REPORT OF THE 2017 MEDITS COORDINATION MEETING

(Nicosia, Cyprus, 5-6 April 2017)

1. Opening, adoption of agenda and meeting arrangements

The Meeting was held at Cleopatra Hotel in Nicosia from 5-6 April, 2017. Ioannis Thasitis from the Department of Fisheries and Marine Research (DFMR) of the Ministry of Agriculture of the Republic of Cyprus opened the meeting welcoming the participants ("the Group") and provided information on practicalities. George Tserpes on behalf of the Group, thanked DFMR for hosting the meeting and highlighted the importance of the work to be developed by the Group during the meeting, aiming to facilitate collaboration among MEDITS scientists for the provision of updated information on the abundance trends of demersal stocks in the Mediterranean, as well as on the state of the marine ecosystem in terms of species composition and distribution patterns. Mr George Tserpes, meeting Chairperson, proceeded to review the Agenda, which was adopted (**Appendix 1**). The List of Participants is included in **Appendix 2**. The submitted Documents and Presentations are attached in **Appendixes 3** and **4** respectively.

2. Feedback from 2016 activities

2.1 Previous coordination meeting

The Group reviewed and adopted the report of the 2016 coordination meeting which will become publicly available at the project web-site.

2.2 Relevant meetings and workshops

Maria-Teresa Spedicato recalled the conclusions and recommendations of the MEDITS Coordination meeting held in Sliema (Malta) in 2016 and summarized information from the RCMMed&BS meeting, as well as, from relevant STECF-EWG, GFCM, and ICES groups.

2.3 Review of the 2016 MEDITS surveys

Participants presented briefly the activities accomplished during the 2016 MEDITS surveys in each country/GSA with special focus on problems encountered, extraordinary findings and future planning. In general, the survey was implemented without particular problems in all areas, following the agreed protocol. The main points by GSA are summarized below, while further details and presentations are included in Appendix 3.

Cristina Garcia presented information about the surveys realized in **GSAs 1, 2, 5 and 6** by Spanish scientists. The Spanish MEDITS survey was carried out from 23 April to 21 June (60 days), on board R/V Miguel Oliver. A total of 666 species or taxa (212 fishes, 115 crustaceans, 1118 molluscs and 221 other invertebrates and

algae) were identified, counted and weighted. SCANMAR was used in all hauls. The CTD SeaBird-37 was also used in all the hauls attached to the flotsam. The total number of individuals of species captured was 1677341, weighing 22552 kg. The number of individuals measured in length was 160664 and the number of biological sampling made was 28276 individuals. A total of 2572 samples of hard tissues for age estimations were taken. In 2017, the Spanish MEDITS survey is planned from 23 April to 21 June on board R/V Miguel Oliver.

Angelique Jadaud presented information about the surveys realized in **GSAs 7** and **8.** The surveys were conducted from the 20th May until the 26th of June. All predefined hauls were performed (23 in GSA 8–Eastern Corsica and 65 in GSA 7-Gulf of Lions, with one of the 65 hauls being invalid because of tears on the net). The openings of the net were measured using the MAREPORT system, at all hauls and the bottom temperature and salinity were recorded using an Oddistar CTD. The temperature oscillated around 13 and 15 °C and the salinity between 35.7 and 39.3. Macro litters were collected, weighted and counted by sub-category and mostly plastics were analyzed. In GSAs 7 and 8 jointly, 392 taxa were identified with 12 new species. In GSAs 7 and 8, 60 taxa (G1 and G2 species) and 51 taxa were respectively measured. Considering sex and maturity 20 taxa (GSA7) and 26 taxa (GSA 8) were sampled (G1 species). Hard tissues for ageing, were collected for 5 species: *Mullus barbatus*, *M. surmuletus*, *Lophius budegassa*, *L. piscatorius* and *M. Merluccius* and additional work was carried out for the needs of different projects: *Raja clavata* samples were collected for population genomics (Pascal Lorance); macroscopic photos of hake and red mullet gonads (gonad in the body and separately) were taken for the needs of the MEDITS maturity stages working group (C. Follesa). Furthermore, sampling was accomplished for the needs of the Marine Strategy Framework Directive (MSFD): characterization of abundance of zooplankton taxa by means of WP2 at10 stations in the Gulf of Lions and 8 stations in the Eastern Corsica (different depths strata); determination of jelly fish. In 2017, the survey will be conducted from the 23rd of May until the 26th June. It will include some sampling activities for the needs of the MSFD (WP2, CTD, contaminants, stomachs contents and isotops).

Mario Sbrana presented information about the survey in **GSA 9** covering the Ligurian and North Central Tyrrhenian Sea. The survey was carried out from May 21st to June 16th using a new vessel (commercial trawler), named S. ANNA. This vessel has been already is used for several years for the MEDITS in GSA 16. An inter-calibration survey with the vessel LIBERA, which was used in the previous surveys in GSA 9, was carried out. Statistically rigorous approach for estimating catchability differences between the two vessels was applied. Biomass indices obtained in the paired hauls performed during the inter-calibration survey were analysed through Negative Binomial GLMM (Generalized Linear Mixed Model). The results obtained showed that there are no significant differences in the biomass indices for the main species and group of species estimated using the two different vessels. Net sensors and CTD probe were used in the majority of

the hauls. The collected marine litters were classified according to the MEDITS Protocol. A total of 281 species (123 bony fishe, 16 elasmobranch, 50 crustacean, 27 cephalopod and 65 other invertebrates and algae) were identified, counted and weighted. Historical abundance and biomass trends for the most important species were presented to the group. No significant trends were observed for *Mullus surmuletus*, *Aristomorpha foliacea*, *Aristeus antennatus*, *Nephrops norvegicus*, *Illex coindetii* and *Loligo vulgaris*. Positive trends were noted for *Galeus melastomus* (in density only), *Scyliorhynus canicula*, *Mullus barbatus* which has high peaks of indices in the years when surveys were conducted later, and *Parapenaeus longirostris*. A significant negative trend was observed for *Merluccius merluccius* biomass only. Concerning the mean size of the specimens, during the MEDITS time series, a negative trend was only detected in the case of *N. norvegicus* and *P. longirostris*. At present it is not possible to define the dates for the 2017 survey, as the call for the implementation of the DCF Italian National Program is still pending.

Pierluigi Carbonara presented the survey in **GSA10.** The vessel utilized was "Pasquale e Cristina" (PEC), as in previous years. The survey started at 29.06.2016 but it was interrupted at 01.07.2016 due to technical problems of the vessel and continued from 28.08.2016 to 10.09.2016. The number of valid hauls performed was 70 as planned. The hauls carried out in the first stage were considered not valid and thus were repeated in the second stage. A total of 266 species belonging in 16 faunistic categories were identified: 16 species of Elasmobranchs, 116 species of Osteichthyes, 43 species of Crustaceans, 29 species of Cephalopods, 2 species of Mollusca Bivalvia, 11 species of Mollusca Gastropoda, 7 species of Tunicata, 1 species of Brachiopoda, 2 species of Bryozoa, 10 species of Cnidaria, 18 species of Echinoderms, 4 species of Opistobranchia, 4 species of Polychaeta, 1 species of Scaphopoda, 1 species of Sipunculida, 1 species of Porifera. The total number of classified individuals of the MEDITS reference list was 142843. Length measurements were taken from 38999 individuals, while the total number of sampled individuals for sex and maturity was 13103. The number of samples of hard tissues (otoliths) collected for ageing, by target species, was: *M. merluccius* 321, *M. barbatus* 535 and *M. surmuletus* 16. Genetic samples of *Raja clavata* were collected for common relevant projects. At present it is not possible to define the dates for the 2017 survey, as the call for the implementation of the DCF Italian National Program is still pending.

Cristina Follesa presented information about the survey in **GSA 11.** The survey was carried out between 07th June and the 01th July 2016, in 18 working days. The vessel used was the GISELLA (GIS), the same vessel used since 2004. Since 2015 a new MEDITS net was used, and before the survey 2016 a check was done, to verify if the measurements of all parts were coincident with those reported in the MEDITS manual. The number of valid hauls performed was 99 (with an average 5.6 hauls by day), in the same location of previous years. Two hauls, at depth 0-50 m, resulted invalid in zone 3 (Gulf of asinara) and 7 (Gulf of Cagliari) for the presence in the area of nets. Horizontal and vertical net opening were measured using the SIMRAD. It worked for 98% of the valid hauls (95 hauls out of 99). Temperature was measured in all valid

hauls. Litter was recorded in 56 hauls out of 99 valid hauls (56,5%). Plastic (L1, N° 348, 65.8 kg) resulted the most common litter found in Sardinian waters (found in 54% of valid hauls) followed by Cloth (textil)/Natural fibres (L5, N° 12, 4.4 kg, found in 14% of valid hauls); Metal (L3, N° 10, 0.36 kg, 10% of valid hauls). Few litter was found in Eastern Sardinia (Zone 1), while the South-Western Sardinia (Zone 6) resulted, as the previous years, the area with higher quantity. A total of 257 species belonging in 15 faunistic categories were identified: 22 species of Elasmobranchs, 108 species of Osteichthyes, 35 species of Crustaceans, 25 species of Cephalopods, 2 species of Mollusca Bivalvia, 2 species of Mollusca Gastropoda, 2 species of Opistobranchia, 8 species of Tunicata, 1 species of Brachiopoda, 1 species of Bryozoa, 7 species of Cnidaria, 23 species of Echinoderms, 1 species of Polychaeta, 14 species of Porifera, 6 species of Vegetalia. The total number of classified individuals of the MEDITS reference list was 141716. Length measurements were taken from 25750 individuals, while 14395 individuals were sampled for sex and maturity stage. The number of samples of hard tissues (otoliths) collected for ageing, by target species, were: *M. merluccius* 436, *M. barbatus 504* and *M. surmuletus* 99. At present it is not possible to define the dates for the 2017 survey, as the call for the implementation of the DCF Italian National Program is still pending.

Reno Mikallef presented information about the survey in **GSA 15**. This was conducted from 22nd August to 04th September using the Maltese commercial vessel, DEGRE (MFA 0081). All 45 hauls were conducted successfully following the MEDITS protocol (v.7). Marine litter was also recorded during this survey and a large part of this consisted of limestone slabs used in FADs fisheries. A total of 135 species were recorded in GSA 15 and length measurements were taken for 11,294 specimens. Besides samples for age analysis were collected and processed. The data were entered into AtRis database and checked with the RoME routine. Historical abundance and biomass trends for some commercially important species were presented to the group. Those included *Merluccius merluccius*, *Mullus* sp., *Parapenaeus longirostris* and *Aristaemorpha foliacea*. In 2016 there was an increase in the abundances of *M. merluccius*, *P. longirostris*, and *A. foliacea* whilst *Mullus sp* showed decreasing trends. Regarding the 2017 MEDITS, it will be conducted in July-August using the same vessel.

Germana Garofalo presented information about the survey in **GSA 16** covering the northern part of the Strait of Sicily. The survey was carried out from July 6th to August 5th using the commercial trawler S. Anna, the vessel used since 1994. A total of 120 valid hauls were performed as planned. Measures of vertical and horizontal net opening were recorded by SIMRAD instrument. Information on the amount and composition of marine litter was collected according to the MEDITS protocol. Plastic resulted the most abundant category (62%) followed by Metal (15%). Six new species of macrobenthos were recorded for the first time in the GSA16, three of which were not present in the MEDITS reference list. Otoliths were taken from 1280

specimens of *Merluccius merluccius*, 983 of *Mullus barbatus* and 148 of *Mullus surmuletus*. Within the framework of ancillary projects, a total of 116 cartilaginous fish were tagged.
Historical abundance and biomass trends for the most important species were presented. Significant positive trends of both biomass and abundance were observed for *Mullus barbatus*, *Raja clavata* and *Galues melastomus*. A significant positive trend of abundance was also observed for *Merluccius merluccius* while the trend was negative for *Aristomorpha foliacea*. The dates for the 2017 survey are subject to the timing of the call for tenders for the implementation of the Italian national DCF program.

Igor Isailovic presented information about the survey performed in **GSA17**. The survey was jointly performed by the Laboratory of Marine Biology and Fishery of Fano (Italy), Institute of Oceanography and Fisheries of Split (IOF, Croatia) and the Fishery Research Institute of Slovenia. The survey in GSA 17 took place from 3rd of July to the 12th of September on a board of two research vessels. M/V ANDREA operated in Italian territorial waters, Slovenian territorial waters and in the extraterritorial water from 16th August 2016 to 12th September 2016, while M/V BIOS DVA performed the survey in Croatian territorial waters from the 4rd of July to 22th of July 2016. In total 236 valid hauls were made in Italian (180 hauls), Croatian (56 hauls) and Slovenian waters (2 hauls). Bottom water temperature was measured using Star-Oddi temperature sensors in total of 150 hauls. Marine Litter was collected on a board of BIOS DVA. Biological sampling in GSA 17 was performed according to MEDITS 2013 protocol with minor difficulties in the application of the new protocol. In the western area (Italy and international waters) a total number of 238 taxa were identified, subdivided as follows: Osteichthyes 96 species plus 1 taxon at genus level; Elasmobranchs 11 species plus 2 taxa at genus level, Crustaceans 21 species plus 3 taxa at genus level; Cephalopods 17 species plus 3 taxa at genus level, and 84 taxa belonging to other Faunistic categories. In the eastern area (Croatia), a total number of 335 taxa were identified, subdivided as follows: Osteichthyes 84 species plus 1 taxon at genus level; Elasmobranchs 11 species, Crustaceans 11; Cephalopods 19 species plus 2 taxa at genus level, and 211 taxa belonging to other Faunistic categories. The total number of individuals sampled for individual length and weight was 70960 in the Italian side and 24169 in the Croatian side. The total number of sampled individuals for sex and maturity was 24588 in the Italian side and 8949 in the Croatian side. A total of 820 samples of hard tissues for age estimations were collected for *M. merluccius*, *M. barbatus* and *M. surmuletus* in the Italian side, while a total number of 616 samples of hard tissues were collected for *M. merluccius*, *M. barbatus*, *T. trachurus* and *T. mediterraneus* in the Croatian side. Historical abundance and biomass trend for some species were presented to the group. Positive trends were observed for *Mullus barbatus* and *Parapenaeus longirostris* while *Lophius budegassa* showed decreasing trend. No significant trends were observed for *Merluccius merluccius* and *Raja clavata*. Regarding the MEDITS 2017, the survey is planned for end of June – begging of the July of 2017 in the Croatian side using the same vessel M/V BIOS, while is not possible to define the dates for the survey in the Italian side due to administrative problems.

Giuseppe Lembo presented information about the survey in **GSA 18**. The survey was carried out from 29.07.2016 to 25.08.2016 using the vessel Pasquale & Cristina (PEC), as in previous years. The number of hauls performed was 90, as planned. The survey was carried out with some delay given to technical problems of the survey vessel. A total of 321 species belonging in 15 faunistic categories were identified: 18 species of Elasmobranchs, 123 species of Osteichthyes, 52 species of Crustaceans, 27 species of Cephalopods, 10 species of Mollusca Bivalvia, 11 species of Mollusca Gastropoda, 8 species of Opistobranchia, 15 species of Tunicata, 1 species of Brachiopoda, 5 species of Bryozoa, 17 species of Cnidaria, 28 species of Echinoderms, 1 species of Hirudinea, 1 species of Polychaeta, 4 species of Porifera.
The total number of classified individuals of the MEDITS reference list was 159793. Length measurements were taken from 89554 individuals, while 22918 individuals were sampled for sex and maturity stage. was (Table 1.2). The number of samples of hard tissues (otoliths) collected for ageing, by target species, were: *M. merluccius* 441, *M. barbatus* 617 and *M. surmuletus* 64. Genetic samples of *Raja clavata* were collected for common relevant projects. At present it is not possible to define the dates for the 2017 survey, as the call for the implementation of the DCF Italian National Program is still pending.

Porzia Maiorano presented information about the survey in **GSA 19**. In 2016, the MEDITS survey in the North-western Ionian Sea (GSA 19) took place from 15th to 18th June 2016 (14 days) on board the vessel Pasquale e Cristina (PEC; UE number 19238). The study area is between Cape Otranto (40° 06' N – 18° 31' E) and Cape Passero (36° 41' N – 15° 10' E). A total of 70 hauls was performed by the team of the Department of Biology of University of Bari, following the MEDITS protocol. No particular problems occurred during the survey. The SIMRAD system has been adopted for the trawl geometry monitoring. Excluding the hauls that were expected to be critical, the Simrad system was used throughout the area in 55 hauls (79%) and the relationships between horizontal opening vs depth was as well as between bottom temperature and depth were computed. A total of 215 species of the main faunistic categories were identified, counted and weighed: 26 Cephalopoda, 50 Crustacea Decapoda, 3 Crustacea Stomatopoda, 14 Chondrichthyes, and 122 Osteichthyes. Moreover, 85 species of other invertebrates and vegetables, belonging to 12 taxa were recorded: 3 Vegetalia, 10 Porifera, 11 Cnidaria, 10 Mollusca Bivalvia, 10 Mollusca Gastropoda, 6 Mollusca Opistobranchia, 2 Bryozoa, 3 Annelida Polychaeta, 1 Crustacea Cirripeda, 1 Sipunculida, 5 Tunicata, and 26 Echinodermata. The total number of sampled individuals for length distributions was 70170. The total number of sampled individuals for sex and maturity was 25240. The number of samples of hard tissues collected (and read) for age estimations from the target species was as follows: 405 (229 read) for *M. merluccius*, 648 (464 read) for *M. barbatus* and 82 (82 read) for *M. surmuletus*. The samples were collected by sex and size according to the protocol. No particular difficulties were encountered in the application of the protocol. The marine litter was recorded and weighed in each haul according to the MEDITS protocol.
It is difficult to define the dates for the 2017 survey so far, as the call for the implementation of the DCF

Italian National Program is still pending.

Evgenia Lefkaditou presented information about the survey in **GSA 20**. The survey was carried out from 6 to 26 of July including 43 valid hauls. In most hauls, CTD and Minilog were used for depth, temperature and salinity recording, whereas through a SCANMAR system the trawl net openings were measured. A total of 233 taxa (19 chondrichthyes, 97 osteichthyes, 27 crustaceans, 22 cephalopods, 9 bivalves, 10 gastropods, 22 echinoderms, 8 ascidians, 8 cnidarians and 11 other invertebrates) were identified, counted and weighted. Considering sex and maturity 31 taxa were sampled, including 30 MEDITS G1 species and *Todaropsis eblanae*, for which a further investigation on its size at maturity has been planned, as a decrease in ML50 has been observed from 2008 to 2014). Otoliths from 719 fish specimens (205 *Merluccius merluccius*, 493 *Mullus barbatus*, 21 *Mullus surmuletus*) were collected. Tissue samples and additional measurements of *Raja clavata* were collected for a study of IFREMER on connectivity of the species populations in the Mediterranean Sea. Litter items were collected, weighted and counted by sub-category. For the 2017 survey an enlargement of the surveyed area towards the southern Ionian Sea was proposed, since the MEDITS sub-area 223 (as considered in 1994-1996 based on known trawlable fishing grounds in the eastern Ionian), was limited to the Northern part of GSA 20 (N: 37o 28.71'- 39 o 14.12'). The GSA 20, that is considered since 2007 as the MEDITS sub-area, extends in latitude from 35o N - 39o 58' N, supporting important stocks of the deep sea red shrimps *A. foliacea* and *A. antennatus* particularly in its southern part as revealed by specific trawl surveys conducted on the eastern Ionian slope in 1999-2001.
The dates of the 2017 survey cannot be defined, as the DCF Greek Program for this year is not yetrealized.

Panagiota Peristeraki presented information about the surveys in **GSAs 22 and 23.** Two commercial fishing boats were hired for the survey, one for the S. Aegean and Cretan Seas and one for the N. Aegean Sea. The scientific team of HCMR (Crete) was responsible for the sampling in GSA 23 and S. Aegean (part of GSA 22) and the scientific team of FRI (Kavala) was responsible for the survey in N. Aegean (part of GSA 22). FRI realized the MEDITS Survey in N. Aegean from 5/7/2016 to 8/8/2016, with an interruption between 19-26/7/2016 due to technical problems of the boat. Sixty three stations were sampled and 180 species were recorded. Otoliths from 568 specimens were collected (269 *Merluccius merluccius*, 118 *Mullus surmuletus*, 181 *Mullus barbatus*). CTD was used for depth, temperature and salinity recording. HCMR (Crete) realized the MEDITS Survey in S. Aegean and Cretan Seas from 19/7/2016 to 18/8/2016. Sixty hauls were accomplished and 170 species were recorded. Otoliths were taken from 1398 specimens (292 *Merluccius merluccius*, 278 *Mullus surmuletus*, 828 *Mullus barbatus*). STAR-ODDI sensors were used for depth and temperature recording. The dates of the 2017 survey cannot be defined, as the DCF Greek Program for this year is not still realized

Ioannis Thasitis, from DFRM presented the MEDITS results for the GSA 25 in 2016. During the survey all 26 programmed stations were sampled from 13 to 24 of June on board of vessel MEGALOCHARI. As every year

the gear was measured and checked according to the MEDITS protocol prior to the survey. Corrections and fixes were implemented were needed. Trawl geometry was monitored successfully with Simrad ITI system in all hauls. At the end of each haul CTD probes and bongo nets were used for environmental parameters monitoring and icthyoplankton sampling. All organisms that came on board were sampled and otoliths of G1 species were collected. Marine litter protocol was also implemented for a third subsequent year. For the next year 2017 the survey is planed for mid of June (5 – 18). Additional sampling will include megabenthos.

Finally, information about demersal surveys along the Romanian Black Sea Coast was provided to the Group through a report submitted by Valodia Maximov. The report is included in Appendix 3.

3. **Other relevant activities and on going projects**

Angelique Jadaud summarized the conclusions of a WG formed in IFREMER to propose the strategy for the Mediterranean IFREMER Surveys (MEDITS and PELMED/MEDIAS) in the coming years (the detailed report is attached in Appendix 4.) The working group considered the requirements related to the Common Fisheries Policy, the EU strategy for the marine environment (Marine Strategy Framework Directive), as well as various national needs. Three different scenarios were examined: Optimization, reduction and adding a demersal survey in autumn/winter (quarter 4). The conclusion of the IFREMER WG was that the feasibility of the different scenarios will depend on DCMAP requirements; currently annual data by GSA are required. The Group recommended to continue the annual surveys in all GSAs without changing the sampling time and sampling scheme in order to secure the consistency of the results. This point should be presented at the RCM-MED.

Angelique Jadaud summarized the conclusions (more details are provided in Appendix 4) of a WG formed in IFREMER to propose common approaches and harmonized activities for the computation of indicators belonging to the four Criteria defined in MSFD for assessing the GES in different GSAs. The Group recommended the collaboration of all MEDITS scientists in the relevant activities.

Angelique Jadaud provided information about the GenoPopTaille project aiming to the analysis of the populations structure, connectivity and genetic diversity of the thornback ray in the Altantic and Mediteranean Sea, using high throughput sequencing techniques (RADseq). The method relies on the principle of capture-mark-recapture (CMR) which is well tested using physical tags. Instead of physical tags, the project intends to use the genetic fingerprint of adults and recapture via their offsprings. Parent-offspring pairs will be identified by genotyping a large sample of adults and juveniles, which is now possible

owing to rapid progress of high-throughput genotyping. The MEDITS surveys will contribute to the project by providing samples from different areas.

Angelique Jadaud informed the Group about a study in the Gulf of Lions, including the analysis of various environmental descriptors of sediments, currents, hydrology and food availability in order to produce a risk map of the benthic sensitivity to trawling. In parallel, a trawl disturbance index was produced on the basis of *in situ* observations of the macro-benthic fauna, to illustrate the distribution of sensitive assemblages. This work had shown that the distribution of vulnerable benthic species in the Gulf of Lions was not always coherent with their environmental preferences but could be also linked to their vulnerability to trawling. Most sensitive bentic species were generally found in areas where fishing effort was low, which could reflect the fact that fishery has impacted and restructured seabeds some time ago. It would be interesting to use MEDITS data on benthic invertebrates to examine this question in other areas too.

Angelique Jadaud informed the Group about a proposal that was submitted to an Intereg call aiming to develop a framework for improving management coherence and efficiency and decrease conflict in natural marine sites. The goal of the project (SoMarNet) is to provide knowledge usable by multiple stakeholders enabling them to support or challenge (currently implemented and future) spatial planning and management decisions in an integrated framework between the Mediterranean and the Atlantic. If the project is accepted, it will bring together researchers and stakeholders with multi-disciplinary and complementary expertise which are essential to accomplish project's objectives. The project will be heavily based on survey data (DATRAS and MEDITS) and will communicate results through website, geoportals and public meetings.

Bastien Merigot presented, on behalf of Manuel Hidalgo, the update of his work developed under the framework of ICES WG COMEDA 'Working group on comparative analyses between European Atlantic and Mediterranean Ecosystems to move towards an Ecosystem-based Approach to Fisheries', which is a consolidated collaborative platform of research with scientists from the Atlantic and Mediterranean working at different levels from population, through community to ecosystem level, and has started its second three-years cycle (2017-2019) with the next meeting from 24-28 April 2017 in Lisbon (Portugal). During the talk, Bastien presented an update on the work on 'Fish community stability: A large scale Atlantic-Mediterranean comparison using a Portfolio Effect (PE) approach' showing the final analyses on the two response variables of the study: synchrony and PE estimates. Results showed a global effect of the spatial heterogeneity of chlorophyll a and anthropogenic impact on synchrony, while average values of chlorophyll a the range of bottom temperature affect PE. The interaction of these effects with life history traits was assessed by portioning these effects under different levels (low, medium and high) of three life history traits (growth rate, length at maturity, trophic level).

George Tserpes informed the Group about a request from IUCN for providing information regarding the presence of *Squatina* sp in the surveyed GSAs. The Group agreed to review the survey data and provide the requested information.

A presentation prepared by GFCM Secretariat was made by Charis Charilaou concerning the implementation of demersal surveys in the context of the GFCM mid-term (2017-2020) strategy. This strategy towards the sustainability of Mediterranean and Black Sea fisheries is the fruit of the commitment of GFCM contracting parties, cooperating non-contracting parties (CPCs) who adopted it to improve, by 2020, the sustainability of Mediterranean and Black Sea fisheries and ensure that the alarming trend in the status of commercially exploited stocks is reversed. The strategy is based on specific actions under five complementary targets, namely: (1) Reverse the declining trend of fish stocks through strengthened scientific advice in support of management; (2) Support livelihoods for coastal communities through sustainable small-scale fisheries; (3) Curb illegal unreported and unregulated (IUU) fishing, through a regional plan of action; (4) Minimize and mitigate unwanted interactions between fisheries and marine ecosystems and environment, and (5) Enhance capacity-building and cooperation with relevant partners. Under the activities related with Target 1, Output 1.1 "Enhanced knowledge and expertise on Mediterranean and Black Sea fisheries" is the implementation of surveys, both acoustic pelagic and demersal trawl ones. The motivation for establishing pan Mediterranean and Black Sea demersal trawl surveys lies in the fact that comprehensive biological studies of the biological status of most of the demersal fish stocks in some Mediterranean areas are still lacking. To target this issue, the GFCM wishes to promote such studies and one way of doing so is establish international surveys (in not covered areas) exploring the main demersal stocks. It is expected that the collection and shared analysis of appropriate surveys data (the current MEDITS and any new demersal surveys which will be implemented during the mid-term strategy) will allow to formulate scientifically based advice for improved conservation of the stocks. New demersal surveys should be carried out during the spring-summer period with homogeneous methodology and operational protocols among participants. A simplified version of the MEDITS-Handbook, 2016 will be used as reference. Data collected under existing and new surveys will be included in the GFCM DCRF and will be used for evaluating the status of the Mediterranean and Black Sea fisheries in 2018.
A coordination meeting for the implementation of scientific surveys in the Mediterranean will take place in Ljubljana on 15 May 2017, during which the protocols and the roadmap will be discussed. The Group welcomed the initiative and agreed to provide expertise in order to facilitate the realization of the new surveys. The presentation is included in Appendix 4.

Pierluigi Carbonara outlined the plan for the development of a standardized ageing protocol for *M. barbatus*, illustrating the data needs . The Group agreed to collaborate on this activity.

4. **MEDITS Monograph**

Maria Teresa Spedicato summarized the updated list of papers that will be included in the special MEDITS volume of Scientia Marina and a series of short presentations were made by the authors describing the objectives and progress of the different papers. The Group discussed about the time frame for the submission of the final manuscripts to the guest editors of the special volume (Maria-Teresa Spedicato, Enric Massuti, Bastien Merigot, George Tserpes) and it was agreed that they should be sent by the end of the year.

5. Other matters

The Group was informed that the TM list was updated and it is going to be available on the web-site of MEDITS hosted by the Italian Society for Marine Biology (www.sibm.it). It was agreed that Prof. Giulio Relini will continue to chair the TM list group.

The next MEDITS coordination meeting will be held in Split, Croatia and will be hosted by the Institute of Oceanography and Fisheries.

6. Meeting closure

The Chairman thanked the hosts for their hospitality and the participants for their work during the meeting. The meeting was then adjourned.

APPENDIX 1 - Meeting Agenda

MEDITS	MEDITS 2017 Draft agenda Nicosia (Cyprus), 5-6 April 2017

2017 MEDITS Coordination Meeting Agenda

The meeting will start at 09.00 of April 5, 2017 and will end on April 6 (~17.00)
Meeting place: Nicosia, CYPRUS, *Hotel Cleopatra, Vergina Room*

Wednesday 5th April 2017 (09.00-13.00)

09.00-09.30

- Welcome of the participants
- Approval of the agenda

09.30-11.00

1. Conclusions of the previous Coordination meeting
2. Feedback from other relevant meetings and workgroups (RCMMed&BS, STECFEWG, GFCM, ICES, etc)
3. Concise presentations (max 10 min) of the activities in the 2016 MEDITS surveys, by country/GSA, with special focus on problems, future planning, and extraordinary findings.

11.00-11.20 Coffee break

11.20-13.00

Continue on point 3.

13.00-14.30 Lunch break

14.30-15.15

Continue on point 3.
Discussion

15.15-16.00

4. Other relevant acitivities and on going projects
    a. Synthesis of the conclusions of the working group on French fisheries surveys in Mediterranean sea. *Angelique Jadaud*
    b. Moving towards the Marine Strategy Framework Directive : Case studies from the Mediterranean Sea. *Anik Brin D' Amour*
    c. Benthic habitat sensitivity: process-driven vs functional approaches. *Sandrine Vaz*
    d. SW Europe Marine Network (SoMarNet): Improving management efficiency of SW Europe seas through integrated assessment of marine networks. *Sandrine Vaz*
    e. Request from IUCN on the presence of *Squatina* species. *Gabriel Morey*

16.00-16.20 Coffee break

16.20-17.30

5. MEDITS Monograph: state of play. Short presentations (max 15 min for each subject) focusing on the progress made, potential problems, and timeframe for finalizing the publication. Summarized results (if available) may be also illustrated.

Social Dinner (Mezostrati Tavern)

Thursday 6th April 2015 (09.00-17.00)

09.00-11.00
Continue on point 5

11.00-11.20 Coffee Break
Continue on point 5

11.20-13.00
Continue on point 5

13.00-14.30 Lunch break

14.30-16.00
Continue on point 5 (Discussion on the overall progress and setting of deadlines)

16.00-17.00

6. Planning of activities for the next twelve months, including venue and dates of the next meeting
7. Any Other Business and meeting closure

APPENDIX 2 – List of participants

N.	Surname	Name	Affiliation	e-mail
1	GARCIA	Cristina	IEO, Malaga, Spain	Cristina.garcia@ma.ieo.es
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25	PETROU	Antonis	Cyprus	apmarine@valicom.com.cy
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28	TSERPES	George	HCMR, Crete, Greece	gtserpes@hcmr.gr

APPENDIX 3 - Documents (separated by a blank page)

GSA 01 and GSA 02

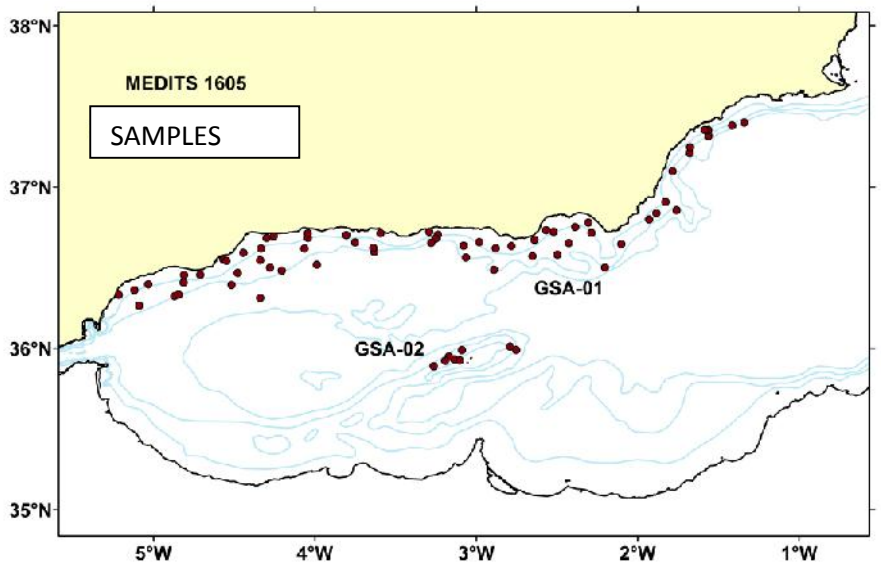
1. Review of 2016 survey by GSA

1.1. Period in which the survey was carried out:
April 23 to May 11 - 2016

1.2. Vessel (indicate eventual changes with the previous years):
V/R Miguel Oliver

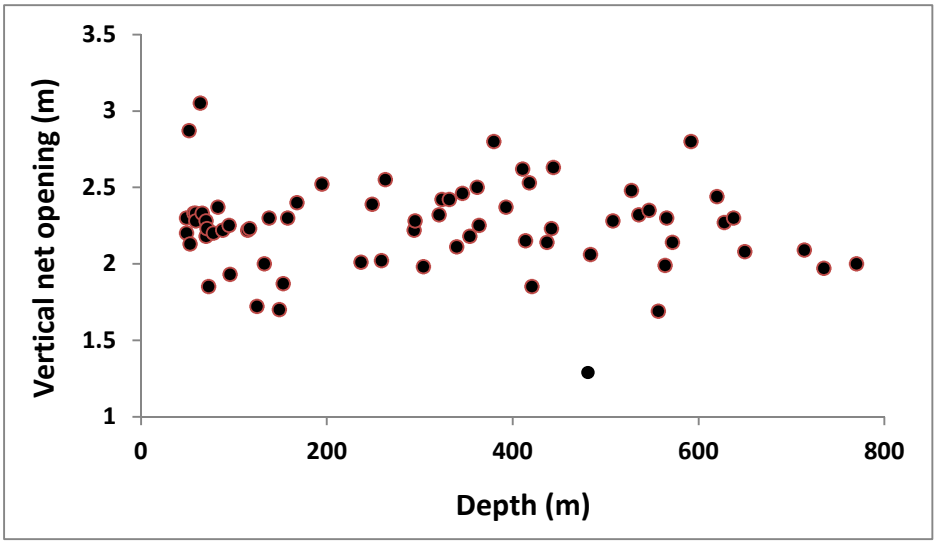
1.3. Number of hauls performed, possible difficulties encountered:
GSA 01: 63
GSA 02: 8

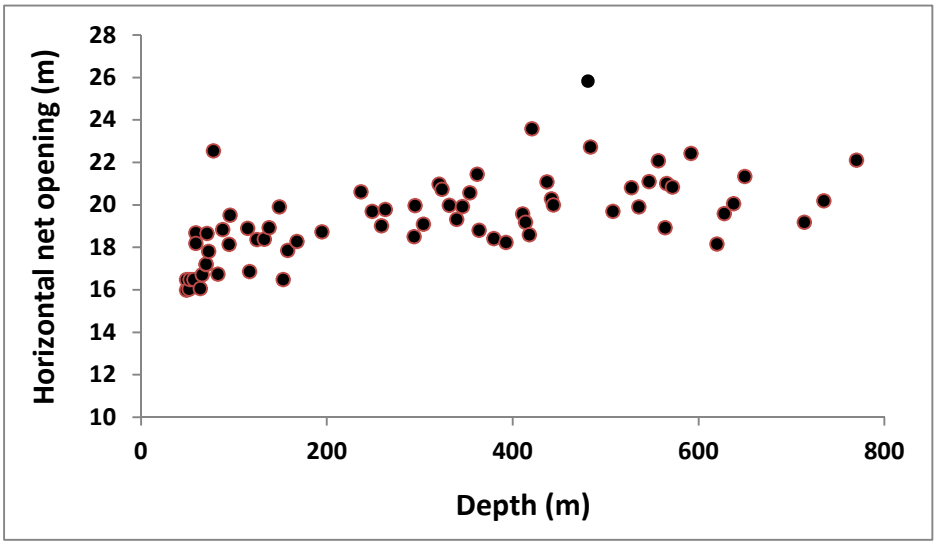
1.4. The geographic area covered with a map showing haul locations:



