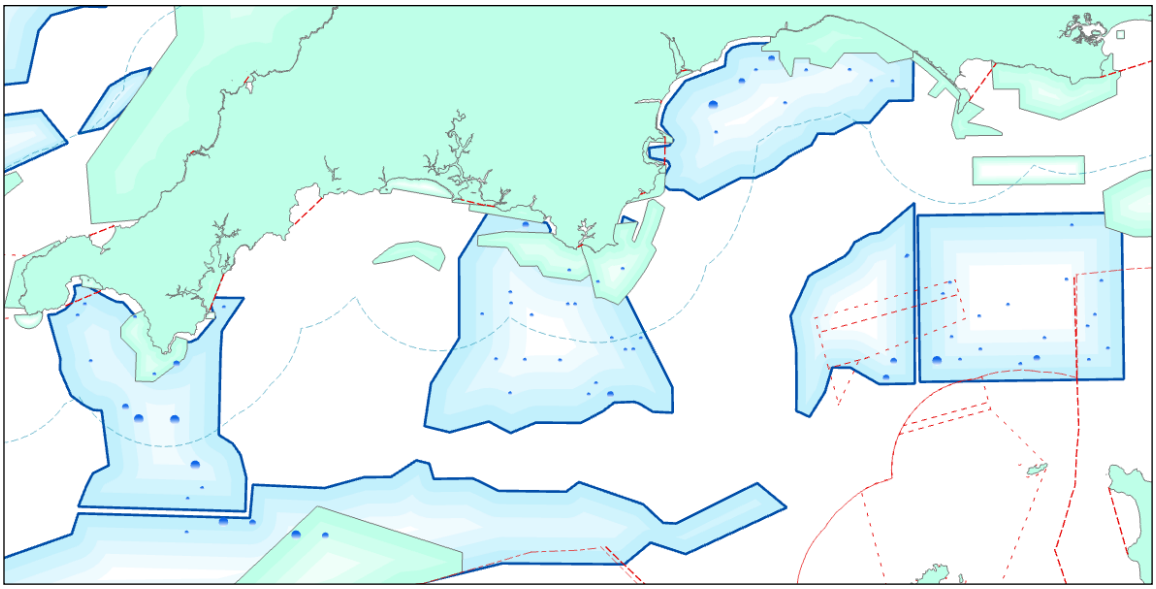
Figure 41. Overview of undredged areas surveyed on a rotational basis during the UWTV Scallop; UK England, IVb, VIId, VIIe-g

3. For internationally coordinated surveys, describe the participating Countries/vessels and the relevant international group in charge of planning the survey

Not internationally coordinated. Data are used in national stock unit assessments

Scallop UWTV surveys are discussed and detailed at ICES WGSCALLOP. Surveys are generally carried out by independent countries for fisheries within their EEZ with cooperation when undredged areas extend into neighbouring countries waters.

4. Graphical representation (map) showing the position (location) of the realized samples. Provide maps presenting the spatial distribution of the main sampling types obtained during the survey.



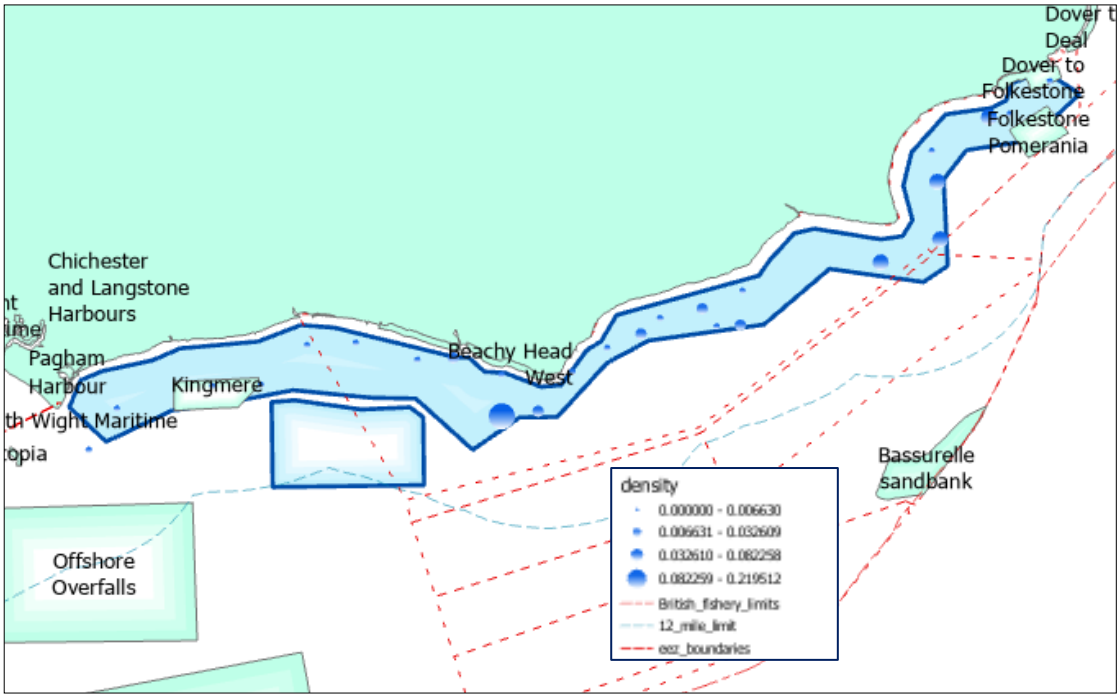


Figure 42. UVS Scallop showing the a) the location of the realised stations and density in a) 7.e. and b) 7.d.

Outcomes (including deviations):

110 stations across the unfished beds of TV.7.d.A, TV.7.e.E., TV.7.e.D., TV.7.e.C, TV.7.e.B., TV.7.e.A. and TV.7.e.F (Figure 41). were surveyed with underwater drop camera tows. Bed TV.7.e.E. and D. stations in French waters were surveyed completing the grid started on a previous survey. This grid was previously completed for UK only stations in 2024.

20-minute transects were completed at 23 stations and 15-minute transects at 87 stations. A 20-minute transect at 0.4 knots equated to an observed track length of approximately 250m. The refined 15-minute tow transect at 0.4 knots equated to an observed track length of approximately 185m. Analyses of data from previous surveys allowed for a reduction in the tow length from 20 minutes to 15 minutes representing an optimisation of tow duration, video review and scallop density observation.

Additional research requests met:

Use of continuous flow plankton imager device and flow cytometer.

- Daily water samples from Ferrybox underway supply for chlorophyl sampling in support of SLA25.

- Repeated calibration tests of laser sizing of scallops were performed both in air and in water. A new 'in water' calibration grid was trialled and successfully tested.

5. For internationally coordinated surveys, provide a link to the latest meeting report of the coordination group. Provide a hyperlink to the meeting report from the body

coordinating the survey (ICES, MEDITS coordination group, MEDIAS coordination group etc.). For non-international coordinated surveys, refer to any status report (e.g. Cruise report) if available online.

Non-international coordinated survey. Internal report CEND0825, Cefas.

6. List the main use of the results of the survey (e.g. indices, abundance estimates, and environmental indicators). Specify in which context the results are used (on routine basis), both on an international as well as on a national context.

The UK-England Pecten Maximus TV survey data is used to generate abundance estimates in undredged areas and feeds into the national King scallop stock assessment for English waters. The King scallop assessment is presented at the ICES WGSCALLOP working group.

North Atlantic (ICES Areas V-XIV and NAFO areas)

Scottish RV surveys, ICES areas VI: No significant deviations.

English RV surveys, ICES areas VII: For all surveys there were no significant deviations from the schedule or workplan. The ISBCBTS survey coverage was restricted by weather and anticipated industrial action by the crew of the RV. These were anticipated and a reduced grid of around 75 stations fished to ensure minimum impact on the results. The PELTIC survey in 2025 was also affected by weather for the first few days of the survey curtailing work. But because it was at the start it allowed the survey grid to be re-stratified to ensure minimum impact on any results. The Scallop UWTV survey is effectively adaptive and by improving operational efficiencies and with perfect weather conditions far more stations were achieved than expected.

Northern Ireland RV surveys, areas VII: In the latter part of 2023, the research vessel RV Corystes was unable to enter Republic of Ireland waters due to technical issues with the vessel. This affected four research surveys to varying degrees; Northern Irish MIK net survey (NI-MIK), the Spawning/Pre-spawning Herring Acoustic Survey (NIR-AS), the Northern Irish UWTV survey (UWTV (FU15)) and the Northern Irish Quarter 4 Groundfish Survey (NIGFS Q4). The Northern Irish MIK net survey (NI-MIK), completed 91% of its plankton targets and 89% of its MIK net targets. The missed area includes an area of nursery grounds for gadoids in the Irish Sea. The NIR-AS survey, was only slightly impacted as only a small portion of the planned survey transects are in ROI waters, both targets (nautical miles and number of tows) were still met despite this disruption. For UWTV (FU 15), approximately 1/3 of stations are within ROI waters. UWTV footage of these stations was recorded on AFBI's behalf by the Marine Institute of Ireland, and footage was returned to AFBI staff for processing and analysis. Including this footage, 96 of 100 stations were covered. The remaining 4 stations could not be surveyed safely, due to the presence of static fishing gear in the area and poor weather conditions. For NIGFS Q4 survey, a large proportion of the stations occur in ROI waters, and only 61% of the target number of fish hauls could be conducted.

Scottish West Coast Groundfish Survey, Quarter 4, SCOWCGFS-Q4; Western waters; UK Scotland component VIa, VIIb

1. Survey objectives

A young fish survey undertaken during Q4 in ICES subarea 6A as one component of the ICES western waters bottom trawl surveys. The survey is targeted towards young (0 and 1-group) cod, haddock, whiting, saithe and Norway pout, herring, and mackerel by utilising a GOV trawl fitted with an internal 20 mm liner.

2. Survey methods

The stratified random design survey will be undertaken by MRV Scotia. Approximately 60 to 62 random stratified stations will be surveyed for hydrographic information coupled with the deployment of a GOV trawl for 30 minutes. Station locations are randomly distributed among 11 sampling strata and the age length data generated is used to produce age disaggregated abundance indices for several target species. Numbers at length and age are acquired for all target species with all other fish species being measured and counted. A separate stratum in subarea VII exists specifically to provide abundance information on juvenile mackerel for the assessment process.

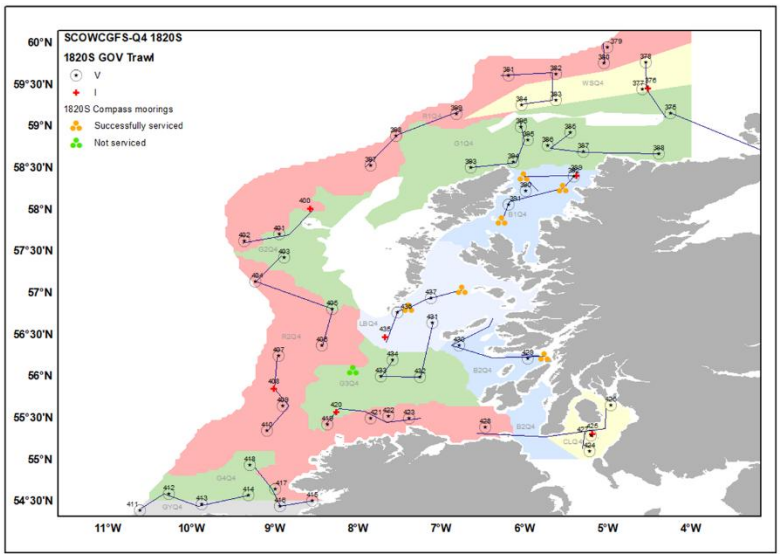


Figure 43. Map showing survey strata and positions for SCOWCGFS-Q4; Western waters; UK Scotland component VIa, VIIb

Data will be stored electronically in the Marine Directorate FSS system and uploaded to the ICES DATRAS database.

3. For internationally coordinated surveys, describe the participating Countries/vessels and the relevant international group in charge of planning the survey

ICES International Bottom Trawl Survey Working Group

Data used by WGCSE for assessments.

Scotia (UK-Scotland); Corystes (UK-Northern Ireland); Celtic Explorer (Ireland); Thalassa (France); Miguel Oliver (Spain); Noruega (Portugal)

4. Graphical representation (map) showing the position (location) of the realized samples. Provide maps presenting the spatial distribution of the main sampling types obtained during the survey.

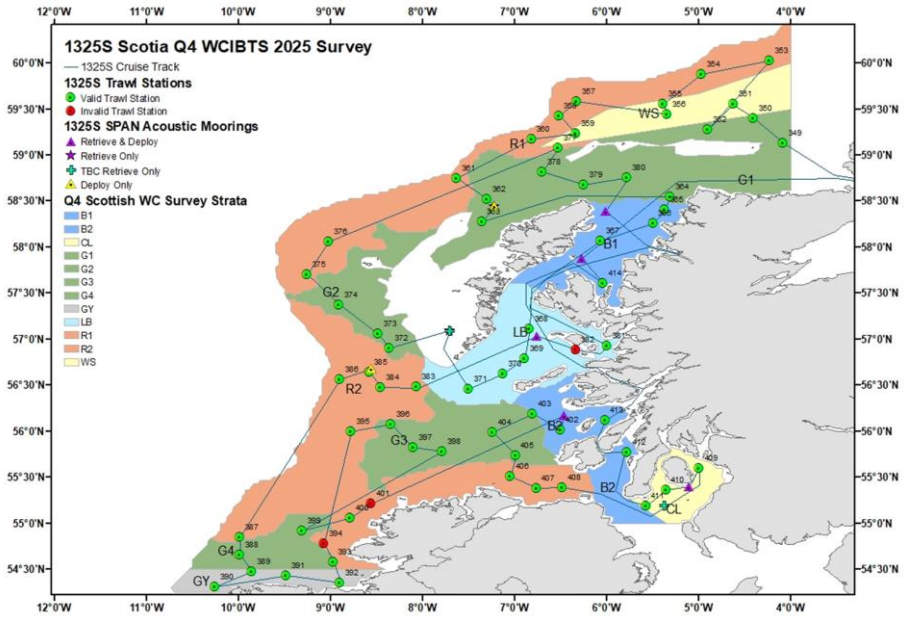


Figure 44. IBTS Q4 North Atlantic surveyed area

Outcomes: 22 days and 63 valid hauls (and 3 foul) were completed. Length, weight, age & sex were recorded for gadoid species, plus maturity for pelagic species. Length, weight, & sex, plus external maturity was recorded for elasmobranchs. A total of 104 species were observed. In total 4255 biological observations on selected species were collected. The CTD was deployed a*t all* 63 valid GOV trawl stations. Fish and benthic catches were screened for non-indigenous species with data sent to the Cefas coordinator. Marine litter was classified, quantified and stored. Data were uploaded to DATRAS.

Additional requests: Genetic samples were collected from Hake, Anglerfish and Pilchard to investigate population structure of these species within the Northeast Atlantic – GECKA/GIFAMAN project. No Pilchards were observed.

Genetic samples were collected from all Cod sampled for biological data to further studies on stock identification.

All trawl caught gelatinous zooplankton were identified to species (where possible), weighed and quantified.

All molluscs and gastropods observed during the survey were retained for identification ashore for population mapping.All SPAN acoustic moorings were recovered and redeployed successfully.

5. For internationally coordinated surveys, provide a link to the latest meeting report of the coordination group. Provide a hyperlink to the meeting report from the body coordinating the survey (ICES, MEDITS coordination group, MEDIAS coordination group etc.). For non-international coordinated surveys, refer to any status report (e.g. Cruise report) if available online.

International Bottom Trawl Survey Working Group (IBTSWG; outputs from 2024 meeting)

6. List the main use of the results of the survey (e.g. indices, abundance estimates, and environmental indicators). Specify in which context the results are used (on routine basis), both on an international as well as on a national context.

Main uses of the of the data collected from the *IBTS Q1 North Sea* survey

Type of data collected	**Assessment type**
Biological sampling	Annual international Stock assessments (Cod, Haddock, Whiting, Saithe & Norway pout). – used for advice Length, age, weight, sex, maturity
Biological sampling	Biological sampling for National assessments (Herring, sprat, Mackerel, Hake & Plaice)
CTD by Haul	National and international. Produces qualifiers to link biological and environmental indicators. MSFD
Other fish spp in haul	National and international. Predator-prey interaction/ecosystem model for biodiversity (Skates, Squalus acanthias, Mustelus asterias and other fish species).
Litter items in trawl	National and international. Anthropogenic monitoring.

Scottish West Coast Groundfish Survey, Quarter 1, SCOWCGFS-Q1; Western waters; UK Scotland component (VIa)

1. Survey objectives

A young fish survey undertaken during Q1 in subarea 6A. The survey is targeted towards young 1- 2 group cod, haddock, whiting, saithe, Norway pout, herring, and mackerel by utilising a GOV trawl fitted with an internal 20 mm liner. Identical in design to the SCOWCGFS-Q4 survey albeit the strata differ slightly reflecting the seasonal changes in abundance observed for target species.

2. Survey methods

The stratified random design survey will be undertaken by MRV Scotia. Approximately 60 to 62 random stratified stations will be surveyed for hydrographic information coupled with the deployment of a GOV trawl for 30 minutes. Station locations are randomly distributed among 11 sampling strata and the age length data generated is used to produce age disaggregated abundance indices for several target species. Numbers at length and age are acquired for all target species with all other fish species being measured and counted.

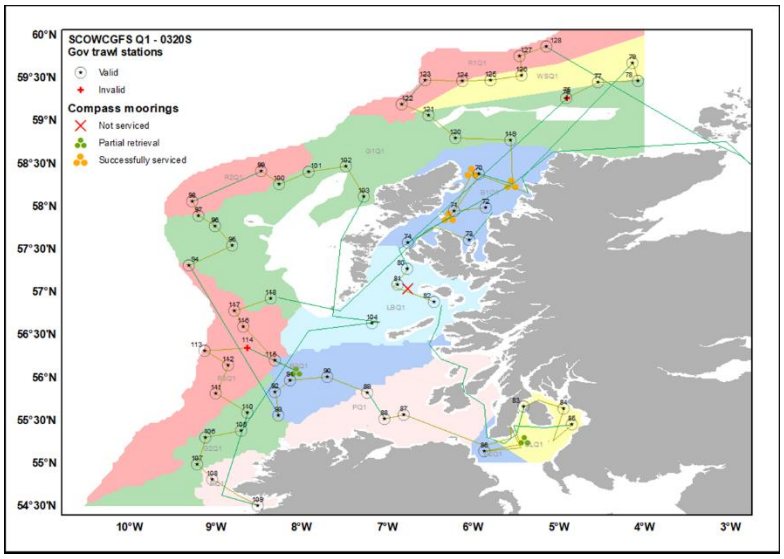


Figure 45. Map showing survey strata and positions for SCOWCGFS-Q11; Western waters; UK Scotland component (VIa)

Data will be stored electronically in FSS database within MD and then uploaded to ICES DATRAS database.

3. For internationally coordinated surveys, describe the participating Countries/vessels and the relevant international group in charge of planning the survey

ICES International Bottom Trawl Survey Working Group- Data used by WGCSE for assessments.

Scotia (UK-Scotland); Corystes (UK-Northern Ireland); Spain (Miguel Oliver)

4. Graphical representation (map) showing the position (location) of the realized samples. Provide maps presenting the spatial distribution of the main sampling types obtained during the survey.

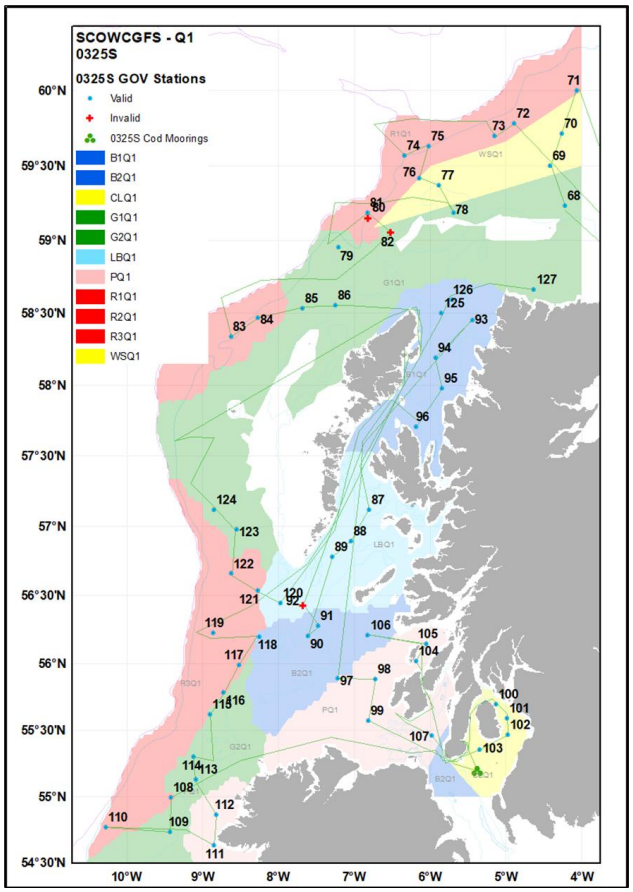


Figure 46. A map of SCOWCGFS-Q1; Western waters; UK-Scotland component (VIa) trawl stations.

Outcomes: A total of 60 stations (57 valid and 3 invalid) were sampled during the survey across 21 days. Length, weight, age & sex were recorded for gadoid species plus maturity for pelagic species. Length, weight, & sex plus external maturity was recorded for elasmobranchs. A total of 101 species were recorded. In total 5837 biological observations on selected species were collected. The CTD recorder was successfully deployed on 54 of the 57 valid trawl stations. Fish and benthic catches were screened for non-indigenous species with data sent to the Cefas coordinator. Marine litter was classified, quantified and stored. Data were uploaded to DATRAS.

The Gulf 7 sampler was deployed on 28 occasions with 23 plankton samples taken in support of the triennial mackerel egg survey.

SPAN Acoustic moorings – 2 moorings were successfully deployed.

Additional requests: Fish <15 cm were retained for a collaborative project investigating non-breeding seasonal ecology of seabirds using fish species in diet. Genetic tissue samples for Anglerfish *(50),* hake *(74)* and anchovy *(4)* from area ICES subarea 6A – Gifamen project. Whole juvenile and adult mackerel retained for investigations into variations in field

metabolic rate (FMR) proxy using sagittal otoliths. Pelagic fish sample collection – Retention of 7 kg each of mackerel and herring from the Minch area for environmental monitoring. Retention of *Craniella* sponges. Collaborative phylogenic study between MD and the Natural History Museum. Whole herring retained for genetics analysis, following request emanating from 2023 Northern Shelf cod benchmark (WKBCOD). 65 fish sampled for sub-stock analysis study. Blue whiting samples retained for fresh v frozen comparative studies – *Internal MD research project.* All shelled molluscs retained for the Mackay reference collection.

Type of data collected	**Assessment type**
Biological sampling	Annual international Stock assessments (Cod, Haddock, Whiting, Saithe & Norway pout). – used for advice Length, age, weight, sex, maturity
Biological sampling	Biological sampling for National assessments (Herring, sprat, Mackerel, Hake & Plaice)
CTD by Haul	National and international. Produces qualifiers to link biological and environmental indicators. MSFD
Other fish spp in haul	National and international. Predator-prey interaction/ecosystem model for biodiversity (Skates, Squalus acanthias, Mustelus asterias and other fish species).
Litter items in trawl	National and international. Anthropogenic monitoring.

Irish Sea, Bristol Channel and Celtic Sea Beam Trawl Survey, ISBCBTS; 3rd quarter, UK England VIIa,f,g

1.Survey objectives

To provide estimates of abundance of recruiting year classes and CPUE-at-age series for plaice, sole, cod and haddock to the Celtic Seas Ecoregion Working Group (WGCSE). These are used for tuning purposes.

2. Survey methods

The survey will be conducted on the RV Cefas Endeavour. A total of 108 stations have been planned over 20 days. Age samples and biological parameters will be taken from all target species and all species listed under Appendix VII of the DCR which are caught. Benthic by-catch information is collected at each station. Hydrographic data will be collected at a minimum of two stations per day. Any anthropogenic waste material will be recorded and weighed.

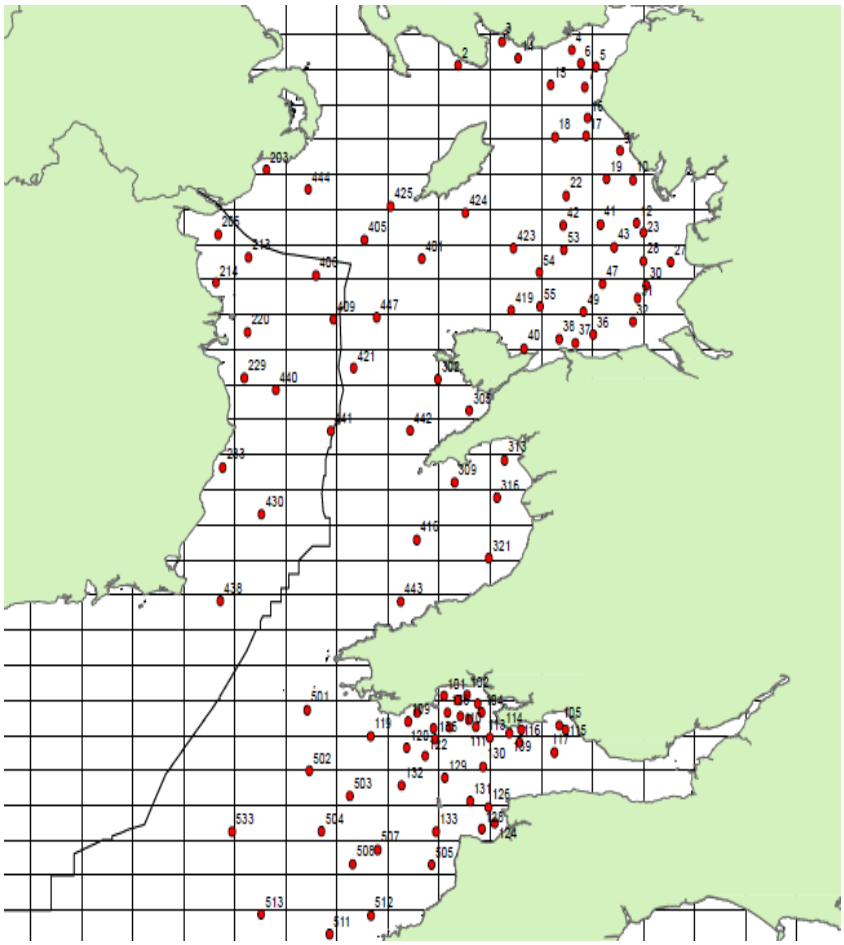


Figure 47. Map showing positions of survey stations ISBCBTS; Western waters; 3rd quarter, UK England VIIa,f,g

The resultant data will be input to a Cefas surveys database (SFS) using the Cefas Electronic Data Capture (EDC) System. All data will also be transmitted to ICES for input to the DATRAS database.

3. For internationally coordinated surveys, describe the participating Countries/vessels and the relevant international group in charge of planning the survey

Standardised and agreed methodologies are coordinated at Beam Trawl Working Group (WGBEAM) to assure independent indices for each national survey.

Data used by Celtic Seas Ecoregion Working Group (WGCSE) for assessments.

No other countries/vessels participate in this survey.

4. Graphical representation (map) showing the position (location) of the realized samples. Provide maps presenting the spatial distribution of the main sampling types obtained during the survey.

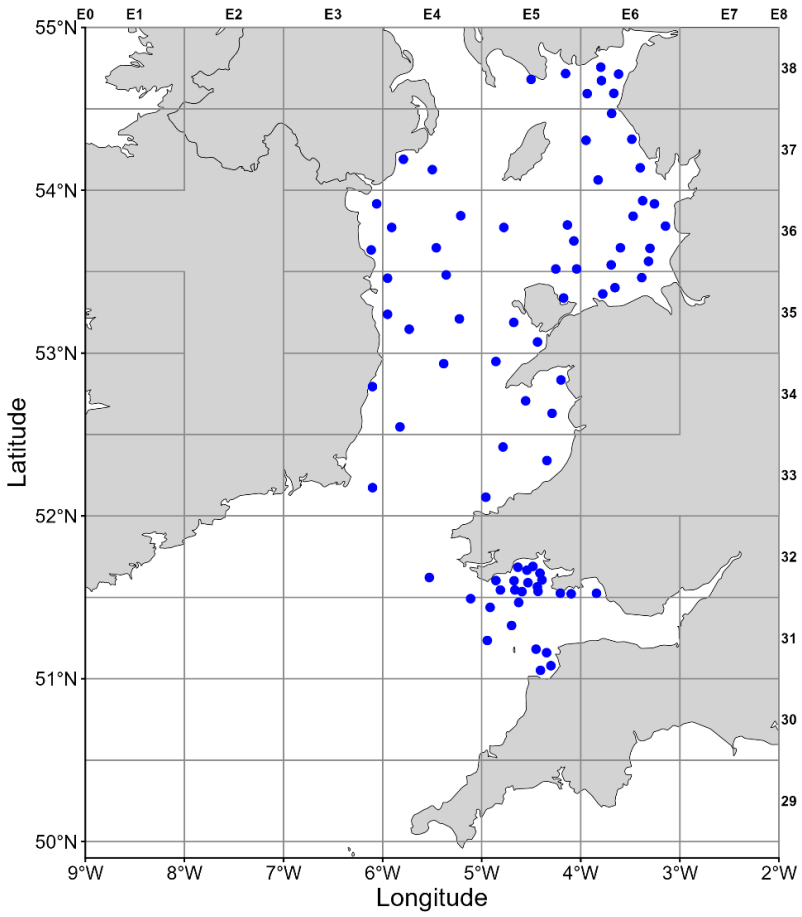


Figure 48. ISBCBTS Q3 2025 completed survey area

Outcomes: 80 of the 108 planned stations were completed over 16 days. Twenty-four hauls were less than the standard 30-minutes due to a history of large sediment or

epibenthic catches, or presence of commercial static gear, but still yielded a valid catch. Three of the planned surveys days were not possible due to vessel and crew availability.

Additional research requests met: Nine of thirteen additional aims were completed, including maintaining time-series for tritium sample collection in the Bristol Channel and Cefas' long-running tag and release scheme to provide information on fish distribution and migration habits.

5. For internationally coordinated surveys, provide a link to the latest meeting report of the coordination group. Provide a hyperlink to the meeting report from the body coordinating the survey (ICES, MEDITS coordination group, MEDIAS coordination group etc.). For non-international coordinated surveys, refer to any status report (e.g. Cruise report) if available online.

Working Group on Beam Trawl Surveys (WGBEAM)

6. List the main use of the results of the survey (e.g. indices, abundance estimates, and environmental indicators). Specify in which context the results are used (on routine basis), both on an international as well as on a national context.

The UK-England ISBCBTS Q3 survey data feeds into Indices, spatial and temporal changes in the distribution and relative abundance of fish and fish assemblages for the relevant species to assessment Working Groups (WGs) and science groups. In addition to this, CTD (temperature and salinity) data are collected, but these are not used in the assessments. Marine litter and additional biological data from the surface and seabed at each trawling station are also routinely collected.

Main uses of the of the data collected from the *ISBCBTS Q3* survey

Type of data collected	**Assessment type**
Biological sampling	Annual international Stock assessments (sole, plaice, cod, haddock, whiting, various skates and rays, LSD, nurse-hound and smoothhound) – used for advice
Biological sampling	National assessments
CTD by Haul	National and international. Produces qualifiers to link biological and environmental indicators.
Other fish spp in haul	National and international. Predator-prey interaction/ecosystem model for biodiversity (Skates, *Squalus acanthias, Mustelus asterias* and other fish species).
Litter items in trawl	National and international. Anthropogenic monitoring – used in regional and environmental planning.

Spawning/Pre-spawning Herring acoustic survey, NIRS-AS; UK Northern Ireland VIa, VIIa

1. Survey objectives

The primary objective is to estimate the distribution, abundance and population structure of herring and sprat in the Irish Sea by echo-integration and targeted midwater trawling in the Irish Sea (VIIa) and west of Scotland (VIa). A secondary objective is to conduct visual Marine Mammal Observation (MMO) and when possible Passive Acoustic Monitoring (PAM) of cetacean species to obtain the data required to determine species occurrence, density estimates and identify important habitats.

2. Survey methods

The survey will be carried out in two phases whereby phase one will occur in the North Channel, western Irish Sea, North Wales coast and eastern Irish Sea (VIIa) and phase 2 will occur Survey of Scottish (VIa) and Manx coastal waters. Sampling will be carried out on a systematic grid of stations covering the spawning grounds and surrounding regions in the NE and NW Irish Sea. A total of approximately 1200 nautical miles are planned to be surveyed by eco-integration using a Simrad EK-60 echosounder (see below). Additional pelagic trawls (approx. 24) are to be carried out to obtain corresponding samples to validate estimates from acoustic data. Species compositions and length frequencies will be recorded from all trawl catches. Samples of up to 50 herring will be taken from each catch for recording of age and other biological parameters. Length-weight parameters will be estimated for fish species contributing significantly to the acoustic integrals. An additional intensified grid may be surveyed around the Isle of Man to investigate the effect of the timing of the spawning migration if timing allows.

Survey manual:

https://ices-library.figshare.com/collections/ICES_Survey_Protocols/6315609/3

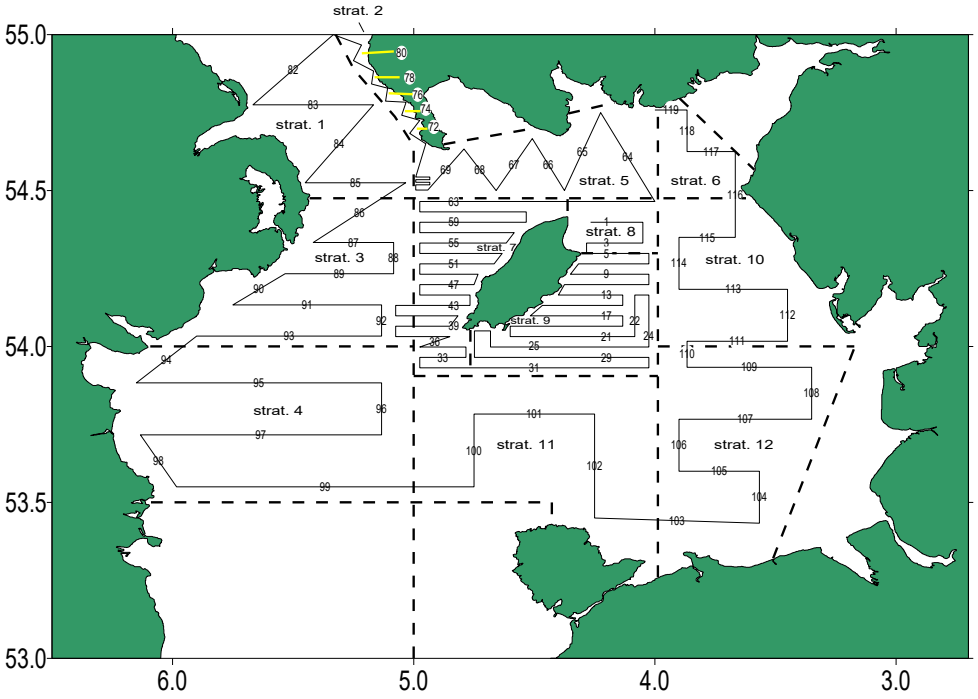


Figure 49. Transects and stratum boundaries for the NIRS-AS; Northern Irish Spawning/pre-spawning Herring Acoustic Survey

3. For internationally coordinated surveys, describe the participating Countries/vessels and the relevant international group in charge of planning the survey

The survey is coordinated by ICES WGIPS. At present the survey in this area is only conducted onboard the RV Corystes (UK-Northern Ireland).

4. Graphical representation (map) showing the position (location) of the realized samples. Provide maps presenting the spatial distribution of the main sampling types obtained during the survey.

