Institut Català de Recerca per a la Governança del Mar

Oceanographic survey MEDITS-AUT25 Report

GSA 6

R/V Vizconde de Eza

November-December 2025

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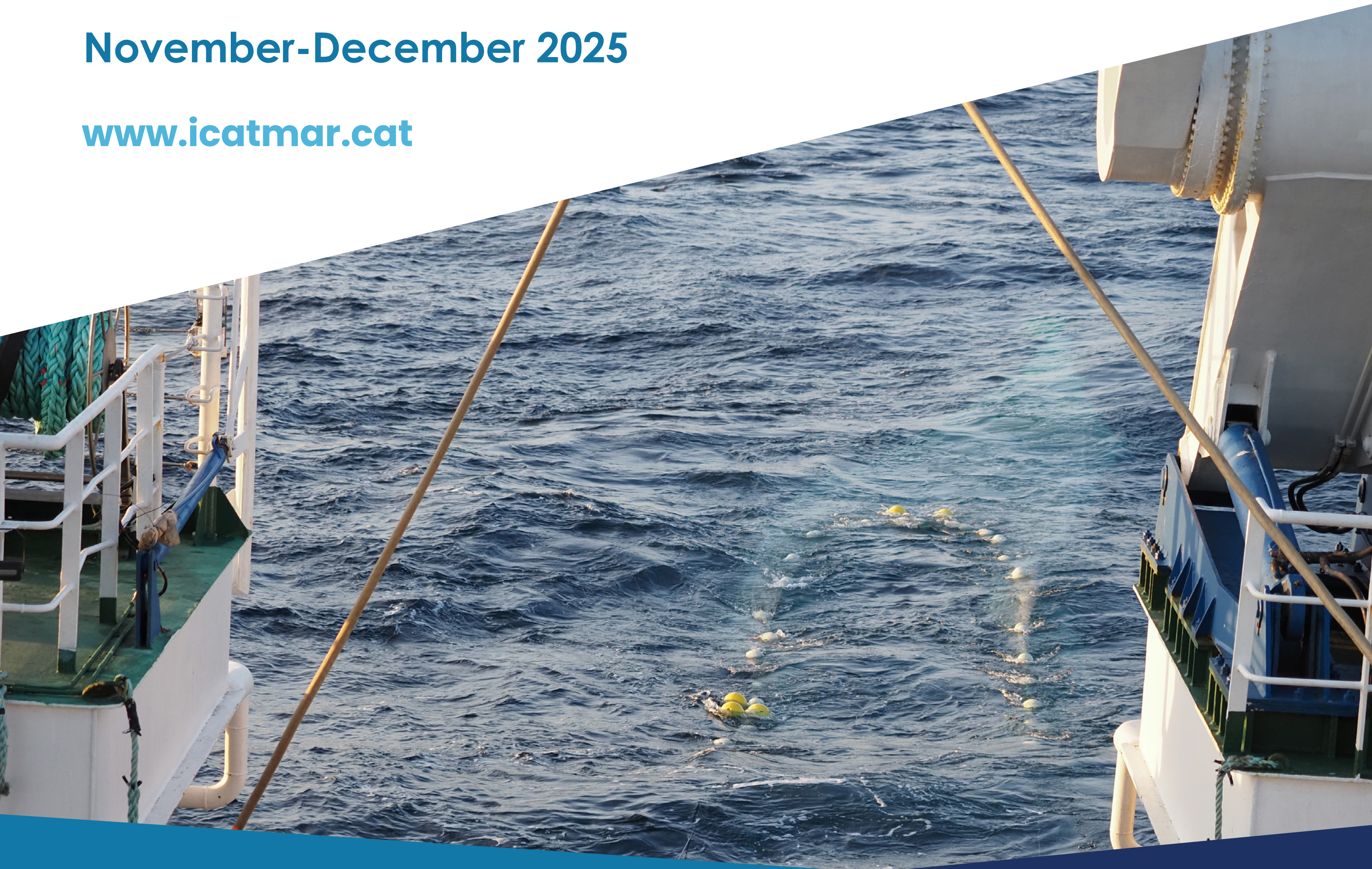

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This report presents the key data obtained during the MEDITS-AUT oceanographic survey conducted in autumn 2025 in GSA6, onboard the oceanographic vessel Vizconde de Eza. Section 1 outlines the main rationale for replicating the MEDITS survey during the autumn season. Section 2 describes the survey design and planning, while Section 3 details the information system developed to record and manage the survey data. Section 4 summarize the main information from the hauls conducted and Section 5 the main biological data obtained. Section 6 examines the physical characteristics of the water masses. Sections 7 and 8 present biological indices and length-frequency data for both target and other relevant species. Section 9 describes particularities in length frequency distributions observed during the autumn survey in relation to the life cycle of the species. Section 10 highlights the issues identified and outlines future needs and recommendations, and finally, Section 11 presents the communication activities undertaken to support the dissemination of the survey.

Scientific team: Marta Blanco (Coord.), Marc Balcells, Ferran Bustos, Marta Carreton, Clara Casals-Baixas, Joan B. Company, Pablo Couve, Eve Galimany, Juan García Marina, Mariona Garriga-Panisello, Mireia G. Mingote, Antoni Lombarte, Cristina López-Pérez, Adrià Martí Comas, Begoña Martínez-López, Joan Mir-Arguimbau, Xavier Pitarch-Claramunt, Patricia Poch, Aram Puig-Capdevila, Xènia Puigcerver-Segarra, Marta Pujol-Baucells, Laura Recasens, Jordi Ribera-Altimir, Alberto J. Rico, Alba Rojas, Alexis Rossell, Joan Sala, Ricardo Santos-Bethencourt, Mireia Silvestre, Laia Viure.

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Executive summary

The MEDITS-AUT25 oceanographic survey was conducted in the Spanish Mediterranean Sea with the objective of complementing the long-term MEDITS spring time series by providing standardized information on demersal resources during the autumn season. This survey, carried out for the first time in autumn under the MEDITS framework in Spanish waters, followed the official MEDITS protocol and aimed to improve the understanding of demersal populations, ecosystem structure, and key biological processes relevant to fisheries management in GSA6.

The survey covered the entire GSA6, which was divided into newly defined northern and southern zones with equal surface area to ensure balanced spatial representativeness across depth strata from 10 to 800 m. Although the original sampling design planned 125 hauls, operational constraints related to reduced daylight hours and adverse weather conditions typical of late autumn limited the effective survey effort. The survey was conducted in two phases between 17 November and 10 December, starting in Palamós, with a planned port call in Castellón de la Plana, and concluding in Alicante. A total of 83 hauls were performed, of which 79 were considered valid according to MEDITS protocols. These valid hauls accounted for 51.98 hours of effective trawling and a total sampled area of 5.35 km², distributed between the northern (2.62 km²) and southern (2.73 km²) sectors of GSA6.

Comprehensive biological data were collected following standardized MEDITS procedures, including species composition, abundance and biomass indices, length–frequency distributions, biological parameters for target species, age-determination material, and marine litter. In total, clear depth and area-dependent patterns were observed. Mean biomass was highest in the 50–100 m depth stratum in both zones, while species richness peaked in the shallowest strata (20–50 m). Dominant species varied across depth strata and between zones, reflecting marked spatial heterogeneity in demersal communities. Several species, including *Micromesistius poutassou*, *Alloteuthis spp.* and *Octopus vulgaris*, showed higher biomass and abundance in the southern sector, whereas *Eledone cirrhosa* and *Nephrops norvegicus* were more characteristic of the northern sector.

Hydrographic data collected using a bottom-mounted CTD sensor revealed a well-defined autumn stratification, with the presence of Atlantic Water in shallow strata, Modified Atlantic Water at mid depths, and Levantine Intermediate Water below approximately 200 m. Near-bottom temperature decreased and salinity increased consistently with depth across both zones, providing an environmental framework to interpret observed biological patterns.

Comparisons between MEDITS-AUT25 results and historical MEDITS spring indices highlighted important seasonal differences. For several target species (*Merluccius merluccius*, *Mullus barbatus*, *Parapenaeus longirostris*), higher biomass indices were observed in autumn without corresponding increases in abundance, suggesting larger individual sizes. Other species (*Aristeus antennatus*, *Loligo vulgaris*) showed increases in both biomass and abundance, whereas *Nephrops norvegicus* displayed lower autumn indices, consistent with its known seasonal behavior and catchability. Length–frequency analyses further emphasized the value of the autumn survey by capturing recruitment processes that are poorly represented in spring, particularly for species reproducing in spring–summer and recruiting in autumn.

Overall, the MEDITS-AUT25 survey demonstrates the strong added value of conducting standardized MEDITS surveys in autumn. The results provide complementary information on seasonal population dynamics, recruitment, and spatial distribution that cannot be derived from spring surveys alone. Incorporating an autumn MEDITS survey would substantially enhance the scientific basis for ecosystem-based fisheries management and improve the assessment of demersal stocks in the north-western Mediterranean.

SECTION 1
Introduction

Introduction

The MEDITS programme has been conducted since 2002 in accordance with the European framework for the collection and management of fisheries data. In the Spanish Mediterranean Sea. Bottom trawl oceanographic surveys have been carried out by the IEO since 1992 during the spring season to assess demersal stocks. In 2025, ICATMAR conducted the MEDITS-AUT25 survey, a bottom trawl oceanographic survey designed to assess demersal stocks, which was conducted for the first time during autumn in Spanish Mediterranean waters. This survey follows the MEDITS protocol (MEDITS Handbook, 2017), and was conducted onboard the oceanographic vessel Vizconde de Eza (see vessel characteristics at: https://www.mapa.gob.es/es/pesca/temas/proteccion-recursos-pesqueros/buques-secretaria-general/investigacion-pesquera-oceanografica/vizconde-de-eza). MEDITS-AUT survey aims to complement the information obtained from the spring MEDITS surveys, thereby improving the availability of scientific data for the assessment and management of demersal species.

The general objective of this survey was to estimate the abundance and population structure of demersal communities subjected to bottom trawl fisheries in the GSA6 area. The specific objectives were: (a) to assess abundance and biomass indices for demersal species; (b) to describe the geographical and bathymetric distribution of demersal species; (c) to determine their demographic structure; (d) to collect data and biological samples from the target species of the MEDITS programme; (e) to improve the characterization (biodiversity, composition, and structure) of demersal communities exploited by bottom trawl fisheries; and (f) to obtain physical characteristics of the water mass (temperature and salinity). All data collected are essential for stock assessment, the derivation of ecosystem indicators, and the establishment of long-term monitoring series to detect environmental changes.

GSA6 is one of the Geographical Sub-Areas of the Mediterranean Sea used for fisheries management. This extended sub-area is divided into two geographical zones (north and south), defined according to the total area of each depth strata within each zone. The spatial allocation of hauls was designed to be as homogeneous as possible to ensure that all strata and zones within GSA6 are adequately represented in the survey data. This is particularly important in a large and heterogeneous area characterized by complex oceanographic conditions, diverse seabed morphology, and spatial variability in fishing practices and target grounds. This variability is also reflected on species distribution and length frequency of important target species between zones. A balanced distribution of hauls across zones helps reduce potential bias in the results and obtain accurate abundance and biomass indices for the whole area.

The Mediterranean Sea is a temperate basin where strong seasonal patterns are observed in key biological processes such as spawning and recruitment. For the effective management of demersal species, it is essential to ensure representative sampling of these biological processes, as they are directly linked to the demographic structure of populations. In this context, conducting surveys at different times of the year is highly relevant, as it allows this variability to be captured and improves the quality of data used for management purposes. This is particularly important in a management framework where landings of some species are increasingly regulated by TACs, such as blue and red shrimp, and where such regulations result in reported landings that no longer reflect the biomass of the resources in the sea, making them unsuitable as a proxy for stock biomass. In this sense, scientific survey data are essential to understand fluctuations in marine populations. In a multi-species fishery such as Mediterranean bottom trawl fisheries, where more than 150 species are commercialized (ICATMAR, 2025), it is especially important that scientific surveys capture the maximum possible variability across species. Therefore, incorporating a second MEDITS survey in autumn would be extremely valuable to support more robust, science-based management.

SECTION 2
Planning of the oceanographic survey

Planning of the oceanographic survey

The main objective for the planning of the MEDITS-AUT25 survey was to carry out homogeneous sampling along the GSA6 following the standard MEDITS protocol (MEDITS handbook 2017). Based on this, sampling was planned according to the strata defined in the protocol between 10 and 800 m depth and the standardized haul features.

The target number of hauls for the survey ensuring good representativeness of the communities to be sampled and comparability with spring survey was 125. The distribution of the hauls was planned to be homogeneous so that all strata and zones of the GSA6 would be equally represented by the survey data.

Based on the latest Emodnet bathymetry product (2022), areas for each strata and zone (north and south) reported in the official MEDITS protocol were calculated. The results showed that the areas used in the GSA6 MEDITS spring protocol were not equivalent among zones which could lead to differences in representativeness among north and south areas if haul location is placed according to them. In order to ensure good representativeness for haul location, GSA6 was divided into two new north and south zones ensuring their surface equality (Figure 1, Table 1).

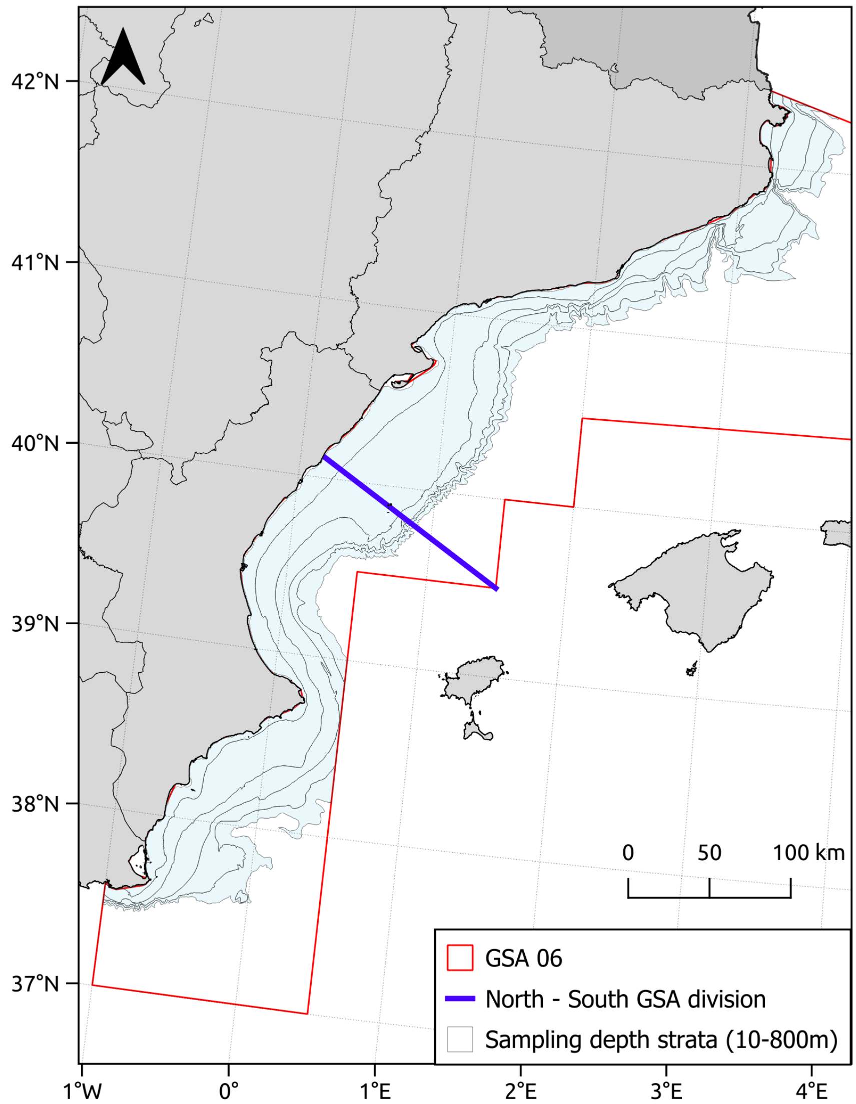

Figure 1. Study zone divided by newly calculated north and south areas and by depth strata.

To locate the 125 fishing hauls, the aim was to achieve a homogeneous density between the northern and southern zones and between depth strata. Thus, the ideal fishing density would be:

Table 1. Calculated areas for each depth strata divided into north and south zones for MEDITS-AUT25 survey.

AREA (km^2)

	10-50m	50-100m	100-200m	200-500m	500-800m	Total
GSA 6-N	2307	6254	3405	2794	2177	16937
GSA 6-S	2685	5542	3664	2428	2562	16881
Total	4992	11796	7069	5222	4739	33818

Once the ideal haul distribution was calculated, hauls had to be precisely located in space. The location of sampling hauls was planned considering the following criteria by order of importance:

1. Avoidance of fishing closure areas.
2. Homogeneous haul density. In order to obtain the mean haul density (3.7 hauls / 1000 km^2), a random grid of 271 km^2 was drawn along the GSA6 where a single haul should be placed in each cell.
3. If possible, the location of the hauls should overlap with a sampling already done in the MEDITS survey in spring.
4. Haul viability. Using spatial layers on geomorphology of the sea floor and commercial trawling footprint, hauls were finally located to ensure their viability, i.e. trying to avoid rocky areas or areas without knowledge of seafloor characteristics to ensure a correct performance of the fishing operations.

Considering the criteria mentioned above the final hauls were located along the GSA6, depth strata and zone with a final distribution reported in Table 2 and Figure 2. As a consequence of survey days constraints, we estimated that the number of feasible hauls for the 2025 survey was around 82. Based on the final 125 haul planification, and only for the 2025 survey, a haul prioritization was done by classifying the potential hauls as priority or non-priority (Table 2). Therefore, for the 2025 survey, the objective was to perform the prioritized hauls.

Table 2. Haul planification by depth strata and zone. For each depth strata and zone, hauls were prioritized considering time constraints of the 2025 survey. Haul density by depth strata and zone were calculated according to the surfaces calculated and reported in Table 1.

NUMBER OF HAULS

	10-50m		50-100m		100-200m		200-500m		500-800m		Total	
	Total	Priority	Total	Priority	Total	Priority	Total	Priority	Total	Priority	Total	Priority
GSA 6-N	9	5	23	14	12	8	11	7	9	8	64	42
GSA 6-S	7	5	13	21	14	8	10	7	9	7	61	40
Total	16	10	27	44	26	16	21	14	18	15	125	82

HAUL DENSITY (nº hauls / 1000 km^2)

	10-50m		50-100m		100-200m		200-500m		500-800m		Total	
	Total	Priority	Total	Priority	Total	Priority	Total	Priority	Total	Priority	Total	Priority
GSA 6-N	3.9	2.2	3.7	2.2	3.5	2.3	3.9	2.5	4.1	3.7	3.8	2.5
GSA 6-S	2.6	1.9	3.8	2.3	3.8	2.2	4.1	2.9	3.5	2.7	3.6	2.4
Total	3.2	2	3.7	2.3	3.7	2.3	4	1.4	3.8	1.5	3.7	2.4

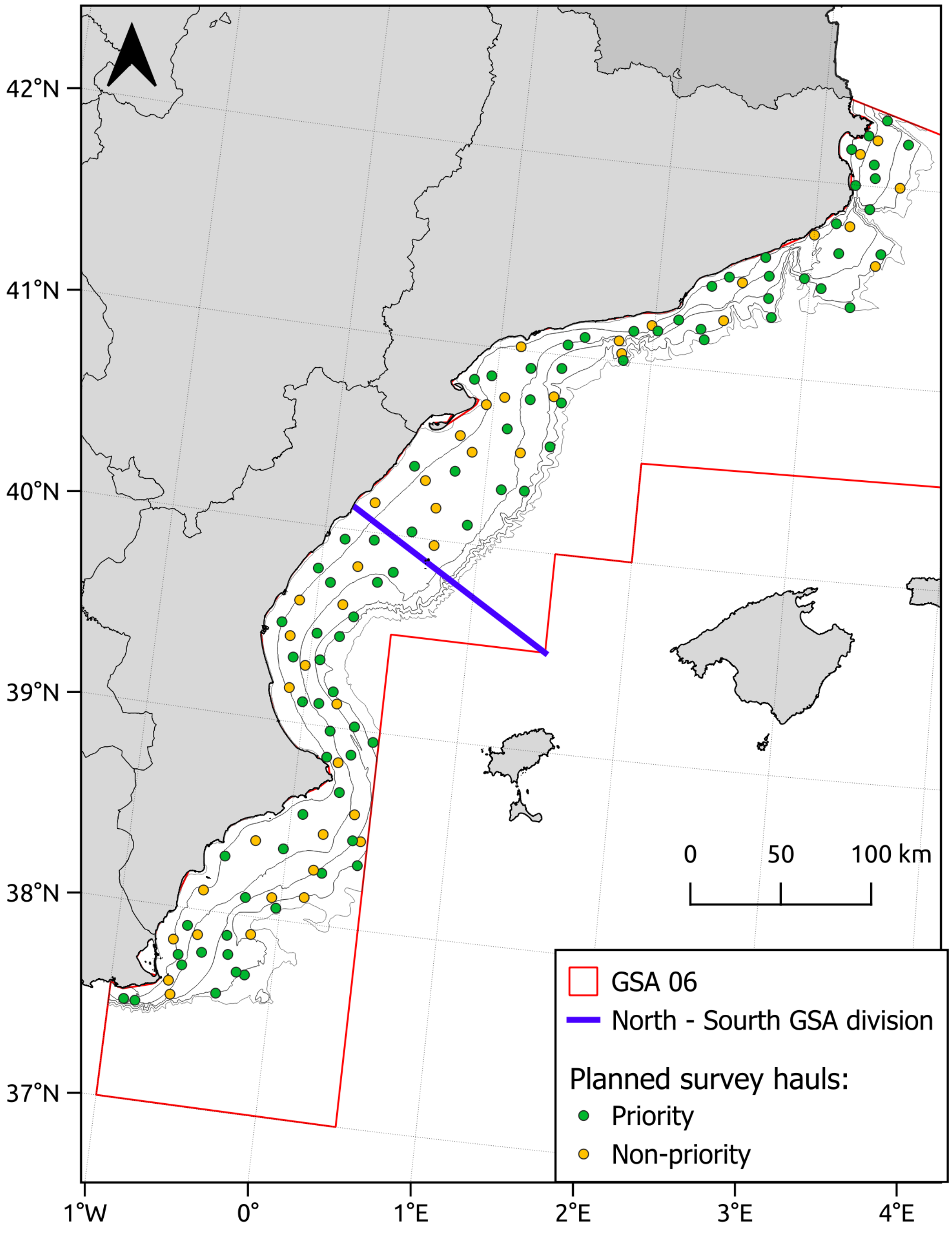

Figure 2. Distribution of planned hauls for MEDITS-AUT25.

SECTION 3
Data management

Data management

Data input

ICATMAR's data management systems allow storage of the collected data in a database, automatic data processing, integration with external sources, data sharing and visualization.

For each haul, and briefly, the catch is identified at species level if possible and measured. Then, biological samplings for the target species are performed. Marine litter is identified and weighted. Along with the catch analysis, all haul positions are registered using a GPS device with point data collected at a frequency of 1 min. Onboard positions are also manually collected from the start to the end of the fishing haul. All the collected data are registered in sampling forms (Annex 2).

The ingestion of MEDITS-AUT25 sampling data is performed onboard through ICATMAR's data input website (Ribera-Altimir et al. 2023). It was developed using Django, an open-source framework based on Python. Using the website, the GPS tracks (.gpx files) are uploaded for each haul together with the positions collected manually onboard. Data is automatically transferred from the input website to a PostgreSQL database with PostGIS extension.

All the collected data are processed to obtain comparable standardized metrics to enable valid estimates that support robust fisheries assessment, including species length- frequency distributions and measures of abundance or biomass per area (km^2).

Geographical information and fishing gear characteristics are needed to calculate the swept area of the onboard samples from the trawling hauls, used to standardize the abundance and biomass of the different species. The Global Positioning System (GPS) positions are automatically selected and cut by the data input website using the onboard positions to determine the start and end of a haul. The resulting GPS track, together with the horizontal opening of the trawling net, is used to calculate the swept area. More information on standardized metrics calculations can be found at Ribera-Altimir et al. 2023.

Finally, for each haul the sampling forms are scanned and uploaded through the data input website.

Data validation

All data collected go through a validation workflow to ensure high quality in their analysis and publishing. Using the data input website to ingest onboard and laboratory sampling data allows having more control of the data, prevents defects and facilitates validation, data availability and system reliability. This database includes parametrized text fields and the numeric fields with data ranges. Different validations are performed during the data input workflow to trigger warnings and detect errors to prevent defects. Finally, the data are displayed in interactive maps and charts to perform visual validations. The interactive maps use the library Leaflet and the interactive charts use the library Chartjs v2.8.

The data extraction from the database is done through Python scripts that execute SQL queries to the database to extract the MEDITS data exchange files (TA, TB, TC, TE y TL). Standard formats are defined for the storage and to facilitate the exchange of the data produced by the MEDITS surveys. The exchange files are in .csv format, using semicolon as field separator.

During the campaign, "Rome" package (https://github.com/COISPA/RoME) is executed to check joint data completeness and perform a general data validation. RoME package integrates a list of common quality checks on survey data. The function does not correct the data itself, but it detects the errors, warning the user that there is the possibility of one or more errors, specifying the type of the error and easing the data correction.

IT infrastructure

The IT infrastructure deployed in the campaign was designed to ensure robust and reliable data acquisition and storage under conditions of limited external internet connectivity. A local server was installed on a dedicated onboard computer running Ubuntu 24 (Linux-based operating system), hosting the data input web application and the database management system.

To enable multi-user access, a local area network (LAN) was established using a router configured to provide a private onboard Wi-Fi network. This infrastructure allowed multiple users to connect simultaneously and access the data input platform through a standard web browser.

The data input application was developed using Django, an open-source web framework based on Python, selected for its robustness and scalability. Data was stored in a PostgreSQL relational database, extended with the PostGIS module to support spatial data types and geospatial queries.

Regular backups of the database were performed throughout the campaign to ensure data security and integrity. These backups were periodically transferred to ICATMAR's servers, providing an additional safeguard against potential data loss.

This architecture ensured full operational independence from external network infrastructure, while providing centralized data storage and consistent access across users.

Data distribution

The data collected during the survey is made publicly available through ICATMAR's ERDDAP server (https://erddap.icatmar.cat/erddap/index.html), an open-source data server designed for the distribution of scientific datasets. ERDDAP provides standardized access to the data via multiple formats and supports subsetting, visualization, and direct integration with external applications.

In addition, the datasets are shared with EMODnet (European Marine Observation and Data Network) through ERDDAP services, ensuring integration into broader European data infrastructures.

SECTION 4
Information on the hauls performed

Information on the hauls performed

As indicated in Section 2, the initial sampling design of the MEDITS-AUT25 oceanographic survey planned the execution of 125 hauls, with a target of four hauls per day. The first phase of the survey started in Palamós on 17th November and included a programmed port call on 28th November in Castellón de la Plana for the partial replacement of the scientific staff. The second phase of the survey started in Castellón de la Plana on 29th November and concluded in Alicante on 10th December. During the first phase of the survey, adverse wind and wave conditions in GSA 6 north limited sampling operations, preventing the completion of four hauls per day. In addition, reduced daylight hours further restricted daily operational capacity. As a consequence, a total of 83 hauls were carried out during the survey period (Figure 3 and Annex 3). Of these, four hauls (numbers 20, 22, 28, and 61) were invalid according to MEDITS protocols. In hauls 20, 22, and 28, the fishing gear did not make adequate contact with the seabed, leading to the interruption of the fishing operations. In haul 61, the gear was damaged after becoming entangled with a fiberglass object and was therefore considered invalid.

From the 79 valid hauls conducted, a total of 51.98 h of effective trawling time was achieved, covering a total sampled area of 5.35 km² across the entire GSA6, of which 2.62 km² corresponded to the north and 2.73 km² to the south (Table 3).

Table 3. Summary of sampling effort by depth stratum, including the number of hauls conducted, mean depth (m), total trawled area (km²), and total fishing time sampled.

Area and time sampled					
Area	**Depth strata (m)**	**Mean depth (m)**	**Area sampled (km²)**	**Sampling time (h)**	**Num. hauls**
GSA6 - North	10-50	44.17	0.16	1.92	4
GSA6 - North	50-100	83.64	0.58	6.42	13
GSA6 - North	100-200	133.32	0.47	4.55	9
GSA6 - North	200-500	377.13	0.83	7.00	7
GSA6 - North	500-800	748.92	0.58	4.70	5
GSA6 - South	10-50	46.2	0.15	1.88	4
GSA6 - South	50-100	76.04	0.50	5.32	11
GSA6 - South	100-200	131.09	0.52	5.50	11
GSA6 - South	200-500	320.41	0.74	7.02	7
GSA6 - South	500-800	555.31	0.82	7.67	8
Total			5.35	51.98	79

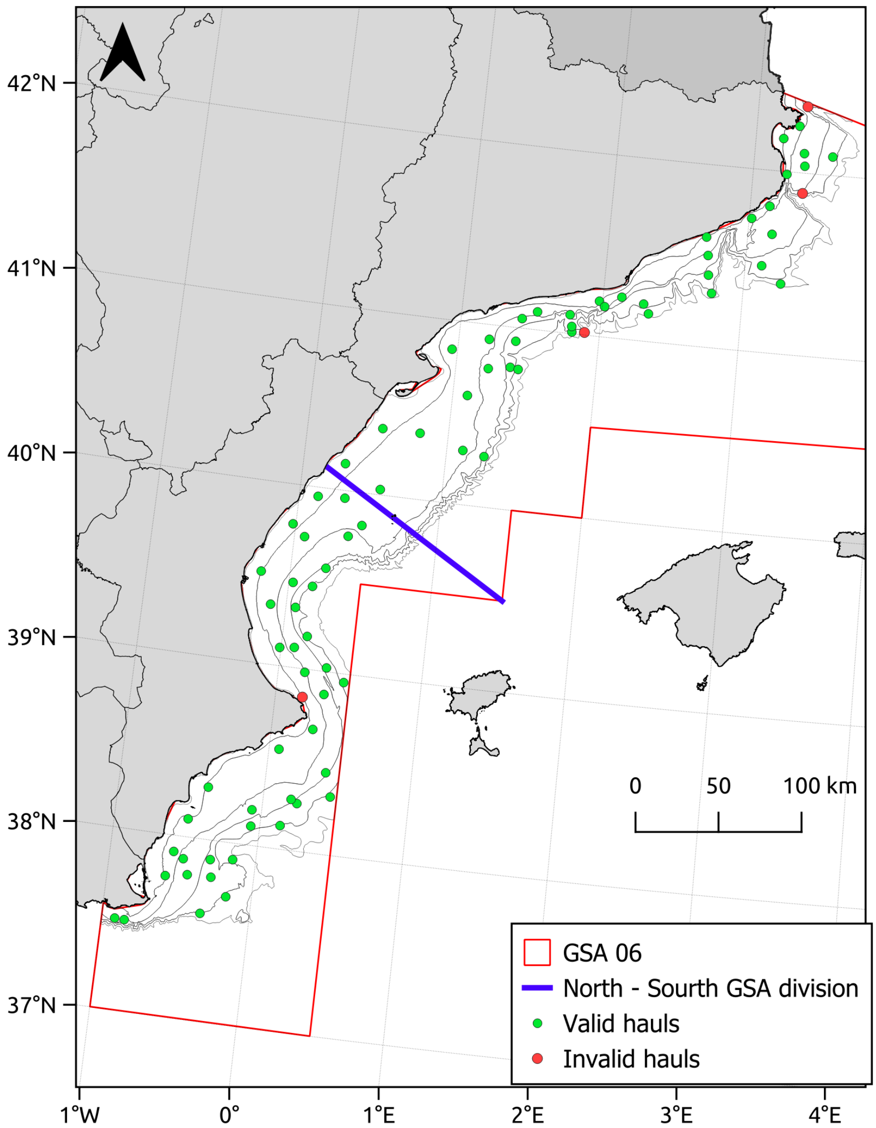

Figure 3. Map showing the locations of the hauls performed during the MEDITS-AUT25 oceanographic survey. A total of 83 hauls were done of which 79 were valid and 4 invalids.

SECTION 5
Biological data

Biological data

During a MEDITS survey, biological data are collected following standardized procedures defined in the official MEDITS handbook. The biological information obtained during each valid haul includes:

- Species composition: consist on the identification of all taxa caught during the haul to the lowest possible taxonomic level, including fish, crustaceans, cephalopods, and other invertebrates' species.
- Abundance and biomass data: for each species, the total number of individuals and total weight were recorded. Abundance and biomass indices were subsequently standardized to individuals/km^2 and kg/km^2 respectively.
- Marine litter composition: all marine litter items were classified and weighted.
- Length-frequency: individual size measurements were obtained for fish, crustaceans and cephalopods species.
- Biological parameters: for target species of the survey (see survey plan) data on sex, maturity stage, gonadal condition and individual weight were recorded. Sex was also recorded for species that sex was possible to identify externally like crustaceans and elasmobranchs.
- Age determination: for *Merluccius merluccius*, *Mullus barbatus* and *Mullus surmuletus*, otoliths were collected for age estimations.

In this section, information on species composition is presented, together with tables reporting biomass, abundance, and occurrence for the selected fish, crustacean, and cephalopod species. The results are structured to highlight the differences observed between depth strata and between the northern and southern zones of GSA 6. In addition, information on the total weight of marine litter recorded in each depth stratum is also provided. Length-frequency data are presented in Section 8; however, other biological information collected during the survey, such as maturity, sex, individual weights, and age-determination material, has not been included in this report, although these data were recorded following MEDITS standards and remain available for fisheries assessments and other scientific analyses.