1.5. Number of hauls in which scanmar (or equivalent equipment) was used and add a scatter plot of HO and VO vs. depth:

GSA 01: 63; GSA 02: 8





1.6. Number of hauls in which minilog (or equivalent equipment) was used:

CTD SBE-37 was used:
GSA 01: 63 hauls
GSA 02:8 hauls

1.7. Other measures of environmental variables carried out:

None

1.8. Litter recording: comments on the results of the last survey and feedback on the protocol:

Litter was recorded in all hauls and classified according to the following scheme:

CATEGORY	Weight (kg)	
	GSA-01	GSA-02
Coal	114.20	13.42
Ceramic	3.00	---
Clothes	4.71	0.26
Crystal	6.94	1.22
Wood	4.44	---
Metal	9.40	0.10
Plastics	26.63	2.54
Rest of fishing gears	13.89	---
Others	22.57	1.07

1.9. Number of species classified by taxa:

CATEGORY	Species number	
	GSA-01	GSA-02
Fish	140	66
Crustaceans	65	28
Molluscs	70	46
Others	99	37

1.10 Total number of classified individuals of the MEDITS reference list:

Species	GSA-1	GSA-2
ELASMOBRANCHES		
Centrophorus granulosus	8	---
Dalatias licha	3	1
Etmopterus spinax	472	290
Galeorhinus galeus	4	---
Galeus melastomus	7656	2883
Leucoraja circularis	1	---
Oxynotus centrina	4	1
Raja asterias	7	---
Raja clavata	---	1
Scyliorhinus canicula	1914	620
Squalus acanthias	1	---
Torpedo marmorata	17	---
TELEOSTEANS		
Boops boops	2165	92
Citharus linguatula	10	---

Species	**GSA-1**	**GSA-2**
Diplodus annularis	2	---
Diplodus vulgaris	95	---
Engraulis encrasicolus	2665	---
Helicolenus dactylopterus	1449	64
Lepidorhombus boscii	4	1
Lophius budegassa	78	8
Lophius piscatorius	7	3
Merluccius merluccius	1450	1
Micromesistius poutassou	89	---
Mullus barbatus	903	---
Mullus surmuletus	215	---
Pagellus acarne	2279	281
Pagellus bogaraveo	150	23
Pagellus erythrinus	423	---
Pagrus pagrus	19	---
Phycis blennoides	1191	126
Sardina pilchardus	445	320
Spicara maena	1152	---
Spicara smaris	951	---
Trachurus mediterraneus	10906	27
Trachurus trachurus	25843	15952
Zeus faber	26	1
CRUSTACEANS		
Aristeus antennatus	313	251
Nephrops norvegicus	355	7
Palinurus elephas	---	1
Parapenaeus longirostris	847	47
Squilla mantis	4	---
CEPHALOPODS		
Eledone cirrhosa	61	---
Eledone moschata	24	24
Loligo vulgaris	30	1
Octopus vulgaris	186	22
Sepia officinalis	25	---
Todarodes sagittatus	61	33

1.11 Total number of sampled individuals for length distributions:

Species	GSA-1	GSA-2
ELASMOBRANCHES		
Centrophorus granulosus	8	---
Dalatias licha	3	1
Etmopterus spinax	446	290
Galeorhinus galeus	4	---
Galeus melastomus	4079	1544
Leucoraja circularis	1	---
Oxynotus centrina	2	1
Raja asterias	7	---
Raja clavata	---	1
Scyliorhinus canicula	1600	549
Squalus acanthias	1	---
Torpedo marmorata	15	---
TELEOSTEANS		
Boops boops	1483	92
Citharus linguatula	9	---
Diplodus annularis	2	---
Diplodus vulgaris	95	---
Engraulis encrasicolus	167	---
Helicolenus dactylopterus	1311	64
Lepidorhombus boscii	4	1
Lophius budegassa	75	8
Lophius piscatorius	7	3
Merluccius merluccius	1448	1
Micromesistius poutassou	49	---
Mullus barbatus	903	---
Mullus surmuletus	215	---
Pagellus acarne	974	136
Pagellus bogaraveo	150	23
Pagellus erythrinus	423	---
Pagrus pagrus	19	---
Phycis blennoides	1153	126
Sardina pilchardus	445	95
Spicara maena	798	---
Spicara smaris	377	---
Trachurus mediterraneus	1404	5
Trachurus trachurus	2743	239
Zeus faber	26	1
CRUSTACEANS		

Species	GSA-1	GSA-2
Aristeus antennatus	313	251
Nephrops norvegicus	351	7
Parapenaeus longirostris	811	47
Squilla mantis	4	
CEPHALOPODS		
Eledone cirrhosa	58	---
Eledone moschata	24	24
Loligo vulgaris	30	1
Octopus vulgaris	186	22
Sepia officinalis	13	---
Todarodes sagittatus	56	33

1.12 Total number of sampled individuals for sex and maturity:

SPECIE	TOTAL	
	GSA 01	GSA 02
Teleosteans		
Merluccius merluccius	575	1
Mullus barbatus	675	----
Mullus surmuletus	168	----
Elasmobranches		
Dalatias licha	3	1
Etmopterus spinax	310	144
Galeus melastomus	1124	301
Leucoraja circularis	1	0
Raja asterias	7	----
Raja clavata	----	1
Raja naevus	41	30
Scyliorhinus canicula	758	133
Torpedo marmorata	17	----
Crustaceans	**GSA 01**	**GSA 02**
Aristeus antennatus	313	182
Nephrops norvegicus	356	7
Parapenaeus longirostris	630	57
Cephalopods	**GSA 01**	**GSA 02**
Illex coindetii	628	----
Loligo vulgaris	30	1

1.13 Number of samples of hard tissues collected for ageing by target species:

SPECIE	TOTAL	
	GSA 01	GSA 02
Teleosteans		
Merluccius merluccius	203	1
Mullus barbatus	143	0
Mullus surmuletus	133	1

1.14 Otolith reading, difficulties encountered:

Otoliths of *Merluccius merluccius* have been collected but not read because of the agreement reached during MEDITS coordination meeting held on Ljubljana (2012)

2 Focus on historical trends

2.12 Abundance and biomass indices of target species (MEDITS G1)
2.13 minimum, mean and maximum length of target species (MEDITS G1)

GSA 01

Table 1.-Historical trends of abundance (nº/km^2) and biomass (kg/km^2) indices (±standard error) and minimum, mean and maximum length (cm) of the specie *Merluccius merluccius* during MEDITS surveys (GSA 01).

	Abundance ± S.E.	Biomass ± S.E.	Lmin	Lmed	Lmax
1994			4.5	15.7	78.5
1995	112.46 ± 37.47	4.61 ± 1.26	4.5	15.2	55.5
1996	406.22 ± 154.62	14.38 ± 2.83	6.0	13.4	72.0
1997	448.34 ± 175.65	13.50 ± 4.64	5.0	13.3	58.0
1998	211.33 ± 71.19	8.01 ± 2.67	5.5	12.6	58.0
1999	316.74 ± 192.24	6.49 ± 3.03	5.5	12.6	37.5
2000	259.56 ± 93.59	9.19 ± 2.31	6.0	15.2	51.0
2001	328.38 ± 153.84	12.25 ± 2.26	6.0	14.2	56.0
2002	859.94 ± 473.36	15.34 ± 5.74	5.0	12.4	56.0
2003	409.26 ± 180.10	11.64 ± 2.39	5.5	13.4	46.0
2004	266.30 ± 120.11	5.51 ± 1.38	5.5	14.0	37.0
2005	276.48 ± 93.55	8.88 ± 1.57	4.0	12.2	64.5
2006	101.96 ± 29.58	8.54 ± 1.81	5.5	17.3	66.5
2007	591.00 ± 334.00	11.42 ± 3.13	5.0	13.1	57.5
2008	521.00 ± 276.00	13.68 ± 3.54	6.0	14.2	57.0
2009	681.00 ± 279.00	24.48 ± 7.41	7.0	16.6	56.5
2010	340.00 ± 92.00	28.47 ± 925	5.5	18.1	53.5
2011	250.00 ± 80.00	13.71 ± 4.04	0.5	15.0	47.0
2012	112.00 ± 48.00	4.94 ± 1.15	5.0	14.0	57.5
2013	67.51±19.99	5.82±0.96	6	25.0	44.0
2014	439.82±202.74	9.14±1.78	8.0	10.0	39.0
2015	198.35±58.22	7.57±1.40	0.5	39.5	67.5
2016	280.14±92.24	5.9±0.59	5.5	12	43.5

Table 2.- Historical trends of abundance (nº/km^2) and biomass (kg/km^2) indices (±standard error) and minimum, mean and maximum length (cm) of the specie *Mullus barbatus* during MEDITS surveys (GSA 01).

	Abundance ± S.E.	Biomass ± S.E.	Lmin	Lmed	Lmax
1994			11.0	15.1	22.5
1995	443.33 ± 230.7	17.43 ± 9.28	9.5	14.9	22.5
1996	94.21 ± 52.84	3.15 ± 1.75	11.0	14.4	22.0
1997	55.08 ± 25.06	2.25 ± 0.94	12.0	15.6	21.5
1998	137.31 ± 67.59	5.93 ± 2.74	11.0	15.4	24.0
1999	69.03 ± 33.76	3.01 ± 1.48	9.0	14.9	24.5
2000	95.91 ± 52.75	4.13 ± 2.3	11.5	15.2	23.0
2001	167.33 ± 67.23	8.32 ± 3.71	10.5	15.6	27.5
2002	180.76 ± 90.31	6.34 ± 3.01	9.5	14.3	21.5
2003	117.02 ± 69.63	5.84 ± 3.22	9.5	16.0	24.0
2004	421.05 ± 304.92	12.83 ± 7.38	9.0	14.0	23.0

	Abundance ± S.E.	Biomass ± S.E.	Lmin	Lmed	Lmax
2005	51.71 ± 23.22	3.07 ± 1.41	10.0	16.5	36.5
2006	969.34 ± 728.48	25.29 ± 17.28	10.0	14.3	23.5
2007	741.00 ± 413.00	26.46 ± 12.23	10.0	14.8	26.0
2008	542.00 ± 297.00	21.98 ± 11.23	8.0	15.3	26.0
2009	650.00 ± 478.00	21.20 ± 14.31	9.5	14.5	26.0
2010	268.00 ± 120.00	12.99 ± 5.53	7.5	15.3	24.0
2011	366.00 ± 168.00	15.85 ± 6.65	10.0	14.8	25.0
2012	155.00 ± 89.00	9.47 ± 5.08	12.5	17.1	23.5
2013	199.17±105.16	7.96±4.02	10	14.5	24.0
2014	206.47±91.77	8.82±3.30	11.0	15.0	25.0
2015	174.87±61.40	6.93±2.38	10.5	14.5	23.5
2016	217±24.67	8.00±1.00	10.5	14.5	24.0

Table 3.- Historical trends of abundance (nº/km^2) and biomass (kg/km^2) indices (±standard error) and minimum, mean and maximum length (cm) of the specie *Mullus surmuletus* during MEDITS surveys (GSA 01).

	Abundance ±S.E.	Biomass ±S.E.	Lmin	Lmed	Lmax
1994			13.0	19.2	32.0
1995	106.76 ± 54.37	6.71 ± 3.35	13.0	16.9	32.5
1996	67.99 ± 36.94	8.37 ± 4.53	13.5	19.8	36.5
1997	18.16 ± 9.66	2.44 ± 1.64	15.5	21.8	33.0
1998	58.45 ± 17.08	6.50 ±2.05	11.0	19.5	33.0
1999	23.81 ± 11.88	2.66 ± 1.35	16.0	19.8	32.0
2000	31.44 ± 27.71	2.28 ± 1.96	14.5	17.4	22.0
2001	26.94 ± 8.65	3.27 ± 0.95	10.5	21.2	44.5
2002	93.63 ± 58.15	11.88 ± 6.67	15.0	21.5	41.0
2003	26.39 ± 11.6	4.62 ± 3.17	13.0	22.8	36.5
2004	164.2 ± 140.08	27.97 ± 25.78	14.5	21.3	39.0
2005	18.94 ± 6.57	2.73 ± 1.04	16.0	23.2	31.0
2006	36.51 ± 16.07	6.17 ± 3.3	14.5	23.3	32.0
2007	77.00 ± 36.00	9.89 ± 4.31	14.0	21.0	31.5
2008	24.00 ± 13.00	3.18 ± 1.47	15.5	21.4	33.5
2009	94.00 ± 49.00	11.84 ± 6.07	10.5	20.1	29.5
2010	21.00 ± 11.00	2.72 ±1.28	14.0	22.4	35.5
2011	30.00 ± 14.00	5.01 ± 2.20	15.0	22.4	33.5
2012	53.00 ± 28.00	7.69 ± 4.34	16.0	21.2	31.0
2013	11.56±5.09	1.2±0.64	16.0	21.0	31.0
2014	26.26±10.02	3.00±0.92	19.5	20.5	36.5
2015	26.52±8.16	3.11±0.93	14.5	21	33.5
2016	50.25±19.06	3.85±0.92	11.0	19.5	32.0

Table 4.- Historical trends of abundance (nº/km^2) and biomass (kg/km^2) indices (±standard error) and minimum, mean and maximum length (cm) of the specie *Etmopterus spinax* during MEDITS surveys (GSA 01).

	Abundance ±S.E.	Biomass ±S.E.	Lmin	Lmed	Lmax
1994			9.0	19.0	38.0
1995	70.40 ± 16.35	6.29 ± 1.62	9.0	25.5	38.0
1996	124.10 ± 31.86	8.69 ± 2.33	7.0	22.0	37.0

	Abundance ±S.E.	Biomass ±S.E.	Lmin	Lmed	Lmax
1997	221.38 ± 56.36	18.54 ± 4.81	10.0	25.0	41.0
1998	332.62 ± 136.25	24.4 ± 9.03	10.0	22.5	42.0
1999	77.41 ± 19.05	8.47 ± 2.16	10.0	28.0	40.0
2000	95.29 ± 27.41	10.37 ± 3.26	9.0	26.5	40.0
2001	105.78 ± 23.60	10.42 ± 2.25	10.0	25.5	39.0
2002	58.14 ± 14.47	6.70 ± 2.04	9.0	26.5	40.0
2003	84.02 ± 23.84	5.82 ± 1.42	10.0	21.5	42.0
2004	122.03 ± 35.25	11.1 ± 3.78	10.0	23.5	39.0
2005	159.74 ± 58.63	17.74 ± 7.1	9.0	25.5	40.0
2006	183.99 ± 49.52	19.43 ± 6.01	10.0	27.5	41.0
2007	147.78 ± 61.55	15.85 ± 7.91	8.0	26.8	40.5
2008	66.65 ± 28.00	4.59 ± 2.07	9.5	23.6	39.5
2009	82.01 ± 34.48	5.24 ± 2.41	9.0	22.2	34.5
2010	95.03 ± 25.34	15.55 ± 4.68	10.0	26.4	40.0
2011	62.32 ± 22.21	6.45 ± 2.87	10.0	27.4	39.0
2012	81.16 ± 28.43	8.85 ± 3.61	10.0	28.4	39.0
2013	135.96±31.98	14.89±4.58	10.0	28.4	39.0
2014	76.92±11.83	7.45±1.78	9.0	25.0	41.0
2015	76.03±26.41	5.40±1.14	10.0	20.0	38.5
2016	166±58.63	15.46±6.03	9.0	21.0	39.5

Table 5.- Historical trends of abundance (nº/km^2) and biomass (kg/km^2) indices (±standard error) and minimum, mean and maximum length (cm) of the specie *Galeus melastomus* during MEDITS surveys (GSA 01).

	Abundance ±S.E.	Biomass ±S.E.	Lmin	Lmed	Lmax
1994			10.0	37.0	61.0
1995	828.19 ± 186.42	153.81 ± 41.88	10.0	36.0	59.0
1996	1488.47 ± 402.48	216.49 ± 56.44	10.0	37.0	57.0
1997	2670.03 ± 750.57	441.37 ± 137.78	11.0	34.5	60.0
1998	1161.52 ± 292.32	153.10 ± 34.06	11.0	37.5	62.0
1999	468.78 ± 163.98	91.04 ± 32.60	10.0	36.0	60.5
2000	717.16 ± 194.81	170.86 ± 58.70	9.5	36.2	57.5
2001	558.83 ± 134.33	132.24 ± 30.71	10.5	38.3	63.0
2002	1214.03 ± 292.3	189.21 ± 61.19	10.5	29.2	60.5
2003	904.94 ± 287.65	158.65 ± 42.69	11.5	35.0	64.5
2004	1328.05 ± 359.60	226.65 ± 70.19	10.5	35.5	62.5
2005	1100.11 ± 330.64	238.71 ± 80.59	11.0	35.1	62.0
2006	2250.85 ± 504.66	397.36 ± 108.21	10.5	32.6	58.5
2007	1241.10 ± 457.17	202.53 ± 84.83	9.5	31.7	58.0
2008	801.55 ± 420.46	110.68 ± 58.66	11.0	35.7	60.0
2009	1015.96 ± 398.23	136.70 ± 63.41	11.0	31.2	57.0
2010	921.95 ± 281.92	369.72 ± 123.31	10.0	39.8	61.0
2011	2109.69 ± 1189.67	256.46 ± 115.20	10.0	26.6	66.0
2012	1504.30 ± 543.39	193.64 ± 71.10	10.0	29.8	62.0
2013	1911±448.48	441.18±78.90	10.0	38.3	62.0
2014	1783±323.41	355.70±84.54	10.0	36.2	62.0
2015	1167.74±260.56	183.76±23.70	8.0	31.0	63.0
2016	2087.90±711.02	184.90±38.41	10.0	31.5	61.0

Table 6.- Historical trends of abundance (nº/km^2) and biomass (kg/km^2) indices (±standard error) and minimum, mean and maximum length (cm) of the specie *Scyliorhinus canicula* during MEDITS surveys (GSA 01).

	Abundance ±S.E.	Biomass ±S.E.	Lmin	Lmed	Lmax
1994			7.0	35.5	50.0
1995	29.66 ± 12.35	4.59 ± 1.70	9.0	31.1	54.0
1996	30.39 ± 10.19	6.51 ± 2.08	16.0	37.2	50.0
1997	79.89 ± 29.02	11.86 ± 4.03	13.0	31.8	52.0
1998	98.55 ± 30.15	21.65 ± 6.16	9.0	39.5	51.0
1999	12.32 ± 5.92	3.42 ± 2.17	10.0	37.9	51.5
2000	21.98 ± 8.49	5.33 ± 2.13	10.5	39.9	53.0
2001	58.27 ± 19.24	12.59 ± 3.60	11.0	38.5	56.5
2002	406.97 ± 111.37	73.56 ± 16.59	6.5	37.1	55.0
2003	218.36 ± 70.14	41.31 ± 11.16	9.0	39.2	54.5
2004	87.09 ± 18.11	21.47 ± 5.23	9.0	41.3	52.0
2005	212.81 ± 74.18	33.59 ± 10.66	10.0	35.6	52.5
2006	238.25 ± 98.37	53.97 ± 17.06	10.0	39.8	56.5
2007	247.91 ± 57.46	54.39 ± 10.96	11.5	38.7	56.5
2008	142.89 ± 65.59	22.92 ± 6.92	9.0	34.8	51.0
2009	102.07 ± 25.06	19.16 ± 3.17	11.0	34.8	60.0
2010	27.31 ± 11.51	3.54 ± 1.08	10.0	27.8	52.0
2011	417.76 ± 240.93	35.51 ± 18.69	9.0	31.3	50.0
2012	166.65 ± 76.49	20.12 ± 8.30	10.0	30.9	51.0
2013	114.90±50.49	18.56±6.71	13.0	34.7	50.0
2014	113.91±25.97	18.50±3.12	9.0	34.5	54.0
2015	463.43±225.19	41.46±15.53	7.0	30.7	53.0
2016	292.23±92.57	36.70±10.73	9.0	32.5	51.0

Table 7.- Historical trends of abundance (nº/km^2) and biomass (kg/km^2) indices (±standard error) and minimum, mean and maximum length (cm) of the specie *Torpedo marmorata* during MEDITS surveys (GSA 01).

	Abundance ±S.E.	Biomass ±S.E.	Lmin	Lmed	Lmax
1994	0	0	----	----	----
1995	2.77 ± 1.07	1.76 ± 0.85	21.0	31.0	41.0
1996	0.49 ± 0.42	0.24 ± 0.21	30.0	30.0	30.0
1997	8.98 ± 3.10	2.57 ± 1.10	14.0	22.0	33.0
1998	2.21 ± 1.15	0.24 ± 0.13	12.0	15.5	21.0
1999	1.71 ± 1.22	0.55 ± 0.47	16.0	21.5	30.0
2000	1.28 ± 0.87	0.23 ± 0.17	17.0	19.0	21.0
2001	3.87 ± 2.59	1.57 ± 0.94	18.0	23.0	37.0
2002	3.65 ± 2.40	1.89 ± 1.56	13.0	27.0	34.0
2003	2.60 ± 1.94	1.47 ± 1.13	23.0	29	35.0
2004	3.77 ± 1.98	1.66 ± 0.90	20.0	26.5	33.0
2005	6.71 ± 1.90	1.35 ± 0.41	12.0	20.0	29.0
2006	4.86 ± 2.26	0.97 ± 0.43	15.0	20.5	32
2007	2.85 ± 2.02	0.72 ± 0.54	14.5	21.3	32.0
2008	2.34 ± 1.57	0.97 ± 0.65	22.0	25.5	29.5
2009	7.49 ± 3.91	3.43 ± 1.82	20.0	27.2	46.5
2010	2.54 ± 1.18	1.31 ± 0.82	21.0	25.7	34.0
2011	3.14 ± 1.27	1.60 ± 0.83	19.0	25.0	35.0

2012	9.29 ± 3.32	4.99 ± 2.77	13.0	24.8	48.5
2013	6.40±2.15	4.00±1.51	13.0	24.5	48.0
2014	4.40±1.24	1.95±0.67	17.0	25.8	41.5
2015	3.95±2.07	0.84±0.44	12	19.7	25
2016	3.01±0.93	1.00±0.36	13.5	22.5	30.5

Table 8.- Historical trends of abundance (nº/km^2) and biomass (kg/km^2) indices (±standard error) and minimum, mean and maximum length (mm) of the specie *Aristeus antennatus* during MEDITS surveys (GSA 01).

	Abundance ±S.E.	**Biomass ±S.E.**	**Lmin**	**Lmed**	**Lmax**
1994			21	35	56
1995	196.96 ± 103.96	2.57 ± 1.38	16	31	53
1996	97.17 ± 54.06	1.52 ± 0.80	16	31	63
1997	204.42 ± 101.49	2.37 ± 1.17	18	28	58
1998	153.95 ± 85.22	1.77 ± 0.96	17	29	62
1999	89.89 ± 38.52	1.49 ± 0.77	15	32	55
2000	454.84 ± 246.31	4.75 ± 2.53	18	28	60
2001	124.02 ± 50.78	2.12 ± 0.83	20	31	55
2002	82.02 ± 48.26	1.17 ± 0.67	19	31	56
2003	111.25 ± 67.24	2.50 ± 1.52	20	37	60
2004	102.13 ± 73.34	1.54 ± 1.09	16	32	58
2005	121.95 ± 108.56	1.78 ± 1.58	18	32	60
2006	178.72 ± 123.08	3.03 ± 1.99	18	33	57
2007	7.53 ± 103.42	0.57 ± 0.59	20	36	56
2008	18.29 ± 12.40	0.15 ± 0.12	16	28	58
2009	0.62 ± 0.45	0.00 ± 0.00	26	19	36
2010	40.00 ± 34.00	0.71 ± 0.60	22	34	54
2011	1.17 ± 1.11	0.02 ± 0.02	30	34	61
2012	47.72 ± 26.75	0.94 ± 0.52	21	37	57
2013	1.43±1.43	0.13±0.13	20	31	50
2014	118.20±63.48	2.40±1.28	20	36	59
2015	136±83.94	2.12±1.13	20	31	60
2016	93.74±26.39	2.05±0.58	20	37	61

Table 9.- Historical trends of abundance (nº/km^2) and biomass (kg/km^2) indices (±standard error) and minimum, mean and maximum length (mm) of the specie *Neprhops norvegicus* during MEDITS surveys (GSA 01).

	Abundance ±S.E.	**Biomass ±S.E.**	**Lmin**	**Lmed**	**Lmax**
1994			34	43	53
1995	22.12 ± 6.22	1.12 ± 0.33	24	40	60
1996	32.46 ± 12.84	2.09 ± 0.83	27	44	71
1997	72.08 ± 35.89	3.50 ± 1.90	18	36	57
1998	14.56 ± 5.74	0.50 ± 0.22	18	36	52
1999	20.34 ± 11.9	0.70 ± 0.46	15	35	58
2000	24.62 ± 9.46	1.15 ± 0.41	22	39	65
2001	18.52 ± 6.91	1.03 ± 0.39	24	39	55
2002	66.50 ± 31.44	2.51 ± 0.95	20	36	72
2003	103.26 ± 39.89	4.81 ± 1.95	19	39	88
2004	109.33 ± 59.06	5.81 ± 3.13	15	40	63
2005	45.34 ± 19.76	2.38 ± 1.04	23	41	62

2006	70.77 ± 26.18	4.42 ± 1.54	29	43	67
2007	37.32 ± 13.11	2.29 ± 0.78	29	44	65
2008	19.52 ± 7.87	1.30 ± 0.52	24	43	68
2009	55.68 ± 37.30	3.00 ± 1.91	20	45	50
2010	38.60 ± 14.98	2.34 ± 0.85	17	42	55
2011	27.54 ± 12.26	1.26 ± 0.58	32	44	67
2012	5.78 ± 3.31	0.55 ± 0.30	37	50	62
2013	22.71±12.74	1.75±0.97	30	46	60
2014	34.44±12.88	2.27±0.77	25	43	69
2015	35.24±11.06	2.07±0.64	18	42	66
2016	34.43±12.88	2.27±0.77	12	39	69

Table 10.- Historical trends of abundance (nº/km^2) and biomass (kg/km^2) indices (±standard error) and minimum, mean and maximum length (mm) of the specie *Parapenaeus longirostris* during MEDITS surveys (GSA 01).

	Abundance ±S.E.	**Biomass ±S.E.**	**Lmin**	**Lmed**	**Lmax**
1994			22	24	27
1995	44.13 ± 14.06	0.28 ± 0.11	8	19	37
1996	111.15 ± 33.31	0.91 ± 0.26	9	24	41
1997	289.73 ± 143.05	2.04 ± 0.97	11	22	39
1998	477.35 ± 194.81	2.4 ± 0.94	7	19	34
1999	180.23 ± 64.49	1.39 ± 0.62	6	23	34
2000	228.48 ± 79.54	1.87 ± 0.67	9	24	35
2001	187.75 ± 82.97	1.69 ± 0.77	5	22	35
2002	241.35 ± 63.09	1.71 ± 0.42	9	22	34
2003	37.72 ± 13.16	0.4 ± 0.15	10	25	36
2004	157.62 ± 66.40	1.38 ± 0.61	6	23	40
2005	60.79 ± 43.15	0.59 ± 0.39	17	25	37
2006	106.79 ± 74.87	1.05 ± 0.66	5	26	41
2007	70.27 ± 51.36	0.51 ± 0.32	8	23	34
2008	80.19 ± 39.69	0.76 ± 0.38	15	26	35
2009	568.24 ± 205.71	5.49 ± 1.99	11	27	29
2010	270.74 ± 191.08	1.53 ± 0.79	13	25	38
2011	329.46 ± 105.37	3.11 ± 1.27	10	24	40
2012	583.72 ± 206.82	3.54 ± 1.38	9	23	36
2013	142.36±37.54	1.63±0.45	5	17	30
2014	129.11±39.12	1.21±0.36	5	25	36
2015	94.25±24.13	1.03±0.33	9	25	37
2016	101.71±14.14	10.09±0.15	11	26	39

Table 11.- Historical trends of abundance (nº/km^2) and biomass (kg/km^2) indices (±standard error) and minimum, mean and maximum length (cm) of the specie *Illex coindietti* during MEDITS surveys (GSA 01).

	Abundance ±S.E.	**Biomass ±S.E.**	**Lmin**	**Lmed**	**Lmax**
1994			15.0	15.0	15.0
1995	5.47 ± 1.94	0.46 ± 0.17	8.5	13.4	25.0
1996	38.78 ± 12.92	9.76 ± 6.09	6.5	14.1	22.5
1997	62.63 ± 19.58	4.3 ± 1.17	5.5	11.6	22.0
1998	252.14 ± 175.74	6.85 ± 2.34	5.5	13.3	23.5
1999	97.92 ± 30.91	14.03 ± 3.87	5.5	16.4	27.0

2000	47.68 ± 18.7	6.51 ± 2.75	6.0	16.1	24.0
2001	90.16 ± 30.14	12.81 ± 3.63	4.0	16.5	24.0
2002	80.99 ± 22.42	7.1±2.07	4.5	13.1	22.5
2003	152.58 ± 45.35	20.45 ± 4.81	6.0	16.2	24.0
2004	13.7 ± 5.42	1.7 ± 0.62	6.5	14.6	21.0
2005	65.04 ± 21.27	9.46 ± 3.49	4.0	16.2	26.0
2006	5.09 ± 1.90	0.82 ± 0.32	7.0	14.7	21.0
2007	17.92 ± 10.46	2.46 ± 1.55	8.0	15.8	22.0
2008	9.87 ± 3.77	1.39 ± 0.53	6.5	13.9	25.5
2009	51.30 ± 15.02	3.07 ± 0.95	6.5	12.3	19.0
2010	24.82 ± 9.40	1.44 ± 0.54	2.0	10.8	18.5
2011	141.88 ± 36.72	14.34 ± 3.29	4.5	13.8	21.0
2012	137.75 ± 41.10	13.09 ± 3.91	7.0	14.5	20.5
2013	99.94±22.45	9.77±2.36	5	17.1	30
2014	184.86±46.82	7.13±1.62	5.5	10.6	20
2015	98.44±24.59	6.66±1.48	1	7.10	22.5
2016	120.78±25.43	10.67±2.03	7.0	14.0	20.0

Table 12.- Historical trends of abundance (nº/km^2) and biomass (kg/km^2) indices (±standard error) and minimum, mean and maximum length (cm) of the specie *Loligo vulgaris* during MEDITS surveys (GSA 01).

	Abundance ±S.E.	**Biomass ±S.E.**	**Lmin**	**Lmed**	**Lmax**
1994			23.0	23.0	23.0
1995	3.2 0 ± 1.80	0.56 ± 0.28	16.0	20.2	26.0
1996	0.74 ± 0.64	0.03 ± 0.03	10.0	10.0	10.0
1997	0 ± 0	0 ± 0	----	----	----
1998	2.29 ± 1.14	0.37 ± 0.19	15.5	17.5	19.5
1999	1.55 ± 1.13	0.48 ± 0.37	19.0	21.2	24.0
2000	0.50 ± 0.49	0.13 ± 0.13	19.0	19.0	19.0
2001	3.91 ± 1.73	0.89 ± 0.45	11.5	19.1	24.0
2002	19.00 ± 7.61	3.69 ± 1.55	4.0	15.8	27.5
2003	6.17 ± 2.70	1.99 ± 1.13	11.5	21.6	26.5
2004	6.39 ± 2.33	1.56 ± 0.85	10.0	17.7	30.0
2005	2.91 ± 1.28	0.70 ± 0.37	5.5	17.7	25.5
2006	8.70 ± 6.25	4.21 ± 2.95	14.5	27.5	50.0
2007	7.00 ± 3.73	1.13 ± 0.62	12.0	15.9	28.5
2008	13.09 ± 10.58	1.91 ± 1.62	10.0	15.0	29.0
2009	28.54 ± 14.37	5.09 ± 3.12	12.0	18.7	45.0
2010	1.00 ± 0.85	0.50 ± 0.42	27.0	27.0	27.0
2011	5.42 ± 3.05	1.21 ± 0.93	7.0	18.8	38.5
2012	2.07 ± 1.57	0.08 ± 0.07	5.0	8.3	14.0
2013	0.98±0.55	0.036±0.027	5.0	8.3	14.0
2014	1.85±0.76	0.25±0.13	8.5	14.2	22.5
2015	1.86±0.97	0.33±0.18	1.0	2.7	24.0
2016	7.19±2.24	0.73±0.21	3.5	11.4	27.5

GSA 02

Table 1.- Historical trends of abundance (nº/km^2) and biomass (kg/km^2) indices (±standard error) and minimum, mean and maximum length (cm) of the specie *Merluccius merluccius* during MEDITS surveys (GSA 02).

	Abundance ±S.E.	Biomass ±S.E.	Lmin	Lmed	Lmax
2006	0.03 ± 0.35	0.28 ± 4.01	21.0	22.5	23.5
2007	0.00	0.00	-----	-----	-----
2008	0.33 ± 3.35	0.26 ± 2.66	46.0	46.0	46.0
2009	0.08 ± 1.34	0.19 ± 3.23	64.0	64.0	64.0
2011	0.00	0.00	----	----	----
2012	2.32 ± 33.00	0.03 ± 0.48	10.0	12.0	15.0
2013	0.00	0.00	----	----	----
2014	4.11±0.00	6160.62±0.00	60.0	60.0	60.0
2015	3.86±0.00	2.31±0.00	43.0	43.0	43.0
2016	3.03±0.00	2.40±0.00	45.0	45.0	45.0

Table 2.- Historical trends of abundance (nº/km^2) and biomass (kg/km^2) indices (±standard error) and minimum, mean and maximum length (cm) of the specie *Mullus barbatus* during MEDITS surveys (GSA 02).

	Abundance ±S.E.	Biomass ±S.E.	Lmin	Lmed	Lmax
2006	0.00	0.00	----	----	----
2007	0.00	0.00	----	----	----
2008	0.00	0.00	----	----	----
2009	0.00	0.00	----	----	----
2011	0.00	0.00	----	----	----
2012	0.00	0.00	----	----	----
2013	0.00	0.00	----	----	----
2014	0.00	0.00	----	----	----
2015	0.00	0.00	----	----	----
2016	0.00	0.00	----	----	----

Table 3.- Historical trends of abundance (nº/km^2) and biomass (kg/km^2) indices (±standard error) and minimum, mean and maximum length (cm) of the specie *Mullus surmuletus* during MEDITS surveys (GSA 02).

	Abundance ±S.E.	Biomass ±S.E.	Lmin	Lmed	Lmax
2006	2.2 ± 19.32	0.37 ± 3.34	17.0	23.0	28.5
2007	1.00 ± 17.00	0.26 ± 4.24	23.5	26.5	33.0
2008	0.00	0.00	----	----	----
2009	6.00 ± 105.85	0.32 ± 5.29	13.0	15.5	20.5
2011	0.00	0.00	----	----	----
2012	0.00	0.00	----	----	----
2013	0.00	0.00	----	----	----
2014	0.00	0.00	----	----	----
2015	3.86±0.00	0.24±0.00	18.0	18.0	18.0
2016	----	----	----	----	----

Table 4.- Historical trends of abundance (nº/km^2) and biomass (kg/km^2) indices (±standard error) and minimum, mean and maximum length (cm) of the specie *Etmopterus spinax* during MEDITS surveys (GSA 02).

	Abundance ±S.E.	Biomass ±S.E.	Lmin	Lmed	Lmax
2006	48.36 ± 633.94	1.78 ± 18.19	10.0	26.5	39.0
2007	8.55 ± 84.57	0.73 ± 7.81	8.5	25.6	38.0
2008	7.72 ± 40.44	0.67 ± 4.78	10.5	25.0	37.5
2009	18.13 ± 161.10	1.79 ± 15.71	10.0	24.0	36.5
2011	5.42 ± 42.45	0.63 ± 6.05	10.0	27.0	38.0
2012	35.22 ± 209.49	2.83 ± 20.02	9.0	24.0	39.0
2013	49.53±25.01	3.81±1.83	9	24.5	. 39.0
2014	198.84±96.26	22.83±12.00	11.0	28.4	36.0
2015	187.99±14.49	17.53±3.75	10.5	26.3	38.5
2016	239.20±115.59	23.73±11.95	10.0	27.7	41.0

Table 5.- Historical trends of abundance (nº/km^2) and biomass (kg/km^2) indices (±standard error) and minimum, mean and maximum length (cm) of the specie *Galeus melastomus* during MEDITS surveys (GSA 02).