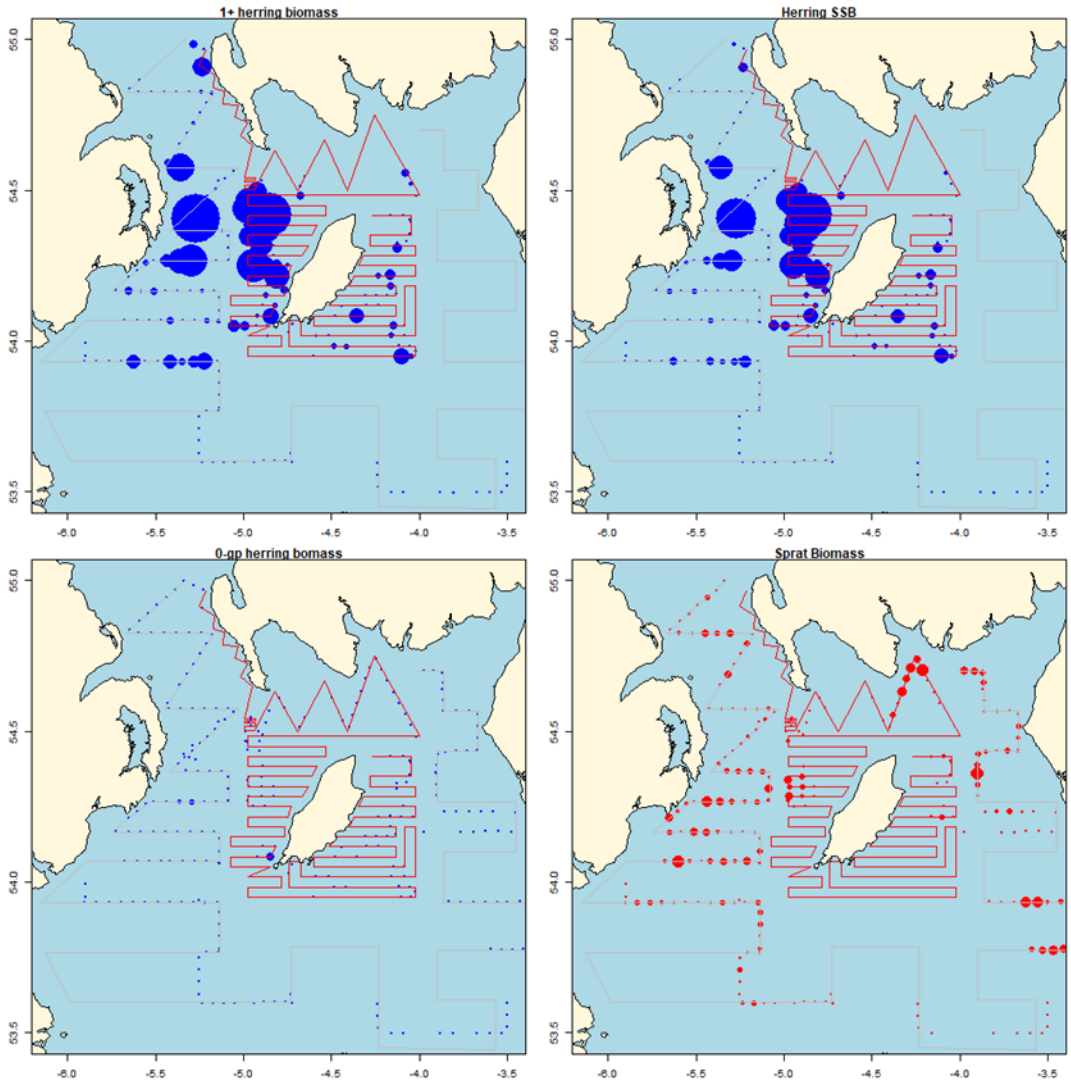


Figure 50. Transects and acoustic targets for the Northern Irish Spawning/pre-spawning Herring Acoustic Survey

Outcomes:

Survey completed at planned timeover a longer time period than planned due to adverse weather conditions and associated delays. Despite these delays, the survey was complmeted, and targets of nautical miles and number of tows met (34 tows). As, in 2024 the RV Corystes was unable to enter Republic of Ireland (ROI) waters and therefore transects in the south-west of the planned survey route were shortened. This impacted only a small portion of the planned survey transects (see figure above). Extensions to transects to the west of the Isle of Man were again conducted, to check for additional herring schools beyond the transect boundaries. These fish had a very minor impact on the final survey estimates, and were not included in the final herring biomasses indices generated at WGIPS.

Additional research requests met:

Genetic samples collected.

5. For internationally coordinated surveys, provide a link to the latest meeting report of the coordination group. Provide a hyperlink to the meeting report from the body coordinating the survey (ICES, MEDITS coordination group, MEDIAS coordination group etc.). For non-international coordinated surveys, refer to any status report (e.g. Cruise report) if available online.

https://ices-library.figshare.com/articles/report/Working_Group_on_International_Pelagic_Surveys_WGIPS_/28890038https://doi.org/10.17895/ices.pub.28890038

6. List the main use of the results of the survey (e.g. indices, abundance estimates, and environmental indicators). Specify in which context the results are used (on routine basis), both on an international as well as on a national context.

Main uses of the of the data collected from the NIR-AS

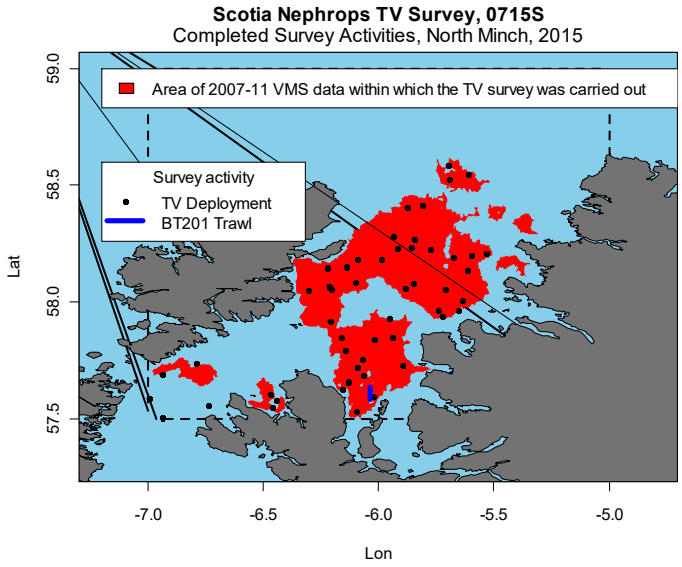
Type of data collected	**Assessment type**
Biological sampling	Annual international Stock assessments (herring) – used for advice
Biological sampling	Sprat and Herring - National assessments
CTD	National and international. Produces qualifiers to link biological and environmental indicators.
Litter items in trawl	National and international. Anthropogenic monitoring.

Nephrops UWTV survey (offshore), UWTV (FU11-13); UK Scotland, VIa FU10, FU11-13; Noup Head, North Minch, South Minch, Clyde Sea, Stanton Bank

1. Survey objectives

To obtain estimates of distribution and abundance of Nephrops burrows in functional units to the west of Scotland using underwater television. This survey will be conducted by Scotia undertaking one extensive survey that includes both ICES areas: FUs 11-13 (VIa) and FU7/FU10 / FU34 (IVa). To conform with the list of mandatory surveys under the Data Collection Framework in which separate surveys are listed for these functional units, the physical survey will be divided into two and reported separately by FU10, FU11-13 and FU7/FU34.

2. Survey methods



It is planned to complete over 120 TV tracks and 2 fishing hauls in area VIa and Noup in IVa in this integrated survey. Additionally, information on size at maturity will be obtained.

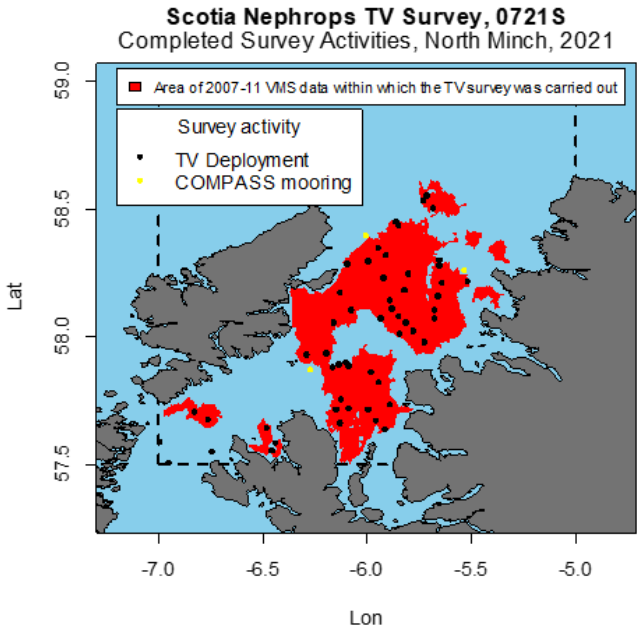


Figure 51. Map showing the location of the TV survey sites (in black) carried out during survey UWTV FU11-13 North Minch, within the extent of the study area based on 2007-2011 VMS data. The yellow icons represent the locations where moorings forming part of the COMPASS project were first recovered and replacement devices were deployed.

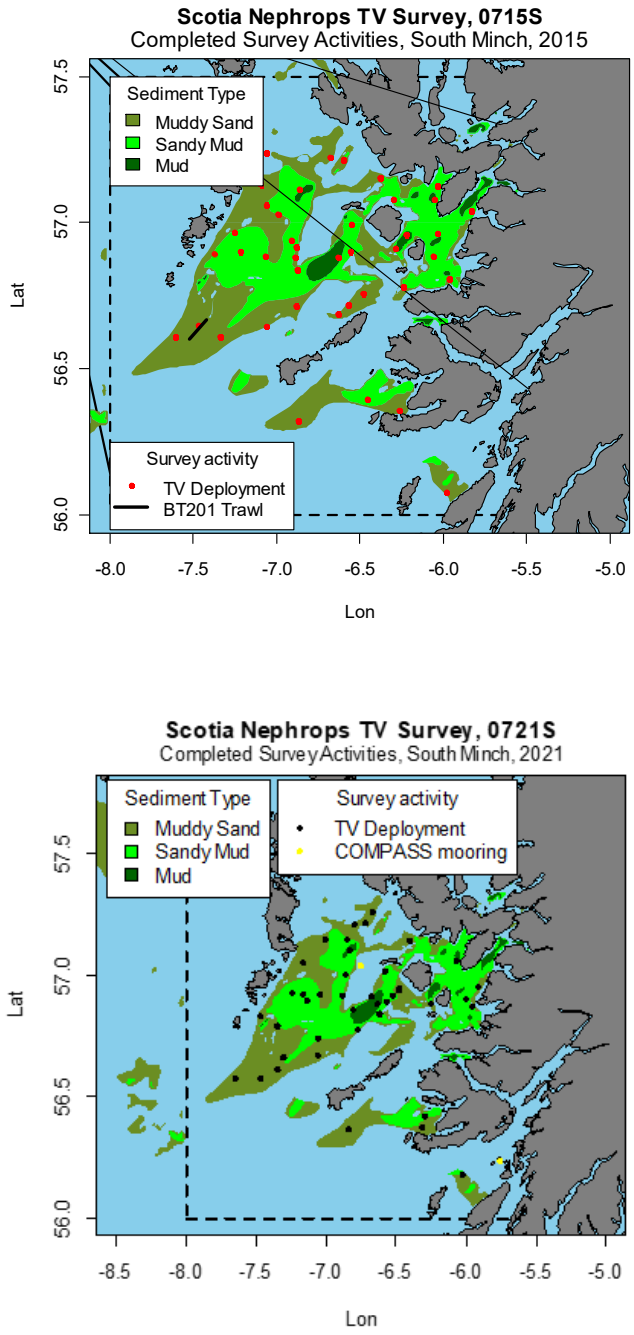


Figure 52. Map showing the location of the TV survey sites (in black) carried out during survey UWTV FU11-13, UK Scotland, South Minch, within the extent of the muddy sediments as described by BGS. The yellow icons represent the locations where moorings forming part of the COMPASS project were first recovered and replacement devices were deployed.

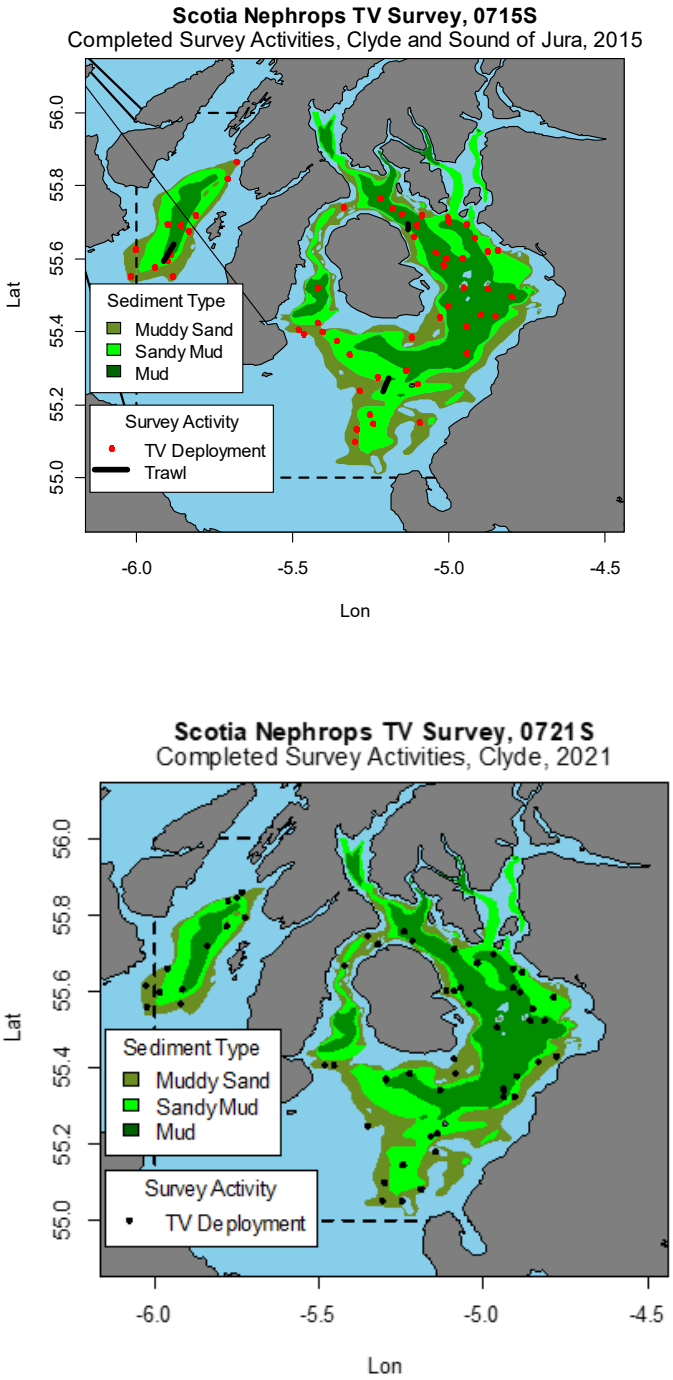


Figure 53. Map showing the location of the surveyed area showing the location of the TV survey sites (in black) carried out during survey UWTV (FU11-13); UK Scotland, Clyde and Sound of Jura, within the extent of the muddy sediments as described by BGS. The yellow icon represents the location where a mooring forming part of the MarPAMM project was recovered.

Video recordings are stored in DVD format and other data in an ACCESS database (WGNEPS is currently seeking to develop an international UWTV database and Scottish data will be transmitted to it when/if it is developed). Video recordings will be analysed, and the results conveyed to the ICES Working Group on Celtic Seas Ecoregion (WGCSE).

3. For internationally coordinated surveys, describe the participating Countries/vessels and the relevant international group in charge of planning the survey

ICES Working Group on Nephrops Surveys (WGNEPS)

Data are used in functional unit assessments

Although Nephrops UWTV surveys are coordinated via WGNEPS, the surveys are generally carried out by individual countries sampling Functional Units in their own 'back yards' rather than defining multi-vessel surveys across entire sea areas.

No other countries/vessels participate in the survey of these FUs.

4. Graphical representation (map) showing the position (location) of the realized samples. Provide maps presenting the spatial distribution of the main sampling types obtained during the survey.

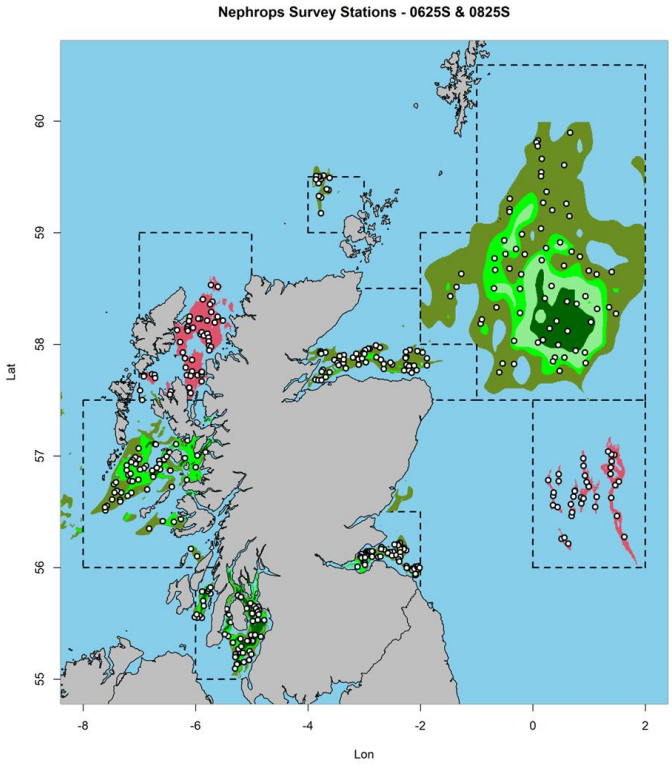


Figure 54. All locations across two surveys.

Outcomes: *47* TV stations were surveyed from the North Minch (FU 11). One fishing trawl was undertaken in the North Minch.

53 TV stations were surveyed from the South Minch (FU 12). Two fishing trawls were undertaken.

38 TV stations were surveyed from the Clyde (FU 13). One fishing trawl was undertaken. In addition, 12 TV stations were completed in the Sound of Jura.

Additional research requests met: Any marine litter caught in trawls was recorded.

5. For internationally coordinated surveys, provide a link to the latest meeting report of the coordination group. Provide a hyperlink to the meeting report from the body coordinating the survey (ICES, MEDITS coordination group, MEDIAS coordination group etc.). For non-international coordinated surveys, refer to any status report (e.g. Cruise report) if available online.

Working Group on Nephrops Surveys (WGNEPH)

6. List the main use of the results of the survey (e.g. indices, abundance estimates, and environmental indicators). Specify in which context the results are used (on routine basis), both on an international as well as on a national context.

Main uses of the of the data collected from the UWTV *Nephrops* survey

Type of data collected	**Assessment type**
UWTV stations for Nephrops burrows.	Annual international Stock assessments – used for advice
Biological sampling	NA
Occurrence of benthic fauna	Used by external units for species spatial analysis.
Sediment samples (from all stations)	Analysed for particle size analysis: relationship between particle size and Nephrops burrow density and changes over time.

Nephrops UWTV Irish Sea, UWTV (FU14); UK Northern Ireland Eastern Irish Sea, VIIa

1. Survey objectives

To investigate the distribution, biology, and population structure of Nephrops (Nephrops norvegicus) in the eastern Irish Sea, using underwater television.

2. Survey methods

The Nephrops UWTV (FU 14) will take place in the Eastern Irish Sea (see below) during the last week in July/ first week of August. The total duration of the cruise is planned to be 3 days. In FU 14 the aim is to complete 38 camera tracks. The camera tracks will be of 10 minutes duration whereby within each minute the number of Nephrops burrows will be counted by a minimum of two experienced surveyors.



Figure 55. Map showing the survey area and stations UWTV (FU14); UK Northern Ireland Eastern Irish Sea, VIIa

3. For internationally coordinated surveys, describe the participating Countries/vessels and the relevant international group in charge of planning the survey

The survey is coordinated by ICES WGNEPS. At present the survey is conducted onboard the RV Corystes (UK-Northern Ireland).

No other countries/vessels participate Participants from NI, England and Ireland participate in the survey of this FU.

Staff exchange occurs from the Irish Marine Institute and the Agri-food and Bioscience Institute. Staff from the Marine Institute provides technical and physical support during the UWTV stage of the survey.

4. Graphical representation (map) showing the position (location) of the realized samples. Provide maps presenting the spatial distribution of the main sampling types obtained during the survey.

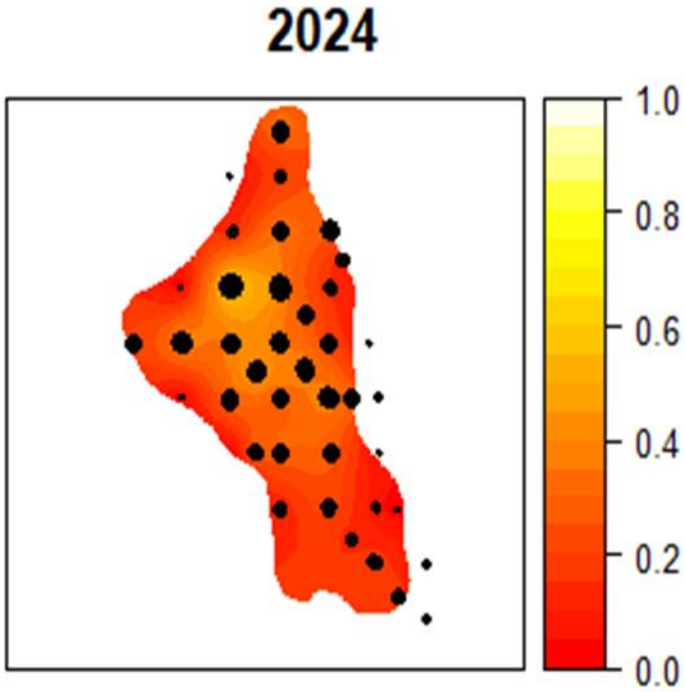


Figure 56. FU14 East Irish Sea 2024, showing distribution on UWTV trawls (in black), heatmap colours show predicted density of *Nephrops* burrows. Number below image is the predicted abundance of *Nephrops in millions.*

Outcomes: Survey completed as planned.

Additional research requests met: NA.

5. For internationally coordinated surveys, provide a link to the latest meeting report of the coordination group. Provide a hyperlink to the meeting report from the body coordinating the survey (ICES, MEDITS coordination group, MEDIAS coordination

group etc.). For non-international coordinated surveys, refer to any status report (e.g. Cruise report) if available online.

2024 WGNEPS Working Group report not yet published by ICES.

6. List the main use of the results of the survey (e.g. indices, abundance estimates, and environmental indicators). Specify in which context the results are used (on routine basis), both on an international as well as on a national context.

Main uses of the of the data collected from the UWTV *Nephrops* survey

Type of data collected	**Assessment type**
Biological sampling	Annual international Stock assessments (*Nephrops*). – used for advice
Biological sampling	National assessments
CTD	National and international. Produces qualifiers to link biological and environmental indicators.

Nephrops UWTV Irish Sea, UWTV (FU15); UK Northern Ireland, Western Irish Sea, VIIa

1. Survey objectives

To investigate the distribution, biology, and population structure of Nephrops (Nephrops norvegicus) in the western Irish Sea, using underwater television.

2. Survey methods

The Nephrops UWTV (FU 15) occurs in the Western Irish Sea (see below) during the last week in July/ first week of August. The UWTV phase of the survey is planned to last 7 days. In FU15 the aim is to complete 100 camera racks. The camera tracks are planned for 10 minutes whereby within each minute the number of Nephrops burrows are counted by a minimum of two experienced surveyors. A trawling phase of the survey is planned to last 5 days with 24 trawl stations to be sampled using a commercial Nephrops otter-trawl with 70mm mesh net and 45mm cod end for a 30-60 minute tows at fixed-position stations to investigate the distribution, biology, and population structure of Nephrops in the western Irish Sea. The trawl catch will be sorted and quantified at the species level, and length compositions to be recorded for all species. Data on Nephrops is to be collected by sex and maturity stage. Additional data on epibenthos will be recorded using a small beam trawl.

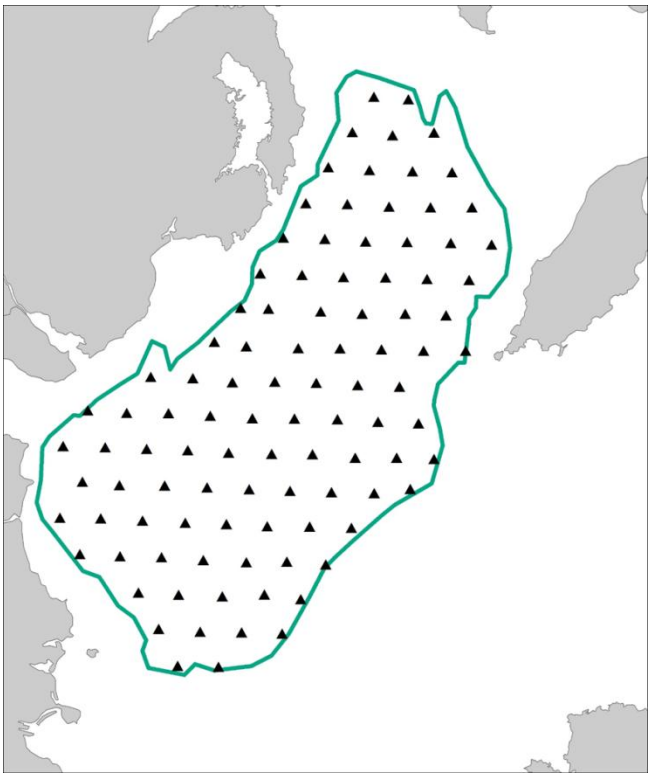


Figure 57. Map showing the survey area and indicative UWTV stations UWTV (FU15); UK Northern Ireland Western Irish Sea, VIIa (randomlly shifted annually).

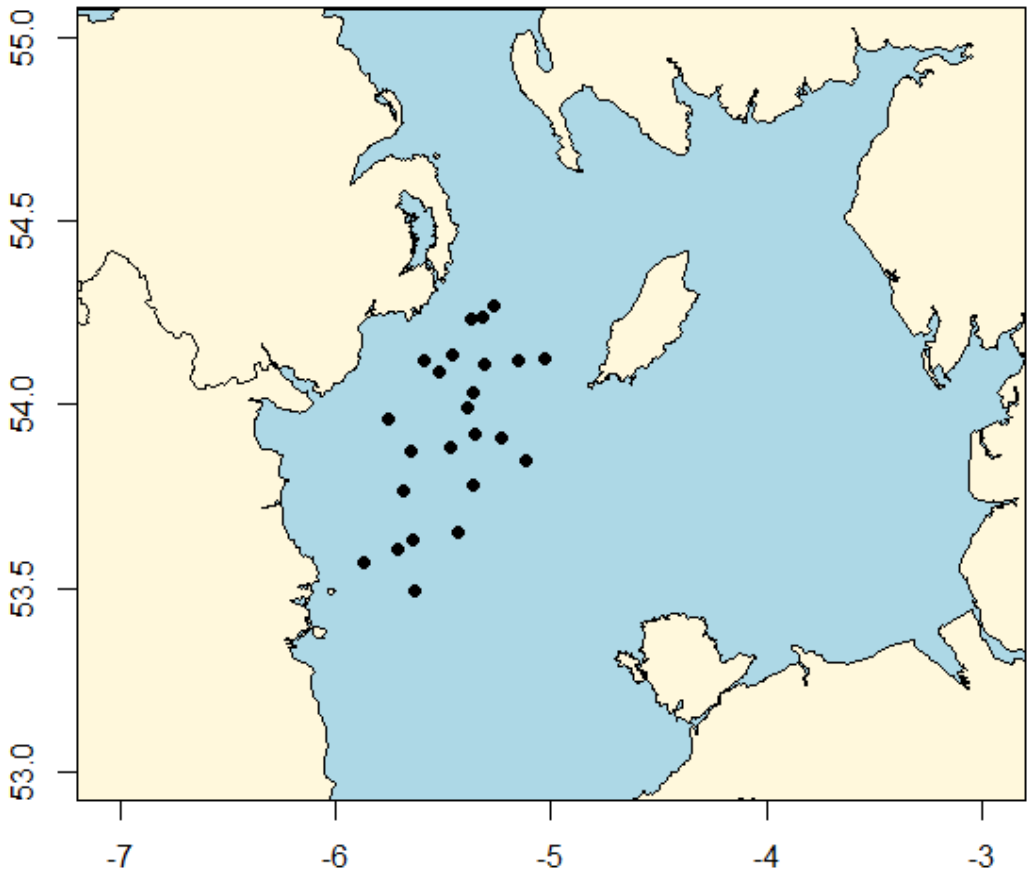


Figure 58. Map showing the trawl stations UWTV (FU15); UK Northern Ireland Western Irish Sea, VIIa

3. For internationally coordinated surveys, describe the participating Countries/vessels and the relevant international group in charge of planning the survey

The survey is coordinated by ICES WGNEPS. At present the survey is conducted onboard the RV Corystes (UK-Northern Ireland).

The UWTV part of the survey is a combined survey lead by AFBI with staff from the Marine Institute (Ireland) and CEFAS.

Staff exchange occurs from the Irish Marine Institute and the Agri-food and Bioscience Institute. Staff from the Marine Institute provides technical and physical support during the UWTV stage of the survey.

4. Graphical representation (map) showing the position (location) of the realized samples. Provide maps presenting the spatial distribution of the main sampling types obtained during the survey.

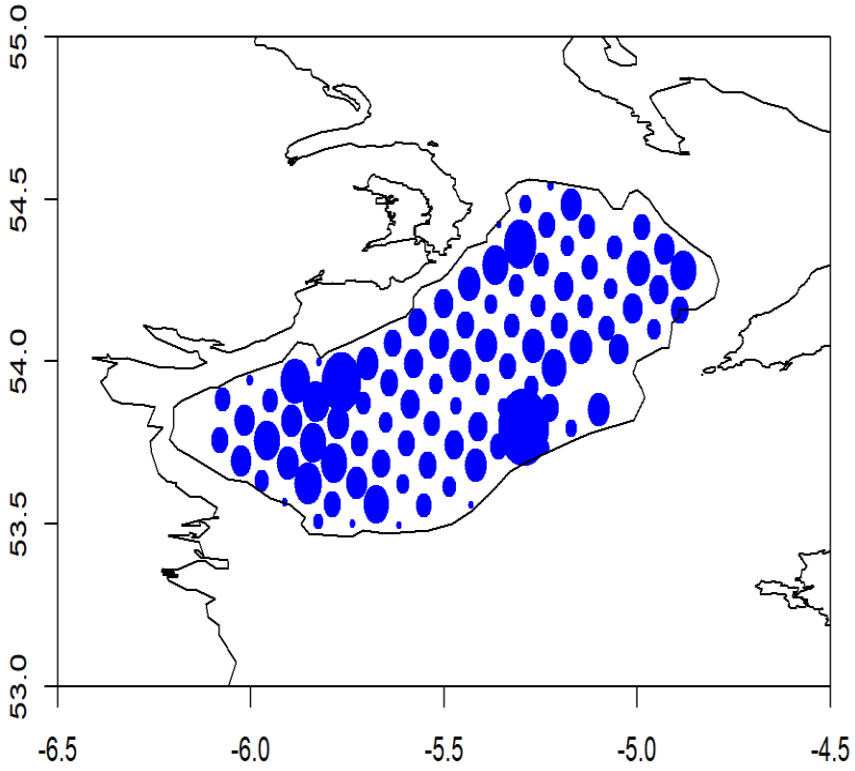


Figure 59. Map showing the survey area and UWTV stations UWTV (FU15); UK Northern Ireland Western Irish Sea, VIIa 2023. Circle sizes indicate densities of *Nephrops* burrows.

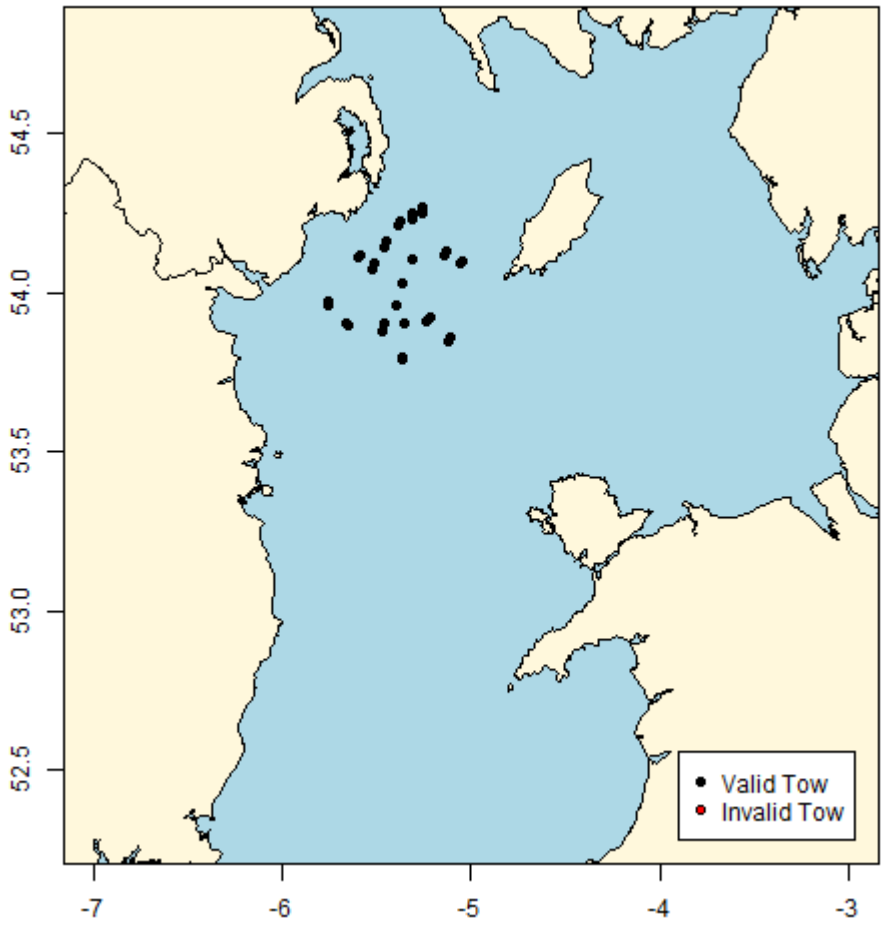


Figure 60. Map showing the trawl stations UWTV (FU15); UK Northern Ireland Western Irish Sea, VIIa 2023

Outcomes:

In 2025, the RV Corystes successfully completed the full survey following the survey manual (WGNEPS).*Additional research requests met:* NA

5. For internationally coordinated surveys, provide a link to the latest meeting report of the coordination group. Provide a hyperlink to the meeting report from the body coordinating the survey (ICES, MEDITS coordination group, MEDIAS coordination group etc.). For non-international coordinated surveys, refer to any status report (e.g. Cruise report) if available online.

Working Group on Nephrops Surveys - WGNEPS

6. List the main use of the results of the survey (e.g. indices, abundance estimates, and environmental indicators). Specify in which context the results are used (on routine basis), both on an international as well as on a national context.

Main uses of the of the data collected from the FU15 Trawl and UWTV - FU15 survey

Type of data collected	Assessment type
Biological sampling	Annual international Stock assessments (Nephrops). – used for advice
Biological sampling	National assessments
CTD	National and international. Produces qualifiers to link biological and environmental indicators.
Biological parameters	Nephrops sex ratio and length.
Benthic species	Catch composition
Litter items in trawl	National and international. Anthropogenic monitoring.

Rockall Haddock survey, SCOROC - Q3; UK Scotland component Rockall (VIb)

1. Survey objectives

To carry out a bottom trawl survey of haddock on the Rockall Plateau to depths of 350m. Temperature and salinity profiles are collected at selected stations as well as biological samples (genetics and otoliths) of other key species for population studies (haddock, mackerel, whiting, cod, saithe, skates/rays)

2. Survey methods

The survey design is random stratified with the survey divided into 4 depth strata bounded overall by the 350m depth contour. The survey excludes two areas that lie largely within this zone. Both are North East Atlantic Fisheries Commission (NEAFC) closures designed to protect vulnerable marine ecosystems (VMEs). 45 30-minute trawl hauls are planned.

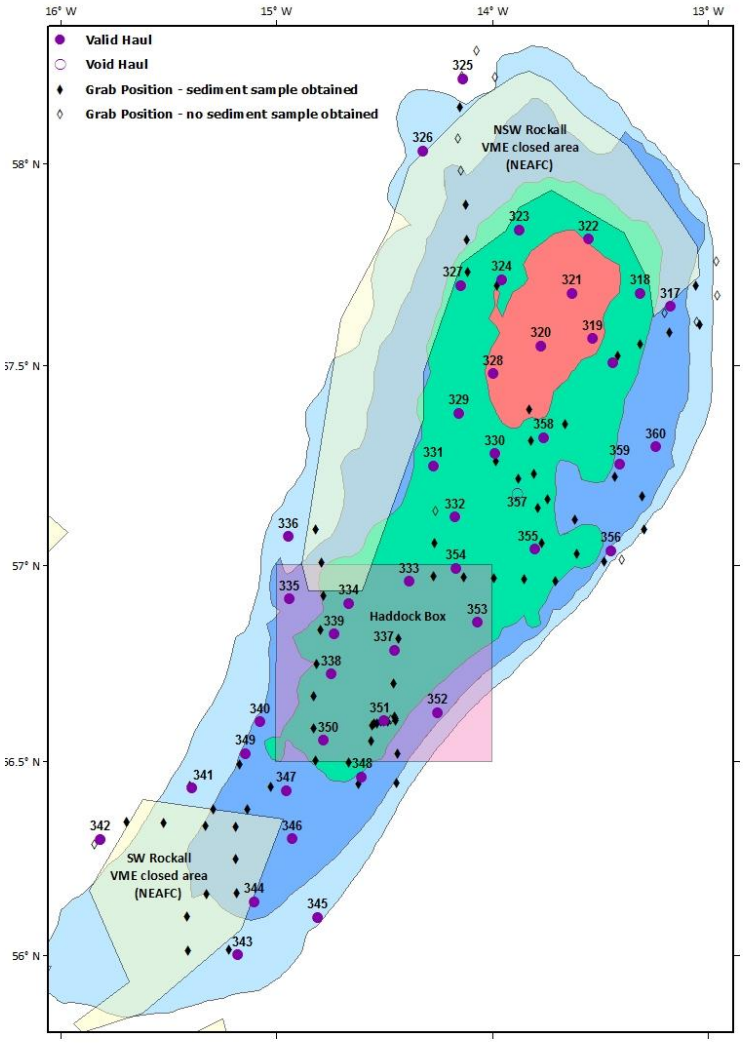


Figure 61. Map showing positions of survey stations SCOROC Q3; UK Scotland component Rockall (VIb)

Data will be stored electronically within FSS database at MD prior to be uploaded to the ICES DATRAS database.