Mean biomass and number of species recorded by depth stratum in each area is shown in Table 4. The highest mean biomass was observed in the 50–100 m depth stratum in both zones, with values of 1082 kg/km² in GSA6 north and 727 kg/km² in GSA 6 south. The highest species richness occurred in the 20–50 m depth stratum in both areas, with more than 48 species identified in each case.

The mean biomass and abundance of each species by depth stratum in each zone are presented in (Annex 4). The dominant species in the northern and southern sectors of GSA6 differed for several depth strata. In the 10–50 m stratum, the most important species in GSA6 north were *Pagellus erythrinus* and *Pagellus acarne*, whereas in GSA6 south the dominant species were *Octopus vulgaris* and *Mullus barbatus*. However, due to the low number of hauls conducted in this depth stratum, high standard errors were observed for all species.

In the 50–100 m stratum, *Trachurus trachurus* was the most important species in both areas, although its biomass and abundance were higher in GSA6 south. In the 100–200 m stratum, *T. trachurus* was also the dominant species in both areas; however, the second most important species differed, with *Engraulis encrasicolus* prevailing in the north and *Alloteuthis spp.* in the south.

In the 200–500 m stratum, contrasting patterns were observed: *Merluccius merluccius* dominated in GSA6 north, while *Micromesistius poutassou* was the most important species in GSA6 south. In the 500–800 m stratum, *Galeus melastomus* was the dominant species in both areas.

The contrasting patterns observed between the northern and southern areas of GSA6 for several species are summarized in Table 6 and Table 7. Clear spatial differences were evident, with species such as *Micromesistius poutassou*, *Alloteuthis spp.*, and *Octopus vulgaris* showing markedly higher abundances in the southern zone. In contrast, species such as *Eledone cirrhosa* and *Nephrops norvegicus* were more prominent in the northern zone and were largely absent from the south.

Table 4. Mean biomass and number of species recorded in each depth stratum, stratified by GSA 6 north and south areas.

Mean biomass and number of species			
Area	**Depth (m)**	**Biomass (kg/km^2)**	**Num. species**
GSA6 - North	10-50	118.17	35
GSA6 - North	50-100	1082.14	47
GSA6 - North	100-200	462.26	36
GSA6 - North	200-500	128.77	48
GSA6 - North	500-800	163.16	33
GSA6 - South	10-50	620.64	39
GSA6 - South	50-100	727.11	38
GSA6 - South	100-200	439.64	29
GSA6 - South	200-500	370.95	50
GSA6 - South	500-800	183.40	43

Table 5. Marine litter recorded by area and depth stratum.

Marine litter per area and depth strata		
Area	**Depth (m)**	**Marine litter (kg/km^2)**
GSA6 - North	10-50	128.95
GSA6 - North	50-100	57.17
GSA6 - North	100-200	6.54
GSA6 - North	200-500	1.23
GSA6 - North	500-800	0.96
GSA6 - South	10-50	51.86
GSA6 - South	50-100	9.96
GSA6 - South	100-200	14.00
GSA6 - South	200-500	14.30
GSA6 - South	500-800	5.79

Table 6. Biomass, abundance, and occurrence of the nine selected fish species.

Biomass and Abundance

Merluccius merluccius

Area	Depth (m)	Biomass (kg/km²)	Abundance (Ind/km²)	Occurrence (num.hauls)
GSA6 - North	10-50	20.89	247.78	4
GSA6 - North	50-100	64.76	1025.70	13
GSA6 - North	100-200	62.53	1758.62	9
GSA6 - North	200-500	14.21	182.68	7
GSA6 - North	500-800	6.49	11.78	5
GSA6 - South	10-50	32.29	463.46	4
GSA6 - South	50-100	60.50	1091.52	11
GSA6 - South	100-200	64.31	1996.71	11
GSA6 - South	200-500	17.18	271.50	7
GSA6 - South	500-800	5.28	15.92	8

Biomass and Abundance

Micromesistius poutassou

Area	Depth (m)	Biomass (kg/km²)	Abundance (Ind/km²)	Occurrence (num.hauls)
GSA6 - North	10-50	0.00	0.00	0
GSA6 - North	50-100	0.00	0.00	0
GSA6 - North	100-200	0.04	2.04	9
GSA6 - North	200-500	8.25	137.25	7
GSA6 - North	500-800	0.95	8.76	5
GSA6 - South	10-50	0.00	0.00	0
GSA6 - South	50-100	0.00	0.00	0
GSA6 - South	100-200	0.09	3.49	11
GSA6 - South	200-500	156.86	2773.43	7
GSA6 - South	500-800	3.14	50.43	8

Biomass and Abundance

Mullus barbatus

Area	Depth (m)	Biomass (kg/km²)	Abundance (Ind/km²)	Occurrence (num.hauls)
GSA6 - North	10-50	202.57	5105.37	4
GSA6 - North	50-100	82.31	1739.82	13
GSA6 - North	100-200	58.24	1025.49	9
GSA6 - North	200-500	0.04	1.23	7
GSA6 - North	500-800	0.00	0.00	0
GSA6 - South	10-50	216.26	8940.39	4
GSA6 - South	50-100	44.05	842.89	11
GSA6 - South	100-200	28.78	432.27	11
GSA6 - South	200-500	0.00	0.00	0
GSA6 - South	500-800	0.00	0.00	0

Biomass and Abundance

Mullus surmuletus

Area	Depth (m)	Biomass (kg/km²)	Abundance (Ind/km²)	Occurrence (num.hauls)
GSA6 - North	10-50	24.68	222.24	4
GSA6 - North	50-100	2.10	23.56	13
GSA6 - North	100-200	0.81	10.68	9
GSA6 - North	200-500	0.00	0.00	0
GSA6 - North	500-800	0.00	0.00	0
GSA6 - South	10-50	0.69	12.62	4
GSA6 - South	50-100	1.67	23.08	11
GSA6 - South	100-200	1.88	8.35	11
GSA6 - South	200-500	1.08	5.34	7
GSA6 - South	500-800	0.00	0.00	0

Biomass and Abundance

Scyliorhinus canicula

Area	Depth (m)	Biomass (kg/km²)	Abundance (Ind/km²)	Occurrence (num.hauls)
GSA6 - North	10-50	20.71	72.28	4
GSA6 - North	50-100	19.04	121.28	13
GSA6 - North	100-200	34.32	290.83	9
GSA6 - North	200-500	12.95	79.47	7
GSA6 - North	500-800	2.89	13.39	5
GSA6 - South	10-50	11.84	51.39	4
GSA6 - South	50-100	14.72	81.20	11
GSA6 - South	100-200	87.88	656.18	11
GSA6 - South	200-500	73.08	553.52	7
GSA6 - South	500-800	5.86	28.15	8

Biomass and Abundance

Galeus melastomus

Area	Depth (m)	Biomass (kg/km²)	Abundance (Ind/km²)	Occurrence (num.hauls)
GSA6 - North	10-50	0.00	0.00	0
GSA6 - North	50-100	0.00	0.00	0
GSA6 - North	100-200	0.00	0.00	0
GSA6 - North	200-500	1.07	33.25	7
GSA6 - North	500-800	65.56	222.39	5
GSA6 - South	10-50	0.00	0.00	0
GSA6 - South	50-100	0.00	0.00	0
GSA6 - South	100-200	0.00	0.00	0
GSA6 - South	200-500	7.22	391.03	7
GSA6 - South	500-800	56.25	194.90	8

Biomass and Abundance

Engraulis encrasicolus

Area	Depth (m)	Biomass (kg/km²)	Abundance (Ind/km²)	Occurrence (num.hauls)
GSA6 - North	10-50	65.31	31951.85	4
GSA6 - North	50-100	88.26	24220.53	13
GSA6 - North	100-200	153.99	54403.24	9
GSA6 - North	200-500	0.01	2.46	7
GSA6 - North	500-800	0.00	0.00	0
GSA6 - South	10-50	15.11	2200.96	4
GSA6 - South	50-100	68.45	8654.84	11
GSA6 - South	100-200	0.55	27.10	11
GSA6 - South	200-500	0.00	0.00	0
GSA6 - South	500-800	0.00	0.00	0

Biomass and Abundance

Sardina pilchardus

Area	Depth (m)	Biomass (kg/km²)	Abundance (Ind/km²)	Occurrence (num.hauls)
GSA6 - North	10-50	44.84	4080.41	4
GSA6 - North	50-100	18.08	1086.53	13
GSA6 - North	100-200	0.55	33.23	9
GSA6 - North	200-500	0.00	0.00	0
GSA6 - North	500-800	0.00	0.00	0
GSA6 - South	10-50	60.12	5186.60	4
GSA6 - South	50-100	67.47	3811.24	11
GSA6 - South	100-200	4.82	227.69	11
GSA6 - South	200-500	0.00	0.00	0
GSA6 - South	500-800	0.00	0.00	0

Biomass and Abundance

Trachurus trachurus

Area	Depth (m)	Biomass (kg/km²)	Abundance (Ind/km²)	Occurrence (num.hauls)
GSA6 - North	10-50	29.73	1109.29	4
GSA6 - North	50-100	217.93	9606.11	13
GSA6 - North	100-200	185.24	7730.07	9
GSA6 - North	200-500	1.43	14.89	7
GSA6 - North	500-800	0.00	0.00	0
GSA6 - South	10-50	32.90	1623.68	4
GSA6 - South	50-100	569.09	16447.25	11
GSA6 - South	100-200	249.91	8523.91	11
GSA6 - South	200-500	0.20	12.18	7
GSA6 - South	500-800	0.00	0.00	0

Table 7. Biomass, abundance, and occurrence of the three selected crustacean species and six selected cephalopod species.

Biomass and Abundance

Aristeus antennatus

Area	Depth (m)	Biomass (kg/km²)	Abundance (Ind/km²)	Occurrence (num.hauls)
GSA6 - North	10-50	0.00	0.00	0
GSA6 - North	50-100	0.00	0.00	0
GSA6 - North	100-200	0.00	0.00	0
GSA6 - North	200-500	3.46	240.08	7
GSA6 - North	500-800	14.36	1300.32	5
GSA6 - South	10-50	0.00	0.00	0
GSA6 - South	50-100	0.00	0.00	0
GSA6 - South	100-200	0.00	0.00	0
GSA6 - South	200-500	0.00	0.00	0
GSA6 - South	500-800	17.39	1528.44	8

Biomass and Abundance

Parapenaeus longirostris

Area	Depth (m)	Biomass (kg/km²)	Abundance (Ind/km²)	Occurrence (num.hauls)
GSA6 - North	10-50	0.00	0.00	0
GSA6 - North	50-100	2.60	369.35	13
GSA6 - North	100-200	1.43	298.52	9
GSA6 - North	200-500	8.19	1101.37	7
GSA6 - North	500-800	0.05	5.03	5
GSA6 - South	10-50	0.37	116.18	4
GSA6 - South	50-100	4.98	946.46	11
GSA6 - South	100-200	17.55	3834.54	11
GSA6 - South	200-500	46.00	4574.78	7
GSA6 - South	500-800	7.45	596.97	8

Biomass and Abundance

Illex coindetii

Area	Depth (m)	Biomass (kg/km²)	Abundance (Ind/km²)	Occurrence (num.hauls)
GSA6 - North	10-50	3.28	69.37	4
GSA6 - North	50-100	17.55	1068.67	13
GSA6 - North	100-200	24.82	2378.32	9
GSA6 - North	200-500	11.95	292.63	7
GSA6 - North	500-800	0.26	3.27	5
GSA6 - South	10-50	1.16	30.89	4
GSA6 - South	50-100	2.51	135.90	11
GSA6 - South	100-200	9.05	1268.56	11
GSA6 - South	200-500	21.58	352.16	7
GSA6 - South	500-800	1.48	17.48	8

Biomass and Abundance

Eledone cirrhosa

Area	Depth (m)	Biomass (kg/km²)	Abundance (Ind/km²)	Occurrence (num.hauls)
GSA6 - North	10-50	3.21	28.79	4
GSA6 - North	50-100	28.67	272.62	13
GSA6 - North	100-200	14.40	126.41	9
GSA6 - North	200-500	4.88	28.81	7
GSA6 - North	500-800	0.00	0.00	0
GSA6 - South	10-50	0.00	0.00	0
GSA6 - South	50-100	1.32	6.13	11
GSA6 - South	100-200	1.89	9.67	11
GSA6 - South	200-500	0.00	0.00	0
GSA6 - South	500-800	0.00	0.00	0

Biomass and Abundance

Alloteuthis spp.

Area	Depth (m)	Biomass (kg/km²)	Abundance (Ind/km²)	Occurrence (num.hauls)
GSA6 - North	10-50	2.54	554.36	4
GSA6 - North	50-100	4.92	921.22	13
GSA6 - North	100-200	4.97	1544.72	9
GSA6 - North	200-500	0.00	0.00	0
GSA6 - North	500-800	0.00	0.00	0
GSA6 - South	10-50	6.37	1502.87	4
GSA6 - South	50-100	15.62	2593.24	11
GSA6 - South	100-200	108.31	26098.07	11
GSA6 - South	200-500	4.68	546.73	7
GSA6 - South	500-800	0.03	11.10	8

Biomass and Abundance

Nephrops norvegicus

Area	Depth (m)	Biomass (kg/km²)	Abundance (Ind/km²)	Occurrence (num.hauls)
GSA6 - North	10-50	0.00	0.00	0
GSA6 - North	50-100	0.00	0.00	0
GSA6 - North	100-200	0.08	4.06	9
GSA6 - North	200-500	4.34	143.66	7
GSA6 - North	500-800	0.01	1.68	5
GSA6 - South	10-50	0.00	0.00	0
GSA6 - South	50-100	0.00	0.00	0
GSA6 - South	100-200	0.16	1.90	11
GSA6 - South	200-500	0.30	7.13	7
GSA6 - South	500-800	0.43	4.83	8

Biomass and Abundance

Loligo vulgaris

Area	Depth (m)	Biomass (kg/km²)	Abundance (Ind/km²)	Occurrence (num.hauls)
GSA6 - North	10-50	10.39	85.43	4
GSA6 - North	50-100	17.81	178.72	13
GSA6 - North	100-200	2.33	23.79	9
GSA6 - North	200-500	0.00	0.00	0
GSA6 - North	500-800	0.15	1.59	5
GSA6 - South	10-50	13.80	96.57	4
GSA6 - South	50-100	9.51	87.74	11
GSA6 - South	100-200	4.38	36.77	11
GSA6 - South	200-500	0.00	0.00	0
GSA6 - South	500-800	0.00	0.00	0

Biomass and Abundance

Todaropsis eblanae

Area	Depth (m)	Biomass (kg/km²)	Abundance (Ind/km²)	Occurrence (num.hauls)
GSA6 - North	10-50	0.00	0.00	0
GSA6 - North	50-100	0.06	4.09	13
GSA6 - North	100-200	0.27	21.84	9
GSA6 - North	200-500	0.32	24.24	7
GSA6 - North	500-800	0.00	0.00	0
GSA6 - South	10-50	0.00	0.00	0
GSA6 - South	50-100	0.00	0.00	0
GSA6 - South	100-200	3.05	118.27	11
GSA6 - South	200-500	7.49	233.80	7
GSA6 - South	500-800	0.80	11.62	8

Biomass and Abundance

Octopus vulgaris

Area	Depth (m)	Biomass (kg/km²)	Abundance (Ind/km²)	Occurrence (num.hauls)
GSA6 - North	10-50	38.44	165.94	4
GSA6 - North	50-100	26.39	68.87	13
GSA6 - North	100-200	1.16	5.73	9
GSA6 - North	200-500	0.00	0.00	0
GSA6 - North	500-800	0.00	0.00	0
GSA6 - South	10-50	515.13	1250.83	4
GSA6 - South	50-100	155.99	466.75	11
GSA6 - South	100-200	58.15	103.02	11
GSA6 - South	200-500	0.00	0.00	0
GSA6 - South	500-800	0.00	0.00	0

SECTION 6
Physical characteristics of the water mass

Physical characteristics of the water mass

During the MEDITS-AUT25 autumn survey, hydrographic data were systematically collected at every valid haul using a bottom-mounted CTD sensor. This section describes the instrumentation, its deployment configuration, and the key results obtained from the 79 hauls performed between 18 November and 10 December 2025 in GSA6.

CTD Instrumentation

A SeaBird Electronics SBE37SM MicroCAT CTD (serial no. 03728060) was used throughout the survey. The SBE37SM is a self-contained, internally-recording instrument that measures temperature, conductivity and pressure at a user-defined sampling interval. Practical salinity was derived from these measurements following the UNESCO 1983 Practical Salinity Scale algorithms. The main technical specifications of the instrument are summarized in (Table 1).

Table 8. Technical specifications of the SBE37SM MicroCAT CTD deployed during MEDITS-AUT25.

Parameter	Specification
Instrument model	Sea-Bird Electronics SBE37SM MicroCAT
Serial number	03728060
Measured variables	Temperature (°C), Conductivity (S/m), Pressure (dbar)
Derived variable	Practical Salinity (PSU) — UNESCO 1983
Temperature accuracy	±0.002 °C
Conductivity accuracy	±0.0003 S/m
Pressure accuracy	±0.1 % of full-scale range
Sampling interval	10 seconds
Vertical resolution (descent)	~1.7 m per sample
Power source	Internal alkaline batteries
Data storage	Internal flash memory; downloaded post-survey via RS-232

Deployment Configuration

The CTD unit was enclosed in a custom-built stainless-steel cage to protect it from mechanical impacts during deployment and retrieval (Figure 4). The cage was secured to the float rope (headline) of the GOC73 trawl net using stainless steel clamps and a locking carabiner as a quick-release safety attachment, positioning the instrument above the net mouth to record near-bottom hydrographic conditions throughout the entire haul sequence: descent, fishing phase, and ascent (Figure 5).

Two 20-litre buoyancy spheres were mounted on the cage frame to achieve near-neutral buoyancy of the CTD–cage assembly, preventing additional loading on the headline and preserving net geometry. Near-neutral buoyancy was verified before the first deployment by conducting a water test alongside the vessel, during which the spheres were adjusted until the assembly remained suspended at depth without positive or negative buoyancy bias.

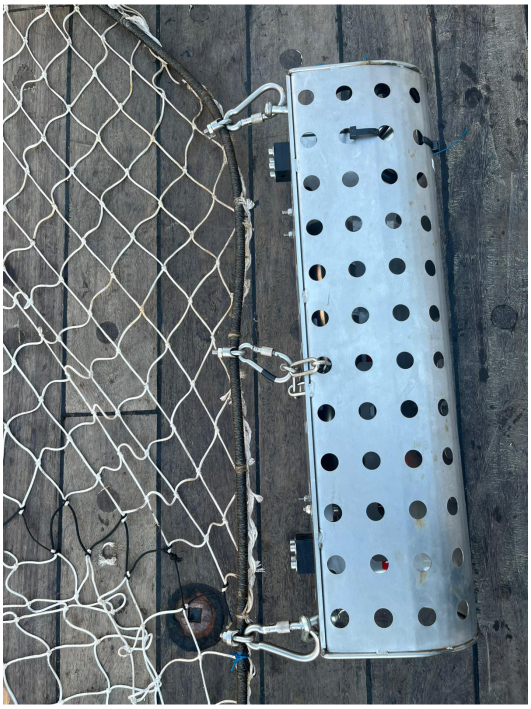

Figure 4. CTD cage (SBE37SM) attached to the float rope (headline) of the GOC73 trawl net using stainless steel clamps and a locking carabiner. Photo: ICATMAR / MEDITS-AUT25.

Figure 5. Detail of the 20-litre buoyancy spheres mounted on the cage frame to achieve near-neutral buoyancy during deployment. Photo: ICATMAR / MEDITS-AUT25.

Data Collection and Processing

The SBE37SM recorded data continuously throughout each haul at a 10-second sampling interval. After each haul, data were downloaded to a laptop computer via RS-232 and converted to CSV format. Each deployment file contains the columns: date/time, pressure (dbar), temperature (°C), conductivity (S/m) and derived salinity (PSU).

Each time series was segmented into three phases based on a pressure threshold:

- Descent (downcast): all samples from the surface to the moment the instrument reaches 95 % of its maximum recorded pressure.
- Fishing phase: all samples at pressure ≥ 95 % of maximum pressure — corresponding to near-bottom conditions while the net is fishing.
- Ascent (upcast): all samples from the fishing phase to the surface recovery.

Temperature and salinity profiles are derived exclusively from the descent phase to avoid contamination by the turbulent wake generated by the trawl during retrieval. Mean near-bottom temperature (T) and salinity (S) reported for each haul represent the arithmetic mean of all individual samples recorded during the fishing phase. A 5-sample uniform moving-average filter (equivalent to 50 s) was applied to both temperature and salinity time series to suppress high-frequency mechanical noise.

A total of 79 valid CTD deployments were completed, one per haul, covering depth strata from 10 to 800 m (Figure 6). Mean descent speed was 9.93 ± 4.17 m min^{1} in the north zone and 9.44 ± 3.89 m min^{1} in the south zone, yielding a vertical resolution of approximately 1.7 m per sample — sufficient to resolve the seasonal thermocline and major water mass boundaries.

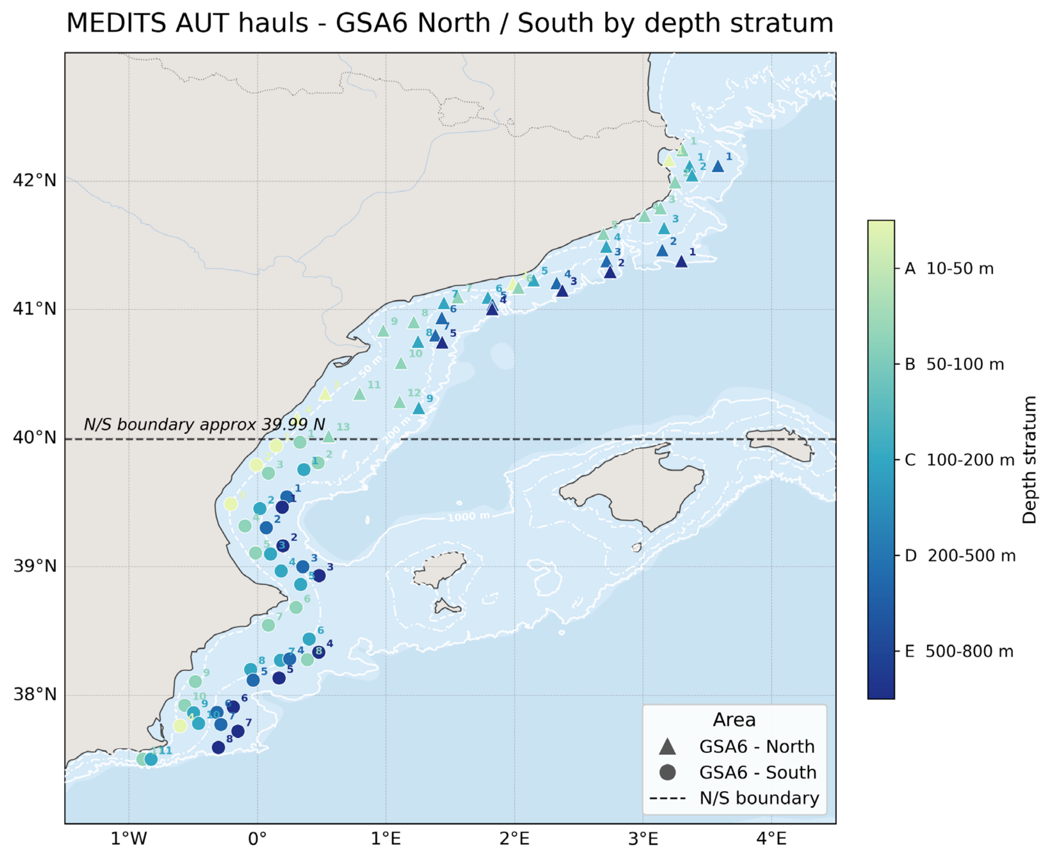

Figure 6. Geographic distribution of the 79 valid hauls carried out during MEDITS-AUT25 in GSA6. Triangles = GSA6-north zone (n=38); circles = GSA6-south zone (n=41). Symbol color indicates depth stratum (A: 10–50 m to E: 500–800 m; YlGnBu color scale). Numbers indicate haul ranking within each zone and stratum (north to south). Dashed line: North/South boundary (~39.99°N). White isobaths: 50, 200 and 1000 m (EMODnet, 2022).

Main Hydrographic Results

The hydrographic data collected reveal a well-defined stratification typical of the NW Mediterranean in autumn. Three water masses were identified across the survey area from temperature–salinity (T-S) diagrams (Figure 7):

- Atlantic Water (AW): T > 16 °C, S < 37.8 PSU — present in the surface layer of all hauls in the 10–100 m depth strata.
- Modified Atlantic Water (MAW): 13.8 < T < 16 °C, 37.8 < S < 38.3 PSU — dominant water mass in the 100–200 m depth stratum.
- Levantine Intermediate Water (LIW): T ≈ 13.5–14.2 °C, S > 38.4 PSU — well-defined salinity maximum (up to 38.67 PSU) in the 200–800 m depth strata, characteristic of the NW Mediterranean autumn hydrography (Millot, 1999).

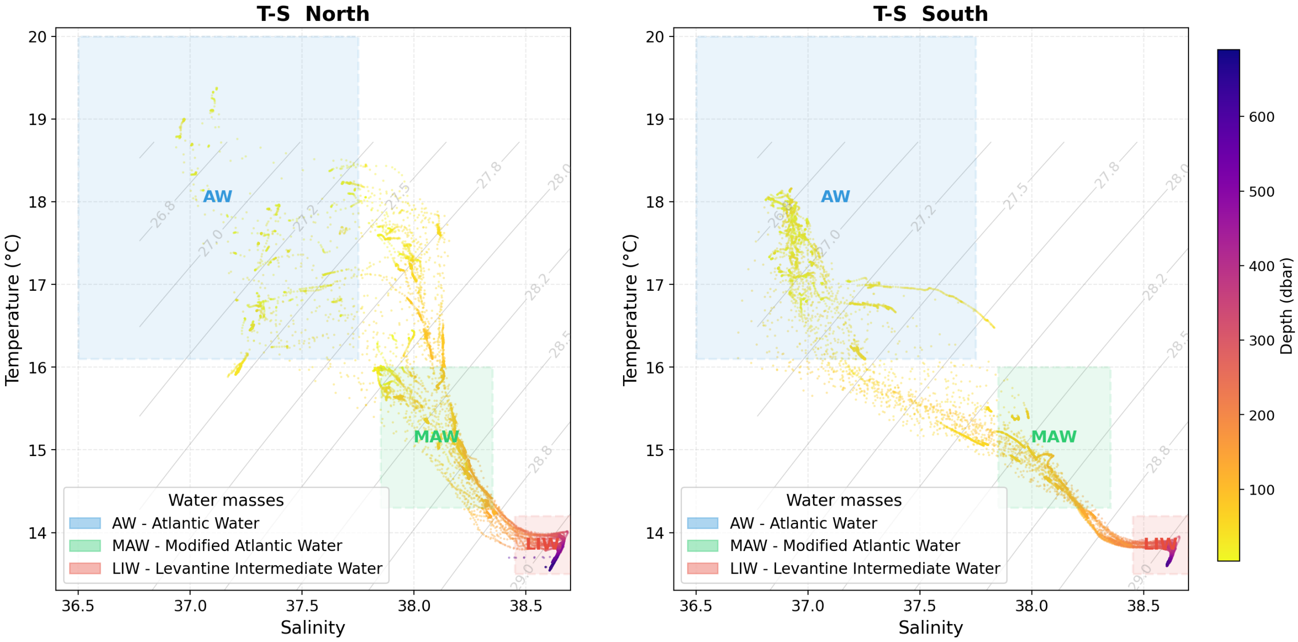

Figure 7. Temperature–Salinity (T-S) diagram for GSA6-north (left) and GSA6-south (right), constructed from all downcast CTD measurements. Points colored by depth stratum (A: 10–50 m, blue; B: 50–100 m, green; C: 100–200 m, orange; D: 200–500 m, pink; E: 500–800 m, purple). Grey diagonal lines: isopycnals (σθ, kg m³). Shaded rectangles: T-S envelopes of the three water masses identified following Millot (1999): Atlantic Water (AW, blue; T > 16°C, S < 37.8 PSU), Modified Atlantic Water (MAW, green; 13.8–16°C, 37.8–38.3 PSU) and Levantine Intermediate Water (LIW, red; T ≈ 13.5–14.2°C, S > 38.4 PSU).

Table 9. Summary table of mean near-bottom temperature (°C) and salinity (PSU) ± standard deviation (SD) during the fishing phase, by zone (north in blue, south in green) and depth stratum. N hauls indicates the number of valid CTD deployments in each zone–stratum combination.

Zone	Depth stratum (m)	N hauls	Temperature (C) mean +/- SD	Salinity mean +/- SD
North	10-50	4	16.52 +/- 0.78	37.612 +/- 0.435
North	50-100	13	15.51 +/- 0.70	38.134 +/- 0.085
North	100-200	9	14.61 +/- 0.33	38.284 +/- 0.062
North	200-500	7	13.87 +/- 0.06	38.649 +/- 0.014
North	500-800	5	13.63 +/- 0.04	38.620 +/- 0.006
South	10-50	4	16.28 +/- 0.57	37.518 +/- 0.316
South	50-100	11	15.01 +/- 0.25	37.956 +/- 0.108
South	100-200	11	14.30 +/- 0.28	38.231 +/- 0.102
South	200-500	7	13.82 +/- 0.03	38.593 +/- 0.031
South	500-800	8	13.65 +/- 0.02	38.612 +/- 0.004

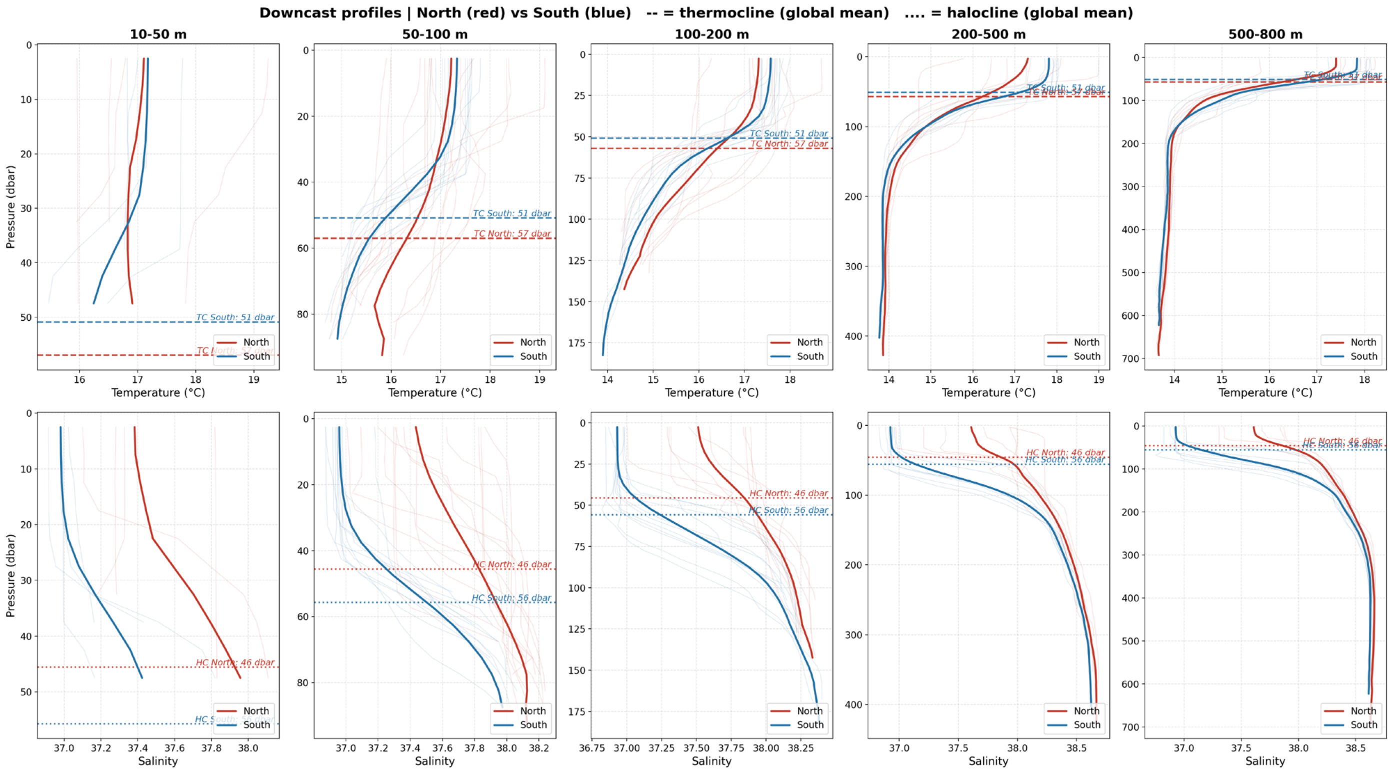

Figure 8. Downcast temperature (top row) and salinity (bottom row) profiles by depth stratum, for GSA6-north (red) and GSA6-south (blue). Thin translucent lines: individual haul profiles; bold lines: zone means smoothed with a 5-bin moving average. Dashed horizontal lines (--): mean thermocline depth per zone; dotted horizontal lines (···): mean halocline depth per zone. Values indicate mean depth in dbar.

Near-bottom temperature decreased consistently with depth in both zones, from approximately 16.5 °C at 10–50 m to 13.6 °C at 500–800 m. Near-bottom salinity showed the inverse pattern, increasing from ~37.6 PSU in the shallowest strata to ~38.6 PSU at depth, consistent with the presence of LIW below approximately 200 dbar (Table 9). The seasonal thermocline was well-established at mean depths of 57.0 ± 21.3 dbar in the north zone and 50.9 ± 11.6 dbar in the south zone (Figure 8).