	Abundance ±S.E.	Biomass ±S.E.	Lmin	Lmed	Lmax
2006	156.3 ± 683.26	12.52 ± 59.49	11.5	30.2	63.0
2007	83.88 ± 471.06	10.17 ± 91.99	10.0	26.8	58.0
2008	125.07 ± 626.46	18.44 ± 126.2	10.0	32.4	62.0
2009	160.85 ± 469.52	18.27 ± 106.03	8.5	32.4	69.0
2011	1446.85 ± 18179.65	12.11 ± 100.26	7.0	24.0	61.0
2012	399.44 ± 1758.54	32.4 ± 129.01	9.0	30.6	61.0
2013	6046.00±3395.62	44.24±76.00	9.0	30.0	61.0
2014	2684.34±412.02	546.18±109.64	11.0	35.8	62.0
2015	2476.17±888.14	281.72±107.47	8.5	32.6	62.0
2016	2951.14±293.26	302.46±25.03	10.0	35.5	62.0

Table 6.- Historical trends of abundance (nº/km^2) and biomass (kg/km^2) indices (±standard error) and minimum, mean and maximum length (cm) of the specie *Scyliorhinus canicula* during MEDITS surveys (GSA 02).

	Abundance ±S.E.	Biomass ±S.E.	Lmin	Lmed	Lmax
2006	43.56 ± 400.47	7.49 ± 50.11	13.0	32.6	55.5
2007	20.01 ± 143.94	6.18 ± 41.83	18.5	44.0	54.0
2008	32.86 ± 240.96	4.78 ± 28.73	16.0	30.0	53.0
2009	32.16 ± 355.11	9.79 ± 68.58	21.0	40.5	54
2011	50.84 ± 346.1	8.57 ± 52.91	23.0	38.0	73.0
2012	53.06 ± 558.16	7.65 ± 65.2	22.0	35.5	50.0
2013	102.71±10.29	14.49±17.12	22.0	35.5	50.0
2014	700.62±86.52	12.18±1.20	24.0	37.3	52.0
2015	1113.10±475.66	112.69±31.02	13.0	29.4	52.0
2016	1427.41±108.76	145.92±19.23	18.0	31.8	49.0

Table 7.- Historical trends of abundance (nº/km^2) and biomass (kg/km^2) indices (±standard error) and minimum, mean and maximum length (cm) of the specie *Torpedo marmorata* during MEDITS surveys (GSA 02).

	Abundance ±S.E.	**Biomass ±S.E.**	**Lmin**	**Lmed**	**Lmax**
2006	0.18 ± 1.57	0.09 ± 0.97	18.0	25.0	32.0
2007	0.11 ± 1.68	0.22 ± 3.43	43.5	43.5	43.5
2008	0.00	0.00	----	----	----
2009	0.19 ± 3.02	0.03 ± 0.42	16.0	16.0	16.0
2011	0.09 ± 1.16	0.04 ± 0.48	19.0	19.0	19.0
2012	0.00	0.00	----	----	----
2013	0.00	0.00	----	----	----
2014	3.21±0.03	1.73±66.16	28.0	28.2	28.5
2015	1.51±1.51	0.51±0.51	22.0	22.0	22.0
2016	0.00	0.00	----	----	----

Table 8.- Historical trends of abundance (nº/km^2) and biomass (kg/km^2) indices (±standard error) and minimum, mean and maximum length (mm) of the specie *Aristeus antennatus* during MEDITS surveys (GSA 02).

	Abundance ±S.E.	**Biomass ±S.E.**	**Lmin**	**Lmed**	**Lmax**
2006	4.72 ± 43.13	0.10 ± 0.89	14	34	56
2007	7.53 ± 103.42	0.13 ± 1.78	21	32	58
2008	12.63 ± 127.90	0.18 ± 1.84	21	32	56
2009	17.20 ± 166.50	0.36 ± 3.62	22	37	62
2011	6.77 ± 77.43	0.14 ± 1.47	22	36	59
2012	22.19 ± 182.78	0.41 ± 3.92	20	40	57
2013	29.57±18.90	2.21±1.93	20	35	50
2014	173.93±128.37	4.68±3.36	23	39	59
2015	81.67±47.22	1.59±0.96	19	37	57
2016	211.81±62.66	4.58±1.35	18	37	61

Table 9.- Historical trends of abundance (nº/km^2) and biomass (kg/km^2) indices (±standard error) and minimum, mean and maximum length (mm) of the specie *Neprhops norvegicus* during MEDITS surveys (GSA 02).

	Abundance ±S.E.	**Biomass ±S.E.**	**Lmin**	**Lmed**	**Lmax**
2006	0.89 ± 5.80	0.08 ± 0.59	37	48	62
2007	0.54 ± 2.79	0.05 ± 0.33	33	47	63
2008	0.63 ± 4.89	0.05 ± 0.31	33	45	69
2009	0.75 ± 9.04	0.03 ± 0.40	35	41	48
2011	0.81 ± 8.88	0.06 ± 0.41	33	46	63
2012	1.28 ± 5.74	0.55 ± 0.30	34	46	68
2013	1.88±8.14	1.2±0.802	40	40	60
2014	8.04±3.11	0.66±0.31	41	48	64
2015	20.15±10.48	1.51±0.73±	34	46	60
2016	6.34±1.71	0.66±0.18	37	51	66

Table 10.- Historical trends of abundance (nº/km^2) and biomass (kg/km^2) indices (±standard error) and minimum, mean and maximum length (mm) of the specie *Parapenaeus longirostris* during MEDITS surveys (GSA 02).

	Abundance ±S.E.	Biomass ± S.E.	Lmin	Lmed	Lmax
2006	3.26 ± 45.51	0.03 ± 0.36	15	23	27
2007	7.03 ± 113.89	0.05 ± 0.85	11	23	34
2008	10.18 ± 103.11	0.06 ± 0.63	10	24	28
2009	40.28 ± 465.09	0.29 ± 3.48	10	23	18
2011	4.07 ± 57.68	0.01 ± 3.64	12	18	30
2012	38.62 ± 513.44	0.25 ± 99.23	12	21	30
2013	65.03±70.84	0.11±0.14	10	18	30
2014	73.94±73.94	0.62±0.62	14	24	32
2015	6.08±6.08	0.03±0.03	13	18	32
2016	59.40±29.70	0.61±0.31	11	29	32

Table 11.- Historical trends of abundance (nº/km^2) and biomass (kg/km^2) indices (±standard error) and minimum, mean and maximum length (cm) of the specie *Illex coindietti* during MEDITS surveys (GSA 02).

	Abundance ±S.E.	Biomass ±S.E.	Lmin	Lmed	Lmax
2006	0.08 ± 0.84	0.31 ± 2.92	8.5	9.0	9.5
2007	0.00	0.00	----	----	----
2008	0.00	0.00	----	----	----
2009	0.19 ± 3.00	0.01 ± 0.12	12.0	12.0	12.0
2011	3.20 ± 16.70	0.01 ± 3.15	9.5	16.5	20.5
2012	54.03 ± 688.40	0.01 ± 76.70	11.1	16.7	21.0
2013	106.30±29.58	12.10±39.80	11.0	16.0	21
2014	0.00	0.00	----	----	----
2015	19.44±7.29	2.59±1.31	13.5	15.7	18.5
2016	0.00	0.00	----	----	----

Table 12.- Historical trends of abundance (nº/km^2) and biomass (kg/km^2) indices (±standard error) and minimum, mean and maximum length (cm) of the specie *Loligo vulgaris* during MEDITS surveys (GSA 02).

	Abundance ±S.E.	Biomass ±S.E.	Lmin	Lmed	Lmax
2006	5.39 ± 77.07	1.72 ± 24.61	13.5	22.4	30.5
2007	0.00	0.00	----	----	----
2008	0.66 ± 6.71	0.27 ± 2.78	25.0	26.3	27.5
2009	0.00	0.00	----	----	----
2011	5.12 ± 30.09	0.72 ± 3.94	8.0	16.8	32.5
2012	0.00	0.00	----	----	----
2013	0.00	0.00	----	----	----
2014	0.00	0.00	----	----	----
2015	0.00	0.00	----	----	----
2016	3.03±0.00	1.82±0.00	28.0	28.0	28.0

3- **Planning for the next survey**

3.1. **Indication of the period and vessel specifying if it is in line with the previous ones, emrging issues if any**

In 2017, the Spanish MEDITS survey in GSA 01 and 02 is planned from April 23th to May 11th on board the research vessel *Miguel Oliver*.

GSA 5

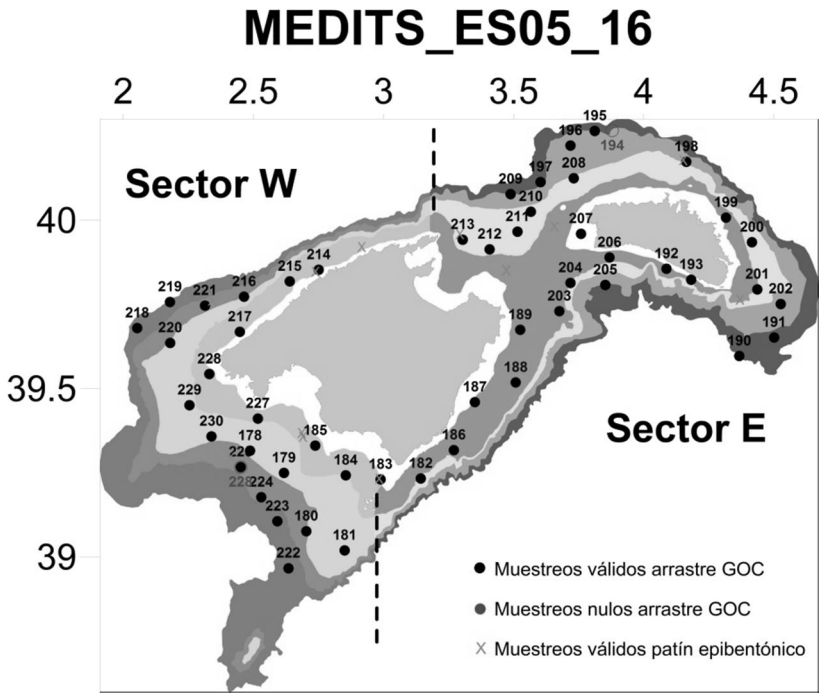
1. Review of 2014 survey by GSA

1.1. period in which the survey was carried out
7th- 21th June 2016

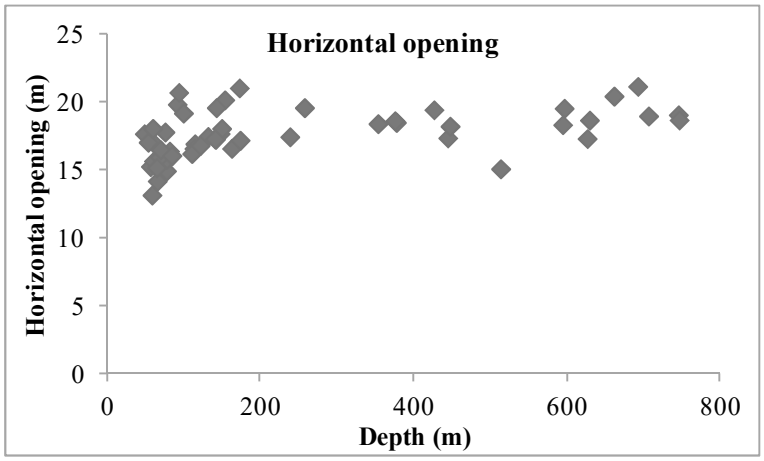
1.2. vessel (indicate eventual changes with the previous years)
R/V Miguel Oliver

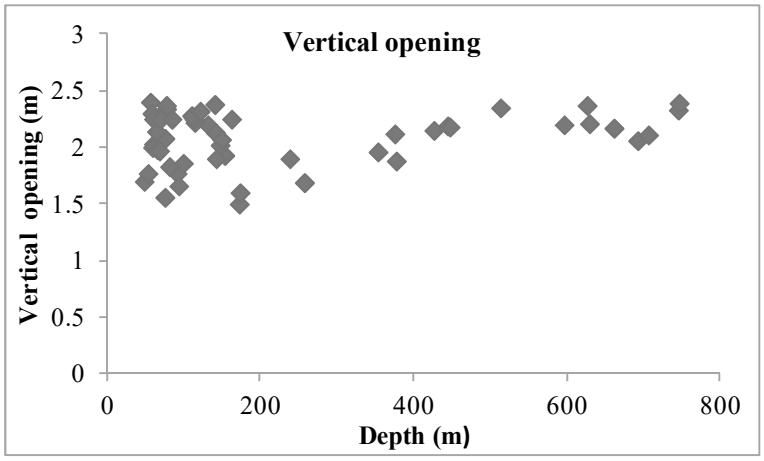
1.3. number of hauls performed, possible difficulties encountered
53 (51 valid, 2 invalid)

1.4. the geographic area covered with a map showing haul locations

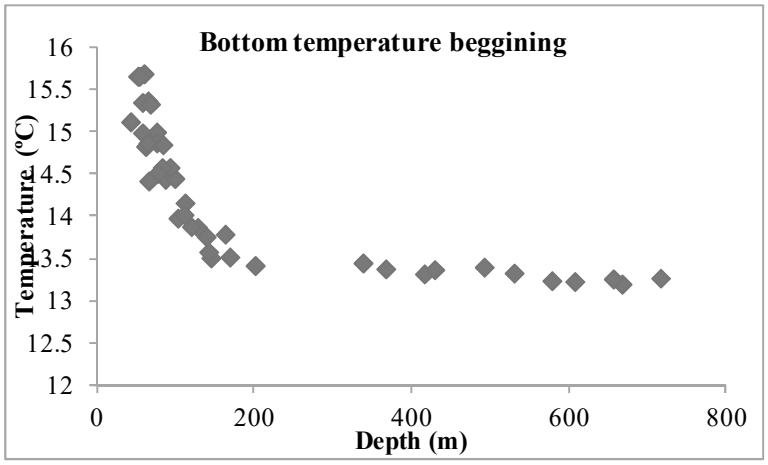


1.5. number of hauls in which scanmar (or equivalent equipment) was used and add a scatter plot of HO and VO vs. Depth
56





1.6. number of hauls in which minilog (or equivalent equipment) was used and add a plot of temperature bottom profiles
56



1.7. other measures of environmental variables carried out
Salinity (from CTD)

1.8. litter recording: comments on the results of the last survey and feedback on the protocol

Category	Weigh (kg)
Coal	5.64
Ceramics	24.26
Crystal	6.70
Wood	5.76
Metal	0.82
Others	68.55
Plastics	6.17
Clothes	2.64

1.9. number of species classified by taxa

Taxa	**Number**
Fish	157
Crustaceans	78
Molluscs	56
Echinoderms	33
Algae	46
Others	61

1.10. total number of classified individuals of the MEDITS reference list

Species	**Individuals**
Teleosteans	
Boops boops	1086
Chelidonichthys cuculus	2201
Chelidonichthys lucerna	1
Citharus linguatula	157
Diplodus annularis	87
Diplodus vulgaris	3
Engraulis encrasicolus	5356
Eutrigla gurnardus	6
Helicolenus dactylopterus	395
Lepidorhombus boscii	440
Lophius budegassa	40
Lophius piscatorius	24
Merluccius merluccius	1395
Micromesistius poutassou	134
Mullus barbatus barbatus	108
Mullus surmuletus	610
Pagellus acarne	16
Pagellus erythrinus	226
Phycis blennoides	741
Polyprion americanum	1
Sardina pilchardus	381
Scomber japonicus	2
Scomber scombrus	1
Solea vulgaris	1
Spicara smaris	19083
Trachurus mediterraneus	1348
Trachurus trachurus	12430
Trigloporus lastoviza	744
Trisopterus minutus	242
Zeus faber	53

Species	**Individuals**
Elasmobranches	
Centrophorus granulosus	1
Dipturus oxyrinchus	28
Etmopterus spinax	113
Galeorhinus galeus	1
Galeus melastomus	4061
Leucoraja circularis	4
Mustelus mustelus	7
Myliobatis aquila	9
Raja clavata	198
Raja miraletus	73
Raja polystigma	140
Rostroraja alba	1
Scyliorhinus canicula	3038
Squalus blainville	4
Torpedo marmorata	3
Crustaceans	
Aristaeomorpha foliacea	113
Aristeus antennatus	1374
Nephrops norvegicus	281
Palinurus elephas	1
Parapenaeus longirostris	528
Cephalopods	
Eledone cirrhosa	123
Eledone moschata	38
Illex coindetii	625
Loligo vulgaris	48
Octopus vulgaris	240
Sepia officinalis	33
Todarodes sagittatus	29

1.11. total number of sampled individuals for length distributions

Species	Individuals
Teleosteans	
Boops boops	1079
Chelidonichthys cuculus	2155
Citharus linguatula	156
Diplodus annularis	87
Diplodus vulgaris	3
Engraulis encrasicolus	5346
Eutrigla gurnardus	6
Helicolenus dactylopterus	395
Lepidorhombus boscii	440
Lophius budegassa	40
Lophius piscatorius	24
Merluccius merluccius	1395
Micromesistius poutassou	134
Mullus barbatus barbatus	108
Mullus surmuletus	645
Pagellus acarne	16
Pagellus erythrinus	226
Phycis blennoides	711
Polyprion americanum	1
Sardina pilchardus	376
Scomber japonicus	2
Scomber scombrus	1
Solea vulgaris	1
Spicara smaris	18979
Trachurus mediterraneus	1327
Trachurus trachurus	12320
Trigloporus lastoviza	732
Trisopterus minutus	242
Zeus faber	53

Species	Individuals
Elasmobranches	
Centrophorus granulosus	1
Dipturus oxyrinchus	28
Etmopterus spinax	108
Galeorhinus galeus	1
Galeus melastomus	4032
Leucoraja circularis	4
Mustelus mustelus	7
Myliobatis aquila	9
Raja clavata	195
Raja miraletus	71
Raja polystigma	140
Rostroraja alba	1
Scyliorhinus canicula	3020
Squalus blainville	4
Torpedo marmorata	3
Crustaceans	
Aristaeomorpha foliacea	113
Aristeus antennatus	1292
Nephrops norvegicus	257
Palinurus elephas	1
Parapenaeus longirostris	525
Cephalopods	
Eledone cirrhosa	120
Eledone moschata	38
Illex coindetii	624
Loligo vulgaris	48
Octopus vulgaris	240
Sepia officinalis	33
Todarodes sagittatus	29

1.12. total number of sampled individuals for sex and maturity

Species	Individuals
Teleosteans	
Merluccius merluccius	775
Mullus barbatus barbatus	99
Mullus surmuletus	402
Elasmobranches	
Centrophorus granulosus	1
Dipturus oxyrinchus	28
Etmopterus spinax	78
Galeorhinus galeus	1
Galeus melastomus	682
Leucoraja circularis	4
Mustelus mustelus	1
Myliobatis aquila	9
Raja clavata	195
Raja miraletus	71
Raja polystigma	140
Rostroraja alba	1
Scyliorhinus canicula	1520
Squalus blainville	4
Torpedo marmorata	1

Species	Individuals
Crustaceans	
Aristaeomorpha foliacea	51
Aristeus antennatus	892
Nephrops norvegicus	226
Parapenaeus longirostris	252
Cephalopods	
Eledone cirrhosa	120
Eledone moschata	37
Illex coindetii	423
Loligo vulgaris	48
Octopus vulgaris	240
Sepia officinalis	33
Todarodes sagittatus	29

1.13. number of samples of hard tissues collected for ageing by target species

Species	Individuals
Merluccius merluccius	353
Mullus barbatus barbatus	184
Mullus surmuletus	76

1.14. otolith reading, difficulties encountered

Otoliths of *M. merluccius* have been collected but not read because of the agreement reached during MEDITS coordination meeting held on Ljubljana (2012). Otoliths of *M. barbatus* and *M. surmuletus* are in the process of being read.

2. Focus on historical trends

2.1. abundance and biomass indices of target species (MEDITS G1);
2.2. minimum, mean and maximum length of target species (MEDITS G1)

Table 1.- Historical trends of abundance (n/km^2) and biomass (kg/km^2) indices (±standard error) and minimum, mean and maximum length (cm) of the species *Centrophorus granulosus* during MEDITS surveys (GSA 5).

	Abundance ±S.E.	**Biomass ±S.E.**	**Lmin**	**Lmed**	**Lmax**
2007	0.00±0.00	0.00±0.00	-	-	-
2008	0.19±0.19	0.77±0.77	94	94	94
2009	0.31±0.31	0.15±0.15	-	-	-
2010	0.00±0.00	0.00±0.00	-	-	-
2011	0.61±0.61	2.40±2.40	87	89	91
2012	0.00±0.00	0.00±0.00	-	-	-
2013	0.00±0.00	0.00±0.00	-	-	-
2014	0.00±0.00	0.00±0.00	-	-	-
2015	0.00±0.00	0.00±0.00	-	-	-
2016	0.21±0.21	0.78±0.78	118.5	118.5	118.5

Table 2.- Historical trends of abundance (n/km^2) and biomass (kg/km^2) indices (±standard error) and minimum, mean and maximum length (cm) of the species *Dalatias licha* during MEDITS surveys (GSA 5).

	Abundance ±S.E.	**Biomass ±S.E.**	**Lmin**	**Lmed**	**Lmax**
2007	0.39±0.39	1.22±1.22	94.0	94.0	94.0
2008	0.00±0.00	0.00±0.00	-	-	-
2009	0.20±0.20	0.05±0.05	40.0	40.0	40.0
2010	0.00±0.00	0.00±0.00	-	-	-
2011	0.36±0.36	1.04±1.04	91.0	91.0	91.0
2012	0.28±0.28	1.69±1.69	100.0	100.0	100.0
2013	0.00±0.00	0.00±0.00	-	-	-
2014	0.00±0.00	0.00±0.00	-	-	-
2015	0.00±0.00	0.00±0.00	-	-	-
2016	0.00±0.00	0.00±0.00	-	-	-

Table 3.- Historical trends of abundance (n/km^2) and biomass (kg/km^2) indices (±standard error) and minimum, mean and maximum length (cm) of the species *Dipturus oxyrinchus* during MEDITS surveys (GSA 5).

	Abundance ±S.E.	**Biomass ±S.E.**	**Lmin**	**Lmed**	**Lmax**
2007	10.47±4.12	11.63±8.41	19.0	52.2	126.0
2008	11.93±5.24	7.50±6.73	16.5	45.7	108.0
2009	4.67±1.67	6.18±4.95	16.5	56.8	116.0
2010	8.35±2.40	4.37±2.06	18.5	46.7	92.0
2011	6.86±2.64	5.22±2.76	17.0	50.2	80.5
2012	7.73±3.08	9.42±7.00	16.0	57.1	107.5
2013	3.22±1.58	10.54±4.75	11.0	76.3	127.5
2014	4.33±1.99	9.52±6.07	11.0	21.2	60.0
2015	2.46±1.01	5.52±3.31	22.5	67.7	108.0
2016	9.17±2.77	10.99±4.74	17	52.9	104

Table 4.- Historical trends of abundance (n/km^2) and biomass (kg/km^2) indices (±standard error) and minimum, mean and maximum length (cm) of the species *Etmopterus spinax* during MEDITS surveys (GSA 5).

	Abundance ±S.E.	**Biomass ±S.E.**	**Lmin**	**Lmed**	**Lmax**
2007	12.53±2.35	1.66±0.72	10.0	25.6	48.5
2008	7.58±4.47	0.50±0.17	12.0	21.7	40.5
2009	2.87±0.66	0.68±0.32	20.5	33.4	42.5
2010	7.58±2.91	0.78±0.35	9.5	23.5	48.0
2011	5.03±1.33	1.10±0.37	17.5	33.1	45.0
2012	6.54±1.64	1.06±0.32	11.0	30.6	43.0
2013	11.50±4.95	0.72±0.23	9.5	19.6	41.5
2014	8.69±3	0.47±0.18	10.5	20.3	35.5
2015	13.19±9.7	0.47±0.22	10.5	17.7	45.0
2016	44.2±34.4	2.03±0.92	10.5	20.1	48.5

Table 5.- Historical trends of abundance (n/km^2) and biomass (kg/km^2) indices (±standard error) and minimum, mean and maximum length (cm) of the species *Galeorhinus galeus* during MEDITS surveys (GSA 5).

	Abundance ±S.E.	**Biomass ±S.E.**	**Lmin**	**Lmed**	**Lmax**
2007	0.00±0.00	0.00±0.00	-	-	-
2008	0.00±0.00	0.00±0.00	-	-	-
2009	0.00±0.00	0.00±0.00	-	-	-
2010	0.00±0.00	0.00±0.00	-	-	-
2011	0.00±0.00	0.00±0.00	-	-	-
2012	0.00±0.00	0.00±0.00	-	-	-
2013	0.00±0.00	0.00±0.00	-	-	-
2014	0.00±0.00	0.00±0.00	-	-	-
2015	0.00±0.00	0.00±0.00	-	-	-
2016	0.45±0.45	11.20±11.20	185	185	185

Table 6.- Historical trends of abundance (n/km^2) and biomass (kg/km^2) indices (±standard error) and minimum, mean and maximum length (cm) of the species *Galeus melastomus* during MEDITS surveys (GSA 5).

	Abundance ±S.E.	**Biomass ±S.E.**	**Lmin**	**Lmed**	**Lmax**
2007	714.29±226.01	28.81±11.48	9.5	20.7	60.5
2008	822.67±247.41	30.15±7.58	11.0	21.6	60.0
2009	525.00±269.00	24.78±13.10	12.0	24.9	63.0
2010	268.89±96.66	19.69±7.92	10.0	24.1	60.5
2011	173.03±52.75	23.84±8.37	10.5	30.5	69.0
2012	625.21±158.66	35.96±8.76	12.0	22.5	61.0
2013	484.85±141.17	22.23±8.47	12.0	23.1	59.5
2014	543.32±127.60	16.27±3.86	11.0	21.23	60.0
2015	640.77±208.06	17.95±5.16	9.5	20.1	57.5
2016	1110.8±334.85	46.95±14.64	10.5	20.6	59

Table 7.- Historical trends of abundance (n/km^2) and biomass (kg/km^2) indices (±standard error) and minimum, mean and maximum length (cm) of the species *Leucoraja circularis* during MEDITS surveys (GSA 5).

	Abundance ±S.E.	**Biomass ±S.E.**	**Lmin**	**Lmed**	**Lmax**
2007	0.72±0.72	0.58±0.58	49.0	54.5	64.5
2008	0.39±0.39	0.80±0.80	73.0	73.0	73.0
2009	0.00±0.00	0.00±0.00	-	-	-
2010	0.57±0.57	1.75±1.75	62.0	71.6	77.5
2011	0.83±0.83	0.23±0.23	32.0	37.8	42.0
2012	0.00±0.00	0.00±0.00	-	-	-
2013	2.32±1.56	1.55±1.10	37.0	49.5	62.0
2014	0.92±0.66	0.41±0.27	30.0	42.5	60.0
2015	0.00±0.00	0.00±0.00	-	-	-
2016	1.76±1.51	0.84±0.62	39.5	48	60

Table 8.- Historical trends of abundance (n/km^2) and biomass (kg/km^2) indices (±standard error) and minimum, mean and maximum length (cm) of the species *Mustelus asterias* during MEDITS surveys (GSA 5).

	Abundance ±S.E.	**Biomass ±S.E.**	**Lmin**	**Lmed**	**Lmax**
2007	0.00±0.00	0.00±0.00	-	-	-
2008	0.00±0.00	0.00±0.00	-	-	-
2009	0.34±0.34	0.35±0.35	-	-	-
2010	0.00±0.00	0.00±0.00	-	-	-
2011	0.00±0.00	0.00±0.00	-	-	-
2012	0.00±0.00	0.00±0.00	-	-	-
2013	0.00±0.00	0.00±0.00	-	-	-
2014	0.00±0.00	0.00±0.00	-	-	-
2015	0.00±0.00	0.00±0.00	-	-	-
2016	0.00±0.00	0.00±0.00	-	-	-

Table 9.- Historical trends of abundance (n/km^2) and biomass (kg/km^2) indices (±standard error) and minimum, mean and maximum length (cm) of the species *Mustelus mustelus* during MEDITS surveys (GSA 5).

	Abundance ±S.E.	**Biomass ±S.E.**	**Lmin**	**Lmed**	**Lmax**
2007	1.09±0.83	0.37±0.27	47.5	49.0	51.5
2008	3.95±3.95	1.50±1.50	47.0	50.7	53.0
2009	1.09±1.09	5.73±5.73	105.0	117.5	130.0
2010	7.63±3.94	15.19±11.49	47.0	63.0	155.0
2011	0.96±0.68	0.33±0.23	49.0	50.4	51.5
2012	1.11±1.11	0.39±0.39	49.0	49.0	49.0
2013	2.56±1.60	5.14±4.86	46.0	68.4	144.0
2014	0.43±0.43	0.16±0.16	51.5	51.5	51.5
2015	1.97±0.87	6.24±5.57	6.5	62.8	146.0
2016	3.43±2.93	1.96±1.75	38	65.6	120.5

Table 10.- Historical trends of abundance (n/km^2) and biomass (kg/km^2) indices (±standard error) and minimum, mean and maximum length (cm) of the species *Myliobatis aquila* during MEDITS surveys (GSA 5).

	Abundance ±S.E.	**Biomass ±S.E.**	**Lmin**	**Lmed**	**Lmax**
2007	1.94±1.16	5.16±4.70	70.0	81.9	95.0
2008	8.45±4.90	17.89±9.12	51.0	81.8	116.0
2009	13.29±10.52	10.65±7.99	46.5	67.4	84.0
2010	0.00±0.00	0.00±0.00	-	-	-
2011	5.57±3.24	8.75±4.92	57.5	80.2	99.5
2012	6.08±3.33	9.17±4.70	64.5	80.5	110.0
2013	0.00±0.00	0.00±0.00	-	-	-
2014	5.35 ±4.32	9.56±7.70	59.5	82.95	93
2015	3.72±2.52	8.88±7.24	73.0	84.7	100.5
2016	4.36±2.41	9.78±6.93	44.5	75.7	142

Table 11.- Historical trends of abundance (n/km^2) and biomass (kg/km^2) indices (±standard error) and minimum, mean and maximum length (cm) of the species *Raja asterias* during MEDITS surveys (GSA 5).

	Abundance ±S.E.	**Biomass ±S.E.**	**Lmin**	**Lmed**	**Lmax**
2007	0.00±0.00	0.00±0.00	-	-	-
2008	0.00±0.00	0.00±0.00	-	-	-
2009	0.00±0.00	0.00±0.00	-	-	-
2010	0.00±0.00	0.00±0.00	-	-	-
2011	1.00±1.00	1.02±1.02	43.0	52.8	62.5
2012	0.00±0.00	0.00±0.00	-	-	-
2013	0.00±0.00	0.00±0.00	-	-	-
2014	0.00±0.00	0.00±0.00	-	-	-
2015	0.00±0.00	0.00±0.00	-	-	-
2016	0.00±0.00	0.00±0.00	-	-	-

Table 12.- Historical trends of abundance (n/km^2) and biomass (kg/km^2) indices (±standard error) and minimum, mean and maximum length (cm) of the species *Raja clavata* during MEDITS surveys (GSA 5).

	Abundance ±S.E.	**Biomass ±S.E.**	**Lmin**	**Lmed**	**Lmax**
2007	84.49±22.55	93.79±34.05	16.0	51.7	90.0
2008	54.21±18.22	46.84±12.43	16.0	48.0	91.5
2009	62.00±11.00	66.53±12.40	15.5	51.6	111.5
2010	72.73±15.81	69.75±13.75	10.5	47.1	91.5
2011	69.58±13.55	77.16±13.44	11.0	50.2	91.5
2012	61.66±16.52	50.37±11.12	16.0	47.7	85.0
2013	50.32±14.34	52.71±13.79	21.0	49.4	86.5
2014	92.95±28.89	121.96±45.06	14.0	54.15	92.0
2015	60.46±18.37	52.60±14.23	18.5	48.2	93.0
2016	77.8±23.4	67.06±13.94	18.5	48.2	93.0

Table 13.- Historical trends of abundance (n/km^2) and biomass (kg/km^2) indices (±standard error) and minimum, mean and maximum length (cm) of the species *Raja miraletus* during MEDITS surveys (GSA 5).

	Abundance ±S.E.	**Biomass ±S.E.**	**Lmin**	**Lmed**	**Lmax**
2007	17.63±6.75	3.70±1.26	21.5	33.6	43.0
2008	14.22±4.50	2.95±0.95	21.5	34.8	42.5
2009	12.41±4.66	3.21±1.14	27.0	35.7	44.0
2010	20.44±5.66	4.12±1.39	16.0	32.9	41.5
2011	23.29±9.10	4.26±1.43	17.5	32.7	44.0
2012	19.71±6.50	3.87±1.42	19.0	34.4	41.0
2013	21.69±13.89	2.65±1.20	21.0	28.1	43.0
2014	20.02±9.27	3.08±1.28	14.0	29.9	39.5
2015	19.01±8.60	3.14±1.29	22.0	32.0	39.5
2016	36.61±15.94	5.82±2.28	16	31.6	39.5

Table 14.- Historical trends of abundance (n/km^2) and biomass (kg/km^2) indices (±standard error) and minimum, mean and maximum length (cm) of the species *Raja polystigma* during MEDITS surveys (GSA 5).

	Abundance ±S.E.	**Biomass ±S.E.**	**Lmin**	**Lmed**	**Lmax**
2007	14.66±5.39	3.67±1.18	18.0	33.5	55.5
2008	17.70±6.99	3.75±1.19	21.0	32.4	88.5
2009	6.94±2.44	1.99±0.77	25.5	36.6	55.5
2010	18.54±4.92	6.55±2.24	20.0	36.2	50.5
2011	15.51±5.41	6.40±3.27	22.5	39.8	55.0
2012	45.43±13.12	7.04±1.99	18.0	30.0	53.0
2013	17.35±4.50	2.58±1.00	10.5	28.8	48.5
2014	26.07±6.24	6.16±1.53	19.5	32.98	50.0
2015	10.79±4.31	12.15±9.68	18.5	40.7	100.0
2016	57.66±12.92	12.07±2.88	18	32.8	55

Table 15.- Historical trends of abundance (n/km^2) and biomass (kg/km^2) indices (±standard error) and minimum, mean and maximum length (cm) of the species *Rostroraja alba* during MEDITS surveys (GSA 5).

	Abundance ±S.E.	**Biomass ±S.E.**	**Lmin**	**Lmed**	**Lmax**
2007	1.04±1.04	0.103±0.103	23.0	25.5	28.0
2008	0.58±0.58	470.86±470.86	53.0	53.0	53.0
2009	0.36±0.36	3.32±3.32	11.5	11.5	11.5
2010	0.00±0.00	0.00±0.00	-	-	-
2011	0.00±0.00	0.00±0.00	-	-	-
2012	0.80±0.80	6.62±5.57	72.0	93.9	142.0
2013	0.49±0.49	17.96±17.96	168.0	168.0	168.0
2014	0.00±0.00	0.00±0.00	-	-	-
2015	0.00±0.00	0.00±0.00	-	-	-
2016	0.45±0.45	0.06±0.06	29	29	29

Table 16.- Historical trends of abundance (n/km^2) and biomass (kg/km^2) indices (±standard error) and minimum, mean and maximum length (cm) of the species *Scyliorhinus canicula* during MEDITS surveys (GSA 5).

	Abundance ±S.E.	**Biomass ±S.E.**	**Lmin**	**Lmed**	**Lmax**
2007	880.71±130.42	126.93±21.75	10.0	33.5	51.5
2008	981.18±345.19	101.06±18.94	9.0	31.5	51.0
2009	924.00±233.00	89.64±13.70	9.0	28.4	67.0
2010	1059.66±214.44	118.55±18.64	10.5	29.7	51.5
2011	774.40±86.99	110.97±16.07	8.0	33.4	51.5
2012	879.41±114.60	106.51±15.11	10.5	31.1	52.0
2013	797.35±131.06	87.70±15.25	11.0	29.2	51.0
2014	1132±175.33	145.18±25.84	10.0	32.19	52.5
2015	859.4±98.84	96.23±12.24	9.5	30.4	50.0
2016	1276.72±176.34	128.48±17.44	10	29.5	51.5

Table 17.- Historical trends of abundance (n/km^2) and biomass (kg/km^2) indices (±standard error) and minimum, mean and maximum length (cm) of the species *Squalus acanthias* during MEDITS surveys (GSA 5).

	Abundance ±S.E.	**Biomass ±S.E.**	**Lmin**	**Lmed**	**Lmax**
2007	19.08±19.08	8.54±8.54	29.0	45.4	61.0
2008	0.64±0.64	0.15±0.15	37.0	37.5	38.0
2009	0.00±0.00	0.00±0.00	-	-	-
2010	0.69±0.69	0.33±0.33	27.0	41.0	55.0
2011	0.32±0.32	0.03±0.03	26.0	26.0	26.0
2012	0.00±0.00	0.00±0.00	-	-	-
2013	0.00±0.00	0.00±0.00	-	-	-
2014	0.00±0.00	0.00±0.00	-	-	-
2015	0.00±0.00	0.00±0.00	-	-	-
2016	0.00±0.00	0.00±0.00	-	-	-

Table 18.- Historical trends of abundance (n/km^2) and biomass (kg/km^2) indices (±standard error) and minimum, mean and maximum length (cm) of the species *Squalus blainvillei* during MEDITS surveys (GSA 5).