3. For internationally coordinated surveys, describe the participating Countries/vessels and the relevant international group in charge of planning the survey

ICES International Bottom Trawl Survey Working Group. Data sent to WGCSE and for assessments.

Scotia (UK-Scotland); Vizcondede Eza (Spain)

4. Graphical representation (map) showing the position (location) of the realized samples. Provide maps presenting the spatial distribution of the main sampling types obtained during the survey.

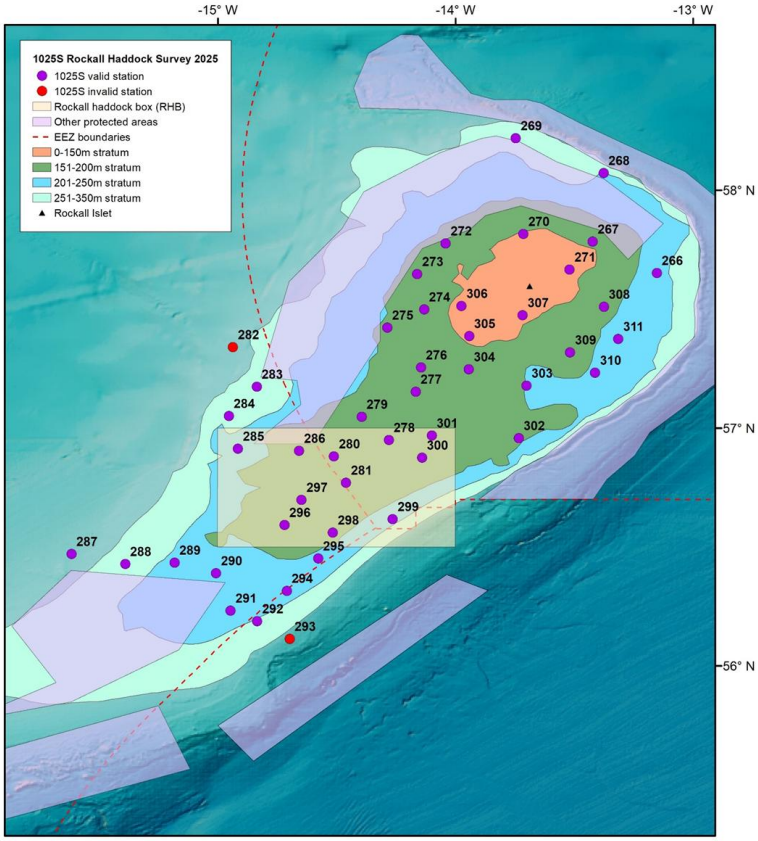


Figure 62. SCOROC realised survey area 2025

Outcomes: 15 days and 43 fishing hauls, all of which were valid, were achieved. The CTD was deployed at a subset of 20 trawl stations. Length, age, sex and weights were collected for all species with external maturities estimated for elasmobranchs before returning them to the sea, alive. 52 species were recorded on the survey.

All marine litter picked up in the trawl was classified, quantified and recorded. Data were uploaded to DATRAS.

All fish and macrobenthos were screened for non-indigenous species.

Additional research requests met: Following request to ICES by Benchmark Workshop on Northern Shelf cod stocks (WKBCOD) genetic material from 30 individual cod were collected for future stock discrimination studies. Genetic samples in collaboration with AZTI for GIFAMAN project: Muscle tissue samples from *Lophious piscatorus* (69) *and L. budegassa* (5) were collected. Length, weight, sex and maturity were recorded in each case. Tissue samples and sections of vertebrae were collected from deceased specimens of *Dipturus batis* (15), *Dipturus oxyrinchus* (6), *Leucoraja fullonica* (9) and *Leucoraja circularis* (3) for molecular analysis and aging at Aberdeen University. Blood samples were extracted from a subset of the same specimens: *Dipturus batis* (2), *Dipturus oxyrinchus* (1), and *Leucoraja circularis* (2) for full genomic sequencing at the Wellcome Sanger Institute, Cambridge in conjunction with Aberdeen University. All shelled molluscs were retained frozen for identification and studies on distribution by D. Mackay.

5. For internationally coordinated surveys, provide a link to the latest meeting report of the coordination group. Provide a hyperlink to the meeting report from the body coordinating the survey (ICES, MEDITS coordination group, MEDIAS coordination group etc.). For non-international coordinated surveys, refer to any status report (e.g. Cruise report) if available online.

International Bottom Trawl Survey Working Group (IBTSWG; outputs from 2024 meeting))

6. List the main use of the results of the survey (e.g. indices, abundance estimates, and environmental indicators). Specify in which context the results are used (on routine basis), both on an international as well as on a national context.

Main uses of the of the data collected from the Rockall survey

Type of data collected	Assessment type
Biological sampling	Annual international Stock assessments (Haddock, Cod in VIb) – used for advice
CTD by Haul	National and international. Produces qualifiers to link biological and environmental indicators. MSFD
Other fish spp in haul	National and international. Predator-prey interaction/ecosystem model for biodiversity (Skates, Squalus acanthias, Mustelus asterias and other fish species).
Litter items in trawl	National and international. Anthropogenic monitoring.

Western Channel Beam Trawl Survey, VIIe, 1st quarter, SWECOS; UK England, Ecosystem survey VIIe,f,g,h,j

1. Survey objectives

To provide estimates of abundance of recruiting year classes and CPUE-at-age series for plaice and sole to the Celtic Seas Ecoregion Working Group (WGCSE). These are used for tuning purposes. As the Celtic Sea time series grows, further species tuning indices will be provided to assessment WGs.

2. Survey methods

The survey will be conducted on the RV Cefas Endeavour. A total of 131 beam trawl stations have been planned over 27 days. Age samples and biological parameters will be taken from all target species and all species listed under Appendix VII of the DCR which are caught. Benthic by-catch information is collected at each station. Hydrographic data will be collected at a minimum of two stations per day. Any anthropogenic waste material will be recorded and weighed.

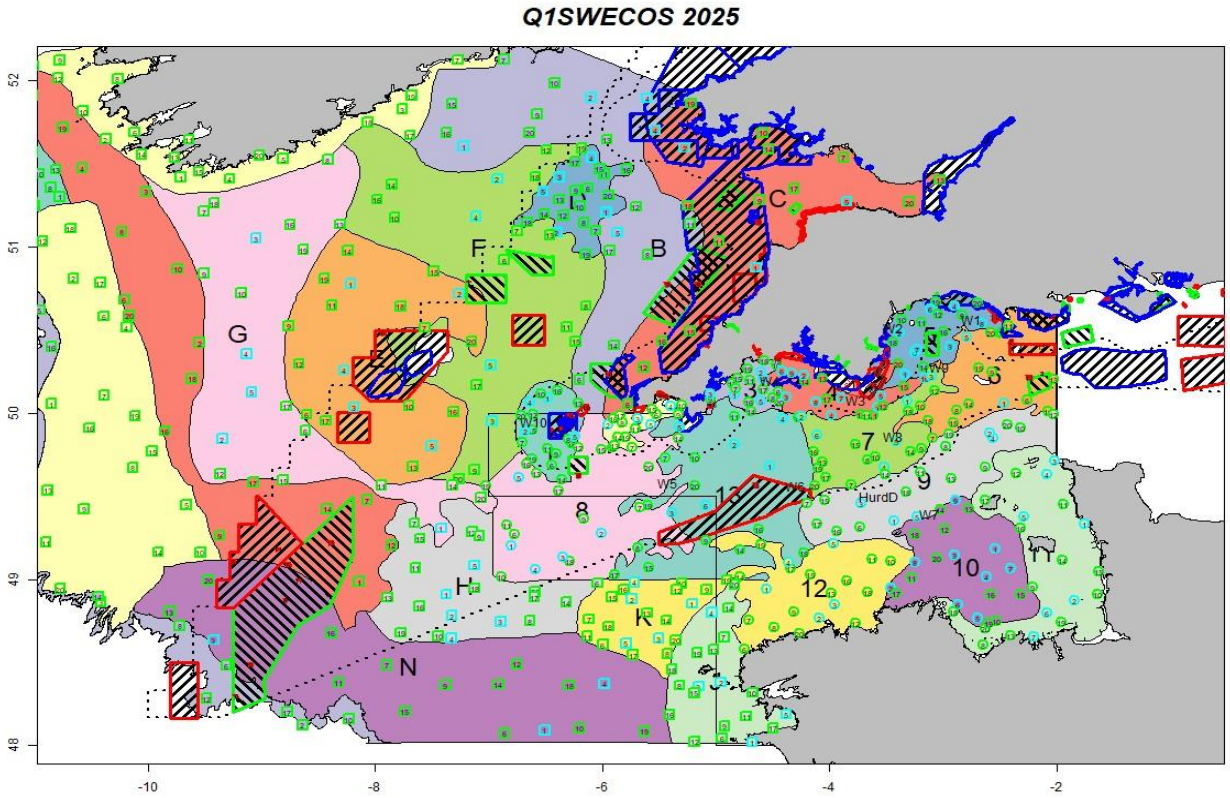


Figure 63. Map showing positions of example survey stations SWECOS; UK England, Ecosystem survey VIIe,f,g,h,j

The resultant data will be input to a Cefas surveys database (SFS) using the Cefas Electronic Data Capture (EDC) System. All data will also be transmitted to ICES for input to the DATRAS database.

3. For internationally coordinated surveys, describe the participating Countries/vessels and the relevant international group in charge of planning the survey

Standardised and agreed methodologies are coordinated at Beam Trawl Working Group (WGBEAM) to assure independent indices for each national survey.

Data used by Celtic Seas Ecoregion Working Group (WGCSE) for assessments.

No other countries/vessels participate in this survey.

4. Graphical representation (map) showing the position (location) of the realized samples. Provide maps presenting the spatial distribution of the main sampling types obtained during the survey.

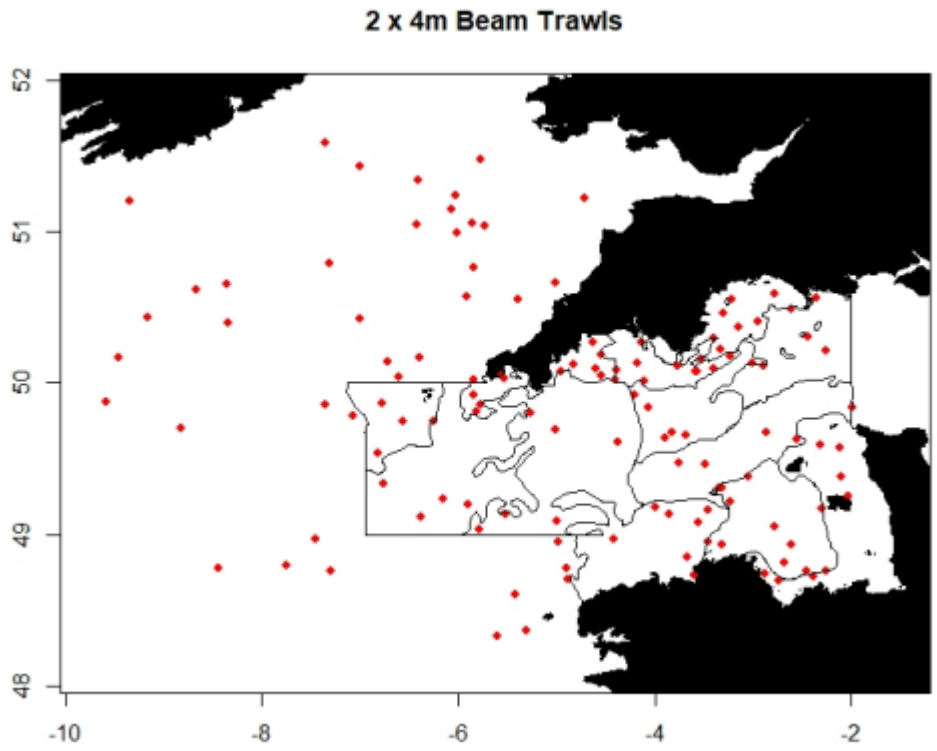


Figure 64. SWECOS 2025 completed survey area

Outcomes: A total of 78 or the 81 planned tows in the western Channel survey area along with all 50 targetted in the Celtic Sea area were successfully completed. In addition, one extra tow was completed in the western channel along with seven extra tows fished in the Celtic sea. A total of 136 tows were completed. Following survey design of completing stations in numerical order, all completed tows were valid.

Additional research requests met: Twenty-three of the twenty-eight additional aims were completed or partially completed, these included collecting water samples for caesium and tritium analysis, providing additional information on data-limited species and collection of a zooplankton sample to maintain a long-standing time series of sampling in the target area

5. For internationally coordinated surveys, provide a link to the latest meeting report of the coordination group. Provide a hyperlink to the meeting report from the body coordinating the survey (ICES, MEDITS coordination group, MEDIAS coordination group etc.). For non-international coordinated surveys, refer to any status report (e.g. Cruise report) if available online.

Working Group on Beam Trawl Surveys (WGBEAM)

6. List the main use of the results of the survey (e.g. indices, abundance estimates, and environmental indicators). Specify in which context the results are used (on routine basis), both on an international as well as on a national context.

The UK-England Q1SWECOS Q1 survey data feeds into Indices, spatial and temporal changes in the distribution and relative abundance of fish and fish assemblages for the relevant species to assessment Working Groups (WGs) and science groups. In addition to this, CTD (temperature and salinity) data are collected, but not these are not used in the assessments. Marine litter and additional biological data from the surface and seabed at each trawling station were collected.

Main uses of the of the data collected from the *SWECOS* survey

Type of data collected	**Assessment type**
Biological sampling	Annual international Stock assessments (sole and plaice). – used for advice
Biological sampling	National assessments
CTD by Haul	National and international. Produces qualifiers to link biological and environmental indicators.
Other fish spp in haul	National and international. Predator-prey interaction/ecosystem model for biodiversity (Skates, *Squalus acanthias, Mustelus asterias* and other fish species).
Litter items in trawl	National and international. Anthropogenic monitoring – used in regional and environmental planning.

Quarter 1 Irish Sea Groundfish Survey, NIGFS Q1; Northern Ireland, VIIa

1. Survey objectives

The Northern Irish Groundfish Survey (NIGFS Q1) Irish Sea survey aims to collect data on the distribution and relative abundance, and biological information of commercial fish in VIIa. The primary species of interest are cod, haddock and whiting, herring, and plaice.

2. Survey methods

The survey will be carried out in the Irish Sea (see below) and aims to depart at the start of March with a duration of 23 days (weather dependent). A target of 62 stations of fixed positions are towed using a rock-hopper otter trawl with a 17m footrope fitted with 250 mm non-rotating rubber discs. The survey is divided in strata defined by depth and substratum. Scanmar sensors were fitted to gear and trawl parameters recorded. In addition, temperature and salinity are recorded at each station. The species composition of each catch is to be recorded by total weight of species caught and length frequencies recorded for all species. Dependent of the number of individual fish caught all samples of cod, haddock, herring, and whiting have length, weight, sex, and maturity recorded and otoliths are to be obtained for aging. If the number of individual fish is large, an appropriate sub-sample should be taken. The biological samples of cod and herring may be further analysed for parasite burden.

Survey manual:

http://www.ices.dk/sites/pub/Publication%20Reports/ICES%20Survey%20Protocols%20(SISP)/SISP1-IBTSVIII.pdf

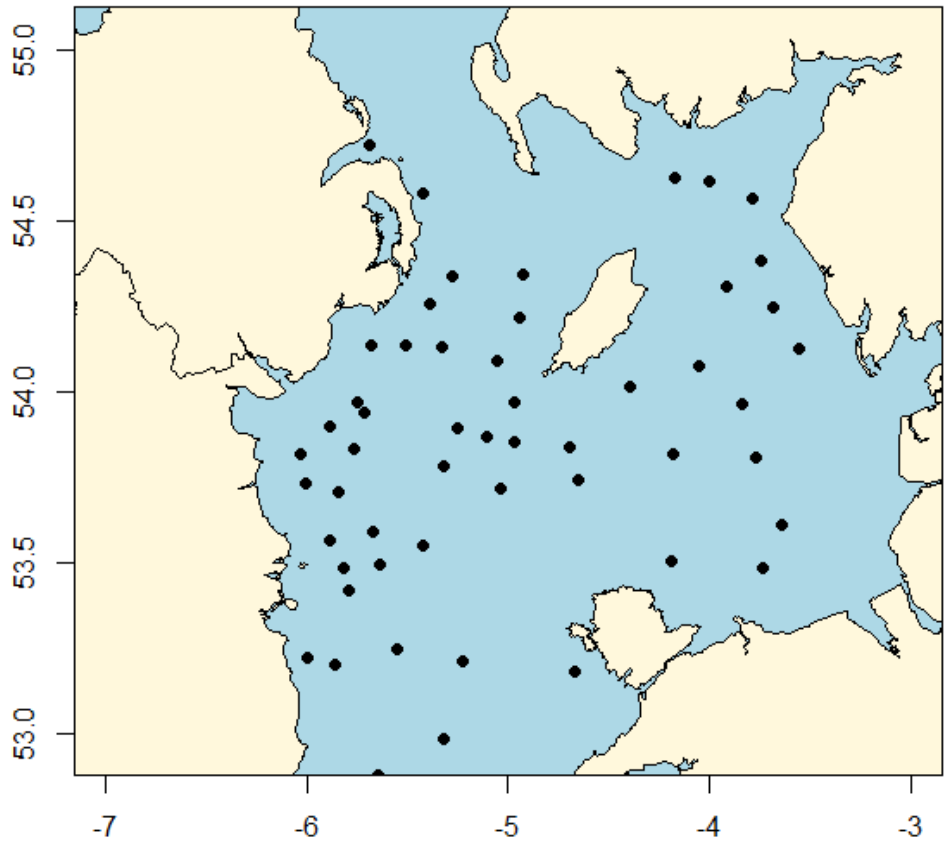


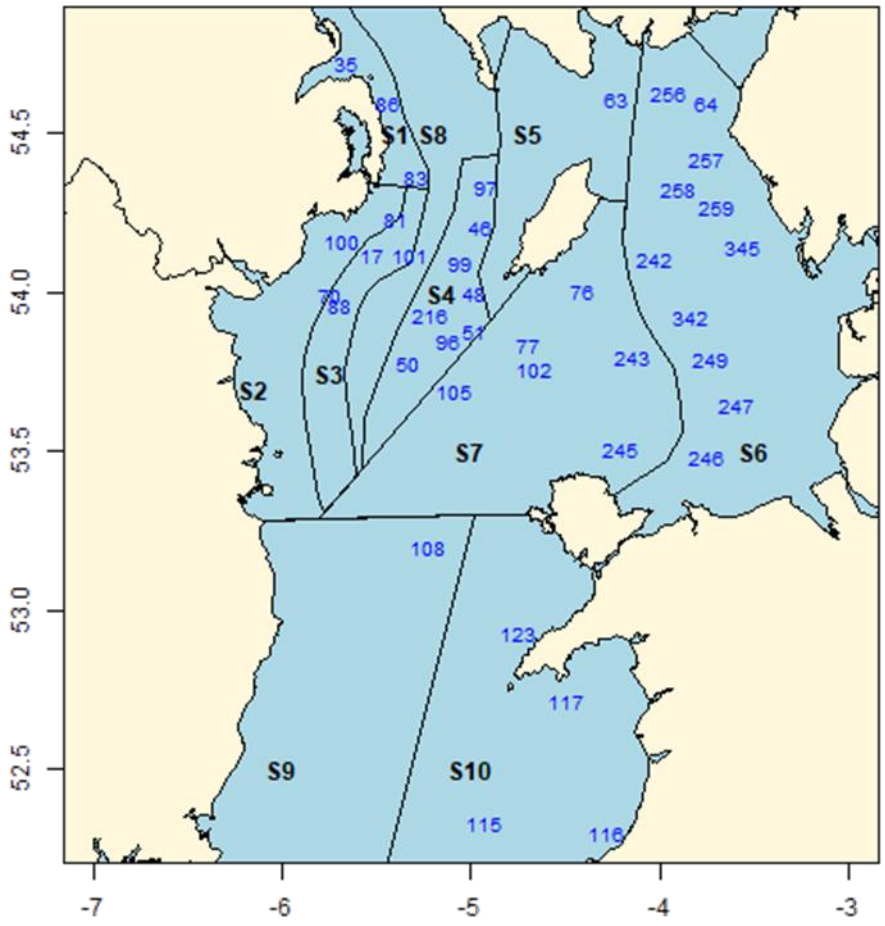
Figure 65. Map showing positions of trawl stations NIGFS Q1; Northern Ireland, VIIa.

3. For internationally coordinated surveys, describe the participating Countries/vessels and the relevant international group in charge of planning the survey

The survey is coordinated by ICES IBTSWG. At present the survey is conducted onboard the RV Corystes.

Scotia (UK-Scotland); Corystes (UK-Northern Ireland); Celtic Explorer (Ireland); Thalassa (France); Miguel Oliver (Spain); Noruega (Portugal)

4. Graphical representation (map) showing the position (location) of the realized samples. Provide maps presenting the spatial distribution of the main sampling types obtained during the survey.


S1
S2
S3
S4
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342
243
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108
123
117
115
116
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54.0
53.5
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52.5
-7
-6
-5
-4
-3

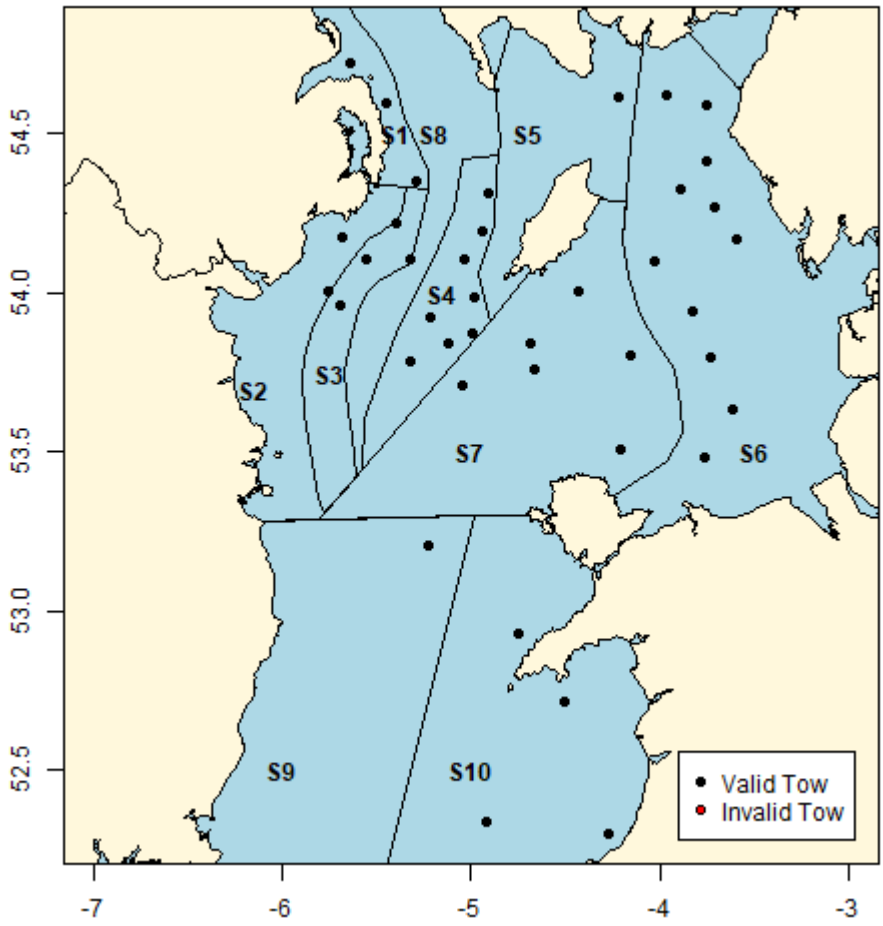


Figure 66. Map showing positions of trawl stations NIGFS Q1; Northern Ireland, VIIa.

Outcomes: In 2025 the RV Corystes was unable to enter Republic of Ireland (ROI) waters due to technical issues relating to the vessel. For NIGFS Q1 survey, a large proportion of the stations occur in ROI waters, and only 65% (40/62) of the target number of fish hauls could be conducted.

Additional research requests met: *Litter was recorded for national seabed litter monitoring.* Stomach samples were collected from the following species to contribute to ecosystem modelling of the Irish Sea region, cod, haddock, whiting, hake, monkfish, pollock, brill turbot, norway pout, poor cod and *Nephrops*. In addition, whiting samples were taken for contaminant analyses to be conducted by DAERA, and samples were taken for genetic analyses at DAERA.

5. For internationally coordinated surveys, provide a link to the latest meeting report of the coordination group. Provide a hyperlink to the meeting report from the body coordinating the survey (ICES, MEDITS coordination group, MEDIAS coordination group etc.). For non-international coordinated surveys, refer to any status report (e.g. Cruise report) if available online.

IBTSWG

Report of the 2025 meeting of the ICES International Bottom Trawl Survey Working group not yet published by ICES.

6. List the main use of the results of the survey (e.g. indices, abundance estimates, and environmental indicators). Specify in which context the results are used (on routine basis), both on an international as well as on a national context.

Main uses of the of the data collected from the NIGFS Q1 survey

Type of data collected	**Assessment type**
Biological sampling	Annual international Stock assessments (cod, haddock, plaice, whiting, sole). – used for advice
Biological sampling	National assessments
All species in catch	Length and weight - Catch composition and biodiversity indicators
Litter items in trawl	National and international. Anthropogenic monitoring.

Quarter 4 Irish Sea Groundfish Survey, NIGFS Q4; Northern Ireland, VIIa

1. Survey objectives

The Northern Irish Groundfish Survey (NIGFS Q4) Irish Sea survey aims to collect data on the distribution and relative abundance, and biological information of commercial fish in VIIa. The primary species of interest are cod, haddock and whiting, herring, and plaice.

2. Survey methods

The survey will be carried out in the Irish Sea (VIIa; see below) and aims to depart at the start of March with a duration of 19 days (weather dependent). A target of 62 stations of fixed positions are to be towed using a rock-hopper otter trawl with a 17m footrope fitted with 250 mm non-rotating rubber discs. The survey will be divided into strata defined by depth and substratum. Scanmar sensors will be fitted to gear and trawl parameters recorded. In addition, temperature and salinity are to be recorded at each station. The species composition of each catch will be recorded by total weight of species caught and length frequencies recorded for all species. Dependent of the number of individual fish caught all samples of cod, haddock, herring, and whiting will have length, weight, sex, and maturity recorded and otoliths obtained for aging. If the number of individual fish is large, an appropriate sub-sample should be taken. The biological samples of cod and herring may be further analysed for parasite burden.

Survey manual:

https://ices-library.figshare.com/collections/ICES_Survey_Protocols/6315609/3

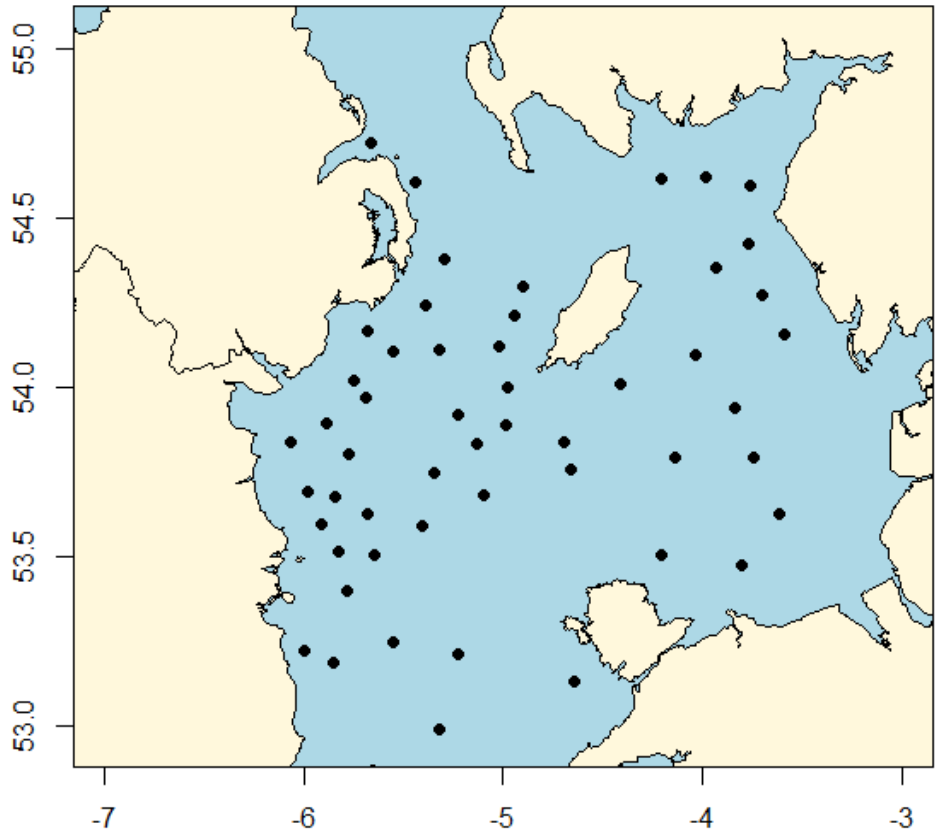
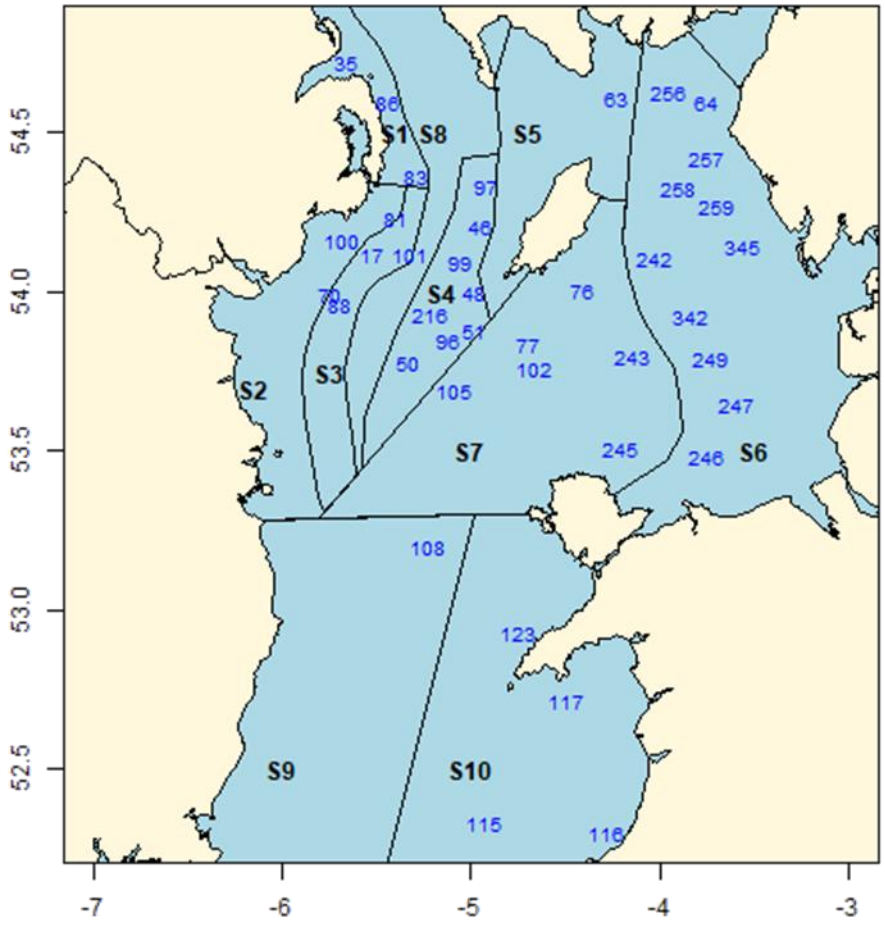


Figure 67. Map showing positions of trawl stations NIGFS Q4; Northern Ireland, VIIa.

3. For internationally coordinated surveys, describe the participating Countries/vessels and the relevant international group in charge of planning the survey

The survey is coordinated by ICES IBTSWG. At present the survey is conducted onboard the RV Corystes. Scotia (UK-Scotland); Corystes (UK-Northern Ireland); Celtic Explorer (Ireland); Thalassa (France); Miguel Oliver (Spain); Noruega (Portugal)

4. Graphical representation (map) showing the position (location) of the realized samples. Provide maps presenting the spatial distribution of the main sampling types obtained during the survey.



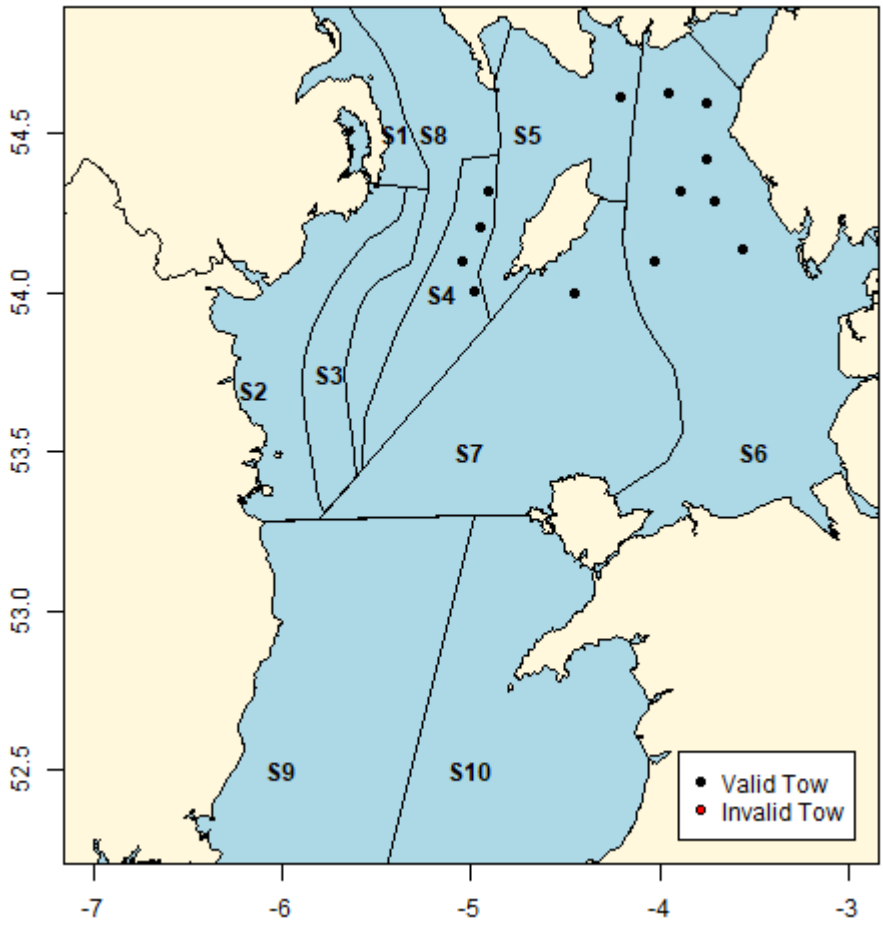


Figure 68. Map showing positions of trawl stations NIGFS Q4; Northern Ireland, VIIa.

Outcomes: In 2025 the RV Corystes completed 40 valid tows, 65% of the target number of fish hauls could be conducted (target 62). As the vessel could not access ROI waters, stations in this area could not be sampled.

Additional research requests met: Litter was recorded for national seabed litter monitoring as assessment. Fish samples for contaminant analysis were taken. **5. For internationally coordinated surveys, provide a link to the latest meeting report of the coordination group. Provide a hyperlink to the meeting report from the body coordinating the survey (ICES, MEDITS coordination group, MEDIAS coordination group etc.). For non-international coordinated surveys, refer to any status report (e.g. Cruise report) if available on line.**

IBTSWG (ices.dk)

Report of the 2026 meeting of the ICES International Bottom Trawl Survey Working group not yet published by ICES.