Near-bottom temperature decreases consistently with depth across both zones, from ~16.5°C at 10–50 m to ~13.6°C at 500–800 m, reflecting the transition from Atlantic Water (AW) at the surface to the Levantine Intermediate Water (LIW) at depth. At the shallowest strata (10–100 m), the warmest temperatures occur at the southern end of the survey (Alicante-Murcia coast) and in the extreme northeast (Gulf of Lion margin) (Figure 9). A notable feature is the slight reversal of the expected latitudinal gradient at shallow strata, with the north zone marginally warmer than the South — attributable to the temporal offset of the survey (north hauls were conducted in late November, south hauls in mid-December, during a period of progressive autumn cooling) (Salat & Pascual, 1996).

Near-bottom salinity shows the inverse pattern to temperature, increasing with depth from ~37.3–37.6 PSU in the 10–50 m stratum to >38.6 PSU in the 500–800 m stratum, consistent with the salinity maximum of the LIW (Figure 10). At the surface stratum (10–50 m), pronounced spatial variability is observed: the lowest salinities occur in the northwest (NE Catalonia coast), likely associated with freshwater inputs from the Rhône River and Ebro Delta. At depth (200–800 m), salinity becomes spatially homogeneous across the entire GSA6, reflecting the basin-wide distribution of the LIW.

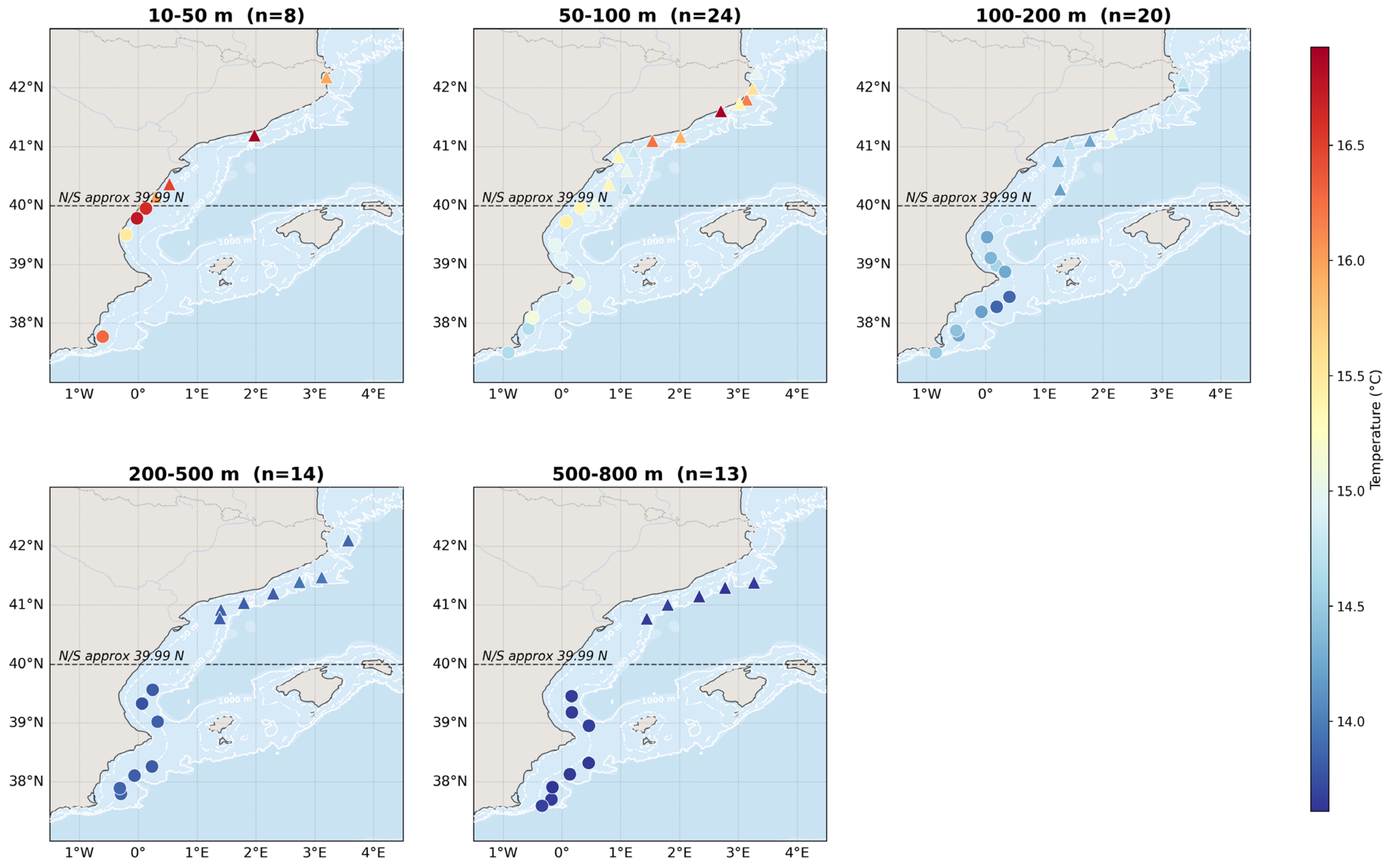

Figure 9. Spatial distribution of mean near-bottom temperature (°C) measured during the fishing phase for each depth stratum. Triangles = GSA6-north; circles = GSA6-south. Color scale (RdYlBu) is specific to each depth stratum. Dashed line: North/South boundary (~39.99°N).

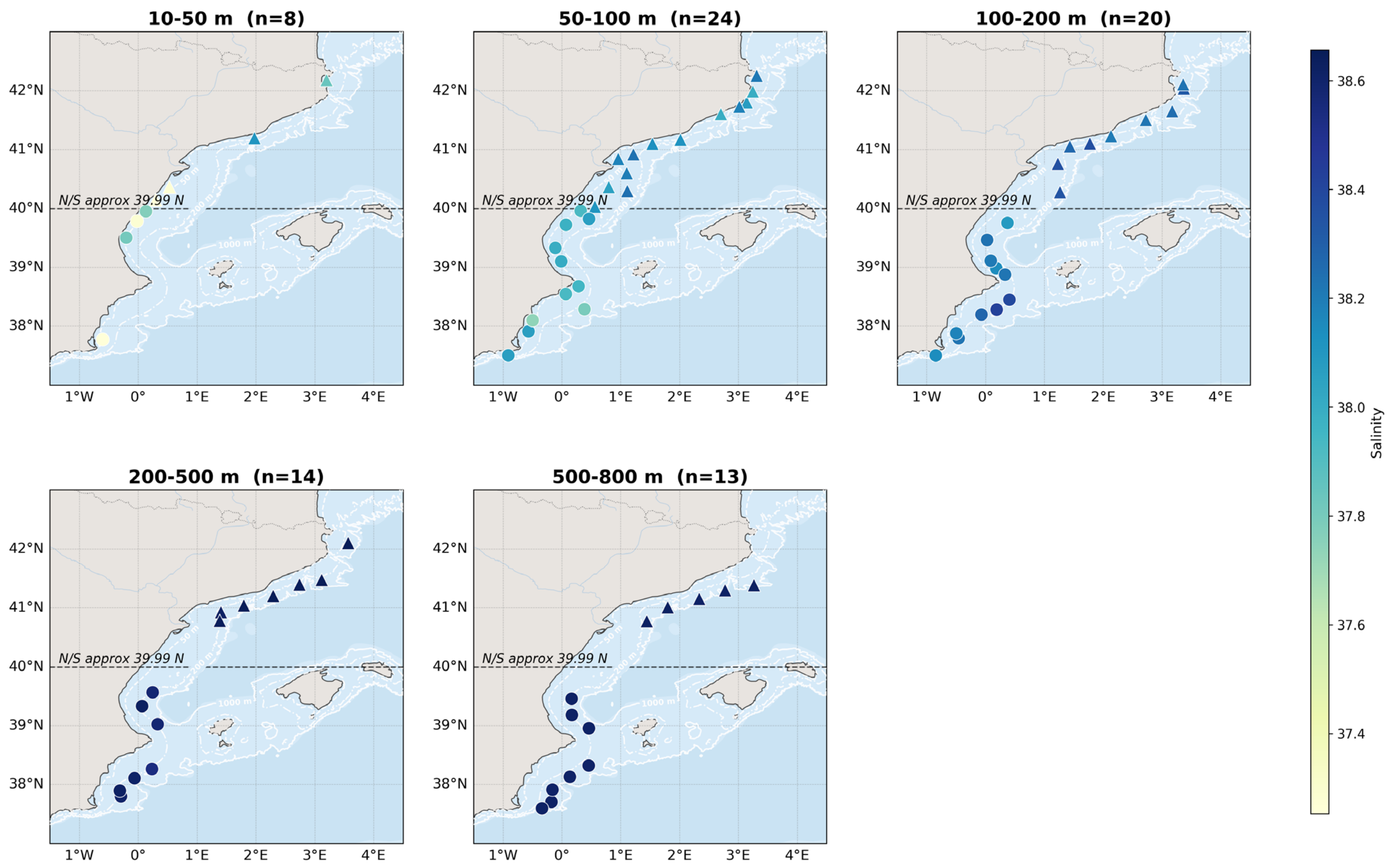

Figure 10. Spatial distribution of mean near-bottom salinity (PSU) measured during the fishing phase for each depth stratum. Triangles = GSA6-North; circles = GSA6-South. Color scale (YlGnBu) is specific to each depth stratum. Dashed line: North/South boundary (~39.99°N).

SECTION 7
Biomass and abundance indices

Biomass and abundance indices

In this section, a comparison of biomass and abundance indices is presented between historical data from the MEDITS spring surveys and the results obtained during MEDITS-AUT25. Although a comparison between spring and autumn of the same year (2025) would be of particular interest, MEDITS spring data are currently only publicly available up to 2022. These indices were calculated for the target species of the MEDITS survey, as well as for other species of interest for which contrasting seasonal patterns between spring and autumn were observed. Additionally, maps of biomass values for each haul of the MEDITS-AUT25 target species are presented in this section.

Data processing and analysis

Survey data were processed and analyzed using a modified version of the JRC MEDITS script developed by Mannini (2020). This analytical framework was used to derive standardized indices of biomass, abundance, abundance by length class, and species occurrence for the sampled assemblages.

Prior to analysis, raw survey data were subjected to quality control procedures. These included verification of species codes, inspection of missing or inconsistent records, standardization of length measurements, and validation of haul-related information such as sampling location, depth, and swept area where applicable (see section 3). Records that did not meet predefined quality criteria were either corrected, when possible, or excluded from the analysis. Taxonomic nomenclature was harmonized to ensure consistency across the dataset.

Biomass and abundance indices were calculated from haul-level data using the standardized procedures implemented in the modified MEDITS script. In general, abundance was expressed as the number of individuals per unit area, while biomass was expressed as weight in kg per unit area, allowing comparisons among hauls and sampling strata. For the north and south areas, indices were standardized using newly calculated total area estimates for each zone (Table 1).

The original JRC MEDITS script was modified to match the structure of the present dataset and to incorporate study-specific analytical requirements. These modifications included adjustments to input formatting, variable naming conventions, and output summarization. All analyses were performed in RStudio, and the resulting outputs were used to describe patterns in species composition, population structure, and spatial distribution within the study area.

Comparison of biomass and abundance indices from MEDITS spring and autumn surveys

Some contrasting results were observed in the biomass and abundance indices calculated for spring and autumn surveys. Although, for most species, historical MEDITS spring values showed variability, contrasting patterns were observed when compared with MEDITS-AUT25. However, it is important to highlight that assessing the effect of seasonality on biomass and abundance indices requires a long-term time series of surveys conducted across different seasons. In addition, a direct comparison between both surveys in the same year was not possible due to the unavailability of MEDITS spring data, which are only available up to 2022.

For some MEDITS target species, the biomass index was higher in the MEDITS-AUT25 survey than in the spring survey (Figure 11). One example is *Merluccius merluccius*, which showed a biomass index of approximately 40 kg/km² in autumn compared to about 20 kg/km² in spring, although the abundance index was similar between seasons (Figure 12). This pattern could reflect the spring recruitment peak, when numerous small juveniles are present, and the subsequent growth of individuals by autumn, resulting in higher biomass. Other species displaying higher biomass indices in the MEDITS-AUT25 survey but similar abundance compared to spring were *Mullus barbatus* and *Parapenaeus longirostris*, indicating the presence of larger individuals during autumn (see Section 9). For *Aristeus antennatus* and *Loligo vulgaris*, both biomass and abundance indices were higher in the MEDITS-AUT25 survey than in the spring MEDITS survey. In contrast, *Nephrops norvegicus* showed lower values for both indices in autumn. This pattern is consistent with previous studies reporting higher landings of this species during spring and summer, which are linked to its behavioral ecology. *N. norvegicus* inhabits burrows and its emergence activity is influenced by light intensity, while mating occurs outside burrows during spring and summer, increasing its catchability during these seasons (Aguzzi et al., 2003; Aguzzi et al., 2021; Vigo et al., 2021; Vigo et al., 2024). For *Galeus melastomus* and *Scyliorhinus canicula* no differences were observed between spring and autumn survey.

Some species also exhibited contrasting biomass and abundance indices between the northern and southern zones of GSA6 (Annex 8 and Annex 9). For example, *Parapenaeus longirostris* showed higher biomass and abundance in GSA6 south, whereas *Illex coindetii* and *Loligo vulgaris* presented higher biomass and abundance in GSA6 north.

For other species of interest, differing patterns in biomass and abundance indices were observed when comparing the historical MEDITS spring surveys with the MEDITS-AUT25 survey (Figure 13 and Figure 14). For instance, *Lophius budegassa*, *Boops boops*, and *Zeus faber* exhibited higher biomass and abundance indices in the MEDITS-AUT25 survey than in the spring surveys. For these species, higher recruitment was detected during autumn (see Section 9). In contrast, *Engraulis encrasicolus* showed lower biomass and abundance indices in the MEDITS-AUT25 survey compared to the historical spring data.

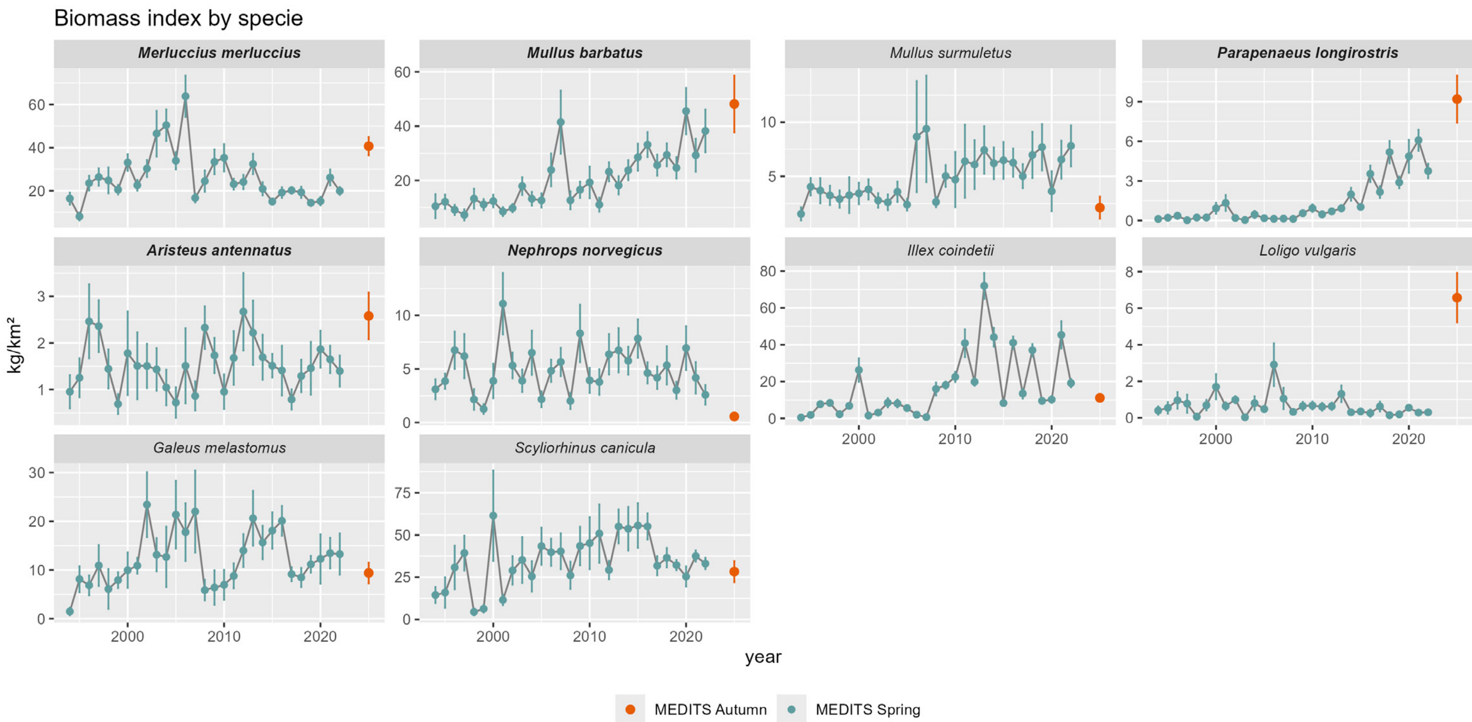

Figure 11. Historical biomass index for target species. Species shown in bold correspond to those regulated under the Western Mediterranean Multiannual Plan (WMMAP), whereas the remaining species are additional targets of the MEDITS survey. Green dots represent biomass indices obtained from MEDITS surveys conducted in spring, while the orange dot corresponds to the biomass index from the MEDITS-AUT25 survey. For the MEDITS spring series, only available data from 1996 to 2022 were used. Dots represent mean values, and error bars indicate the standard deviation.

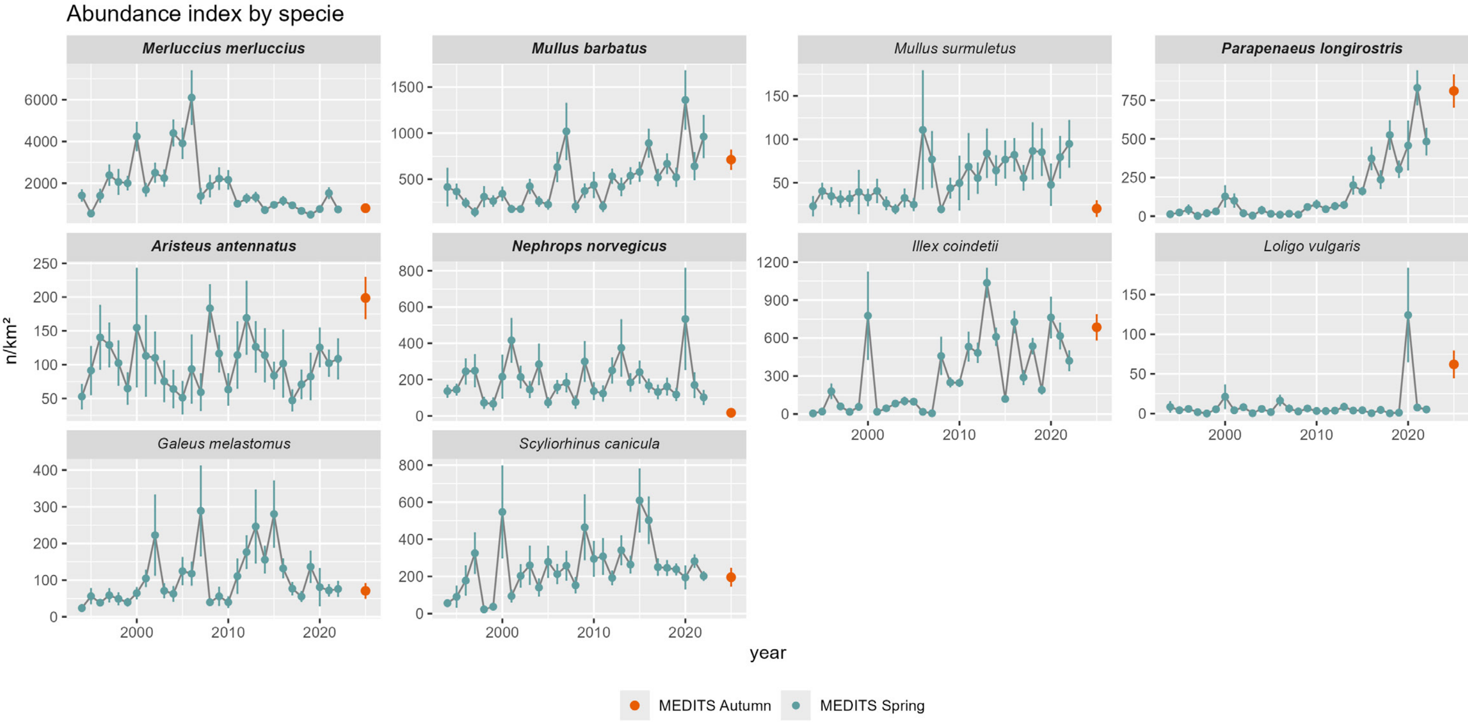

Figure 12. Historical abundance index for target species. Species shown in bold correspond to those regulated under the Western Mediterranean Multiannual Plan (WMMAP), whereas the remaining species are additional targets of the MEDITS survey. Green dots represent abundance indices obtained from MEDITS surveys conducted in spring, while the orange dot corresponds to the abundance index from the MEDITS-AUT25 survey. For the MEDITS spring series, only available data from 1996 to 2022 were used. Dots represent mean values, and error bars indicate the standard deviation.

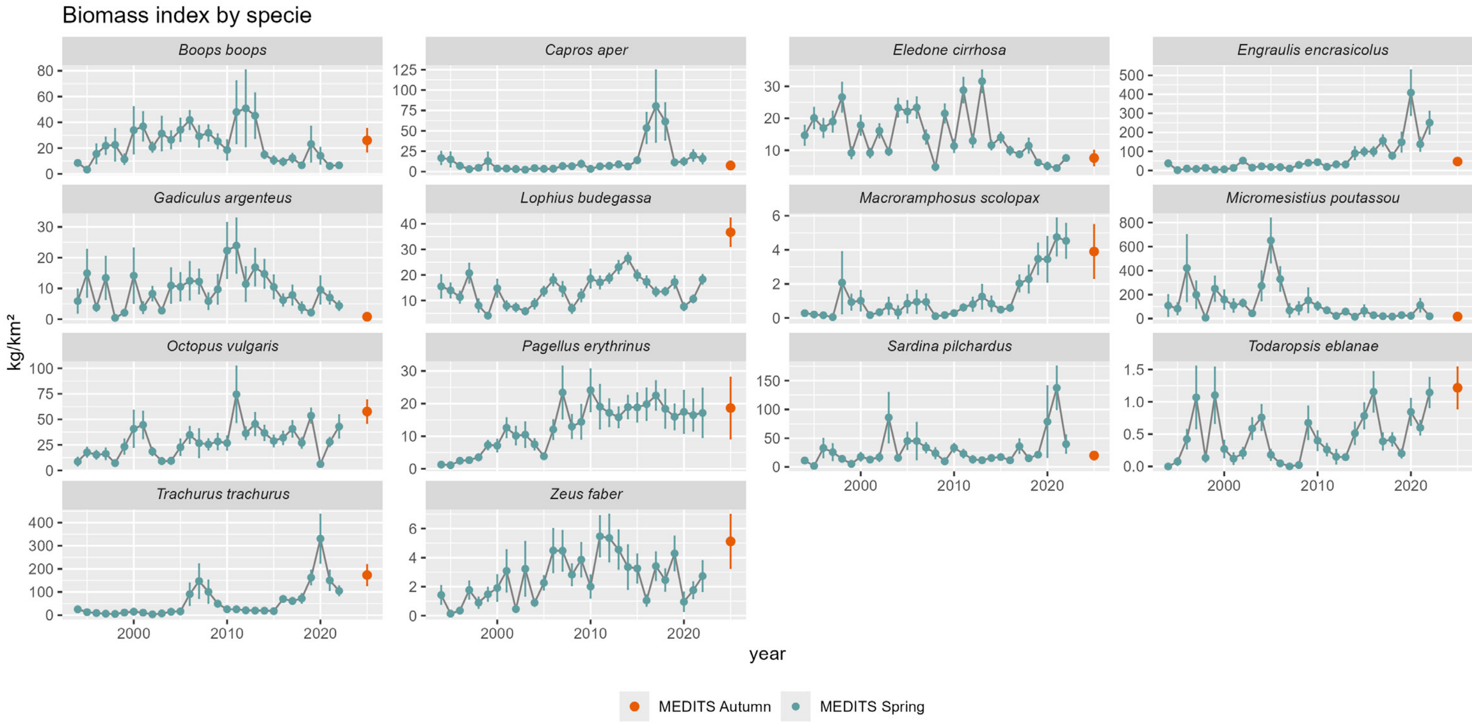

Figure 13. Historical biomass index for other species of interest. Green dots represent biomass indices obtained from MEDITS surveys conducted in spring, while the orange dot corresponds to the biomass index from the MEDITS-AUT25 survey. For the MEDITS spring series, only available data from 1996 to 2022 were used. Dots represent mean values, and error bars indicate the standard deviation.

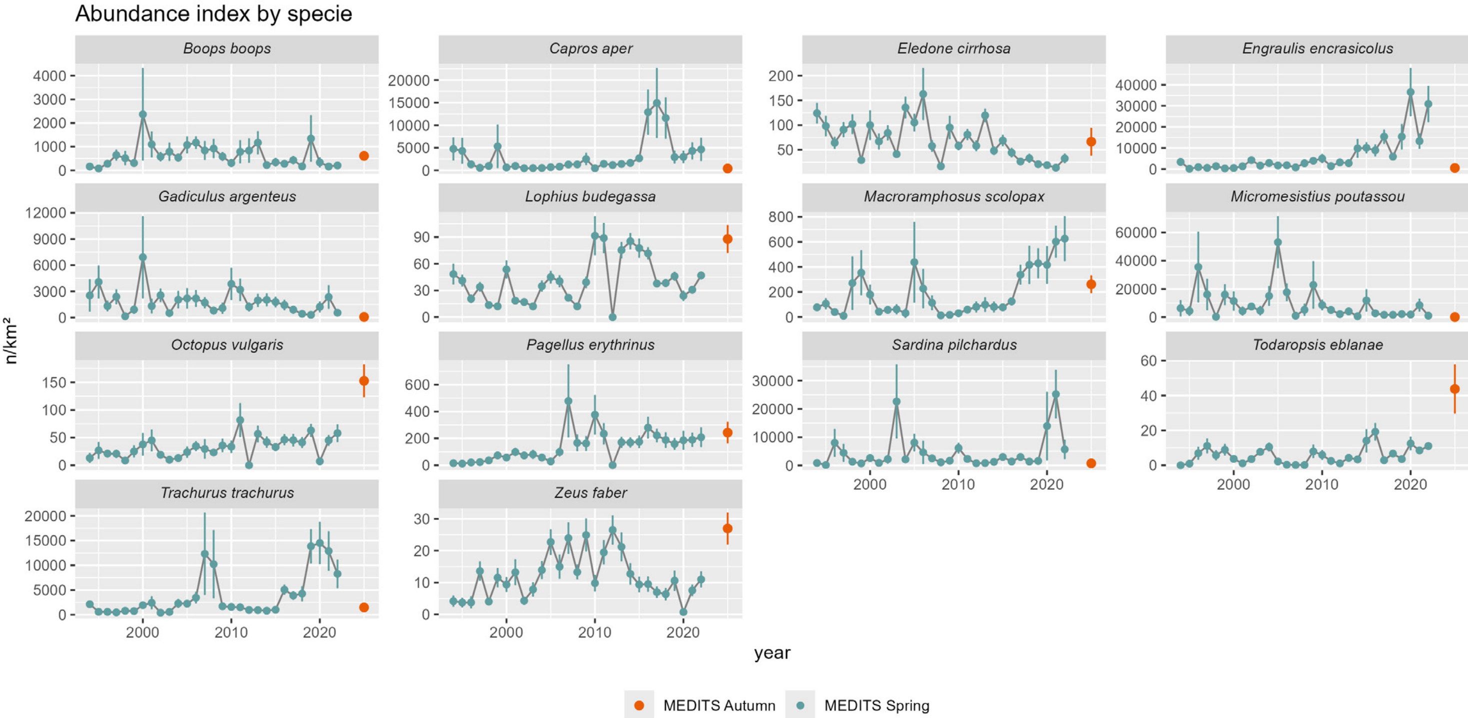

Figure 14. Historical abundance index for other species of interest. Green dots represent abundance indices obtained from MEDITS surveys conducted in spring, while the orange dot corresponds to the abundance index from the MEDITS-AUT25 survey. For the MEDITS spring series, only available data from 1996 to 2022 were used. Dots represent mean values, and error bars indicate the standard deviation.

Spatial occurrence of species in GSA6

Maps of biomass estimates per haul from the MEDITS-AUT25 survey are shown in Figure 15 and Figure 16 for the target species of MEDITS survey. Among the most notable results is the absence of *Parapenaeus longirostris* in the area between Castellón and Valencia, together with higher biomass values observed in the southern zone of GSA6 (Figure 15). In contrast, *Nephrops norvegicus* was practically absent from hauls conducted in GSA6 south, whereas higher biomass values were recorded in GSA6 north (Figure 15). Other species, such as *Illex coindetii*, *Loligo vulgaris*, and *Scyliorhinus canicula*, were distributed throughout the entire GSA6, although with spatial variability in biomass among hauls (Figure 16).

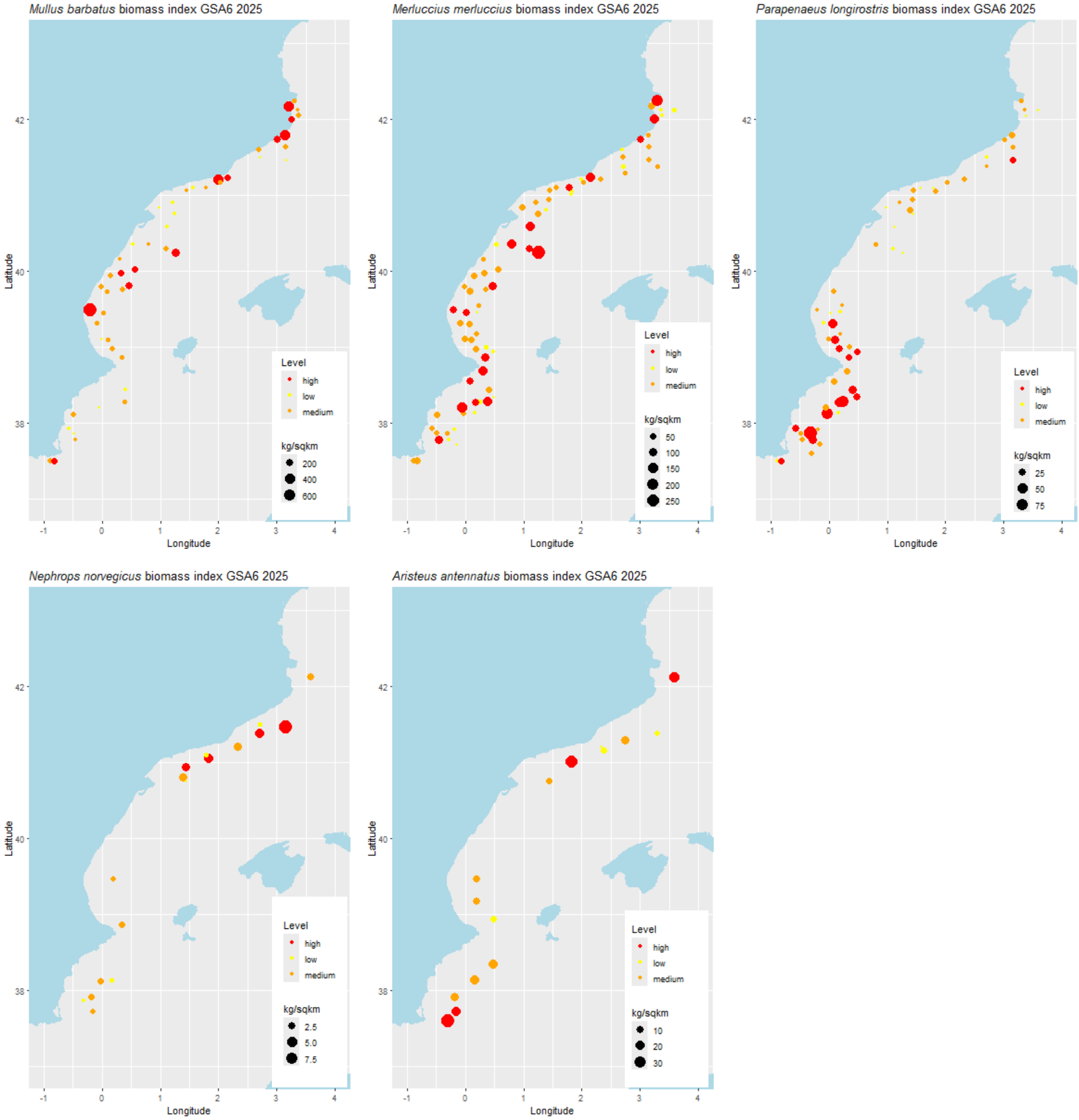

Figure 15. Maps showing the biomass estimates obtained during the MEDITS-AUT25 survey for species regulated under the Western Mediterranean Multiannual Plan (WMMAP). The color and size of the dots indicate biomass levels (kg/km²).