	Abundance ±S.E.	**Biomass ±S.E.**	**Lmin**	**Lmed**	**Lmax**
2007	0.23±0.23	0.03±0.03	30.0	30.0	30.0
2008	0.00±0.00	0.00±0.00	-	-	-
2009	5.66±4.57	2.76±2.27	25.0	45.8	65.0
2010	0.00±0.00	0.00±0.00	-	-	-
2011	8.38±8.38	8.38±8.38	26.0	56.0	81.5
2012	6.73±4.99	2.71±2.10	15.0	42.2	63.0
2013	0.00±0.00	0.00±0.00	-	-	-
2014	0.39±0.39	0.96±0.96	-	-	-
2015	0.37±0.37	0.05±0.05	32	32	32
2016	1.27±0.92	0.64±0.59	26.5	41.9	59.5

Table 19.- Historical trends of abundance (n/km^2) and biomass (kg/km^2) indices (±standard error) and minimum, mean and maximum length (cm) of the species *Torpedo marmorata* during MEDITS surveys (GSA 5).

	Abundance ±S.E.	**Biomass ±S.E.**	**Lmin**	**Lmed**	**Lmax**
2007	0.80±0.58	0.23±0.16	22.5	23.3	24.5
2008	0.00±0.00	0.00±0.00	-	-	-
2009	0.37±0.37	0.03±0.03	15.0	15.0	15.0
2010	0.76±0.54	0.10±0.07	17.5	17.7	18.0
2011	0.40±0.40	0.03±0.03	16.0	16.0	16.0
2012	1.24±0.84	1.30±1.00	30.5	35.2	39.0
2013	0.85±0.50	0.40±0.29	17.5	20.0	22.5
2014	0.76±0.49	0.07±0.05	18.5	19.25	20.0
2015	0.98±0.57	0.43±0.33	19.5	25.3	34.5
2016	1.3±0.74	0.34±0.29	13.5	19	29

Table 20.- Historical trends of abundance (n/km^2) and biomass (kg/km^2) indices (±standard error) and minimum, mean and maximum length (cm) of the species *Merluccius merluccius* during MEDITS surveys (GSA 5).

	Abundance ±S.E.	**Biomass ±S.E.**	**Lmin**	**Lmed**	**Lmax**
2007	745.23±176.06	28.69±3.53	5.5	14.7	63.5
2008	257.69±106.14	13.87±2.22	4.5	14.9	56.5
2009	1015.00±445.00	21.81±6.64	4.0	12.8	47.0
2010	710.09±258.52	24.82±4.31	4.0	13.1	44.5
2011	553.77±214.89	18.28±3.01	5.5	13.4	55.0
2012	1125.41±447.65	28.14±7.78	4.0	13.6	59.0
2013	1358.52±570.96	40.82±13.81	5.5	14.4	62.5
2014	662.27±189.41	24.55±4.14	5.0	13.98	57.0
2015	426.66±141.57	15.08±2.71	5.5	13.9	55.0
2016	501.93±171.63	13.29±2.54	6	13.2	52

Table 21.- Historical trends of abundance (n/km^2) and biomass (kg/km^2) indices (±standard error) and minimum, mean and maximum length (cm) of the species *Mullus barbatus* during MEDITS surveys (GSA 5).

	Abundance ±S.E.	**Biomass ±S.E.**	**Lmin**	**Lmed**	**Lmax**
2007	579.11±274.21	27.44±13.08	10.0	15.5	25.0
2008	282.77±109.83	14.82±5.14	10.5	16.5	25.0
2009	260.00±128.00	13.34±7.32	9.5	15.7	24.0
2010	172.45±67.32	10.21±3.95	11.0	17.1	23.0
2011	94.39±40.02	5.87±2.53	12.0	17.3	23.0
2012	67.70±24.10	3.68±1.37	9.5	16.6	23.0
2013	27.62±17.81	1.49±1.02	11.0	16.4	22.0
2014	64.03±42.08	4.80±3.59	11.5	17.82	24.0
2015	38.99±23.63	1.98±1.18	12.0	16.5	21.5
2016	42.03±22.32	2.32±1.25	12.5	16.7	25

Table 22.- Historical trends of abundance (n/km^2) and biomass (kg/km^2) indices (±standard error) and minimum, mean and maximum length (cm) of the species *Mullus surmuletus* during MEDITS surveys (GSA 5).

	Abundance ±S.E.	**Biomass ±S.E.**	**Lmin**	**Lmed**	**Lmax**
2007	1488.15±651.25	102.88±50.04	12.5	17.7	29.0
2008	476.83±183.59	35.02±13.25	13.5	18.5	27.5
2009	2050.00±1495.00	169.37±123.95	11.0	19.0	56.0
2010	468.80±224.85	38.82±22.28	11.0	18.6	30.5
2011	350.96±142.18	22.52±9.44	5.5	17.6	27.0
2012	650.64±327.76	44.06±23.78	8.0	18.0	36.5
2013	135.49±41.19	9.87±3.20	13.5	18.0	25.0
2014	320.89±111.94	21.77±7.07	13.5	17.46	26.5
2015	259.13±110.87	18.43±9.46	13.0	17.7	27.0
2016	272.57±126.02	16.28±6.31	12.5	16.9	24.5

Table 23.- Historical trends of abundance (n/km^2) and biomass (kg/km^2) indices (±standard error) and minimum, mean and maximum length (cm) of the species *Pagellus erythrinus* during MEDITS surveys (GSA 5).

	Abundance ±S.E.	**Biomass ±S.E.**	**Lmin**	**Lmed**	**Lmax**
2007	133.16±54.15	10.18±4.32	9.0	17.1	27.0
2008	128.85±56.49	11.96±5.57	8.0	18.1	31.0
2009	61.78±18.39	4.48±1.03	9.0	16.2	31.0
2010	43.56±17.73	4.89±2.11	11.0	19.5	29.0
2011	117.52±55.81	3.85±1.34	9.0	13.5	29.0
2012	106.62±35.92	6.49±1.92	10.0	15.9	34.0
2013	42.82±20.69	3.06±1.24	9.5	16.6	28.5
2014	149.34±70.95	6.84±2.86	7.5	14.53	31.5
2015	61.08±36.19	3.48±1.94	10.0	16.2	26.0
2016	107.61±39.8	6.05±2.27	10	16	28

Table 24.- Historical trends of abundance (n/km^2) and biomass (kg/km^2) indices (±standard error) and minimum, mean and maximum length (mm) of the species *Aristaeomorpha foliacea* during MEDITS surveys (GSA 5).

	Abundance ±S.E.	**Biomass ±S.E.**	**Lmin**	**Lmed**	**Lmax**
2007	1.48±0.88	0.01±0.01	25.0	29.6	35.0
2008	0.25±0.25	0.01±0.01	35.0	35.0	35.0
2009	0.99±0.63	0.03±0.02	35.0	43.4	50.0
2010	1.70±1.45	0.01±0.01	24.0	24.0	24.0
2011	1.93±1.33	0.04±0.03	30.0	36.8	40.0
2012	14.74±14.74	0.34±0.34	15.0	34.3	50.0
2013	5.47±3.89	0.17±0.12	30.0	42.7	54.0
2014	3.62±1.26	0.07±0.03	20.0	35.7	54.0
2015	5.17±4.13	0.11±0.09	22.0	37.0	54.0
2016	42.45±33.85	0.43±0.31	20.0	30.8	57.0

Table 25.- Historical trends of abundance (n/km^2) and biomass (kg/km^2) indices (±standard error) and minimum, mean and maximum length (mm) of the species *Aristeus antennatus* during MEDITS surveys (GSA 5).

	Abundance ±S.E.	**Biomass ±S.E.**	**Lmin**	**Lmed**	**Lmax**
2007	121.08±25.13	2.44±0.54	18.0	35.8	56.0
2008	322.31±46.77	4.35±0.51	16.0	29.9	63.0
2009	178.00±39.00	3.47±0.96	18.0	34.9	65.0
2010	113.40±18.98	2.10±0.57	11.0	33.0	62.0
2011	128.44±56.65	1.53±0.51	17.0	28.7	55.0
2012	372.94±115.35	3.56±1.06	14.0	26.2	57.0
2013	228.43±67.40	3.05±0.70	14.0	31.1	57.0
2014	119.22±30.29	3.72±1.98	17.0	32.5	61.0
2015	156.02±33.10	1.74±0.37	15.0	28.0	61.0
2016	373.6±93.6	5.54±1.32	16.0	30.6	60.0

Table 26.- Historical trends of abundance (n/km^2) and biomass (kg/km^2) indices (±standard error) and minimum, mean and maximum length (mm) of the species *Nephrops norvegicus* during MEDITS surveys (GSA 5).

	Abundance ±S.E.	**Biomass ±S.E.**	**Lmin**	**Lmed**	**Lmax**
2007	164.72±99.9	5.25±2.73	18.0	33.4	66.0
2008	179.15±90.31	7.12±3.11	19.0	35.8	69.0
2009	69.00±45.00	2.43±1.34	9.0	34.9	64.0
2010	120.25±44.21	4.21±1.48	6.0	36.1	63.0
2011	49.64±24.81	2.00±1.00	25.0	38.0	71.0
2012	65.66±25.94	2.64±0.93	24.0	37.8	61.0
2013	107.40±40.66	4.21±1.53	18.0	38.0	62.0
2014	52.86±17.21	2.16±0.59	16.0	36.8	65.0
2015	45.23±16.89	1.92±0.68	23.0	38.0	60.0
2016	83.06±31.21	3.93±1.49	24.0	39.0	64.0

Table 27.- Historical trends of abundance (n/km^2) and biomass (kg/km^2) indices (±standard error) and minimum, mean and maximum length (mm) of the species *Parapenaeus longirostris* during MEDITS surveys (GSA 5).

	Abundance ±S.E.	**Biomass ±S.E.**	**Lmin**	**Lmed**	**Lmax**
2007	8.27±3.69	0.07±0.03	10.0	24.1	37.0
2008	56.18±24.41	0.46±0.19	20.0	24.0	36.0
2009	43.00±21.00	0.47±0.22	19.0	27.7	52.0
2010	67.29±30.10	0.68±0.27	14.0	25.1	40.0
2011	15.26±5.85	0.17±0.07	21.0	28.6	39.0
2012	70.23±23.31	0.63±0.23	12.0	24.2	38.0
2013	64.95±26.11	0.81±0.33	21.0	29.3	39.0
2014	47.98±16.93	0.45±0.16	7.0	25.6	23.0
2015	15.74±9.07	0.19±0.12	20.0	28.0	36.0
2016	140.08±45.99	0.93±0.36	6.0	21.2	38.0

Table 28.- Historical trends of abundance (n/km^2) and biomass (kg/km^2) indices (±standard error) and minimum, mean and maximum length (cm) of the species *Illex coindetii* during MEDITS surveys (GSA 5).

	Abundance ±S.E.	**Biomass ±S.E.**	**Lmin**	**Lmed**	**Lmax**
2007	13.15±3.96	1.90±0.67	7.0	15.9	23.0
2008	11.98±2.18	1.89±0.35	2.0	14.4	21.0
2009	216.20±41.64	29.02±4.57	7.0	16.2	23.0
2010	393.10±77.80	59.31±10.84	5.0	17.2	27.0
2011	46.92±7.88	6.54±1.27	5.0	16.3	30.0
2012	93.78±14.89	10.84±1.86	7.0	15.0	21.0
2013	240.63±28.61	28.61±4.40	4.0	15.4	23.5
2014	241.95±31.66	25.52±52.37	5.0	14.19	22.0
2015	85.43±11.46	6.44±0.72	1.5	12.6	20.5
2016	218.9±69.24	10.54±1.96	4.5	10.2	20.5

Table 29.- Historical trends of abundance (n/km^2) and biomass (kg/km^2) indices (±standard error) and minimum, mean and maximum length (cm) of the species *Loligo vulgaris* during MEDITS surveys (GSA 5).

	Abundance ±S.E.	**Biomass ±S.E.**	**Lmin**	**Lmed**	**Lmax**
2007	14.03±4.90	1.96±0.54	7.0	15.7	26.0
2008	98.33±29.18	5.38±1.58	2.0	8.9	38.0
2009	245.49±162.15	7.99±2.11	1.0	7.5	28.0
2010	21.16±5.12	2.27±0.52	2.0	13.0	24.0
2011	40.35±11.37	7.52±2.47	3.0	18.0	38.0
2012	2786.27±2239.64	7.39±1.74	1.0	3.2	44.0
2013	291.62±136.99	4.32±1.76	2.0	5.6	36.5
2014	131.24±54.39	5.11±1.26	2.5	8.96	29.0
2015	95.21±25.54	8.55±1.53	1.5	11.7	33.5
2016	24.09±8.4	2.62±0.69	4	14.4	34.5

No catches of the following species: *Dipturus batis*, *Heptranchias perlo*, *Hexanchus griseus*, *Leucoraja melitensis*, *Mustelus punctulatus*, *Oxynotus centrina*, *Raja undulata*, *Rhinobatos cemiculus*, *Rhinobatos rhinobatos*, *Scyliorhinus stellaris*, *Squatina aculeata*, *Squatina oculata* and *Squatina squatina.*

3. Planning for the next survey

3.1. indication of the period and vessel specifying if it is in line with the previous ones, emerging issues if any

In 2016, the Spanish MEDITS survey in GSA 5 is planned from June 7th-21th on board the research vessel *Miguel Oliver*.

Outline of the report by GSA for presentation in the draft agenda

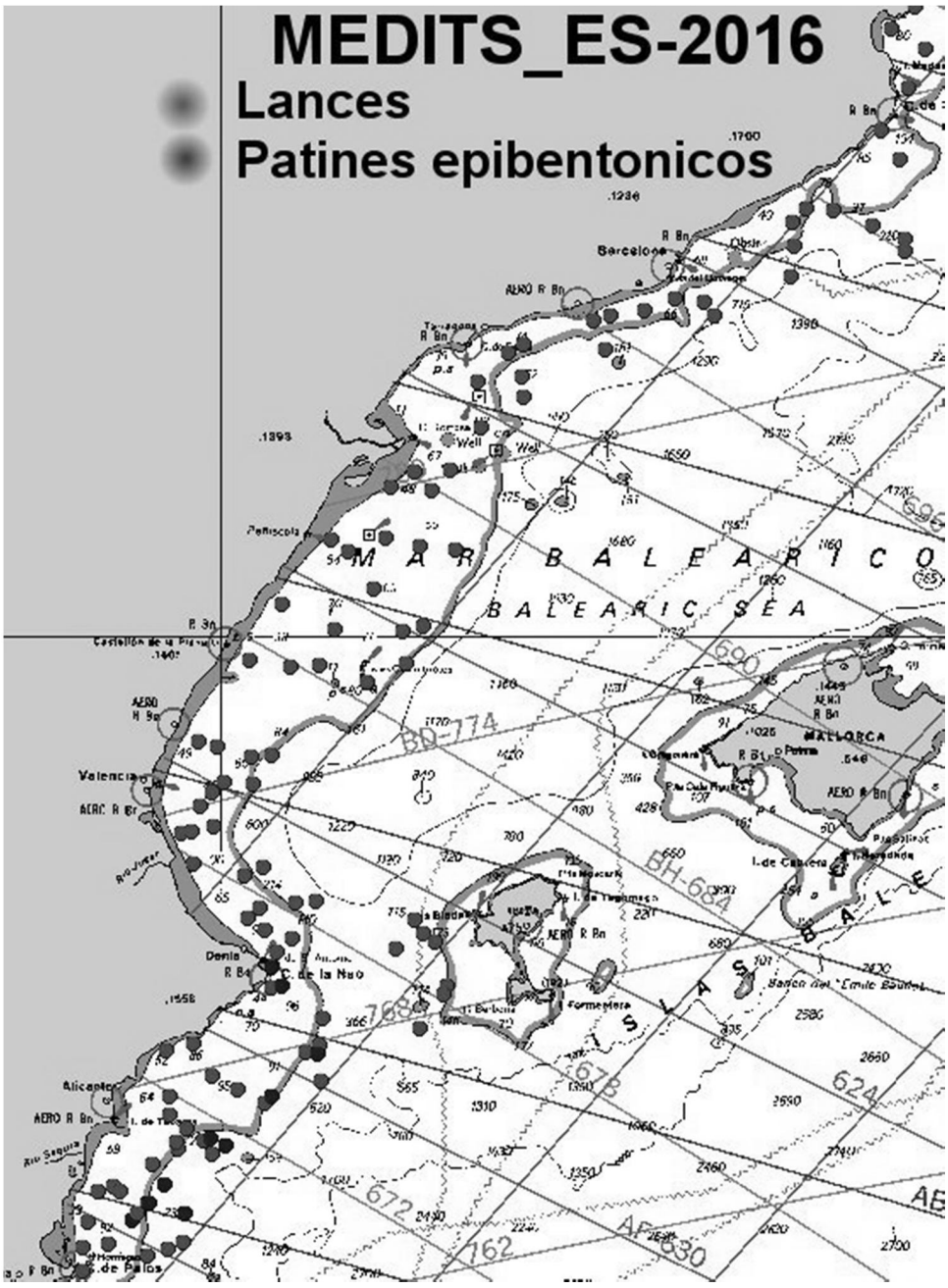
1. Review of 2016 survey. GSA 06 (Northern Spain)

1.1. Period in which the survey was carried out: May 11th- June 6th

1.2. Vessel: R/V *Miguel Oliver*

1.3. Number of hauls performed, possible difficulties encountered: 106 hauls. None.

1.4. The geographic area covered with a map showing haul locations



1.5. Number of hauls in which Scanmar (or equivalent equipment) was used: 106

1.6. Number of hauls in which CTD SeaBird 37 was used: 106.

1.7. Other measures of environmental variables carried out: None.

1.8. Litter recording: 339 kg from 8 litter categories (see table).

Category	**kg**
Coal	69
Ceramics	5
Crystal	17
Wood	66
Metal	23
Others	29
Plastics	93
Clothes	37

1.9. Number of species classified by taxa:

Category	Number species
Fish	153
Crustaceans	97
Molluscs	71
Others	74

1.10. Total number of classified individuals of the MEDITS reference list:

Teleosteans	**Number**
Aspitrigla cuculus	1104
Boops boops	1349
Diplodus annularis	829
Diplodus puntazzo	0
Diplodus sargus	0
Diplodus vulgaris	27
Engraulis encrasicolus	46758
Epinephelus spp.	0
Eutrigla gurnardus	170
Helicolenus dactylopterus	3938
Lepidorhombus boscii	627
Lithognathus mormyrus	0
Lophius budegassa	452
Lophius piscatorius	57

Merluccius merluccius	7179
Micromesistius poutassou	25706
Mullus barbatus	4482
Mullus surmuletus	552
Pagellus acarne	150
Pagellus bogaraveo	128
Pagellus erythrinus	1332
Pagrus pagrus	41
Phycis blennoides	3404
Polyprion americanus	0
Psetta máxima	0
Sardina pilchardus	7451
Scomber spp.	305
Solea vulgaris	2
Spicara flexuosa	4445
Spicara smaris	6647
Trachurus mediterraneus	1891
Trachurus trachurus	30390
Trigla lucerna	1
Trigloporus lastoviza	760
Trisopterus minutus capelanus	8324
Zeus faber	53
Elasmobranches	**Number**
Centrophorus granulosus	0
Dalatias licha	2
Dipturus batis	0
Dipturus oxyrinchus	1
Etmopterus spinax	33
Galeorhinus galeus	0
Galeus melastomus	1253
Hexanchus griseus	0
Leucoraja circularis	0
Leucoraja naevus	54
Mustelus asterias	0
Mustelus mustelus	0
Mustelus punctulatus	0
Myliobatis aquila	0
Oxynotus centrina	0
Raja asterias	36

Raja clavata	15
Raja miraletus	1
Raja montagui	2
Raja undulata	0
Rhinobatos cemiculus	0
Rhinobatos rhinobatos	0
Rostroraja alba	0
Scyliorhinus canicula	4288
Scyliorhinus stellaris	0
Squalus acanthias	1
Squalus blainville	4
Squatina aculeata	0
Squatina oculata	0
Squatina squatina	0
Torpedo marmorata	12
Crustaceans	**Number**
Aristaeomorpha foliacea	12
Aristeus antennatus	892
Nephrops norvegicus	1684
Parapenaeus longirostris	3361
Palinurus elephas	8
Penaeus kerathurus	0
Squilla mantis	104
Cephalopods	**Number**
Eledone cirrhosa	273
Eledone moschata	24
Illex coindetii	4255
Loligo vulgaris	2
Octopus vulgaris	237
Sepia officinalis	17
Todarodes sagittatus	31

1.11. Total number of sampled individuals for length distributions

Teleosteans	**Number**
Aspitrigla cuculus	411
Boops boops	833
Diplodus annularis	602
Diplodus puntazzo	0
Diplodus sargus	0

Diplodus vulgaris	24
Engraulis encrasicolus	2624
Epinephelus spp.	0
Eutrigla gurnardus	170
Helicolenus dactylopterus	1483
Lepidorhombus boscii	541
Lithognathus mormyrus	0
Lophius budegassa	426
Lophius piscatorius	57
Merluccius merluccius	5029
Micromesistius poutassou	1583
Mullus barbatus	3586
Mullus surmuletus	467
Pagellus acarne	141
Pagellus bogaraveo	128
Pagellus erythrinus	1062
Pagrus pagrus	21
Phycis blennoides	2074
Polyprion americanus	0
Psetta máxima	0
Sardina pilchardus	1413
Scomber spp.	305
Solea vulgaris	2
Spicara flexuosa	2403
Spicara smaris	1239
Trachurus mediterraneus	888
Trachurus trachurus	6715
Trigla lucerna	1
Trigloporus lastoviza	334
Trisopterus minutus capelanus	4397
Zeus faber	53
Elasmobranches	**Number**
Centrophorus granulosus	0
Dalatias licha	2
Dipturus batis	0
Dipturus oxyrinchus	1
Etmopterus spinax	33
Galeorhinus galeus	0
Galeus melastomus	1253

Hexanchus griseus	0
Leucoraja circularis	0
Leucoraja naevus	54
Mustelus asterias	0
Mustelus mustelus	0
Mustelus punctulatus	0
Myliobatis aquila	0
Oxynotus centrina	0
Raja asterias	36
Raja clavata	15
Raja miraletus	1
Raja montagui	2
Raja undulata	0
Rhinobatos cemiculus	0
Rhinobatos rhinobatos	0
Rostroraja alba	0
Scyliorhinus canicula	4223
Scyliorhinus stellaris	0
Squalus acanthias	1
Squalus blainville	4
Squatina aculeata	0
Squatina oculata	0
Squatina squatina	0
Torpedo marmorata	12
Crustaceans	**Number**
Aristaeomorpha foliacea	12
Aristeus antennatus	575
Nephrops norvegicus	1530
Parapenaeus longirostris	2999
Palinurus elephas	8
Penaeus kerathurus	0
Squilla mantis	104
Cephalopods	**Number**
Eledone cirrhosa	273
Eledone moschata	24
Illex coindetii	3381
Loligo vulgaris	2
Octopus vulgaris	219
Sepia officinalis	17

Todarodes sagittatus	31

1.12. Total number of sampled individuals for sex and maturity

Teleosteans	**Number**
Merluccius merluccius	2242
Mullus barbatus	1481
Mullus surmuletus	514
Elasmobranches	**Number**
Centrophorus granulosus	0
Dalatias licha	3
Dipturus batis	0
Dipturus oxyrinchus	1
Etmopterus spinax	33
Galeorhinus galeus	0
Galeus melastomus	1009
Heptranchias perlo	0
Hexanchus griseus	0
Leucoraja circularis	0
Leucoraja naevus	54
Mustelus asterias	0
Mustelus mustelus	0
Mustelus punctulatus	0
Myliobatis aquila	0
Oxynotus centrina	0
Raja asterias	36
Raja clavata	15
Raja miraletus	1
Raja montagui	2
Raja undulata	0
Rhinobatos cemiculus	0
Rhinobatos rhinobatos	0
Rostroraja alba	0
Scyliorhinus canicula	2271
Scyliorhinus stellaris	0
Squalus acanthias	1
Squalus blainville	4

Squatina aculeata	0
Squatina oculata	0
Squatina squatina	0
Torpedo marmorata	11
Crustaceans	**Number**
Aristaeomorpha foliacea	12
Aristeus antennatus	363
Nephrops norvegicus	850
Parapenaeus longirostris	1609
Cephalopods	**Number**
Illex coindetii	1059
Loligo vulgaris	2

1.13. Number of samples of hard tissues collected for ageing by target species

Teleosteans	**Number**
Merluccius merluccius	225
Mullus barbatus	486
Mullus surmuletus	326

1.14. Otolith reading, difficulties encountered: Otoliths of *Merluccius merluccius* have been collected but not read because of the agreement reached during MEDITS coordination meeting held on Ljubljana (2012).

1.15. Other samplings for common projects:

1.16. Difficulties encountered in the application of the new protocol, emerging issues and suggestions for improvements:

The sampling protocol for otoliths, individual weight and maturity stages is not totally clear. Table 2 in Annex XIV in the Medits handbook 2012 indicates the sample size for this sampling, but does not specify if this target should be covered by member state, GSA, strata level or area (see Annex II from Medits handbook 2012). There is a paragraph in this annex that states “It is recommended that otoliths, individual weight and maturity stages are collected in each haul. For example 1-2 individuals should be taken per length class and haul, or 1 fish every 10 fish per length class and haul as in the Evhoe survey. However this specific approach will be adapted to the characteristics of each GSA”. This kind of approach is difficult to follow on board, especially because for each species a different number of individuals should be collected depending on their size range

2. Focus on historical trends

Table 1.- Historical trends of abundance (nº/km^2) and biomass (kg/km^2) indices (±standard error) and minimum, mean and maximum length (mm) of the specie *Etmopterus spinax* during MEDITS surveys (GSA 6).

	Abundance ±S.E.	**Biomass ±S.E.**	**Lmin**	**Lmed**	**Lmax**
1995	4.70+/-2.72	0.35+/-0.26			
1996	4.79+/-3.68	0.32+/-0.24			
1997	6.46+/-5.54	0.38+/-0.27			
1998	5.62+/-6.06	0.57+/-0.64			
1999	4.10+/-2.97	0.43+/-0.42			
2000	2.71+/-3.03	0.14+/-0.17			
2001	2.84+/-2.08	0.23+/-0.26			
2002	3.94+/-3.94	0.17+/-0.15			
2003	3.17+/-2.40	0.24+/-0.20			
2004	1.96+/-1.26	0.28+/-0.23			
2005	2.56+/-1.85	0.14+/-0.15			
2006	6.08+/-4.85	0.37+/-0.28			
2007	3.83+/-4.99	0.13+/-0.15	80	228	485
2008	0.99+/-1.17	0.08+/-0.09	95	240	420
2009	2.85+/-2.97	0.21+/-0.25	90	229	425
2010	0.77+/-0.62	0.05+/-0.06	95	244	480
2011	1.83+/-2.33	0.09+/-0.09	100	250	450
2012	0.39+/-0.43	0.04+/-0.06	90	264	430
2013	0.93+/-0.93	0.06+/-0.05	120	208	364
2014	2.46+/-1.15	0.19+/-0.09	90	235	435
2015	1.75+/-0.86	0.11+/-0.06	100	240	1070

2016	3.43+/-1.20	0.22+/-0.09	113	210	397

Table 1.- Historical trends of abundance (nº/km^2) and biomass (kg/km^2) indices (±standard error) and minimum, mean and maximum length (mm) of the specie *Galeus melastomus* during MEDITS surveys (GSA 6).

	Abundance ±S.E.	**Biomass ±S.E.**	**Lmin**	**Lmed**	**Lmax**
1995	32.07+/-21.08	4.95+/-3.30			
1996	25.68+/-14.25	4.05+/-2.83			
1997	32.27+/-20.06	5.56+/-4.62			
1998	29.78+/-28.30	2.81+/-2.69			
1999	26.03+/-12.91	4.42+/-2.15	100	360	680
2000	19.57+/-12.62	2.79+/-2.74	95	338	620
2001	80.59+/-43.99	5.52+/-2.41	100	326	630
2002	90.12+/-73.27	9.28+/-5.61	105	329	620
2003	40.40+/-20.92	6.63+/-3.64	110	364	645
2004	36.80+/-22.74	8.27+/-6.76	105	364	750
2005	50.80+/-32.07	8.29+/-6.37	105	344	620
2006	81.52+/-55.15	8.49+/-6.35	105	327	630
2007	143.71+/-151.89	11.39+/9.95	95	316	645
2008	35.15+/-43.17	3.03+/-2.08	100	317	630
2009	45.89+/-51.60	4.86+/-3.81	85	337	690
2010	18.44+/-15.46	3.30+/-3.48	100	347	610
2011	47.67+/-41.50	3.95+/-2.27	70	342	690
2012	60.04+/-38.55	4.59+/-2.97	105	314	620
2013	57.37+/-4.68	6.45+/-4.68	110	427	620
2014	209.6+/-66.9	20.6+/-5.6	105	365	615
2015	1043.3+/-818.5	40.2+/-17.5	80	310	630

2016	128.73+/-24.06	19.48+/-2.98	116	415	615

Table 1.- Historical trends of abundance (nº/km^2) and biomass (kg/km^2) indices (±standard error) and minimum, mean and maximum length (mm) of the specie *Scyliorhinus canicula* during MEDITS surveys (GSA 6).

	Abundance ±S.E.	**Biomass ±S.E.**	**Lmin**	**Lmed**	**Lmax**
1995	52.21+/-55.42	8.27+/-9.04			
1996	82.04+/-82.08	13.15+/13.50			
1997	153.34+/-103.24	16.57+/-10.26			
1998	19.37+/-19.37	2.26+/-1.75			
1999	20.32+/-15.28	3.41+/-2.43	100	350	520
2000	198.32+/-228.37	22.73+/-22.80	105	341	53
2001	77.91+/-49.37	7.42+/-3.75	95	312	565
2002	120.24+/-64.90	16.22+/-8.97	65	341	550
2003	128.22+/-108.40	17.52+/-14.78	90	353	545
2004	88.14+/-50.67	16.15+/-10.14	65	360	520
2005	167.09+/-91.40	22.54+/-11.65	95	330	550
2006	201.66+/-121.49	24.49+/-9.64	100	358	565
2007	159.25+/-113.61	20.93+/-11.21	40	346	565
2008	85.35+/-44.02	14.76+/-8.30	80	332	530
2009	284.12+/-193.61	24.49+/-12.11	30	336	670
2010	148.98+/-93.79	22.34+/-15.46	30	322	522
2011	208.38+/-112.26	29.97+/-18.58	30	342	596
2012	147.82+/-90.60	27.43+/-21.48	90	329	535
2013	178.66+/-75.87	29.14+/-10.35	90	335	520
2014	265.5+/-13.5	54.0+/-13.5	90	340	520
2015	457+/-104	51.8+/-13.2	70	320	530
2016	512.44+/-129.04	55.80+/-8.28	74	331	645

Table 1.- Historical trends of abundance (nº/km^2) and biomass (kg/km^2) indices (±standard error) and minimum, mean and maximum length (mm) of the specie *Merluccius merluccius* during MEDITS surveys (GSA 6).

	Abundance ±S.E.	**Biomass ±S.E.**	**Lmin**	**Lmed**	**Lmax**
1995	270.56+/-125.87	3.92+/-1.82	25	138	610
1996	751.30+/-334.54	12.57+/-3.82	35	155	720
1997	1130.53+/-510.82	12.60+/-4.27	10	146	705
1998	1081.17+/-605.04	13.08+/-6.00	45	137	580
1999	962.06+/-349.07	9.60+/-2.50	25	134	610
2000	2361.17+/-829.64	18.66+/-4.96	40	139	510
2001	849.06+/-339.58	12.07+/-2.78	35	154	685
2002	1364.66+/-492.38	16.14+/-4.08	50	148	560
2003	1094.10+/-458.02	21.65+/-11.48	30	153	660
2004	2026.45+/-616.79	24.79+/-7.84	45	134	510
2005	1965.01+/-696.91	17.97+/-4.52	35	130	645
2006	2620.80+/-1206.28	30.71+/-9.81	20	141	665
2007	794.46+/-365.72	9.77+/-2.42	30	204	635
2008	1038.85+/-589.05	13.81+/-5.74	25	205	620
2009	1138.84+/-545.08	18.75+/-6.51	25	215	640
2010	1398.92+/-795.54	17.47+/-6.68	10	204	900
2011	582.12+/-196.14	12.62+/-3.19	10	205	550
2012	752.24+/-261.36	13.93+/-3.87	40	181	625
2013	809.15+/-313.53	18.94+/-6.47	30	128	490
2014	1101.4+/-368.8	23.1+/-3.8	10	127	750
2015	943.9+/-132.8	15.5+/-1.4	50	180	670
2016	1242.06+/-198.22	19.43+/-2.48	51	194	990

Table 1.- Historical trends of abundance (nº/km^2) and biomass (kg/km^2) indices (±standard error) and minimum, mean and maximum length (mm) of the specie *Mullus barbatus* during MEDITS surveys (GSA 6).

	Abundance ±S.E.	**Biomass ±S.E.**	**Lmin**	**Lmed**	**Lmax**
1995	174.14+/-76.03	5.79+/-2.60	95	148	250
1996	119.68+/-53.75	4.54+/-2.16	100	151	250
1997	69.15+/-45.06	3.66+/-2.20	110	165	250
1998	167.78+/-99.02	7.32+/-3.59	105	160	240
1999	126.97+/-51.46	5.39+/-2.01	90	155	250
2000	190.15+/-86.82	7.03+/-2.92	55	153	245
2001	86.91+/-36.69	4.20+/-1.17	105	164	275
2002	99.09+/-34.90	5.48+/-1.84	95	164	250
2003	205.70+/-77.99	8.82+/-3.50	85	154	260
2004	127.95+/-51.28	6.63+/-2.74	90	156	270
2005	119.25+/-54.21	6.71+/-3.04	100	165	365
2006	270.95+/-154.70	11.93+/-7.06	50	155	255
2007	562.27+/-307.98	22.89+/-11.94	100	170	260
2008	103.63+/-58.61	6.54+/-3.31	80	179	285
2009	183.80+/-72.45	8.23+/-3.11	70	163	300
2010	211.51+/-151.01	9.36+/-6.59	75	167	265
2011	108.05+/-51.96	5.81+/-2.63	80	172	260
2012	360.11+/-102.66	14.04+/-4.13	45	164	285
2013	245.09+/-107.90	10.73+/-3.97	100	151	270
2014	526.8+/-87.2	23.4+/-3.9	85	151	255
2015	593.1+/-97.7	29.7+/-4.1	25	170	260
2016	901.04+/-154.27	33.56+/-4.8	97	169	277

Table 1.- Historical trends of abundance (nº/km^2) and biomass (kg/km^2) indices (±standard error) and minimum, mean and maximum length (mm) of the specie *Mullus surmuletus* during MEDITS surveys (GSA 6).

	Abundance ±S.E.	**Biomass ±S.E.**	**Lmin**	**Lmed**	**Lmax**
1995	39.70+/-39.82	3.45+/-3.03	120	192	325
1996	18.01+/-10.01	1.89+/-1.19	135	204	365
1997	16.17+/-10.17	1.71+/-0.99	110	205	330
1998	18.28+/-9.54	1.64+/-0.89	110	197	330
1999	27.60+/-29.76	2.19+/-2.01	100	169	320
2000	19.05+/-12.98	1.95+/-1.23	130	195	285
2001	23.26+/-13.66	2.23+/-1.11	105	203	445
2002	16.76+/-8.47	1.78+/-0.84	150	211	410
2003	11.30+/-4.42	1.44+/-0.67	130	220	365
2004	17.06+/-10.15	1.91+/-0.92	140	206	390
2005	16.47+/-9.45	1.56+/-0.80	130	206	310
2006	59.32+/-76.60	4.62+/-5.83	55	204	360
2007	52.23+/-37.68	6.70+/-5.79	125	201	330
2008	10.36+/-3.98	1.38+/-0.51	35	209	335
2009	21.94+/-11.19	2.48+/-1.01	15	201	560
2010	24.95+/-32.19	2.38+/-2.64	11	203	355
2011	34.82+/-37.66	3.20+/-3.32	55	199	335
2012	36.54+/-25.73	3.22+/-2.47	40	196	365
2013	48.58+/-33.78	4.38+/-2.70	130	188	300
2014	65.4+/-17.7	6.3+/-1.6	110	196	315
2015	72.3+/-19.8	6.1+/-1.6	20	190	335
2016	86.88+/-19.97	6.62+/-1.43	121	196	349

Table 1.- Historical trends of abundance (nº/km^2) and biomass (kg/km^2) indices (±standard error) and minimum, mean and maximum length (mm) of the specie *Pagellus erythrinus* during MEDITS surveys (GSA 6).