6. List the main use of the results of the survey (e.g. indices, abundance estimates, and environmental indicators). Specify in which context the results are used (on routine basis), both on an international as well as on a national context.

Main uses of the of the data collected from the NIGFS Q4 survey

Type of data collected	Assessment type
Biological sampling	Annual international Stock assessments (cod, haddock, plaice, whiting, nephrop). – used for advice
Biological sampling	National assessments
All species in catch	Length and weight - Catch composition, biodiversity indicators and ecosystem modelling
Litter items in trawl	National and international. Anthropogenic monitoring.

Northern Irish MIK net survey, NI-MIK; Northern Ireland, VIIa

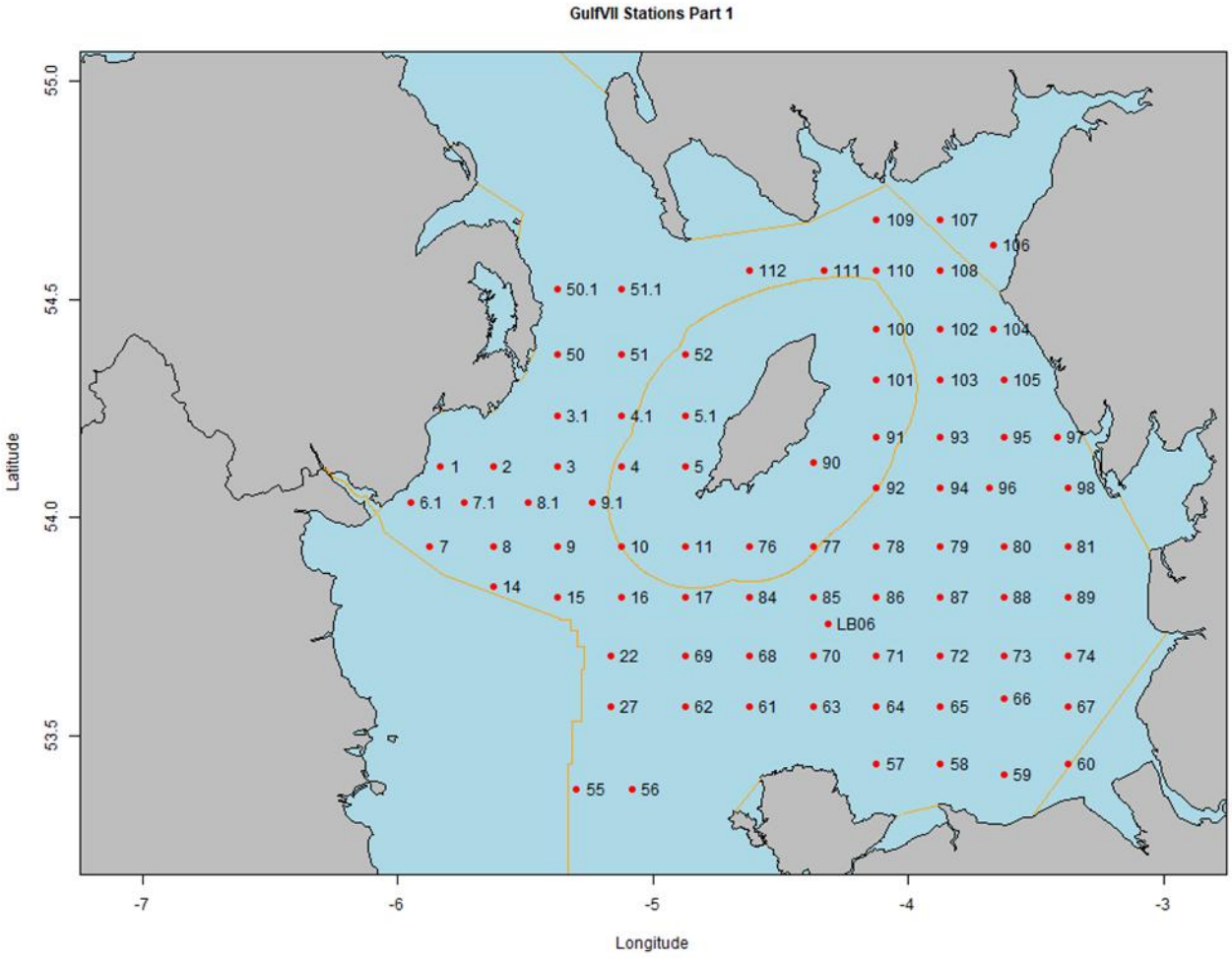
1. Survey objectives

The objectives of the NI-MIK survey are:

- to investigate the distribution and abundance of juvenile gadoids in management area VIIa(N).
- to collect zooplankton, fish larvae and environmental data using the GulfVII.
- to monitor jellyfish abundance in the Irish Sea survey area.

2. Survey methods

The survey will take place in the Irish Sea (VIIa) between May-June lasting approximately 19 days, split across two phases. A grid of approximately 122 stations will be sampled with the high-speed plankton sampler (GulfVII) and 90 stations using the MIK net. MIK net sampling during the hours of darkness (sunset to sunrise). The nets are to be deployed to ~5m off the seabed. The deployment of the MIK net will be controlled using the Scanmar catch control system and towed at approximately 3knots. The GulfVII being towed at between 3-4knts. A member of the scientific staff will monitor the deployment of the MIK net and will require communication with the winch man from the bridge (VHF).



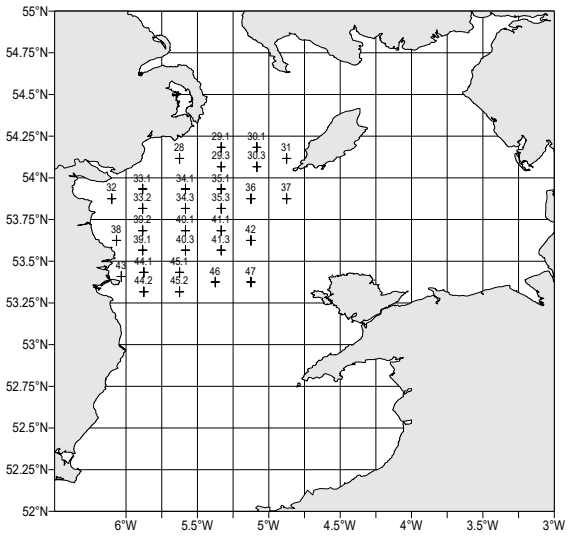
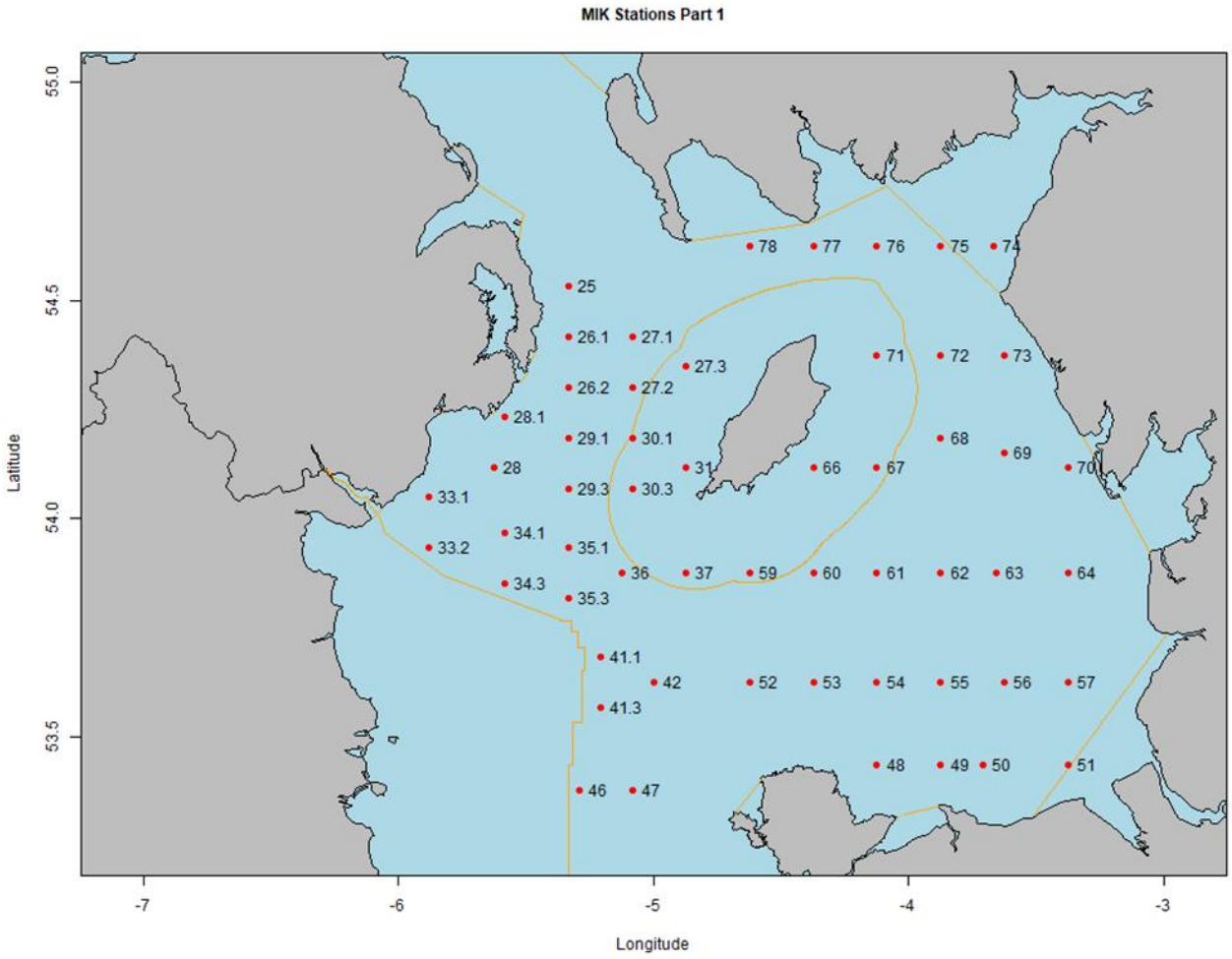


Figure 69. GulfVII net sampling stations NI-MIK.



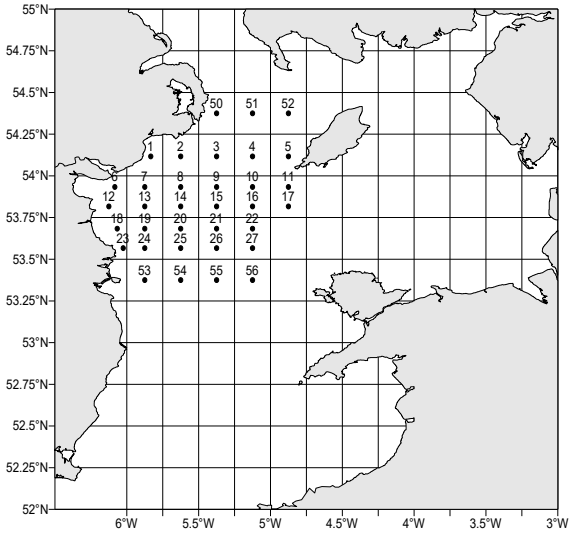


Figure 70. MIK net sampling stations NI-MIK

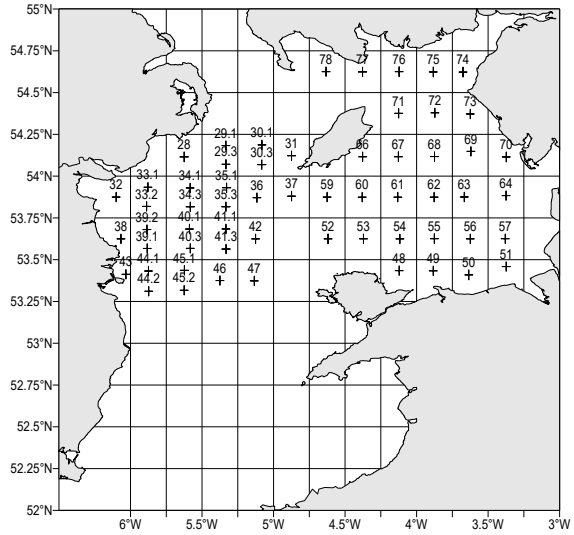
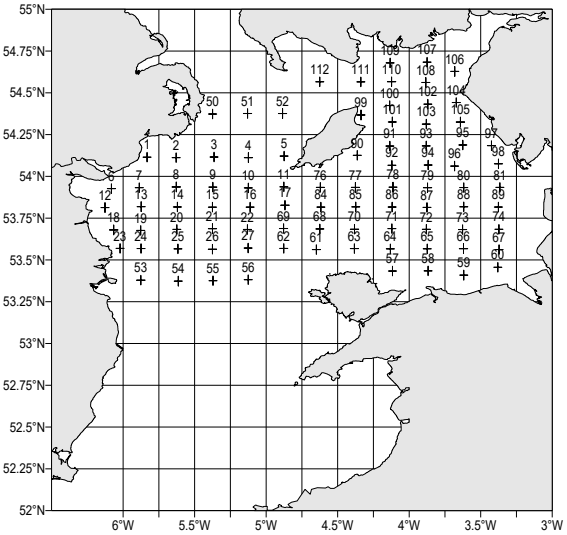


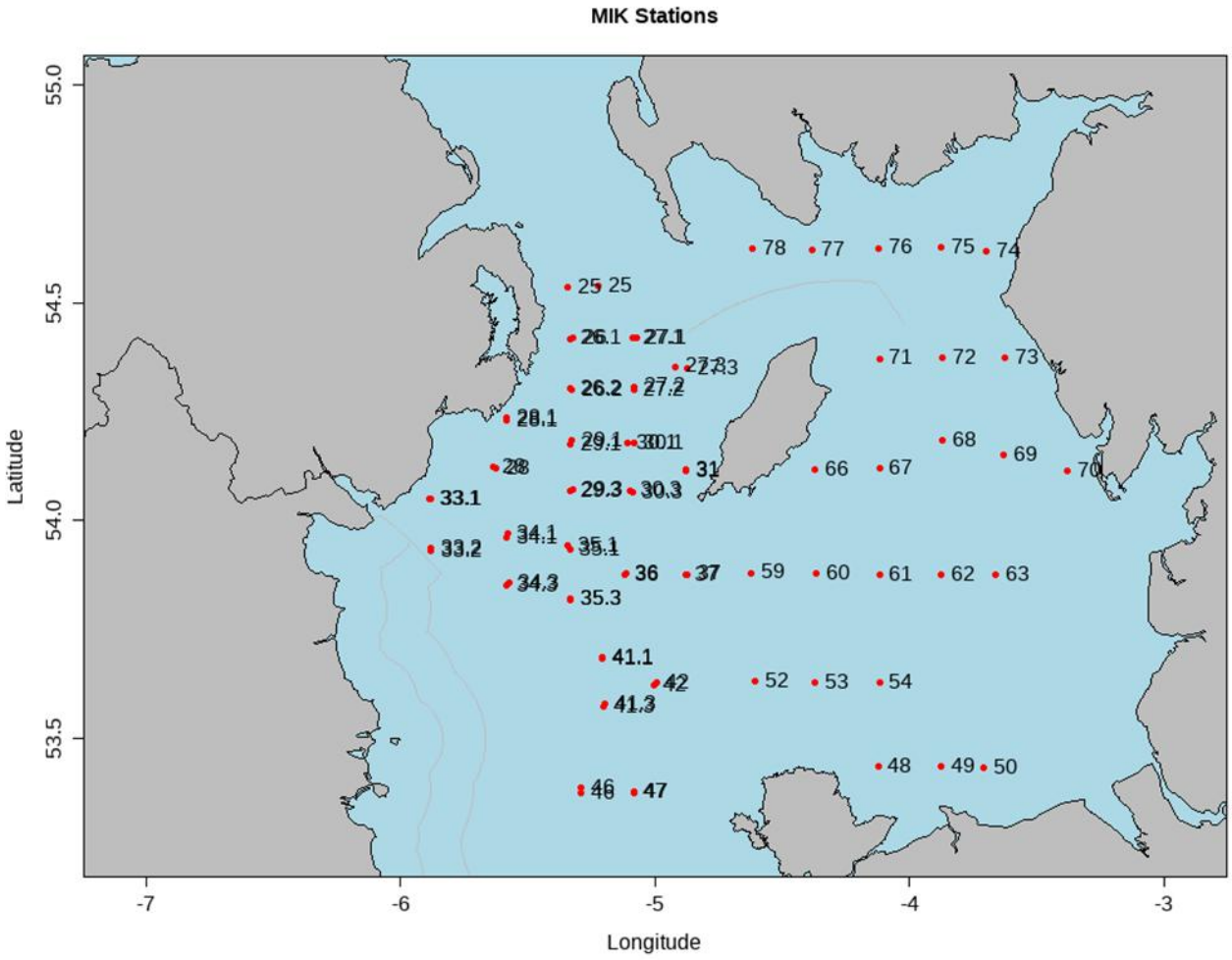
Figure 71. MIK sampling stations for NI-MIK phase ii.Figure 72. Gulf VII sampling stations for NI-MIK phase ii**3. For internationally coordinated surveys, describe the**



participating Countries/vessels and the relevant international group in charge of planning the survey

N/A

4. Graphical representation (map) showing the position (location) of the realized samples. Provide maps presenting the spatial distribution of the main sampling types obtained during the survey.



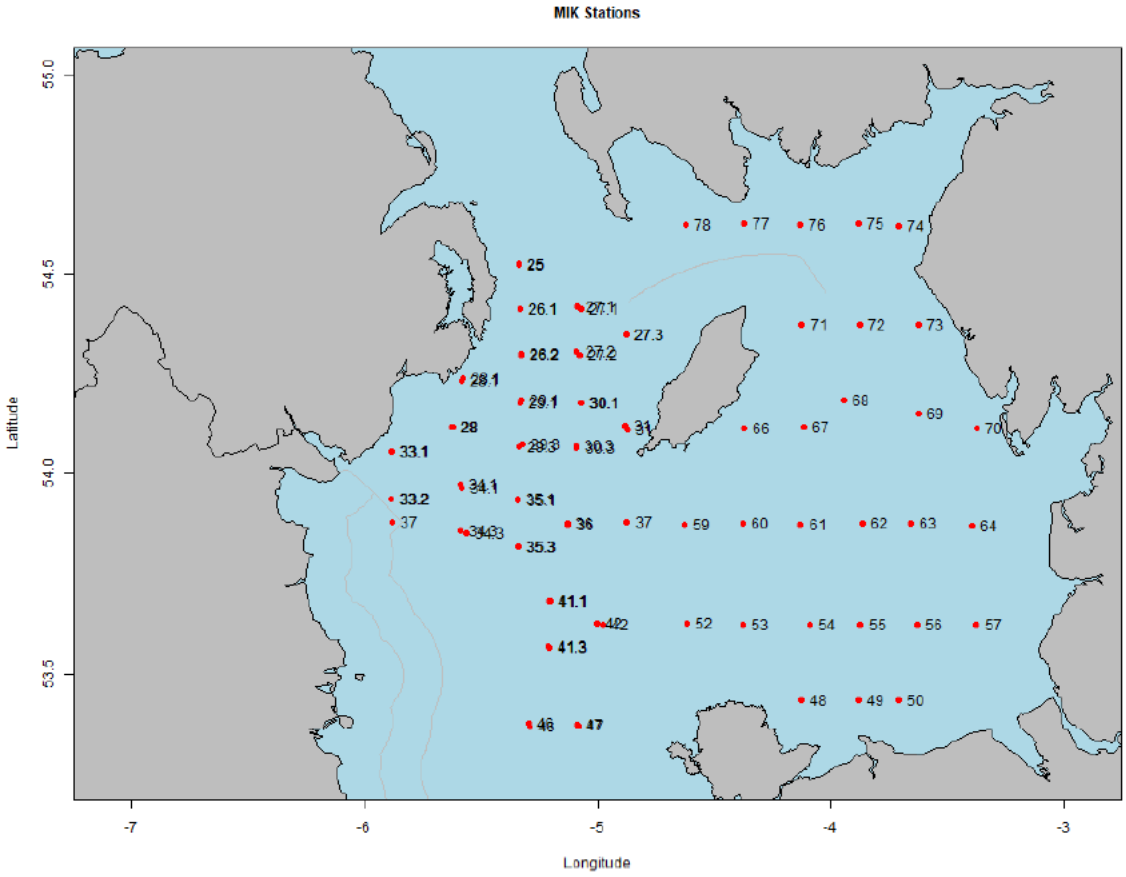
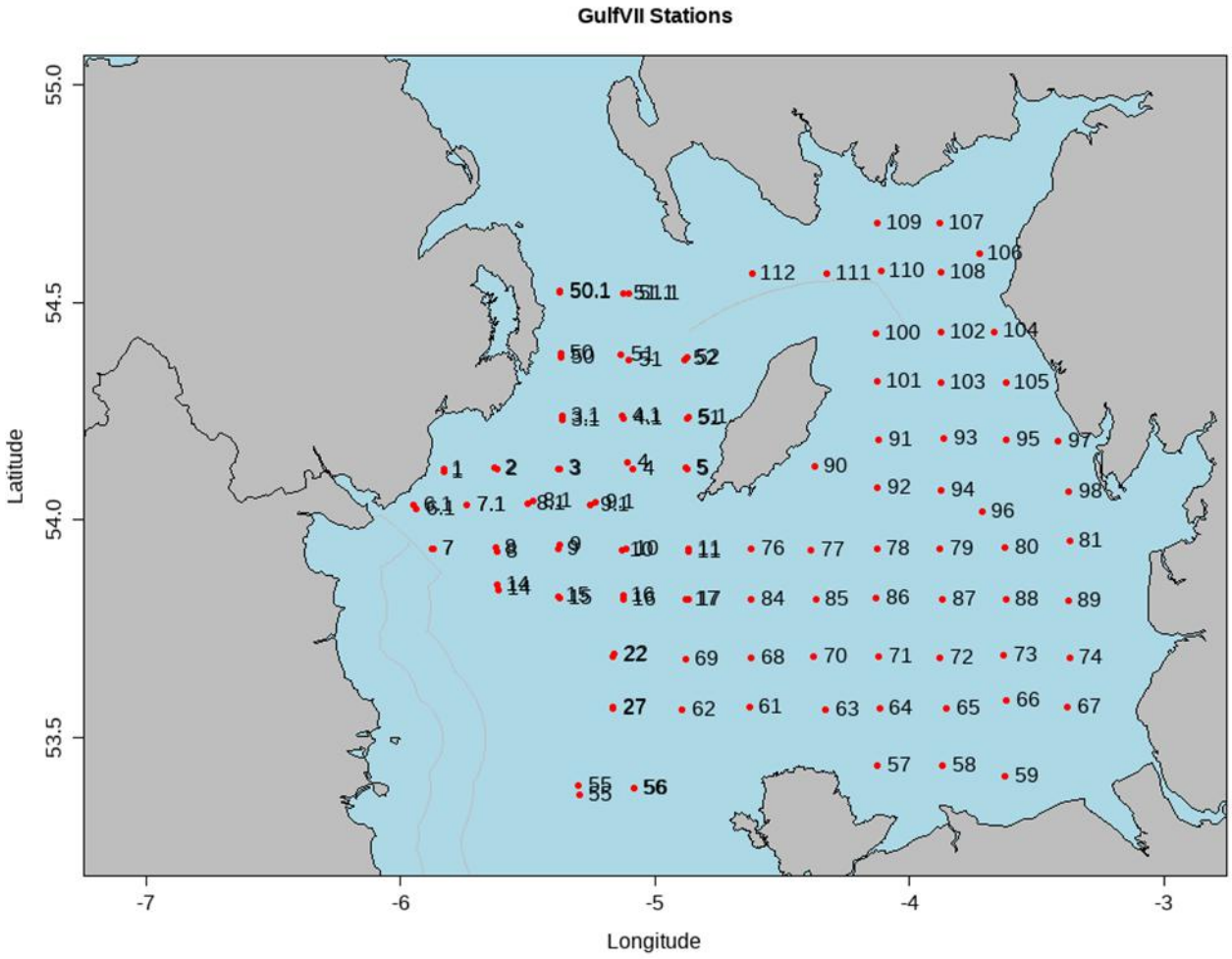


Figure 73. MIK net stations completed during 20245. Note that stations west of IOM sampled twice.


GulfVII Stations
Latitude
Longitude
55.0
54.5
54.0
53.5
-7
-6
-5
-4
-3

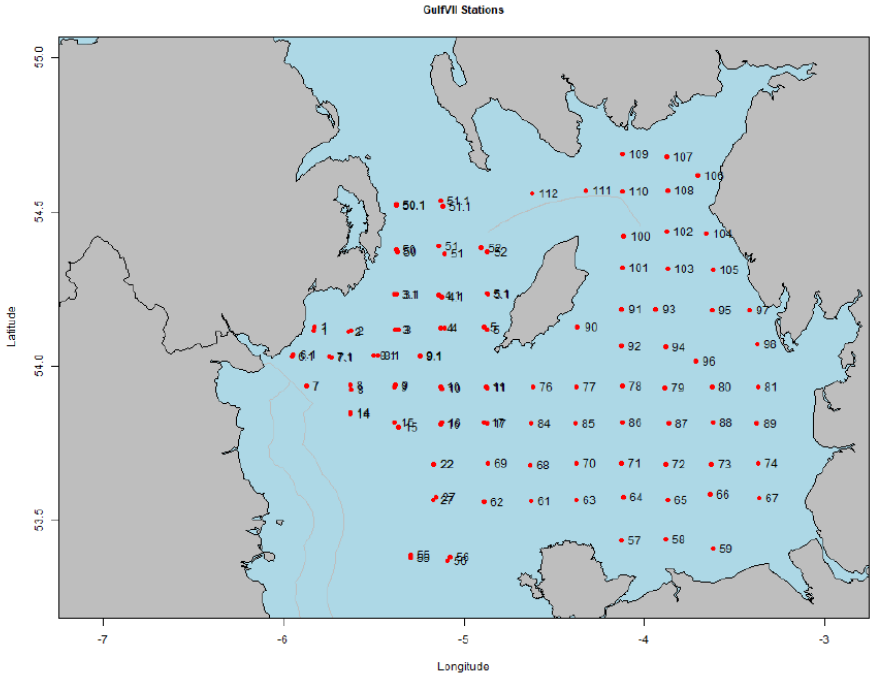

GulfVII Stations
Latitude
Longitude

Figure 74. GulfVII stations completed during 2025. Note that stations west of IOM sampled in phases i and ii.

Outcomes: The Northern Irish MIK net survey (NI-MIK), completed 100% of its plankton targets and 100% of its 2025 MIK net targets. Due to technical issues relating to the vessel, the RV Corystes was unable to enter Republic of Ireland (ROI). The missed area includes a significant area of the known nursery grounds for gadoids in the Irish Sea.

Additional research requests met: *NA*

5. List the main use of the results of the survey (e.g. indices, abundance estimates, and environmental indicators). Specify in which context the results are used (on routine basis), both on an international as well as on a national context.

Main uses of the of the data collected from the MIK Net survey

Type of data collected	**Assessment type**
Biological sampling	Annual international Stock assessments (haddock, and whiting). – used for advice
All planktonic species in catch	Identified and enumerated
Litter items in trawl	National micro-plastic sampling scheme

Irish Sea queen scallop survey, ISQSS; Northern Ireland, VIIa

1. Survey objectives

The objectives of the VIIa queen scallop survey are:

- to obtain information on spatial patterns of abundance of different size-classes of queen scallops in the Irish Sea and off the north coast;
- to collect biological information from queen scallops and scallops by area, including tissue samples;
- to collect information on by-catch species;
- to collect additional biological information on fish species.

2. Survey methods

The survey takes place in June/July lasting approximately 5 days. A minimum of 30 stations will be selected at random from a fixed grid 0.03* 0.03 decimal degrees. The number of stations within strata selected will be from a function of historic queenie fishery within that strata and strata area. In addition, it is planned that a minimum of 7 tows will take place using four dredges towed abreast, the outer dredges were as used by the commercial vessels for targeting queen scallops (width = 725 mm). The inner dredges were as used to target king scallop (width = 745 mm). These dredges will be selected based expert judgement from the camera tows.

At all stations the camera and sledge are deployed. Video and still are collected during 15-minute tows at each station. A USBL system is also to be used to enable the course taken by the sledge during tows to be tracked. Stills footage from each tow is counted by a minimum of two fully trained staff to estimate queen scallop abundance. Based on the abundance, stations are selected for fishing.

All fishing catch will be processed separately from the each of the dredge types. Length frequencies of all queen scallops will be taken and two from each length class (0.5cm) retained for biological sampling - length, breadth, and abductor muscle and gonad weights. Length frequencies of all finfish bycatch and counts of benthos are also recorded.

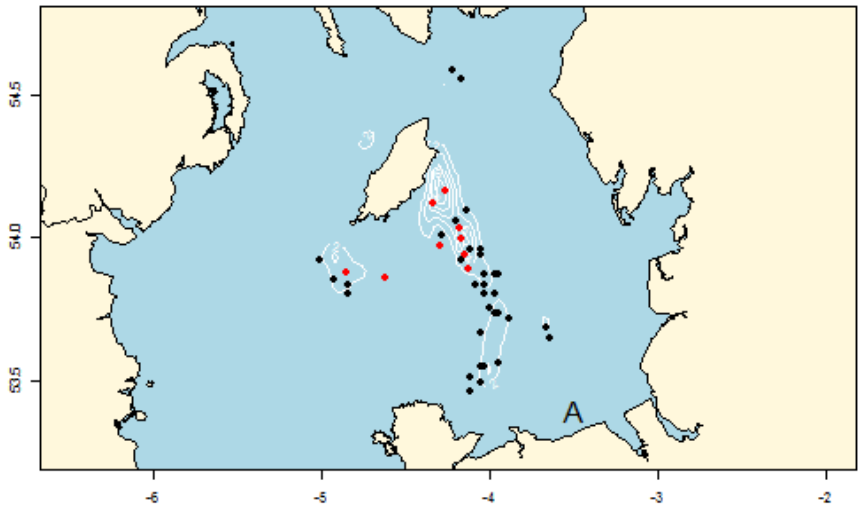


Figure 75. Indicative stations surveyed within the Irish Sea area of the ISQSS; UK Northern Ireland, VIIa survey. Stations surveyed by UWTV in black and dredge samples in black.

3. For internationally coordinated surveys, describe the participating Countries/vessels and the relevant international group in charge of planning the survey

N/A

4. Graphical representation (map) showing the position (location) of the realized samples. Provide maps presenting the spatial distribution of the main sampling types obtained during the survey.

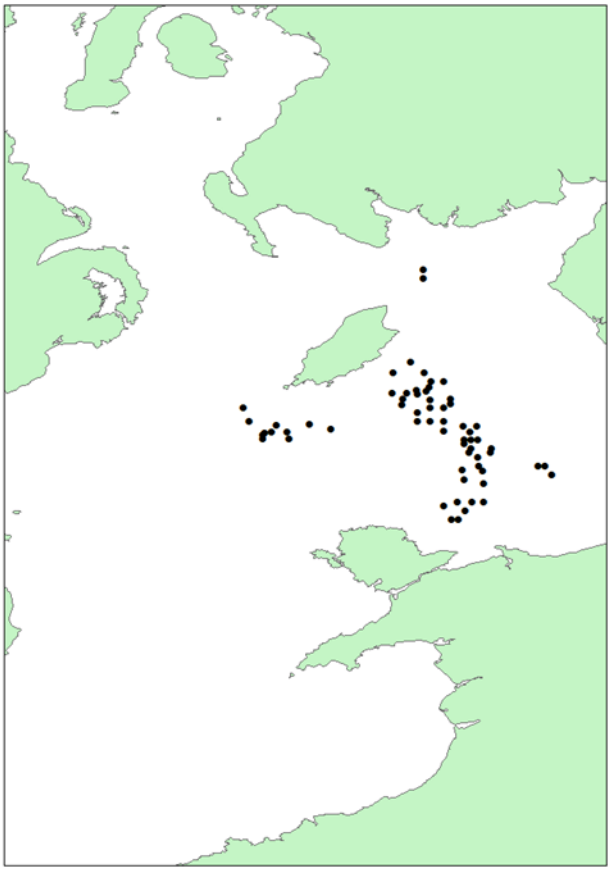


Figure 76. Indicative stations surveyed within the Irish Sea area of the ISQSS; UK Northern Ireland, VIIa survey.

Outcomes: Survey completed to plan. 63 UWTV stations were sampled, with reactive fishing hauls conducted at 13 stations.

5. List the main use of the results of the survey (e.g. indices, abundance estimates, and environmental indicators). Specify in which context the results are used (on routine basis), both on an international as well as on a national context.

These Scallop surveys are not internationally coordinated but results and methods are reviewed and published by ICES (WGSCALLOP)

Scallop Assessment Working Group (WGScallop; outputs from 2024 meeting)

Main uses of the of the data collected from the ISQSS survey

Type of data collected	Assessment type
Biological sampling	Annual national stock assessment of queen scallop
Biological sampling	National assessments
All species in catch	Identified and enumerated
Litter items in trawl	Litter monitoring

VIa queen scallop survey, NCQSS; Northern Ireland, VIa

1. Survey objectives

The objective of the VIa queen scallop survey are:

- to obtain information on spatial patterns of abundance of different size-classes of queen scallops;
- to collect biological information from queen scallops and scallops by area, including tissue samples;
- to collect information on by-catch species;
- to collect additional biological information on fish species.

2. Survey methods

The survey takes place in June/July lasting approximately 5 days. A minimum of 30 stations are selected at random from a fixed grid 0.03* 0.03 decimal degrees. The number of stations within strata selected will be from a function of historic queenie fishery within that strata and strata area. In addition, it is planned that a minimum of 7 tows will take place using a queenie trawl net or a complex of four dredges towed abreast, the outer dredges were as used by the commercial vessels for targeting queen scallops (width = 725 mm). The inner dredges were as used to target king scallop (width = 745 mm). These dredges will be selected based on expert judgement from the camera tows.

At all stations the camera and sledge are deployed. Video and still are collected during 15-minute tows at each station. A USBL system is also to be used to enable the course taken by the sledge during tows to be tracked. Stills footage from each tow is counted by a minimum of two fully trained staff to estimate queen scallop abundance. Based on the abundance, stations are selected for fishing.

All fishing catch will be processed separately from the each of the dredge types. Length frequencies of all queen scallops will be taken and two from each length class (0.5cm) retained for biological sampling - length, breadth, and abductor muscle and gonad weights. Length frequencies of all finfish bycatch and counts of benthos are also recorded.

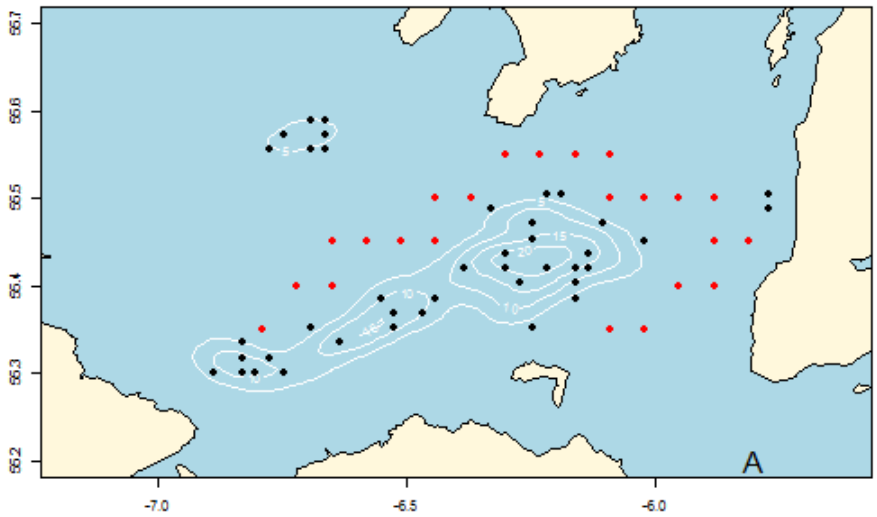


Figure 77. Stations surveyed within the North Coast area of the NCQSS; UK Northern Ireland, VIa survey. Stations surveyed by UWTV.

3. For internationally coordinated surveys, describe the participating Countries/vessels and the relevant international group in charge of planning the survey

N/A

4. Graphical representation (map) showing the position (location) of the realized samples. Provide maps presenting the spatial distribution of the main sampling types obtained during the survey.