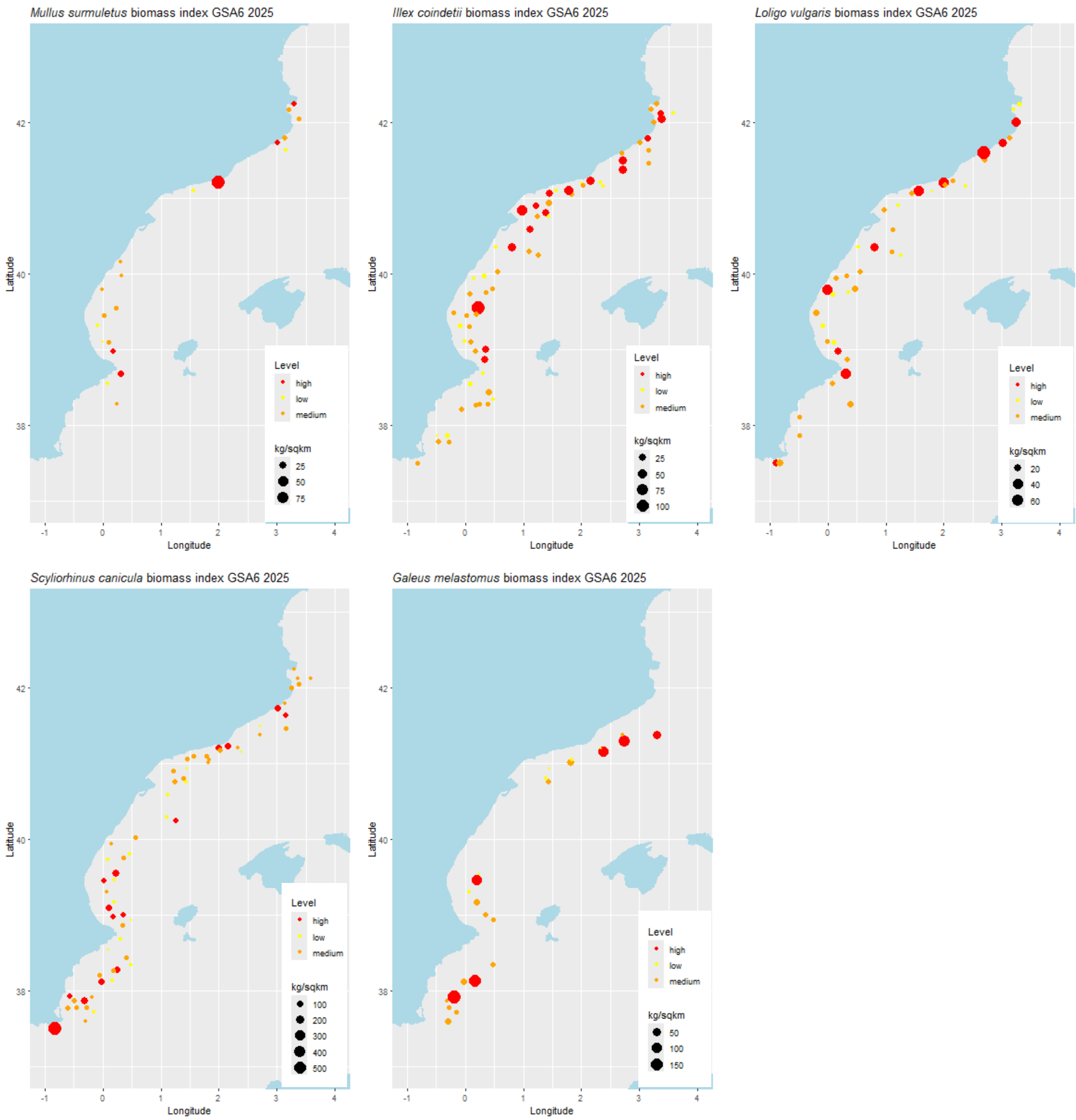

Figure 16. Maps showing the biomass estimates obtained during the MEDITS-AUT25 survey for other target species. The color and size of the dots indicate biomass levels (kg/km²).

SECTION 8
Length-frequency data

Length-frequency data

In this section, abundance at length was estimated for different species sampled during the MEDITS-AUT25 survey. General length–frequency distributions (LFDs) are presented along with a detailed analysis of differences between the two zones (north and south GSA6), both overall and by depth strata. This analysis includes all target species of the MEDITS survey, as well as other species of interest that exhibited marked differences between the northern and southern zones of GSA6 during MEDITS-AUT25. Abundance by length class was estimated by grouping individuals into predefined size intervals and calculating the corresponding standardized abundance within each class.

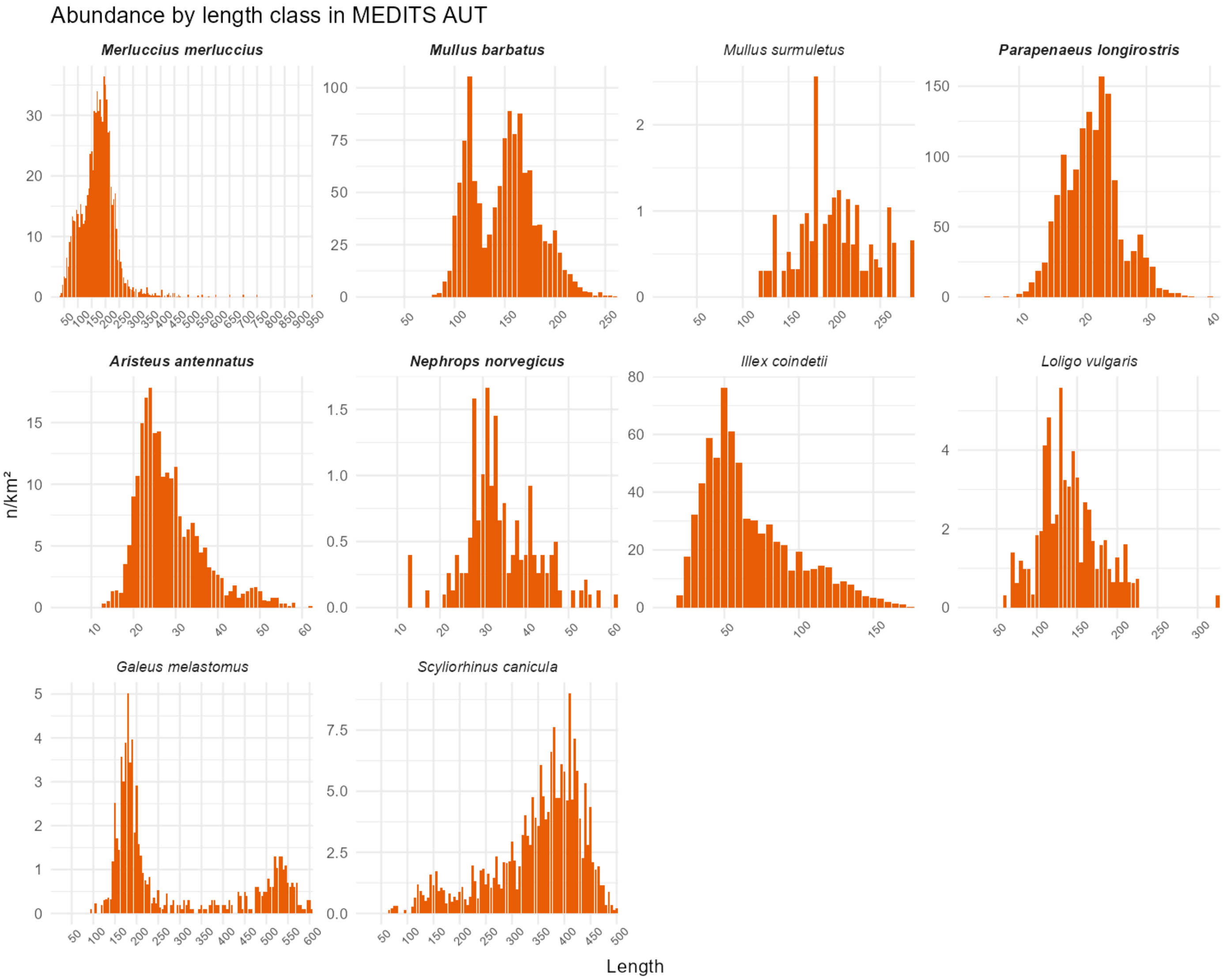

Figure 17. Length-frequency distributions for target species in MEDITS-AUT25 survey. Species shown in bold correspond to those regulated under the Western Mediterranean Multiannual Plan (WMMAP), whereas the remaining species are additional targets of the MEDITS survey.

For some species regulated under the Western Mediterranean Multiannual Plan (WMMAP), contrasting patterns in length–frequency distributions (LFDs) were observed between the northern and southern zones of GSA6. For *Mullus barbatus*, a bimodal pattern was evident, with two peaks: one between 90–110 mm total length (TL) and another between 140–170 mm TL (Figure 17). Smaller individuals were more frequent in the northern zone, whereas higher abundances of individuals >100 mm TL were observed in the south. Most individuals were found in the shallowest depth stratum (10–50 m) (Figure 18) (see section 9). For *Merluccius merluccius*, a bimodal pattern was also observed, with a smaller peak between 60–80 mm TL and a more pronounced peak between 150–200 mm TL (Figure 17). Small individuals were more abundant in the southern area, particularly within the 100–200 m depth stratum (Figure 18), coinciding with higher abundances of *Funiculina quadrangularis (on-board observation)* .

For *Parapenaeus longirostris*, a peak in the LFDs was observed between 20–25 mm cephalothorax length (CL) (Figure 17), with higher abundances recorded in the southern zone, mainly within the 100–200 m and 200–500 m depth strata (Figure 18). In contrast, *Nephrops norvegicus* showed an inverse pattern, being virtually absent in the south (Figure 18). Finally, for *Aristeus antennatus*, a peak was observed between 20–25 mm CL (Figure 17), this peak was present in both areas, although higher abundances of individuals larger than 25 mm CL were recorded in the southern zone (Figure 18).

For other target species of the MEDITS survey, differences between the northern and southern zones of GSA6 were also observed (Figure 17). For *Illex coindetii*, a peak of individuals <50 mm mantle length (ML) was observed in both areas; however, higher abundances of individuals >50 mm ML were recorded in the north. In the southern zone, this species was mainly distributed in the 100–200 m depth stratum, whereas in the north it was also abundant at depths of 50–100 m (Figure 19). For *Galeus melastomus*, a bimodal pattern was observed only in the southern zone, with higher abundances of individuals >200 mm total length (TL), mainly occurring at depths between 200–500 m, suggesting recruitment of this species in this depth stratum. A second, less abundant peak was observed at lengths of 500–550 mm TL, primarily in deeper waters (500–800 m). In the northern zone, lower abundances were recorded and this bimodal pattern was less clearly defined than in the south (Figure 19).

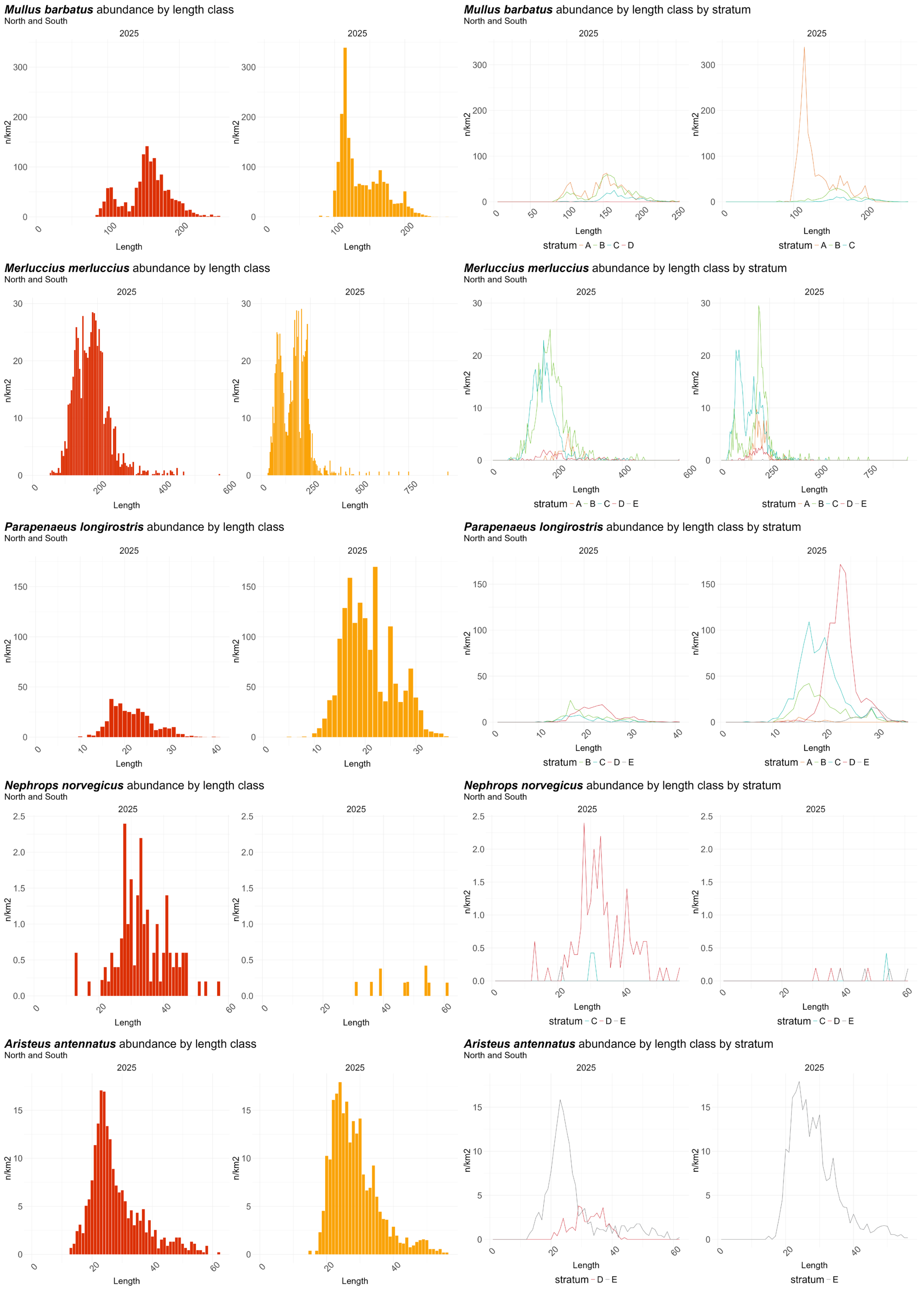

Figure 18. Length–frequency distributions (LFDs) for species regulated under the Western Mediterranean Multiannual Plan (WM-MAP). The left panel shows LFDs in northern and southern GSA6, while the right panel presents LFDs by depth strata in these two areas. Depth strata are coded by letters as follows: A (10–50 m), B (50–100 m), C (100–200 m), D (200–500 m), and E (500–800 m).

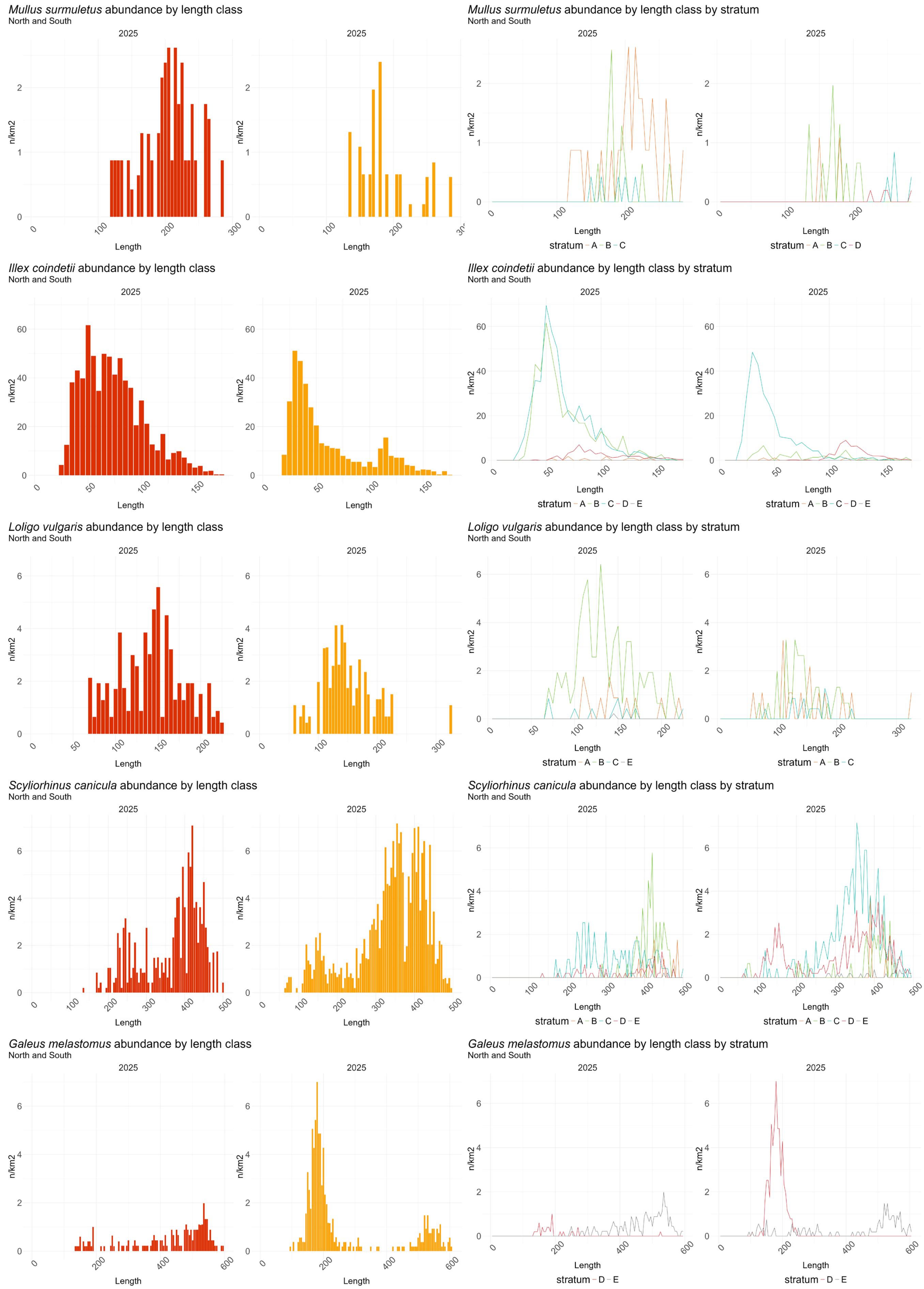

Figure 19. Length–frequency distributions (LFDs) for other target species of MEDITS survey. The left panel shows LFDs in northern and southern GSA6, while the right panel presents LFDs by depth strata within these two areas. Depth strata are coded by letters as follows: A (10–50 m), B (50–100 m), C (100–200 m), D (200–500 m), and E (500–800 m)

LFDs were also examined for other species that exhibited contrasting abundances between the northern and southern zones of GSA6 (Figure 20). *Micromesistius poutassou* was practically absent in the north; however, it showed notable abundances in the south, with a peak in the LFD between 180–210 mm total length (TL), mainly observed at depths between 200–500 m (Figure 21). In contrast, *Engraulis encrasicolus* showed higher abundances in the north, with a peak in the LFD between 60–70 mm TL, primarily associated with the wide continental shelf influenced by the Ebre Delta. Although this species was less abundant in the south, the LFD peak corresponded to larger individuals (>100 mm TL) (Figure 21). *Eledone cirrhosa* was practically absent in the southern zone, whereas *Octopus vulgaris* was more abundant in the south, with a peak between 60–70 mm mantle length (ML), mainly associated with shallower depth strata (Figure 22). Similarly, *Alloteuthis* spp. showed higher abundances in the southern zone, with peaks at approximately 30 mm ML and 45 mm ML (Figure 22).

Interesting patterns were observed when comparing LFDs between the northern and southern zones of GSA6. Although clear contrasts were identified for some species, this comparison is based on data from a single survey; therefore, further investigation using data from future surveys is warranted to confirm the consistency of these patterns. Another aspect worth highlighting is the distribution of hauls across depth strata and areas within GSA6 (see section 2). The observed differences underline the importance of maintaining a homogeneous sampling design, as uneven haul distribution may introduce bias into the results.

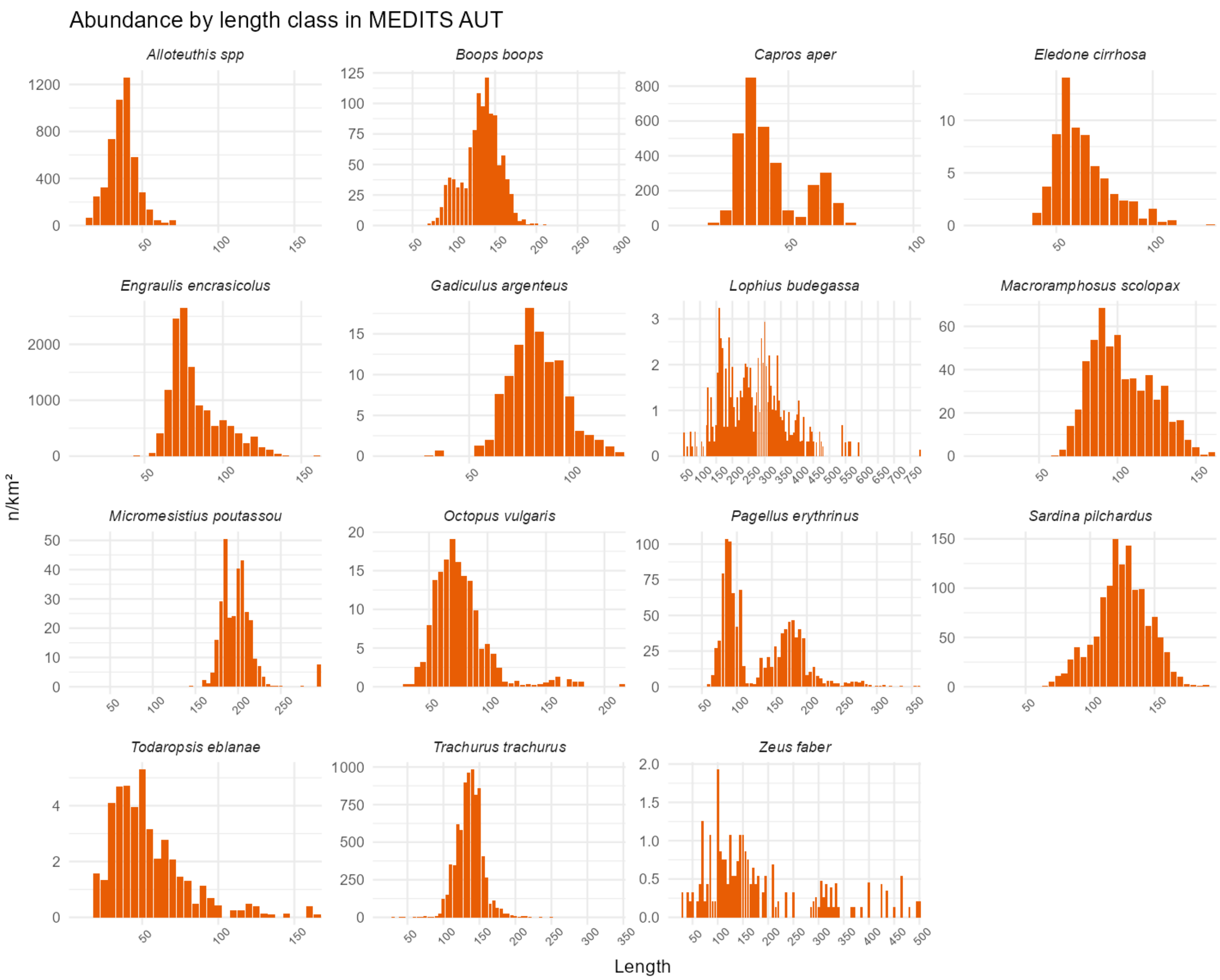

Figure 20. Length-frequency distributions for other species of interest in MEDITS-AUT25 survey.

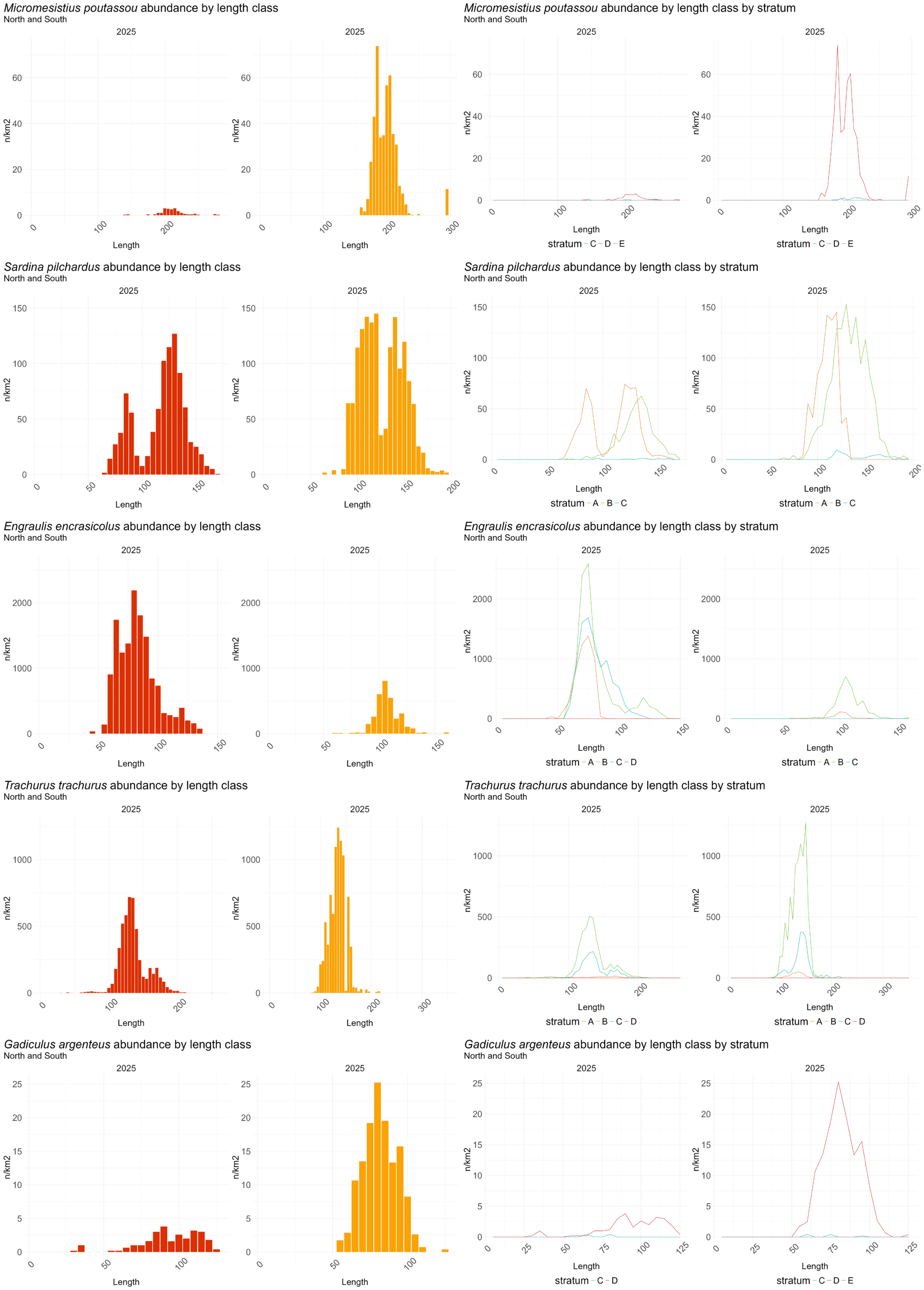

Figure 21. Length–frequency distributions (LFDs) for other fish species of interest. The left panel shows LFDs in northern and southern GSA6, while the right panel presents LFDs by depth strata within these two areas. Depth strata are coded by letters as follows: A (10–50 m), B (50–100 m), C (100–200 m), D (200–500 m), and E (500–800 m).

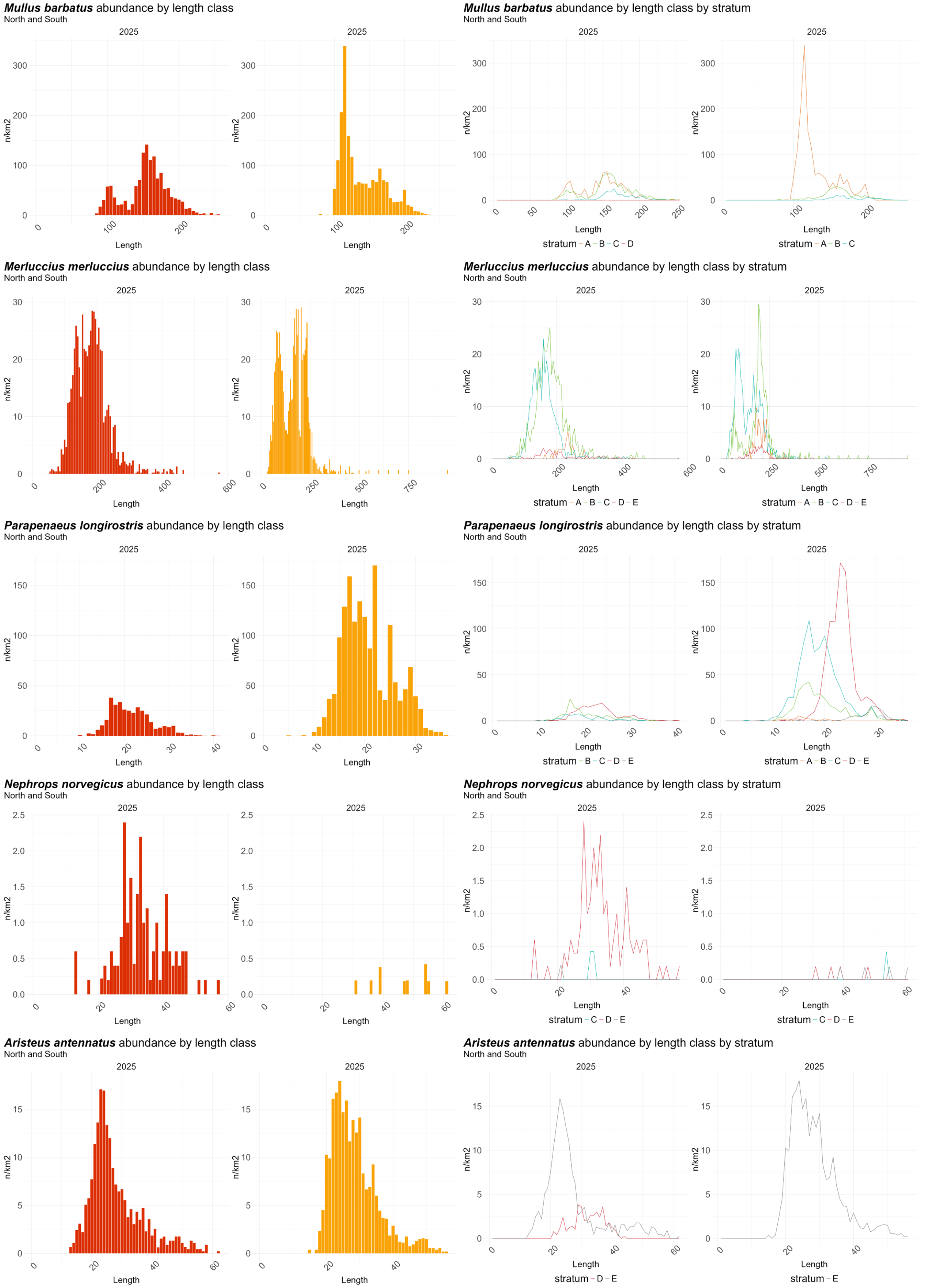

Figure 22. Length–frequency distributions (LFDs) for other cephalopods species of interest. The left panel shows LFDs in northern and southern GSA6, while the right panel presents LFDs by depth strata within these two areas. Depth strata are coded by letters as follows: A (10–50 m), B (50–100 m), C (100–200 m), D (200–500 m), and E (500–800 m).

SECTION 9
Life cycle of the species observed in different seasons

Life cycle of the species observed in different seasons

In this section, the periodicity of the main biological processes throughout the year of several species are reviewed based on available literature. In addition, length–frequency distributions from MEDITS spring surveys and the MEDITS-AUT25 survey are compared, and the main contrasting patterns observed between both surveys are described.

The timing of key life-history processes varies markedly among Mediterranean marine species because of the strong seasonality of the region and the coexistence of species with different biogeographic affinities—some typical of temperate waters and others of warmer origins. This has resulted in a diversification of life-history strategies, whereby different species are adapted to favorable conditions occurring at different times of the year. Accordingly, species typically associated with relatively cold-water environments tend to reproduce during autumn-winter, such as *Nephrops norvegicus*, *Micromesistius poutassou* and *Sardina pilchardus* (Table 10), coinciding with vertical mixing and elevated productivity, whereas thermophilic species, such as *Mullus spp*., *Aristeus antennatus* and *Pagellus erythrinus*, spawn during spring and summer under stratified conditions of the water column. A third group of species exhibits more flexible or prolonged reproductive periods, such as *Merluccius merluccius* and *Parapenaeus longirostris*, in which actively reproductive individuals can be found throughout the year, although they tend to show relative peaks in reproductive activity during spring and autumn.

Table 10. Summary of the expected reproductive and recruitment periods, based on the literature, for species of interest to the MEDITS programme, as well as for other species sampled during MEDITS-AUT25. Species considered within the MAP programme are marked in bold. In the species–month matrix, an asterisk (*) indicates months in which recruitment occurs outside the surveyed area, while a question mark (?) denotes months in which recruitment is expected, but no empirical data are available.