	Abundance ±S.E.	**Biomass ±S.E.**	**Lmin**	**Lmed**	**Lmax**
1995	6.40+/-3.91	0.55+/-0.26	110	209	325
1996	10.56+/-4.76	1.23+/-0.61	100	199	370
1997	10.98+/-7.91	1.24+/-0.89	45	202	315
1998	22.52+/-14.86	2.10+/-1.29	40	195	435
1999	39.43+/-23.03	3.76+/-1.72	85	196	365
2000	34.30+/-26.30	4.25+/-2.99	90	209	400
2001	46.96+/-28.02	6.07+/-3.19	85	204	460
2002	42.59+/-21.06	5.85+/-3.32	50	214	500
2003	36.06+/-29.39	4.72+/-3.83	65	209	540
2004	29.17+/-15.66	3.87+/-1.90	70	201	405
2005	17.00+/-7.54	2.27+/-1.09	90	216	390
2006	54.38+/-38.74	6.60+/-4.35	55	199	450
2007	260.52+/-232.73	13.11+/8.11	85	213	410
2008	81.91+/-63.87	6.61+/-4.30	100	223	515
2009	65.51+/-52.51	5.81+/-4.83	70	214	490
2010	183.01+/-180.01	11.80+/9.07	75	211	380
2011	125.98+/-98.93	9.27+/-7.24	65	200	370
2012	103.77+/-50.34	10.34+/5.11	80	194	340
2013	174.30+/-34.08	16.12+/-3.09	70	195	365
2014	162.04+/-31.66	18.99+/-3.54	75	195	430
2015	165.78+/-37.3	18.1+/-4.2	70	210	470
2016	160.54+/-34.2	17.5+/-3.66	71	197	341

Table 1.- Historical trends of abundance (nº/km^2) and biomass (kg/km^2) indices (±standard error) and minimum, mean and maximum length (mm) of the specie *Aristeus antennatus* during MEDITS surveys (GSA 6).

	Abundance ±S.E.	**Biomass ±S.E.**	**Lmin**	**Lmed**	**Lmax**
1995	45.50+/-42.75	0.64+/-0.55	16	34	57
1996	79.76+/-68.23	1.38+/-1.17	16	36	63
1997	59.43+/-47.20	1.08+/-0.85	17	34	66
1998	30.29+/-26.80	0.42+/-0.37	17	33	62
1999	35.89+/-28.17	0.45+/-0.35	14	31	60
2000	63.27+/-67.92	0.78+/-0.75	18	32	60
2001	40.31+/-48.90	0.53+/-0.60	10	32	55
2002	34.25+/-29.11	0.49+/-0.40	18	33	62
2003	39.92+/-27.51	0.74+/-0.45	20	37	61
2004	32.39+/-29.42	0.53+/-0.44	16	34	64
2005	12.43+/-15.26	0.28+/-0.28	16	33	62
2006	42.62+/-50.35	0.68+/-0.81	14	35	60
2007	27.57+/-31.77	0.41+/-0.39	13	34	58
2008	63.00+/-46.47	0.82+/-0.60	11	33	63
2009	46.031+/-34.74	0.74+/-0.55	10	36	36
2010	31.26+/-31.89	0.47+/-0.50	7	34	62
2011	37.30+/-30.75	0.55+/-0.42	11	53	61
2012	66.06+/-58.30	0.91+/-0.76	12	33	57
2013	37.26+/-33.13	0.69+/-0.63	18	32	56
2014	110.4+/-44.00	3.01+/-1.40	16	31	83
2015	221.6+/-143.1	3.1+/-1.7	5	35	61
2016	101.89+/-49.04	1.41+/-0.56	18	34	62

Table 1.- Historical trends of abundance (nº/km^2) and biomass (kg/km^2) indices (±standard error) and minimum, mean and maximum length (mm) of the specie *Nephrops norvegicus* during MEDITS surveys (GSA 6).

	Abundance ±S.E.	**Biomass ±S.E.**	**Lmin**	**Lmed**	**Lmax**
1995	69.17+/-33.84	1.95+/-0.85	16	35	65
1996	86.22+/-64.89	2.47+/-1.78	17	37	71
1997	93.83+/-73.66	2.48+/-1.76	14	34	63
1998	36.62+/-33.46	1.02+/-0.91	18	35	59
1999	32.02+/-27.20	0.74+/-0.51	10	32	64
2000	74.82+/-104.75	1.28+/-1.44	16	33	65
2001	173.07+/-110.55	4.74+/-2.75	15	34	55
2002	89.28+/-58.28	2.41+/-1.41	9	35	72
2003	69.07+/-47.65	1.99+/-1.22	15	35	88
2004	103.96+/-89.51	2.57+/-1.81	15	36	63
2005	47.17+/-31.33	1.50+/-0.99	16	37	65
2006	77.87+/-41.41	2.53+/-1.36	14	37	67
2007	61.38+/-40.64	2.08+/-1.21	14	40	68
2008	39.52+/-30.62	1.11+/-0.80	17	40	74
2009	123.94+/-97.12	3.37+/-2.44	9	38	51
2010	57.14+/-45.55	1.63+/-1.20	6	40	48
2011	60.20+/-37.46	1.77+/-1.11	17	42	63
2012	183.95+/-179.73	4.05+/-3.05	10	36	68
2013	133.63+/-100.21	3.14+/-2.23	17	32	62
2014	197.54+/-50.54	5.75+/-1.43	13	33	65
2015	714.2+/-13.7	20.0+/-13.7	10	38	66
2016	159.51+/-40.02	4.62+/-1.12	18	41	97

Table 1.- Historical trends of abundance (nº/km^2) and biomass (kg/km^2) indices (±standard error) and minimum, mean and maximum length (mm) of the specie *Parapenaeus longirostris* during MEDITS surveys (GSA 6).

	Abundance ±S.E.	**Biomass ±S.E.**	**Lmin**	**Lmed**	**Lmax**
1995	10.34+/-9.97	0.10+/-0.11	8	21	37
1996	21.07+/-27.96	0.18+/-0.23	9	24	41
1997	6.54+/-7.57	0.06+/-0.07	11	23	39
1998	7.10+/-6.27	0.07+/-0.07	7	22	39
1999	19.99+/-17.95	0.17+/-0.15	6	22	37
2000	86.04+/-77.65	0.58+/-0.45	8	23	37
2001	77.80+/-50.37	0.97+/-0.70	5	23	40
2002	30.15+/-25.17	0.31+/-0.25	9	23	41
2003	2.84+/-1.70	0.03+/-0.02	10	25	36
2004	23.30+/-23.50	0.27+/-0.29	6	24	40
2005	7.61+/-5.34	0.10+/-0.07	17	27	39
2006	7.15+/-4.32	0.10+/-0.06	5	26	41
2007	9.81+/-10.57	0.11+/-0.13	8	24	41
2008	5.40+/-4.97	0.06+/-0.06	10	26	38
2009	31.64+/-19.76	0.28+/-0.19	7	25	29
2010	32.28+/-28.19	0.39+/-0.33	13	36	37
2011	21.12+/-13.52	0.21+/-0.14	10	25	41
2012	61.19+/-61.92	0.75+/-0.82	9	25	52
2013	33.40+/-21.00	0.45+/-0.28	10	28	54
2014	223.28+/-63.16	2.17+/-0.54	12	26	47
2015	159.8+/-25.9	1.1+/-0.2	4	24	43
2016	376.57+/-74.11	3.56+/-0.68	10	24	40

Table 1.- Historical trends of abundance (nº/km^2) and biomass (kg/km^2) indices (±standard error) and minimum, mean and maximum length (mm) of the specie *Ilex coindetti* during MEDITS surveys (GSA 6).

	Abundance ±S.E.	**Biomass ±S.E.**	**Lmin**	**Lmed**	**Lmax**
1995	10.11+/-3.68	0.97+/-0.40	48	133	250
1996	102.57+/-62.49	4.26+/-1.46	30	127	240
1997	28.73+/-10.12	3.90+/-1.31	50	147	235
1998	9.87+/-6.49	1.27+/-0.87	55	151	235
1999	26.73+/-10.97	3.19+/-1.26	40	158	270
2000	584.01+/-436.76	14.19+/6.88	35	147	255
2001	10.58+/-4.18	1.03+/-0.47	40	151	240
2002	26.65+/-11.58	1.68+/-0.65	35	130	240
2003	50.23+/-23.60	5.22+/-2.75	40	154	240
2004	60.71+/-30.66	4.97+/-2.33	30	132	230
2005	52.22+/-27.14	3.08+/-1.02	30	131	260
2006	10.17+/-4.46	1.34+/-0.67	35	139	225
2007	5.38+/-4.31	0.65+/-0.61	30	159	250
2008	274.72+/-176.60	9.37+/-4.19	20	125	255
2009	136.50+/-38.14	10.09+/2.16	45	147	470
2010	122.10+/-34.34	11.18+/3.38	20	160	203
2011	311.97+/-118.78	22.62+/8.18	45	136	305
2012	264.55+/-90.44	10.96+/2.56	30	128	215
2013	618.57+/-174.20	44.35+/12.9	30	126	210
2014	610.07+/-64.87	44.56+/-5.12	35	123	205
2015	125.1+/-18.37	8.7+/-1.1	15	190	255
2016	750.66+/-88.01	41.31+/-3.53	40	161	226

Table 1.- Historical trends of abundance (nº/km^2) and biomass (kg/km^2) indices (±standard error) and minimum, mean and maximum length (mm) of the specie *Loligo vulgaris* during MEDITS surveys (GSA 6).

	Abundance ±S.E.	**Biomass ±S.E.**	**Lmin**	**Lmed**	**Lmax**
1995	1.82+/-2.82	0.24+/-0.29	85	164	271
1996	3.00+/-3.40	0.49+/-0.53	100	164	280
1997	1.15+/-1.19	0.52+/-0.61	160	251	370
1998	0.16+/-0.33	0.04+/-0.09	155	183	216
1999	3.35+/-2.88	0.42+/-0.35	115	161	240
2000	11.69+/-19.67	1.10+/-1.03	70	138	265
2001	1.89+/-1.15	0.28+/-0.21	80	164	260
2002	4.75+/-3.38	0.57+/-0.35	40	145	275
2003	0.24+/-0.58	0.01+/-0.03	115	208	265
2004	3.15+/-2.51	0.43+/-0.45	30	155	300
2005	1.27+/-0.86	0.31+/-0.24	55	190	255
2006	9.47+/-9.06	1.68+/-1.68	100	200	500
2007	3.55+/-3.82	0.55+/-0.56	75	166	320
2008	2.01+/-1.66	0.26+/-0.24	20	147	380
2009	2.91+/-2.27	0.29+/-0.24	15	166	450
2010	1.58+/-1.68	0.32+/-0.37	20	164	270
2011	2.09+/-1.58	0.35+/-0.24	30	199	820
2012	2.16+/-1.39	0.37+/-0.26	15	149	440
2013	4.90+/-4.71	0.73+/-0.63	62	153	250
2014	3.86+/-1.31	0.31+/-0.13	110	154	205
2015	4.5+/-1.8	0.4+/-.01	15	140	335
2016	0.40+/-0.28	0.24+/-0.20	146	159	167

FRANCE
GSA 7 (Gulf of Lions) - GSA 8 (Eastern Corsica)

1. *Review of 2016 survey by GSA*

1.1. Period in which the survey was carried out

- **20th may – 25th June 2016**
  - ✓ *GSA 8 (Eastern Corsica)* : 20th may –28th may
  - ✓ *GSA 7 (Gulf of Lions)* : 31st may – 25th June

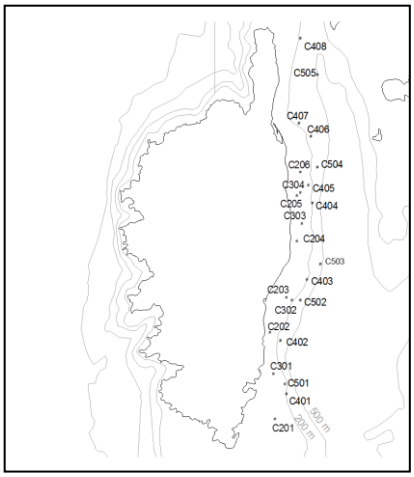
1.2. Vessel (indicate eventual changes with the previous years)

The survey is carried since the beginning (1994) with the **Oceanographic French boat "L'Europe".**

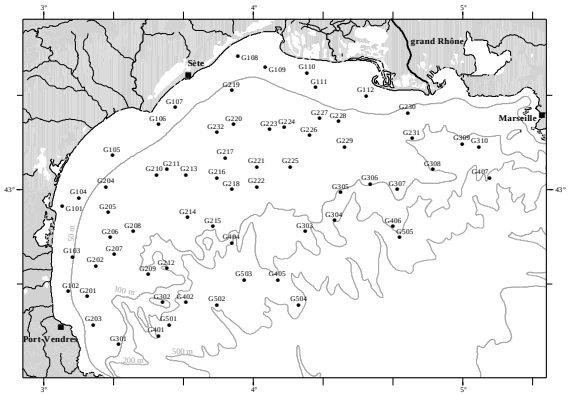
1.3. Number of hauls performed, possible difficulties encountered

- ✓ *GSA 8 (Eastern Corsica):* 23 (all the hauls performed)
- ✓ *GSA 7 (Gulf of Lions):* 64 (1 deep haul not realized because of tears of the net)

1.4. Geographic area covered with a map showing haul locations



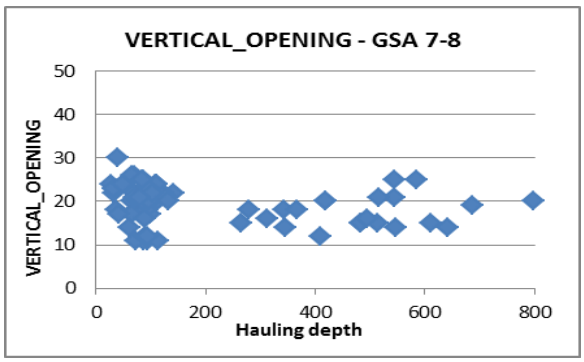
GSA 8 – Eastern Corsica

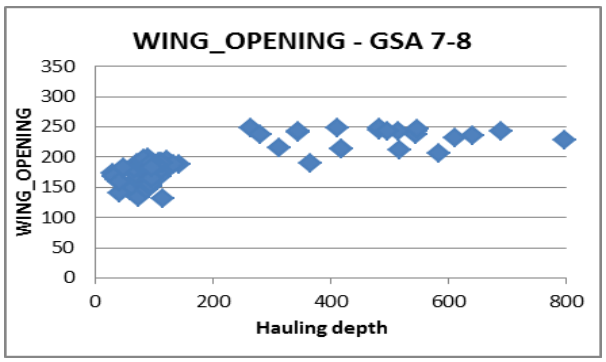


GSA 7 - Gulf of Lions

1.5. Number of hauls in which scanmar (or equivalent equipment MARPORT) was used and add a scatter plot of HO and VO vs. depth

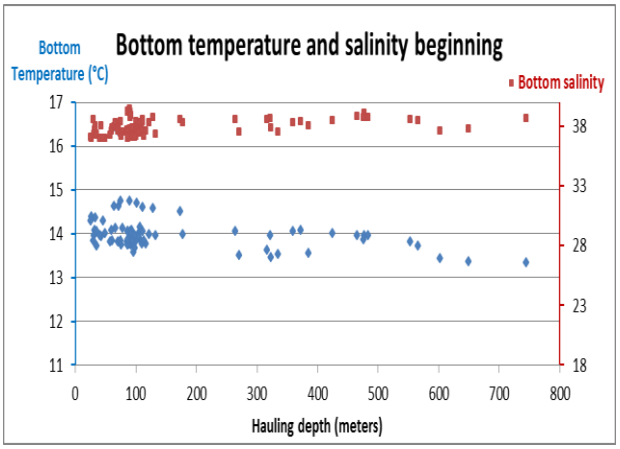
- *GSA 8 (Eastern Corsica):* 23/23 hauls with SCANMAR
- *GSA 7 (Gulf of Lions):* 64/64 hauls with SCANMAR

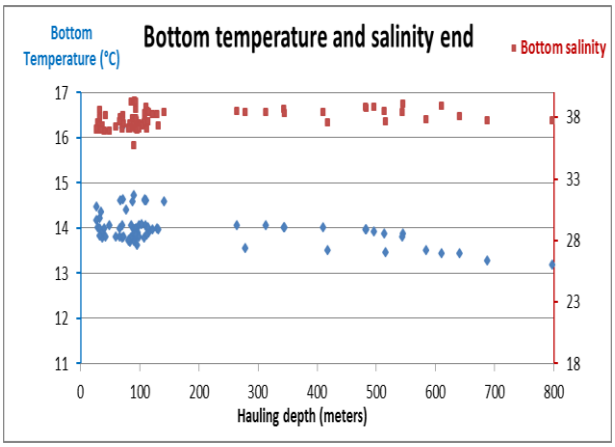




*1.6. Number of hauls in which minilog (or equivalent equipment: **Oddi-star sonde**) was used and add a plot of temperature/salinity bottom profiles*

- ✓ For the period **1994-2012, minilog** : **Temperature/depth**
- ✓ In **2013**, **oddi-star DST centi : Temperature/depth**
- ✓ Since **2014**, **oddi-star CTD**: Temperature/depth **and salinity**
- ✓ **2016**
  - *GSA 8 (Eastern Corsica*): 23/23 hauls from CTD
  - *GSA 7 (Gulf of Lions):* 64/64 hauls from CTD



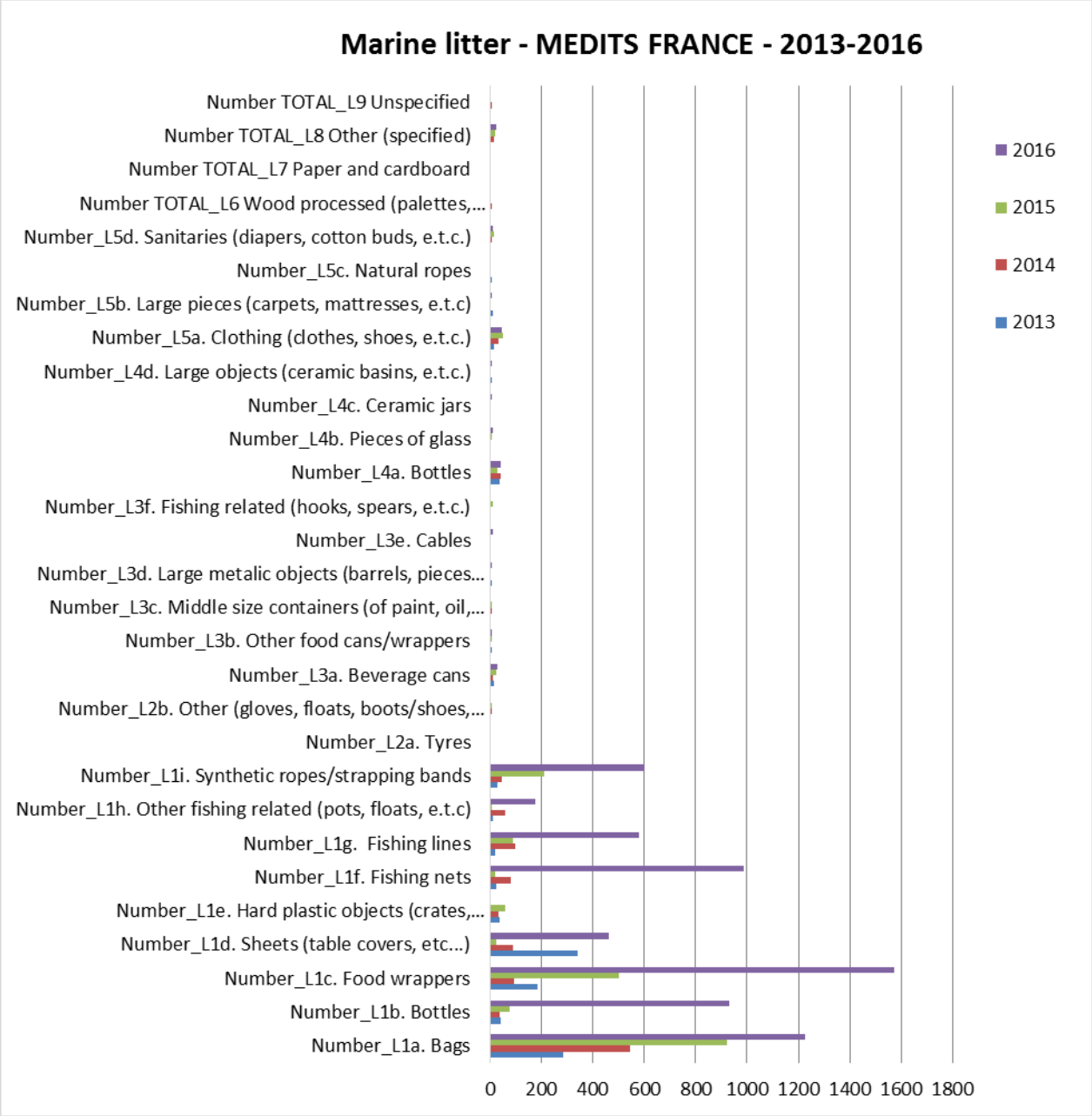


1.7. Other measures of environmental variables carried out

Considering the Marine Strategy Framework Directive, in 2016, the opportunity to use the WP2 was tested: 10 stations in the Gulf of Lions and 8 stations in the Eastern Corsica. The objective is to characterize abundance of zooplankton taxa. The samples were stored in a solution with formol (Mastail and Battaglia preparation) and will be analysed in 2017. The determination of gelatinous jelly fish was also realized.

1.8. Litter recording: comments on the results of the last survey and feedback on protocol

Litters are recorded in GSA 7 and 8 **since 1994,** (protocol from François Galgani).
From 1994 to 2012, only 7 categories were identified in the protocol and total number by category was registered (plastics ; plastic bottles ; glass ; metal ; leather/cloth/ruber ; fishing related ; Other).
Since 2013, the protocol validated by MEDITS group in March 2013, is followed.
In the present protocol, "total weight in a category and in a sub-category" is facultative, as well as "number in each subcategory". **Considering GSA 7 and 8, these informations are systematically collected since 2014.**



1.9. Number of species classified by taxa

392 taxa were identified during MEDITS France 2016 (GSA 7 and 8 joined).
323 taxa in **GSA7**
232 taxa in **GSA8**

In red, the **12 new species, and/or codes,** identified in 2016.

MEDITS Species codes 2016						
ABRAVER	BLENOCE	ECHASEP	LEPICAU	NETTMEL	PILUSPI	SEPISPP
ACANEXI	BOOPBOO	ECHDDAE	LEPMBOS	NEZUSCL	PINNPEC	SEPOINT
ACANSPP	BOTRSPP	ECHNACU	LEPMWHS	NOTABON	PISAARN	SEPOROB
ACATPAL	BRIOLYR	ECHNMEL	LEPOLEP	NOTORIS	PLEBMEM	SEPOSPP
ACTASPP	BRYOZOA	ELEDCIR	LEPRSPP	NOTSELO	PLERMEC	SERACAB
ACTIRIA	BUCCHUN	ELEDMOS	LEPTCAV	NUCUSUL	PLESACA	SERAHEP
ACTNDAE	BUGLLUT	ENGRENC	LEPTDIE	NUDIBRA	PLESANT	SEREGAY
ADAMCAR	CALAGRA	EPIGCON	LIGUENS	OCNUPLA	PLESEDW	SERTGAY
AEQOSPP	CALLRUB	EPIGDEN	LOLIFOR	OCTODEP	PLESGIG	SERTSPP
AGLJTRI	CALMMAC	EPITCLU	LOLISPP	OCTOSAL	PLESHET	SERUDAE
ALCYPAL	CALMPHA	EPIZSPP	LOLIVUL	OCTOSPP	PLESMAR	SOESZON
ALEPROS	CALOMAC	ETMOSPI	LOPHBUD	OCTOTET	POLCTYP	SOLEKLE
ALLOSPP	CALTPAR	EUSPSPP	LOPHPIS	OCTOVUL	POLRPOM	SOLEVUL
ALOSFAL	CANIGRA	EUTRGUR	LOPOTYP	OKENELE	PONPSPI	SOLOMEM
ALPEDAE	CAPOAPE	FUNIQUA	LUIDSAR	ONYCBAN	PONTCAT	SPATPUR
ALPHGLA	CARDECH	FUSIROS	LUIDSPP	OPDIBAR	PONTLAC	SPHAGRA
ANADPOL	CARDTUB	FUSISYR	LUNAFUS	OPHCRUF	PORIERA	SPHYSPY
ANAMRIS	CARYSMI	GADIARG	LYTOMYR	OPHEDAE	PROCMED	SPICMAE
ANNEIDA	CASSECH	GALUMEL	MACOSCO	OPHNDAE	PSAMMIC	SPICSMA
ANOMDAE	CASSTYR	GELAAMO	MACRROS	OPHOFRA	PTEDSPI	SPODCAN
ANSEPLA	CAVEPUS	GELAAUT	MACRSPP	OPHOQUI	PTERHIR	SPRASPR
ANTESPP	CECACIR	GERYLON	MACRTEN	OPHRDEA	PYURMIC	SQUAACA
ANTOMEG	CELRSPP	GERYTRI	MAJACRI	OPHUOPH	PYURSPP	SQUABLA
APERADR	CENONIG	GLANTAL	MALDDAE	OPHUSPP	RAJAAST	SQUIMAN
APHRACU	CENSLON	GLOSLEI	MARIBLA	OSTREDU	RAJACIR	STERSCU
APORSER	CEPOMAC	GLOUHUM	MAURMUE	OWENDAE	RAJACLA	STICREG
APTECAE	CERAMAD	GOBIFRI	MCPIDEP	OXYNCEN	RAJAMIR	STOMBOA
ARGESPY	CHAELON	GOBINIG	MCPIMAC	PAGEACA	RAJAMON	STYECLA
ARGOOLE	CHAUSLO	GOBIQUA	MCPITUB	PAGEBOG	RAJANAE	SUBECAR
ARGRHEM	CHIMMON	GONERHO	MERLMER	PAGEERY	RAJAOXY	SUBESPP
ARISFOL	CHLAVAR	GRAIELE	MICMPOU	PAGIERE	RAJAPOL	SYMBVER
ARITANT	CHLOGRA	GRYPVIT	MICOSPP	PAGUALA	RETESPP	SYMPNIG
ARMILOV	CHRYHYS	HADRCRA	MICOVUL	PAGUCUA	RISSPAL	TETAAUR
ARMIMAC	CIDACID	HAVEINE	MICUVAR	PAGUEXC	RIZOPUL	TETHFIM
ARNOLAT	CITHMAC	HELIDAC	MODOSUB	PAGUPRI	RONDMIN	TETYSUB
ARNORUP	CLORAGA	HETEDIS	MOLGAPP	PALIMAU	ROSSMAC	THYOELO
ARNOTHO	CODIBUR	HISTREV	MOLGSPP	PALUCAR	SABLDAE	THYOSPP
ASCDDAE	COELCOE	HOLOFOR	MOLPSPP	PAPELON	SARDPIL	TODASAG
ASCIMEN	CONGCON	HOLOMAM	MOLVMAC	PARCLIV	SCALSCA	TODIEBL

ASPICUC	CRASGIG	HOLOSPP	MORAMOR	PAROCUV	SCAPNIG	TORPMAR
ASPIOBS	DALOIMB	HOLOTUB	MULLBAR	PARTMAS	SCHICAN	TRACMED
ASTASUL	DARDARR	HOPLMED	MULLSUR	PASIMUL	SCOHRHO	TRACPIC
ASTEDEA	DASICEN	HYALTUB	MUNIINT	PASISIV	SCOMPNE	TRACTRA
ASTRARA	DASITOR	HYGOHIG	MUNIIRI	PECTJAC	SCOMSCO	TRAHDRA
ASTRIRR	DENTDEN	HYMEITA	MUNIRUG	PELANOC	SCORELO	TRAHRAD
ATELROT	DIAZVIO	ILLECOI	MUNITEN	PELSPLA	SCORLOP	TRARTRA
ATRIFRA	DIDMEAE	INACCOM	MUREBRA	PENDDAE	SCORNOT	TRIGLUC
AUREAUR	DIPLANN	INACDOR	MUSTMUS	PENTFAS	SCORPOR	TRIGLYR
AURESPP	DIPLVUL	INACPHA	MYCOPUN	PERICAT	SCYMLIC	TRIPLAS
AXINSPP	DIPOLIS	ISIDELO	MYTIGAL	PHASMAM	SCYOCAN	TRISCAP
AXINVER	DISMVAR	JORUTOM	NANSOBI	PHINAPE	SEPENEG	TURRCOM
BATHDUB	DORILAN	KALORAM	NATIHEB	PHROSED	SEPEOBS	URANSCA
BATISPO	DORSPSE	LABIDIG	NEMEANT	PHYIBLE	SEPEOWE	VALOSPP
BATYLON	DORSSPP	LAMACRO	NEMERAM	PHYIPHY	SEPIELE	VERTDAE
BATYMAR	DROMPER	LAMEPER	NEOPCOC	PHYLTRU	SEPIOFF	XANTCOU
BENSGLA	EBALTUB	LATRELE	NEPRNOR	PILUHIR	SEPIORB	ZEUSFAB

1.10. Total number of classified individuals of the MEDITS reference list

- *GSA7 (Gulf of Lions):* ***323 taxa*** were identified in 2016

YEAR	AREA	FAUNISTIC_CATEGORY	GENUS	SPECIES	TOTAL NUMBERS
2016	7	Ao	SPRA	SPR	186459
2016	7	Ao	ENGR	ENC	67340
2016	7	Eec	ANTE	SPP	59398
2016	7	Ao	TRAC	TRA	40180
2016	7	Eec	LEPR	SPP	25349
2016	7	Ao	SARD	PIL	13943
2016	7	Ao	TRIS	CAP	10225
2016	7	Ao	CAPO	APE	6427
2016	7	Ao	MERL	MER	5565
2016	7	Ao	GADI	ARG	5223
2016	7	Emg	TURR	COM	5007
2016	7	Eec	ASTR	IRR	4842
2016	7	Ao	MULL	BAR	3975
2016	7	Etu	ASCD	DAE	3659
2016	7	C	LOLI	SPP	3526
2016	7	Ao	GLOS	LEI	2843
2016	7	Ao	MICM	POU	2749
2016	7	Eec	OCNU	PLA	2522
2016	7	Ao	EUTR	GUR	2060
2016	7	C	ALLO	SPP	1881
2016	7	B	MCPI	DEP	1794
2016	7	Ao	LEPT	CAV	1598
2016	7	B	PAPE	LON	1579
2016	7	Ao	CEPO	MAC	1571
2016	7	Ao	SERA	HEP	1443
2016	7	Ae	GALU	MEL	1305
2016	7	Eec	STIC	REG	1262
2016	7	Ecn	CAVE	PUS	1133
2016	7	B	NEPR	NOR	1133
2016	7	Etu	MOLG	SPP	1033
2016	7	Ao	TRAC	MED	980
2016	7	Ao	GOBI	FRI	965
2016	7	Ecn	ALCY	PAL	872
2016	7	B	PAGU	PRI	861
2016	7	Ecn	ADAM	CAR	824
2016	7	Ao	COEL	COE	743
2016	7	Ao	SCOM	SCO	699
2016	7	Ao	HELI	DAC	601
2016	7	B	ALPH	GLA	594
2016	7	Ecn	FUNI	QUA	574
2016	7	Ao	PHYI	BLE	559
2016	7	Ao	ARNO	LAT	558

YEAR	AREA	FAUNISTIC_CATEGORY	GENUS	SPECIES	TOTAL NUMBERS
2016	7	Ao	URAN	SCA	26
2016	7	C	OCTO	SAL	25
2016	7	Ao	BLEN	OCE	24
2016	7	Eec	SPAT	PUR	24
2016	7	Etu	BOTR	SPP	23
2016	7	Epr	GLAN	TAL	23
2016	7	B	PILU	HIR	23
2016	7	Ao	SCOR	ELO	21
2016	7	Ecn	NEME	RAM	20
2016	7	Ao	SCOR	LOP	19
2016	7	C	SEPO	SPP	19
2016	7	Eec	ANSE	PLA	18
2016	7	Dmg	BUCC	HUN	17
2016	7	Eec	THYO	SPP	17
2016	7	B	ACAN	EXI	16
2016	7	C	BATI	SPO	16
2016	7	Dmg	HADR	CRA	16
2016	7	Emb	NEOP	COC	16
2016	7	Epo	OWEN	DAE	16
2016	7	C	SEPO	ROB	15
2016	7	Ao	NOTS	ELO	14
2016	7	B	PASI	MUL	14
2016	7	Ao	DIPL	VUL	13
2016	7	C	TODA	SAG	13
2016	7	Emo	PLER	MEC	12
2016	7	Ao	ZEUS	FAB	12
2016	7	Ecn	AURE	AUR	11
2016	7	B	LATR	ELE	11
2016	7	Dmb	PINN	PEC	11
2016	7	Emo	KALO	RAM	10
2016	7	Ecn	PELA	NOC	10
2016	7	B	PLES	HET	10
2016	7	Ecn	PTED	SPI	10
2016	7	Emb	PTER	HIR	10
2016	7	Ecn	RIZO	PUL	10
2016	7	C	SEPE	OBS	9
2016	7	Ao	ARGR	HEM	8
2016	7	Emo	ARMI	LOV	8
2016	7	Ao	BUGL	LUT	8
2016	7	Emg	OKEN	ELE	8
2016	7	Dmo	ARMI	MAC	7
2016	7	Ao	CHAU	SLO	7

2016	7	C	ILLE	COI	545
2016	7	B	PLES	EDW	541
2016	7	Ao	PAGE	BOG	530
2016	7	C	ELED	CIR	502
2016	7	Ecn	VERT	DAE	494
2016	7	C	LOLI	VUL	486
2016	7	C	SEPE	OWE	485
2016	7	Ao	MACO	SCO	459
2016	7	Ao	CALM	MAC	446
2016	7	Ao	TRAR	TRA	402
2016	7	Ao	LOPH	BUD	375
2016	7	Ao	CLOR	AGA	360
2016	7	Ao	PAGE	ERY	355
2016	7	Ao	SCOR	NOT	337
2016	7	B	GONE	RHO	327
2016	7	Ao	LEPT	DIE	325
2016	7	B	ARIT	ANT	320
2016	7	Eec	ECHN	ACU	320
2016	7	Ao	BOOP	BOO	288
2016	7	Dmg	CASS	TYR	285
2016	7	Ao	LEPM	BOS	276
2016	7	B	MACR	TEN	273
2016	7	Ae	SCYO	CAN	268
2016	7	Ao	GOBI	QUA	263
2016	7	Ecn	CALT	PAR	262
2016	7	Ao	TRIG	LYR	256
2016	7	Ao	SCOM	PNE	247
2016	7	Eec	BRIO	LYR	240
2016	7	Ao	GOBI	NIG	233
2016	7	Esp	SUBE	CAR	215
2016	7	Ao	SERA	CAB	201
2016	7	Ao	TRIG	LUC	197
2016	7	C	SEPI	ELE	191
2016	7	Epo	STER	SCU	187
2016	7	Ao	LAMA	CRO	181
2016	7	Emg	CANI	GRA	177
2016	7	Ecn	ACTI	RIA	173
2016	7	B	DORI	LAN	168
2016	7	B	MUNI	INT	159
2016	7	B	PASI	SIV	153
2016	7	Ao	ASPI	CUC	145
2016	7	Eec	OPHO	FRA	144
2016	7	Ao	NEZU	SCL	140
2016	7	Epo	APHR	ACU	136
2016	7	C	TODI	EBL	135
2016	7	Ao	ARGE	SPY	133
2016	7	B	SOLO	MEM	126
2016	7	Ecn	EPIZ	SPP	121
2016	7	Epo	HYAL	TUB	118
2016	7	B	DARD	ARR	114
2016	7	B	MCPI	TUB	111
2016	7	C	ELED	MOS	110
2016	7	Dmg	CASS	ECH	109
2016	7	B	PLES	ACA	107
2016	7	Ao	HYME	ITA	106
2016	7	Ao	CITH	MAC	105
2016	7	B	CHLO	GRA	101
2016	7	Dmb	CARD	ECH	99
2016	7	Ecn	PEND	DAE	99
2016	7	Ecn	AURE	SPP	97
2016	7	Bci	SCAL	SCA	97
2016	7	Ae	CHIM	MON	96
2016	7	B	PAGU	EXC	96
2016	7	Esp	SUBE	SPP	96
2016	7	Bst	SQUI	MAN	91
2016	7	Eec	OPHU	OPH	86
2016	7	Ao	CONG	CON	83
2016	7	Ecn	LYTO	MYR	83
2016	7	Ao	MOLV	MAC	81
2016	7	B	PLES	MAR	81
2016	7	Eec	THYO	ELO	81
2016	7	Etu	DIAZ	VIO	80
2016	7	B	INAC	DOR	80
2016	7	Ao	LEPM	WHS	80