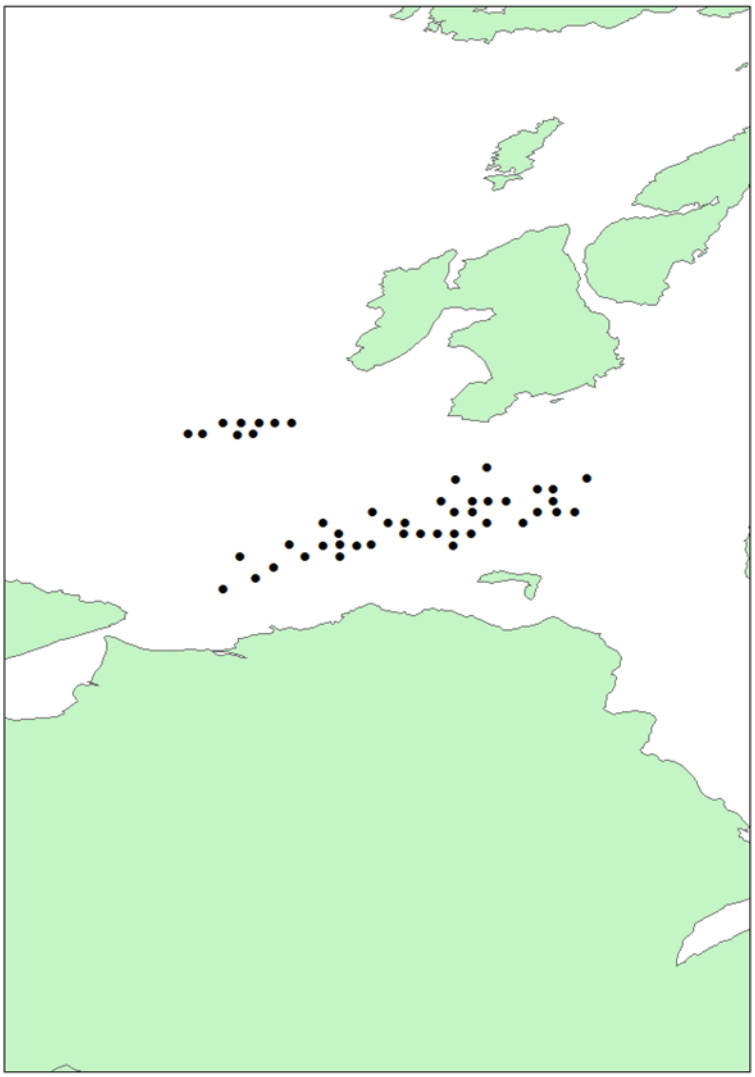


Figure 78. Stations surveyed within the North Coast area of the NCQSS; UK Northern Ireland, VIa survey. Stations surveyed by UWTV.

Outcome: 48 UWTV stations were surveyed, with reactive trawl/dredge samples taken at 15 stations. Survey completed and targets achieved.

5. List the main use of the results of the survey (e.g. indices, abundance estimates, and environmental indicators). Specify in which context the results are used (on routine basis), both on an international as well as on a national context.

These Scallop surveys are not internationally coordinated but results and methods are reviewed and published by ICES (WGSCALLOP)

Scallop Assessment Working Group (WGScallop; outputs from 2024 meeting)

Main uses of the of the data collected from the NCQSS survey

Type of data collected	Assessment type
Biological sampling	Annual national stock assessment of queen scallop
Biological sampling	National assessments
All species in catch	Identified and enumerated
Litter items in trawl	Litter monitoring

VIa & VIIa Scallop survey, NIKSDS; Northern Ireland, VIa and VIIa

1. Survey objectives

The aim of the survey is to assess the scallop (Pecten maximus) grounds off the County Down coast and collect the following scallop data:

- catch per unit effort.
- scallop age composition
- weight, height, and length of individual scallops.
- abductor muscle and gonad weights.
- scallop shell samples were retained for morphometric study.

Identify and quantify macrofauna associated with scallops.

Collect samples of scallop abductor muscle and gonad for contaminant analysis.

2. Survey methods

The scallop survey will occur in mid-February for duration of approx. 5 days (weather dependent). A minimum of 35 stations of fixed position are to be dredged using a beam with four 2-foot dredges and from the starboard trawl winch on 24mm warp. A fine mesh (<10mm) liner will be attached to one dredge to retain small benthic fauna. Catches are to be sorted and the associated fauna identified and counted. Scallops are to be weighed and shell length and height measured. Meat yield will be determined by measurement of the abductor muscle and gonad weight. Shells are to be aged by examination of growth bands on the flat shell and flat shells are retained for microscopic examination of hinge ligament scars after the cruise.

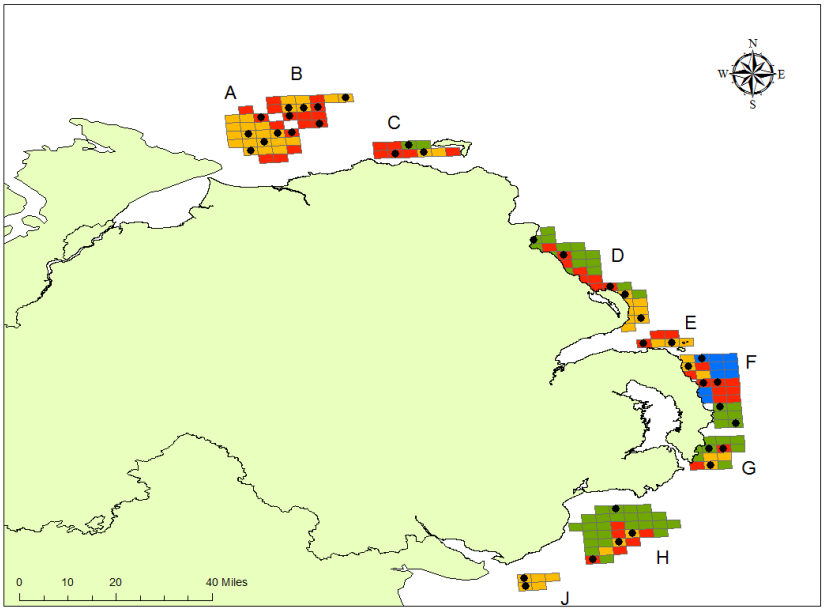


Figure 79. Location of stations (black dots) for dredging in the NIKSDS; UK Northern Ireland, VIa and VIIa survey. The different colours represent the different substrata types.

3. For internationally coordinated surveys, describe the participating Countries/vessels and the relevant international group in charge of planning the survey

N/A

4. Graphical representation (map) showing the position (location) of the realized samples. Provide maps presenting the spatial distribution of the main sampling types obtained during the survey.

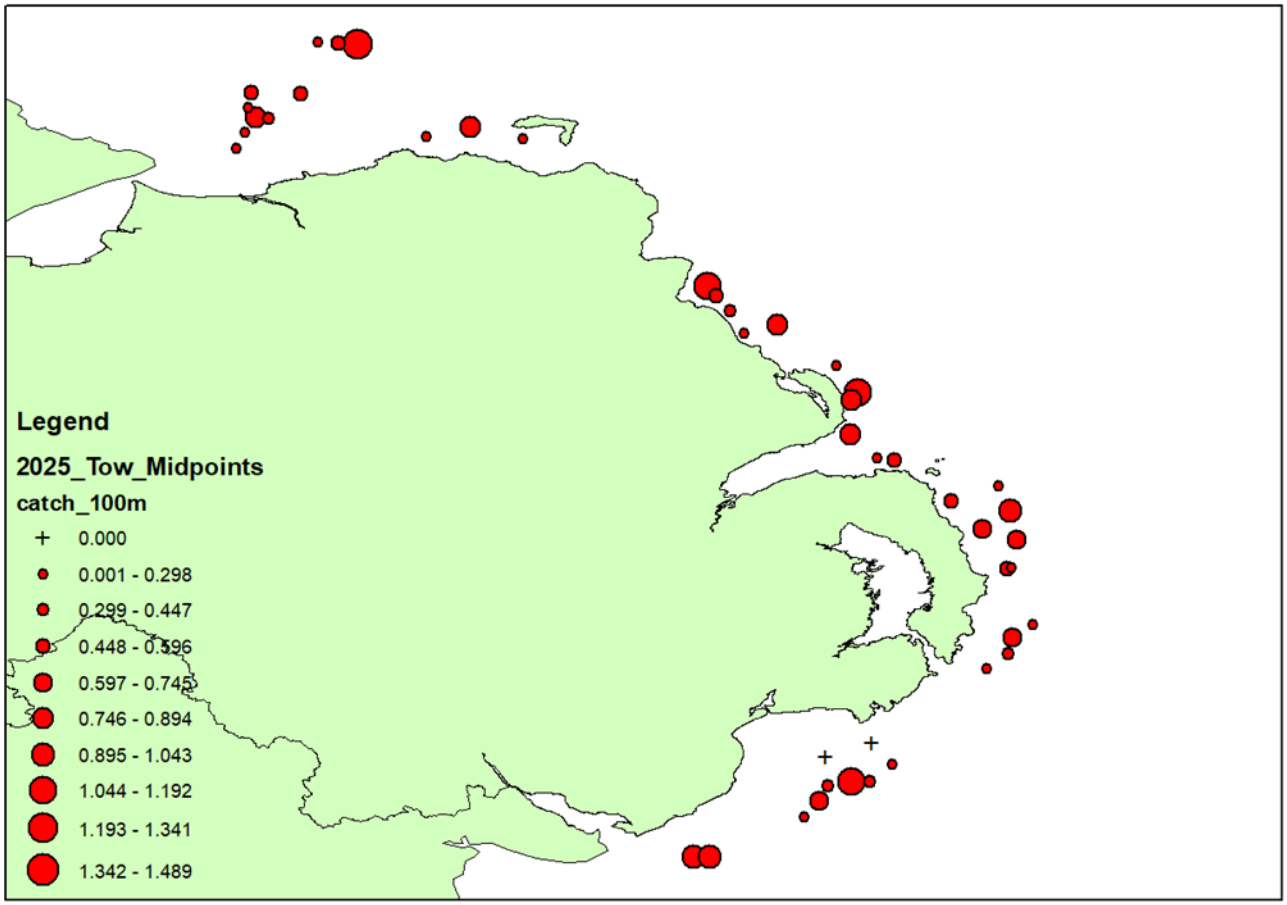


Figure 80. Location of stations (red dots) for dredging in the NIKSDS; UK Northern Ireland, VIa and VIIa survey. The size of dots represents the CPUE of king scallops at each station.

Outcome: Survey completed as planned with 45 dredge tows. Targets achieved.

5. List the main use of the results of the survey (e.g. indices, abundance estimates, and environmental indicators). Specify in which context the results are used (on routine basis), both on an international as well as on a national context.

These Scallop surveys are not internationally coordinated but results and methods are reviewed and published by ICES (WGSCALLOP)

Scallop Assessment Working Group (WGScallop; outputs from 2024 meeting)

Main uses of the of the data collected from the NCQSS survey

Type of data collected	Assessment type

Biological sampling	Annual national stock assessment of Atlantic scallop
Biological sampling	National assessments
All species in catch	Identified and enumerated
Litter items in trawl	Litter monitoring

Western Channel Celtic Sea Pelagic survey, PELTIC; UK England, VIIe, VIIf, VIIg

1. Survey objectives

To carry out an acoustic survey to estimate the abundance and distribution of the small pelagic fish community (sprat, sardine, anchovy, mackerel, horse, mackerel) in the western English Channel and eastern Celtic Sea (ICES area VIIe,f and g; the “Mackerel Box”). This survey provides the only fishery independent data for these species in the area. Estimates of the abundance of sprat are presented at HAWG to feed into the stock assessment of sprat in VIIde; sardine abundances are provided to WGHANSA and used in the stock assessment of ICES area VII sardine; northern anchovy data will also be presented at WGHANSA although no stock assessment currently exists. Additional abundance data on horse mackerel, boarfish and herring are calculated as part of a growing time-series and are currently used on *ad hoc* basis in ICES workshops and may be used as future (recruitment) indices.

To provide the associated environmental and ecological context for the estimates, other relevant sampling methodologies will be integrated to better understand the effect of such processes. These will inform not only on the development of future stock dynamics of the survey’s target species but will also help to develop a better understanding how the pelagic processes affect particularly demersal species surveyed in the area by other surveys.

In 2020, 2021 and 2023 the PELTIC survey was extended into Welsh waters (Cardigan Bay). The continuation of this extension is agreed on an annual basis and would be reported on in the annual reports.

2. Survey methods

Approximately 1900 nautical miles will be surveyed acoustically and are supplemented with ~40 ad hoc pelagic trawl operations to ground-truth acoustic data and collect biological samples. All fish and cephalopods caught will be identified to species and measured. Age samples and biological parameters will be taken from all target species (sprat, sardine, mackerel, anchovy, horse mackerel, herring, boar fish, blue whiting) and species listed under Appendix VII of the DCR which are caught.

Sardine eggs and larvae from ~90 plankton stations, will be counted, staged, and measured and presented to WGACEGG to map spawning areas.. Meso zooplankton samples and vertical profiles of temperature and salinity are collected at the same ~90 stations. Further discrete samples for phyto-and micro zooplankton, as well as oceanographic data (including chlorophyll and nutrients), will be collected at a subset of ~40 of those fixed primary stations, which, combined with continuous sub-surface oceanographic sampling, provide an ecological context of the observations. In addition, these environmental data are used to monitor the ecosystem health under OSPAR and MSFD descriptors. Seabirds, marine mammal and tuna observations are recorded along transects by observers.

Data will be held in a surveys database at CEFAS and provided in summarised form to WGACEGG and WGIPS. Fisheries acoustic data, partitioned by species and associated biological data will be stored in formats coordinated by WGIPS and WGACEGG and made available to ICES through the respective working group databases. Pelagic trawl catch data will be recorded using the CEFAS Electronic Data Capture System. Oceanographic data and outcome of plankton samples analysis will be stored in the Cefas Data Repository, linked to the survey.

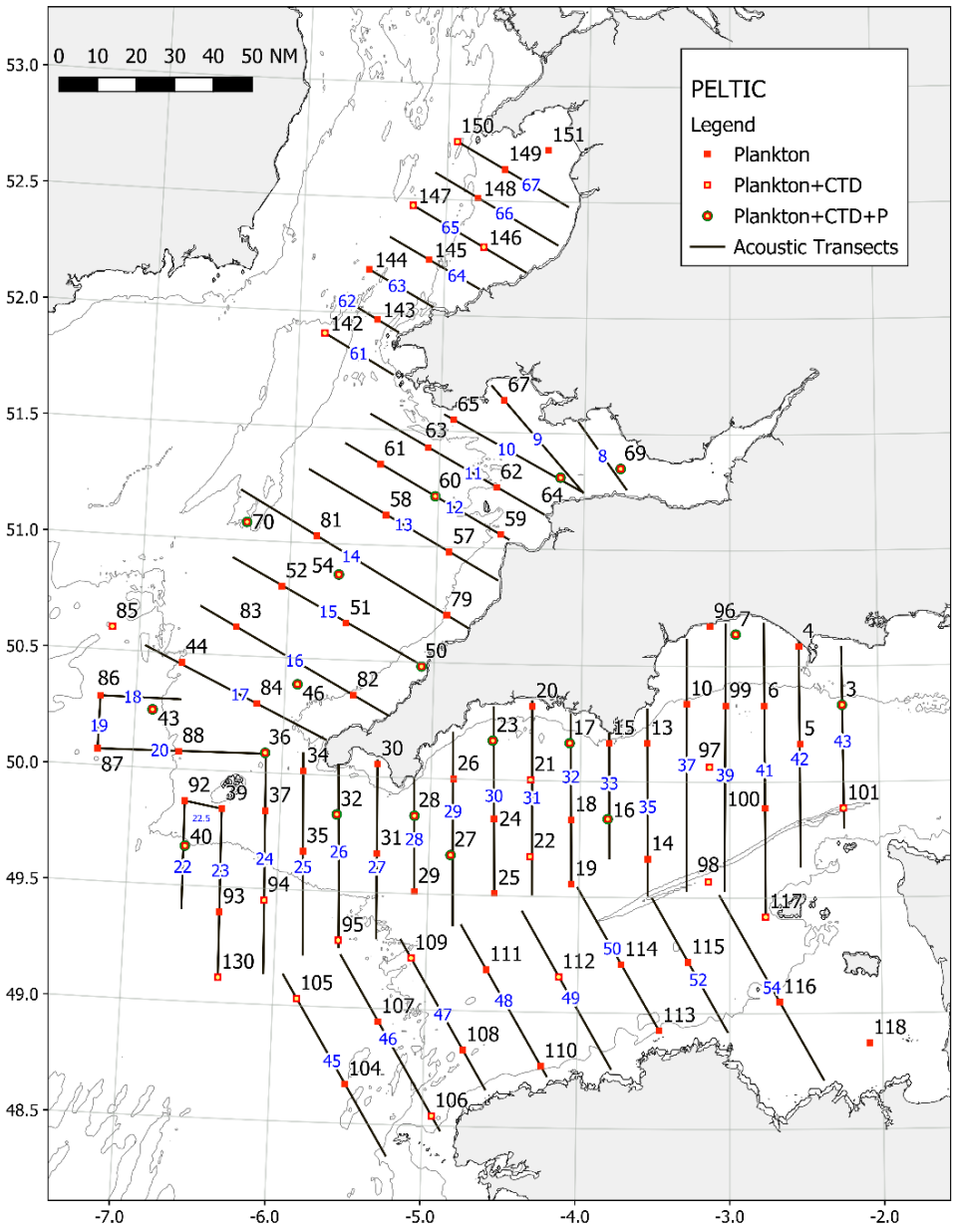


Figure 81. PELTIC; UK England, VIIe, VIIf, VIIg; 4th Quarter (English Integrated Pelagic Survey). Acoustic transects (black lines), zooplankton stations (red boxes) and Rosette stations (yellow) high priority stations in green. Recent extension into Cardigan included (north) although its inclusion is yet to be confirmed.

3. For internationally coordinated surveys, describe the participating Countries/vessels and the relevant international group in charge of planning the survey

WGACEGG: Working Group on Acoustic and Egg surveys for small pelagic fish in the Northeast Atlantic.WGIPS: Working Group on International Pelagic Surveys

No other countries/vessels participate in this survey.

4. Graphical representation (map) showing the position (location) of the realized samples. Provide maps presenting the spatial distribution of the main sampling types obtained during the survey.

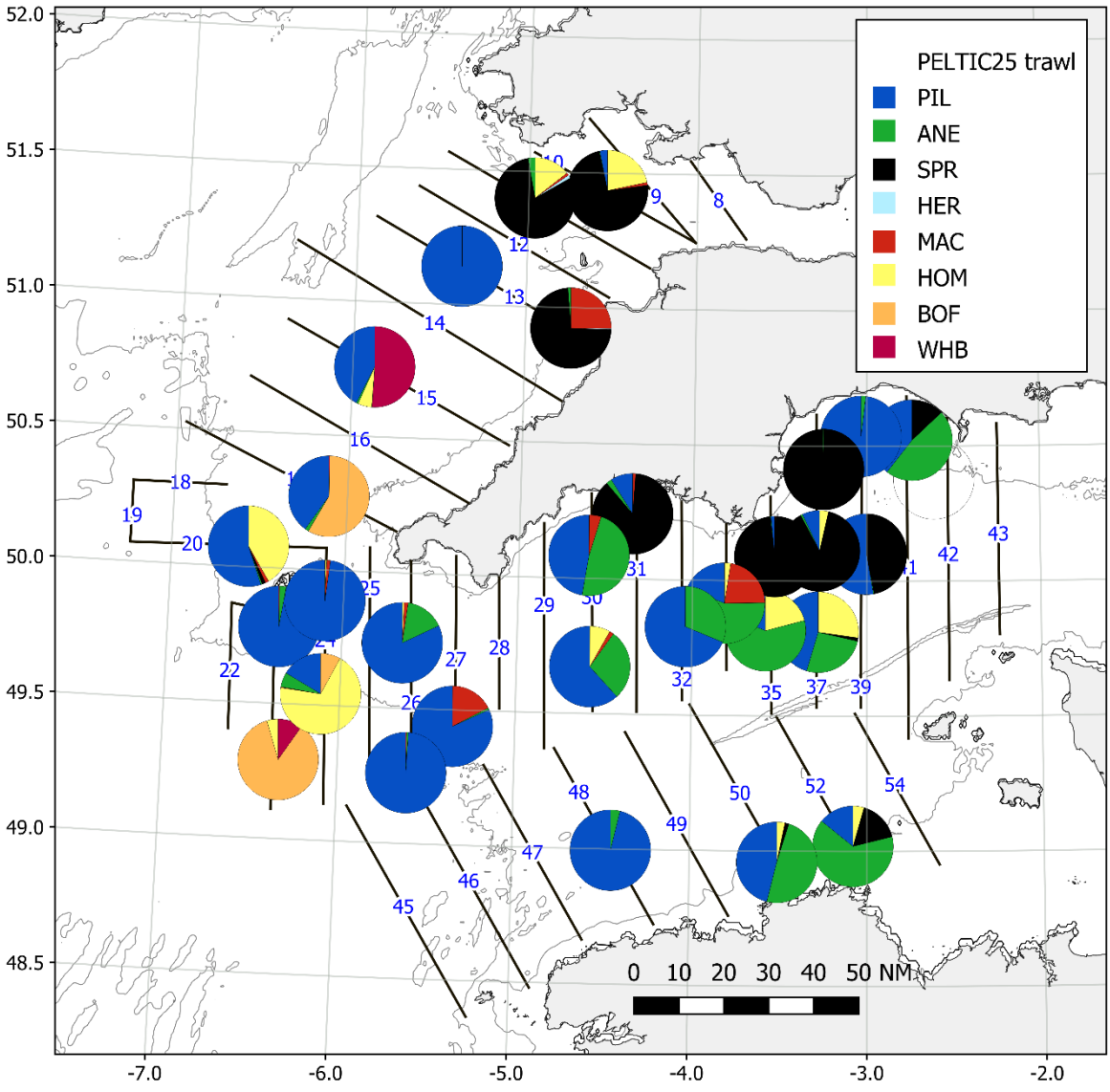


Figure 82 Overview map of the adjusted PELTIC25 survey area achieved. Acoustic transects (black lines) and Trawl stations (pies) with relative catch composition by key species. Three

letter codes: PIL=sardine, ANE=anchovy, SPR=sprat, HER=herring, MAC=mackerel, HOM= horse mackerel.

Outcomes: The PELTIC survey extension into Welsh waters (Cardigan Bay) did not go ahead in 2024.

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.

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.

Additional research requests met: 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).

5. For internationally coordinated surveys, provide a link to the latest meeting report of the coordination group. Provide a hyperlink to the meeting report from the body coordinating the survey (ICES, MEDITS coordination group, MEDIAS coordination group etc.). For non-international coordinated surveys, refer to any status report (e.g. Cruise report) if available online.

Full survey report will be published as appendix of the WGIPS 2026 report

6. List the main use of the results of the survey (e.g. indices, abundance estimates, and environmental indicators). Specify in which context the results are used (on routine basis), both on an international as well as on a national context.

The UK-England PELTIC acoustic survey data feeds into the stock assessment for the 27.7de sprat stock and 27.7 sardine stock. In addition, nutrient and chlorophyll data are collected which feed into eutrophication monitoring programmes (OSPAR, MSFD). CTD (temperature and salinity) data are collected, but these are not used in the assessments although used for validation of satellite products. In connection with the EU Data Collection Framework (DCF) marine litter and additional biological data from the surface and seabed at each trawling station were collected.

Type of data collected	**Assessment type**
Acoustic Biological sampling	Stock assessments: Sprat 27.7de (HAWG); sardine 27.7 (WGHANSA)
Biological sampling	National assessments - anchovy, herring, horse mackerel, Mackerel, boarfish
CTD by Haul	National and international. Eutrophication monitoring. Produces qualifiers to link biological and environmental indicators

Other fish spp in haul	National and international. Data limited species including seabass, john dory, black seabream
Litter items in trawl	National and international. Anthropogenic monitoring.
Marine mammals and bird	Balearic shearwater in national assessment of potential MPA; national: bluefin tuna; predator-prey assessments

Western Channel Sole and Plaice Industry survey, WCSPI; England VIIe (Formerly a Fisheries Science Partnership Survey)

1.Survey objectives

To provide estimates of abundance of recruiting year classes and CPUE-at-age series for plaice, sole from a commercial beam trawler for provision to the Celtic Seas Ecoregion Working Group (WGCSE). These are used for tuning purposes.

2. Survey methods

The survey will be carried out on the MFV Admiral Grenville. A standard grid of stations are fished annually over two surveys (usually), one in the east of VIIe and the other in the west. Age samples and biological parameters will be taken from all target species.

The resultant data will be input to the Cefas Scientific Fisheries Systems database (SFS).

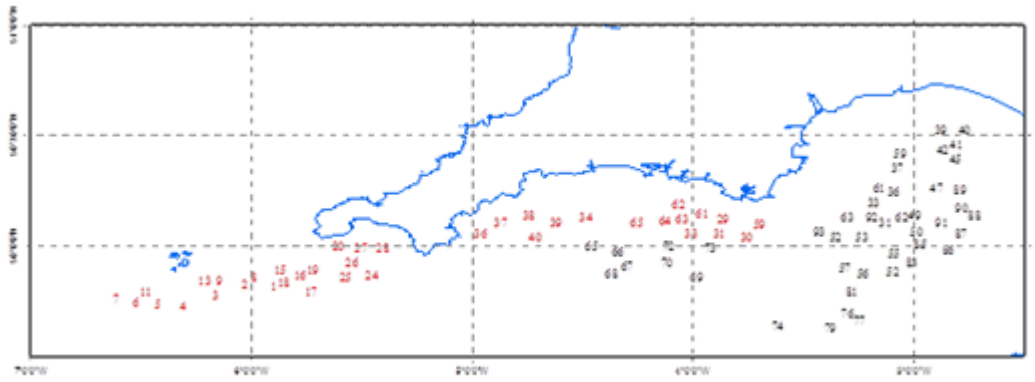


Figure 83. Map showing positions of survey stations WCSPI; UK England VIIe

3. For internationally coordinated surveys, describe the participating Countries/vessels and the relevant international group in charge of planning the survey

N/A

4. Graphical representation (map) showing the position (location) of the realized samples. Provide maps presenting the spatial distribution of the main sampling types obtained during the survey.

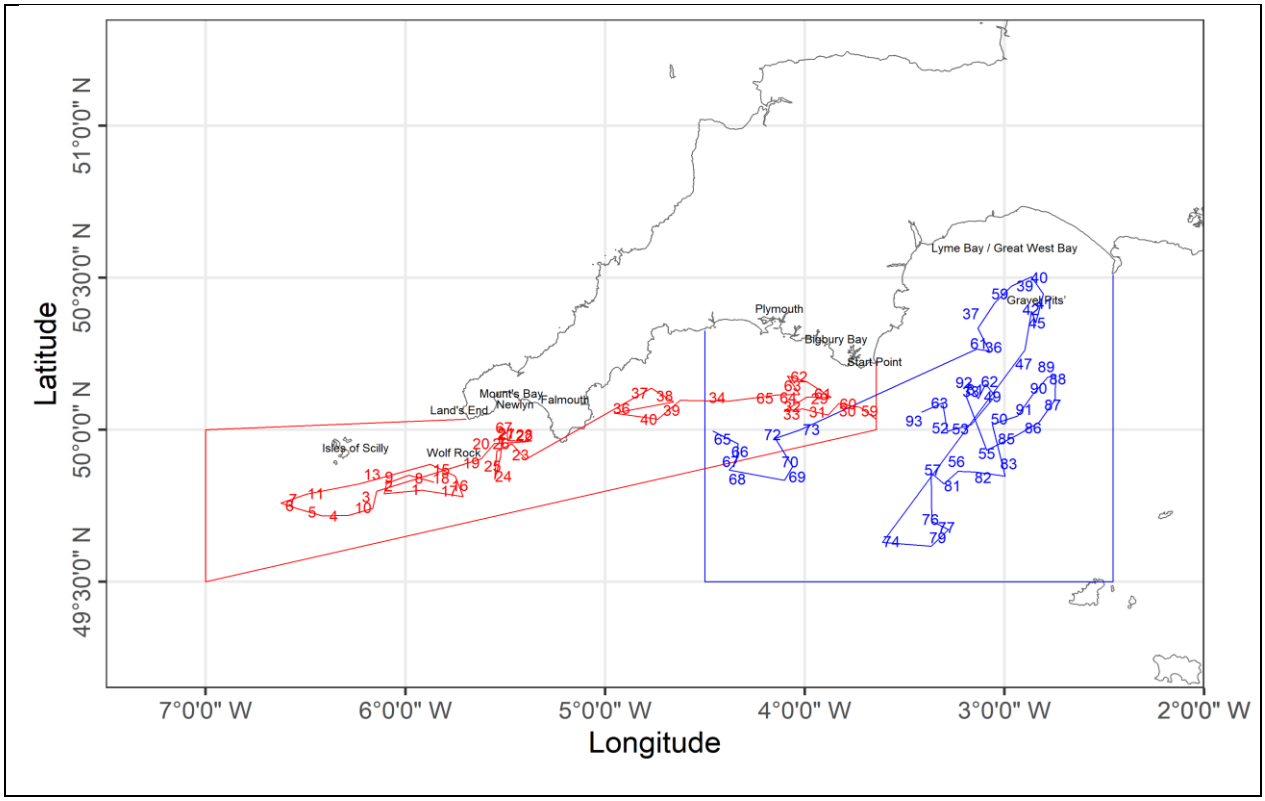


Figure 84. WCSPI completed survey area

Outcomes:

The survey was successfully completed within the time window for the survey series, with the eastern leg undertaken first (18-22 August) followed by the western leg (18-24 September). All 90 stations targeted for the survey (45 for the eastern leg; 45 for the western leg) were successfully sampled, although some deviations were necessary at specific stations to avoid static gear. For the Western leg, the presence of static gear affected eleven Prime stations, requiring extensive communication with local vessel skippers prior to and during the survey. Relative to previous years, this amounted to an additional five affected stations and, although some skippers assisted by voluntarily moving their gear to accommodate survey tows, two Prime stations could not be accessed, and alternative tows close to the original were conducted instead.

The tow duration at two of the Eastern leg Prime stations had to be reduced from the standard 60-minute tow duration, due to the trawl digging in and filling with sand and/or shell. Where tow duration was altered, catches were subsequently standardised to 60 minutes before further analysis. *Additional research requests met:* NA

5. For internationally coordinated surveys, provide a link to the latest meeting report of the coordination group. Provide a hyperlink to the meeting report from the body coordinating the survey (ICES, MEDITS coordination group, MEDIAS coordination

group etc.). For non-international coordinated surveys, refer to any status report (e.g. Cruise report) if available online.

Working Group on Beam Trawl Surveys (WGBEAM) (figshare.com)

6. List the main use of the results of the survey (e.g. indices, abundance estimates, and environmental indicators). Specify in which context the results are used (on routine basis), both on an international as well as on a national context.

The survey provides indices of abundance of year classes and catch per unit effort (CPUE)-at-age for Dover sole (*Solea solea*) and European plaice (*Pleuronectes platessa*) for submission to the ICES Working Group for the Celtic Seas Ecoregion (WGCSE). These are used for tuning purposes in the ICES Division 7.e sole and plaice stock assessments.

Main uses of the of the data collected from the survey

Type of data collected	**Assessment type**
Biological sampling	Assessment type
Biological sampling	Otoliths collected for sole and plaice
CTD by Haul	Not deployed
Other fish spp in haul	All fish species measured (subsampled where necessary)
Litter items in trawl	Data not collected

Western Channel & Bristol Channel scallop dredge survey, WECSDS; UK England, VIIe, VIIf.

1. Survey objectives

To obtain estimates of distribution and harvestable biomass of King Scallop in the Western English Channel and approaches to the Bristol Channel. This survey will be conducted annually each May by a chartered commercial vessel using both commercial and modified dredges on exploited grounds described by historic VMS data. The data are the primary input to the annual scallop stock assessments published on the government website in April each year.

2. Survey methods

Approximately 135 stations are carried out in the Western Channel and a further 15 stations are carried out in the approaches to the Bristol Channel (total 150). The survey methodology continues to undergo evolution with redefinition of the assessment areas and exploited beds expected to change with the fishery. The survey is a swept area method relying on substrate specific gear efficiency estimates to convert survey catch rates to density on the seabed. Harvestable biomass is estimated from the size distributions of the catch using Length and Weight (L-W) factors.

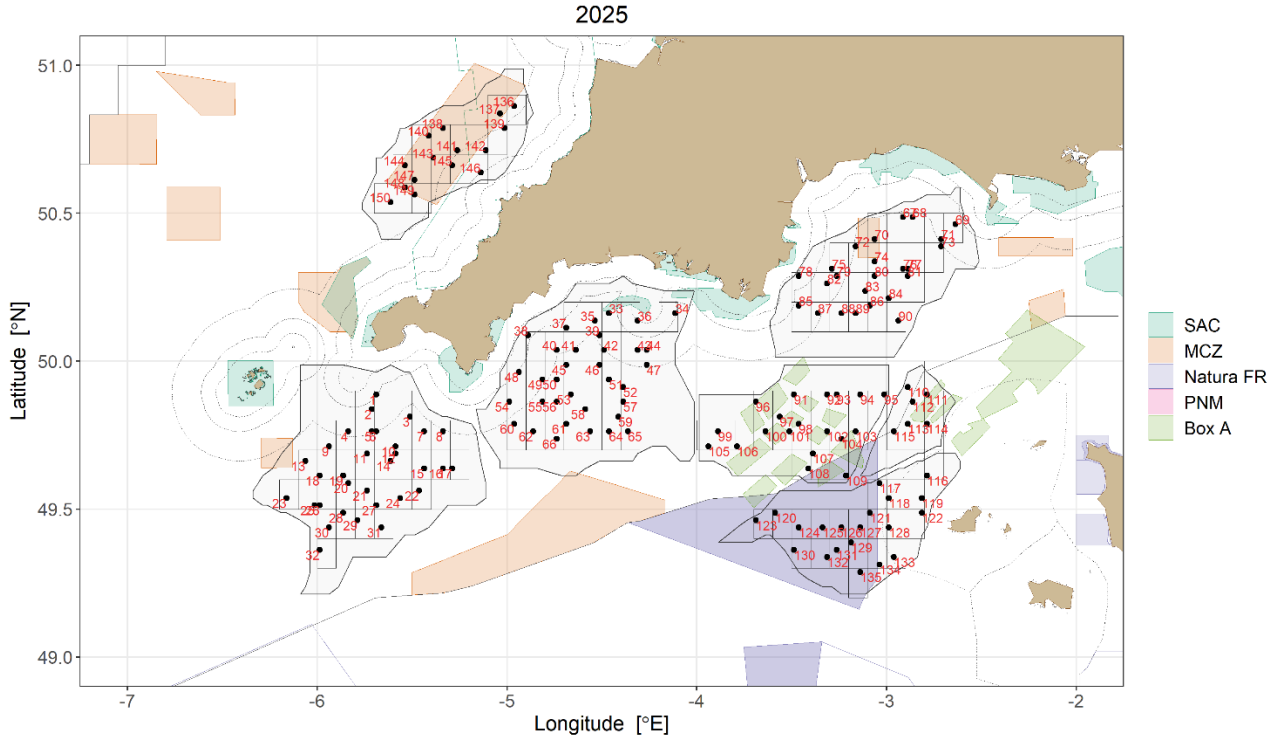


Figure 85. showing the proposed survey sites in the Western English Channel (135 stations) and approaches to the Bristol Channel (15 stations) WECSDS; UK England, VIIe, VIIf. N.B.

Survey sites in the French EEZ and MPAs are subject to permissions and may not be carried out.

Exploitation levels are presented in the annual stock assessment as the total realised or estimated removals as a proportion of the estimated harvestable biomass.

3. For internationally coordinated surveys, describe the participating Countries/vessels and the relevant international group in charge of planning the survey

The survey is not internationally coordinated but results are presented, and methodology periodically reviewed by ICES Working Group on scallops (WGScallop).

4. Graphical representation (map) showing the position (location) of the realized samples. Provide maps presenting the spatial distribution of the main sampling types obtained during the survey.