Species MAP+MEDITS	Jan	Febr	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Source
Merluccius merluccius													ICATMAR, 2025;
Mullus barbatus													ICATMAR, 2025; Sabatés et al., 2015
Mullus surmuletus									*	*	*	*	Ferrer-Maza et al., 2015
Parapenaeus longirostris													ICATMAR, 2025
Nephrops norvegicus													ICATMAR, 2025, Rotllant et al., 2005
Aristeus antenatus		*								*	*	*	ICATMAR, 2025; Cartes et al., 2018
Illex coindetii													Sánchez et al., 1988
Loligo vulgaris													Quetglas et al., 2026
Galeus melastomus													Rey et al., 2010; Capapé et al., 2008
Scyliorhinus canicula													Higueruelo et al, 2025
Other species of interest													
Boops boops									?	?	?	?	Tsikliras et al., 2010, Sabatés et al., 2003
Capros aper								?	?	?	?		Raya et al., 2025
Engraulis encrasicolus													ICATMAR, 2025
Gadiculus argenteus													Raya et al., 2025b
Lophius budegassa													Colmenero et al., 2013; La Mesa, M. and De Rossi, F., 200
Micromesistius poutassou													Mir-Arguimbau et al., 2020, 2022
Pagellus erythrinus													Sabatés et al., 2003
Sardina pilchardus													ICATMAR, 2025
Tachurus trachurus													Sabatés et al., 2003; Raya et al 2025b, Uxue 2019
Zeus faber													Ismen et al., 2012
Allotheuthis spp.													Quetglas et al., 2010
Eledone cirrhosa													ICATMAR, 2025, Quetglas et al., 2025
Octopus vulgaris													Icatmar; Gonzalez et al, 2011
Todaropsis eblanae													Hernández-García, 2002

Reproduction

Recruitment *sensu lato*

* Out of study area

? Expected, but no data available

Reproduction time determines the timing of other key life history traits such as recruitment. Recruitment is an inherently ambiguous concept in fisheries science, as it may refer to transition from the larval to the adult habitat, to the incorporation of new cohorts to the fishing gear, or to the commercial catch. In this report, we use recruitment *sensu lato*, treating the abundance of young-of-the-year individuals detected in the field as a proxy for recruitment strength at the population level. Recruitment typically occurs several months after reproduction; therefore, species that reproduce in spring–summer generally recruit in autumn, while species that reproduce in autumn–winter tend to recruit in spring.

Length–frequency distributions (LFDs) obtained during MEDITS-AUT25 revealed marked differences with respect to the spring MEDITS survey for several species whose recruitment is expected to occur predominantly in autumn. *Mullus barbatus* showed a clear bimodal pattern in LFDs, with a first peak around 90–110 mm TL, attributable to young-of-the-year individuals, and a second peak between 140 and 170 mm TL, whereas a single peak around 120 mm TL is typically observed in spring (Figure 23). Similarly, *Pagellus erythrinus* exhibited a high abundance of recruits between 50 and 100 mm TL and a secondary peak of larger individuals between 150 and 200 mm TL during MEDITS-AUT25, contrasting with spring observations, in which this strong recruitment signal is not detected (Figure 24). *Aristeus antennatus* showed higher abundances of individuals between 20 and 25 mm of cephalothorax length during MEDITS-AUT25, whereas this peak was less pronounced in the spring survey. (Figure 23). *Octopus vulgaris* also showed high abundances of individuals between 50 and 100 mm mantle length, consistent with the presence of recently recruited cohorts in autumn (Figure 24). In small pelagic and mesopelagic species, *Engraulis encrasicolus*, although not efficiently sampled by bottom trawling, displayed a high number of individuals around 60–70 mm TL in MEDITS-AUT25, whereas in spring surveys, individuals typically measured around 100 mm TL (Figure 24). *Capros aper* presented very high abundances of small individuals (25-40 mm TL), with a secondary peak around 70 mm TL during MEDITS-AUT25 (Figure 24). *Boops boops* also showed high proportion of individuals of 150 mm of total length in MEDITS-AUT25 (Figure 24).

In contrast, several species displayed LFD patterns broadly consistent with those observed during the spring MEDITS survey. *Merluccius merluccius* showed relatively high abundances of individuals larger than 100 mm TL, although smaller individuals recently recruited were also observed, in line with patterns commonly reported during MEDITS (Figure 23). *Scyliorhinus canicula* and *Galeus melastomus* also exhibited comparable LFD shapes between spring and autumn surveys (Figure 23). Similar consistency between surveys was observed for *Illex coindetii*, with peaks around 50 mm mantle length (Figure 23).

Finally, *Trachurus trachurus, Sardina pilchardus* and *Micromesistius poutassou* represented contrasting cases, as recruitment was not observed during MEDITS-AUT25, despite being typically detected during the spring MEDITS survey (Figure 25 and Figure 24). Similarly, *Parapenaeus longirostris,* although reproducing throughout the year, showed a dominant peak between 20 and 25 mm carapace length in MEDITS-AUT25 LFD, whereas in spring survey LFDs usually exhibit a double-peak pattern indicative of recruitment during that season (Figure 23).

The length–frequency distributions obtained during MEDITS-AUT25 evidenced the relevance of conducting an autumn survey, as they capture key demographic processes that occur outside the temporal window traditionally covered by the MEDITS programme, which is primarily focused on spring and early summer conditions. Implementing an additional survey in autumn therefore provides complementary information, enabling a more comprehensive assessment of population dynamics, recruitment strength and seasonal variability for a wide range of species. Such processes would remain partially unresolved or underestimated if population assessments relied exclusively on spring surveys.

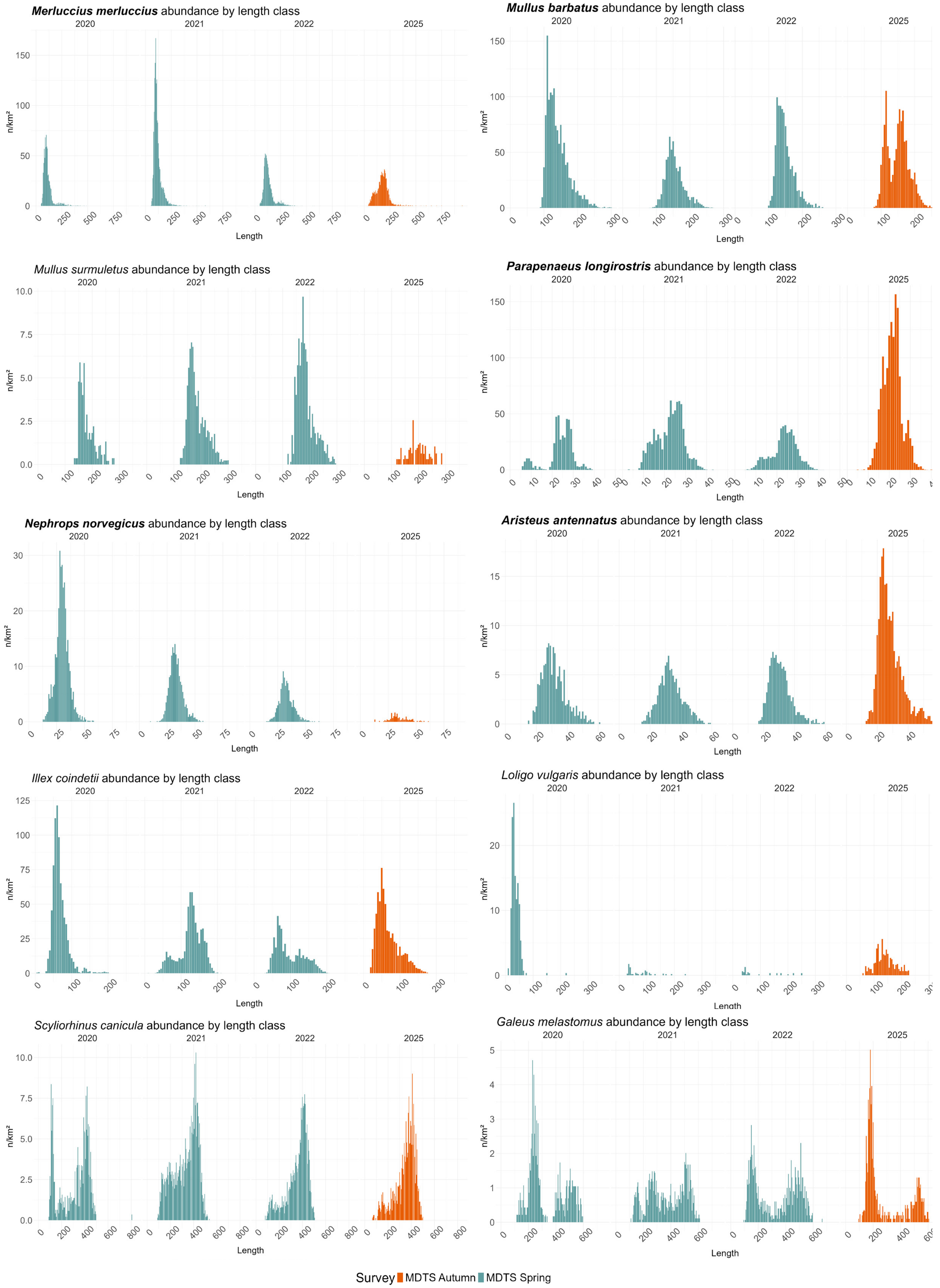

Figure 23. Length-frequency distributions (LFDs) for MEDITS target species. Species shown in bold correspond to those regulated under the Western Mediterranean Multiannual Plan (WMMAP), whereas the remaining species are additional targets of the MEDITS survey. LFDs shown in blue correspond to three MEDITS spring surveys (2020-2022), whereas the orange distributions correspond to data obtained during the MEDITS autumn survey (MEDITS AUT25).

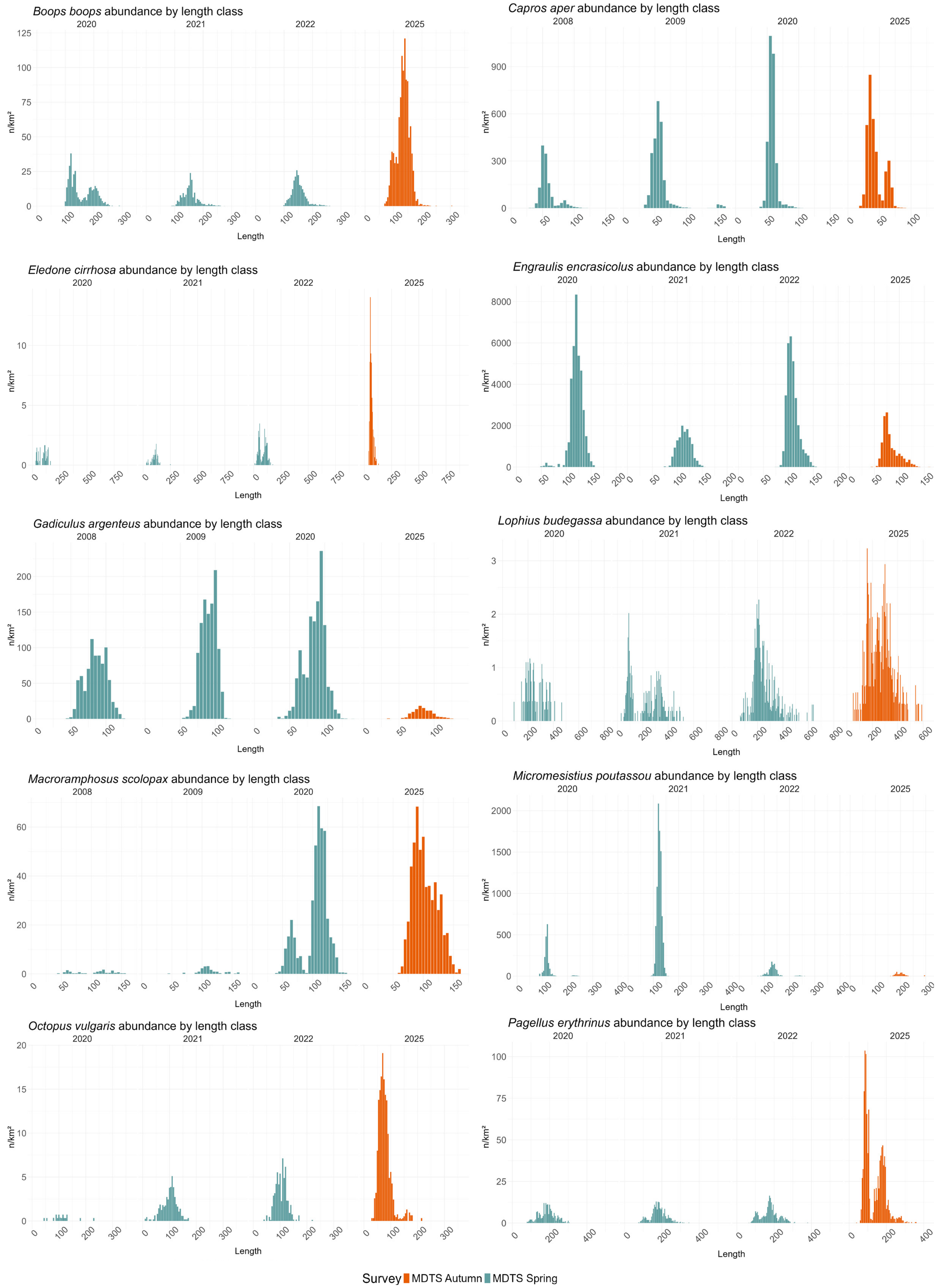

Figure 24. Length-frequency distributions (LFDs) for other species of interest. LFDs shown in blue correspond to three MEDITS spring surveys (2020-2022), whereas the orange distributions correspond to data obtained during the MEDITS autumn survey (MEDITS AUT25). For Capros aper data on MEDITS spring were only available for (2008, 2009 and 2020).

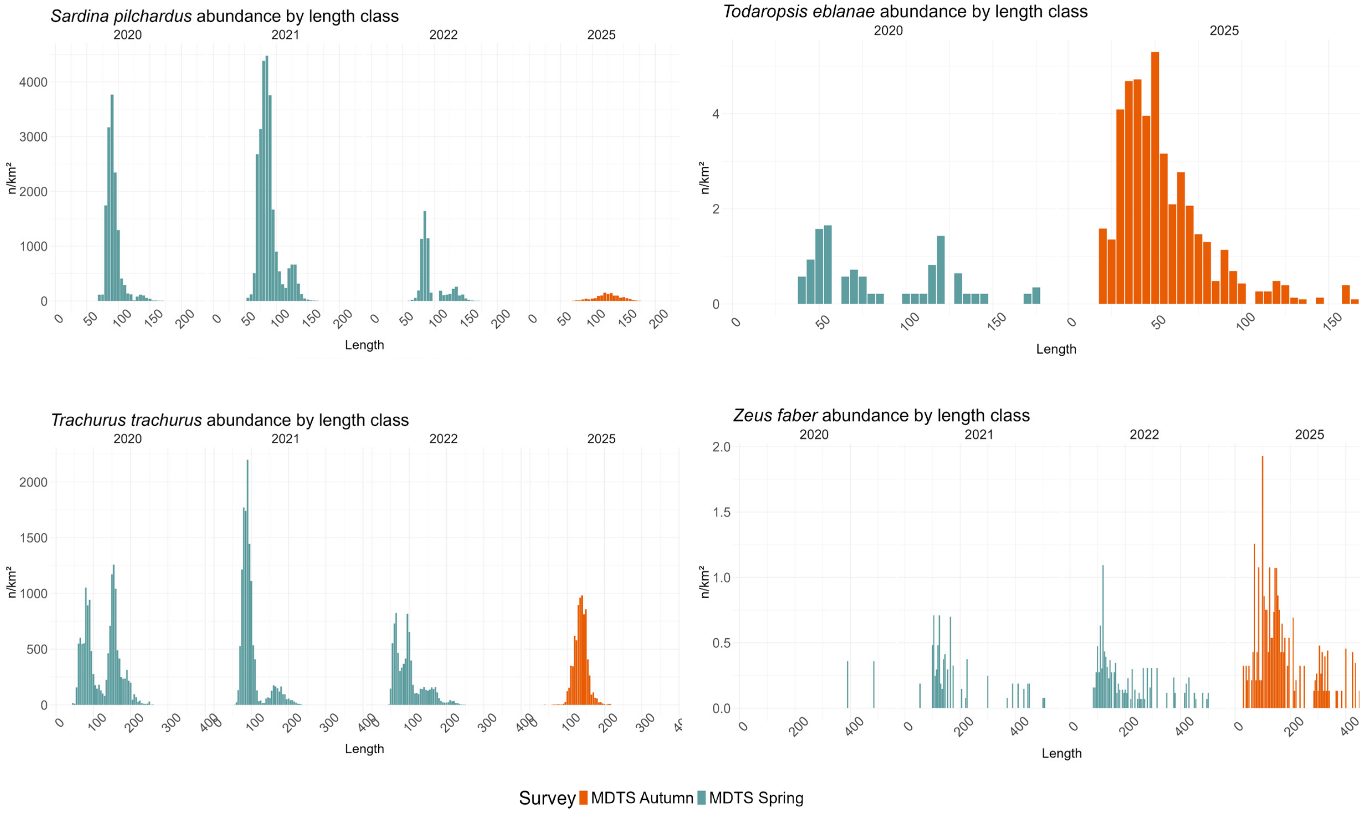

Figure 25. Length-frequency distributions (LFDs) for other species of interest. LFDs shown in blue correspond to three MEDITS spring surveys (2020-2022), whereas the orange distributions correspond to data obtained during the MEDITS autumn survey (MEDITS AUT25). For Todaropsis eblanae length frequency data for MEDITS spring were only available for 2020.

SECTION 10
Problems detected and future needs

Problems detected and future needs

Out of the 83 hauls carried out during the MEDITS-AUT25 survey, four hauls (20, 22, 28 and 61) were considered invalid and were therefore excluded from further analyses. Hauls 20 and 28, corresponding to the 500–800 m depth stratum, were excluded because the fishing gear became stuck on the seabed, preventing the operation from being carried out properly according to MEDITS protocol requirements. Haul 22, also carried out in the 500–800 m depth stratum, was considered invalid due to loss of bottom contact caused by rough seabed topography, which affected the correct functioning of the fishing gear during the haul. Finally, haul 61, conducted in the 0–50 m depth stratum, was excluded after the fishing gear became entangled and was damaged, making its replacement necessary and invalidating the haul under MEDITS operational criteria.

For future surveys, it should be considered that environmental conditions during late autumn (November–December) are generally less favorable than those typically encountered during late spring, when regular MEDITS campaigns are carried out in the area. During autumn, weather conditions are more variable and sea state limitations are more frequent, which can reduce the effectiveness of daily field operations. In addition, the duration of daylight in late autumn is approximately 4–5 hours shorter than in late spring. Since MEDITS sampling is conducted exclusively during daytime, this reduction directly limits the daily operational window. Consequently, MEDITS-AUT campaigns should be planned with a longer overall duration in order to compensate for reduced daylight availability and less stable weather conditions, and to ensure the completion of the planned sampling effort.

Future needs for the survey also include the acquisition of two new gears to ensure the availability of four gears compliant with MEDITS protocol requirements, as well as an additional pair of otter boards, as recommended for conducting regular oceanographic surveys.

SECTION 11
Communication and dissemination

Communication and dissemination

In order to document the oceanographic survey and support its dissemination, a member of the team was responsible for recording photographic and audiovisual material during the second phase of the survey. This resulted in an extensive collection of images, a summary video illustrating the entire experimental fishing process and two short interview capsules featuring two of the participating scientists. These interviews aim to provide a more detailed explanation of the campaign's methodological approach and scientific objectives, while also showing its relevance for society. The capsules were produced as part of the series "Understanding the Sea for a Better Life", which is regularly published through ICATMAR's social media. In addition, a press release was prepared to present the campaign and to outline its relevance for the study of seasonal variability in fisheries resources in the north-western Mediterranean.

Summary video

https://www.instagram.com/p/DTxtef4ilh5/

Capsule 1:

https://www.instagram.com/p/DVIroW5ilwz/

Capsule 2:

https://www.instagram.com/p/DVYRMvQinAh/

Posts

https://www.instagram.com/p/DQ__igujAfX/

https://www.instagram.com/p/DRKFNmeDLXu/

https://www.instagram.com/p/DRebKhWjGZv/?img_index=1

https://www.instagram.com/p/DSUmFabjCKQ/?img_index=1

Press release

https://www.industriaspesqueras.com/noticia-87281-sec-Investigaci%C3%B3n

https://www.icm.csic.es/es/noticia/el-icatmar-inicia-su-primera-campana-oceanografica-para-evaluar-el-estado-de-los-recursos

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Annexes

Annex 1. List of hauls planned for execution during the MEDITS-AUT25 oceanographic survey, including their spatial distribution and associated sampling strata.

COORDENADES PESQUES PLANIFICADES
MEDITS - AUT25 (GSA 6)

SECTOR	SUB SECTOR	ESTRAT	CODI	LAT inici	LON inici	LAT final	LON final	PRIORITAT
North	North-1	A	1A	42°9'51.10"N	3°12'0.66"E	42°11'15.61"N	3°12'1.29"E	TRUE
			2A	41°28'55.93"N	2°28'35.91"E	41°28'31.89"N	2°26'48.59"E	TRUE
		B	1B	42°14'24.23"N	3°18'11.75"E	42°15'43.37"N	3°18'52.07"E	TRUE
			2B	42°10'1.22"N	3°15'33.25"E	42°8'37.79"N	3°15'50.62"E	FALSE
			3B	42°0'33.14"N	3°14'49.86"E	41°59'8.66"N	3°14'45.15"E	TRUE
			4B	41°48'29.17"N	3°8'44.72"E	41°47'10.14"N	3°8'4.16"E	TRUE
			5B	41°44'10.01"N	3°0'51.57"E	41°43'26.69"N	2°59'14.88"E	FALSE
			6B	41°36'8.40"N	2°42'10.23"E	41°35'15.99"N	2°40'41.92"E	TRUE
			7B	41°27'52.52"N	2°33'50.47"E	41°27'0.32"N	2°32'22.12"E	FALSE
			8B	41°25'48.61"N	2°21'54.13"E	41°25'3.89"N	2°20'18.96"E	TRUE
		C	1C	42°14'33.35"N	3°22'28.31"E	42°13'9.96"N	3°22'9.26"E	FALSE
			2C	42°7'12.61"N	3°21'35.56"E	42°5'48.09"N	3°21'35.90"E	TRUE
			3C	42°3'0.30"N	3°23'0.06"E	42°1'53.52"N	3°21'55.57"E	TRUE
			4C	41°48'0.30"N	3°14'0.54"E	41°46'36.16"N	3°13'48.79"E	FALSE
			5C	41°39'31.03"N	3°10'52.60"E	41°38'21.27"N	3°9'48.71"E	TRUE
			6C	41°30'35.71"N	2°44'14.42"E	41°29'45.85"N	2°42'43.71"E	TRUE
			7C	41°14'44.96"N	2°9'58.55"E	41°13'53.52"N	2°8'29.69"E	TRUE
		D	1D	42°14'31.80"N	3°33'37.94"E	42°12'14.77"N	3°35'49.22"E	TRUE
			2D	42°1'31.33"N	3°33'16.42"E	41°58'51.90"N	3°32'8.04"E	FALSE
			3D	41°41'0.30"N	3°28'0.12"E	41°38'28.57"N	3°26'19.91"E	TRUE
			4D	41°26'34.73"N	3°5'5.36"E	41°29'15.79"N	3°3'58.64"E	TRUE
			5D	41°24'12.19"N	2°45'35.62"E	41°22'43.03"N	2°42'25.22"E	TRUE
			6D	41°15'38.40"N	2°28'50.68"E	41°15'19.49"N	2°25'9.30"E	FALSE
			7D	41°12'36.77"N	2°20'8.50"E	41°11'50.62"N	2°16'34.07"E	TRUE
		E	1E	42°20'49.14"N	3°23'51.69"E	42°19'22.03"N	3°27'5.08"E	TRUE
			2E	41°53'2.64"N	3°23'7.67"E	41°52'54.98"N	3°19'23.02"E	TRUE
			3E	41°36'36.69"N	3°27'3.27"E	41°35'28.04"N	3°23'38.17"E	FALSE
			4E	41°22'54.95"N	3°18'28.51"E	41°23'2.19"N	3°14'45.78"E	TRUE
			5E	41°30'4.00"N	2°59'20.84"E	41°30'51.23"N	2°55'46.70"E	TRUE
			6E	41°17'50.46"N	2°47'38.33"E	41°17'50.97"N	2°43'55.62"E	TRUE
			7E	41°9'12.86"N	2°21'53.59"E	41°9'4.55"N	2°18'11.57"E	TRUE
	North-2	A	3A	41°12'19.75"N	1°59'29.19"E	41°11'15.99"N	1°58'15.44"E	FALSE
			4A	41°9'36.85"N	1°52'52.10"E	41°9'23.21"N	1°51'2.28"E	TRUE
			5A	40°50'19.36"N	0°51'14.23"E	40°48'54.81"N	0°51'16.65"E	TRUE
			6A	40°43'8.85"N	0°56'57.36"E	40°41'44.45"N	0°57'3.84"E	FALSE
			7A	40°31'54.76"N	0°47'20.97"E	40°32'33.42"N	0°48'59.38"E	FALSE
			8A	40°22'0"N	0°32'0.48"E	40°20'40.91"N	0°31'20.34"E	TRUE
			9A	40°9'27.90"N	0°18'33.64"E	40°8'20.48"N	0°17'26.54"E	FALSE
		B	9B	41°10'53.17"N	2°1'59.95"E	41°9'47.40"N	2°0'49.37"E	TRUE
			10B	41°6'8.56"N	1°33'50.97"E	41°5'54.13"N	1°32'1.40"E	TRUE
			11B	41°1'7.36"N	1°9'5.22"E	41°0'55.62"N	1°7'15.26"E	FALSE
			12B	40°55'35.50"N	1°13'8.36"E	40°54'12.78"N	1°12'44.21"E	TRUE
			14B	40°44'59.09"N	1°4'40.35"E	40°45'33.01"N	1°3'3.63"E	FALSE
			13B	40°51'9.88"N	0°58'48.13"E	40°51'23.62"N	0°56'59.16"E	TRUE
			15B	40°36'22.19"N	1°5'30.32"E	40°35'28.42"N	1°6'54.69"E	TRUE
			16B	40°28'15.35"N	0°52'54.93"E	40°27'6.47"N	0°54'4.13"E	FALSE
			19B	40°18'0.54"N	1°7'0.42"E	40°16'53.07"N	1°5'53.36"E	TRUE
			17B	40°22'0.12"N	0°48'0.12"E	40°20'40.96"N	0°47'20.24"E	TRUE

Annex 1. List of hauls planned for execution during the MEDITS-AUT25 oceanographic survey, including their spatial distribution and associated sampling strata.

Institut Català de Recerca per a la Governança del Mar

COORDENADES PESQUES PLANIFICADES
MEDITS - AUT25 (GSA 6)

SECTOR	SUB SECTOR	ESTRAT	CODI	LAT inici	LON inici	LAT final	LON final	PRIORITAT
			18B	40°18'0.48"N	0°36'0.06"E	40°16'53.80"N	0°37'6.67"E	FALSE
			20B	40°10'10.69"N	0°41'21.99"E	40°8'59.02"N	0°42'19.23"E	FALSE
			21B	40°6'0.06"N	0°54'0.12"E	40°5'14.58"N	0°55'31.69"E	TRUE
			23B	39°58'4.86"N	0°43'36.29"E	39°58'31.24"N	0°41'52.99"E	FALSE
			22B	40°1'0"N	0°33'0.36"E	40°2'7.40"N	0°34'7.36"E	TRUE
		C	8C	41°5'55.60"N	1°47'22.03"E	41°6'22.02"N	1°45'36.85"E	FALSE
			9C	41°3'27.12"N	1°27'25.46"E	41°2'57.58"N	1°25'41.16"E	TRUE
			10C	40°45'18.78"N	1°14'52.47"E	40°45'37.84"N	1°13'5.11"E	TRUE
			11C	40°28'58.75"N	1°13'13.08"E	40°29'20.98"N	1°11'27.26"E	FALSE
			12C	40°18'29.85"N	1°15'54.83"E	40°17'14.64"N	1°15'3.58"E	TRUE
		D	8D	41°2'34.10"N	1°49'52.03"E	41°2'14.56"N	1°46'11.47"E	FALSE
			9D	40°56'46.99"N	1°26'34.31"E	40°55'4.27"N	1°23'37.12"E	TRUE
			10D	40°48'34.04"N	1°22'54.42"E	40°45'46.22"N	1°23'20.63"E	FALSE
			11D	40°33'25.31"N	1°23'45.30"E	40°30'36.26"N	1°23'32.31"E	TRUE
		E	8E	41°0'33.89"N	1°50'45.30"E	41°0'12.53"N	1°47'5.13"E	TRUE
			9E	40°44'13.90"N	1°25'45.47"E	40°46'55.45"N	1°26'53.11"E	TRUE
South	South-1	A	10A	39°57'14.76"N	0°7'19.25"E	39°56'25.11"N	0°8'46.85"E	TRUE
			11A	39°47'38.36"N	0°0'18.86"W	39°46'35.59"N	0°1'32.82"W	TRUE
			12A	39°30'15.56"N	0°12'10.37"W	39°28'53.75"N	0°12'39.69"W	TRUE
			13A	39°10'41.20"N	0°7'7.69"W	39°9'37.80"N	0°5'57.19"W	FALSE
			14A	38°51'12.64"N	0°10'13.23"E	38°50'19.06"N	0°11'32.65"E	TRUE
		B	24B	39°57'0.54"N	0°19'0.48"E	39°58'17.41"N	0°19'47.30"E	TRUE
			25B	39°49'23.83"N	0°27'49.55"E	39°48'5.65"N	0°28'30.23"E	TRUE
			26B	39°49'17.94"N	0°15'5.54"E	39°48'54.74"N	0°13'20.52"E	FALSE
			27B	39°43'43.26"N	0°5'7.12"E	39°42'50.79"N	0°3'41.03"E	TRUE
			28B	39°37'20.56"N	0°6'4.97"W	39°36'14.14"N	0°7'13.31"W	FALSE
			29B	39°26'27.60"N	0°8'29.90"W	39°25'3.42"N	0°8'43.25"W	FALSE
			30B	39°20'0.36"N	0°7'0.54"W	39°18'54.02"N	0°5'54.40"W	TRUE
			31B	39°6'57.59"N	0°1'26.41"W	39°5'53.87"N	0°0'16.45"W	TRUE
			32B	38°58'0.48"N	0°11'0.36"E	38°59'25.22"N	0°10'59.85"E	TRUE
			33B	38°49'0"N	0°16'0.30"E	38°50'6.07"N	0°14'54.16"E	FALSE
		C	13C	39°44'51.12"N	0°23'18.91"E	39°45'24.94"N	0°21'39.72"E	TRUE
			14C	39°37'7.65"N	0°9'16.20"E	39°37'7.57"N	0°11'4.71"E	FALSE
			15C	39°27'0.06"N	0°1'0.06"E	39°28'7.28"N	0°2'6.95"E	TRUE
			16C	39°18'0.30"N	0°2'0"W	39°16'52.83"N	0°0'55.76"W	FALSE
			17C	39°6'0.12"N	0°6'0.54"E	39°7'6.34"N	0°4'54.39"E	TRUE
			18C	38°53'0.12"N	0°20'0.06"E	38°51'35.36"N	0°20'0.32"E	TRUE
		D	12D	39°35'0.30"N	0°16'0.42"E	39°32'46.00"N	0°13'46.27"E	TRUE
			13D	39°21'6.84"N	0°3'55.52"E	39°18'16.61"N	0°3'55.50"E	TRUE
			14D	39°8'0.24"N	0°11'0.42"E	39°6'11.48"N	0°13'43.92"E	FALSE
			15D	39°2'0.48"N	0°19'0.42"E	38°59'48.14"N	0°21'12.76"E	TRUE
		E	10E	39°28'0.06"N	0°12'0.48"E	39°26'49.88"N	0°8'42.39"E	TRUE
			11E	39°11'30.37"N	0°9'4.29"E	39°9'41.58"N	0°11'47.90"E	TRUE
			12E	38°58'9.15"N	0°26'52.39"E	38°55'43.27"N	0°28'47.23"E	TRUE
	South -2	A	15A	37°49'19.11"N	0°38'22.75"W	37°50'40.52"N	0°38'54.79"W	FALSE
			16A	37°43'0.54"N	0°38'0"W	37°41'53.87"N	0°39'6.47"W	TRUE
		B	34B	38°41'0.54"N	0°18'0.06"E	38°40'14.86"N	0°16'29.23"E	TRUE
			36B	38°27'11.39"N	0°13'46.53"E	38°27'41.05"N	0°12'7.12"E	FALSE
			35B	38°32'41.81"N	0°5'15.86"E	38°32'37.12"N	0°3'29.18"E	TRUE

Annex 1. List of hauls planned for execution during the MEDITS-AUT25 oceanographic survey, including their spatial distribution and associated sampling strata.