2016	7	B	LIGU	ENS	7
2016	7	B	PAGI	ERE	7
2016	7	Dec	PARC	LIV	7
2016	7	B	PARO	CUV	7
2016	7	Emo	PLEB	MEM	7
2016	7	B	ARIS	FOL	6
2016	7	Ao	ARNO	RUP	6
2016	7	Dmb	CHLA	VAR	6
2016	7	Emo	DORS	PSE	6
2016	7	C	HIST	REV	6
2016	7	Emg	LUNA	FUS	6
2016	7	C	OCTO	TET	6
2016	7	Eec	SCHI	CAN	6
2016	7	Eec	CHAE	LON	5
2016	7	Ecn	CHRY	HYS	5
2016	7	Eec	HAVE	INE	5
2016	7	Eec	HOLO	FOR	5
2016	7	B	MACR	SPP	5
2016	7	Dtu	MICO	SPP	5
2016	7	Dmg	PHYL	TRU	5
2016	7	Ao	STOM	BOA	5
2016	7	Ae	TORP	MAR	5
2016	7	Eec	ASTR	ARA	4
2016	7	B	BATY	MAR	4
2016	7	Ecn	CARY	SMI	4
2016	7	Dmb	CRAS	GIG	4
2016	7	Ao	DALO	IMB	4
2016	7	C	HETE	DIS	4
2016	7	Eec	HOLO	TUB	4
2016	7	B	MUNI	TEN	4
2016	7	B	PILU	SPI	4
2016	7	Etu	POLR	POM	4
2016	7	Ecn	ACTN	DAE	3
2016	7	Ao	ALOS	FAL	3
2016	7	Emg	APER	ADR	3
2016	7	Ao	CERA	MAD	3
2016	7	Etu	DISM	VAR	3
2016	7	B	DROM	PER	3
2016	7	Emg	LAME	PER	3
2016	7	Ao	MORA	MOR	3
2016	7	Eec	OPHR	DEA	3
2016	7	B	PAGU	ALA	3
2016	7	B	PROC	MED	3
2016	7	Ae	RAJA	AST	3
2016	7	Ae	RAJA	NAE	3
2016	7	Epo	SABL	DAE	3
2016	7	Ao	SCOR	POR	3
2016	7	Esp	TETA	AUR	3
2016	7	B	ALPE	DAE	2
2016	7	Ebr	BRYO	ZOA	2
2016	7	B	GERY	TRI	2
2016	7	Eec	LABI	DIG	2
2016	7	C	LOLI	FOR	2
2016	7	B	MACR	ROS	2
2016	7	B	MUNI	RUG	2
2016	7	EmO	NUDI	BRA	2
2016	7	Eec	OPHU	SPP	2
2016	7	Ao	PHYI	PHY	2
2016	7	B	PISA	ARN	2
2016	7	B	PONP	SPI	2
2016	7	Esp	PORI	ERA	2
2016	7	Etu	PYUR	SPP	2
2016	7	Ao	SCOH	RHO	2
2016	7	C	SEPI	OFF	2
2016	7	Ao	SPHY	SPY	2
2016	7	Ae	SQUA	ACA	2
2016	7	Ao	SYMP	NIG	2
2016	7	Emb	ANOM	DAE	1
2016	7	Ao	APTE	CAE	1
2016	7	Ao	ASPI	OBS	1
2016	7	Emb	ASTA	SUL	1
2016	7	B	ATEL	ROT	1
2016	7	Dmb	ATRI	FRA	1
2016	7	Esp	AXIN	SPP	1

2016	7	B	PLES	ANT	76
2016	7	Epo	MALD	DAE	73
2016	7	B	POLC	TYP	69
2016	7	Ao	SPIC	MAE	68
2016	7	Ecn	ACTA	SPP	67
2016	7	Ao	PAGE	ACA	67
2016	7	C	SEPI	ORB	66
2016	7	B	PLES	GIG	65
2016	7	Ao	SPIC	SMA	64
2016	7	Ao	CALM	PHA	62
2016	7	Ao	LEPI	CAU	59
2016	7	Ao	MULL	SUR	59
2016	7	Ao	LOPH	PIS	58
2016	7	C	OCTO	VUL	57
2016	7	Dmg	MURE	BRA	56
2016	7	Emo	PHIN	APE	54
2016	7	Ao	LEPO	LEP	53
2016	7	Ecn	AEQO	SPP	52
2016	7	Dmb	CARD	TUB	50
2016	7	Dmg	SCAP	NIG	50
2016	7	Emo	MARI	BLA	48
2016	7	Emb	NUCU	SUL	46
2016	7	Ao	DIPL	ANN	44
2016	7	Ao	ARNO	THO	41
2016	7	Ao	ALEP	ROS	40
2016	7	Ao	ANTO	MEG	39
2016	7	B	PAGU	CUA	39
2016	7	C	SEPO	INT	39
2016	7	Ao	MICU	VAR	34
2016	7	B	MUNI	IRI	34
2016	7	Etu	PHAS	MAM	34
2016	7	Ao	HOPL	MED	33
2016	7	Ecn	NEME	ANT	33
2016	7	Eec	CIDA	CID	32
2016	7	Ae	RAJA	CLA	32
2016	7	Dmg	APOR	SER	31
2016	7	Ao	TRAH	DRA	30
2016	7	B	PONT	LAC	28
2016	7	Emo	TETH	FIM	28
2016	7	Ean	ANNE	IDA	27
2016	7	Ae	ETMO	SPI	27
2016	7	B	PONT	CAT	27
2016	7	Emb	GLOU	HUM	26

2016	7	Ao	BATH	DUB	1
2016	7	B	BATY	LON	1
2016	7	B	CALA	GRA	1
2016	7	B	CALO	MAC	1
2016	7	Ebr	CELR	SPP	1
2016	7	V	CODI	BUR	1
2016	7	Emo	DORS	SPP	1
2016	7	Emg	EPIT	CLU	1
2016	7	Emg	EUSP	SPP	1
2016	7	Emg	FUSI	ROS	1
2016	7	Emg	FUSI	SYR	1
2016	7	B	INAC	COM	1
2016	7	Ecn	ISID	ELO	1
2016	7	Emo	JORU	TOM	1
2016	7	Emo	LAME	PER	1
2016	7	Eec	LUID	SPP	1
2016	7	B	MAJA	CRI	1
2016	7	Dmb	MODO	SUB	1
2016	7	Ao	MYCO	PUN	1
2016	7	Dmb	MYTI	GAL	1
2016	7	Ao	NANS	OBI	1
2016	7	Dmg	NATI	HEB	1
2016	7	Ao	NETT	MEL	1
2016	7	Ao	NOTA	BON	1
2016	7	Ao	NOTO	RIS	1
2016	7	C	OCTO	SPP	1
2016	7	C	ONYC	BAN	1
2016	7	Ao	OPHC	RUF	1
2016	7	Eec	OPHE	DAE	1
2016	7	Dmb	OSTR	EDU	1
2016	7	B	PALI	MAU	1
2016	7	Dmb	PECT	JAC	1
2016	7	Ebr	PENT	FAS	1
2016	7	Eec	PSAM	MIC	1
2016	7	C	SEPE	NEG	1
2016	7	C	SEPI	SPP	1
2016	7	Ecn	SERT	GAY	1
2016	7	Ao	SOLE	VUL	1
2016	7	Ao	SPOD	CAN	1
2016	7	B	STYE	CLA	1
2016	7	Ao	TRIP	LAS	1
2016	7	B	XANT	COU	1

- *GSA8 (Eastern Corsica) :* ***232 taxa*** were identified in 2016

YEAR	AREA	FAUNISTIC_CATEGORY	GENUS	SPECIES	TOTAL NUMBER
2016	8	Ao	SPIC	SMA	33913
2016	8	Ao	CAPO	APE	16493
2016	8	Ao	CLOR	AGA	4896
2016	8	Eec	ECHN	ACU	4236
2016	8	Eec	CIDA	CID	3643
2016	8	Eba	GRYP	VIT	3586
2016	8	Ao	LEPT	CAV	3435
2016	8	Ao	TRAC	MED	3064
2016	8	Ao	GADI	ARG	2725
2016	8	Ao	TRAC	TRA	2578
2016	8	Ae	GALU	MEL	2479
2016	8	Eec	SPAT	PUR	2448
2016	8	Ao	SPIC	MAE	1737
2016	8	B	PAPE	LON	1673
2016	8	Ao	MACO	SCO	1510
2016	8	Ao	COEL	COE	1383
2016	8	Ao	HYME	ITA	1382
2016	8	B	NEPR	NOR	1279
2016	8	Ao	BOOP	BOO	1159
2016	8	Ae	SCYO	CAN	1133
2016	8	Ao	CECA	CIR	1035
2016	8	Ao	GLOS	LEI	937

YEAR	AREA	FAUNISTIC_CATEGORY	GENUS	SPECIES	TOTAL NUMBER
2016	8	Dmb	ANAD	POL	9
2016	8	Ao	ARGR	HEM	9
2016	8	B	CALA	GRA	9
2016	8	B	CALO	MAC	9
2016	8	B	EBAL	TUB	9
2016	8	Eec	HOLO	SPP	9
2016	8	B	INAC	PHA	9
2016	8	C	LOLI	SPP	9
2016	8	Ao	MAUR	MUE	9
2016	8	B	MCPI	MAC	9
2016	8	C	OCTO	VUL	9
2016	8	B	PALU	CAR	9
2016	8	Ao	SCOR	NOT	9
2016	8	B	SOLO	MEM	9
2016	8	Eec	TETY	SUB	9
2016	8	C	ROND	MIN	8
2016	8	Bci	SCAL	SCA	8
2016	8	Ecn	ACTI	RIA	7
2016	8	B	ANAM	RIS	7
2016	8	Ao	GOBI	FRI	7
2016	8	Emo	PLER	MEC	7
2016	8	C	SEPI	ORB	7

2016	8	Ao	MICM	POU	828
2016	8	Ao	MULL	BAR	823
2016	8	B	PLES	MAR	823
2016	8	Ao	ARGE	SPY	786
2016	8	Ae	ETMO	SPI	645
2016	8	Ao	LEPT	DIE	537
2016	8	Ao	HOPL	MED	518
2016	8	Eec	LEPR	SPP	457
2016	8	C	SEPE	OWE	450
2016	8	B	PLES	ANT	442
2016	8	B	POLC	TYP	410
2016	8	Ao	HELI	DAC	329
2016	8	B	PASI	SIV	302
2016	8	Ao	PHYI	BLE	287
2016	8	C	ILLE	COI	282
2016	8	Ao	PAGE	ACA	252
2016	8	Ao	CALM	PHA	246
2016	8	Ao	MULL	SUR	231
2016	8	C	TODI	EBL	224
2016	8	C	SEPO	SPP	220
2016	8	Ao	SERA	HEP	212
2016	8	Ae	SQUA	BLA	171
2016	8	Ao	LEPM	BOS	168
2016	8	B	MUNI	IRI	165
2016	8	B	PLES	GIG	162
2016	8	Ao	PERI	CAT	156
2016	8	Ao	PAGE	ERY	142
2016	8	Ecn	CALT	PAR	136
2016	8	Ao	MERL	MER	127
2016	8	Ao	NEZU	SCL	116
2016	8	Eec	OPHU	OPH	103
2016	8	Eec	STIC	REG	102
2016	8	Ecn	PELA	NOC	94
2016	8	Ao	LEPI	CAU	92
2016	8	Ao	GOBI	QUA	86
2016	8	Ao	SARD	PIL	86
2016	8	C	ABRA	VER	85
2016	8	B	CHLO	GRA	80
2016	8	B	DARD	ARR	80
2016	8	C	ELED	CIR	74
2016	8	Ao	PAGE	BOG	74
2016	8	Eec	CENS	LON	72
2016	8	Ae	RAJA	CLA	72
2016	8	Ae	RAJA	MIR	70
2016	8	Ao	ASPI	CUC	69
2016	8	Ae	RAJA	OXY	65
2016	8	Dtu	MICO	VUL	64
2016	8	Eec	ASTR	IRR	52
2016	8	Eec	ASTR	ARA	50
2016	8	Ao	EPIG	CON	48
2016	8	B	MUNI	INT	48
2016	8	B	PLES	HET	45
2016	8	C	ALLO	SPP	42
2016	8	B	PLES	ACA	42
2016	8	Ao	TRIG	LYR	42
2016	8	Ao	TRAC	PIC	41
2016	8	Ao	ARNO	THO	39
2016	8	C	SEPI	ELE	33
2016	8	B	MCPI	TUB	32
2016	8	Dmg	APOR	SER	28
2016	8	B	LOPO	TYP	27
2016	8	Etu	ASCI	MEN	26
2016	8	Emb	NEOP	COC	26
2016	8	Ao	ZEUS	FAB	25
2016	8	B	MUNI	TEN	23
2016	8	Ecn	PEND	DAE	23

2016	8	Ao	URAN	SCA	7
2016	8	Ao	BENS	GLA	6
2016	8	Eec	ECHN	MEL	6
2016	8	C	OCTO	DEP	6
2016	8	B	PONP	SPI	6
2016	8	Ae	RAJA	AST	6
2016	8	C	TODA	SAG	6
2016	8	Ae	TORP	MAR	6
2016	8	Ao	TRAH	RAD	6
2016	8	B	ALPH	GLA	5
2016	8	B	GONE	RHO	5
2016	8	C	OCTO	TET	5
2016	8	Esp	PORI	ERA	5
2016	8	Ao	CENO	NIG	4
2016	8	Ecn	ISID	ELO	4
2016	8	Eec	OPHN	DAE	4
2016	8	Dmg	SCAP	NIG	4
2016	8	Epo	SERU	DAE	4
2016	8	Eec	SPHA	GRA	4
2016	8	B	XANT	COU	4
2016	8	Eec	ANSE	PLA	3
2016	8	Ae	DASI	CEN	3
2016	8	Ecn	GELA	AUT	3
2016	8	Eec	HOLO	MAM	3
2016	8	Eec	HOLO	TUB	3
2016	8	Ao	HYGO	HIG	3
2016	8	B	LATR	ELE	3
2016	8	B	LIGU	ENS	3
2016	8	Dtu	MICO	SPP	3
2016	8	Ao	NOTS	ELO	3
2016	8	C	OCTO	SAL	3
2016	8	B	PAGU	ALA	3
2016	8	Ao	SCOR	ELO	3
2016	8	Ao	SYMP	NIG	3
2016	8	Ao	TRAH	DRA	3
2016	8	V	VALO	SPP	3
2016	8	Ao	CALL	RUB	2
2016	8	Ao	CERA	MAD	2
2016	8	Ao	CONG	CON	2
2016	8	Ao	DIPL	VUL	2
2016	8	Eec	ECHA	SEP	2
2016	8	Eec	ECHD	DAE	2
2016	8	Eec	HOLO	FOR	2
2016	8	Ao	LAMA	CRO	2
2016	8	Ao	LOPH	PIS	2
2016	8	Etu	PHAS	MAM	2
2016	8	B	PROC	MED	2
2016	8	Ae	RAJA	CIR	2
2016	8	Ae	RAJA	MON	2
2016	8	Ao	SCOR	POR	2
2016	8	Ao	STOM	BOA	2
2016	8	Ao	TRIG	LUC	2
2016	8	Emo	AGLJ	TRI	1
2016	8	Ecn	ALCY	PAL	1
2016	8	Ean	ANNE	IDA	1
2016	8	Ao	ANTO	MEG	1
2016	8	Dmg	ARGO	OLE	1
2016	8	Eec	ASTE	DEA	1
2016	8	Ao	BLEN	OCE	1
2016	8	Dmg	CASS	TYR	1
2016	8	Dmb	CHLA	VAR	1
2016	8	Ae	DASI	TOR	1
2016	8	Etu	DIAZ	VIO	1
2016	8	Etu	DIDM	EAE	1
2016	8	Emg	FUSI	ROS	1
2016	8	B	GERY	LON	1

2016	8	Ao	ARNO	LAT	21
2016	8	Ecn	FUNI	QUA	20
2016	8	B	PISA	ARN	20
2016	8	B	PAGI	ERE	19
2016	8	Etu	POLR	POM	19
2016	8	C	ROSS	MAC	19
2016	8	Ae	CHIM	MON	18
2016	8	Ao	ENGR	ENC	18
2016	8	Ao	SERA	CAB	18
2016	8	Ao	TRIP	LAS	18
2016	8	Etu	ASCD	DAE	15
2016	8	Ao	EPIG	DEN	15
2016	8	Ao	LOPH	BUD	15
2016	8	Ao	ACAT	PAL	14
2016	8	B	INAC	DOR	13
2016	8	Eec	MOLP	SPP	13
2016	8	Ao	DENT	DEN	12
2016	8	Etu	PYUR	MIC	12
2016	8	Ae	RAJA	POL	12
2016	8	V	CODI	BUR	11
2016	8	B	DORI	LAN	11
2016	8	Ao	LEPM	WHS	11
2016	8	C	LOLI	FOR	11
2016	8	Ao	MOLV	MAC	11
2016	8	B	PONT	LAC	11
2016	8	B	PART	MAS	10
2016	8	Ao	SPOD	CAN	10
2016	8	Dmb	ACAN	SPP	9
2016	8	Eec	GRAI	ELE	1
2016	8	C	HETE	DIS	1
2016	8	C	HIST	REV	1
2016	8	Emo	JORU	TOM	1
2016	8	Eec	LUID	SAR	1
2016	8	Eec	LUID	SPP	1
2016	8	B	MAJA	CRI	1
2016	8	Etu	MOLG	APP	1
2016	8	Dmg	MURE	BRA	1
2016	8	Ae	MUST	MUS	1
2016	8	Ao	NETT	MEL	1
2016	8	Eec	OCNU	PLA	1
2016	8	C	ONYC	BAN	1
2016	8	Ao	OPDI	BAR	1
2016	8	Eec	OPHO	QUI	1
2016	8	Ae	OXYN	CEN	1
2016	8	B	PAGU	PRI	1
2016	8	B	PARO	CUV	1
2016	8	Eec	PELS	PLA	1
2016	8	Bam	PHRO	SED	1
2016	8	Bst	RISS	PAL	1
2016	8	Ao	SCOR	LOP	1
2016	8	Ae	SCYM	LIC	1
2016	8	C	SEPI	OFF	1
2016	8	Etu	SOES	ZON	1
2016	8	Ao	SOLE	KLE	1
2016	8	Ao	SYMB	VER	1

1.11. Total number of sampled individuals for length distributions

- *GSA7 (Gulf of Lions):* ***60 taxa*** were measured in 2016 (G1, G2)

GENUS/SPECIES	Total Number of sampled individuals for length distributions	GENUS/SPECIES	Total Number of sampled individuals for length distributions
TRISCAP	4644	**TRIGLUC**	93
TRACTRA	3634	**SQUIMAN**	91
SPRASPR	2624	**SPICMAE**	68
MULLBAR	2544	**MULLSUR**	59
MERLMER	2234	**LOPHPIS**	58
ENGRENC	1870	**OCTOVUL**	57
EUTRGUR	1654	**PAGEACA**	54
PAPELON	1498	**SCOMPNE**	54
SARDPIL	1099	**SPICSMA**	50
ILLECOI	545	**AEQOSPP**	47
TRACMED	534	**DIPLANN**	44
NEPRNOR	528	**RAJACLA**	32
ELEDCIR	502	**ETMOSPI**	18
GALUMEL	478	**DIPLVUL**	13
PHYIBLE	399	**TODASAG**	13
MICMPOU	376	**ZEUSFAB**	12
LOPHBUD	375	**AUREAUR**	11
ARITANT	320	**RIZOPUL**	10
BOOPBOO	288	**PELANOC**	9
HELIDAC	284	**ARISFOL**	6
LEPMBOS	263	**CHRYHYS**	5

SCYOCAN	256	**TORPMAR**	5
PAGEERY	251	**GONNVER**	4
SCOMSCO	221	**RAJAAST**	3
PAGEBOG	203	**RAJANAE**	3
LOLIVUL	173	**SEPIOFF**	2
ASPICUC	145	**SQUAACA**	2
ELEDMOS	110	**PALIMAU**	1
CITHMAC	105	**SOLEVUL**	1
AURASPP	96	**TRIPLAS**	1

- *GSA8 (Eastern Corsica) :* ***51 taxa*** were **measured** in 2016 (G1, G2)

GENUS/SPECIES	Total Number of sampled individuals for length distributions	GENUS/SPECIES	Total Number of sampled individuals for length distributions
PAPELON	1064	**RAJAMIR**	62
GALUMEL	1027	**ELEDCIR**	60
NEPRNOR	945	**SARDPIL**	35
SCYOCAN	644	**ZEUSFAB**	25
MULLBAR	604	**ENGRENC**	18
SPICSMA	449	**TRIPLAS**	18
TRACMED	325	**DENTDEN**	12
HELIDAC	299	**RAJAPOL**	12
SPICMAE	289	**LOPHBUD**	8
BOOPBOO	280	**RAJAAST**	6
TRACTRA	238	**TODASAG**	6
ETMOSPI	236	**TORPMAR**	6
PHYIBLE	228	**DASICEN**	3
ILLECOI	203	**DIPLVUL**	2
MULLSUR	197	**LOPHPIS**	2
MICMPOU	186	**RAJACIR**	2
LEPMBOS	168	**RAJAMON**	2
SQUABLA	161	**TRIGLUC**	2
PAGEERY	125	**DASITOR**	1
MERLMER	117	**MUSTMUS**	1
PAGEACA	88	**OCTOVUL**	1
PAGEBOG	74	**OXYNCEN**	1
RAJACLA	72	**SCYMLIC**	1
PELANOC	71	**SEPIOFF**	1
RAJAOXY	65	**SOESZON**	1
ASPICUC	63		

1.12. Total number of sampled individuals for sex and maturity

- *GSA7 (Gulf of Lions):* ***20 taxa*** were sampled for **sex and maturity** in 2016 (G1)

Total Number of sampled individuals for sex and maturity				
GENUS/SPECIES	**F**	**I**	**M**	**Total général**
MULLBAR	382	1	337	**720**
PAPELON	377		246	**623**
MERLMER	129	161	139	**429**
GALUMEL	220		197	**417**
ILLECOI	127	90	131	**348**

ARISANT	240		72	**312**
NEPRNOR	153		143	**296**
LOPHBUD	113	38	134	**285**
SCYOCAN	108		146	**254**
LOLIVUL	4	64	11	**79**
LOPHPIS	15	11	32	**58**
MULLSUR	26		29	**55**
RAJACLA	17		15	**32**
ETMOSPI	7		8	**15**
ARISFOL	5			**5**
TORPMAR	3	1	1	**5**
RAJAAST	2		1	**3**
RAJANAE	3			**3**
SQUAACA	2			**2**
SQUIMAN		2		**2**

- *GSA8 (Eastern Corsica) :* ***26 taxa*** were sampled for **sex and maturity** in 2016 (G1)

Total Number of sampled individuals for sex and maturity

GENUS/SPECIES	F	I	M	Total général
GALUMEL	309		352	661
SCYOCAN	257		357	614
PAPELON	300	10	252	562
MULLBAR	253		248	501
NEPRNOR	216		206	422
ETMOSPI	111		103	214
ILLECOI	63	9	131	203
MULLSUR	63		123	186
SQUABLA	81		80	161
MERLMER	55	29	27	111
RAJACLA	42		30	72
RAJAOXY	43		22	65
RAJAMIR	34		28	62
DENTDEN			12	12
RAJAPOL	6		6	12
LOPHBUD	3		5	8
RAJAAST	3		3	6
TORPMAR	3		3	6
DASICEN	1		2	3
LOPHPIS	1		1	2
RAJACIR	1		1	2
RAJAMON	1		1	2
DALALIC	1			1
DASITOR	1			1
MUSTMUS	1			1
OXYNCEN			1	1

1.13. Number of samples of hard tissues collected for ageing by target species

Since **2014**, ***Lophius piscatorius*** and ***Lophius budegassa*** **illicii** are **collected**, but not yet read

- *GSA7 (Gulf of Lions) :* ***5 taxa*** were sampled for **ageing** in 2016 (G1)

Total Number of samples of hard tissues collected for ageing by target species

GENUS/SPECIES	F	I	M	TOTAL
MULLBAR	358	1	270	629
MERLMER	125	129	127	381
LOPHBUD	100	27	125	252
LOPHPIS	15	9	32	56
MULLSUR	26		28	54

- *GSA8 (Eastern Corsica) :* ***5 taxa*** were sampled for **ageing** in 2016 (G1)

Total Number of samples of hard tissues collected for ageing by target species

GENUS/SPECIES	F	I	M	TOTAL
MULLBAR	251		243	494
MULLSUR	63		123	186
MERLMER	55	29	27	111
LOPHBUD	3		5	8
LOPHPIS	1		1	2

1.14. Otolith reading, difficulties encountered

There is still some questioning around **red mullet otolith readings**. French otoliths are read by the sclerochronology pole. Kelig Mahe is responsible of IFREMER otolith readings-Boulogne/Mer. The otoliths readings give age length keys equivalent to slow growth parameters, whereas other Mediterranean countries use age length key close to fast growth parameters.

Hake otoliths are collected and sent to IFREMER Boulogne/Mer but not read, because of the incertainty around the reading.

1.15. Other samplings for common projects

Project of Pascal Lorance Population analysis of Raja clavata in the ANR GenoPopTaille project Raja clavata sample harvest for population genomics

MEDITS Maturity stages working group (European hake, Norway lobster and Raja clavata : GSA 7). Collection of macroscopic photos (gonad in the body and separatly) and histological samplings, which were sent to Cristina Follesa, especially hake.

1.16. Difficulties encountered in the application of the protocol, emerging issues and suggestions for improvements

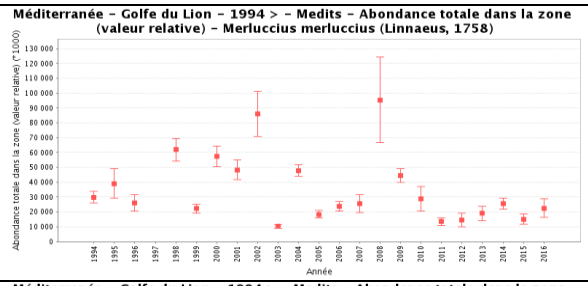
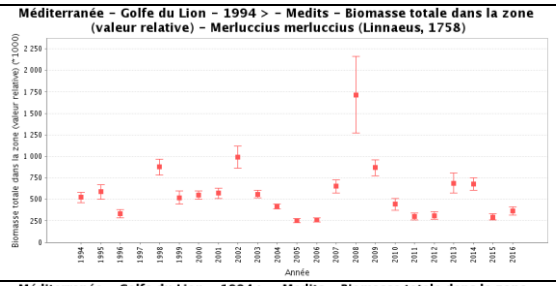
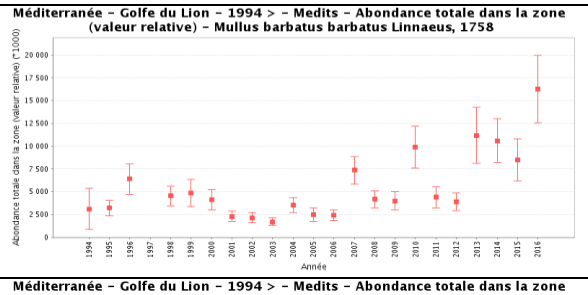
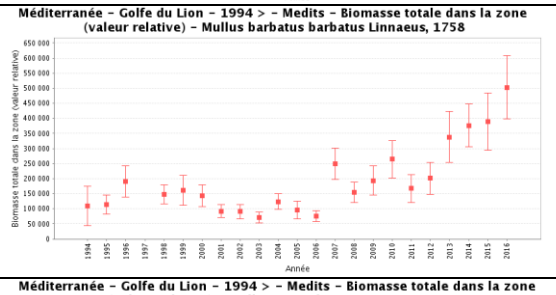
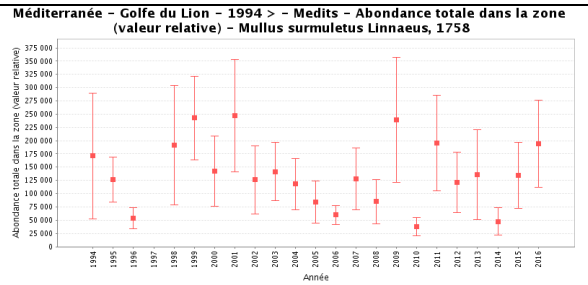
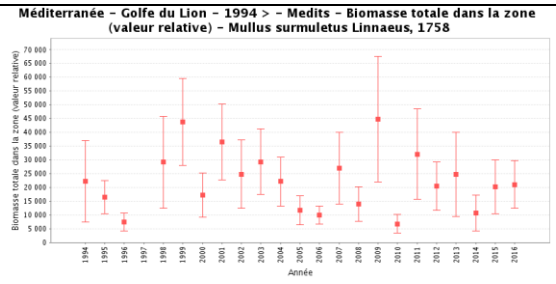
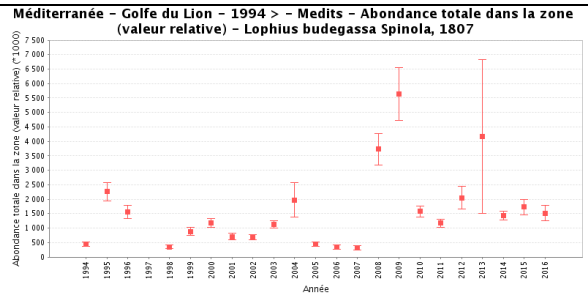
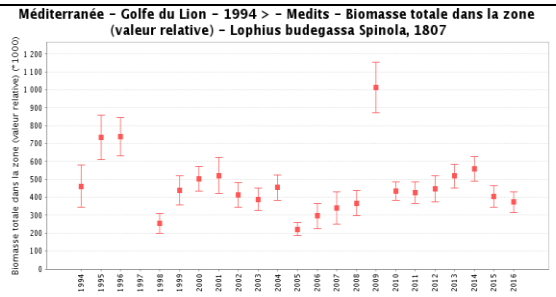
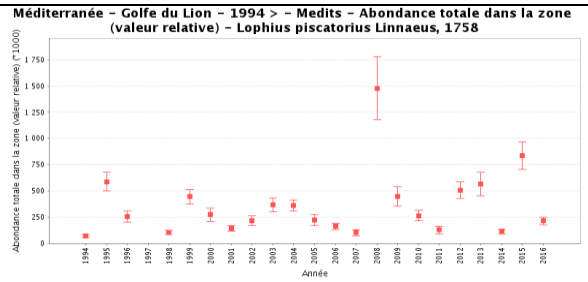
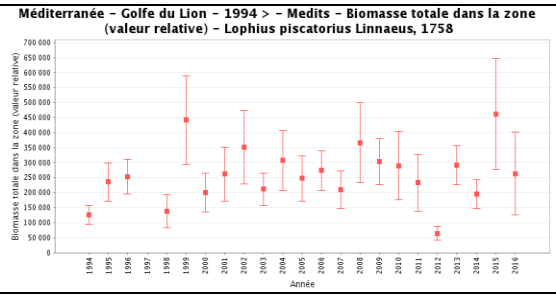
Nothing special

2. Focus on historical trends

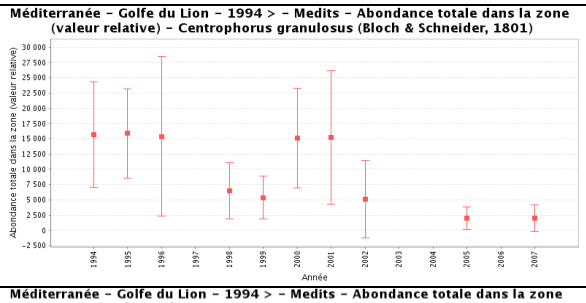
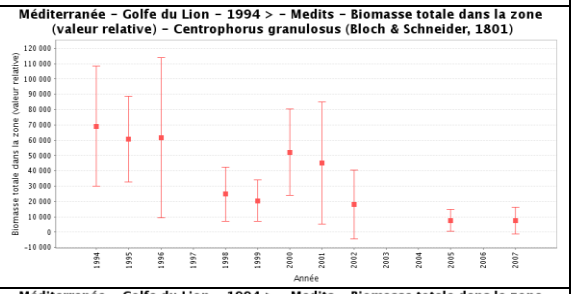
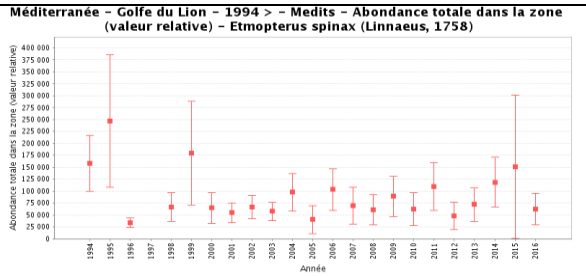
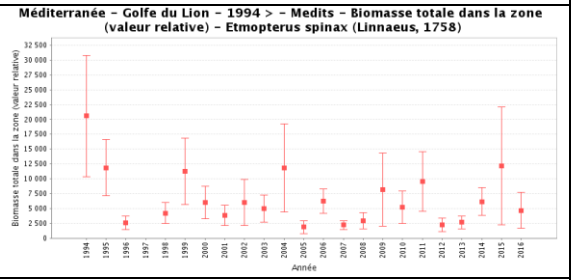
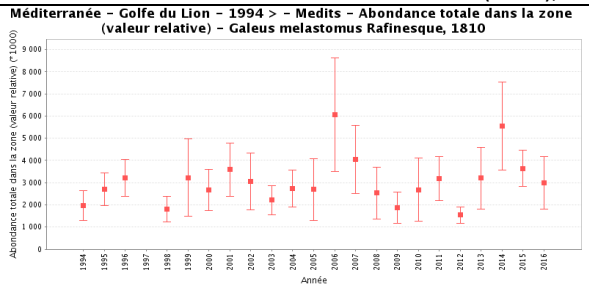
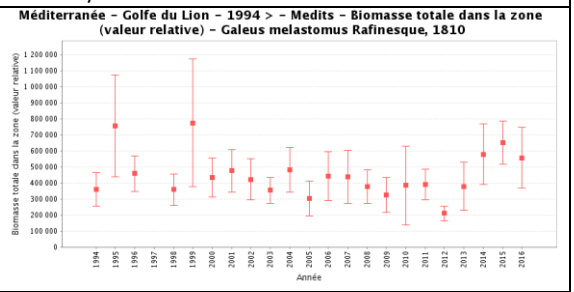
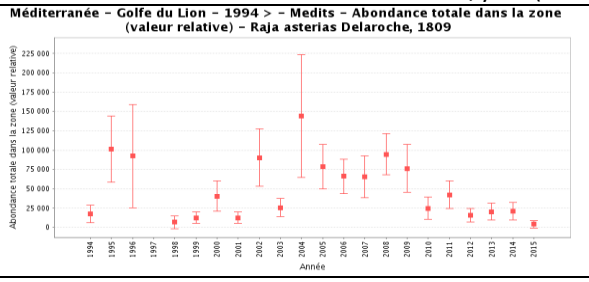
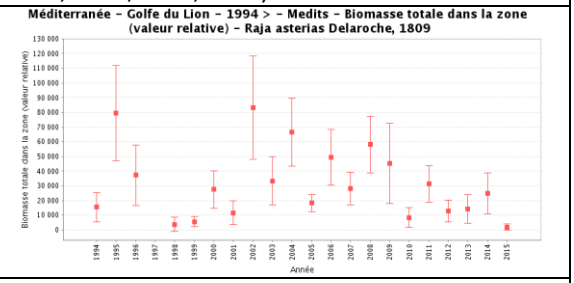
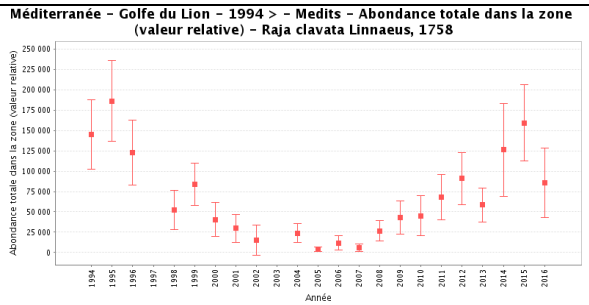
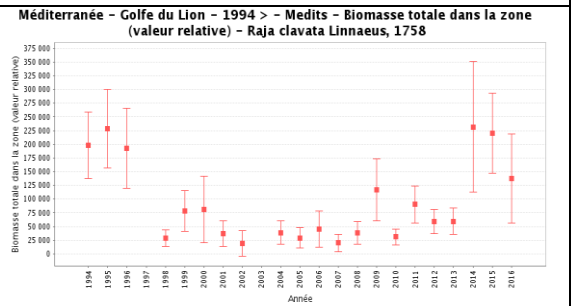
2.1. Abundance and biomass indices of target species (MEDITS G1)