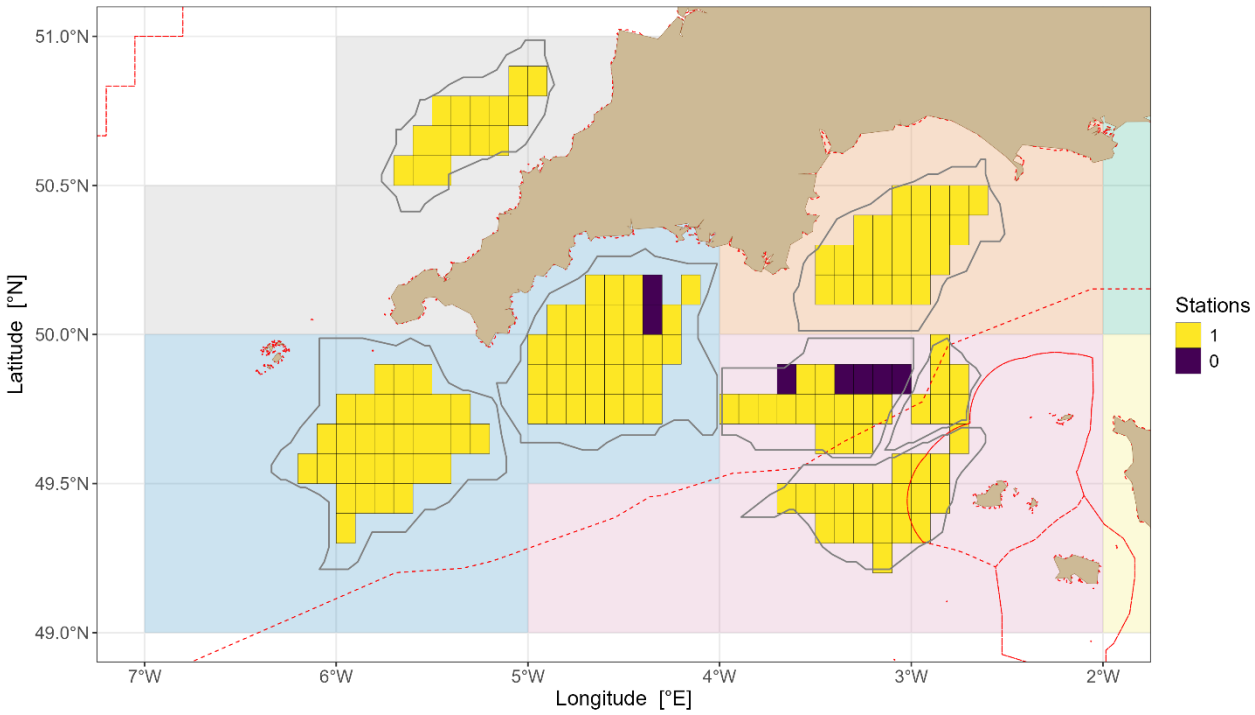


Figure 86. Completed survey area in the Western English Channel and approaches to the Bristol Channel.

Outcomes (including deviations): 143 of 150 target stations completed (including areas of the French EZZ). Five stations were abandoned due to poor weather and two due to location/static gear in the area. Catches were enumerated at each site and tow details collated. Of the seven pre-defined beds, seven were surveyed.

Additional research requests met: Samples retained for age analysis. Bycatch and yield recording.

5. For internationally coordinated surveys, provide a link to the latest meeting report of the coordination group. Provide a hyperlink to the meeting report from the body coordinating the survey (ICES, MEDITS coordination group, MEDIAS coordination group etc.). For non-international coordinated surveys, refer to any status report (e.g. Cruise report) if available on line.

ICES (2026). Scallop Assessment Working Group (WGScallop; outputs from 2025 meeting).

6. List the main use of the results of the survey (e.g. indices, abundance estimates, and environmental indicators). Specify in which context the results are used (on routine basis), both on an international as well as on a national context.

The annual dredge surveys are the primary basis for stock assessments. Abundance estimates, in connection with international landings, are used to establish exploitation rates and harvestable biomass. Size sampling data are used in spawner-per-recruit models to establish MSY-proxy biological reference points for harvest rates. Realised harvest rates can then be compared with reference points to assess whether regional commercial exploitation is sustainable.

West Coast Scallop Dredge Survey, WCSS; UK Scotland, ICES area VIa

1. Survey objectives

- to carry out a survey of scallop stocks around the West coast of Scotland.
- to age, measure and assess shell damage.
- to collect information on by-catch of other commercial fish and shellfish species.
- to identify and quantify numbers of starfish species.
- to collect frozen whole scallops for heavy metal testing as part of the OSPAR assessment of hazardous substances in the marine environment.
- to record and retain marine litter obtained during the dredging process (for MSFD).

2. Survey methods

The commercial fishery for the king scallop (Pecten maximus) is the second most valuable shellfish fishery in Scotland. Dredge surveys of the major scallops grounds around Scotland have been carried out annually by Marine Directorate (MD) since the mid-1990's. The scallop survey data are used in the regional stock assessments.

The survey gear on the starboard side consists of six standard commercial spring-loaded Newhaven type dredges (75 cm wide, 9 tooth bar, 80 mm internal diameter belly rings). The port side has six smaller configured sampling dredges (75 cm wide, 11 tooth bar, with 60 mm internal diameter belly rings). At each station (Figure 46) the dredges are towed at ~2.5 knots for 30 minutes and all king scallops caught are aged, measured (length to the 0.5 cm below) and damage assessed. All bycatch is identified, measured, sexed where appropriate and damage assessed. All starfish are identified, and damage assessed.

The survey is planned for around April, lasting approximately 20 days. There are 100 fixed stations to select from and the survey fishes as many of them as time and weather allow. The planned target may potentially be reduced due to impact of wind farms.

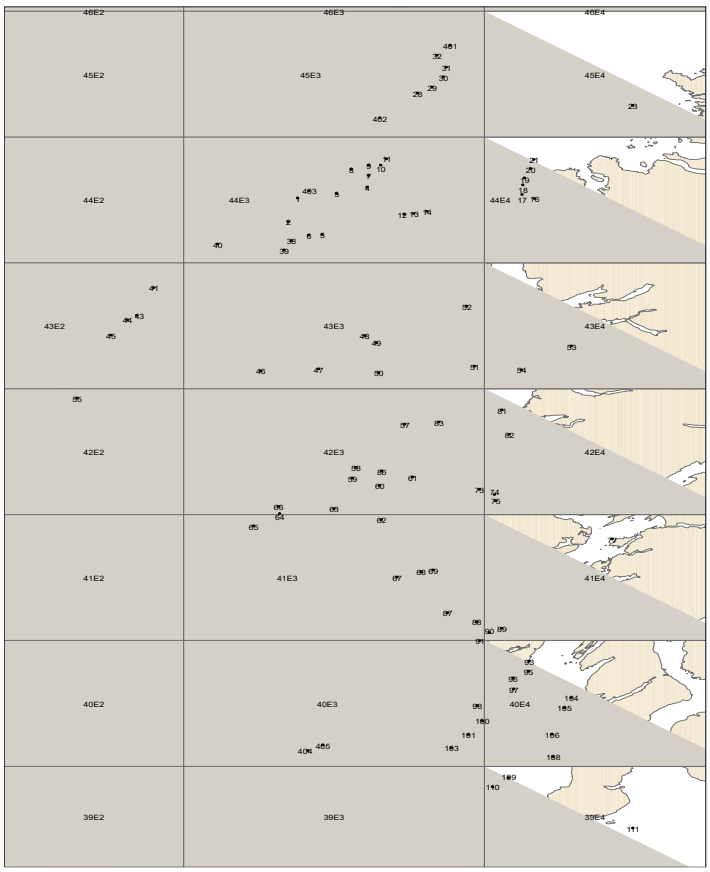


Figure 87. Map of scallop dredge stations; UK Scotland, VIa

3. For internationally coordinated surveys, describe the participating Countries/vessels and the relevant international group in charge of planning the survey

Not internationally coordinated. Data are used in national stock unit assessments

Scallop survey data are discussed and detailed at ICES WGSCALLOP.

4. Graphical representation (map) showing the position (location) of the realized samples. Provide maps presenting the spatial distribution of the main sampling types obtained during the survey.



Figure 88. WCSS completed survey area

Outcomes: 11710 scallops were caught, measured, aged and assessed for shell damage across 80 hauls. 318 other bycatch species were measured e.g. brown crab, whelk, several species of rays, monkfish, queen scallops, dabs, gurnards, clams, lemon sole and plaice.

6104 starfish were identified and recorded.

Additional research requests met: Scallops were retained for heavy metal and organic contaminants testing.

Marine litter was recorded and retained, for disposal.

5. For internationally coordinated surveys, provide a link to the latest meeting report of the coordination group. Provide a hyperlink to the meeting report from the body coordinating the survey (ICES, MEDITS coordination group, MEDIAS coordination group etc.). For non-international coordinated surveys, refer to any status report (e.g. Cruise report) if available online.

Scallop Assessment Working Group (WGScallop; Outputs from 2025 meeting)

6. List the main use of the results of the survey (e.g. indices, abundance estimates, and environmental indicators). Specify in which context the results are used (on routine basis), both on an international as well as on a national context.

Main uses of the of the data collected from the *West of Scotland scallop* survey

Type of data collected	**Assessment type**
Biological sampling of king scallops	National assessment. Length, age, meat weight. Shell damage.
All other fish, crustacean and cephalopod species encountered	National assessment and long-term trends.
Litter items in trawl	National and international. Anthropogenic monitoring.

Clyde Scallop Dredge Survey, CLYDESS; UK Scotland, ICES area VIa

1. Survey objectives

- to carry out a survey of scallop stocks in the Clyde region.
- to age, measure and assess shell damage.
- to collect information on by-catch of other commercial fish and shellfish species.
- to identify and quantify numbers of starfish species.
- to collect frozen whole scallops for heavy metal testing as part of the OSPAR assessment of hazardous substances in the marine environment.
- to record and retain marine litter obtained during the dredging process (for MSFD).
- Collect meat weight and ring measurements from a sub-sample of king scallops

2. Survey methods

The commercial fishery for the king scallop (Pecten maximus) is the second most valuable shellfish fishery in Scotland. Dredge surveys of the major scallops grounds around Scotland have been carried out annually by Marine Directorate (MD) since the mid-1990's. The scallop survey data are used in the regional stock assessments.

The survey gear on the starboard side consists of six standard commercial spring-loaded Newhaven type dredges (75 cm wide, 9 tooth bar, 80 mm internal diameter belly rings). The port side has six smaller configured sampling dredges (75 cm wide, 11 tooth bar, with 60 mm internal diameter belly rings). At each station (Figure 47) the dredges are towed at ~2.5 knots for 30 minutes and all king scallops caught are aged, measured (length to the 0.5 cm below) and damage assessed. All bycatch is identified, measured, sexed where appropriate and damage assessed. All starfish are identified, and damage assessed.

The survey is planned for around October, lasting approximately 14 days. There are currently 45 fixed stations to select from.



Figure 89. Map of scallop dredge stations; UK Scotland, VIa (Clyde)

3. For internationally coordinated surveys, describe the participating Countries/vessels and the relevant international group in charge of planning the survey

Not internationally coordinated. Data are used in national stock unit assessments

Scallop survey data are discussed and detailed at ICES WGSCALLOP.

4. Graphical representation (map) showing the position (location) of the realized samples. Provide maps presenting the spatial distribution of the main sampling types obtained during the survey.

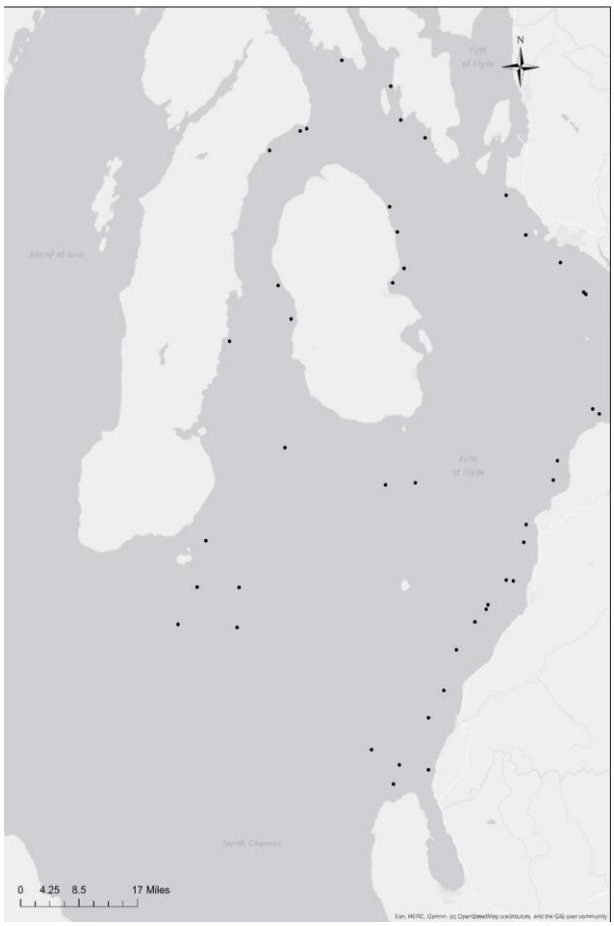


Figure 90. Clyde scallop survey stations.

Outcomes: One day of this survey was lost to bad weather and the presence of creels in the area impacted the number of stations sampled. Also work time was shortened due to the need to work in daylight (to ensure good visibility).

46 hauls were completed (all of which were valid). 4978 scallops were caught and sampled for biological parameters. Bycatches of 2415 individuals (excluding starfish) were recorded. This included brown & velvet crabs, queen scallops, rays, whelks and dragonets. 1724 starfish were recorded. Shell damage was noted.

Additional research requests met: Scallops were retained for heavy metal and organic contaminants testing.

Marine litter was recorded and retained, for disposal.

5. For internationally coordinated surveys, provide a link to the latest meeting report of the coordination group. Provide a hyperlink to the meeting report from the body coordinating the survey (ICES, MEDITS coordination group, MEDIAS coordination group etc.). For non-international coordinated surveys, refer to any status report (e.g. Cruise report) if available online.

Scallop Assessment Working Group (WGScallop; Outputs from 2025 meeting)

6. List the main use of the results of the survey (e.g. indices, abundance estimates, and environmental indicators). Specify in which context the results are used (on routine basis), both on an international as well as on a national context.

Main uses of the of the data collected from the *Clyde scallop* survey

Type of data collected	**Assessment type**
Biological sampling of king scallops	National assessment. Length, age, meat weight. Shell damage
All other fish, crustacean and cephalopod species encountered	National assessment and long-term trends.
Litter items in trawl	National and international. Anthropogenic monitoring.

Section 1C: Marine Recreational Fisheries

Ref Table 1C

International and domestic commitments

This fulfills paragraph 2 point (a) (iv) of Chapter III of the multiannual programme.

Sea angling data are needed to support local, national, and regional management of fish stocks, environmental protection, marine spatial planning, development of the blue economy, and physical health and wellbeing. Data on recreational fishing contributes to the 'scientific evidence objective' of the Fisheries Act 2020.

Marine recreational fisheries (MRF) are now embedded in UK fisheries management through the Fisheries Act (2020), alongside the provision for funding for development. Biological, social, and economic data on recreational fisheries are used to inform Fisheries Management Plans, which in turn supports the objectives of the Fisheries Act. In addition, the UK provides data to ICES annually on the numbers and tonnages of recreational catches of cod, seabass, pollack, salmon, eels, elasmobranchs and highly migratory species in the North and Celtic Seas.

Key end users

ICES, Defra

Data collection

The sections below set out the sampling plans for 2024 for each of the countries including proposed approaches, PSU, and proposed sample sizes by region.

England

In 2025, England will continue to use the offsite diary approach outlined which was established between 2016 and 2021. This is used to estimate the participation, effort catches, and economic impacts of MRF in the UK. This is done through the sea angling panel (www.seaangling.org) which combined two surveys:

- an existing nationwide survey of UK residents (Watersports Participation Survey) is used to estimate fishing effort in terms of how many people go recreational sea fishing, and how often they use different methods; and
- a nationwide panel of sea anglers is recruited and use a bespoke diary app and online tool to record all their sea angling activities and catches during the year, from which the average catch per unit effort is calculated.

The Watersports Participation Survey, which provides numbers, locations and demographic information on the sea angling population, has moved from an onsite household based survey to an online survey of 12,000 individuals in a marketing panel due to difficulties sampling face-to-face after covid. However, the online survey gives estimates of angling participation far greater than has previously been observed which appears to be

biased due to the incentives for participation. To estimate the numbers of anglers a bayesian-model of the onsite data from previous years and post-stratification with census-information is being used. Meanwhile attempts to address the apparent bias in the online survey are currently being made. The diary panel is a multispecies survey, with numbers and sizes of all species retained and released recorded, along with trip information (e.g. location, date, weather etc.) and characteristics of the angler (e.g. age, gender). The results from the two surveys are combined and raised to the whole population correcting for differences in avidity and platform, then estimates at individual ICES areas are generated. The associated errors are also calculated to give an idea of the uncertainty that can be accounted for when using the data. These are used to support stock assessments for sea bass and cod.

The target population is sea anglers of 16 years or older in England as this is the main form of MRF in the UK. Individual anglers are the PSU, of which there are around 556,250 (average 2016-19). In 2025, the target is to collect data from at least 350 diarists that fish in the North Sea (4.a, 4.b, 7.d) and 1,100 fishing in the Celtic Seas (7.a, 7.e, 7.f, 7.g, 7.h) (see Table 1C). For species with sufficient data, the numbers and / or tonnages of fish retained and released will be estimated along with associated levels of precision. These will be reported and provided to ICES as part of the development of the draft data set for inclusion in the pilot MRF data tool for ICES Regional Database & Estimation System (RDBES).

Estimates of catches and releases were similar in 2016 – 2023 with reasonable precision, but generally both catches and release rates were higher than 2012. Further work will be done to assess bias and test the sensitivity of the results to analytical approach.

Scotland

The diverse and dispersed nature of sea angling in Scotland makes it difficult and expensive to generate data with an appropriate level of precision to support end users and decision making within Scotland. Marine Scotland will consider the best way forward to generate more robust data on recreational fishing, keeping in mind the limited available resources. No survey of sea angling will be done in Scotland in 2025.

Wales

Recreational sea angling provides significant health, wellbeing, social and community benefits, raises environmental awareness, and has a positive economic impact on coastal communities in Wales. There is growing awareness of the potential impacts of recreational sea angling on fish populations and fisheries management. Wales recognises the importance of collecting sea angling data to ensure the best available evidence is used to support decision-making. This is likely to be through a continued contribution to the Sea Angling Diary programme, employing the same approach as outlined for England. Individual anglers are the PSU, of which there are around 72,250 (average 2016-19) in Wales. In 2025, the target is to collect data from 210 diarists from Wales that fish in the Celtic Seas (7.a, 7.f, 7.g) (Table 1C). This proposed sampling rate may change as

discussion around the Sea Angling Diary programme develop and subject to constraints around resourcing.

Northern Ireland

Data and feedback from the UK wide sea angling scheme undertaken in 2016 to 2021 has demonstrated that recruiting sufficient diarist, routinely angling in Northern Ireland has been difficult. The resultant low numbers of diarists have meant that it has been difficult to ensure catch estimates with the appropriate level of precision.

No formal sampling of sea angling will be carried out in Northern Ireland in 2025. We note that in future years sea angling data from Northern Ireland would be useful to support fisheries science. To this end an initial scoping study would be useful to ascertain the scale and activity of recreational fishers, should resources become available.

Summary of outcomes and deviations from the workplan

1. Description of the target population

In 2025 there were 1560 English and 279 Welsh participants that completed diaries which is in line or slightly above what was expected.

The target population and the elements of this target population accessibility are defined and described in this section.

The target population is anyone over the age of 16 that has been sea angling in England and Wales.

2. Type of survey

This section provides more information on the design and methodology or type of survey provided in Table 1C.

The Sea Angling Diary programme, initiated in 2016, aims to estimate the number of sea anglers, the frequency of their fishing activities, their catches, and the associated social and economic benefits. Data integration is achieved by combining outputs from two surveys: one involving 12,000 individuals, which provides estimates of angler numbers and characteristics; and another that engages sea anglers as ‘citizen scientists’ to report their catches via the Sea Angling Diary. These data are then combined to account for variations in angler demographics using a Bayesian MRP modelling approach, enabling the calculation of the quantity and tonnage of fish retained and released by sea anglers in the UK. Since 2016, over 5,000 sea anglers have provided data on over 48,000 fishing sessions and 362,000 catch records from 216,000 hours of angling activity.

To estimate participation and effort among UK sea anglers, additional questions were integrated into the Watersports Participation Survey (WPS) of 12,000 residents. Due to COVID-19 restrictions, traditional face-to-face survey methods used from 2016 to 2019

were replaced with an online panel in 2020. The shift to an online format yielded significantly higher estimates than previous iterations of the survey, likely due to methodological differences. Consequently, the results since 2020 have been excluded from trend analysis to maintain consistency in the dataset. This adjustment is further discussed in the data analysis and processing section.

3. Data Quality

Regular data quality assessments are conducted at multiple stages throughout the data collection process to ensure accuracy and reliability. Initially, data entry protocols include validation rules that flag entries of fish exceeding the length of the current British angling record by more than 10%, which helps in identifying potentially erroneous submissions of unusually large fish. Additionally, monthly follow-ups via text messages and phone calls with diarists facilitate data completeness and allow for verification of atypical catch records, such as unusually large quantities or sizes of fish, or species caught outside their typical geographic range. When feasible, photographic evidence of large catches is reviewed to further validate the records.

4. Data analysis and processing (including reference to the estimation procedure relative to survey design)

Due to methodological changes in the Watersports Participation Survey (WPS) post-COVID, which produced substantially different results from previous methods, a model-based approach was developed to extrapolate the number of anglers and the catches and tonnage of fish caught. The detailed Bayesian MRP modelling process is described in Hyder et al. (2024), and summarized below and in Figure 91.

To estimate the number of anglers from the WPS data, a Bayesian Bernoulli model was developed. This model predicts the probability of a person within a demographic stratum being an angler. The probabilities are then applied to the total population within each stratum, derived from the UK census, to estimate the total number of anglers. Furthermore, a Bayesian lognormal model was used to estimate the number of days fished per person from the total number of days reported in the WPS. This model aids in calculating: (1) the total number of days fished; and (2) the distribution of the number of fishing days per year among anglers, which is required as the primary sampling unit for the catch survey is an angler-year rather than an angler-trip, but the frequency of fishing significantly influences catch volumes and thus is required for predicting catches.

For extrapolating catch data from the diary survey, entries from diarists reporting less than six months of data, including months explicitly stated as non-fishing periods, were excluded. Catch data were aggregated annually by diarist, species, and whether the catch was kept or returned. A Bayesian zero-inflated negative binomial model was then fitted to predict catch rates per angler, accounting for overdispersion and excess zeros. To address the bias introduced by diarists with anomalously high catches, diarist IDs were included as random effects in the model and removed from the model predictions to ensure estimates reflected the average catch rate across all anglers.

Additionally, a Bayesian lognormal model was applied to the sea angling diary data to estimate the average weight of fish caught, incorporating all diarist data regardless of data completion status as this model focuses on predicting the average weight of individual fish rather than the total tonnage caught by an angler. Similar to the catch rate model, diarist IDs were treated as random effects to reduce the impact of outliers. Model predictions of average fish weight were then multiplied by the total number of fish caught to estimate the total tonnage of fish caught.

As the extrapolation procedure operates within a Bayesian framework, the posterior distributions from each model can be easily combined. This integration facilitates the estimation of 95% credible intervals that account for the survey error introduced by both the WPS and diary surveys.

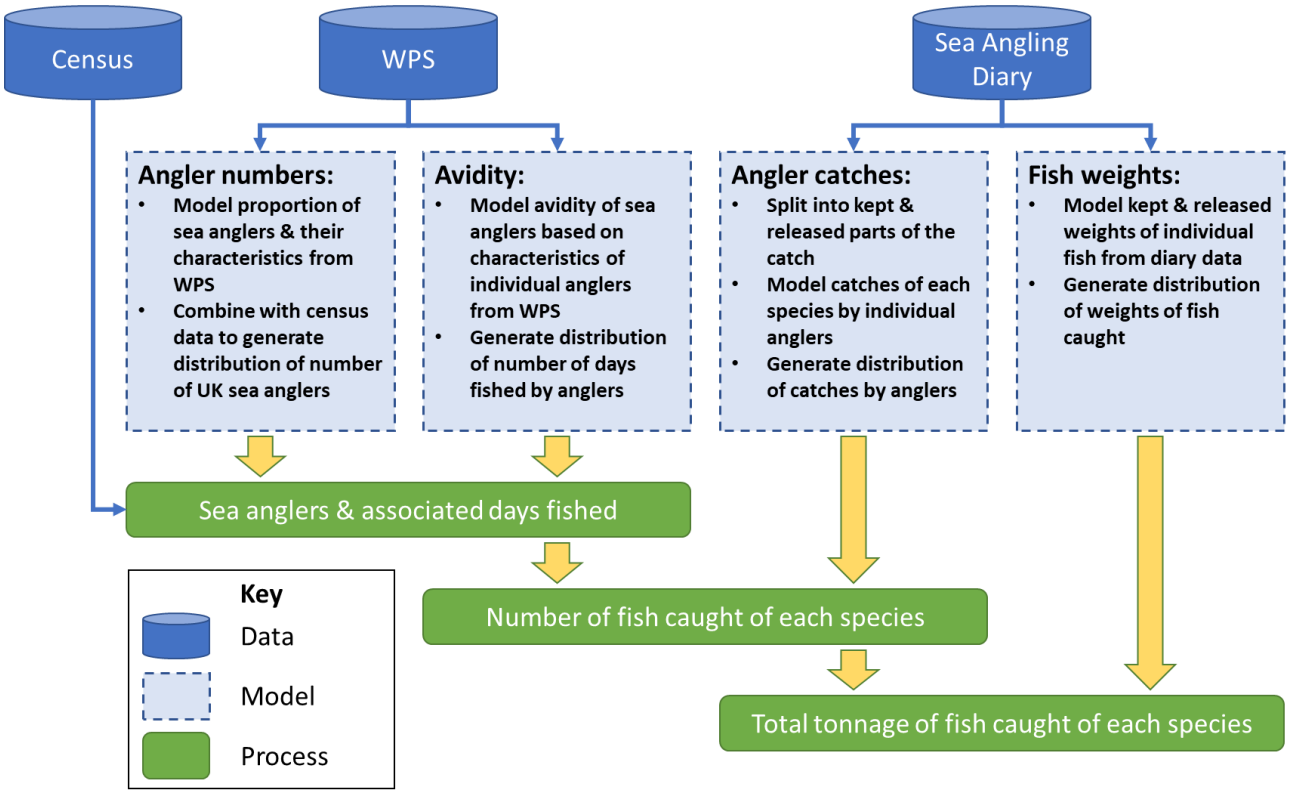


Figure 91: The sea angling diary survey model-based survey extrapolation procedure for England and Wales.

Section 1D: Anadromous and Catadromous Species Data Collection in Freshwater

Ref Table 1D

International and domestic commitments – overview

This fulfills paragraph 2 points (b) and (c) of Chapter III of the multiannual programme.

All the governments and intergovernmental commissions requesting and receiving scientific advice from ICES have signed international agreements under the United Nations Convention on the Law of the Sea (UNCLOS). This binds the UK to collect and share fisheries data to support fisheries assessment and management of highly migratory fish stocks. Additionally, the UK's Memorandum of Understanding (MoU) with ICES requires UK to provide relevant data for ICES to undertake stock assessment and provide advice relating to the North Atlantic and its adjacent seas, including advice on fishing opportunities for diadromous fishes. The UK is also a signatory to the Convention of the North Atlantic Salmon Conservation Organization (NASCO), established in 1984, with the aim to conserve and rationally manage Atlantic salmon through international cooperation. NASCO obtains scientific advice for the management of salmon stocks and fisheries from ICES.

Key end users

ICES, NASCO

Salmon

International obligations and temporal frequency of reporting

Data required to meet international commitments for the assessment and management of North Atlantic salmon fall into two categories:

1. data requested annually by the ICES Working Group on North Atlantic Salmon (WGNAS) to undertake an international stock assessment and support reporting to NASCO; and
2. data requested annually by NASCO to inform management.

Some of these are reported as raw data, while others are derived from collected data and reported as such.

ICES requirements

Annual data calls from ICES via the WGNAS require river-specific, regional, or national totals of the following:

- retained catch: reported retained catches of salmon by sea age class (one-sea-winter (1SW) and multi-sea-winter (MSW)) in numbers and weight for commercial and recreational fisheries by location (coastal, estuarine, riverine);

- released catch: the same format as retained;
- unreported catch estimate: the same format as above, for fish retained and released;
- compilation of tags released;
- production of farmed and ranched salmon: weight.

Other information reported to the WGNAS includes:

- fishing effort statistics;
- Catch Per Unit Effort (CPUE);
- exploitation rate indices;
- Conservation Limits (CL): expressed as the numbers of eggs deposited, and annual compliance – the numbers of rivers meeting or exceeding the CL;
- marine return rates for wild and hatchery smolts, reported separately for 1SW and MSW salmon, at monitored sites;
- smolt production at monitored sites.

Other data required by ICES to undertake the stock assessment include information on the biological characteristics of salmon (such as age distribution, sex ratio, and fecundity), and timing of return provided on a periodic basis.

In addition, time-series of data (e.g., returning stock estimates, counts of adult returns, and marine return rates) are needed for the NASCO Framework of Indicators (FWI) and requested through the WGNAS from jurisdictions with timely access to such series.

NASCO requirements

All data reported to ICES are used in the ICES' Scientific Advice to NASCO. However, the UK also reports some data directly to NASCO in the Annual Progress Reports (APR) for the three UK 'jurisdictions' of England & Wales (combined), Scotland and Northern Ireland. This generally includes, in addition to a number of adhoc requests, annual updates on:

- any changes to management measures and the Implementation Plan;
- catches (caught and retained in tonnes) for riverine, estuarine and coastal waters;
- unreported catch estimates (tonnes) for riverine, estuarine, and coastal waters;
- number and percentage of salmon caught and released in recreational fisheries.

Designation of waterbodies

Stock assessment methods designate the rivers monitored for salmon: 64 principal salmon rivers across England and Wales; 16 primary salmon rivers across Northern Ireland; and 173 assessment areas (individual rivers, Special Areas of Conservation (SACs), and in some cases groups of between 2 and 6 rivers where fishery catch cannot be assigned to individual rivers) in Scotland.

Data collection

Data collection is managed through separate agencies in the four administrations so there are variations among the specific methods used.

All commercial (net and fixed engine) fisheries for Atlantic salmon (and sea trout) in England and Wales are licenced and operate mandatory carcass tagging and daily catch reporting (logbook) systems. No killing of salmon in commercial fisheries has been permitted since the introduction of national byelaws in England in 2019 and in Wales in 2020. In Scotland, salmon fishery statistics (monthly numbers and total weights of 1SW and MSW salmon) are obtained from proprietors or occupiers of fisheries under legal provisions. There are currently no commercial salmon fisheries in Northern Ireland.

Recreational (rod) fisheries in England and Wales are also licenced and are monitored through obligatory catch returns. In Scotland, salmon fishery statistics (monthly numbers and total weights of 1SW and MSW salmon retained and released) are obtained from proprietors or occupiers of fisheries under legal provisions. In Northern Ireland, any salmon landed must be carcass tagged and rod catch data are collected through a tag return scheme for retained and released fish.

Juvenile abundance surveys for salmon (and trout), both fry and parr, are carried out annually using electrofishing methods. These provide numbers per unit area, individual lengths and age composition, the latter based on ageing from scales for a subsample of catches and/or size-frequency distributions. Outputs are used to evaluate recruitment at site, subcatchment or whole catchment scales, complementing measures of adult stock performance and informing environmental management in rivers. In England and Wales, annual electrofishing surveys comprise (i) a ‘temporal’ component of fixed sites distributed among all principal salmon rivers and sampled every year and (ii) a ‘spatial’ element sampling additional sites on targetted catchments on a (6-year) rolling programme basis.

Information on smolt production and marine return rates is collected using in-river traps and mark-recapture methods. Smolt trapping provides catch per unit effort (time) data, alongside individual fish lengths and scale-based age reading from a subsample to update age-length keys. Smolt trapping occurs on the River Dee (Wales), Tamar and Frome (England), the Aberdeenshire Dee (Scotland), and the River Bush (Northern Ireland).

Information on the number of adult salmon returning to rivers is collected through fixed traps, electronic counters or derived from rod catches raised by exploitation rates (derived from trap and counter data), and individual lengths, weights and ages are collected from representative biological samples of the adult run on each trapped river. Adult traps operate on the Dee (Wales), Tamar, Lune (England), Bush (Northern Ireland) and on two upper tributaries of the Aberdeenshire Dee (Scotland).

Eels

International obligations and temporal frequency of reporting

ICES requests information on eel stock parameters from countries within the geographic range of the European eel (North Atlantic, Baltic and Mediterranean Seas, and inland waters) via the Working Group of Eels (WGEEL). This generally includes responding to an annual Data Call with, in addition to a number of ad hoc requests, annual updates on:

- commercial landings by Eel Management Unit (EMU), life stage (yellow, silver eels) and habitat type (fresh, transitional, coastal and marine waters): provided in weights;
- recreational landings by EMU, life stage and habitat type: provided in weights;
- other landings (transport/relocation operations) by EMU, life stage and habitat type: provided in weights;
- aquaculture production per EMU and life stage: provided in weights;
- releases (which includes restocking) by EMU, stage and habitat type: provided in numbers and weights;
- time series of glass and yellow eel recruitment derived from fisheries, or fisheries-independent surveys;
- time series of yellow eel abundance (standing stock);
- times series of silver eel escapement;
- other biological sampling to inform biological characteristics (e.g., length, weight, age, sex ratio).

The associated country report submitted to WGEEL includes the summary of all the data provided, explanation on the collection methods and management, as well as additional information on habitat quantity and quality, other non-fisheries sources of mortality, a section on diseases, parasites, pathogens and contaminants and update on any new emerging threats and opportunities.

Since 2007, countries are also required to provide biomass and mortality indicators every three years, which include the following:

- B_0: the amount of silver eel biomass that would have existed if no anthropogenic influences had impacted the stock;
- $B_{current}$: the amount of silver eel biomass that currently escapes to the sea to spawn;
- B_{best}: the amount of silver eel biomass that would have existed if no anthropogenic influences had impacted the current stock;
- $\sum F$: the fishing mortality rate, summed over the age-groups in the stock;
- $\sum H$: the anthropogenic mortality rate outside the fishery, summed over the age-groups in the stock;
- $\sum A$: the sum of all anthropogenic mortalities, i.e. $\sum A = \sum F + \sum H$.

Designation of waterbodies

There are 15 EMUs, including one shared with the Republic of Ireland. Most EMUs have been set at the River Basin District (RBD) level, as defined under the Water Framework Directive.

Data collection

Data collection is managed through separate agencies in the four administrations so there are variations among the specific methods used.

Commercial fisheries for eels (recruits, yellow and silver eels) in England is legally required to report catch quantities (weight), effort as days fished, the location and type of water fished. No data are collected on other biological characteristics: maturity and fecundity are not applicable for juvenile life stages exploited and other characteristics are not required for national stock assessments. Catches from the commercial fishery in Lough Neagh (Northern Ireland) are reported to AFBI/DAERA by the Lough Neagh Fishermen's Co-operative Society Ltd. Weekly sampling of 20 yellow eel over 20 weeks (May to September), and 100 silver eel over a 12 week period, provide age and length, weight, fat content, sex, age, stomach contents, and parasite load. Sex ratio of the silver eel population is estimated from size grading the catch into boxes of small (male) and large (female) eels. There are no commercial fisheries for eel in Scotland. The commercial fishery in Wales was closed in 2021.

There are no recreational landings of eel across the UK, and any eel that are caught by recreational fisheries must be returned alive to the water.

The abundance of recruits is estimated from traps in four EMUs (Scotland, Anglian, Thames, South-west) yielding numbers or batch weights of glass eel/elvers and numbers and lengths of yellow eel; from a time-series of CPUE from the commercial fishery in England (Severn); from dragnet surveys twice monthly from March/April to July/August in Northern Ireland (River Bann; Strangford Lough) yielding numbers per kg and length frequencies from 50 juveniles per sample.

The abundance of standing stock is collected from electrofishing surveys across the majority of the EMUs (apart from NI EMUs). Sites are fished every 1 to 3 years, depending on programme specification, and provide numbers per unit area, length frequency distribution and estimated individual weights.

Information on the numbers or weight, and sex ratio of silver eels, is collected annually from 3 EMUs using commercial catch sampling (Northern Ireland), downstream traps (Scotland) or electronic counters (England, numbers only), and once in every EMP reporting period (in accordance with the EU Withdrawal Act in relation to Article 9 of Regulation No. EC 1100/2007) for the remaining 12 EMUs using model-based estimates derived from yellow eel abundance surveys. The model-based methods are described in the 2024 EMP Progress Report to Defra: https://assets.publishing.service.gov.uk/media/6758190df1e6b277c4f79ab6/UK_EMP_2024.pdf).

Summary of outcomes and deviations from the workplan

Were the planned numbers achieved?

No.

Reason for non-conformity and actions to avoid deviations.

More details of under sampling eel and salmon and reasons for this are shown in Table 1D.

The reasons for non-conformity can be aggregated into four classes and explanations for how future deviations may be avoided for each are as follows:

i. Resource constraints, unsuitable conditions, and equipment malfunction

Rows 13, 39, 46, 55: Fewer yellow eel surveys were undertaken than planned in four areas due to poor environmental conditions and resource issues.

Rows 48 and 50: Numbers of eel measured were below target at two sites: at the Shieldaig recruits trap due to high temperatures and associated welfare concerns, and at the Baddoch silver eel trap because of balance failure.

Rows 58, 64 and 83: Fewer salmon parr surveys were undertaken in England and Wales due to high temperatures, high flows and poor weather conditions.

Rows 16, 30 and 32: Data have been collected; however, processing of the counter data has been delayed due to resource constraints.