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COORDENADES PESQUES PLANIFICADES
MEDITS - AUT25 (GSA 6)

SECTOR	SUB SECTOR	ESTRAT	CODI	LAT inici	LON inici	LAT final	LON final	PRIORITAT
			37B	38°23'26.21"N	0°11'40.12"W	38°22'23.87"N	0°12'53.39"W	FALSE
			39B	38°15'0.42"N	0°14'0.30"W	38°16'25.23"N	0°14'0.09"W	TRUE
			38B	38°21'0.06"N	0°2'0.36"W	38°22'6.85"N	0°0'53.64"W	TRUE
			40B	38°6'30.23"N	0°29'2.75"W	38°5'26.63"N	0°30'14.05"W	FALSE
			41B	37°54'0.54"N	0°34'0.42"W	37°55'25.39"N	0°33'58.88"W	TRUE
			42B	37°43'8.78"N	0°33'43.60"W	37°42'5.21"N	0°34'54.64"W	TRUE
			43B	37°38'0.12"N	0°38'0.30"W	37°36'53.65"N	0°39'7.03"W	FALSE
			44B	37°30'43.14"N	0°51'2.09"W	37°30'28.15"N	0°52'45.90"W	TRUE
		C	19C	38°35'8.66"N	0°24'26.65"E	38°33'56.31"N	0°23'29.80"E	FALSE
			20C	38°26'0.48"N	0°24'0.18"E	38°27'19.58"N	0°24'39.86"E	TRUE
			21C	38°18'0.18"N	0°4'0.42"E	38°18'45.60"N	0°5'31.01"E	FALSE
			22C	38°6'0.18"N	0°13'0"W	38°4'53.67"N	0°14'6.97"W	TRUE
			23C	37°54'0.30"N	0°29'0.06"W	37°55'7.05"N	0°27'53.57"W	FALSE
			24C	37°44'0.18"N	0°30'0.18"W	37°42'53.74"N	0°31'7.02"W	TRUE
			25C	37°34'0"N	0°37'0.48"W	37°32'40.66"N	0°37'39.36"W	FALSE
			26C	37°29'32.26"N	0°49'1.95"W	37°29'16.83"N	0°50'45.64"W	TRUE
		D	16D	38°28'0.48"N	0°28'0.42"E	38°25'20.68"N	0°26'46.43"E	FALSE
			17D	38°17'0.30"N	0°15'0.06"E	38°15'10.70"N	0°12'15.98"E	TRUE
			18D	38°7'0.54"N	0°2'0.00"W	38°5'54.68"N	0°5'16.63"W	FALSE
			19D	37°52'0.24"N	0°21'0.06"W	37°54'30.80"N	0°19'19.83"W	TRUE
			20D	37°44'0.12"N	0°13'0.48"W	37°41'21.84"N	0°14'19.49"W	TRUE
			21D	37°32'53.93"N	0°31'33.43"W	37°32'12.16"N	0°34'58.17"W	TRUE
		E	13E	38°20'0.42"N	0°29'0.06"E	38°18'10.72"N	0°26'16.02"E	TRUE
			14E	38°8'2.17"N	0°10'17.07"E	38°7'28.47"N	0°6'48.53"E	FALSE
			15E	38°4'0.48"N	0°0'0.18"W	38°2'54.81"N	0°3'16.77"W	TRUE
			16E	37°54'29.36"N	0°13'45.87"W	37°54'33.57"N	0°10'14.32"W	FALSE
			17E	37°44'0.30"N	0°6'0.48"W	37°43'9.74"N	0°9'22.76"W	TRUE
			18E	37°35'23.11"N	0°18'39.90"W	37°35'30.48"N	0°22'10.15"W	TRUE

Annex 2. Sampling forms used for all data collected in the MEDITS-AUT25 oceanographic survey.

icat mar Institut Català de Recerca per a la Governança del Mar **CARACTERÍSTICAS PESCAS** MEDITS – AUT 25 (GSA 6)	**Fecha:** **Código pesca:** **N.º Pesca:** **Responsable:**
Campaña: MEDITS- AUT 25	**Código arte:** GOC 73
Buque Oceanográfico: Vizconde de Eza	**MARPORT (S/N):**
Área (subsector): GSA-6 ( )	**Validez** (0=no válido; 1=válido; 2= especial)**:**
Estrato (código MEDITS):	**Nº. serie CTD:**

	LARGADO/ INICIO CALADA	ART FERM/ INICIO PESCA
Hora (hh:mm)		
Profundidad (m)		
Latitud (grados, minutos N/S)		
Longitud (grados, minutos E/W)		
Nudos (kn)		
Tª (ºC)		
Salinitat (ppm)		
	VIRADO	**ARTE A BORDO / FINAL CALADA**
Hora (hh:mm)		
Profundidad (m)		
Latitud (grados, minutos N/S)		
Longitud (grados, minutos E/W)		
Nudos (kn)		
Tª (ºC)		
Salinitat (ppm)		

DATOS GENERALES

Longitud del cable (m)		Fuerza del viento (Beaufort)	
Diámetro del cable (mm)		Estado de la mar (Douglas)	
Malletas (m)		Nubosidad (Octas)	
Abertura horizontal arte (m)		Viento dominante	
Abertura vertical arte (m)			
Distancia puertas (m)			
Filtrado SCANMAR			
Simetría red (+/-) +: largo de estribor; -: largo de babor			

OBSERVACIONES:

Annex 2. Sampling forms used for all data collected in the MEDITS-AUT25 oceanographic survey.

Institut Català de Recerca per a la Governança del Mar

FAUNÍSTICA 1

MEDITS - AUT25 (GSA 6)

Data: **Pesca:**

Responsable:

OSTEÏCTIS	Captura		Submostra		OSTEÏCTIS	Captura		Submostra	
	n	Pes (g)	n	Pes (g)		n	Pes (g)	n	Pes (g)
Acantholabrus palloni					Electrona risso				
Alepocephalus rostratus					Engraulis encrasicolus				
Alosa fallax					Epigonus constanciae				
Anthias anthias					Epigonus denticulatus				
Aphia minuta					Epigonus telescopus				
Apterichtus anguiformis					Eutrigla gurnardus				
Apterichtus caecus					Evermannella balbo				
Arctozenus risso					Fistularia commersonii				
Argentina sphyraena					Gadella maraldi				
Argyropelecus hemigymnus					Gadiculus argenteus				
Ariosoma balearicum					Gaidropsarus macrophthalmus				
Arnoglossus imperialis					Glossanodon leioglossus				
Arnoglossus laterna					Gnathophis mystax				
Arnoglossus rueppelii					Gobius niger				
Arnoglossus thori					Gonostoma denudatum				
Aulopus filamentosus					Helicolenus dactylopterus				
Balistes capriscus					Hoplostethus mediterraneus				
Bathophilus nigerrimus					Hymenocephalus italicus				
Bathypterois mediterraneus					Lampanyctus crocodilus				
Bathysolea profundicola					Lappanella fasciata				
Bellotia apoda					Lepidion lepidion				
Benthocometes robustus					Lepidopus caudatus				
Borostomias antarcticus					Lepidorhombus boscii				
Benthosema glaciale					Lepidorhombus whiffiagonis				
Blennius ocellaris					Lepidotrigla cavillone				
Boops boops					Lepidotrigla dieuzeidei				
Bothus podas					Lestidiops jayakari				
Brama brama					Lestidiops sphyraenoides				
Buglossidium luteum					Lesueurigobius friesii				
Callanthias ruber					Lesueurigobius sanzi				
Callionymus lyra					Lesueurigobius suerii				
Callionymus maculatus					Lithognathus mormyrus				
Callionymus risso					Lophius budegassa				
Capros aper					Lophius piscatorius				
Caranx crysos					Macrorhamphosus scolopax				
Caranx rhonchus					Maurolicus muelleri				
Carapus acus					Melanostigma atlanticum				
Centrolophus niger					**Merluccius merluccius**				
Centracanthus cirrus					Microchirus ocellatus				
Cepola macrophthalma					Microchirus variegatus				
Ceratoscopelus maderensis					Micromesistius poutassou				
Chauliodus sloani					Microstoma microstoma				
Chelidonichthys cuculus					Molva macrophthalma				
Chelidonichthys lastoviza					Molva molva				
Chelidonichthys lucerna					Monochirus hispidus				
Chelidonichthys obscurus					Mora moro				
Chelon auratus					Mugil cephalus				
Chelon labrosus					**Mullus barbatus**				
Chelon ramada					**Mullus surmuletus**				
Chelon saliens					Myctophum punctatum				
Chlopsis bicolor					Nemichthys scolopaceus				
Chlorophthalmus agassizi					Nettastoma melanura				
Citharus linguatula					Nezumia aequalis				
Coelorinchus caelorinchus					Notacanthus bonaparte				
Conger conger					Notoscopelus elongatus				
Crystallogobius linearis					Ophichthus rufus				
Cubiceps gracilis					Ophidion barbatum				
Dactylopterus volitans					Ophisurus serpens				
Dalophis imberbis					Pagellus acarne				
Deltentosteus quadrimaculatus					Pagellus bogaraveo				
Dentex dentex					Pagellus erythrinus				
Dicentrarchus labrax					Pagrus pagrus				
Diplodus annularis					Pegusa impar				
Diplodus sargus					Pegusa lascaris				
Diplodus vulgaris					Peristedion cataphractum				
Echelus myrus					Phycis blennoides				
Echiodon dentatus					Phycis phycis				

Annex 2. Sampling forms used for all data collected in the MEDITS-AUT25 oceanographic survey.

Institut Català de Recerca per a la Governança del Mar

FAUNÍSTICA 1

MEDITS - AUT25 (GSA 6)

Data: **Pesca:**

Responsable:

OSTEÏCTIS	Captura		Submostra		CONDRICTIS	Captura		Submostra	
	n	Pes (g)	n	Pes (g)		n	Pes (g)	n	Pes (g)
Polyacanthonotus rissoanus					Centrophorus granulosus (*)				
Polymetme corythaeola					Chimaera monstrosa				
Polyprion americanus					**Dalatias licha**				
Pomadasys incisus					Dasyatis pastinaca (**)				
Pomatomus saltatrix					Dasyatis tortonesei (**)				
Pomatoschistus microps					Dipturus batis (*)				
Sardina pilchardus					**Dipturus oxyrinchus (**)**				
Sardinella aurita					**Etmopterus spinax**				
Sardinella maderensis					**Galeorhinus galeus**				
Sarpa salpa					**Galeus melastomus**				
Scomber colias					Gymnura altavela				
Scomber scombrus					Heptranchias perlo (*)				
Scophthalmus rhombus					Hexanchus griseus (*)				
Scophthalmus maximus					Leucoraja circularis (*)				
Scorpaena elongata					Leucoraja melitensis (*)				
Scorpaena loppei					**Leucoraja naevus (**)**				
Scorpaena notata					Mustelus asterias (*)				
Scorpaena porcus					Mustelus mustelus (*)				
Scorpaena scrofa					**Mustelus punctulatus**				
Seriola dumerili					**Myliobatis aquila**				
Serranus cabrilla					Oxynotus centrina (*)				
Serranus hepatus					Pteroplatytrygon violacea				
Solea senegalensis					**Raja asterias**				
Solea solea					**Raja brachyura**				
Sparus aurata					**Raja clavata (**)**				
Sphyraena sphyraena					**Raja miraletus**				
Sphyraena viridensis					**Raja montagui**				
Spicara flexuosa					**Raja polystigma (**)**				
Spicara maena					**Raja ràdula (**)**				
Spicara smaris					**Raja undulata**				
Spondyliosoma cantharus					Rhinobatos cemiculus (*)				
Sprattus sprattus					Rhinobatos rhinobatos (*)				
Stomias boa					Rostroraja alba (*) (**)				
Sudis hyalina					**Scyliorhinus canicula**				
Symbolophorus veranyi					**Scyliorhinus stellaris**				
Symphurus nigrescens					Somniosus rostratus				
Synapturichthys kleinii					Squalus acanthias (*)				
Synchiropus phaeton					**Squalus blainvillei**				
Syngnathus acus					Squantina aculeata (*)				
Synodus saurus					Squantina oculata (*)				
Trachinus araneus					Squantina squantina (*)				
Trachinus draco					Tetronarce nobiliana				
Trachinus radiatus					**Torpedo marmorata**				
Trachurus mediterraneus					Torpedo torpedo				
Trachurus picturatus									
Trachurus trachurus									
Trachyrincus scabrus									
Trigla lyra									
Trisopterus capelanus									
Umbrina canariensis									
Uranoscopus scaber									
Zeus faber									

Annex 2. Sampling forms used for all data collected in the MEDITS-AUT25 oceanographic survey.

Institut Català de Recerca per a la Governança del Mar

FAUNÍSTICA 2

MEDITS - AUT25 (GSA 6)

Data: **Pesca:**

Responsable:

CRUSTACIS	**Captura**		**Submostra**	
	n	**Pes** (g)	**n**	**Pes** (g)
Acanthephyra eximia				
Acanthephyra pelagica				
Aegaeon cataphractus				
Aegaeon lacazei				
Alpheus glaber				
Aristaeomorpha foliacea				
Aristeus antennatus				
Atelecyclus rotundatus				
Bathynectes maravigna				
Calappa granulata				
Callinectes sapidus				
Calocaris macandrae				
Chlorotocus crassicornis				
Dardanus arrosor				
Dardanus calidus				
Deosergestes henseni				
Derilambrus angulifrons				
Dromia personata				
Eurynome aspera				
Eusergestes arcticus				
Funchalia woodwardi				
Galathea intermedia				
Galathea strigosa				
Gennadas elegans				
Geryon longipes				
Goneplax rhomboides				
Illia nucleus				
Inachus communissimus				
Inachus dorsetensis				
Inachus leptochirus				
Latreillia elegants				
Ligur ensiferus				
Liocarcinus depurator				
Liocarcinus maculatus				
Lophogaster typicus				
Macropipus tuberculatus				
Macropodia rostrata				
Macropodia tenuirostris				
Maja squinado				
Medorippe lanata				
Meganyctiphanes norvegica				
Monodaeus couchii				
Munida intermedia				
Munida perarmata				
Munida rugosa				
Munida speciosa				
Nephrops norvegicus				
Paguristes eremita				
Pagurus alatus				
Pagurus cuanensis				
Pagurus excavatus				
Pagurus prideaux				
Palinurus elephas				
Palinurus mauritanicus				
Parapenaeus longirostris				
Paromola cuvieri				
Pasiphaea multidentata				
Pasiphaea sivado				
Penaeus aztecus				
Penaeus kerathurus				
Penaeopsis serrata				
Pilumnus spinifer				
Pilumnus villosissimus				
Pinnotheres pisum				
Pisa armata				
Pisidia longicornis				
Plesionika acanthonotus				
Plesionika antigai				

CRUSTACIS	**Captura**		**Submostra**	
	n	**Pes** (g)	**n**	**Pes** (g)
Plesionika edwardsii				
Plesionika gigliolii				
Plesionika heterocarpus				
Plesionika martia				
Plesionika narval				
Polycheles typhlops				
Pontophilus spinosus				
Processa canaliculata				
Processa nouveli				
Robustosergia robusta				
Scalpellum scalpellum				
Solenocera membranacea				
Spinolambrus macrochelos				
Squilla mantis				
Typton spongicola				
Upogebia deltaura				

CEFALÒPODES	**Captura**		**Submostra**	
	n	**Pes** (g)	**n**	**Pes** (g)
Abralia veranyi				
Abraliopsis morisii				
Alloteuthis spp.				
Ancistrocheirus lesueurii				
Ancistroteuthis lichtensteinii				
Argonauta argo				
Bathypolypus sponsalis				
Callistoctopus macropus				
Chiroteuthis veranii				
Chtenopteryx sicula				
Eledone cirrhosa				
Eledone moschata				
Heteroteuthis dispar				
Histioteuthis bonnellii				
Histioteuthis reversa				
Illex coindetii				
Loligo vulgaris				
Loligo forbesii				
Macrotritopus defilippi				
Neorossia caroli				
Octopus salutii				
Octopus vulgaris				
Ocytoe tuberculata				
Onychoteuthis banksii				
Opistoteuthis calypso				
Pteroctopus tetracirrhus				
Pyroteuthis margaritifera				
Rhombosepion elegans				
Rhombosepion orbignyanum				
Rondeletiola minor				
Rossia macrosoma				
Scaeurgus unicirrhus				
Sepia officinalis				
Sepietta obscura				
Sepietta oweniana				
Sepiola afinis				
Sepiola intermedia				
Sepiola ligulata				
Sepiola robusta				
Todarodes sagittatus				
Todaropsis eblanae				

Annex 2. Sampling forms used for all data collected in the MEDITS-AUT25 oceanographic survey.

icat mar Institut Català de Recerca per a la Governança del Mar	FAUNÍSTICA 4 MEDITS - AUT25 (GSA 6)	Data:	Pesca:
		Responsable:	

EQUINODERMS	**Captura**		**Submostra**		**CNIDARIS**	**Captura**		**Submostra**	
	n	**Pes** (g)	**n**	**Pes** (g)		**n**	**Pes** (g)	**n**	**Pes** (g)
Anseropoda placenta					Actinauge richardi				
Antedon mediterranea					Actiniidae				
Astropecten aranciacus					Adamsia palliata				
Astropecten irregularis					Alcyonium acaule				
Astropecten platyacanthus					**Alcyonium palmatum**				
Astropecten spinulosus					**Anthozoa 1**				
Astropecten spp.					Bunodactis verrucosa				
Astrospartus mediterraneus					**Calliactis parasitica**				
Brissopsis atlantica					Caryophyllia spp.				
Brissopsis lyrifera					Cavernularia pusilla				
Brissus unicolor					Cnidaria				
Centrostephanus					Cotylorhiza tuberculata				
Ceramaster grenadensis					Epizoanthus spp				
Chaetaster longipes					Eunicella cavolini				
Cidaris cidaris					Eunicella verrucosa				
Coscinasterias tenuispina					Funiculina quadrangularis				
Cycethra verrucosa					Funiculina spp.				
Crinoidea					Hormathia alba				
Echinaster sepositus					Hydrozoa				
Echinus melo					Kophobelemnon stelliferum				
Gracilechinus acutus					Leptogorgia sarmentosa				
Gracilechinus elegans					**Lytocarpia myriophyllum**				
Hacelia attenuata					**Nemertesia antennina**				
Hedingia mediterranea					**Nemertesia ramosa**				
Holothuria forskali					Nemertesia spp.				
Holothuria spp.					Parazoanthus spp				
Holothuria tubulosa					Pelagia noctiluca				
Leptometra phalangium					**Pennatula phosphorea**				
Luidia ciliaris					**Pennatula rubra**				
Luidia sarsii					**Pteroeides griseum**				
Marthasterias glacialis					Rhizostoma pulmo				
Mesothuria intestinalis					Scyphozoa				
Molpadia musculus					Velella velella				
Molpodia spp					Veretillum cynomorium				
Ocnus planci					Virgularia mirabilis				
Odontaster mediterraneus									
Ophidiaster ophidianus									
Ophiothrix fragilis									
Ophiura ophiura									
Ophiura spp									
Ophiuroidea					**BRACHIOPODA**				
Ova canalifera					Gryphus vitreus				
Paraleptopentacta elongata									
Paraleptopentacta					**BRYOZOA**				
Parastichopus regalis					Smittina cervicornis				
Peltaster placenta					Bryozoa				
Psammechinus									
Pseudostichopus occultatus									
Spatangus purpureus									
Sphaerechinus granularis									
Stylocidaris affinis									
Tethyaster subinermis									

Annex 2. Sampling forms used for all data collected in the MEDITS-AUT25 oceanographic survey.

Institut Català de Recerca per a la Governança del Mar	FAUNÍSTICA 5 MEDITS - AUT25 (GSA 6)	Data:	Pesca:
		Responsable:	

TUNICATS	Captura		Submostra		PORIFERS	Captura		Submostra	
	n	Pes (g)	n	Pes (g)		n	Pes (g)	n	Pes (g)
Ascidia mentula					Agelas oroides				
Ascidia sp. 2					Axinella centrotylota				
Ascidiella aspersa					Axinella damicornis				
Ascidiella scabra					Axinella spp.				
Ascidiella spp.					**Cliona celata**				
Botryllus schlosseri					**Desmacidon fruticosum**				
Botryllus spp.					**Desmacidon spp.**				
Ciona intestinalis					Dysidea avara				
Diazona violacea					**Geodia spp.**				
Eudistoma banyulense					Halichondriidae 1				
Halocynthia papillosa					Haliclona spp.				
Microcosmus sabatieri					Hemimycale spp.				
Microcosmus spp.					**Hippospongia communis**				
Microcosmus vulgaris					Ircinia oros				
Microcosmus vulgaris					Mycale spp.				
Molgula appendiculata					**Phakellia ventilabrum**				
Molgula spp.					Poecillastra compressa				
Phallusia mammillata					Raspailia spp.				
Polycarpa mamillaris					Sarcotragus foetidus				
Pyrosoma atlanticum					Sponge sp. 1				
Salpa fusiformis					Spongia lamella				
Salpa maxima					**Spongosorites spp.**				
Salpa spp.					**Suberites carnosus**				
Synoicum blochmanni					**Suberites domuncula**				
					Suberites ficus				
					Suberites spp.				
					Suberites suberia				
					Suberites syringella				
					Tethya aurantium				
					Thenea muricata				
ANNELIDA									
Amphinomidae									
Aphrodita aculeata									
Eunice s.l.									
Laetmonice hystrix									
Polychaeta									
Polynoidae									
Pontobdella muricata									
Sabellidae									
Serpula vermicularis									
Serpulidae									
Tubs Polychaeta									
SIPUNCULA									
Aspidosiphon muelleri									
Phascolion strombus									
Sipuncula 1									

Annex 2. Sampling forms used for all data collected in the MEDITS-AUT25 oceanographic survey.

icat mar Institut Català de Recerca per a la Governança del Mar	FAUNÍSTICA 6 MEDITS - AUT25 (GSA 6)	Data:	Pesca:
		Responsable:	

ALTRES MOL·LUSC	Captura		Submostra		ALGUES	Captura		Submostra	
	n	Pes (g)	n	Pes (g)		n	Pes (g)	n	Pes (g)
Acanthocardia aculeata					Codium bursa				
Acanthocardia echinata					Osmundaria volubilis				
Acanthocardia paucicostata					Laminaria rodriguezii				
Aequipecten opercularis					Lithophyllum racemus				
Anadara gibbosa					Pyropia leucosticta				
Anomia ephippium					Phyllophora crispa				
Antalis spp.					Altres algues marines				
Aplysia sp. 1									
Aporrhais pespelecani									
Aporrhais serresiana									
Aporrhais spp.					**RESTES NATURALS**				
Arcidae 1					Plantes terrestres				
Armina tigrina					Matèria orgànica				
Atrina fragilis					Closques				
Bivalvia					Plantes marines				
Bivetiella cancellata					Material calcari				
Bivetiella spp.					Plantes terrestres				
Bolinus brandaris									
Buccinum humphreysianum									
Calliostoma granulatum									
Calyptraea chinensis									
Capulus ungaricus									
Carinaria spp.									
Chlamys spp.									
Cymbulia peronii					**DEIXALLES MARINES**				
Cymbulia spp.					**L1. Plàstics**				
Dendrodoris limbata					Altres ampolles i embolcalls				
Doris pseudoargus					Bosses de plàstic				
Euspira fusca					Cordes i cordills				
Galeodea echinophora					Embolcalls de menjar				
Galeodea rugosa					Ítems rel. amb menjar				
Galeodea spp. eggs					Peces de plàstic				
Gastropoda 1					Boies				
Glossus humanus					Fil pesca i hams				
Hexaplex trunculus					Pesca: xarxes, cordes				
Hiatella arctica					Altres objectes				
Mimachlamys varia					**L2. Cautxú**				
Mollusca					Pneumàtics				
Mollusca 2					Goma				
Musculus subpictus					**L3. Metalls**				
Mytilus galloprovincialis					Altres objectes i peces de				
Neopycnodonte cochlear					Aparells elèctrics, bateries,				
Ostrea edulis					Envasos i llaunes de menjar				
Ostrea spp.					Llaunes de beguda				
Ostrea stentina					Pesca: ploms, hams				
Ous gasteropodes					**L4 Vidre/Ceràmica**				
Parvicardium exiguum					Altres objectes i peces de				
Pecten jacobaeus					Ampolles i pots de vidre				
Pecten maximus					Ceràmica; objectes i trossos				
Philine spp.					**L5 Roba (textil)**				
Pinctada imbricata					Tovalloletes				
Pleurobranchaea meckeli					Roba i sabates				
Pteria hirundo					Altres tèxtils				
Pterotrachea spp.					**L6 Fusta**				
Scaphander lignarius					Altres objectes i peces de				
Semicassis granulata					**L7 Paper/cartró**				
Semicassis undulata					Paper; objectes i trossos				
Tethys fimbria					**L8 Altres (especificats)**				
Timoclea ovata					Agregat de llot				
Turritellinella tricarinata					Escòria				
Venus nux									
Venus verrucosa									
Xenophora crispa					**L9 Altres (sense especificar)**				

Annex 2. Sampling forms used for all data collected in the MEDITS-AUT25 oceanographic survey.

Institut Català de Recerca per a la Governança del Mar

Biològic OSTEÏCTIS MEDITS - AUT25 (GSA 6)

Data:	**Pesca:**
Espècie:	**Full nº:**
Responsable:	

Nº	**Talla (TL)** (mm)	**Pes Total** (g)	**Pes Evisc.** (g)	**Sexe** (M, F, I, N)	**Estat Sexual**	**Pes Gònada** (0.1 g)	**Pes Fetge** (0.1 g)	**Codi individu** [Data]_[Pesca]_[Espècie]_[codi individu] **Ex: 20250917_1_HKE_1**
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Annex 2. Sampling forms used for all data collected in the MEDITS-AUT25 oceanographic survey.

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Biològic CONDRICTIS MEDITS - AUT25 (GSA 6)

Data:	**Pesca:**
Espècie:	**Full nº:**
Responsable:	

Nº	**Talla (TL)** (mm)	**Talla (DW)** (mm)	**Talla (DL)** (mm)	**Pes Total** (g)	**Sexe** (M, F, I, N)	**Estat Sexual**	**Codi individu** [Data]_[Pesca]_[Espècie]_[codi individu] **Ex: 20250917_1_SYC_1**
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**DW (amplada del disc) i DL (llargada del disc) només per a Batoidea.*

Annex 2. Sampling forms used for all data collected in the MEDITS-AUT25 oceanographic survey.

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Biològic CRUSTACIS MEDITS - AUT25 (GSA 6)

Data:		**Pesca:**
Espècie:		**Full nº:**
Responsable:		

Nº	**Talla** (mm)	**Pes Total** (g)	**Pes sense pinces** (g)	**Sexe** (M, F, I,N)	**Estat Sexual**	**Estat dels ous** (1-3)	**Espermatòfor** (S, N)	**Observacions**
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Annex 2. Sampling forms used for all data collected in the MEDITS-AUT25 oceanographic survey.

CONTROL OTÒLITS
MEDITS – AUT25 (GSA 6)

Espècie:

Sector:			Sector:			Sector:		
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1.5			1.5			1.5		
2			2			2		
2.5			2.5			2.5		
3			3			3		
3.5			3.5			3.5		
4			4			4		
4.5			4.5			4.5		
5			5			5		
5.5			5.5			5.5		
6			6			6		
6.5			6.5			6.5		
7			7			7		
7.5			7.5			7.5		
8			8			8		
8.5			8.5			8.5		
9			9			9		
9.5			9.5			9.5		
0			0			0		
0.5			0.5			0.5		
1			1			1		
1.5			1.5			1.5		
2			2			2		
2.5			2.5			2.5		
3			3			3		
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9			9			9		
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Annex 2. Sampling forms used for all data collected in the MEDITS-AUT25 oceanographic survey.

Talles mm MEDITS - AUT25 (GSA 6)	Data:	Pesca:
	Responsable:	Full nº:

Espècie:			Espècie:			Espècie:		
Cat:	Pes tot:		Cat:	Pes tot:		Cat:	Pes tot:	
Sexe:	Pes most:		Sexe:	Pes most:		Sexe:	Pes most:	
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4			4			4		
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9			9			9		
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1			1			1		
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4			4			4		
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Annex 3. Detailed information on the hauls performed during the MEDITS-AUT25 oceanographic survey, including both valid and invalid hauls.

Fishing haul information										
Haul number	Area	Depth strata (m)	Mean depth (m)	Latitude start	Longitude start	Latitude end	Longitude end	Area sampled (km^2)	Sampling time (h)	Information
1	GSA6 - North	100-200	136.0	41.6390	3.1633	41.6624	3.1854	0.06	0.52	Valid haul
2	GSA6 - North	50-100	96.5	41.7908	3.1353	41.8140	3.1487	0.03	0.47	Valid haul
3	GSA6 - North	50-100	86.0	41.7340	3.0098	41.7208	3.0248	0.04	0.50	Valid haul
4	GSA6 - North	500-800	796.3	41.2981	2.7441	41.2973	2.8067	0.13	1.00	Valid haul
5	GSA6 - North	200-500	311.3	41.3825	2.7139	41.4082	2.7682	0.14	1.00	Valid haul
6	GSA6 - North	100-200	140.7	41.4952	2.7132	41.5097	2.7391	0.06	0.50	Valid haul
7	GSA6 - North	50-100	58.0	41.5938	2.6897	41.6102	2.7176	0.04	0.52	Valid haul
8	GSA6 - North	500-800	759.0	41.1531	2.3704	41.1508	2.3007	0.13	1.00	Valid haul
9	GSA6 - North	200-500	435.0	41.2090	2.3271	41.1962	2.2625	0.12	1.02	Valid haul
10	GSA6 - North	100-200	105.5	41.2333	2.1474	41.2223	2.1206	0.04	0.50	Valid haul
11	GSA6 - North	10-50	50.0	41.2031	1.9880	41.1833	1.9643	0.03	0.50	Valid haul
12	GSA6 - North	50-100	87.3	41.1755	2.0273	41.1567	2.0063	0.04	0.50	Valid haul
13	GSA6 - North	50-100	79.6	41.1000	1.5566	41.0961	1.5244	0.04	0.50	Valid haul
14	GSA6 - North	100-200	136.0	41.0556	1.4504	41.0482	1.4207	0.05	0.50	Valid haul
15	GSA6 - North	200-500	341.7	40.9394	1.4332	40.9099	1.3805	0.10	1.00	Valid haul
16	GSA6 - North	50-100	80.7	40.8409	0.9767	40.8404	0.9415	0.06	0.50	Valid haul
17	GSA6 - North	50-100	90.0	40.9071	1.2141	40.9300	1.2200	0.05	0.50	Valid haul
18	GSA6 - North	10-50	50.8	42.1682	3.2017	42.1895	3.2000	0.03	0.42	Valid haul
19	GSA6 - North	50-100	92.7	42.2440	3.3057	42.2637	3.3176	0.04	0.42	Valid haul
20	GSA6 - North	0	0.0	0.0000	0.0000	0.0000	0.0000	0.00	0.00	Invalid haul
21	GSA6 - North	200-500	401.3	42.1244	3.5827	42.0788	3.5566	0.12	1.00	Valid haul
22	GSA6 - North	500-800	506.3	41.8842	3.3825	41.8820	3.3283	0.10	0.83	Invalid haul
23	GSA6 - North	100-200	135.7	42.0474	3.3809	42.0286	3.3620	0.05	0.50	Valid haul
24	GSA6 - North	100-200	119.8	42.1191	3.3611	42.0945	3.3606	0.08	0.55	Valid haul
25	GSA6 - North	50-100	81.7	41.9974	3.2464	41.9728	3.2456	0.05	0.50	Valid haul
26	GSA6 - North	500-800	691.7	41.3817	3.2980	41.3857	3.2336	0.12	1.00	Valid haul
27	GSA6 - North	200-500	359.3	41.4665	3.1497	41.4814	3.0875	0.12	1.00	Valid haul
28	GSA6 - North	0	1140.0	0.0000	0.0000	0.0000	0.0000	0.00	0.00	Invalid haul
29	GSA6 - North	500-800	920.0	41.0090	1.8241	41.0085	1.7765	0.09	0.73	Valid haul
30	GSA6 - North	200-500	392.9	41.0425	1.8280	41.0360	1.7633	0.12	0.98	Valid haul
31	GSA6 - North	100-200	151.9	41.0983	1.7905	41.1063	1.7605	0.05	0.48	Valid haul
32	GSA6 - North	50-100	86.0	40.5904	1.1164	40.6069	1.0908	0.06	0.52	Valid haul
33	GSA6 - North	100-200	113.0	40.7554	1.2472	40.7615	1.2151	0.05	0.48	Valid haul
34	GSA6 - North	200-500	398.4	40.8045	1.3825	40.7540	1.3907	0.12	1.00	Valid haul
35	GSA6 - North	500-800	577.6	40.7493	1.4350	40.7955	1.4536	0.12	0.97	Valid haul
36	GSA6 - South	10-50	41.0	39.9411	0.1448	39.9568	0.1185	0.05	0.50	Valid haul
37	GSA6 - South	50-100	66.0	39.9687	0.3282	39.9463	0.3139	0.05	0.48	Valid haul
38	GSA6 - North	50-100	78.2	40.0194	0.5525	40.0384	0.5722	0.05	0.50	Valid haul
39	GSA6 - North	10-50	38.4	40.1550	0.3067	40.1367	0.2867	0.04	0.50	Valid haul
40	GSA6 - South	10-50	39.6	39.7914	-0.0089	39.7713	-0.0326	0.04	0.50	Valid haul
41	GSA6 - South	50-100	74.3	39.7280	0.0833	39.7117	0.0576	0.04	0.50	Valid haul
42	GSA6 - North	100-200	161.3	40.2400	1.2536	40.3125	1.2811	0.03	0.52	Valid haul

Annex 3. Detailed information on the hauls performed during the MEDITS-AUT25 oceanographic survey, including both valid and invalid hauls.