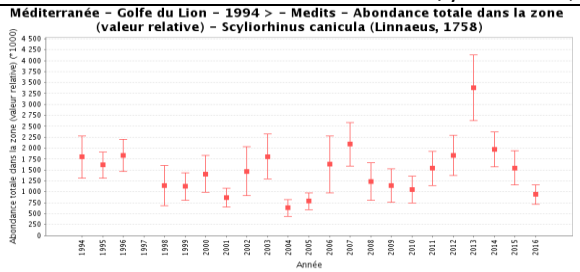
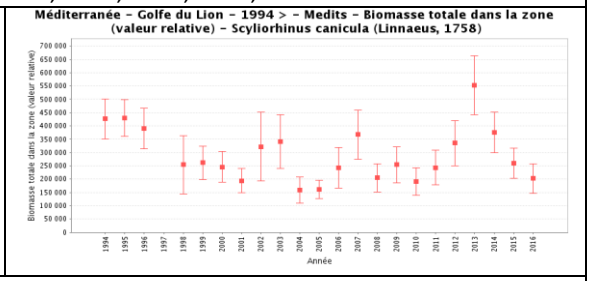
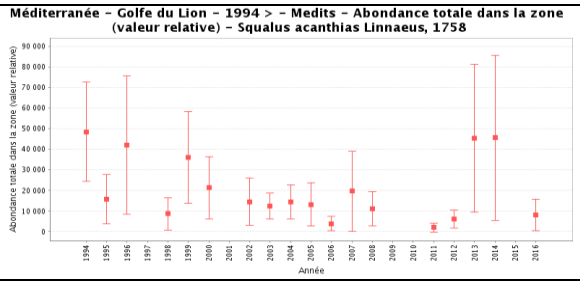
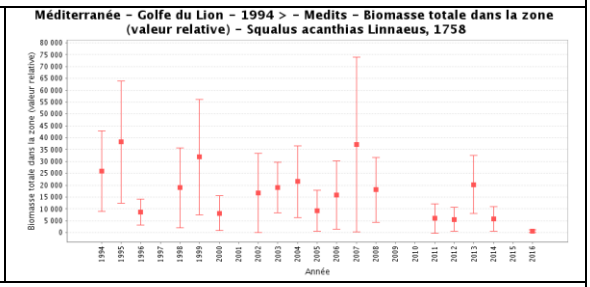
- ***GSA 7 – Gulf of Lions***

  - **FISH**

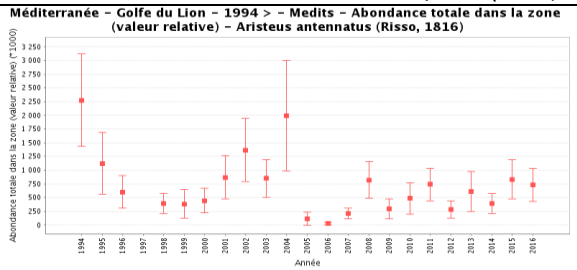
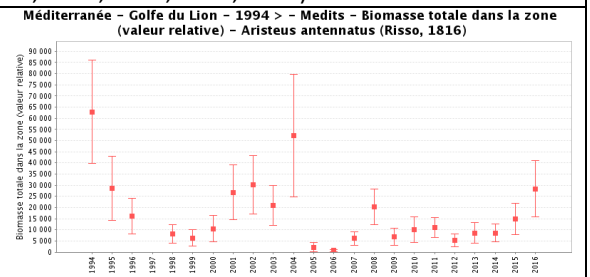
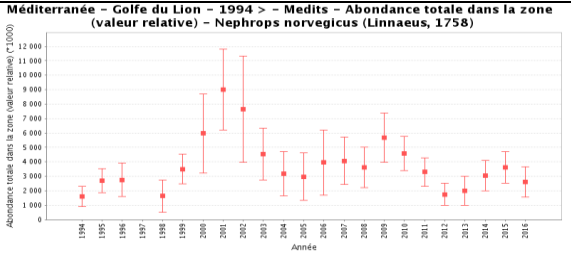
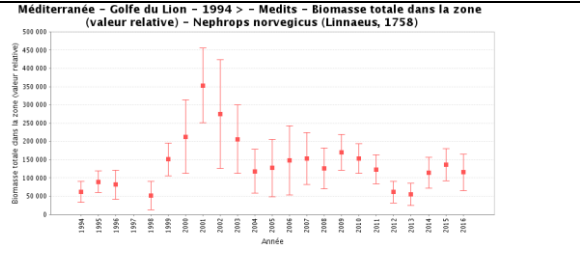
	Abundance indices	Biomass indices
MERLMER		
MULLBAR		
MULLSUR		
LOPHBUD		
LOPHPIS		

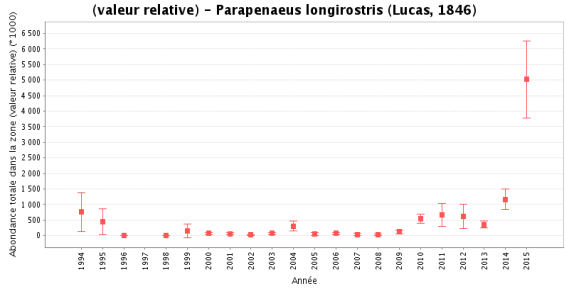
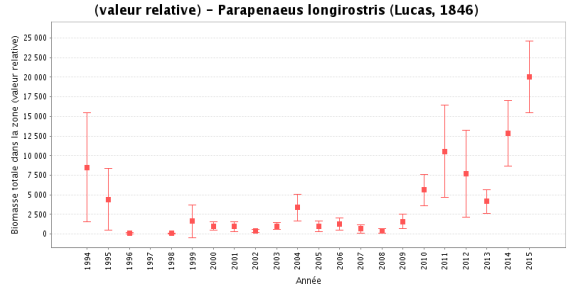
- **ELASMOBRANCHS**

	Abundance indices	Biomass indices
CENTGRA		
ETMOSPI		
GALEGAL	1 haul (1996), 1 individual/haul	
GALUMEL		
HEPTPER	No data	
HEXAGRI	2 individuals (1996 and 2006)	
MUSTAST	No data	
MUSTMUS	Few individuals (1998, 2000, 2001, 2007, 2011, 2016)	
MUSTMED	No data	
MYLIAQU	2014 and 2015	
OXYNCEN	1 or 2 individuals/year (1997, 1998, 1999, 2000, 2002, 2011, 2013, 2014, 2016)	
RAJAALB	1 or 2 individuals/year (1998, 2001, 2008, 2013, 2014)	
RAJAAST		
RAJABAT	No data	
RAJACLA		
RAJACIR	1 individual/haul (2000, 2009, 2011, 2012, 2016)	

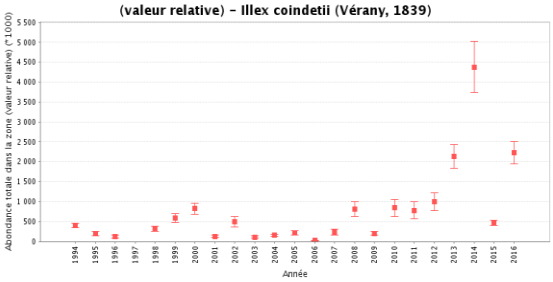
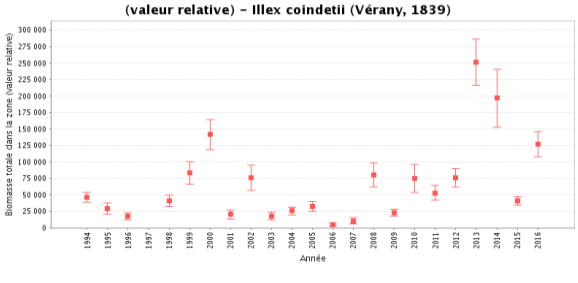
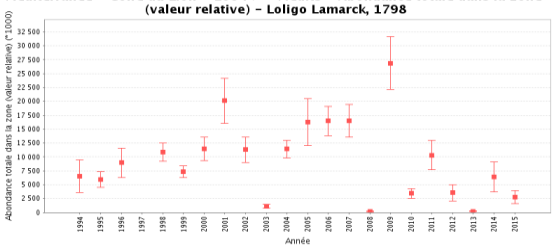
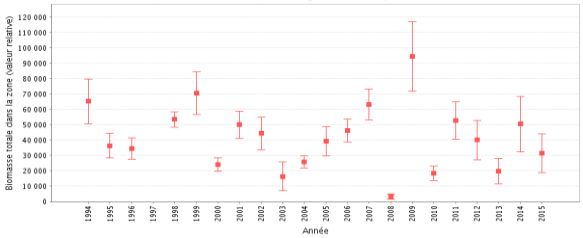
RAJAMEL	No data
RAJAMIR	5 hauls (1996, 2000, 2007, 2008, 2013, 2014, 2015, 2016)
RAJAOXY	3 hauls (2006, 2008, 2013), 1 individual/haul, 31 individuals in 2013, 50 in 2015, 11 in 2016
RAJAPOL	1 or 2 individuals/year (1994, 2011, 2012, 2015, 2016), except in 2001 and 2013 (10-20 individuals)
RAJAUND	No data
RHINCEM	No data
RHINRHI	No data
SCYMLIC	1 or 2 individuals/year : 1995, 1996, 1999, 2001, 2015, 2016
SCYOCAN	 
SCYOSTE	No data
SQUAACA	 
SQUABLA	few individuals/haul every year since 1994
SQUTACU	No data
SQUTOCU	No data
SQUTSQU	No data
TORPMAR	few individuals/year since 1995
TORPNOB	1 or 2 individuals/year (1994, 1996, 1997, 1998, 2006, 2010)
TORPTOR	1 or 2 individuals/year (1994, 1996, 1997, 1998, 2006, 2010)

- **CRUSTACEANS**

	Abundance indices	Biomass indices
ARISFOL	few individuals/haul (1994, 1995, 2000, 2004, 2009, 2016)	
ARITANT		
NEPRNOR		

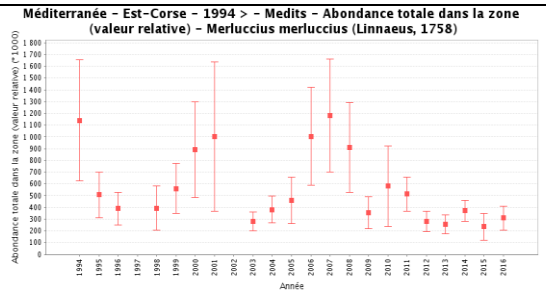
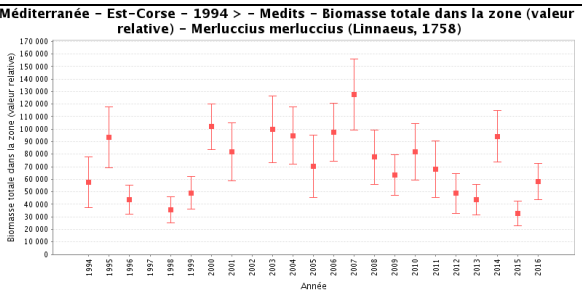
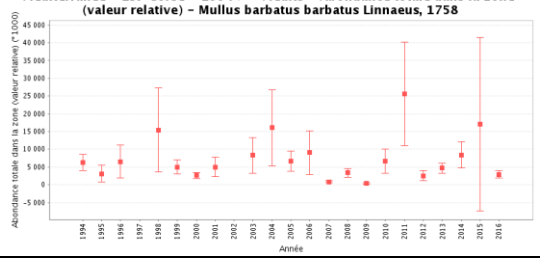
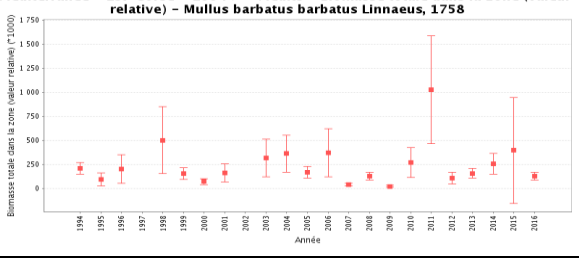
PAPELON	Méditerranée – Golfe du Lion – 1994 > – Medits – Abondance totale dans la zone (valeur relative) – Parapenaeus longirostris (Lucas, 1846) 	Méditerranée – Golfe du Lion – 1994 > – Medits – Biomasse totale dans la zone (valeur relative) – Parapenaeus longirostris (Lucas, 1846) 

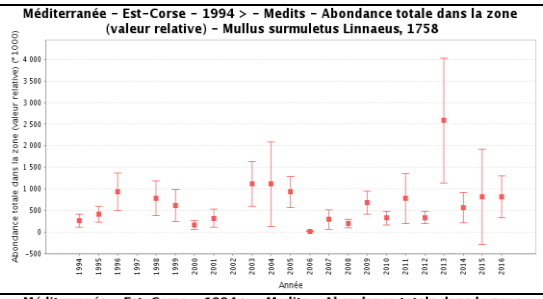
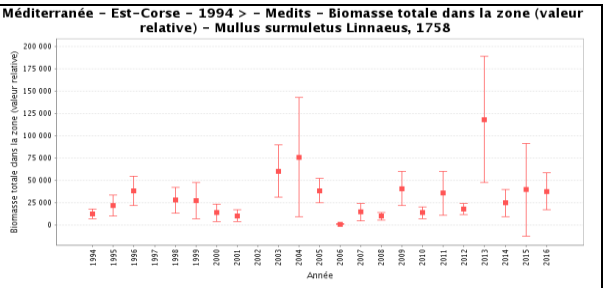
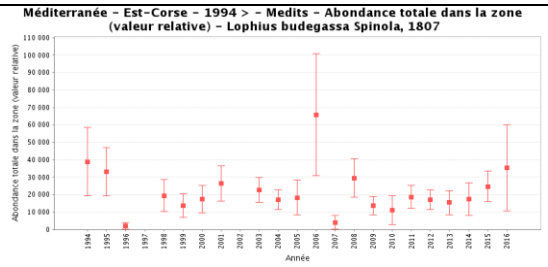
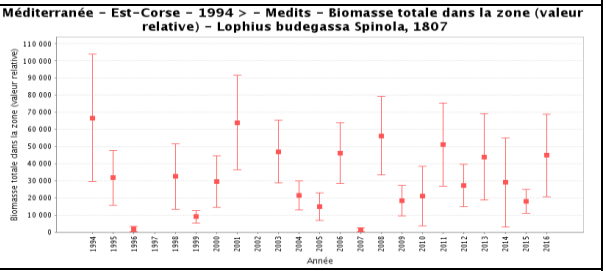
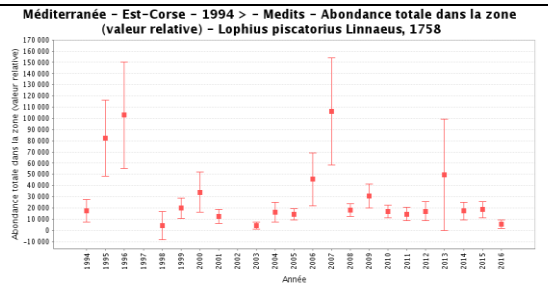
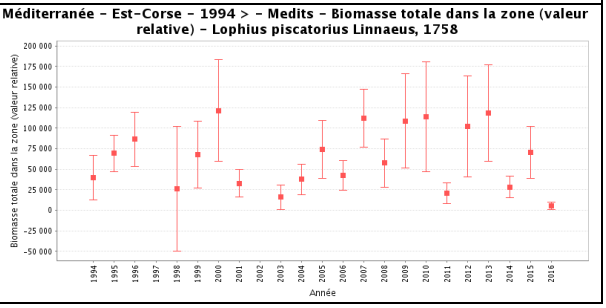
- **CEPHALOPODS**

	Abundance indices	Biomass indices
ILLECOI	Méditerranée – Golfe du Lion – 1994 > – Medits – Abondance totale dans la zone (valeur relative) – Illex coindetii (Vérany, 1839) 	Méditerranée – Golfe du Lion – 1994 > – Medits – Biomasse totale dans la zone (valeur relative) – Illex coindetii (Vérany, 1839) 
LOLIVUL	Méditerranée – Golfe du Lion – 1994 > – Medits – Abondance totale dans la zone (valeur relative) – Loligo Lamarck, 1798 	Méditerranée – Golfe du Lion – 1994 > – Medits – Biomasse totale dans la zone (valeur relative) – Loligo Lamarck, 1798 

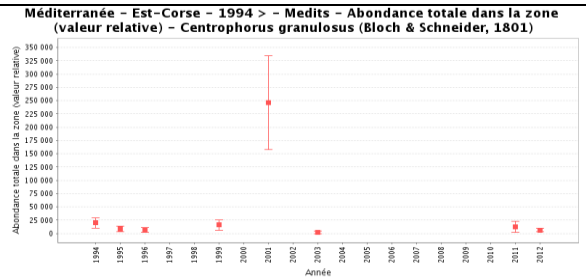
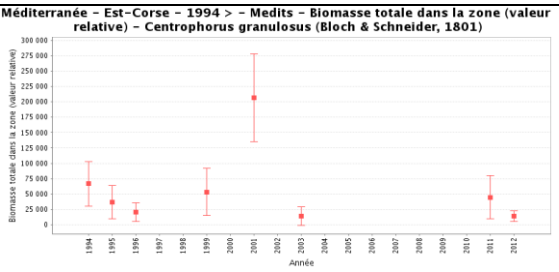
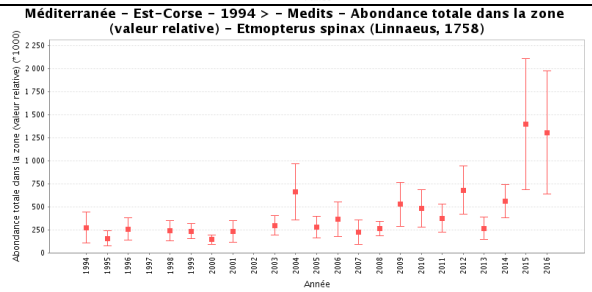
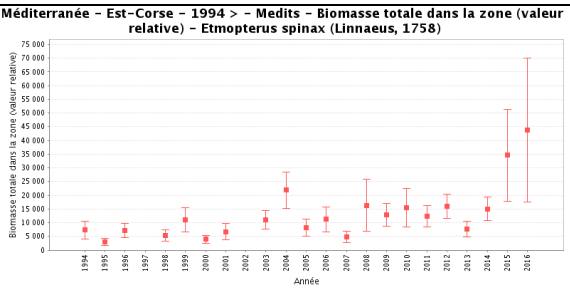
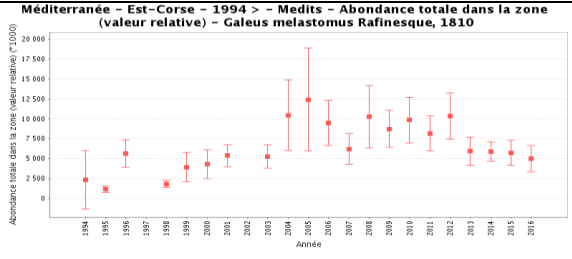
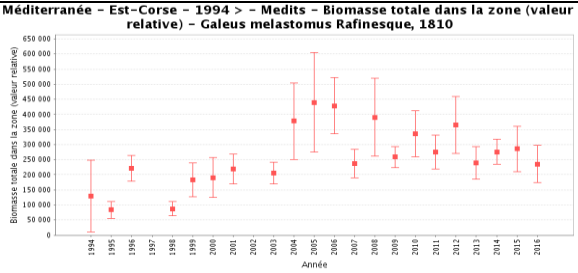
- GSA 8 – Eastern Corsica

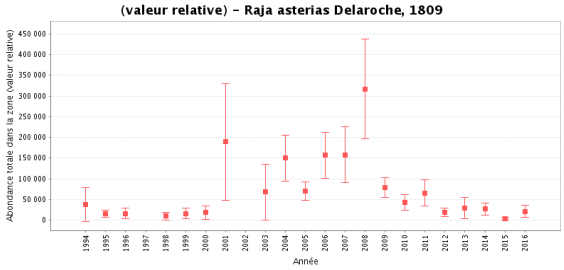
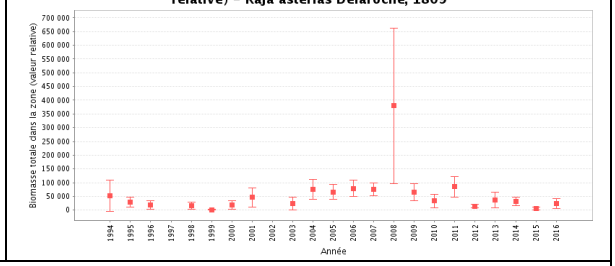
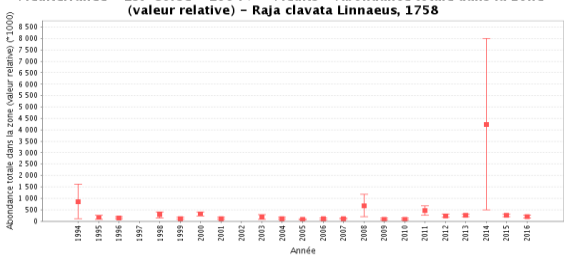
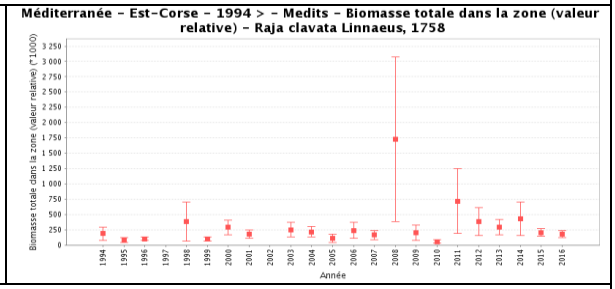
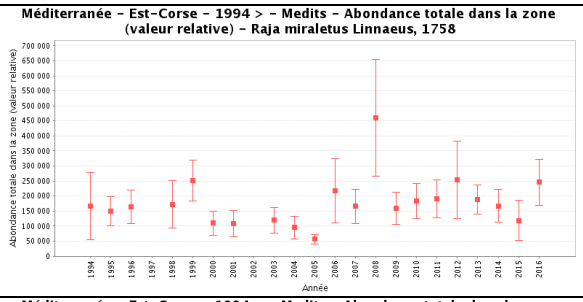
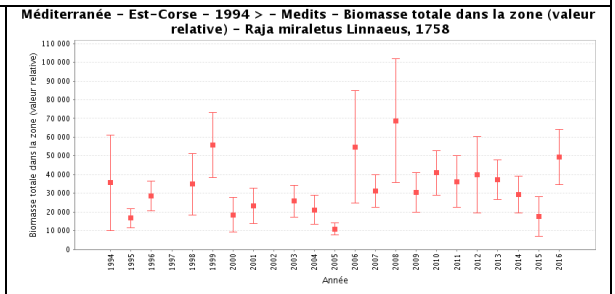
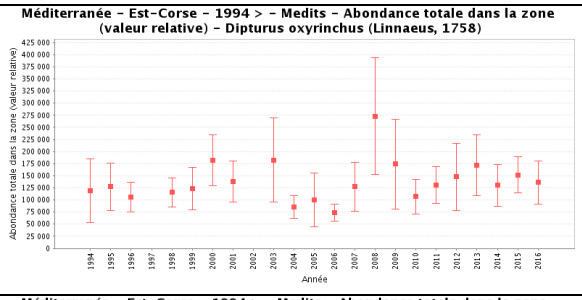
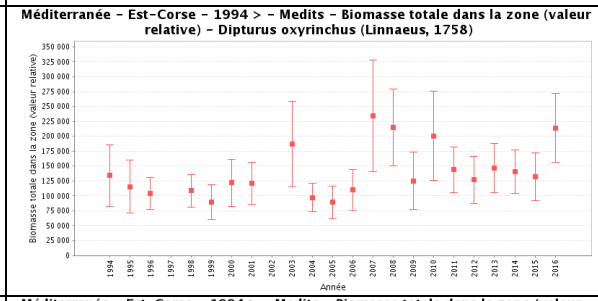
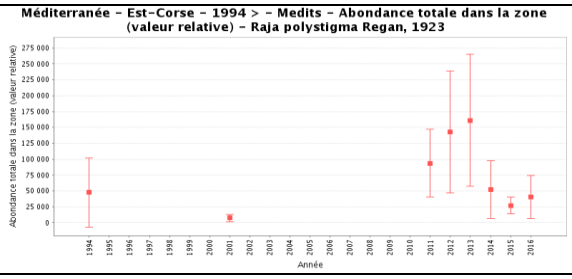
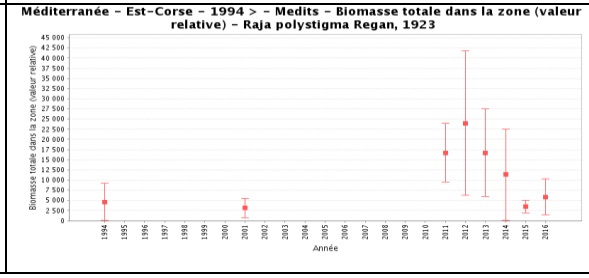
- **FISH**

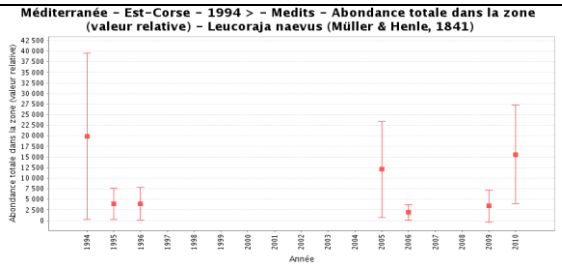
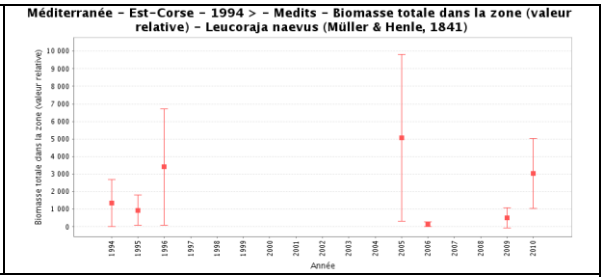
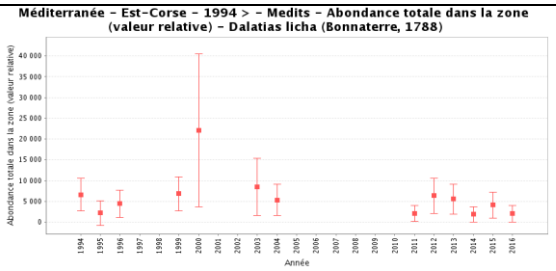
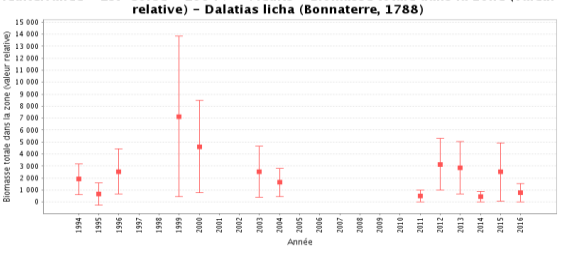
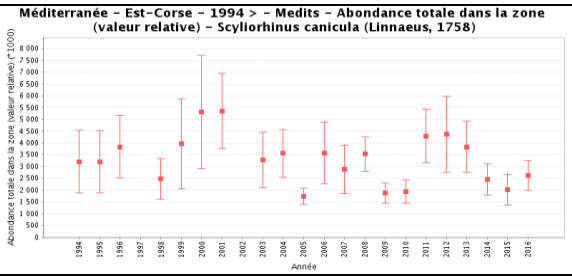
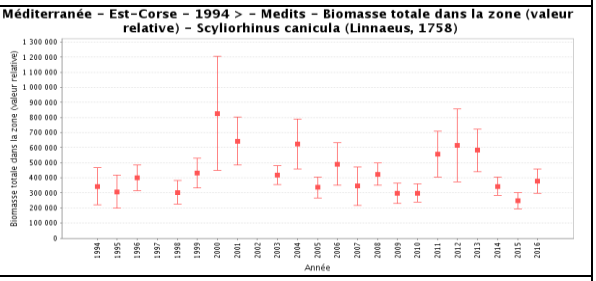
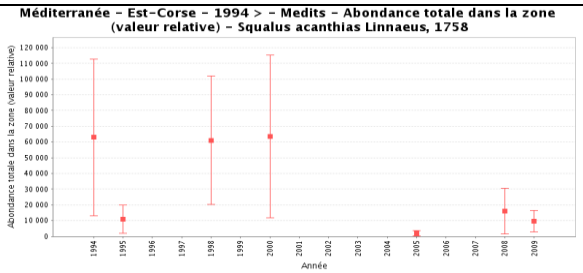
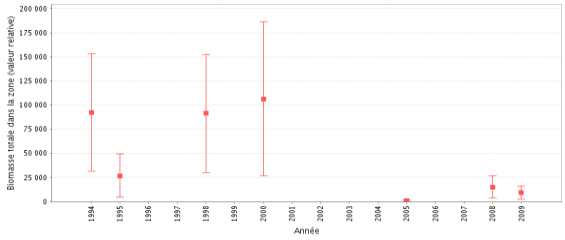
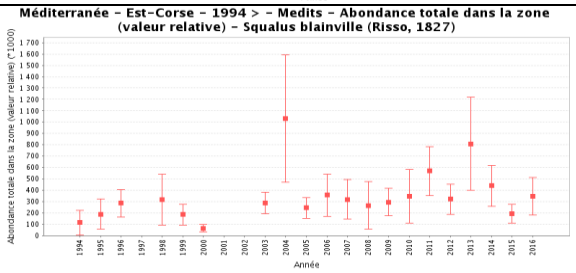
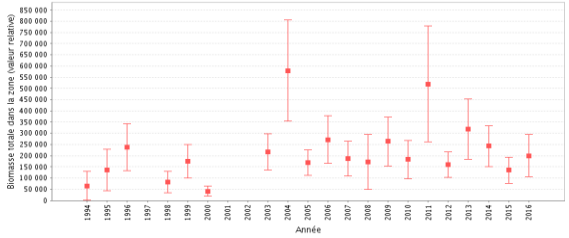
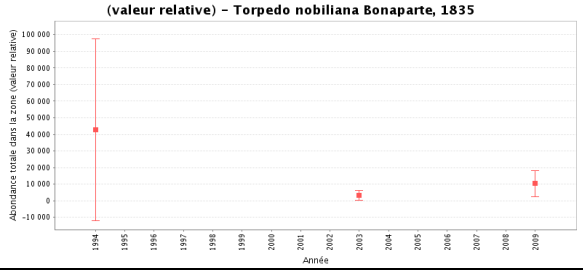
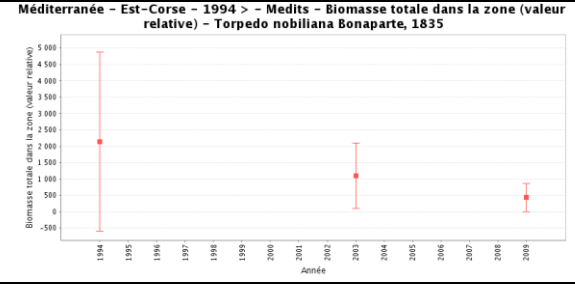
	Abundance indices	Biomass indices
MERLMER	Méditerranée – Est-Corse – 1994 > – Medits – Abondance totale dans la zone (valeur relative) – Merluccius merluccius (Linnaeus, 1758) 	Méditerranée – Est-Corse – 1994 > – Medits – Biomasse totale dans la zone (valeur relative) – Merluccius merluccius (Linnaeus, 1758) 
MULLBAR	Méditerranée – Est-Corse – 1994 > – Medits – Abondance totale dans la zone (valeur relative) – Mullus barbatus barbatus Linnaeus, 1758 	Méditerranée – Est-Corse – 1994 > – Medits – Biomasse totale dans la zone (valeur relative) – Mullus barbatus barbatus Linnaeus, 1758 

MULLSUR		
LOPHBUD		
LOPHPIS		

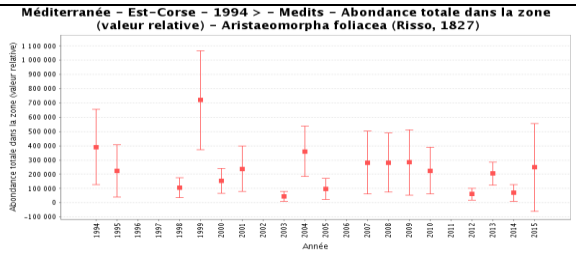
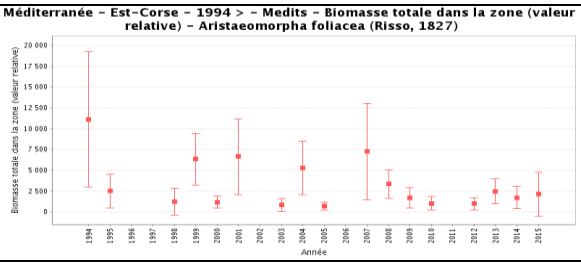
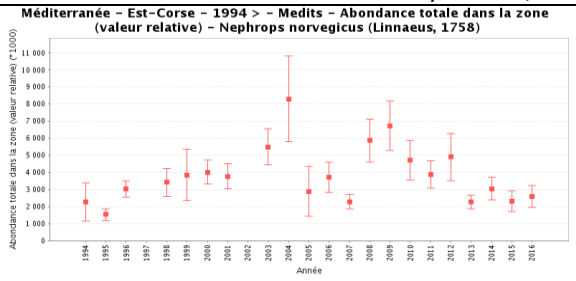
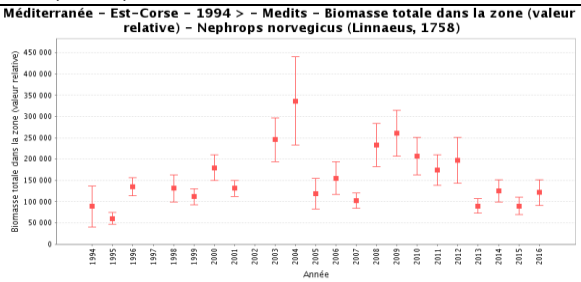
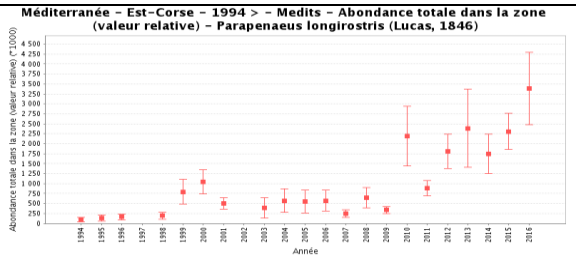
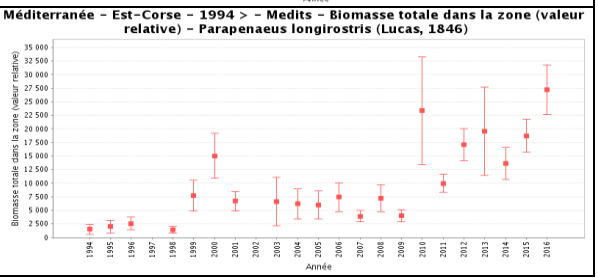
○ ELASMOBRANCHS

	Abundance indices	Biomass indices
CENTGRA		
ETMOSPI		
GALEGAL	No data	
GALUMEL		
HEPTPER	No data	

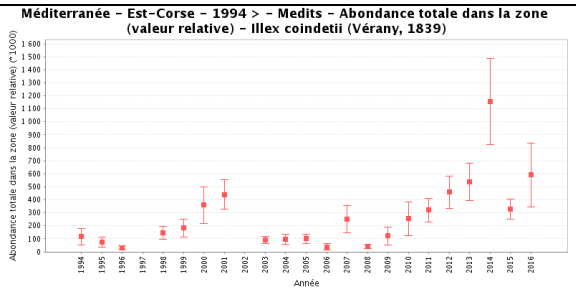
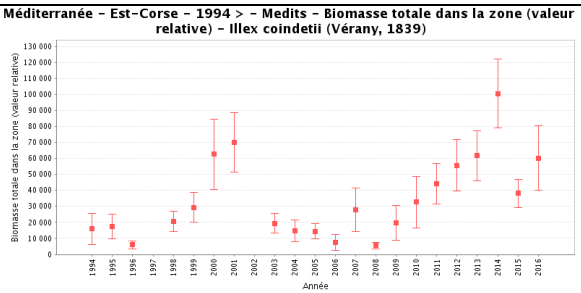
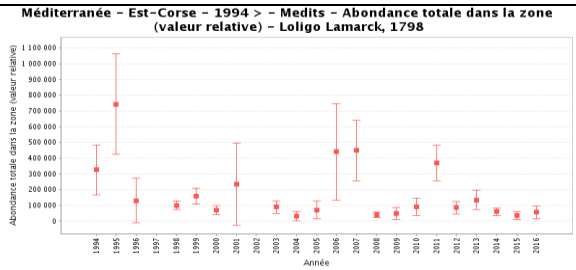
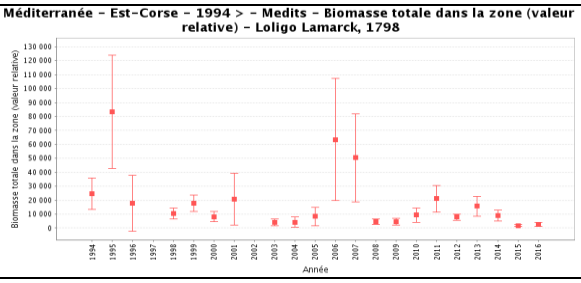
HEXAGRI	1 individual in 1996 and 2006
MUSTAST	No data
MUSTMUS	Very few individuals/year : 1998, 2000, 2001, 2007, 2011, 2016
MUSTMED	No data
MYLIAQU	1 individual in 2014, 2015
OXYNCEN	1 or 2 individuals/haul : 2006, 2008, 2009, 2011, 2013, 2014
RAJAALB	1 or 2 individuals/year : 1998, 2001, 2008, 2013, 2014
RAJAAST	 
RAJABAT	2 individuals in 2009
RAJACLA	 
RAJACIR	4 hauls (2000, 2009, 2011, 2012, 2016), 1 individual/haul
RAJAMEL	No data
RAJAMIR	 
RAJAOXY	 
RAJAPOL	 