Action: Incomplete surveys may be revisited in the future as resources allow. However, it is difficult to predict weather impacts on sampling programmes, thus some under-reporting is expected in the future as a result. Two yellow eel sites missed in GB_Dee in 2024 were sampled in 2025 (Row 53), and additional sites were sampled for yellow eels in Scotland (Row 51) and by Northern Irelands salmon parr survey programme (Row 69). All collected counter data that are still undergoing processing should be completed in time for inclusion in the relevant assessments.

ii. Fish counters or traps not operational

Rows 61 and 62: Neither the adult salmon trap nor the salmon smolt trap on the River Tamar were operated due to safety concerns.

Action: Adult trapping has been reinstated on the River Tamar for 2026, but the future of smolt trapping on this river remains uncertain.

iii. Low fish numbers

Row 43: Lough Neagh yellow eel sampling was severely curtailed due to the closure of this fishery.

Row 45: Fewer silver eels were caught in the Killough River/Clea Lakes silver eel trap than anticipated.

Rows 60, 66 and 71: Fewer adult salmon were recorded on these traps/counters due to low fish numbers.

Action: This is not possible to predict or mitigate for.

iv. Mistakes in the Work Plan

Rows 5, 50 and 60: The Yare elver trap, the Sheldaig silver eel trap and the River Kent salmon counter remain non-operational, so any mention of these traps/counters should be removed from the future work plans.

Rows 47, 61, 67: There were mistakes in the original Work Plan regarding the number of individuals to be sampled.

Row 54: The River Usk does not lie within the GB West Wales eel reporting area.

Rows 54-57: The area should be corrected to GB_Wale.

Rows 59 and 65: There are mistakes in the original Work Plan regarding the number of fisheries to be reported. The planned figures should align with the number of principal salmon rivers.

Row 58: There is an error in the planned number of sites to be surveyed for salmon parr.

Row 68: This site now operates a Wolf trap rather than a rotary screw trap.

Row 76: There is a mistake in the number of tag compilations referenced in the comments.

Row 80: Additional text should be included in the comments to clarify that autumn-migrating parr are also incorporated within the smolt counts.

Action: The future Work Plan will be updated to correct the above-mentioned mistakes. It is important to note that the planned number of surveys for eels and salmon in England vary across years and are generally finalised in the autumn of the preceding year, after the UK Work Plan is agreed, thus some errors are to be expected in the future.

Section 1E: Level of Fishing and Impact of Fisheries on Biological Resources and Marine Ecosystem

Ref Table 1E

International and domestic commitments

This fulfills paragraph 3 point (c) of Chapter III of the multiannual programme for “collection of data to assess the impact of United Kingdom fisheries on marine ecosystems within and outside United Kingdom waters”.

Data collection activity covers three main aspects:

a) incidental bycatch of Protected, Endangered and Threatened Species (PETS);
b) data to assess the impact of fisheries on marine habitats;
c) impact of fisheries on biological resources and marine ecosystem.

Incidental bycatch

Key end users

ICES WGBYC, UK fisheries policy teams for US MMPA Compliance, UK Marine Strategy for populating D1 indicators, UK marine conservation policy.

Data collection

A variety of at sea observer schemes and on shore sampling schemes are operated across the UK FAs and record data on the incidental bycatch of many of the species listed in Table 1E of the MAP. The coverage by geographical area and species group achieved by these schemes is detailed in Table 1H along with the primary drivers and end users for the schemes.

In addition the “UK Bycatch monitoring programme” is coordinated and run by the Sea Mammal Research Unit of St Andrew’s University focussing on the collection of data on bycatch of seabirds and marine mammals. This scheme forms part of the UK Marine Strategy Part 2 (monitoring programmes) contributing to indicators for Descriptor 1 (biodiversity) for seals, cetaceans and birds and helps to meet statutory obligations and supports the implementation of the UK plan of action on seabird bycatch.

It should be noted that in 2021 there was a review of UK bycatch monitoring programmes for fisheries exporting products to the USA for a comparability test against the requirements of the USA Marine Mammal Protection Act. This has the potential to change the nature of some of the bycatch monitoring being undertaken at a UK and administration level.

Impact of fisheries on marine habitats

Key end user

UK Marine Strategy.

Data collection

Both benthic and pelagic habitats have the potential to be impacted by some of the pressures arising from fishing activity, with work under the UK Marine Strategy identifying that the extent of pressures such as seabed abrasion is significant in UK waters. Much of the assessment of impact of fishing is therefore derived from existing data on the distribution of marine habitats from historical and inferred habitat mapping and data collection on fishing activity (See Section 2: Fishing Activity Data). This allows an inferred assessment of the extent of seabed habitat disturbance from (most) fishing activities with significant seabed contact, including bottom / beam trawling which are reported in the UK Marine Strategy assessment.

Direct data collection on the status of marine habitats subjected to pressures from fishing are limited in scope and have tended to be focussed on the monitoring for the UKs Marine Protected Area networks. Both the UK and Scottish MPA monitoring strategies have data collection objectives to determine the impact or recovery of benthic habitats associated with changes in pressures from activities such as fishing as management measures changed in order to achieve specific conservation objectives of protected features. These studies (Type 3 monitoring in these strategies) are extremely expensive to undertake often require long time series to detect change and typically involve detailed underwater observation of habitat state and extent or expensive infaunal analyses of sediment samples to detect changes in diversity of associated communities. As a result these studies cover only a portion of the UK fishing footprint and are not indicative of wider scale impacts on the diversity of marine habitats in UK seas.

Given the lack of data on wide scale impact of fishing on sea bed habitat quality a review is considered appropriate. The UK fisheries administrations (through the Data coordination group and in consultation with UK Marine Monitoring and Assessment Strategy (UKMMAS) and Healthy and Biologically Diverse Seas Evidence Group (HBDSEG) for UK Marine Strategy alignment) will conduct a review of evidence gaps and consider additions to the work programme to improve understanding of this issue.

<u>Impact of fisheries on biological resources and marine ecosystem</u>

Key end users

UK Marine Strategy, OSPAR

Data collection

Many of the pressures arising from fishing activity (capture fisheries at sea) have the potential to impact on different receptors in marine ecosystems. The primary biological resource of concern are the populations of targeted and bycaught fish species themselves.

Many of the surveys at sea undertaken annually and detailed elsewhere in this workplan (Table 1F) provide data used to assess the status of fish and cephalopods both as a

biological resource (through the international stock assessment processes) and as an important component of the marine ecosystem, biodiversity and food webs.

As detailed in UK Marine Strategy Part 2 (monitoring programmes) the data collected from the surveys in Table 1F are used to populate biodiversity and foodweb indicators (Descriptors 1 and 4) for the fish community (not just the commercially important species) and reported as part of the UK Marine Strategy reporting cycle as well as in national and international marine status assessments (OSPAR QSR, SMA 2020 etc).

Our understanding of marine foodwebs is important both for stock assessments of commercial fisheries, but also for wider assessments of the status of our seas under the Marine Strategy (Descriptor 4). Much of our current understanding is based on historical sampling of stomach contents from fish sampled during the course of previous surveys of the type detailed in 1F. These data are approaching 20 years old and may no longer reflect changes in our marine food webs over that time. There is a clear need to collect more data in this area and there are national and international efforts to aggregate currently available data and plan further data collection to improve our evidence in this area. These plans will not be fully formed by the time of publication of this workplan.

Fishing activity exerts a variety of other pressures that have the potential to impact on other receptors in marine ecosystems and many of the existing monitoring programmes under UK Marine Strategy part 2 are focussed on monitoring the status of those receptors. The relationship between these pressures and the status of receptors will not be well established in all cases. Some examples are given below.

Pressures	**Receptors and monitoring programmes in UK MS**
Resuspension sediments	Pelagic habitat Descriptor 1
Marine Litter	Marine Litter monitoring Descriptor 10
Underwater Noise	Noise monitoring for Descriptor 11

Summary of outcomes and deviations from the workplan

The consultation between the DCG, UKMMAS and HBDSEG to review evidence gaps on the wide scale impact of fishing on seabed habitat quality has not yet taken place.

The summary of species observed refers to the list of protected species published in table 1D of the retained DCF regulation. ICES has since published a defined list of protected, endangered and threatened species (WKCOFIBYC CSL (Annex 2 table) and RAL & RBL (Annex 3 table)).

Scottish data on observed PETS species, 2025

Sampling programmes are designed to assess catches of fish, both target and non-target species. All observed species observed are recorded. In most fishing operations the unwanted catch after sorting is sampled. It might not be possible to view the catch when it is in the net or hopper, however fishers are requested to alert observers to PETS species.

No birds or mammals were recorded as bycatch in 2025. Six six-gilled sharks, five blue skate, four Allis shad, 2 tope and 162 flapper skate were bycaught.

Total PETS bycaught and where vital, released.

Species	Total	Vital	Moribund	Freshly dead
Flapper skate (SKF)	162	36	4	122
Six-gilled shark (SGS)	6	1	2	3
Blue skate (SKB)	5	0	0	5
Allis shad (ASH)	4	0	1	3
Tope (TOP)	2	1	0	1

Northern Irish data on observed PETS species, 2024

All observed species in catches are recorded. Sampling programmes are designed to assess catches of fish, both target and non-target species. All observed species observed in catches are recorded. Sampling schemes are primarily designed to assess the catch of fish, both target and non-target species. In most fishing operations only the catch in the cod end can be sampled due to the catch processing procedures by fishers' onboard vessels, meaning that engagement in nets of interaction with other parts of the net cannot be observed. In fisher self-sampling schemes it is highly likely that large size bycatch will not be retained in the sample, due to the logistical restrictions of 'bagging' a catch sample.

Sampling Type	Species name	No. of fish	No. of samples
NIR - N1	Raja clavata	7	3
NIR - N1	Squalus acanthias	58	3
NIR - N3	Galeus melastomus	3	3
NIR - N3	Raja clavata	5	5
NIR - N3	Squalus acanthias	361	40
NIR - N4	Mustelus asterias	1	1
NIR - N4	Raja clavata	51	13
NIR - N4	Squalus acanthias	1369	20
NIR - N5	Galeorhinus galeus	4	2
NIR - N5	Raja clavata	86	1
NIR - N5	Squalus acanthias	245	3
Research Cruise	Dipturus batis	2	1
Research Cruise	Galeorhinus galeus	19	13
Research Cruise	Helicolenus dactylopterus	1	1
Research Cruise	Mustelus asterias	68	21

Research Cruise	Raja clavata	171	37
Research Cruise	Squalus acanthias	962	43

English and Welsh data on observed PETS species, 2025

Scheme	WP_Region	PetGroup	Species	No. Samples	No. Fish
Offshore	**North Sea and Eastern Channel**	Bony fish	*Alosa alosa*	1	1
			Hippoglossus hippoglossus	7	7
			Sebastes viviparus	2	2
			Cyclopterus lumpus	1	1
		Cartilaginous fishes	*Galeorhinus galeus*	7	22
			Mustelus asterias	57	542
			Mustelus mustelus	6	10
			Raja clavata	119	743
			Raja montagui	22	72
			Raja undulata	57	151
			Amblyraja radiata	2	3
		Molluscs	*Ostrea edulis*	3	4
	North-East Atlantic and Western Channel	Bony fish	*Alosa alosa*	2	2
			Polyprion americanus	3	3
			Helicolenus dactylopterus	2	1
		Cartilaginous fishes	*Dipturus batis*	13	50
			Galeorhinus galeus	35	154
			Mustelus asterias	151	1263
			Mustelus mustelus	39	141
			Raja clavata	179	1589
			Raja montagui	368	1041
			Raja undulata	171	376
			Squalus acanthias	84	1859
			Lamna nasus	8	8
			Amblyraja radiata	1	1
			Hexanchus griseus	12	44
			Leucoraja circularis	7	92
			Chimaera monstrosa	1	14
	North Sea and Eastern Channel	Bony fish	*Alosa fallax*	2	6
			Hippoglossus hippoglossus	18	21
		Cartilaginous fishes	*Raja clavata*	18	42
			Raja montagui	4	8
Ashore	**North-East Atlantic and Western Channel**	Cartilaginous fishes	*Galeorhinus galeus*	1	1
			Mustelus asterias	12	97
			Raja clavata	8	144
			Raja montagui	26	406
			Raja undulata	1	4
			Squalus acanthias	58	1598

The number of samples provided for both schemes in the table above relates to the number of trips/landings in which they were recorded although for the offshore trips the data is available by haul. In addition to the observations above, 1 unidentified cetacean and 1 unidentified pinniped were each recorded on different at sea observer trips in the North East Atlantic and Western Channel.

Protocol:

The at-sea protocol requires the collection of data on all species of fish (bony and cartilaginous) encountered although the discarded component for some of the trawl stratum is subsampled which means that the coverage cannot guarantee to capture all occurrences of small rare fish species in the catch.

All captures of mammals and seabirds are recorded but only ~20 of the trips in the North Sea on netters and liners are dedicated to capturing sightings of mammals and any fallout from the nets as they come on board.

A new observer database has been developed which includes recording information on the sampling of different phases of the fishing operation and catch processing – monitoring for dropouts, opening of the cod end and the status/condition of the PET species when it is returned to sea which will help better identify true zeroes. This new system went live in September 2023.

The co-sampling approach introduced in 2021 during COVID is less reliable for rare occurrences. Not all unwanted catch is brought ashore, large, live or protected species are recorded by the skipper and returned over the side. Co-sampling has not been used since 2023 as the data is more limited in its use.

All observers are required to record all occurrences of fish species, and mammals and seabirds in the catch. Only commercial molluscs and crustaceans are recorded as yet. A change in procedure is required to capture all occurrences of some of the crustacean and mollusc species listed in table 1D of the retained regulation.

Onshore, only commercial bycatch is seen but any part of the landings from any vessel selected for sampling has a chance of being selected for sampling.

All data collected onshore and offshore are recorded in the national GARi system and SFS Observer DB.

Section 1F: Data Quality - Biological Data Collection

To achieve and maintain a high standard of data quality, a framework for data collection planning is formally adopted by the UK Fisheries Science and Evidence Steering Group and coordinated by the UK Data Coordination Group.

Within this process a multiannual programme for data collection is set out by all UK partners. The work plan is reviewed by the UK Fisheries Science Advisory Panel and signed off by Minsters across the Fisheries Administrations before the work plan is formally adopted.

Achievement toward the plan is annually reviewed with deviations explained and justified as per the process outlined in the Introduction. If necessary this reporting allows future plans to be adapted and provides end-users with an understanding of the underlying data quality.

The process of planning, reviewing and reporting provides the core data quality assurance process to ensure appropriate and suitable data is collected to meet the requirements of end-users.

Structures are in place to ensure data quality control through the adoption of Standard Operating Procedures including the use of internationally coordinated and approved sampling methods and best practice methods for data recording.

Data submission to international databases ensures that data structure, mandatory variables and metadata conform to agreed standards.

The aim of the data collection programme is to ensure appropriate data is available to inform science and policy end-users. Through these end-user structures feedback and review of data quality is provided with respect to appropriateness of data to inform policy and fishery stakeholders.

In the case that issues are identified these are taken into account when setting out the Work Plan or through changes in the Standard Operating Procedures for data collection.

Section 2: Economic and Social Data

Section 2A: Population Segments for Collection of Economic and Social Data for Fisheries

Ref Table 2A

International and domestic commitments

This fulfils paragraph 5 points (a) and (b) of Chapter III of the multiannual programme.

Economic and social data on the UK fisheries sector is collected by Seafish Economics, Insight and Advice team on behalf of the UK government and devolved administrations. The economic data collected annually (time series go back to 2005) forms a basis for the UK fishing fleet economic monitoring and future policy development.

The data collected is used:

- for monitoring purposes (e.g. monitoring of the 'national benefit objective' defined in the UK Fisheries Act 2020)
- for modelling that forms basis for a variety of impact assessments work streams, such as analysis of financial implications of TACs and quota negotiations with the EU and Norway, impact assessments of past and future fisheries management plans and fleet/area/stock specific policies;
- to inform bio-economic models, spatial area closures, business decisions and financial support measures;
- to contribute economic dimension to balance analyses between fishing opportunities and capacity;
- to conduct other fleet specific and area specific analyses (including analyses published by international organisations, such as ICES, FAO and OECD).
- to inform industry and governmental steering and advice groups

The data is available online for public through Fleet Enquiry Tool published by Seafish.

Key end users

ICES, FAO, OECD

Data collection

Data sources

The UK has chosen to carry out an annual survey in order to collect much of the economic data required, however the response to the survey is entirely voluntary. A short questionnaire is carried out by field researchers and then followed up by request for vessel accounts from vessel owners. These accounts provide the main source of data for most of the economic variables.

Data from accounts is combined with data on transversal variables to ensure consistency between the different sets of data and to minimize the complexity of the economic survey.

The UK combines numerous sources of data collection in order to fulfil MAP obligations. Administrative sources (Fleet register, logbooks and sales notes as well as Individual Quota Allocation Register) are used in combination with face to face interviews carried out by field researchers and accounts collection at the end of financial year. Some data sources are used in combination (questionnaires / accounts and administrative methods) using calculation. For the list of data sources see Table 2A.

Data types

For all UK administrative sources the information is available at Census level. For most of the economic variables and employment (FTE), Non-Probability Sample Survey is used. The survey is implemented in 2 steps: face-to-face interviews in ports followed by phone or e-mail contact at a later date in the year when accounts are available. Based on previous experience this approach is the most efficient method for collecting a sufficient sample size to generate estimates for every vessel on the UK Vessel Register. Collaboration between the MMO, Government and Industry bodies such as Seafish and POs enables the UK to achieve response rates at an acceptable level.

Flexibility is important during the survey as parts of the UK catching sector can occasionally be difficult to meet face-to-face due to the nature of the work and in some cases questionnaires are completed over the phone or by e-mail. Face-to-face interviews are preferable to ensure the quality, robustness and legibility of any data collected.

Sampling frame and allocation scheme

The sampling frame to be used will be the UK fishing fleet register on 31 December including all vessels active during the year. Involvement in the survey is voluntary. As such it involves a degree of self-selection and is not a true random sample of the fleet.

In order to ensure that adequate levels of involvement are achieved, a key aspect of the contact with fishermen is that as well as seeking permission to contact their accountants direct for the required information, agreement is also sought for such access to their financial data to be allowed for subsequent years. As such, the sample for each segment can include some elements of a cohort analysis. It is thought that the benefits of this approach in terms of both ensuring a good level of response for each segment and generating time series information on individuals offsets the introduction of a potential bias from the use of a non-random sampling approach.

The target for the economic data survey is to cover 10% of active fleet in a sample, however intensity of sampling depends on the fleet segment and number of vessels in the fleet, therefore in cases of small inshore (<10 m vessels) fishing fleet the planned sample rate is 5% for main economic indicators and 2.5% for balance sheet related indicators, while for bigger boats (segments including vessles >24 m vessels) planned sample rate is 20% for main cost and income variables and 10% for balance sheet and capital related

indicators. For further details about the sample per vessel groups see Table 2A.

Estimation procedures

The estimation procedures are implemented on the level of a more precise variables list and national fleet segments, which are defined based on gear used, target species, area and engine power/vessel size. In total 21 costs items are extracted from the accounts and estimated for each vessel based on models, which combine administrative sources with segment sample. Estimation procedures for different variables and variable groups are presented below.

Costs and earnings:

Within defined Seafish fleet segments individual costs and earnings items from the collected vessel financial accounts (the segment sample) are added together to create a 'combined segment sample cost structure'. The sum of each cost item in the 'combined segment sample cost structure' is calculated for each vessel within a segment as a proportion of the sum of fishing income available for all vessels from the administrative sources.

Fuel costs and crew share costs are calculated differently from other costs. To calculate fuel costs, we use the capacity (VCUs) and fishing effort (days at sea) of each vessel to estimate its fuel consumption in litres, which is then combined with the average annual red diesel price (excluding duty) to calculate the fuel cost estimates for each vessel.

To calculate crew share costs, we allocate a minimum £100 per day in instances where the actual observed amount within the 'combined segment sample cost structure' is lower.

Following the calculation of fuel cost and crew share, we apply the proportions from all the other costs within the 'combined segment sample cost structure' to the official declared fishing income for each vessel within each fleet segment. We estimate costs and earnings for all vessels involved in the fishery (with recorded landings/catches) during the year.

Engaged crew:

Estimation of engaged crew is based on the survey data collected from vessel owners during face to face interviews, combined with data collected by the Marine Management Organisation. This provides details on the number of engaged crew, both full-time and part-time. With this sample information we then estimate total engaged crew based on the physical characteristics of the individual vessel and the vessel's level of activity. Once the total engaged crew is estimated for all types of vessel in the UK fleet, we estimate Full Time Equivalent (FTE) jobs based on hours worked collected during the face to face survey (an FTE is assumed to be 2,000 hours worked a year).

Value of physical capital:

The UK intends to follow the methods for calculation of the value of physical capital as given in the report of the study N° FISH/2005/03 on the evaluation of the capital value,

investments and capital costs in the fisheries sector. Sample data from vessel accounts will provide a depreciated value for the sample fishing vessel. This sample data can then be applied at a DCF segment level to the entire fleet based on a value per vessel capacity unit to estimate physical capital values.

Subsidies on investment:

The data is directly obtained from Administrative sources, linked to vessel owners or their vessels and aggregated to the level required

Employment by education level and nationality

Following the pilot study conducted in 2017, the data collection of social indicators for fleet was added to fleet survey as additional tables to the first phase of the data collection when interviews are performed in the ports. The data will be collected for the same reference year as when the questionnaire is used. The methodologies used to choose sampling frame and allocation scheme will be the same as for the economic fleet survey. The data collection of social indicators was conducted in 2024, afterwards the data collection exercise is expected to be in 2027 but may be earlier depending on Departmental evidence needs.

Data quality

The quality of estimates after application of data estimation procedures recorded and applied in STATA statistical software are then evaluated by set of quality checks developed. The quality checks include check of codification, consistency of the time series, check of sample for extreme values (visualised in Tableau) and other using different outputs and visualisations in Excel and Tableau. There are also visualisations and checkes developed in R if required.

The majority of the economic data will be collected by a probability sample survey and estimated based on Value of landings using models as described above. For these data, bias will be assessed by calculation of coverage rate, response rate and variability in terms of CV.

For more information on Fleet economic data collection and estimation procedures see UK Economic Fleet Estimates and Fleet Enquiry Tool - Methodology Report, Seafish, 2020

Summary of outcomes and deviations from the workplan

1. Deviations from Work Plan methodology for selection of data source

List the deviations (if any) from the methodology used to select data source compared to what was planned in the Work Plan and explain the reasons for the deviations.

No deviations.

Actions to avoid deviations

Briefly describe the actions that will be considered / have been taken to avoid the deviations in the future and when these actions are expected to produce effect. If there are no deviations, then this section can be skipped.

No actions needed.

2. Deviations from Work Plan methodology to choose type of data collection

List the deviations (if any) from the methodologies to choose type of data collection scheme compared to what was planned in the Work Plan and explain the reasons for the deviations.

Relating to the engaged crew section of the workplan, the MMO census (Fishermen's survey) used to estimate number of fishers, was assessed to be unreliable for the 2023 survey. Estimates have been rolled over from the 2022 survey. When producing the 2024 estimates Seafish reviewed the estimation methodology for the number of employees and this information could be used in case needed to fill in the gaps left after termination of MMO census.

Actions to avoid deviations

Briefly describe the actions that will be considered / have been taken to avoid the deviations in the future and when these actions are expected to produce effect. If there are no deviations, then this section can be skipped.

The MMO Fishermen’s survey will be reviewed as part of the broader review of UK Sea Fisheries statistics[2].

3. Deviations from Work Plan methodology regarding sampling frame and allocation scheme

List the deviations (if any) from the methodologies used regarding sampling frame and allocation scheme compared to what was planned in the Work Plan and explain the reasons for the deviations.

No deviations.

Actions to avoid deviations

[2] UK Sea Fisheries Statistics: temporary suspension of the accredited official statistics designation - GOV.UK

Briefly describe the actions that will be considered / have been taken to avoid the deviations in the future and when these actions are expected to produce effect. If there are no deviations, then this section can be skipped.

No actions needed.

4. Deviations from Work Plan methodology used for estimation procedures

List the deviations (if any) from the methodologies used for estimation procedures compared to what was planned in the Work Plan, and explain the reasons for the deviations.

Following fuel consumption data collection projects implemented in 2022-24, the estimation procedure for fuel consumption was updated in 2025. The new procedure follows method published by Seafish in Assessing greenhouse gas emissions from UK Fishing Fleet study and enables estimation of average daily fuel consumption using individual vessel technical characteristics and models defined at fleet level. This new procedure is implemented at historical time series starting in 2021.

Actions to avoid deviations

Briefly describe the actions that will be considered / have been taken to avoid the deviations in the future and when these actions are expected to produce effect. If there are no deviations, then this section can be skipped.

The deviation in fuel consumption estimation procedure improves fuel consumption estimates and in line with overall aim to improve estimation procedures and final estimates.

5. Quality assurance

5.1 Sound methodology

Briefly describe if the data collection follow methodologies, guidelines and best practices agreed in expert groups and whether methodologies are documented and are made publicly available.

The methodology is provided and published in a separate report UK Economic Fleet Estimates and Fleet Enquiry Tool - Methodology Report.

5.2. Accuracy and reliability

For additional information, briefly describe how raw data inputs, intermediate results and outputs are regularly assessed and validated and how errors are identified, documented and dealt with.

The quality checks are implemented at different levels:

- As part of data cleaning procedures (after field work is implemented – logical checks, consistency checks and format checks)
- As part of accounts collection (during accounts entry phase) – logical checks
- As part of sample check (check for variability of sampled indicators, fish price checks, etc.)
- As part of output check (time series consistency checks and visualisation of the results)

All checks are documented either through the procedures, or through R scripts and Tableau dashboards.

5.3. Accessibility and Clarity

- Are methodological documents publicly available? (Y)
- Are data stored in databases? (Y)
- Where can methodological and other documentation be found?
    - *Provide the web link, if documentation is publicly available:*

UK Economic Fleet Estimates and Fleet Enquiry Tool - Methodology Report — Seafish

Section 2B: Aquaculture Data

Ref Table 2B

International and domestic commitments

This fulfils paragraph paragraph 6 points (a), (b) and (c) of Chapter III of the multiannual programme

The UK's international reporting obligations cover a range of aquaculture variables:

- **FAO**: Production (tonnes) and value (£) by production system and species; Production from hatcheries & nurseries (numbers) by species; Structure of the aquaculture sector
- **FAO-OECD**: No. of employees, by gender and employment status
- **WOAH:** Production (tonnes) by species groups; Number of authorised farm sites
- **NASCO**: For relevant species: Production (tonnes) & Production from hatcheries & nurseries (numbers); Containment failure / Escapes (number, events); Escapees in wild populations; Production/ trade by (sterile) genotype; Benthic monitoring.
- **ICES**: For relevant species: Production (tonnes). In September 2024, ICES stated that a new annual call is being drafted for aquaculture statistics to indicate activities and impacts (economic, social, environmental).
- **OSPAR**: For marine net pens: Medicines or treatments administered by type (g); Fish farm annual emissions; Feed inputs

Domestic commitments for collection of UK aquaculture variables reflect retained EU law:

- **Economic variables:** Production (tonnes) and value (£) by species; No. of employees, by Gender and FTE
- **Economic variables**: Production (tonnes) and value (£) by species; No. of employees, by Gender and FTE; Number of enterprises (by number of employees); Other income (£); Personnel costs (£); Value of unpaid labour (£); Energy costs (£); Livestock costs (inc wild inputs) (£); Feed costs (£); Repair and maintenance costs (£); Other operating costs (£); Operating subsidies (£); Subsidies on investments (£); Consumption of fixed capital (£); Total value of assets (£); Financial income (£); Financial expenditures (£); Net investments (£); Debt (£); Weight livestock input (inc wild inputs) (kg); Weight fish feed input (kg); Number of hours worked by employees and unpaid workers (no.)
- **Social variables**: Unpaid labour (No.); Employment by age (No.); Employment by education level (No); Employment by nationality (No); Employment by employment status (owner/employer) (No).
- **Environmental variables**: Medicines or treatments administered by type (g); Mortalities (%)

Further economic indicators[3] of potential interest to end-users are calculable from those collected: mean wage (gross), total income, total operating costs, Gross Value Added (GVA), Operating Cash Flow (OCF), Earnings Before Interest and Taxes (EBIT), net profit, capital productivity (%), Return On Investment (ROI) (%), Future Expectations Indicator (FEI) (%), Labour productivity, GVA to revenues (GVA margin), Operating cash flow margin (OCF margin), EBIT margin, Net profit margin, Employees per enterprise, Part-time share, Unpaid share.

End-users

International end-users as above include FAO, OECD, WOAH, NASCO, ICES and OSPAR.

Domestic end-users range across:

- Government and departments: Defra (e.g. [4,5,6]), Department for International Trade, Scottish Government, Welsh Assembly Government
- Government agencies: Cefas, MMO, VMD, EA, SEPA, FSA
- Local authorities / councils
- Non-departmental public bodies: Seafish, Seafood 2040, Crown Estate
- Wider stakeholders: aquaculture industry including trade associations, certifiers, consultants, farmers, academia and researchers, NGOs, journalists.

Data collection

UK aquaculture population: The UK has a diverse aquaculture sector, with demographic differences between the DAs. The Scottish Government, Cefas and DAERA-NI Fish Health Inspectorates (FHIs) have conventionally been the main regulators collecting aquaculture data for statistical purposes for Scotland, England and Wales, and Northern Ireland respectively. These bodies authorise “Aquaculture Production Businesses” (APBs) and maintain public registers under aquatic animal health legislation[7]. The UK aquaculture population therefore reflects the APBs on these registers. The emerging seaweed aquaculture sector falls outside these populations, and there is currently no data collection under DCF.

Segmentation: Segmentation refers to how the aquaculture population is divided into sub-populations for collection and/or reporting of data, i.e., the degree of aggregation (splitting/clumping) based on species and culture technique. Revised segmentation for UK aquaculture is indicated in the table below.

[3] STECF (2020). JRC Publications Repository - Scientific, Technical and Economic Committee for Fisheries (STECF) – The EU Aquaculture Sector – Economic report 2020 (STECF-20-12) (europa.eu)

[4] https://www.gov.uk/government/publications/sustainable-aquaculture-the-united-kingdom-multiannual-national-plan-manp

[5] E9: Percentage of our seafood coming from healthy ecosystems, produced sustainably (defra.gov.uk)

[6] United_Kingdom_Food_Security_Report_2021_19may2022.pdf (publishing.service.gov.uk)

[7] Authorised Aquaculture Production Businesses and Authorised Processing Establishments: registers - gov.scot (www.gov.scot) ; Public register of Aquaculture Production Businesses in England and Wales (cefas.co.uk) ; Public Register of Authorised Aquaculture Production Businesses | Department of Agriculture, Environment and Rural Affairs (daera-ni.gov.uk)

Segmentation of of UK aquaculture. Species within each segment indicated. RAS = Recirculation Aquaculture System; "nei" (=not elsewhere included) used to report uncertain species mixes, hybrids, and anonymise confidential production by grouping.

Sector	Segment	Species included (ASFIS 3 letter code[8])	Notes
Finfish	Salmon	Atlantic salmon (SAL)	Split by freshwater and seawater in Scottish census
	Trout	Rainbow trout (TRR), Sea (brown) trout (TRS), Arctic char (ACH), Salmonids nei (SLZ)	
	Marine finfish	Atlantic halibut (HAL), Ballan wrasse (USB), Lumpfish (LUM), Marine fishes nei (MZZ)	
	Seawater net-pens	Atlantic salmon (SAL), Rainbow trout (TRR)	For reporting environmental data
	Coarse finfish	Common carp (FCP), Freshwater fishes nei (FRF)	Temperate ornamental fish excluded[9]
	Warm-water RAS	Nile tilapia (TLN), North African catfish (CLZ), Freshwater fishes nei (FRF)	Warm-water species cultured for human consumption
	Restorative stocking	Atlantic salmon (SAL), Sea (brown) trout (TRS), Freshwater fishes nei (FRF)	To separate from commercial aquaculture activities

[8] ASFIS List of Species for Fishery Statistics Purposes - Fisheries and Aquaculture (fao.org)
[9] Eurostat (2018) Aquaculture handbook. fish_aq_esms_an_2.pdf (europa.eu)

Mollusc	Mussel	Sea mussels nei (MSX), Common edible cockle (COC)	Cockle included as species harvested by mussel enterprises
	Oyster	Pacific cupped oyster (OYG), European flat oyster (OYF), Northern quahog (=Hard clam) (CLH), Japanese carpet shell (=Manila clam) (CLJ)	Clams included as species harvested by oyster enterprises
	Other molluscs	Great Atlantic scallop (SCE), Queen scallop (QSC)	
	Restorative stocking	European flat oyster (OYF)	To separate from commercial aquaculture activities
Crustacean	Warm-water RAS	Whiteleg shrimp (PNV), Red claw crayfish (CRP)	Warm-water species cultured for human consumption
	Restorative stocking	European lobster (LBE), White-clawed crayfish (AUP)	To separate from commercial aquaculture activities

Data collection methods: Data collection is based on self-reporting by industry. Data provision is largely voluntary as there are no legal requirements for enterprises/farms to provide requested data. (The exceptions are for some Environmental data, and in Northern Ireland where Section 11(2) of the Fisheries Act (Northern Ireland) 1966, as amended, includes a condition in culture licences that the Holder: keeps a record of inputs and outputs of fish or shellfish, the quantity and value of sales, and provides the information on request). Methods for collecting the data include:

- administrative records – held for all members of the population/segment
- census (survey) - all members of the population/segment are sampled by data collectors
- self-reporting census - all members of the population/segment are required to report data under authorisation requirements (i.e., some Environmental variables)
- (sample) survey - a proportion of the population/segment is sampled by data collectors
- expert opinion
- calculation – quantitative estimation using other variables

Census and survey data are collected by a variety of methods – postal/electronic questionnaire, during on-site health inspections, emails, app reporting and via telephone. Responses are encouraged by routine data collection and by follow-up contact. The bodies responsible for data collection (and collation) are indicated in Figure 48.

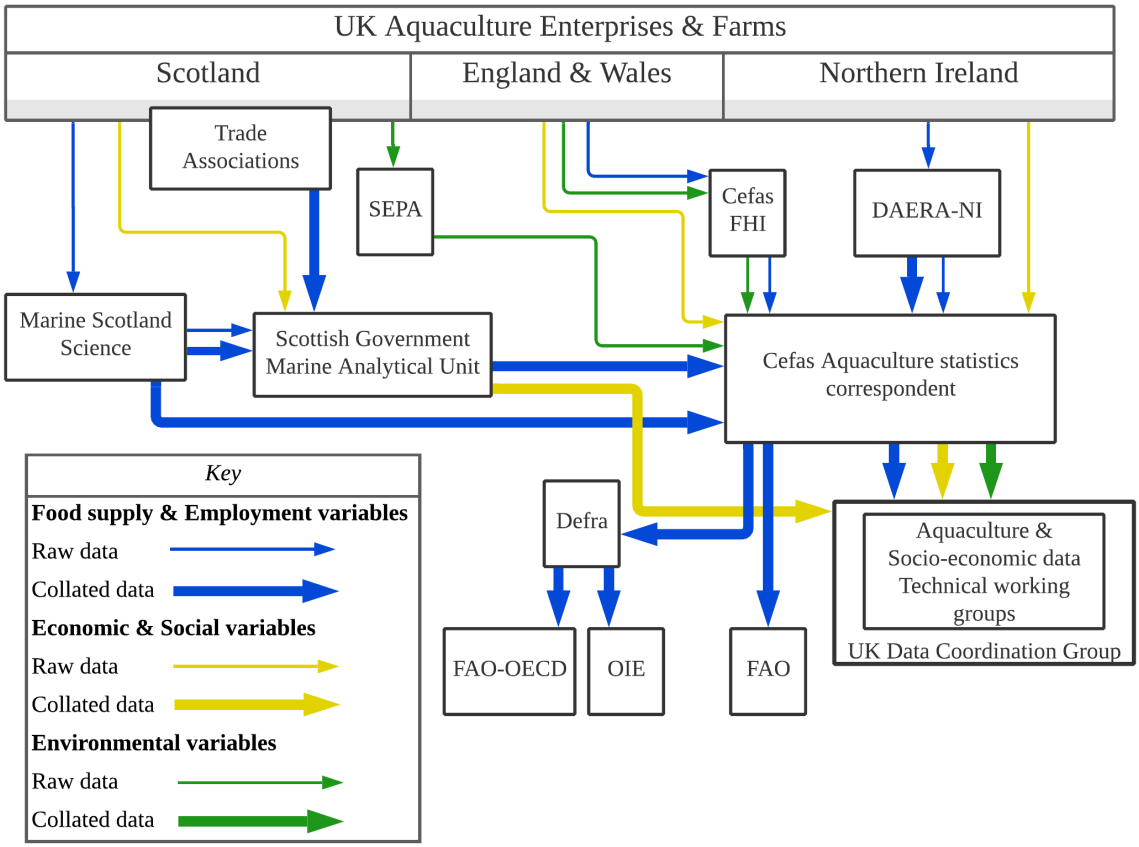


Figure 92. Pathways for the collection of raw data and collated data (statistics) for the main UK aquaculture data requirements, illustrating the bodies involved. OIE (Office International des Epizooties) has been renamed WOAH (World Organisation for Animal Health).[10]

Data quality

Personnel: Regional (DA) data are collected and collated by Scottish Government, Cefas and DAERA. Staff involved in data collection, entry, collation and work-up: undergo mandatory annual training in Information Protection; use appropriate software, with restricted access to maintain confidentiality of individual enterprises; are trained, experienced, engaged and have a good knowledge of the aquaculture industry. Data are manually checked for anomalies at data entry and collation stages by experienced operators with knowledge of individual enterprises and by comparison to previous years' data. Anomalous and missing values are queried with the enterprises or farms.