Fishing haul information										
Haul number	Area	Depth strata (m)	Mean depth (m)	Latitude start	Longitude start	Latitude end	Longitude end	Area sampled (km^2)	Sampling time (h)	Information
43	GSA6 - North	50-100	96.3	40.2857	1.1037	40.3071	1.1232	0.04	0.50	Valid haul
44	GSA6 - North	50-100	74.3	40.3499	0.7918	40.3748	0.8048	0.03	0.50	Valid haul
45	GSA6 - North	10-50	37.5	40.3501	0.5249	40.3745	0.5376	0.04	0.50	Valid haul
46	GSA6 - South	50-100	93.7	39.8088	0.4694	39.8320	0.4558	0.05	0.50	Valid haul
47	GSA6 - South	100-200	108.8	39.7573	0.3599	39.7474	0.3897	0.05	0.50	Valid haul
48	GSA6 - South	200-500	256.0	39.5437	0.2258	39.5818	0.2651	0.11	1.00	Valid haul
49	GSA6 - South	500-800	545.8	39.4637	0.1908	39.4456	0.1432	0.09	0.83	Valid haul
50	GSA6 - South	200-500	359.3	39.3033	0.0661	39.3533	0.0659	0.11	1.00	Valid haul
51	GSA6 - South	50-100	82.0	39.3180	-0.0997	39.3378	-0.1198	0.06	0.50	Valid haul
52	GSA6 - South	100-200	132.1	39.4528	0.0178	39.4724	0.0388	0.04	0.50	Valid haul
53	GSA6 - South	10-50	50.2	39.4885	-0.2081	39.5138	-0.1978	0.04	0.50	Valid haul
54	GSA6 - South	50-100	81.2	39.1084	-0.0157	39.0897	-0.0046	0.04	0.48	Valid haul
55	GSA6 - South	100-200	109.9	38.9685	0.1837	38.9945	0.1838	0.04	0.50	Valid haul
56	GSA6 - South	100-200	117.4	39.0997	0.1006	39.1191	0.0809	0.04	0.48	Valid haul
57	GSA6 - South	500-800	520.0	39.1630	0.1955	39.1939	0.1468	0.10	0.98	Valid haul
58	GSA6 - South	500-800	578.0	38.9317	0.4771	38.9732	0.4445	0.11	1.00	Valid haul
59	GSA6 - South	200-500	324.7	38.9998	0.3511	39.0410	0.3095	0.11	1.03	Valid haul
60	GSA6 - South	100-200	126.9	38.8617	0.3340	38.8862	0.3333	0.05	0.50	Valid haul
61	GSA6 - South	10-50	50.1	38.8433	0.1870	38.8523	0.1790	0.02	0.30	Invalid haul
62	GSA6 - South	50-100	73.0	38.6821	0.2984	38.6695	0.2713	0.05	0.48	Valid haul
63	GSA6 - South	50-100	71.7	38.5449	0.0840	38.5439	0.0524	0.05	0.50	Valid haul
64	GSA6 - South	100-200	186.3	38.4370	0.4020	38.4595	0.4134	0.05	0.50	Valid haul
65	GSA6 - South	500-800	580.0	38.3353	0.4741	38.3034	0.4402	0.09	0.85	Valid haul
66	GSA6 - South	500-800	537.0	37.7200	-0.1546	37.6829	-0.1971	0.11	1.00	Valid haul
67	GSA6 - South	500-800	515.7	37.5924	-0.3058	37.5920	-0.3681	0.10	1.00	Valid haul
68	GSA6 - South	200-500	326.6	37.7730	-0.2853	37.8210	-0.2999	0.11	1.00	Valid haul
69	GSA6 - South	50-100	91.5	37.5014	-0.8942	37.5023	-0.9253	0.04	0.50	Valid haul
70	GSA6 - South	100-200	102.3	37.5013	-0.8284	37.4995	-0.8597	0.04	0.50	Valid haul
71	GSA6 - South	10-50	54.0	37.7618	-0.6027	37.7816	-0.6047	0.02	0.38	Valid haul
72	GSA6 - South	100-200	135.0	37.7808	-0.4597	37.8058	-0.4507	0.05	0.50	Valid haul
73	GSA6 - South	50-100	86.0	37.9226	-0.5666	37.8973	-0.5659	0.05	0.50	Valid haul
74	GSA6 - South	100-200	114.3	37.8644	-0.4981	37.8904	-0.4933	0.05	0.50	Valid haul
75	GSA6 - South	200-500	327.3	37.8680	-0.3170	37.9173	-0.3055	0.09	0.98	Valid haul
76	GSA6 - South	500-800	607.0	37.9088	-0.1902	37.9091	-0.1278	0.10	1.00	Valid haul
77	GSA6 - South	500-800	559.0	38.1337	0.1674	38.1232	0.1065	0.11	1.00	Valid haul
78	GSA6 - South	200-500	379.0	38.1164	-0.0348	38.0931	-0.0902	0.10	1.00	Valid haul
79	GSA6 - South	100-200	132.7	38.2013	-0.0547	38.1879	-0.0810	0.05	0.52	Valid haul
80	GSA6 - South	50-100	56.0	38.1077	-0.4852	38.0889	-0.5065	0.04	0.50	Valid haul
81	GSA6 - South	200-500	270.0	38.2823	0.2496	38.2384	0.2191	0.11	1.00	Valid haul
82	GSA6 - South	100-200	176.3	38.2708	0.1783	38.2876	0.2043	0.04	0.50	Valid haul
83	GSA6 - South	50-100	61.0	38.2766	0.3872	38.2953	0.3823	0.03	0.37	Valid haul

Annex 4. List of species recorded at each depth stratum during the MEDITS-AUT25 oceanographic survey, ordered by biomass and abundance, and stratified by GSA 6 North and South areas. SE (Standard error).

Faunal composition in the 10–50 m depth stratum

GSA6N					GSA6S				
Species	**Biomass**	**SE**	**Abundance**	**SE**	**Species**	**Biomass**	**SE**	**Abundance**	**SE**
Pagellus erythrinus	261.92	196.11	5263.03	3062.71	*Octopus vulgaris*	515.13	161.87	1250.83	283.69
Pagellus acarne	226.39	165.78	2489.78	1793.86	*Mullus barbatus*	216.26	172.93	8940.39	7014.42
Mullus barbatus	202.57	110.76	5105.37	2990.59	*Sphaerechinus granularis*	188.06	188.06	880.08	880.08
Trachurus mediterraneus	137.73	79.13	11942.28	7377.47	*Trachurus mediterraneus*	86.10	52.76	5617.27	2875.70
Spicara spp.	89.74	70.91	13094.78	11640.75	*Sepia officinalis*	71.85	17.61	378.06	56.31
Diplodus vulgaris	81.34	79.68	686.55	667.58	*Cidaris cidaris*	62.31	62.31	1631.31	1631.31
Sparus aurata	79.74	47.37	431.81	249.52	*Sardina pilchardus*	60.12	26.82	5186.60	2722.31
Boops boops	73.52	42.16	3582.40	2048.84	*Pagellus erythrinus*	51.24	40.26	14719.74	14196.53
Serranus cabrilla	71.27	67.84	1553.19	1477.73	*Ascidia spp.*	46.56	46.56	0.00	0.00
Engraulis encrasicolus	65.31	64.74	31951.85	31872.17	*Spicara spp.*	46.08	22.13	3904.25	2133.93
Diplodus annularis	59.08	51.36	1575.29	1417.49	*Laetmonice hystrix*	35.34	35.34	28268.39	28268.39
Phallusia mammillata	58.02	48.40	327.49	189.61	*Trachurus trachurus*	32.90	18.23	1623.68	898.38
Microcosmus spp.	55.44	45.46	860.43	484.06	*Merluccius merluccius*	32.29	13.31	463.46	176.29
Sardina pilchardus	44.84	21.27	4080.41	1609.50	*Diplodus vulgaris*	30.95	30.95	129.09	129.09
Scorpaena notata	41.39	23.93	913.97	528.33	*Echinus melo*	28.72	28.72	3566.63	3566.63
Octopus vulgaris	38.44	23.37	165.94	122.90	*Pisa armata*	28.27	28.27	14134.19	14134.19
Lophius budegassa	37.82	30.49	62.38	25.00	*Conger conger*	25.98	22.60	118.05	85.66
Lepidotrigla cavillone	36.84	30.04	2764.52	2362.81	*Serranus cabrilla*	25.07	25.07	370.67	370.67
Trachurus trachurus	29.73	25.31	1109.29	940.84	*Porifera*	23.29	23.29	0.00	0.00
Pagellus bogaraveo	27.85	27.85	2221.90	2221.90	*Polycarpa mamillaris*	23.28	16.50	2356.41	1589.45
Diazona violacea	27.50	27.50	93.97	93.97	*Gobius gasteveni*	21.20	21.20	28268.39	28268.39
Spicara smaris	25.97	25.37	1899.95	1843.06	*Pagellus acarne*	18.65	18.65	387.27	387.27
Mullus surmuletus	24.68	22.77	222.24	187.02	*Boops boops*	18.53	17.63	1018.50	948.19
Astrospartus mediterraneus	21.87	21.87	202.39	202.39	*Lophius budegassa*	18.42	12.08	12.76	7.37
Merluccius merluccius	20.89	12.11	247.78	149.92	*Marthasterias glacialis*	16.68	16.68	46.32	46.32

Annex 4. List of species recorded at each depth stratum during the MEDITS-AUT25 oceanographic survey, ordered by biomass and abundance, and stratified by GSA 6 North and South areas. SE (Standard error).

Faunal composition in the 10–50 m depth stratum									
GSA6N					GSA6S				
Species	**Biomass**	**SE**	**Abundance**	**SE**	**Species**	**Biomass**	**SE**	**Abundance**	**SE**
Scyliorhinus canicula	20.71	20.71	72.28	72.28	*Peltaster placenta*	16.64	16.64	324.33	324.33
Raja clavata	20.18	20.18	5.57	5.57	*Chelidonichthys lastoviza*	15.66	15.66	416.88	416.88
Ascidia mentula	16.49	15.71	380.13	355.17	*Engraulis encrasicolus*	15.11	11.95	2200.96	1573.32
Uranoscopus scaber	16.05	11.22	55.87	31.50	*Sardinella aurita*	14.12	7.92	1341.58	781.30
Scorpaena scrofa	14.96	14.96	43.37	43.37	*Aplysia spp.*	14.08	14.08	138.96	138.96
Sepia officinalis	12.67	9.89	56.17	49.02	*Loligo vulgaris*	13.80	8.61	96.57	41.53
Astropecten aranciacus	11.74	9.91	79.45	70.22	*Coscinasterias tenuispina*	11.91	11.91	139.04	139.04
Veretillum cynomorium	10.65	6.17	1766.09	1038.59	*Scyliorhinus canicula*	11.84	9.76	51.39	44.89
Loligo vulgaris	10.39	9.46	85.43	68.19	*Calliactis parasitica*	8.58	5.21	1230.17	742.22
Serranus hepatus	9.20	4.48	868.15	554.33	*Trisopterus capelanus*	7.71	7.46	147.07	140.39
Torpedo marmorata	8.60	8.60	7.23	7.23	*Trachinus radiatus*	7.56	7.56	46.36	46.36
Polycarpa mamillaris	8.47	7.73	843.40	763.84	*Tethys fimbria*	7.14	5.93	214.65	206.13
Conger conger	7.94	4.12	61.50	25.06	*Balistes capriscus*	7.12	7.12	5.07	5.07
Spondyliosoma cantharus	7.26	7.26	86.74	86.74	*Echinoidea*	7.07	7.07	49469.68	49469.68
Citharus linguatula	6.60	2.86	270.45	106.35	*Hydrozoa*	7.07	7.07	0.00	0.00
Eledone moschata	6.00	3.53	12.80	7.51	*Inachus spp.*	7.07	7.07	14134.19	14134.19
Parastichopus regalis	4.76	3.41	60.70	37.80	*Scorpaena notata*	6.51	5.94	238.32	229.79
Solea solea	4.63	4.63	7.23	7.23	*Alloteuthis spp.*	6.37	3.10	1502.87	692.61
Chelidonichthys lastoviza	4.49	4.49	79.51	79.51	*Dardanus arrosor*	6.26	5.75	703.63	455.95
Penaeus kerathurus	4.38	4.23	201.08	193.18	*Astropecten irregularis*	6.11	3.61	1071.79	516.36
Lophius piscatorius	4.26	4.26	21.50	21.50	*Chaetaster longipes*	4.54	4.54	555.84	555.84
Dardanus arrosor	4.05	2.49	611.99	471.50	*Hacelia attenuata*	4.08	4.08	185.28	185.28
Sardinella aurita	3.89	3.22	1823.12	1795.91	*Suberites domuncula*	4.08	4.08	92.64	92.64
Tethyaster subinermis	3.62	3.42	99.54	92.26	*Phallusia mammillata*	4.06	1.91	46.90	21.91
Leptogorgia sarmentosa	3.58	3.58	0.00	0.00	*Torpedo marmorata*	3.78	3.78	6.45	6.45

Annex 4. List of species recorded at each depth stratum during the MEDITS-AUT25 oceanographic survey, ordered by biomass and abundance, and stratified by GSA 6 North and South areas. SE (Standard error).

Faunal composition in the 50–100 m depth stratum									
GSA6N					GSA6S				
Species	**Biomass**	**SE**	**Abundance**	**SE**	**Species**	**Biomass**	**SE**	**Abundance**	**SE**
Trachurus trachurus	217.93	68.81	9606.11	2791.53	*Trachurus trachurus*	569.09	252.97	16447.25	8108.49
Engraulis encrasicolus	88.26	49.49	24220.53	18124.03	*Octopus vulgaris*	155.99	31.12	466.75	96.41
Lophius budegassa	82.82	24.93	270.66	76.25	*Engraulis encrasicolus*	68.45	51.32	8654.84	6340.83
Mullus barbatus	82.31	29.99	1739.82	639.47	*Sardina pilchardus*	67.47	28.30	3811.24	1499.17
Boops boops	65.98	26.75	3840.83	2309.61	*Boops boops*	61.26	46.92	2667.54	1693.16
Merluccius merluccius	64.76	15.25	1025.70	346.42	*Merluccius merluccius*	60.50	10.43	1091.52	217.52
Trachurus mediterraneus	31.50	26.53	1681.62	1182.49	*Lophius budegassa*	58.72	17.03	93.02	17.87
Spicara spp.	29.18	8.56	1792.15	681.40	*Mullus barbatus*	44.05	14.24	842.89	276.00
Eledone cirrhosa	28.67	12.48	272.62	142.21	*Spicara spp.*	33.16	4.86	2223.91	441.07
Octopus vulgaris	26.39	10.39	68.87	24.88	*Pagurus prideaux*	23.01	22.99	5564.91	5560.48
Pagellus erythrinus	25.21	13.58	585.17	350.08	*Alloteuthis spp.*	15.62	8.47	2593.24	920.25
Trisopterus capelanus	21.51	5.44	874.35	249.15	*Scyliorhinus canicula*	14.72	9.46	81.20	43.58
Scyliorhinus canicula	19.04	6.50	121.28	46.63	*Sepia officinalis*	13.11	9.31	62.72	44.38
Sardina pilchardus	18.08	8.06	1086.53	465.76	*Spicara smaris*	12.46	12.25	289.91	274.85
Loligo vulgaris	17.81	5.81	178.72	81.02	*Echelus myrus*	10.94	7.79	139.32	99.10
Illex coindetii	17.55	5.13	1068.67	264.57	*Torpedo marmorata*	10.38	4.98	34.43	10.16
Serranus hepatus	14.75	5.30	1146.43	410.60	*Loligo vulgaris*	9.51	3.60	87.74	32.46
Neopycnodonte cochlear	12.62	12.56	1.82	1.82	*Scomber colias*	6.24	5.85	104.88	97.71
Parastichopus regalis	9.49	4.51	86.07	57.10	*Serranus hepatus*	5.51	2.39	432.12	178.01
Lepidotrigla cavillone	7.92	5.26	554.27	367.23	*Trisopterus capelanus*	5.25	0.84	196.16	31.39
Spicara maena	6.81	4.61	644.68	481.33	*Parapenaeus longirostris*	4.98	2.08	946.46	400.17
Diazona violacea	6.68	3.92	38.73	18.85	*Pagellus erythrinus*	4.93	3.59	80.57	38.89
Sparus aurata	6.34	6.11	40.49	38.01	*Parastichopus regalis*	4.91	2.04	42.16	17.82
Spicara smaris	6.02	5.86	547.74	539.62	*Uranoscopus scaber*	4.46	1.37	23.76	9.00
Pagellus acarne	5.83	5.48	62.55	55.33	*Adamsia palliata*	4.40	4.40	4403.16	4401.08

Annex 4. List of species recorded at each depth stratum during the MEDITS-AUT25 oceanographic survey, ordered by biomass and abundance, and stratified by GSA 6 North and South areas. SE (Standard error).

Faunal composition in the 50–100 m depth stratum

GSA6N					GSA6S				
Species	**Biomass**	**SE**	**Abundance**	**SE**	**Species**	**Biomass**	**SE**	**Abundance**	**SE**
Uranoscopus scaber	5.76	2.23	28.93	13.16	*Tethyaster subinermis*	4.20	2.29	54.83	28.52
Tethyaster subinermis	5.36	2.90	41.47	19.99	*Raja clavata*	3.92	3.92	3.78	3.78
Torpedo marmorata	5.07	3.89	19.73	12.90	*Trachinus draco*	3.89	1.04	70.31	18.05
Raja clavata	5.01	5.01	10.43	10.43	*Eledone moschata*	3.75	3.03	18.26	12.59
Alloteuthis spp.	4.92	1.42	921.22	157.15	*Trachurus mediterraneus*	3.57	1.36	401.05	163.09
Microcosmus spp.	4.82	1.86	89.11	35.23	*Marthasterias glacialis*	3.51	2.64	5.17	3.79
Zeus faber	4.56	3.01	11.85	5.81	*Sardinella aurita*	3.16	1.76	198.81	130.32
Trachinus draco	3.76	1.24	59.56	16.81	*Illex coindetii*	2.51	0.73	135.90	41.99
Citharus linguatula	3.63	1.29	125.42	42.26	*Pagellus acarne*	2.49	1.45	35.68	19.16
Alcyonium palmatum	3.62	2.91	441.30	328.24	*Citharus linguatula*	2.38	0.82	64.76	13.15
Astropecten aranciacus	3.15	1.59	14.35	7.59	*Deltentosteus quadrimaculatus*	2.10	0.88	552.27	262.78
Parapenaeus longirostris	2.60	1.07	369.35	130.04	*Raja asterias*	2.06	2.06	2.14	2.14
Mullus surmuletus	2.10	1.02	23.56	11.32	*Astropecten aranciacus*	1.98	1.98	10.92	10.92
Scaeurgus unicirrhus	1.88	1.28	18.61	11.04	*Ous Loligo spp.*	1.98	0.77	361.12	361.12
Pagellus bogaraveo	1.84	1.11	58.69	39.19	*Calliactis parasitica*	1.79	1.28	260.95	182.83
Solea solea	1.82	1.82	2.36	2.36	*Zeus faber*	1.75	0.90	35.96	17.16
Astrospartus mediterraneus	1.81	1.33	22.36	13.56	*Mullus surmuletus*	1.67	1.11	23.08	13.71
Pelagia noctiluca	1.74	1.37	17.99	7.28	*Scaeurgus unicirrhus*	1.67	1.33	26.44	22.21
Phallusia mammillata	1.63	0.75	13.27	6.77	*Astropecten irregularis*	1.58	0.49	369.39	116.04
Ascidia mentula	1.56	0.63	66.19	26.20	*Lepidotrigla cavillone*	1.42	0.69	106.25	56.56
Liocarcinus depurator	1.53	1.27	134.84	103.40	*Phallusia mammillata*	1.42	0.77	28.08	17.47
Scorpaena notata	1.52	1.00	47.97	32.30	*Conger conger*	1.36	0.63	16.80	7.68
Eutrigla gurnardus	1.46	0.46	40.19	11.41	*Eledone cirrhosa*	1.32	0.70	6.13	3.18
Calliactis parasitica	1.45	0.84	268.32	151.83	*Dardanus arrosor*	1.29	0.75	440.67	246.62
Diplodus annularis	1.15	1.15	26.00	26.00	*Echinus melo*	1.16	1.16	17.96	17.96

Annex 4. List of species recorded at each depth stratum during the MEDITS-AUT25 oceanographic survey, ordered by biomass and abundance, and stratified by GSA 6 North and South areas. SE (Standard error).

Faunal composition in the 100–200 m depth stratum

GSA6N					GSA6S				
Species	**Biomass**	**SE**	**Abundance**	**SE**	**Species**	**Biomass**	**SE**	**Abundance**	**SE**
Trachurus trachurus	185.24	70.06	7730.07	3042.70	*Trachurus trachurus*	249.91	112.88	8523.91	4244.87
Engraulis encrasicolus	153.99	153.99	54403.24	54400.77	*Alloteuthis spp.*	108.31	36.90	26098.07	12257.06
Merluccius merluccius	62.53	27.52	1758.62	905.92	*Scyliorhinus canicula*	87.88	48.63	656.18	351.80
Mullus barbatus	58.24	23.64	1025.49	437.16	*Funiculina quadrangularis*	75.34	35.61	0.00	0.00
Lophius budegassa	41.23	12.34	97.75	29.94	*Merluccius merluccius*	64.31	11.04	1996.71	430.13
Scyliorhinus canicula	34.32	9.16	290.83	80.76	*Octopus vulgaris*	58.15	23.95	103.02	41.00
Capros aper	31.40	26.76	7183.02	5984.37	*Capros aper*	45.13	17.02	22741.10	11755.73
Echinus melo	31.14	31.14	367.92	367.92	*Lophius budegassa*	30.30	10.16	81.47	20.84
Illex coindetii	24.82	5.27	2378.32	441.05	*Mullus barbatus*	28.78	9.00	432.27	140.95
Raja clavata	23.90	18.39	57.94	53.78	*Macroramphosus scolopax*	27.19	12.05	2985.30	1147.22
Glossanodon leioglossus	22.93	15.34	5066.18	3310.45	*Helicolenus dactylopterus*	19.22	7.10	1862.37	707.42
Trisopterus capelanus	16.96	5.31	690.87	164.01	*Raja clavata*	17.57	10.15	14.52	10.75
Eledone cirrhosa	14.40	4.52	126.41	42.69	*Parapenaeus longirostris*	17.55	4.37	3834.54	869.38
Zeus faber	12.59	12.36	18.60	11.17	*Glossanodon leioglossus*	16.89	9.57	4303.60	2690.10
Macroramphosus scolopax	11.25	8.90	1542.91	1262.19	*Trisopterus capelanus*	14.18	3.73	492.09	98.79
Leptometra phalangium	10.12	10.12	0.00	0.00	*Illex coindetii*	9.05	2.48	1268.56	431.21
Spicara spp.	7.49	4.91	231.92	151.31	*Zeus faber*	8.56	3.03	117.43	20.36
Parastichopus regalis	6.89	4.18	34.48	22.08	*Serranus cabrilla*	8.08	7.84	104.33	89.22
Diazona violacea	5.04	4.32	45.53	33.70	*Munida speciosa*	7.06	6.73	358.16	237.94
Alloteuthis spp.	4.97	2.62	1544.72	800.95	*Spicara spp.*	6.98	3.58	157.77	77.17
Lepidorhombus boscii	4.97	4.12	79.73	72.49	*Funiculina spp.*	6.84	6.79	0.00	0.00
Funiculina quadrangularis	3.99	3.67	1855.19	1852.54	*Plesionika heterocarpus*	6.43	4.51	4176.79	2858.05
Scorpaena scrofa	3.71	3.71	7.62	7.62	*Mola mola*	6.20	6.20	1.80	1.80
Alcyonium palmatum	3.62	1.58	576.87	255.65	*Scaeurgus unicirrhus*	5.92	1.80	77.92	23.47
Scorpaena elongata	3.21	2.48	6.36	4.31	*Palinurus elephas*	5.34	5.34	10.23	10.23

Annex 4. List of species recorded at each depth stratum during the MEDITS-AUT25 oceanographic survey, ordered by biomass and abundance, and stratified by GSA 6 North and South areas. SE (Standard error).

Faunal composition in the 100–200 m depth stratum

GSA6N					GSA6S				
Species	**Biomass**	**SE**	**Abundance**	**SE**	**Species**	**Biomass**	**SE**	**Abundance**	**SE**
Trachinus draco	2.70	2.65	37.07	34.83	*Serranus hepatus*	4.96	4.32	301.30	252.47
Scaeurgus unicirrhus	2.53	1.20	49.09	22.94	*Sardina pilchardus*	4.82	3.01	227.69	150.68
Lophius piscatorius	2.47	2.27	4.16	2.75	*Loligo vulgaris*	4.38	2.05	36.77	19.51
Loligo vulgaris	2.33	1.12	23.79	9.64	*Phycis phycis*	3.56	3.56	2.05	2.05
Pteroeides griseum	2.19	1.38	643.23	390.59	*Phycis blennoides*	3.39	1.21	68.42	23.90
Scomber scombrus	2.19	2.19	7.62	7.62	*Eledone moschata*	3.12	1.25	17.47	7.41
Helicolenus dactylopterus	2.16	1.13	42.03	25.27	*Boops boops*	3.08	3.08	30.69	30.69
Boops boops	2.05	1.31	51.15	29.50	*Todaropsis eblanae*	3.05	1.99	118.27	74.34
Sepia officinalis	2.04	2.04	2.55	2.55	*Astropecten aranciacus*	2.16	2.16	15.04	15.04
Phycis blennoides	1.68	0.81	56.42	24.63	*Scorpaena scrofa*	1.90	1.90	4.09	4.09
Serranus hepatus	1.60	0.82	119.82	62.63	*Eledone cirrhosa*	1.89	0.81	9.67	4.31
Lepidotrigla cavillone	1.56	1.48	37.13	31.95	*Mullus surmuletus*	1.88	1.08	8.35	4.63
Chelidonichthys cuculus	1.50	1.07	34.37	28.51	*Chelidonichthys cuculus*	1.87	1.30	37.28	22.10
Argentina sphyraena	1.47	0.67	54.40	25.30	*Pennatula phosphorea*	1.86	1.09	1416.53	863.05
Tethyaster subinermis	1.46	1.31	5.20	3.55	*Pagellus acarne*	1.59	1.59	27.94	27.94
Parapenaeus longirostris	1.43	0.75	298.52	195.35	*Eutrigla gurnardus*	1.49	0.68	13.66	4.59
Suberites ficus	1.31	1.31	415.64	415.64	*Trachinus draco*	1.44	1.44	10.75	10.75
Octopus vulgaris	1.16	0.95	5.73	3.82	*Astropecten irregularis*	1.43	0.39	817.42	274.40
Spicara maena	1.08	0.98	23.09	18.98	*Lytocarpia myriophyllum*	1.34	1.21	0.00	0.00
Trigla lyra	0.94	0.60	19.61	10.50	*Citharus linguatula*	1.21	0.56	27.25	14.87
Scomber colias	0.89	0.89	68.81	68.81	*Lepidotrigla cavillone*	1.16	0.74	49.69	28.62
Mullus surmuletus	0.81	0.60	10.68	8.74	*Spondyliosoma cantharus*	1.08	1.08	6.14	6.14
Astropecten irregularis	0.79	0.34	390.50	194.81	*Ous de Scyliorhinus canicula*	1.05	0.23	465.35	103.68
Eutrigla gurnardus	0.77	0.77	6.37	6.37	*Pagellus bogaraveo*	0.96	0.96	16.37	16.37
Rhombosepion orbignyanum	0.73	0.31	34.01	15.46	*Argentina sphyraena*	0.89	0.32	54.57	18.21

Annex 4. List of species recorded at each depth stratum during the MEDITS-AUT25 oceanographic survey, ordered by biomass and abundance, and stratified by GSA 6 North and South areas. SE (Standard error).

Faunal composition in the 200–500 m depth stratum

GSA6N					GSA6S				
Species	**Biomass**	**SE**	**Abundance**	**SE**	**Species**	**Biomass**	**SE**	**Abundance**	**SE**
Merluccius merluccius	14.21	3.27	182.68	70.93	*Micromesistius poutassou*	156.86	55.46	2773.43	1323.43
Scyliorhinus canicula	12.95	4.39	79.47	33.30	*Scyliorhinus canicula*	73.08	19.90	553.52	185.44
Illex coindetii	11.95	4.35	292.63	148.65	*Parapenaeus longirostris*	46.00	12.72	4574.78	1450.94
Helicolenus dactylopterus	10.23	7.20	133.42	51.37	*Lophius budegassa*	25.81	9.58	25.38	9.25
Phycis blennoides	9.28	2.42	209.15	49.77	*Helicolenus dactylopterus*	22.79	11.79	769.23	457.29
Micromesistius poutassou	8.25	3.19	137.25	54.32	*Illex coindetii*	21.58	14.76	352.16	246.29
Parapenaeus longirostris	8.19	2.05	1101.37	289.26	*Merluccius merluccius*	17.18	3.75	271.50	69.95
Lophius budegassa	7.37	3.04	16.06	4.58	*Zeus faber*	16.38	12.45	33.10	24.02
Lophius piscatorius	5.73	5.73	1.05	1.05	*Glossanodon leioglossus*	15.24	14.67	1621.51	1569.28
Eledone cirrhosa	4.88	1.82	28.81	10.24	*Plesionika heterocarpus*	11.24	5.26	5032.93	3181.65
Nephrops norvegicus	4.34	0.91	143.66	40.36	*Raja clavata*	10.36	10.36	5.35	5.35
Todarodes sagittatus	3.55	1.44	14.69	4.57	*Phycis blennoides*	9.72	1.72	252.08	53.74
Aristeus antennatus	3.46	3.11	240.08	219.30	*Todaropsis eblanae*	7.49	1.74	233.80	100.40
Eusergestes arcticus	3.11	2.34	9504.46	8791.76	*Galeus melastomus*	7.22	3.35	391.03	166.86
Pelagia noctiluca	2.68	1.90	73.38	44.54	*Gadiculus argenteus*	5.95	2.23	905.62	358.01
Gadiculus argenteus	2.04	0.93	172.14	86.51	*Alloteuthis spp.*	4.68	2.83	546.73	179.46
Salpa maxima	1.94	1.82	13.83	12.50	*Trisopterus capelanus*	3.10	2.04	51.99	37.87
Ceratoscopelus maderensis	1.53	1.44	1667.25	1554.68	*Lophius piscatorius*	3.09	3.09	1.32	1.32
Pasiphaea sivado	1.48	0.76	743.67	323.46	*Octopus salutii*	2.41	0.58	12.12	2.58
Octopus salutii	1.47	0.96	7.21	4.65	*Scorpaena elongata*	2.31	2.31	5.11	5.11
Trachurus trachurus	1.43	1.27	14.89	10.71	*Synchiropus phaeton*	1.55	1.33	102.81	82.96
Plesionika heterocarpus	1.30	0.49	446.04	182.13	*Plesionika gigliolii*	1.48	0.76	767.22	424.06
Lepidorhombus boscii	1.20	0.61	7.16	3.84	*Capros aper*	1.45	0.54	143.59	54.97
Galeus melastomus	1.07	0.37	33.25	15.01	*Argentina sphyraena*	1.42	1.23	52.30	44.78
Sepietta oweniana	0.80	0.61	140.83	109.09	*Conger conger*	1.09	0.56	5.29	2.71

Annex 4. List of species recorded at each depth stratum during the MEDITS-AUT25 oceanographic survey, ordered by biomass and abundance, and stratified by GSA 6 North and South areas. SE (Standard error).

Faunal composition in the 200–500 m depth stratum

GSA6N					GSA6S				
Species	**Biomass**	**SE**	**Abundance**	**SE**	**Species**	**Biomass**	**SE**	**Abundance**	**SE**
Pteroctopus tetracirrhus	0.75	0.75	2.37	2.37	*Mullus surmuletus*	1.08	0.73	5.34	4.01
Plesionika gigliolii	0.66	0.24	392.66	145.37	*Pasiphaea sivado*	0.87	0.45	558.89	271.89
Molva macrophthalma	0.65	0.33	13.12	6.63	*Echinus melo*	0.86	0.79	32.98	31.45
Hoplostethus mediterraneus	0.54	0.42	32.70	25.99	*Coelorinchus caelorhincus*	0.84	0.42	132.90	46.91
Lepidorhombus whiffiagonis	0.46	0.46	1.45	1.45	*Lepidorhombus boscii*	0.78	0.38	6.55	3.29
Plesionika martia	0.40	0.23	156.18	79.44	*Abralia veranyi*	0.70	0.30	389.55	167.52
Salpa spp.	0.37	0.24	83.56	39.41	*Peristedion cataphractum*	0.70	0.38	38.62	25.42
Abralia veranyi	0.34	0.15	211.31	94.48	*Eusergestes arcticus*	0.63	0.47	1755.24	1661.80
Notoscopelus elongatus	0.33	0.26	72.03	56.00	*Funiculina quadrangularis*	0.61	0.56	0.00	0.00
Todaropsis eblanae	0.32	0.32	24.24	24.24	*Charonia lampas*	0.58	0.37	2.63	1.70
Aristaeomorpha foliacea	0.29	0.19	16.88	11.10	*Sepietta oweniana*	0.53	0.23	121.93	55.45
Trigla lyra	0.21	0.12	5.87	3.01	*Tethyaster subinermis*	0.52	0.52	3.98	3.98
Parastichopus regalis	0.20	0.16	2.62	1.71	*Benthosema glaciale*	0.51	0.47	871.40	808.65
Scaeurgus unicirrhus	0.19	0.15	2.50	1.64	*Macroramphosus scolopax*	0.48	0.30	37.18	22.12
Pasiphaea multidentata	0.18	0.18	73.80	72.39	*Dardanus arrosor*	0.45	0.16	47.56	16.61
Conger conger	0.14	0.14	2.35	2.35	*Raja polystigma*	0.45	0.45	6.53	6.53
Dardanus arrosor	0.13	0.05	12.94	3.59	*Plesionika edwardsii*	0.31	0.24	185.30	105.69
Lobianchia dofleini	0.12	0.09	179.08	136.63	*Nephrops norvegicus*	0.30	0.26	7.13	5.56
Tethyaster subinermis	0.12	0.12	1.19	1.19	*Chlorotocus crassicornis*	0.29	0.13	160.10	65.73
Chlorophthalmus agassizi	0.10	0.05	30.89	14.77	*Ophichthus rufus*	0.27	0.12	11.11	4.45
Lepidopus caudatus	0.10	0.09	2.27	1.47	*Ous de Scyliorhinus canicula*	0.27	0.10	127.01	49.99
Symphurus nigrescens	0.10	0.03	12.00	3.68	*Todarodes sagittatus*	0.25	0.25	1.34	1.34
Macropipus tuberculatus	0.09	0.07	8.44	5.74	*Plesionika martia*	0.21	0.12	141.12	74.66
Stomias boa	0.09	0.05	13.23	6.02	*Chlorophthalmus agassizi*	0.20	0.10	90.76	51.72
Symbolophorus veranyi	0.09	0.09	31.89	31.89	*Trachurus trachurus*	0.20	0.20	12.18	12.18

Annex 4. List of species recorded at each depth stratum during the MEDITS-AUT25 oceanographic survey, ordered by biomass and abundance, and stratified by GSA 6 North and South areas. SE (Standard error).

Faunal composition in the 500–800 m depth stratum									
GSA6N					GSA6S				
Species	**Biomass**	**SE**	**Abundance**	**SE**	**Species**	**Biomass**	**SE**	**Abundance**	**SE**
Galeus melastomus	65.56	20.00	222.39	77.07	*Galeus melastomus*	56.25	21.69	194.90	57.21
Hexanchus griseus	18.13	18.13	2.25	2.25	*Aristeus antennatus*	17.39	3.48	1528.44	394.82
Aristeus antennatus	14.36	5.20	1300.32	315.11	*Geryon longipes*	16.90	5.92	247.75	94.09
Todarodes sagittatus	6.72	4.70	12.75	7.26	*Lophius piscatorius*	12.03	12.03	1.25	1.25
Merluccius merluccius	6.49	3.27	11.78	5.82	*Phycis blennoides*	10.83	3.55	161.71	30.45
Phycis blennoides	4.47	1.07	58.87	14.47	*Parapenaeus longirostris*	7.45	2.89	596.97	233.89
Conger conger	3.40	3.05	13.07	11.22	*Plesionika martia*	7.02	0.77	1305.83	204.58
Scyliorhinus canicula	2.89	1.72	13.39	6.87	*Scyliorhinus canicula*	5.86	0.81	28.15	3.96
Geryon longipes	2.65	1.56	25.26	14.29	*Merluccius merluccius*	5.28	2.09	15.92	6.51
Paromola cuvieri	2.42	2.42	4.51	4.51	*Todarodes sagittatus*	5.28	2.30	17.94	6.86
Plesionika martia	2.08	0.45	321.82	74.51	*Lampanyctus crocodilus*	4.86	1.29	1031.72	279.75
Hoplostethus mediterraneus	1.92	1.82	19.67	15.73	*Conger conger*	3.67	1.12	17.16	4.19
Lampanyctus crocodilus	1.50	0.90	220.86	94.17	*Histioteuthis bonnellii*	3.26	2.83	5.17	4.03
Micromesistius poutassou	0.95	0.32	8.76	2.59	*Micromesistius poutassou*	3.14	0.93	50.43	12.64
Nezumia aequalis	0.92	0.28	51.39	9.74	*Hoplostethus mediterraneus*	2.10	0.92	66.84	38.96
Trachyrincus scabrus	0.85	0.54	8.15	5.22	*Nezumia aequalis*	1.53	0.48	94.23	23.88
Polycheles typhlops	0.72	0.19	90.46	22.76	*Illex coindetii*	1.48	1.35	17.48	16.00
Molva macrophthalma	0.56	0.42	3.15	1.93	*Pasiphaea multidentata*	1.26	0.30	504.03	136.37
Pelagia noctiluca	0.42	0.24	20.60	9.80	*Plesionika heterocarpus*	1.02	0.62	253.13	124.79
Pasiphaea multidentata	0.38	0.18	143.87	86.32	*Plesionika gigliolii*	0.91	0.32	389.96	105.61
Pennatula phosphorea	0.37	0.37	9.02	9.02	*Plesionika acanthonotus*	0.83	0.20	467.33	123.81
Salpa spp.	0.33	0.20	52.18	27.45	*Helicolenus dactylopterus*	0.81	0.33	15.20	5.93
Histioteuthis reversa	0.32	0.32	2.25	2.25	*Todaropsis eblanae*	0.80	0.42	11.62	7.71
Lepidorhombus boscii	0.28	0.28	1.56	1.56	*Etmopterus spinax*	0.79	0.21	18.45	3.96
Illex coindetii	0.26	0.17	3.27	2.00	*Histioteuthis reversa*	0.77	0.38	5.27	2.84

Annex 4. List of species recorded at each depth stratum during the MEDITS-AUT25 oceanographic survey, ordered by biomass and abundance, and stratified by GSA 6 North and South areas. SE (Standard error).

Faunal composition in the 500–800 m depth stratum									
GSA6N					GSA6S				
Species	**Biomass**	**SE**	**Abundance**	**SE**	**Species**	**Biomass**	**SE**	**Abundance**	**SE**
Bathypolypus sponsalis	0.17	0.17	1.56	1.56	*Chlorophthalmus agassizi*	0.53	0.50	28.85	27.35
Hymenocephalus italicus	0.16	0.05	27.00	9.00	*Paromola cuvieri*	0.50	0.50	1.34	1.34
Astrospartus mediterraneus	0.15	0.13	3.15	1.93	*Plesionika edwardsii*	0.48	0.20	70.97	30.11
Loligo vulgaris	0.15	0.15	1.59	1.59	*Nephrops norvegicus*	0.43	0.19	4.83	1.84
Acanthephyra pelagica	0.14	0.10	24.67	17.80	*Coelorinchus caelorhincus*	0.42	0.29	16.34	14.87
Robustosergia robusta	0.14	0.07	86.65	38.24	*Hymenocephalus italicus*	0.41	0.18	77.19	37.39
Plesionika acanthonotus	0.13	0.05	89.82	36.36	*Geodia spp.*	0.36	0.36	1.34	1.34
Holothuria mammata	0.10	0.10	3.36	3.36	*Bathypolypus sponsalis*	0.34	0.22	4.54	2.97
Notacanthus bonaparte	0.09	0.03	8.67	2.60	*Lepidorhombus boscii*	0.33	0.33	1.13	1.13
Parastichopus regalis	0.09	0.09	1.59	1.59	*Notacanthus bonaparte*	0.32	0.11	33.49	11.84
Salpa maxima	0.09	0.09	3.29	3.29	*Lepidopus caudatus*	0.31	0.15	3.58	1.75
Lophius budegassa	0.08	0.08	1.56	1.56	*Charonia lampas*	0.28	0.28	1.12	1.12
Nemichthys scolopaceus	0.07	0.04	3.32	2.03	*Robustosergia robusta*	0.25	0.08	155.14	47.80
Lepidopus caudatus	0.06	0.06	1.64	1.64	*Stomias boa*	0.23	0.06	26.53	4.98
Abralia veranyi	0.05	0.05	25.17	25.17	*Macropodia longirostris*	0.22	0.22	15.81	15.81
Acanthephyra eximia	0.05	0.03	4.88	3.27	*Salpa spp.*	0.21	0.14	61.46	38.42
Helicolenus dactylopterus	0.05	0.05	1.68	1.68	*Salpa maxima*	0.17	0.17	1.25	1.25
Parapenaeus longirostris	0.05	0.05	5.03	5.03	*Abralia veranyi*	0.14	0.12	76.10	66.18
Microcosmus spp.	0.04	0.04	1.56	1.56	*Polycheles typhlops*	0.14	0.05	23.67	7.94
Tethyaster subinermis	0.04	0.04	1.59	1.59	*Chauliodus sloani*	0.13	0.05	8.40	2.79
Ceratoscopelus maderensis	0.03	0.02	50.52	30.42	*Pteroctopus tetracirrhus*	0.12	0.12	1.22	1.22
Eusergestes arcticus	0.03	0.02	126.04	61.76	*Synchiropus phaeton*	0.11	0.11	6.73	6.73
Plesionika gigliolii	0.03	0.02	19.00	14.30	*Symphurus ligulatus*	0.09	0.03	28.80	10.36
Plesionika heterocarpus	0.03	0.03	8.39	8.39	*Trachyrincus scabrus*	0.09	0.09	1.15	1.15
Lepidion lepidion	0.02	0.02	4.93	4.93	*Benthosema glaciale*	0.08	0.04	143.54	68.61

Annex 5. List of species with the highest biomass recorded at each depth stratum during the MEDITS-AUT25 oceanographic survey.

Biomass (kg/km^2)

Classe	Species	10-50 m		50-100 m		100-200 m		200-500 m		500-800 m	
		mean	se	mean	se	mean	se	mean	se	mean	se
Actinopterygii	*Trachurus trachurus*	31.3	14.5	378.9	124.2	220.8	68.4	0.8	0.6	0.0	0.0
	Mullus barbatus	209.4	95.1	64.8	17.6	42.0	11.9	0.0	0.0	0.0	0.0
	Engraulis encrasicolus	40.2	31.9	79.2	34.9	69.6	69.3	0.0	0.0	0.0	0.0
	Merluccius merluccius	26.6	8.6	62.8	9.4	63.5	13.4	15.7	2.4	5.7	1.7
	Pagellus erythrinus	156.6	100.9	15.9	7.7	0.0	0.0	0.0	0.0	0.0	0.0
	Lophius budegassa	28.1	15.6	71.8	15.5	35.2	7.8	16.6	5.5	0.0	0.0
	Trachurus mediterraneus	111.9	45.1	18.7	14.4	0.1	0.1	0.0	0.0	0.0	0.0
	Pagellus acarne	122.5	86.6	4.3	3.0	0.9	0.9	0.0	0.0	0.0	0.0
	Boops boops	46.0	23.6	63.8	25.3	2.6	1.8	0.0	0.0	0.0	0.0
	Spicara spp.	67.9	35.4	31.0	5.1	7.2	2.9	0.0	0.0	0.0	0.0
	Sardina pilchardus	52.5	16.1	40.7	14.3	2.9	1.7	0.0	0.0	0.0	0.0
	Micromesistius poutassou	0.0	0.0	0.0	0.0	0.1	0.1	82.6	33.7	2.3	0.6
	Diplodus vulgaris	56.1	40.7	0.7	0.4	0.0	0.0	0.0	0.0	0.0	0.0
	Serranus cabrilla	48.2	34.6	1.1	0.6	4.5	4.3	0.0	0.0	0.0	0.0
	Sparus aurata	40.3	26.5	3.4	3.3	0.0	0.0	0.0	0.0	0.0	0.0
	Capros aper	0.0	0.0	0.3	0.1	39.0	14.9	0.7	0.3	0.0	0.0
	Trisopterus capelanus	5.1	3.7	14.1	3.4	15.4	3.1	1.5	1.1	0.0	0.0
	Diplodus annularis	30.6	26.1	1.0	0.7	0.0	0.0	0.0	0.0	0.0	0.0
	Helicolenus dactylopterus	0.0	0.0	0.0	0.0	11.5	4.3	16.5	6.9	0.5	0.2
	Glossanodon leioglossus	0.0	0.0	0.0	0.0	19.6	8.5	7.6	7.4	0.0	0.0
	Scorpaena notata	24.0	13.2	1.0	0.6	0.0	0.0	0.0	0.0	0.0	0.0
	Lepidotrigla cavillone	18.5	15.5	4.9	2.9	1.3	0.8	0.0	0.0	0.0	0.0
	Zeus faber	1.8	1.5	3.3	1.7	10.4	5.6	8.2	6.4	0.0	0.0
	Spicara smaris	13.0	12.7	9.0	6.3	0.0	0.0	0.0	0.0	0.0	0.0
	Conger conger	17.0	11.2	0.7	0.3	0.1	0.0	0.6	0.3	3.6	1.3
	Macroramphosus scolopax	0.1	0.1	0.2	0.2	20.0	7.8	0.2	0.2	0.0	0.0
	Phycis blennoides	0.0	0.0	0.1	0.0	2.6	0.8	9.5	1.4	8.4	2.3
	Serranus hepatus	5.9	2.5	10.5	3.2	3.4	2.4	0.0	0.0	0.0	0.0
	Lophius piscatorius	3.5	2.4	0.1	0.1	1.1	1.0	4.4	3.2	7.4	7.4
	Mullus surmuletus	12.7	11.5	1.9	0.7	1.4	0.6	0.5	0.4	0.0	0.0
Elasmobranchii	*Scyliorhinus canicula*	16.3	10.7	17.1	5.5	63.8	27.2	43.0	12.9	4.7	0.9
	Galeus melastomus	0.0	0.0	0.0	0.0	0.0	0.0	4.1	1.8	59.8	14.9
	Raja clavata	10.1	10.1	4.5	3.2	20.4	9.7	5.2	5.2	0.0	0.0
Malacostraca	*Parapenaeus longirostris*	0.2	0.2	3.7	1.1	10.3	3.0	27.1	8.1	4.6	2.0
	Aristeus antennatus	0.0	0.0	0.0	0.0	0.0	0.0	1.7	1.6	16.2	2.8
Cephalopoda	*Octopus vulgaris*	276.8	117.7	85.8	20.1	32.5	14.4	0.0	0.0	0.0	0.0
	Alloteuthis spp.	4.5	1.7	9.8	4.0	61.8	23.1	2.3	1.5	0.0	0.0
	Sepia officinalis	42.3	14.6	6.5	4.4	0.9	0.9	0.0	0.0	0.0	0.0
	Illex coindetii	2.2	1.2	10.7	3.2	16.2	3.2	16.8	7.5	1.0	0.8
	Loligo vulgaris	12.1	6.0	14.0	3.6	3.5	1.2	0.0	0.0	0.1	0.1
	Eledone cirrhosa	1.6	1.1	16.1	7.2	7.5	2.5	2.4	1.1	0.0	0.0

Annex 6. List of species with the highest abundance recorded at each depth stratum during the MEDITS-AUT25 oceanographic survey.

Abundance (Ind./km^2)

Classe	Species	10-50 m		50-100 m		100-200 m		200-500 m		500-800 m	
		mean	se	mean	se	mean	se	mean	se	mean	se
Actinopterygii	*Engraulis encrasicolus*	17076.4	15805.7	17086.3	10171.5	24496.4	24479.6	1.2	1.2	0.0	0.0
	Trachurus trachurus	1366.5	610.0	12741.6	3976.1	8166.7	2641.7	13.5	7.8	0.0	0.0
	Capros aper	3.2	3.2	166.4	69.9	15740.0	7067.0	71.8	33.1	0.0	0.0
	Spicara spp.	8499.5	5747.1	1990.0	414.7	191.1	78.3	0.0	0.0	0.0	0.0
	Pagellus erythrinus	9991.4	6956.4	353.9	194.1	2.3	2.3	0.0	0.0	0.0	0.0
	Trachurus mediterraneus	8779.8	3855.4	1094.7	646.7	10.2	4.7	0.0	0.0	0.0	0.0
	Mullus barbatus	7022.9	3603.5	1328.7	373.4	699.2	215.7	0.6	0.6	0.0	0.0
	Sardina pilchardus	4633.5	1478.8	2335.4	767.7	140.2	84.7	0.0	0.0	0.0	0.0
	Boops boops	2300.4	1151.9	3303.1	1446.9	39.9	21.0	0.0	0.0	0.0	0.0
	Glossanodon leioglossus	0.0	0.0	0.0	0.0	4646.8	2044.2	810.8	786.7	1.5	1.0
	Merluccius merluccius	355.6	114.6	1055.9	208.3	1889.6	458.0	227.1	49.4	14.3	4.5
	Diplecogaster bimaculata	3533.5	3533.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Macroramphosus scolopax	16.1	16.1	34.2	28.1	2336.2	842.6	19.1	11.8	4.7	3.4
	Lepidotrigla cavillone	1391.2	1210.7	348.9	202.3	44.0	20.8	0.0	0.0	0.0	0.0
	Sardinella aurita	1582.4	911.2	106.9	62.5	0.0	0.0	0.0	0.0	0.0	0.0
	Serranus hepatus	597.2	282.2	819.0	243.9	219.6	140.1	0.7	0.7	0.0	0.0
	Helicolenus dactylopterus	0.0	0.0	0.0	0.0	1043.2	433.8	451.3	238.0	10.0	4.1
	Pagellus acarne	1438.5	937.9	50.2	30.8	15.4	15.4	0.0	0.0	0.0	0.0
	Micromesistius poutassou	0.0	0.0	0.0	0.0	2.8	2.1	1455.3	733.8	34.4	9.6
	Spicara smaris	950.0	925.6	429.6	313.2	0.0	0.0	0.0	0.0	0.0	0.0
	Trisopterus capelanus	97.8	70.3	563.5	150.7	581.5	91.9	26.0	19.6	0.0	0.0
	Pagellus bogaraveo	1117.4	1110.0	32.8	21.7	10.1	9.0	0.0	0.0	0.0	0.0
	Serranus cabrilla	961.9	739.8	28.7	16.4	59.1	49.4	0.0	0.0	0.0	0.0
	Ceratoscopelus maderensis	0.0	0.0	0.0	0.0	0.0	0.0	940.9	775.8	29.8	12.6
Elasmobranchii	*Scyliorhinus canicula*	61.8	39.6	102.9	31.8	491.8	197.0	316.5	111.9	22.5	4.0
Malacostraca	*Pisa armata*	7070.7	7066.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Inachus spp.	7067.1	7067.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Parapenaeus longirostris	58.1	58.1	633.9	200.7	2243.3	623.6	2838.1	858.6	369.3	162.9
	Eusergestes arcticus	0.0	0.0	0.0	0.0	0.0	0.0	5629.9	4430.5	84.2	27.4
	Plesionika heterocarpus	0.0	0.0	0.0	0.0	2298.9	1609.8	2739.5	1657.8	159.0	82.3
	Pagurus prideaux	3.2	3.2	2550.6	2548.7	0.0	0.0	0.7	0.7	0.0	0.0
	Aristeus antennatus	0.0	0.0	0.0	0.0	0.0	0.0	120.0	110.5	1440.7	264.0
	Plesionika martia	0.0	0.0	0.0	0.0	0.0	0.0	148.7	52.4	927.4	186.6
	Dardanus arrosor	657.8	304.1	276.0	120.1	73.9	56.2	30.3	9.5	2.1	1.1
Cephalopoda	*Alloteuthis spp.*	1028.6	384.2	1687.6	453.8	15049.1	7173.8	273.4	114.8	6.8	4.7
	Illex coindetii	50.1	24.8	641.2	171.8	1767.9	326.7	322.4	138.4	12.0	9.8
	Octopus vulgaris	708.4	250.0	251.2	61.1	59.2	24.8	0.0	0.0	0.0	0.0
	Sepia officinalis	42.3	14.6	6.5	4.4	0.9	0.9	0.0	0.0	0.0	0.0
	Illex coindetii	2.2	1.2	10.7	3.2	16.2	3.2	16.8	7.5	1.0	0.8
	Loligo vulgaris	12.1	6.0	14.0	3.6	3.5	1.2	0.0	0.0	0.1	0.1
	Eledone cirrhosa	1.6	1.1	16.1	7.2	7.5	2.5	2.4	1.1	0.0	0.0

Annex 7. Tables showing the number of individuals measured by depth stratum and GSA 6 area.

Individuals sized
Merluccius merluccius

Area	Depth (m)	Num.Individuals sized
GSA6 - North	10-50	37
GSA6 - North	50-100	602
GSA6 - North	100-200	674
GSA6 - North	200-500	144
GSA6 - North	500-800	7
GSA6 - South	10-50	78
GSA6 - South	50-100	518
GSA6 - South	100-200	1022
GSA6 - South	200-500	204
GSA6 - South	500-800	13

Individuals sized
Mullus barbatus

Area	Depth (m)	Num.Individuals sized
GSA6 - North	10-50	272
GSA6 - North	50-100	735
GSA6 - North	100-200	354
GSA6 - North	200-500	1
GSA6 - South	10-50	434
GSA6 - South	50-100	417
GSA6 - South	100-200	216

Individuals sized
Mullus surmuletus

Area	Depth (m)	Num.Individuals sized
GSA6 - North	10-50	31
GSA6 - North	50-100	12
GSA6 - North	100-200	5
GSA6 - South	10-50	2
GSA6 - South	50-100	12
GSA6 - South	100-200	4
GSA6 - South	200-500	4

Individuals sized
Micromesistius poutassou

Area	Depth (m)	Num.Individuals sized
GSA6 - North	100-200	1
GSA6 - North	200-500	95
GSA6 - North	500-800	5
GSA6 - South	100-200	2
GSA6 - South	200-500	642
GSA6 - South	500-800	41

Individuals sized
Engraulis encrasicolus

Area	Depth (m)	Num.Individuals sized
GSA6 - North	10-50	154
GSA6 - North	50-100	627
GSA6 - North	100-200	243
GSA6 - North	200-500	2
GSA6 - South	10-50	210
GSA6 - South	50-100	364
GSA6 - South	100-200	15

Individuals sized
Sardina pilchardus

Area	Depth (m)	Num.Individuals sized
GSA6 - North	10-50	503
GSA6 - North	50-100	508
GSA6 - North	100-200	15
GSA6 - South	10-50	271
GSA6 - South	50-100	894
GSA6 - South	100-200	118

Individuals sized
Trachurus trachurus

Area	Depth (m)	Num.Individuals sized
GSA6 - North	10-50	158
GSA6 - North	50-100	1414
GSA6 - North	100-200	1167
GSA6 - North	200-500	13
GSA6 - South	10-50	283
GSA6 - South	50-100	1238
GSA6 - South	100-200	880
GSA6 - South	200-500	8

Individuals sized
Scyliorhinus canicula

Area	Depth (m)	Num.Individuals sized
GSA6 - North	10-50	10
GSA6 - North	50-100	63
GSA6 - North	100-200	120
GSA6 - North	200-500	66
GSA6 - North	500-800	7
GSA6 - South	10-50	2
GSA6 - South	50-100	40
GSA6 - South	100-200	317
GSA6 - South	200-500	406
GSA6 - South	500-800	23

Individuals sized
Galeus melastomus

Area	Depth (m)	Num.Individuals sized
GSA6 - North	200-500	27
GSA6 - North	500-800	136
GSA6 - South	200-500	286
GSA6 - South	500-800	160

Annex 7. Tables showing the number of individuals measured by depth stratum and GSA 6 area.

Individuals sized

Parapenaeus longirostris

Area	Depth (m)	Num.Individuals sized
GSA6 - North	50-100	186
GSA6 - North	100-200	140
GSA6 - North	200-500	881
GSA6 - North	500-800	3
GSA6 - South	10-50	18
GSA6 - South	50-100	495
GSA6 - South	100-200	1236
GSA6 - South	200-500	995
GSA6 - South	500-800	357

Individuals sized

Nephrops norvegicus

Area	Depth (m)	Num.Individuals sized
GSA6 - North	100-200	2
GSA6 - North	200-500	119
GSA6 - North	500-800	1
GSA6 - South	100-200	1
GSA6 - South	200-500	4
GSA6 - South	500-800	4

Individuals sized

Aristeus antennatus

Area	Depth (m)	Num.Individuals sized
GSA6 - North	200-500	204
GSA6 - North	500-800	718
GSA6 - South	500-800	1001

Individuals sized

Illex coindetii

Area	Depth (m)	Num.Individuals sized
GSA6 - North	10-50	10
GSA6 - North	50-100	657
GSA6 - North	100-200	1102
GSA6 - North	200-500	257
GSA6 - North	500-800	2
GSA6 - South	10-50	5
GSA6 - South	50-100	67
GSA6 - South	100-200	652
GSA6 - South	200-500	264
GSA6 - South	500-800	13

Individuals sized

Loligo vulgaris

Area	Depth (m)	Num.Individuals sized
GSA6 - North	10-50	12
GSA6 - North	50-100	102
GSA6 - North	100-200	10
GSA6 - North	500-800	1
GSA6 - South	10-50	16
GSA6 - South	50-100	44
GSA6 - South	100-200	18

Individuals sized

Octopus vulgaris

Area	Depth (m)	Num.Individuals sized
GSA6 - North	10-50	23
GSA6 - North	50-100	40
GSA6 - North	100-200	2
GSA6 - South	10-50	151
GSA6 - South	50-100	233
GSA6 - South	100-200	50

Individuals sized

Eledone cirrhosa

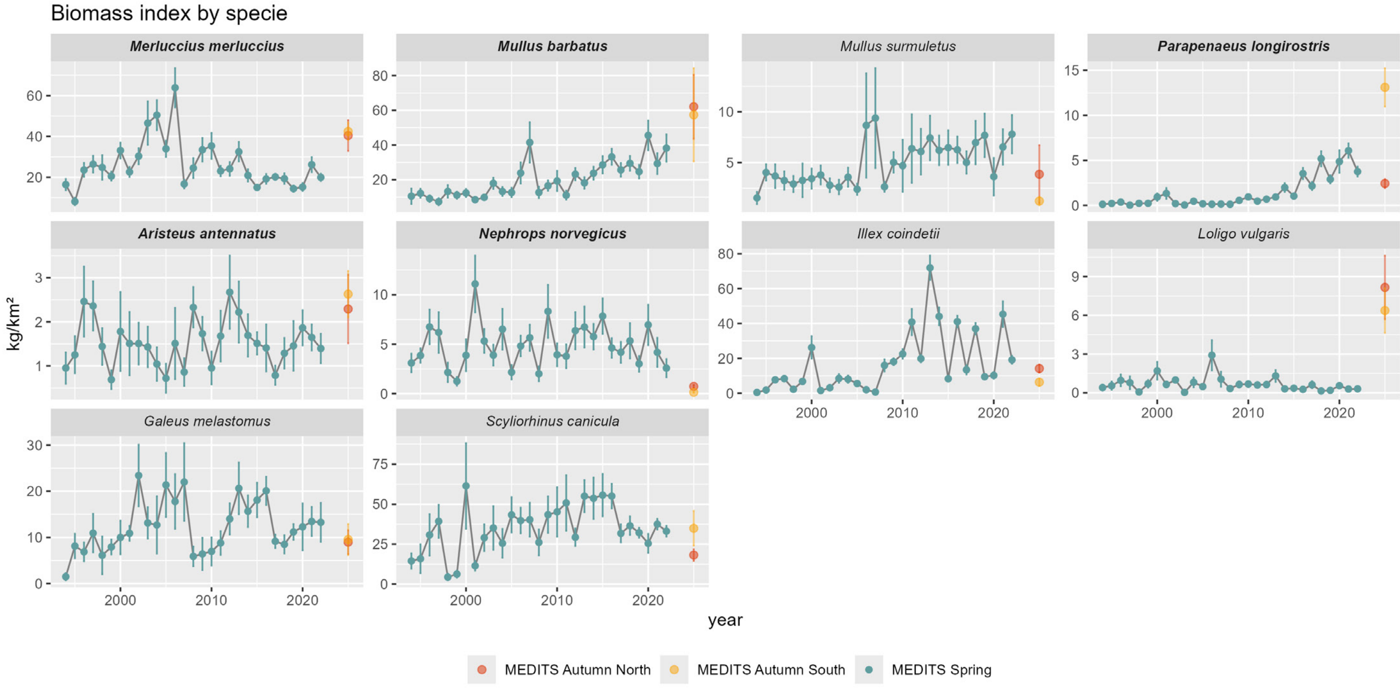
Area	Depth (m)	Num.Individuals sized
GSA6 - North	10-50	4
GSA6 - North	50-100	146
GSA6 - North	100-200	60
GSA6 - North	200-500	23
GSA6 - South	50-100	3
GSA6 - South	100-200	5

Individuals sized

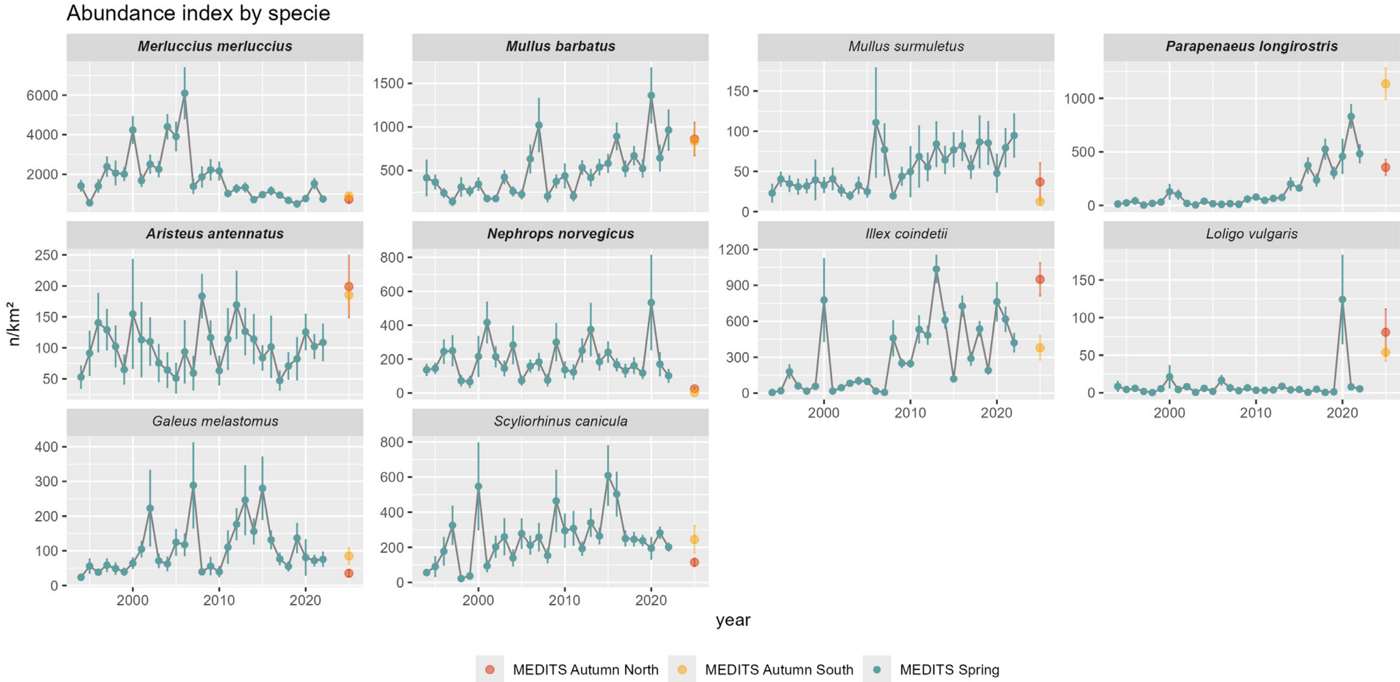
Todaropsis eblanae

Area	Depth (m)	Num.Individuals sized
GSA6 - North	50-100	2
GSA6 - North	100-200	10
GSA6 - North	200-500	23
GSA6 - South	100-200	64
GSA6 - South	200-500	175
GSA6 - South	500-800	9

Annex 8. Historical biomass index for target species. Species shown in bold correspond to those regulated under the Western Mediterranean Multiannual Plan (WMMAP), whereas the remaining species are additional targets of the MEDITS survey. Green dots represent biomass indices obtained from MEDITS surveys conducted in spring, while the orange dot corresponds to the biomass index from the MEDITS-AUT25 survey in the GSA6 north and the yellow dot represents the biomass index in GSA6 south. For the MEDITS spring series, only available data from 1996 to 2022 were used. Dots represent mean values, and error bars indicate the standard deviation.



Annex 9. Historical abundance index for target species. Species shown in bold correspond to those regulated under the Western Mediterranean Multiannual Plan (WMMAP), whereas the remaining species are additional targets of the MEDITS survey. Green dots represent abundance indices obtained from MEDITS surveys conducted in spring, while the orange dot corresponds to the biomass index from the MEDITS-AUT25 survey in the GSA6 north and the yellow dot represents the biomass index in GSA6 south. For the MEDITS spring series, only available data from 1996 to 2022 were used. Dots represent mean values, and error bars indicate the standard deviation.



Annex 10. Complementary scientific studies

Collection of otoliths and teleost fish specimens for the Marine Biological Reference Collections (CBMR) of the ICM CSIC.

The Mediterranean fish reference collections of the ICM-CSIC were established during the 1970s and 1980s using fixation and preservation methods based on formaldehyde. Although the material remains in good condition and is suitable for studies of a morphological nature, this methodology is inadequate for current molecular analysis techniques. Consequently, a new incorporation of Mediterranean specimens has been undertaken, from which samples will be extracted for this type of analysis. Two medium or small-sized specimens were selected from species that were not previously represented in the collection. Specimens (one or two individuals) from 75 teleost fish species were obtained (see attached Table). The material was frozen and transferred to the ICM-CSIC Marine Biological Reference Collections (CBMR), where it was fixed in 70% ethanol. Two muscle samples were taken from the right side of each specimen and preserved frozen at −20 °C in the same ethanol solution.

Due to their specific morphology, otoliths are a fundamental tool in the taxonomic identification of stomach contents, which is essential for determining trophic levels and predator–prey relationships. It is therefore important to develop and maintain otolith collections that allow the production of catalogues and atlases to assist in prey identification. In this context, the ICM-CSIC collection in Barcelona has been progressively developed and is associated with the AFORO website (http://aforo.cmima.csic.es/). During the MEDITS_AUT25 survey, two species not previously included in the reference collection were incorporated, and the number of specimens was increased for a further 18 species. The otoliths are preserved dry in plastic tubes and are currently undergoing digitization and incorporation into the AFORO online database.

Collection of batoid tissue samples for the Balearic Islands Oceanographic Center (IEO-CSIC)

During the MEDITS-AUT25 survey, batoid tissue samples were collected following a request from the Balearic Islands Oceanographic Centre of the Spanish Institute of Oceanography (IEO-CSIC). The sampling aimed to support a research proposal focused on assessing the conservation status and population isolation of batoids from the Balearic Islands and adjacent areas, using ethanol preserved tissue suitable for molecular analyses. The request targeted eight batoid species, with a planned collection of 20–25 tissue samples per species, depending on availability.

Sampling followed a standardized protocol: specimens were identified to species level onboard, photographed when possible, and a tissue sample of approximately 0.5 cm^2 was excised from the pelvic fin. Then, samples were preserved in individually labelled vials containing absolute ethanol (minimum 3:1 ethanol to tissue ratio) and stored at ambient temperature onboard. Although batoids from additional species were captured, 38 individuals belonging to requested species met the requirements for tissue extraction. These samples were therefore selected and sent directly to IEO-CSIC. Each sample was assigned a unique identification code to ensure full traceability of associated sampling data

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