Estimation procedures:

- expert opinion (trade associations, traders, individual operators for low volume species) is used to estimate average annual Unit values (£/tonne) which vary

[10] Who we are - WOAH - World Organisation for Animal Health

temporally and geographically. Independent estimates are derived for the three UK regions (Scotland, Northern Ireland, England, and Wales) which show consistency. Production value (£) per species is calculated from the weight of sales (tonnes) and Unit value (£/tonne).

- employment data collected in the separate DA censuses differ between the three regions and are not fully aligned with DCF FTE and employment status requirements. FTE for Scotland and Northern Ireland are estimated using segment statistics for part-time workers in England and Wales.
- where Economic variable survey responses for Weight (Livestock input, Sales) are given by number and stage rather than weight, conversions are used (Atlantic salmon egg = 0.16 g, rainbow trout egg = 0.1 g; brown/sea trout egg = 0.08 g; “Fry” = 2 g, “Fingerling” = 25 g, Smolt” = 80 g).
- where DA/UK totals are calculated from sample survey data, estimates are derived by scaling-up using segment census totals.

Generic governance

- achievement toward the plan is annually reviewed with deviations explained and justified. If necessary, this reporting allows future plans to be adapted and provides end-users with an understanding of the underlying data quality.
- the process of planning, reviewing, and reporting provides the core data quality assurance process to ensure appropriate and suitable data is collected to meet the requirements of end-users.
- structures are in place to ensure data quality control through the adoption of Standard Operating Procedures including the use of internationally coordinated and approved sampling methods and best practice methods for data recording.
- data submission to internationally databases ensures that data structure, mandatory variables and metadata conform to agreed standards.
- the aim of the data collection programme is to ensure appropriate data are available to inform science and policy end-users. Through these end-user structures feedback and review of data quality is provided with respect to appropriateness of data to inform policy and fishery stakeholders.
- in the case that issues are identified these are taken into account when setting out the work-plan or through changes in the Standard Operating Procedures for data collection.

Summary of outcomes and deviations from the workplan

Aquaculture data collection activities in 2025 are described below.

1. Data requirements for reporting year (Programme Year, PY 2025)

In 2018, DCF aquaculture data requirements expanded from just Economic variables to include Social and Environmental variables. The variables and collection periodicity have been maintained via retained legislation and UKMAP. Aquaculture data requirements are for Yr-2, i.e. in 2025 data representing the UK aquaculture industry in 2023 were required for Economic variables, as indicated below via shading.

Variable category	Summary of variables	Collection frequency	PY2018 (2016 data)	PY2019 (2017 data)	PY2020 (2018 data)	PY2021 (2019 data)	PY2022 (2020 data)	PY2023 (2021 data)	PY2024 (2022 data)	PY2025 (2023 data)
Economic (Food supply)	Production volume, price & value	Annual	✓	✓	✓	✓	✓	✓	✓	✓
Economic (Employ-ment)	Employee numbers	Annual	✓	✓	✓	✓	✓	✓	✓	✓
Economic (Other)	Enterprise, cost, income & capital	Annual	✓	✓	✓	✓	✓	✓	✓	✓
Social	Employee age, nationality, education	Triennial	✓			✓			✓	

Environ-mental	Medicinal treatment use; Mortality	Biennial	✓		✓		✓		✓	

2. Methodology for data collection

2.1 UK aquaculture population and segmentation: As described in the work-plan, the population for which data are collected reflects “Aquaculture Production Businesses” (APBs) authorised under Aquatic Animal Health regulations. These regulations require aquaculture operations to be authorised by the regional competent authorities for finfish and shellfish health. There are three separate bodies covering England-Wales, Scotland, and Northern Ireland, which have a full overview of farm sites and businesses. The legislative term APB refers to aquaculture farms (sites, holdings) rather than (commercial) businesses (≈ Enterprises). The population remained as planned.

Segmentation refers to the splitting of the UK aquaculture population into segments (= sub-sectors) for collation of statistics. In 2025, the segmentationhttps://www.legislation.gov.uk/eudn/2019/910 refined in 2024 was continued. The refined segmentation is coherent with previously reported UK statistics and international reporting requirements, while providing a better fit to the UK aquaculture population, separating commercial and non-commercial enterprises, and facilitating dissemination of statistics at devolved administration (rather than just UK) level.

Sector	Revised Segment	Explanatory notes
Finfish	Salmon	Scotland only, due to pre-existing Scottish Government publication of statistics, and limited number of salmon enterprises within other devolved administrations resulting in confidentiality issues.
	Trout	To include confidential salmon activities outside Scotland to avoid data exclusion
	Marine fish	Limited numbers of enterprises in some nations
	Coarse	Combines carp and other freshwater fish segments producing for recreational angling
	Ornamental (temperate)	New segment, within Fisheries Act 2020 definition of aquaculture and with authorised farms, but typically excluded from aquaculture statistics.
Mollusc	Mussel	As previous

	Oyster	To include confidential minor “Other molluscs” segment to avoid data exclusion
Finfish & Crustacea	RAS (recirculation)	New segment. Finfish and crustacea combined to avoid confidentiality issues
Finfish, Mollusc & Crustacea	Restocking	New segments to separate from commercial enterprises
	Academia	

2.2 Data sources: The sources of data were as planned, i.e. self-reporting by aquaculture operators. It should be noted that aquaculture enterprises often operate more than one farm (=APB). Production and Environmental data are collected at APB (farm) level, while Employment and Economic data are collected at Enterprise level. For continuity in reporting, the accompanying Table 2B “frame populations” refers to numbers of enterprises for Economic and Social data, but number of farms for Environmental data.

2.3 Data collection methods: Data collection proceeded largely as planned, with a variety of methods used for the different variables by different organisations across DAs (summarised below). The only deviation (indicated via shading) was that the 3-yearly Sample survey for Social (other) data that was not conducted in Scotland in 2024 for operational reasons was completed in 2025.

Variable category	Summary of variables	Segment	Data collector (& Data collection method)		
			Scotland	**England- Wales**	**Northern Ireland**
Economic (Food supply)	Production volume	All	MSS (Census)	Cefas (Census)	DAERA-NI (Census)
	Production price (£/tonne)	All	MAU (Expert opinion)	Cefas (Expert opinion; Web-search)	DAERA-NI (Census; Expert opinion)
Economic (Employment)	No. of employees	All	MSS (Census)	Cefas (Census)	DAERA-NI (Census)
Economic (Other)	Enterprise, cost, income and capital variables	Salmon, Trout, Mussel	MAU (Sample survey)	Cefas (Sample survey)	Cefas (Sample survey)
Social (employment)	No. of employees by gender	All	MSS (Census)	Cefas (Census)	DAERA-NI (Census)
Social (Other)	Employee age, nationality, education level	Salmon, Trout, Mussel	MAU (Sample survey)	Cefas (Sample survey)	Cefas (Sample survey)
Environmental	Medicinal treatment use	Finfish seawater net-pens	SEPA (Census)		
		Finfish		Cefas (Census)	
	Mortality	Finfish seawater net-pens	SEPA (Census)		

2.4 Sampling frames: For most categories of variable (Economic food supply & employment, Environmental), data collection is by long-standing census surveys encompassing the whole population. Collection of the Economic (other) and Social (other) data differs, being via sample surveys of a proportion of the population. Without a legal requirement to supply data, responses are based on goodwill and Enterprises that choose to respond are self-selecting. These sample surveys have evolved to focus on the three main segments of UK aquaculture - Salmon, Trout and Mussel. All commercial salmon enterprises are included in the sample survey. For the trout and mussel segments, main producers are selected (indicated from census production data); experience shows that these enterprises are more likely to respond and supply the range of data required. All other segments fell below the threshold of 10% of aquaculture production by volume and value and were not included in the sample surveys for Other Economic data.

Species segment	**2023 production volume**		**2023 production value**	
	tonnes	**%**	**GB£**	**%**
Salmon	150,949	81%	£1,138,155,460	91%
Trout	13,754	7%	£66,223,372	5%
Mussel	15,911	9%	£18,633,354	1%
All others	5,379	3%	£28,835,592	2%
Total	**185,993**	**100%**	**£1,251,847,778**	**100%**

2.5 Estimation procedures: Census returns approach 100%; for the few enterprises that do not respond despite follow-up chasing, missing data are estimated based on historical evidence and knowledge of the sites. Production (farm gate) price (£/tonne) is a difficult variable to sample, varying with market demand, seasonality and product quality. A variety of methods are therefore used to estimate representative figures. Total value (£ Sales) is then imputed per species [Production volume (tonnes) x Production price (£/tonne)]. For the Economic sample survey returns, blank cells judged to be missing values (rather than true zeros) are replaced with imputed values, based on data supplied by the same enterprise for neighbouring years, independent census data, or a weighted mean estimate for the segment and year. To generate the Other Economic variables, estimates for the three sampled segments are based on extrapolation of the sample totals, using the proportion of relevant census totals (production value, production volume, employment).

3. Deviations from the Work Plan and actions

Data collection is routine and proceeded as required. The only deviation of note was that the 3-yearly sample survey for Other Social data that was not completed in Scotland in 2024 was delivered in 2025.

There was a minor deviation for the sample surveys for Other Economic data and Other Social data: Achieved sample rates (i.e. the % of enterprises within a segment for which data were received) were lower than planned for Trout (but higher than planned for Salmon and Mussel). Although the sample rate achieved for Trout was lower than planned, the proportion of aquaculture production was higher (see below under Accuracy and reliability), and there is consistency across years in the enterprises supplying data. The sample survey collection of Economic (and Social) data is recognised as an area for DCG sub-group attention.

4. Quality assurance

4.1 Methodology: Aquaculture data collection in 2025 continued with established methods, that have been used to supply data to FAO, Eurostat and JRC/STECF for periods spanning years to decades. UK data collection methods were presented at the DCF Expert Working Group Workshop on Aquaculture Data Collection (Gdynia, 2015) and follow standard practices. The methods and questionnaires used for the production and employment census surveys in Scotland are published (finfish, shellfish) and generate Official Statistics. The method used for Other Economic data survey in Scotland is published and generates Official Statistics in Development.

4.2 Personnel: Aquaculture data collection in 2025 was delivered by organisations and staff familiar with the data and data collection. Since 2021, the sample surveys within Scotland for Other Economic and Social data have been conducted by Scottish Government, rather than Cefas. This was considered appropriate: Scottish enterprises may be more likely to respond, and Scottish Government are familiar with the data as a main user for generation of Marine Economic Statistics.

4.3 Accuracy and reliability: Data self-reported by aquaculture operators are validated based upon coherence with previous years' data and statistics. Data are examined for anomalies at data entry and collation stages using automated and manual checks by experienced operators with knowledge of the industry and statistical requirements. Such quality assurance checks for individual enterprise returns include use of concurrently collected data. For example, for Other Economic data: weight variable data (on livestock input, fish feed, and sales) are used to assess cost/income variable data, and Food Conversion Ratio is calculated as a further check; employee variable data (FTE, hours and personnel costs) are assessed by normalising against data on the number of employees. Anomalous and missing values are queried with the enterprises or farms.

- The annual censuses collect data on production volumes (by species), systems, employment, and enterprises (wrt number of employees). These data are considered accurate and reliable.

- Census data on FTE were only collected for England-Wales. For Scotland and Northern Ireland, employment status (Full-time, Part-time, Casual for Scottish shellfish only) is used to estimate FTEs using annual census data for England-Wales; such estimates are considered good.

- Production (Farm gate) prices (£/tonne) are based on expert estimates from producers and producer organisations. Independent estimates across the devolved administrations show coherence.

- The Other Economic variables were collected by sample survey (salmon all active commercial enterprises; trout & mussel – main producers). The accuracy of resulting statistics depends upon the scaling factors, i.e. the multipliers applied to sample totals to extrapolate population estimates. Scaling factors depend upon the proportion of the whole segment that the respondents represent, rather than achieved sample rates. In 2025, the achieved sample rates were 32%, 6% and 8% for salmon, trout and mussel segments respectively, but the respondents represented higher proportions of production values (i.e. 73%, 66% and 29%). Indicative scaling factors were therefore 1.38, 1.51 and 3.43 respectively, although it should be noted these vary within a segment in relation to the specific variable (i.e. whether scaled by production value, volume or employment). Additionally, the same Enterprises typically respond each year, providing consistency.

4.4 Accessibility and Clarity: Although details of APBs are available on public registers (Scotland; Northern Ireland; England-Wales) it must be recognised that most of the (raw) data collected are confidential. Splitting of collated statistics by species, segments and/or devolved administration can result in confidentiality issues where the associated number of Enterprises is limited, which then prevents dissemination (e.g. halibut production in Scotland).

UK production and employment statistics are collated from the raw data and reported annually to FAO/OECD for publication (FAO Yearbook of Fishery and Aquaculture Statistics | Coordinating Working Party on Fishery Statistics (CWP) | Food and Agriculture Organization of the United Nations; FishStatJ Database). Seafish also publish headline UK figures. Historical UK statistics (up to EU-exit) are also available in EU databases (Eurostat, STECF), and biennial JRC/STECF reports. For Scotland, aquaculture statistics are published (finfish reports, finfish data, shellfish reports, shellfish data, economic reports). For England, Wales and Northern Ireland, statistics can be supplied upon request. Improving accessibility is as development activity (see below).

5. Development activities

At the October 2024 Data Coordination Group (DCG) meeting, the establishment of an aquaculture sub-group (DCG-aqua) was agreed. Representation [MMO, Defra, Seafish, Scot Gov Marine Directorate, SEPA, Cefas, DAERA-NI] was based on the previous task-force that contributed to data-flow mapping. The Terms of Reference for the sub-group

have been finalised, with an initial focus on domestic repatriation of the analysis and dissemination functions previously provided by the EU for the DCF aquaculture activities.

During 2025, a new DCF UK aquaculture statistics report was drafted aiming to replicate the previous STECF report format for consistency and comparability. It covers DCF Economic variables (production, employment, other economic) for the period 2012-2023, with aggregations at DA level, in addition to UK statistics. This new publication needs to be badged as Official Statistics in Development and is currently (April 2026) under review by the MMO's Head of Statistics and Analysis. It is anticipated that the report will be published with annual updates, and expand to additionally report Environmental and Social data.

It is also worth reporting that Cefas have examined the potential for collecting UK seaweed data (aquaculture and wild harvest), within a Defra funded project MF100C - Mapping and Monitoring Seafood Systems. Seaweed is a current gap in UK data collection that was discussed in 2024 as a test case to develop the process and documentation for DCF reformation. The project has been presented to the DCG Aquaculture sub-group.

Section 2C: Population Segments for Collection of Economic and Social Data for the Processing Industry

Ref Table 2C

International and domestic commitments

This fulfils footnote 6 of paragraph 1.1(d) of Chapter III of the multiannual programme.

Economic data on the UK seafood processing sector is collected by Seafish Economics on behalf of the UK government and devolved administrations. This data is used to: produce analysis and evidence in the form of Seafish's suite of economic reports; support Seafish economists and economists in Fisheries Departments in the provision of expert advice to decision makers from industry and government and to feed into government analysis and evidence to support policy decisions. The data is publicly available through the online Processing Enquiry Tool published by Seafish.

Key end users

UK Fisheries Administrations

Data Collection

Methodologies used to choose the different sources of data

The definition of processing enterprise is as set out in the retained DCF legislation. There exist a number of data sources that include relevant data on UK seafood processing companies including the Food Standard Agency database. The definitions of what constitutes a processing enterprise contained in these sources differs from that of the retained DCF,. However, these databases provide a starting point for a biennial census of all UK processing sites; this allows the UK seafood processing industry to be defined as per the requirements of the DCF.

The census provides a list of processing sites that derive more than 50% of turnover from processing activities. This list is used to create the list of companies who are contacted annually requesting financial data through a questionnaire or in the submission of financial accounts. These Accounts are seen as the most reliable data source for estimating the performance of the sector. Further financial data is extracted from public records available on Companies House.

Data on number of persons employed, FTE National and number of enterprises is also collected during the biennial census. This is due to the fact that this data is not consistently available in annual accounts and to carry out further data collection on an annual basis would not be cost effective.

Methodologies used to choose the different types of data collection

Due to the large number of potential processing sites identified, face to face interviews would be prohibitively expensive and time consuming. A telephone census is used to gather data on the types of activities taking place at different sites and total number of employees. On occasion, face to face interviews are carried out with the largest sites to confirm the accuracy of the data and to gather further data on what is driving trends.

Participation in the survey is entirely voluntary in the UK. In the event that we are able to contact a company but they will not provide data we will use previous survey data (if available) combined with our own expertise to create estimates. If we cannot contact a company which is reported to be trading but for which we have no previous survey response, we would estimate the FTEs for the reference year based on a combination of Seafish expertise and other available sources such as published accounts or data from a relevant trade association.

Financial data is collected via questionnaire or hard copies of accounts. For larger enterprises these accounts are publicly available guaranteeing a robust sample size.

Methodologies used to choose sampling frame and allocation scheme

For the census survey the Seafish processing database (containing data from all previous surveys) is used as a starting point. Before starting the census, this list is cross referenced with the Food Standards Agency database and Companies House register and is sense checked by Seafish colleagues.Further to this contact is made with all sites listed as processors in the Food Standards Agency database and any new sites identified by the experts in the Seafish economics team or Seafish regional teams.

The financial survey is a non-probability sample survey. Involvement in the survey is voluntary. As such it involves a degree of self-selection and is not a true random sample of the sector. A high percentage of the largest processing companies in terms of turnover are included in the sample due to the availability of data from published financial accounts.

Methodologies used for estimation procedures

The data collection phase of the project leads to the creation of a sample of completed financial survey questionnaires and published accounts. Where both survey and published accounts data are available for particular variables, the survey data supersede officially published figures. The merging of survey and published accounts is also supplemented by extensive checks to ensure compatibility in terms of variable definitions.

Once the financial datasets are merged, each of the individuals is estimated individuallestimates are createdy at the company level, for all companies in the population (aside from those in the sample), applying sample averages on a per-FTE basis, where company FTEs are calculated as the sum of the relevant site(s) FTEs, using site ownership data (for the relevant year).

Data quality

The quality of estimates after application of data estimation procedures recorded and applied in STATA statistical software are then evaluated by set of quality checks.

For the data collected bias will be assessed by calculation of coverage rate, response rate and variability in terms of CV.

Further information can be found in the Seafood Processing Methodology Report. This is a short report which describes the methods used to collect and produce seafood processing industry performance data (3rd Edition). Seafood Processing Methodology Report — Seafish

Summary of outcomes and deviations from the workplan

1. Deviations from Work Plan methodology for selection of data source

List the deviations (if any) from the methodology used to select data source compared to what was planned in the Work Plan and explain the reasons for the deviations.

No deviations.

Actions to avoid deviations

Briefly describe the actions that will be considered / have been taken to avoid the deviations in the future and when these actions are expected to produce effect. If there are no deviations, then this section can be skipped.

No actions needed.

2. Deviations from Work Plan methodology to choose type of data collection

List the deviations (if any) from the methodologies to choose type of data collection scheme compared to what was planned in the Work Plan and explain the reasons for the deviations.

No deviations.

Actions to avoid deviations

Briefly describe the actions that will be considered / have been taken to avoid the deviations in the future and when these actions are expected to produce effect. If there are no deviations, then this section can be skipped.

No deviations.

3. Deviations from Work Plan methodology regarding sampling frame and allocation scheme

List the deviations (if any) from the methodologies used regarding sampling frame and allocation scheme compared to what was planned in the Work Plan and explain the reasons for the deviations.

No deviations.

Actions to avoid deviations

Briefly describe the actions that will be considered / have been taken to avoid the deviations in the future and when these actions are expected to produce effect. If there are no deviations, then this section can be skipped.

No actions needed.

4. Deviations from Work Plan methodology used for estimation procedures

List the deviations (if any) from the methodologies used for estimation procedures compared to what was planned in the Work Plan, and explain the reasons for the deviations.

The estimation procedures are in line with the plan.

Actions to avoid deviations

Briefly describe the actions that will be considered / have been taken to avoid the deviations in the future and when these actions are expected to produce effect. If there are no deviations, then this section can be skipped.

No actions needed.

5. Quality assurance

5.1 Sound methodology

Briefly describe if the data collection follow methodologies, guidelines and best practices agreed in expert groups and whether methodologies are documented and are made publicly available.

The data collection methodology is reported through the Seafood Processing Methodology Report (6th edition).

5.2. Accuracy and reliability

For additional information, briefly describe how raw data inputs, intermediate results and outputs are regularly assessed and validated and how errors are identified, documented and dealt with.

The data are checked on a several levels:

6. L
7.
8.

All procedures are documented in the supporting methodological documentation. Errors are recorded.

5.3. Accessibility and Clarity

- Are methodological documents publicly available? (Y)
- Are data stored in databases? (Y)
- Where can methodological and other documentation be found?
    - *Provide the web link, if documentation is publicly available*

Seafood Processing Methodology Report (6th edition)

Section 3: Fishing Activity Data

Fishing Activity Variables Data Collection Strategy

Ref Table 3A

International and domestic commitments

This fulfills paragraph 4 of Chapter III of the multiannual programme

Fishing activity or Transversal Data consists of information on the activity of the UK fishing fleet and that of non-UK vessels operating in UK waters or landing into UK ports. The scope of the data is as recorded, reported and transmitted under the Control Regulation, Regulation No. (EC) No 1224/2009 as (as amended in retained EU law). This includes landings, fishing effort, vessel monitoring and fleet capacity information collected and processed by officials of the various Fisheries Administrations in the UK, namely the Marine Management Organisation, Marine Directorate, DAERA, the Welsh Government and Fisheries Departments in Jersey, Guernsey and the Isle of Man.

Key end users

Transversal data contributes to a number of elements of the UK's data collection plan including assessing the impacts of fisheries on the marine ecosystem, determining fishing mortality for stock assessment purposes and providing variables required for raising biological samples from fishing vessels to the fleet level. Additionally the data contributes to economic assessments of the performance of the UK fishing fleet.

Data collection legislation requires data to be made available in the form of primary data to the national institutions implementing the work plans. Within the UK, data users include biologists in CEFAS, AFBI, the Welsh Government and the Marine Directorate; economists in the Seafish Industry Authority (Seafish) and UK Fisheries Departments and analysts in other Government agencies including the Marine Management Organisation and the JNCC.

Data are supplied to international organisations for stock assessment and management purposes, most importantly the International Council for the Exploration of the Sea, ICES and to other Regional Fisheries Management Organisations (RFMOs) including NEAFC, NAFO, IOTC, HELCOM, OSPAR and ICCAT. The information is also widely used to support the development of new and revision of existing fisheries policies within the UK. The data are also made available within the public domain for the use of those with an interest in identifying and assessing the types and levels of fishing activity.

Data Collection

Fishing Effort

For over 10m vessels the three key official documents (logbooks, landings declarations and sales notes) are the key source for transversal variables. For effort variables, the logbook is the principal source of data. Administration systems have been developed such that for any particular fishing gear reported on the logbook there are several associated effort elements that should be reported by fishermen on their logbook, and then captured in the data entry process. These additional effort variables, when combined with system variables automatically generated when the data is entered (e.g. days of fishing activity) and when the activity of vessels are linked to the vessel capacity data, allow the required variables to be derived. For example, for towed gears such as demersal trawls, details of the number of hauls and length of time for the haul are collected. For beam trawl gear additional information is collected on the length of the beam used. For towed lines details of the numbers of lines, hauled, and numbers of hooks per line are collected.

For the 10 metre and under fleet during 2005 the UK introduced a system requiring the registration of buyers and sellers of fish at the point of first sale, and an associated requirement for all such sales to have sales notes reported and provided to fisheries authorities within 48 hours of the sale.

Data from sales notes are captured as part of the UK integrated data systems that have been put in place, with data collected for sales related to all UK vessels, be they under or over 10 metres in length. When the sales note related to activity by 10 metre and under vessels are entered onto data capture systems, estimates of the associated fishing effort are entered at the same time. The use of the data reported on sales notes replaced the historic system of using the knowledge of local data collectors on the activity of the local small fleets and their usual patterns of effort, and of evidence of the observed fish landings seen at local fish markets. The requirement in the UK is for sales notes for all such landings by these smaller vessels to be reported to fisheries authorities, and as such the results are regarded as providing a complete and exhaustive source of information.

In addition to sales notes as mentioned above, many 10m and under vessels also provide voluntarily logbooks and landings declarations covering their activity. For example, those that operate as members of Producer Organisations were generally required to complete such documentation as part of their being able to fish against the allocations of quota given to such groups in the UK. Additionally, those involved in shellfish fishing activity were also required to report their activity in the form of monthly diaries of activity and landings. This information is all received at local port offices around the coast for entry onto computer systems. These local offices carry out local enforcement functions such as licensing, vessel and market inspections etc. As such they have a detailed knowledge of the vessels that operate in their local area.

Landings

Data on landings by 10m and over vessels are derived from the combination of the logbook, landing declarations and sales notes. These provide the key details on the species, presentation, weight and value of fish being landed that is entered onto computer

systems at local port offices or via electronic transmission.

Landed weights are used as the data are entered, with live-weights calculated as the products of the landed weight and the appropriate conversion factors for that species and presentation of fish involved. The total landed weight of each species is taken from the landing declaration. Harmonised conversion factors for certain key species and presentations as set out in Commission Regulation 409/2009 are used where they exist or otherwise national conversion factors are applied.

Sales notes information give the details of the breakdown of the landed weight of each species in term of each presentation (and grade) sold. This proportionate breakdown is then applied to the total weight for each species so that the total live weight equivalent of the total landed weight is then allocated across the presentation types seen for the landing.

For vessels of 10m and under overall length, the source of data on landings is as detailed in the section on fishing effort above. A similar process is used as for over 10 vessels, with the exception that in most cases the landed weight of fish is derived from the quantities of landed weight of fish reported in sales notes rather than landings declarations. The same conversion factors as used for over 10m vessels are then applied to the details of species, landed weight and presentation from sales notes to give live weight equivalents of the landed weight.

Average prices for each species are calculated on the basis of live-weight quantities. This effectively weights the overall price thus calculated to the most prevalent presentation used for landings each species for both over 10m vessels and 10m and under vessels.

Fleet Capacity

In the UK, the Marine and Coastguard Agency's Registry of Shipping and Seamen (RSS) and the corresponding registries in the Channel Islands and Isle of Man collect and maintain information on registered fishing vessels including their gross tonnage and their maximum continuous engine power (MCEP) as defined in EU Council Regulation 2930/86, as amended by Council Regulation 3259/94. These data are made directly available to Fisheries Departments by electronic transfer.

The bulk of the UK fishing fleet are registered and operate from the UK mainland and are thus registered by the UK who operate the UK Register of Shipping and Seamen (RSS). More information on their procedures can be found on-line at: UK Ship Register

Data quality assurance procedures are built into the registration process. For example, every UK fishing vessel must be surveyed before it can be registered. The general principle followed is for this to be carried out by specially employed surveyors from the RSS, but in certain circumstances an external surveyor may be allowed. This survey process includes the validation of the physical measurements and capacity of the vessel both in tonnage and engine power terms.

Fleet management measures in the UK are carried out primarily through the licensing regime administered by Fisheries Administrations. This seeks to control both the overall capacity of the UK fishing fleet and, critically, access to the various fishing opportunities available to UK vessels. The quota and effort uptake by industry groups is monitored on a regular basis through the use of internal management reports in the UK.

Vessel Monitoring Data

Vessel Monitoring System (VMS)

The Vessel Monitoring System (VMS) is a system of satellite tracking using transmitters on board fishing vessels and records the location, speed and heading of a vessel. The system is a legal requirement under EC Regulation No. 2244/2003 (as amended in retained EU law) and Scottish Statutory Instrument (SI) 392/2004. VMS has been used as a monitoring system for UK vessels of 12 metres and over since 2013. Information must be transmitted once every two hours. There are reciprocal agreements with EU countries and third countries such as Norway and Faroes as well as Regional Fisheries Management Organisations (RFMOs) such as NEAFC, where the requirement to position-report is once every hour. The satellite tracking device installed on UK vessels is configured to automatically change the reporting frequency when a vessel enters and exits these areas.

The UK and EU member states have established 'Fisheries Monitoring Centres' (FMCs) to monitor the activities of their flag fishing vessels wherever they may be and fishing vessels within their waters. In the UK, FMC responsibilities are discharged collectively by Marine Directorate, the Marine Management Organisation (MMO - England), the Welsh Government (WG – Wales), and the Department of Agriculture, Environment and Rural Affairs (DAERA - Northern Ireland).

GEOFish

There is an important spatial dimension to fishing, driving the need for reliable data on fishing activity and landings at a fine spatial resolution. Such data is a key part of the evidence needs for UK fisheries and marine policy-making as well as to meet international reporting requirements.

Data that flows directly from fisheries management systems, including logbooks, sales notes and landing declarations, does not provide activity and landings data at a sufficiently fine spatial resolution. However, high-resolution spatial data can be produced by linking VMS satellite tracking data with logbook activity and landings data at a vessel and trip level.

Cefas has been using a recognised method for linking these data that has been applied to the UK over 12m fleet. This is managed and stored in a database known as Geofish. Work is still in progress including on quality assurance of the data, providing access to users and meeting the needs for accessible documentation on the underlying methods. When complete Geofish should represent a single, definitive data source for spatial landings

data.

Welsh Government has also been working with Cefas to improve the understanding of fishing activity from the under 12-metre fleet operating within Welsh waters, as well as Welsh registered under 12 metre vessels wherever they are fishing. The work applies a similar methodology to that used for linking over 12 metre vessel location and catch data, adapted for the under 12 metre fleet. Work remains ongoing, including quality assurance of the underlying data and methods, and forms part of wider efforts to improve the quality, consistency and spatial resolution of fisheries evidence available to support marine planning, fisheries management and environmental assessments in Welsh waters.

Developments in data collection

Under 10m Catch Recording

The Catch Recording service was first introduced in February 2020, as a way for skippers of under-10m vessels registered in England, Wales and Isle of Man to record their catch. In January 2024, Catch Recording data was introduced as the primary source of landing data for under-10m vessels. Prior to 2024, these data were reported using data collected from sales notes.

However, due to unforeseen technical difficulties with the catch recording app, some catch records were not being received by MMO databases. Therefore, catch recording data for English, Welsh and Isle of Man under 10m non-sector vessels underestimates activity for this sector. Further details can be found in catch recording statistical quality assessment published on 9 October 2025 that found that, due to technical issues, this data is not suitable for Official Statistics reporting.

Following the review into the statistical quality of catch recording data, in December 2025 a decision was taken to revert the primary source of landings data back to sales notes. Further detail on fishing activity such as fishing area and gear type have been added by matching to catch records where available.

Further details on the development of under 10m Catch Recording will be published in due course.

Inshore VMS (I-VMS)

On 12 May 2025, a new licence condition came into force requiring that English licensed under-12m vessels must now have installed a functioning type-approved I-VMS device that transmits data during a trip to sea. I-VMS devices capture and transmit positional data (latitude, longitude, speed, and course) and report device ID, date, time and changes in events such as battery status and data stored.

Scotland is also developing their inshore fleet electronic monitoring through a 203 modernisation programme with three priority areas. These priority areas are to be

developed over time. Current coverage of the inshore fleet with electronic monitoring is limited to pilot study subsets led by University of St Andrews.

Priorities:

- Scallop dredge fleet – SIFIDS (Scottish Inshore Fisheries Integrated System).
- Under-12 metre static gear fleet – OHIFP (Outer Hebrides Inshore Fisheries Project).
- Under-12 metre trawl fleet – to be developed.

A pilot study was conducted within the Northern Irish inshore fleet to explore a potential vessel activity monitoring and electronic catch reporting system. In March 2022, DAERA consulted on proposals for all fishing vessels under 12 metres to have an inshore VMS and a working group has been formed to plan the roll out.

Since 2012 it has been a requirement for all vessels operating in the Welsh scallop fishery to use VMS reporting at 10-minute intervals. In February 2022, Welsh Government introduced I-VMS requirements for all licensed under-12 metre fishing vessels operating in the Welsh zone, and all under-12m Welsh-registered vessels regardless of where they are fishing. Vessels are required to use I-VMS to report every 10 minutes.

In August 2025, one provider of UK I-VMS data, Succorfish, halted transmission of I-VMS data to the UK VMS Hub. This prevented the UK VMS Hub, at the MMO, from receiving positional data from under-12m vessels using Succorfish type-approved I-VMS devices. More infromation on this can be found here: https://www.gov.uk/government/news/i-vms-urgent-update.

The MMO remains fully committed to the I-VMS programme and has worked closely with suppliers on both the roll-out and ongoing support of this service.

Remote Electronic Monitoring (REM)

Remote Electronic Monitoring (REM) is a data collection tool that can be installed on vessels to collect information on fishing activities and catches. A REM system typically consists of sensors and cameras collecting various data that can then be interpreted to generate information on when and where a vessel is fishing and what it is catching.

In 2022, Marine Directorate consulted on the general policy principles of using REM in Scotland. In June 2024, legislation was passed mandating the use of REM technology on scallop vessels (from 17 June 2024) and on pelagic fishing vessels (from 7 March 2026). The legislation applies to all relevant vessels operating in Scottish waters, and for Scottish vessels regardless of where they are fishing.

In 2023, Defra consulted on proposals for expanding the use of remote electronic monitoring in English waters over 5 years, from 2023 to 2028. Since 2024, Cefas and the Marine Management Organisation have been working with early adopters of REM to

understand the capability and challenges associated with the technology, ahead of planned introduction of mandatory requirements.

The introduction of REM in Wales is being guided by the programme of Fisheries Management Plans (FMPs). As FMPs are developed, the use of technologies, to further safeguard stocks and the environment to ensure sustainability, is being explored. For example, as part of the implementation of the King scallop FMP, the Wales King Scallop Advisory Group is considering if REM should form part of a new framework of management measures for the king scallop fishery in the Welsh zone.

Data processing, storage and quality control

The UK maintains the following databases containing primary data meeting both management and control and wider analytical requirements:

- An integrated UK database exists (known as IFISH) where primary data related to individual trips by UK registered vessels and foreign vessels landing in the UK (species landed weight by presentation, dates, fishing locations, landing port, gear type, mesh size, fishing effort etc.) is stored. This system came into operational use by fisheries administrations in the UK in 2006. It brings together data from the three key administrative data sources - the official logbooks, landings declaration and sales notes - into a centralised data repository. Individual databases also continue to be maintained in England & Wales, Northern Ireland and Scotland, as the data entry for this information is primarily carried out at local port offices around the coast of the UK – this allows for their local knowledge to play a part in the validation of data reported by fishermen.
- The UK fishing vessel register, which maintains a complete and regularly updated list of vessels and associated attributes and is used for providing capacity data.
- The UK Vessel Monitoring System (VMS), which records satellite tracking information for vessels required to provide such data.
- UK nations also maintain Monitoring Control and Surveillance Systems, which record inspections and other activites undertaken through the regulation of the inshore and offshore fisheries sectors.

These systems sit within an overall system which carries out a number of cross checks of information between the various sources, including checks between activity data as reported in logbooks and that derived from satellite surveillance systems and other vessel monitoring inspection systems. This cross-check system highlights to administrations various apparent errors in reported data, with actions taken as necessary to resolve the errors.

The measures for control on the reporting of data on fishing activity provided by EU legislation are enforced through the activity carried out by officials within each of the UK fisheries administrations to ensure compliance with these reporting requirements. Where issues are identified with the data, either with the data being reported by individual fishing vessel owners/operators or individual merchants, or where the control regime itself is

thought to have weaknesses, additional activities may be carried out to strengthen or supplement the existing reporting systems. In such cases, care is taken to ensure that there is no excessive or inappropriate additional reporting burden placed on those involved in the fishing industry.

Together these activities help to ensure that the data are considered fit for purpose - in terms of coverage and accuracy - as the key source of information with which officials and the industry can manage fishing activity. This includes activities such as the monitoring and management of the uptake of landings against the level of available fish quotas, and also the monitoring of activity by individual fishing vessels to ensure they comply with the limits on fishing effort as set out by various effort control regimes.

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