RAJANAE		
RHINCEM	No data	
RHINRHI	No data	
SCYMLIC		
SCYOCAN		
SCYOSTE		
SQUAACA		
SQUABLA		
SQUTACU	3 individuals in 2009	
SQUTOCU	No data	
SQUTSQU	1 or 2 individuals/year : 1996, 1998, 2008, 2016	
TORPMAR	1 individuals/year since 1994	
TORPNOB		

○ CRUSTACEANS

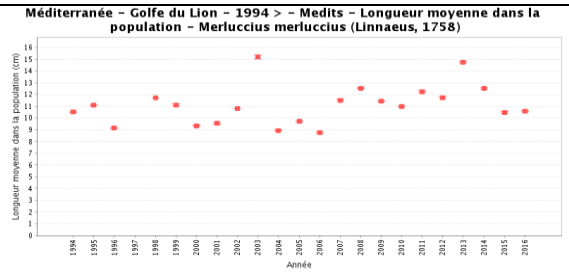
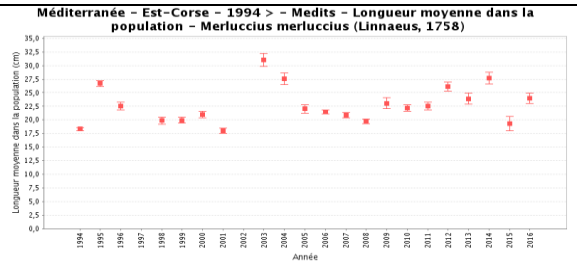
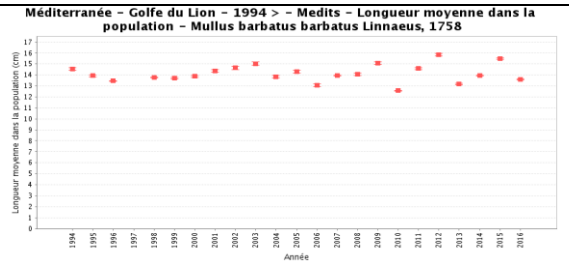
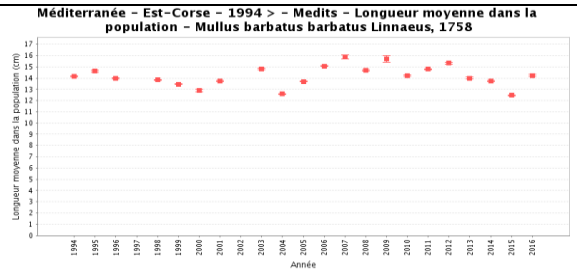
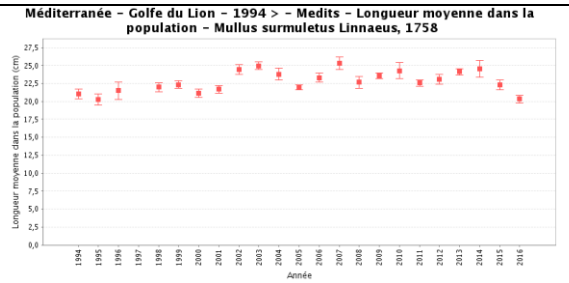
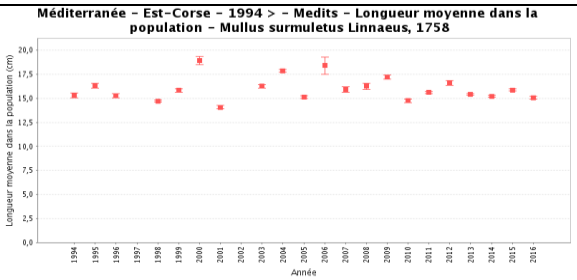
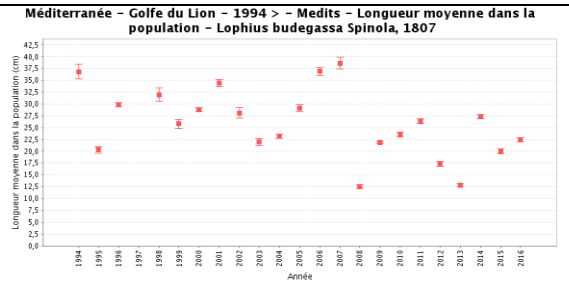
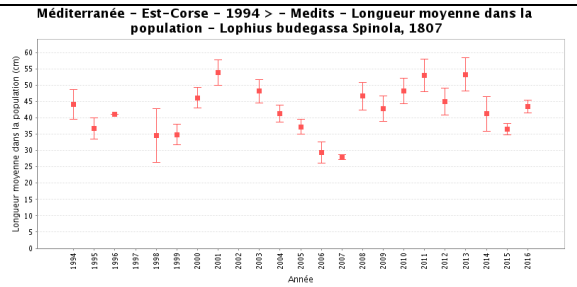
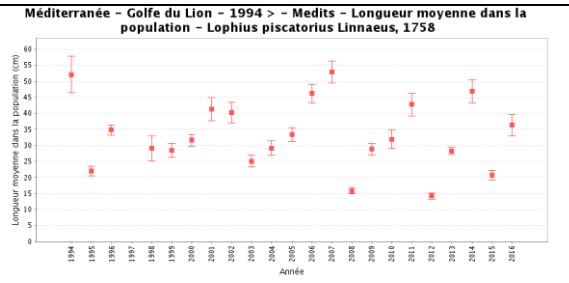
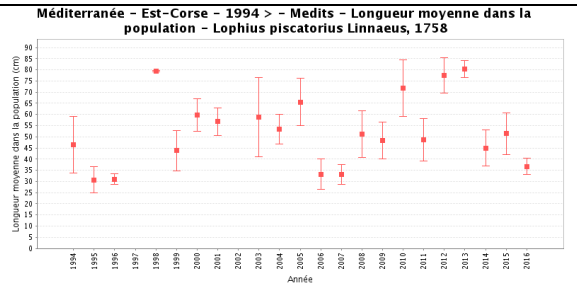
	Abundance indices	Biomass indices
ARISFOL		
ARITANT	Only in 1996, 2000, 2003, 2005, 2011	
NEPRNOR		
PAPELON		

○ CEPHALOPODS

	Abundance indices	Biomass indices
ILLECOI		
LOLIVUL		

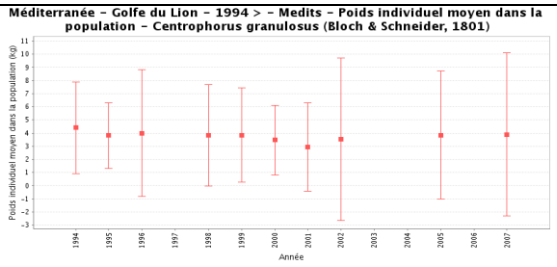
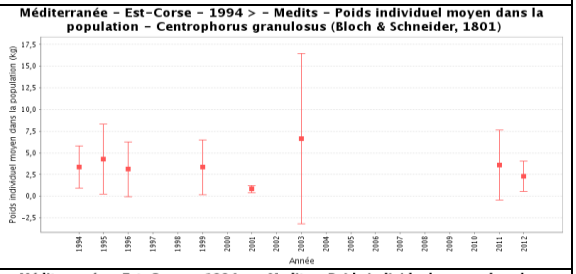
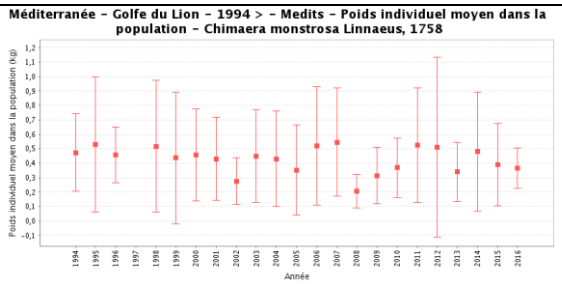
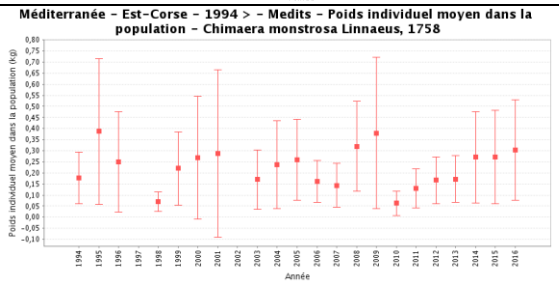
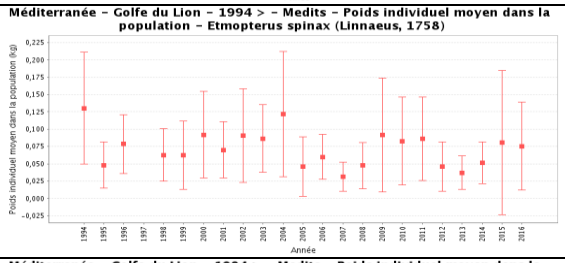
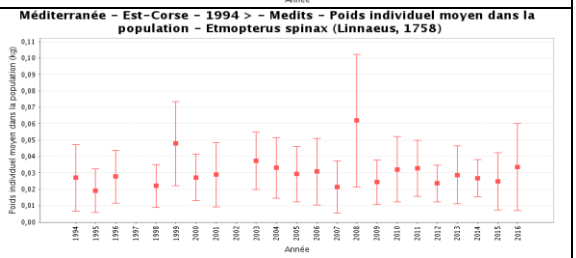
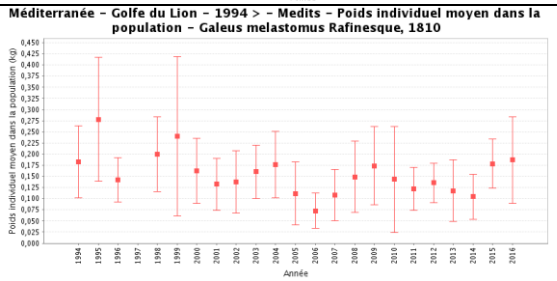
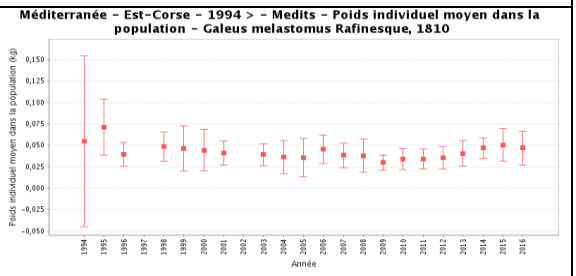
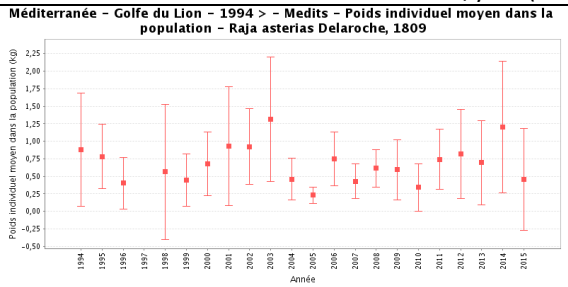
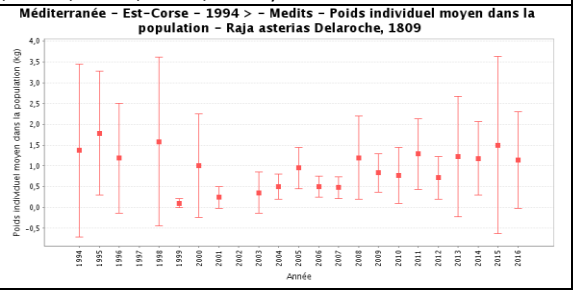
2.2. Minimum, mean and maximum length of target species (MEDITS G1)

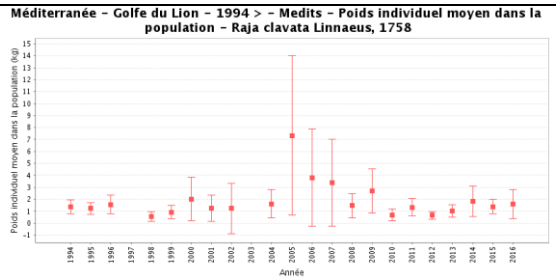
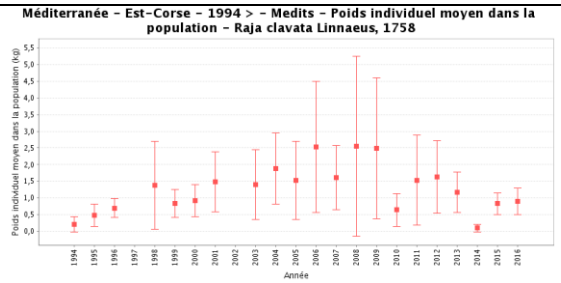
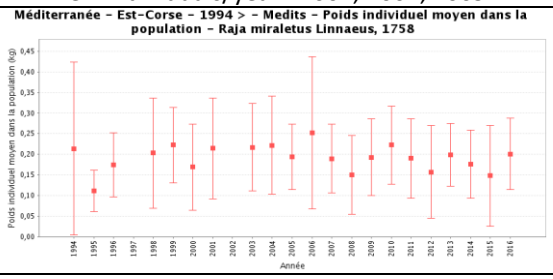
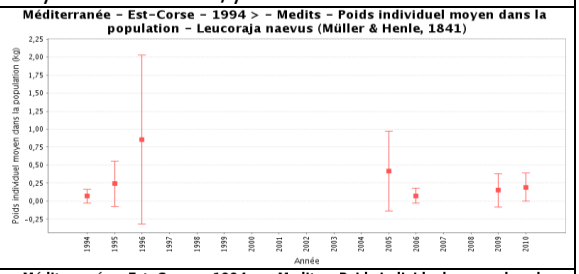
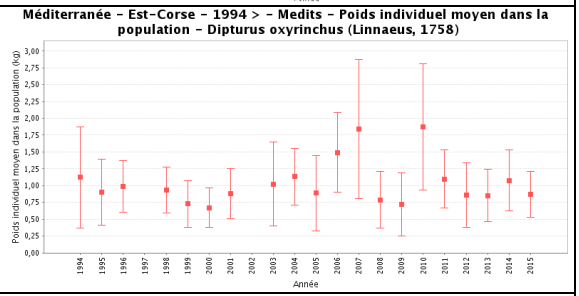
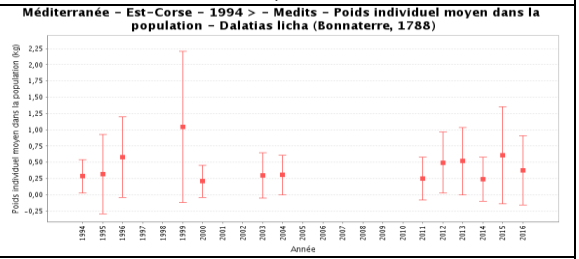
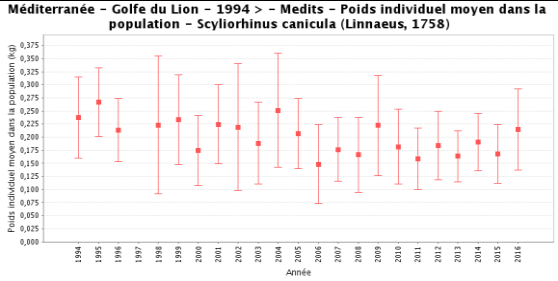
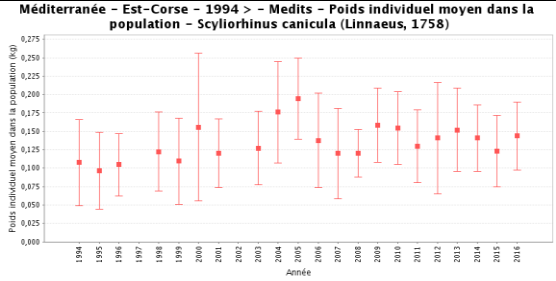
- **FISH**

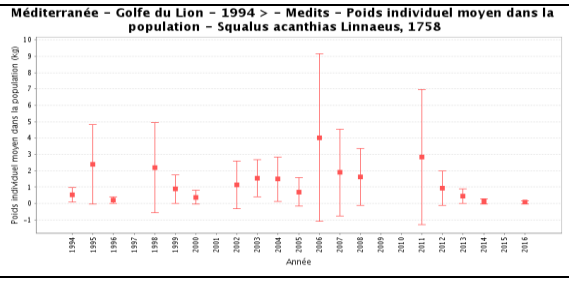
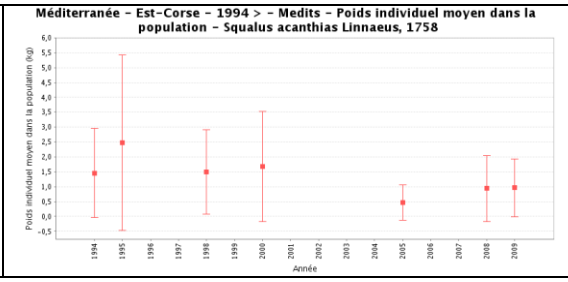
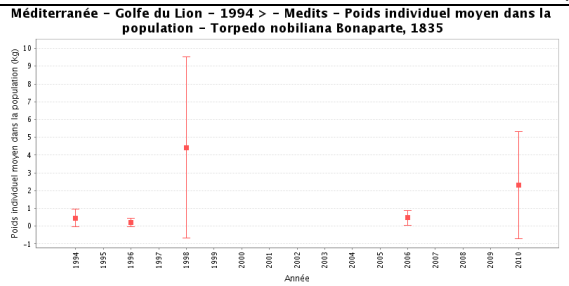
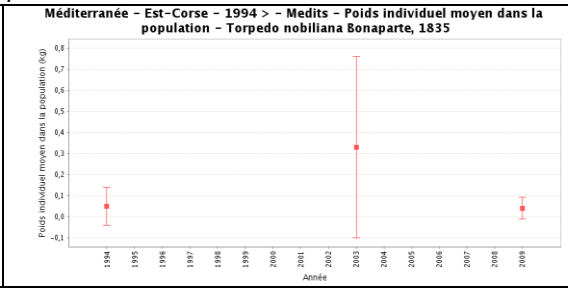
	GSA7	GSA8
MERLMER		
MULLBAR		
MULLSUR		
LOPHBUD		
LOPHPIS		

- **ELASMOBRANCHS (mean weight)**

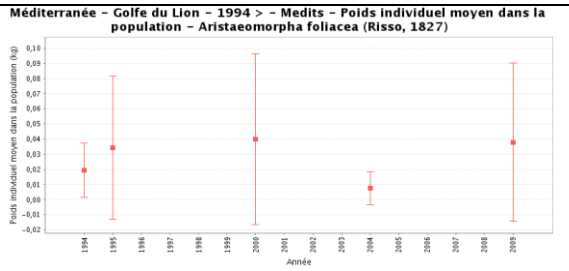
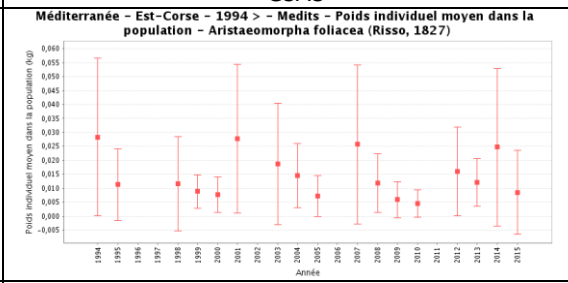
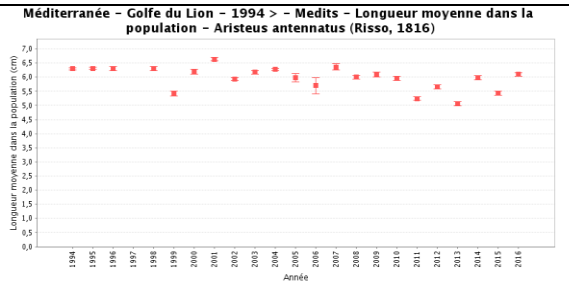
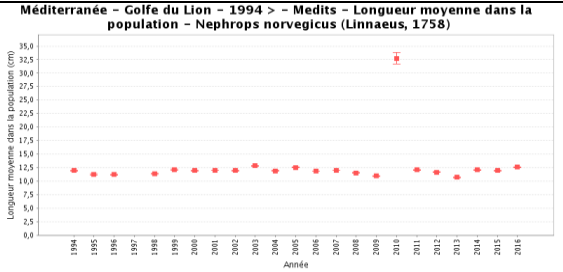
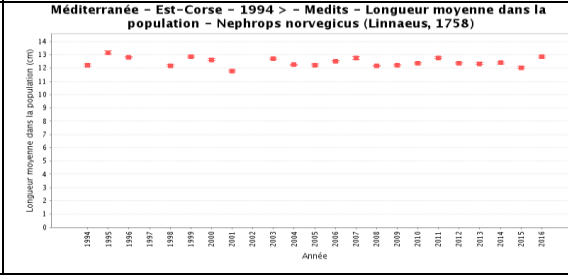
For some species like elasmobranchs, crustaceans, means are on individual weight, since most of the species in the G1 group, were not measured before 2012.

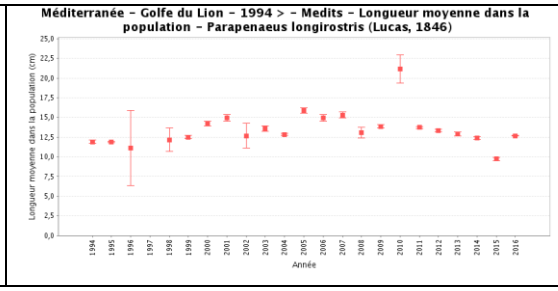
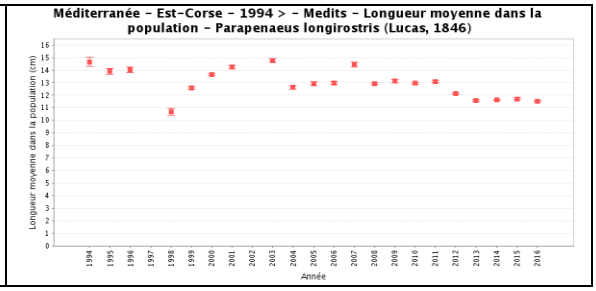
	GSA7	GSA8
CENTGRA		
CHIMMON		
ETMOSPI		
GALUMEL		
HEXAGRI	1 individual/year 1996, 2006	No data
MUSTMUS	No data	few individuals (1998, 2000, 2001, 2007, 2011)
MYLIAQU	2014 and 2015	
OXYNCEN	1 or 2 individuals/year (1997, 1998, 1999, 2000, 2002, 2011, 2013, 2014, 2016)	
RAJAALB	1 or 2 individuals/year (1998, 2001, 2008, 2013, 2014)	
RAJAAST		
RAJABAT	No data	
RAJABRA	Few individuals: 2001, 2002,2006,2007,2008,2010	

RAJACLA		
RAJACIR	1 individual/haul (2000, 2009, 2011, 2012, 2016)	
RAJAFUL	1 individual in 2003	few individuals/year : 2001, 2007, 2009
RAJAMIR	5 hauls (1996, 2000, 2007, 2008, 2013, 2014, 2015, 2016)	
RAJAMON	1994, 1999, 2000, 2002, 2003, 2007, 2009, 2010	Very few individuals/year since 1994
RAJANAE	1998, 2000, 2001, 2003, 2005, 2006, 2008, 2009, 2011-14	
RAJAOXY	3 hauls (2006, 2008, 2013), 1 individual/haul, 31 individuals in 2013, 50 in 2015, 11 in 2016	
RAJAPOL	1 or 2 individuals/year (1994, 2011, 2012, 2015, 2016), except in 2001 and 2013 (10-20 individuals)	
RAJARAD	No data	2008, 2009
SCYMLIC	1995, 1996, 1999, 2001	
SCYOCAN		
SCYOSTE	No data	

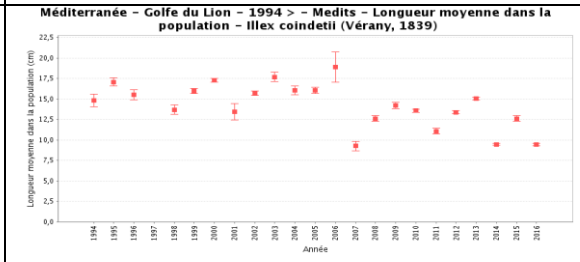
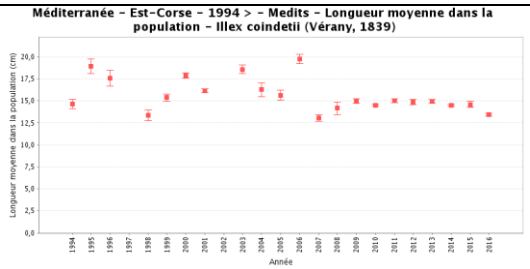
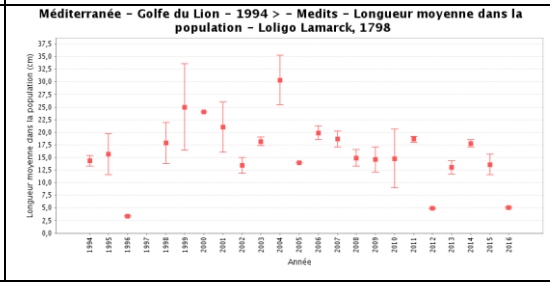
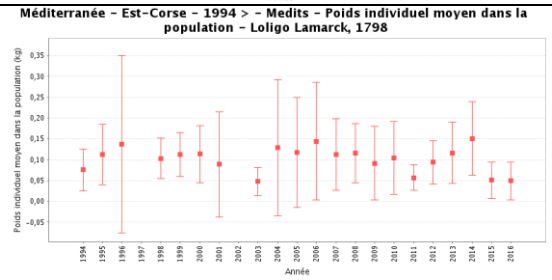
SQUAACA		
SQUABLA	few individuals/haul every year since 1994	
SQUTACU	No data	
SQUTSQU	No data	
TORPMAR	few individuals/year since 1995	
TORPNOB		

- **CRUSTACEANS**

	GSA7	GSA8
ARISFOL		
ARITANT		few individuals/year : 1996, 2000, 2003, 2005, 2011
NEPRNOR		

PAPELON		

- **CEPHALOPODS**

	Abundance indices	Biomass indices
ILLECOI		
LOLIVUL		

3. <u>Planning for the next survey</u>

- ***23rd may – 26th June 2017 (first Eastern Corsica, then Gulf of Lions)***

3.1. Indication of the period and vessel specifying if it is in line with the previous ones, emerging issues if any

- <u>Same boat, same period</u>

- <u>Marine Strategy Framework Directive in 2017:</u>

-WP2/CTD
-gelatinous
-Marine litters

Outline of the report by GSA for presentation of the item 5 in the draft agenda

GSA10

P. Carbonara, L. Casciaro, I. Bitetto, M.T. Facchini, M. Donnaloia, W. Zupa, G. Lembo, M.T. Spedicato
COISPA Tecnologia & Ricerca, Bari, Italy

1. Review of 2016 survey by GSA10

   The vessel utilized was "Pasquale e Cristina" (PEC), as in previous years. The survey was, initially, carried out from 29.06.2016 to 01.07.2016, but it was interrupted for technical reasons regarding the vessel "Pasquale e Cristina". The survey continued from 28.08.2016 to 10.09.2016. The number of valid hauls performed was 70 as planned. The hauls carried out in the first stage were considered not valid and thus were repeated in the second stage. The geographic area covered and the map with haul locations is showed in Figure 1.1. The number of hauls in which Simrad was used were 55 and the results of the relationship between wing opening and vertical opening *vs* the depth are showed in Figure 1.2. The number of hauls in which DST centi-TD was used was 70. The relationship between the bottom temperature and depth hauls is showed in Figure 1.3. No other measures of environmental variables were recorded. Litter was recorded following the protocol showed in Figure 1.4. The numbers of species classified by taxa were 266 species and 16 faunistic categories: 16 species of Elasmobranchs, 116 species of Osteichthyes, 43 species of Crustaceans, 29 species of Cephalopods, 2 species of Mollusca Bivalvia, 11 species of Mollusca Gastropoda, 7 species of Tunicata, 1 species of Brachiopoda, 2 species of Bryozoa, 10 species of Cnidaria, 18 species of Echinoderms, 4 species of Opistobranchia, 4 species of Polychaeta, 1 species of Scaphopoda, 1 species of Sipunculida, 1 species of Porifera. The total number of classified individuals of the MEDITS reference list was 142843 individuals. The total number of sampled individuals for length distributions was 38999 individuals (Table 1.1). The total number of sampled individuals for sex and maturity was 13103 individuals (Table 1.2). The numbers of samples of hard tissues collected for ageing by target species were: *M. merluccius* 321 otoliths, *M. barbatus* 535 otoliths, *M. surmuletus* 16 otoliths. Genetic samples of *Raja clavata* were collected for common projects.

   No particular difficulties were encountered in the application of the new protocol.

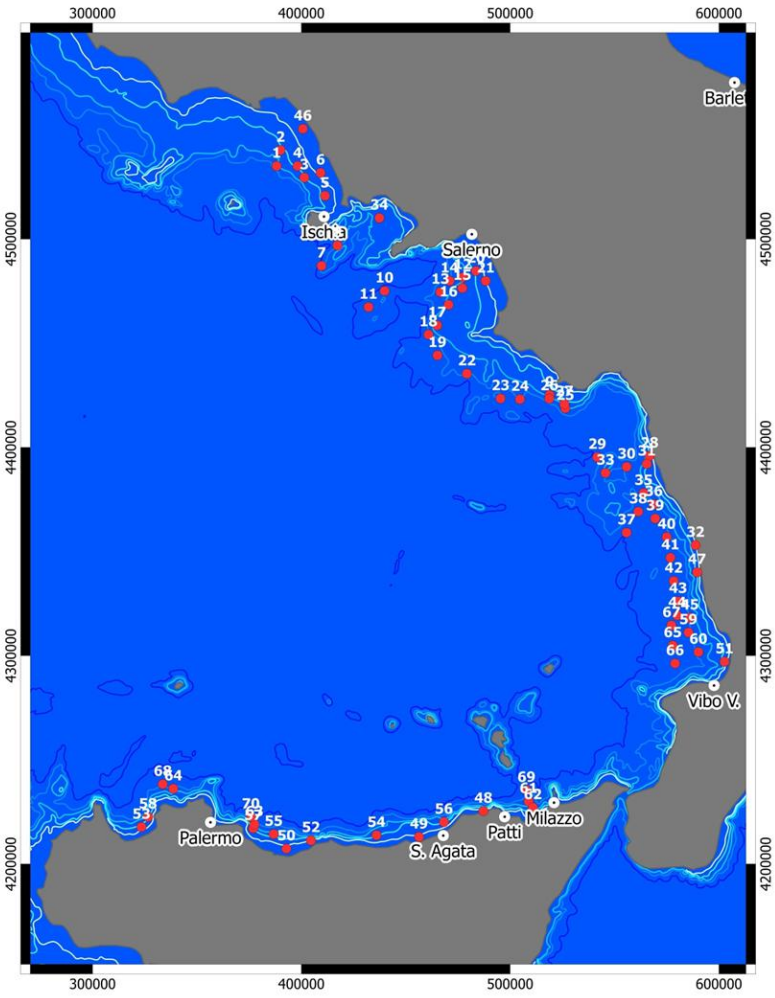


Fig. 1.1 – Hauls position in GSA10 - 2016

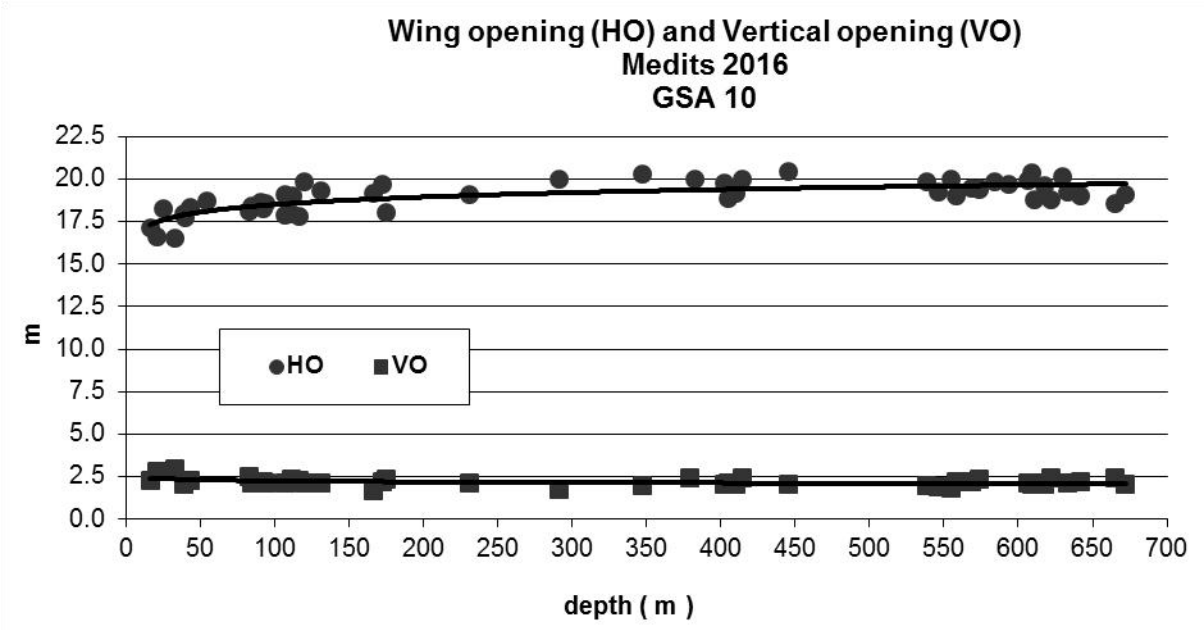


Fig. 1.2 - Wing Opening (HO) and Vertical Opening (VO) in GSA10 - 2016

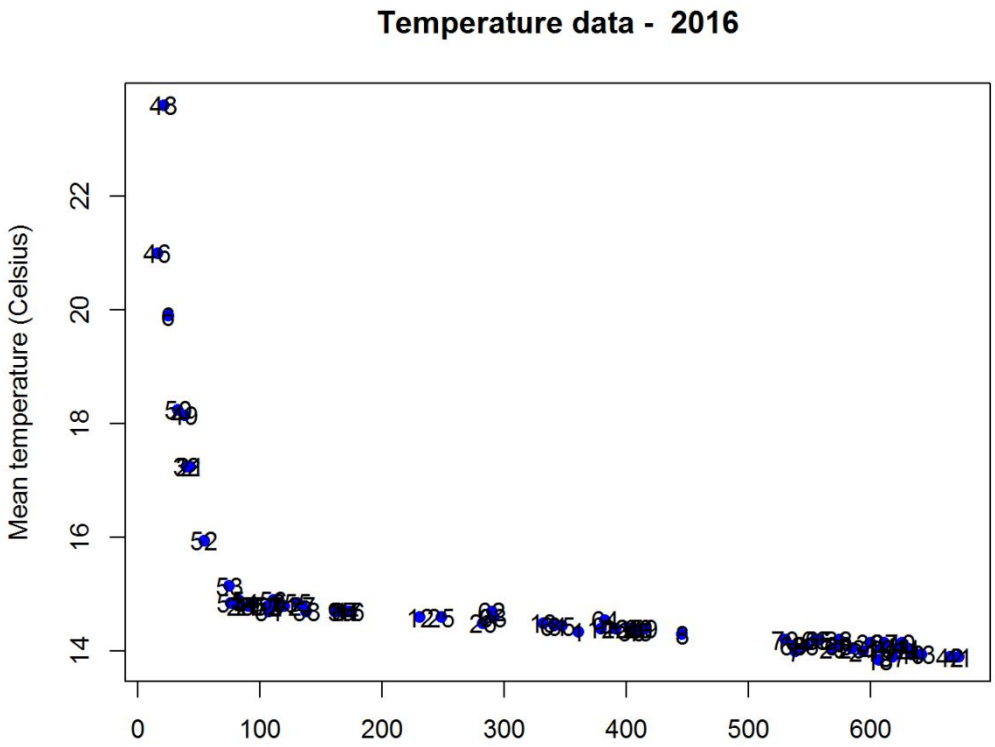


Fig. 1.3 – Bottom temperature GSA10 - 2016.

Campaign:		Date :		haul :	
TOTAL weight of litter in the haul (kg) :					

Type of Litter		Weight (kg) (facultative)	Number (facultative)	Number (mandatory)
L1 Plastic	a. Bags			
	b. Bottles			
	c. Food wrappers			
	d. Sheets (table covers, e.t.c.)			
	e. Hard plastic objects (crates, containers, tubes, ash-trays, lids, etc.) (specify)			
	f. Fishing nets			
	g. Fishing lines			
	h. Other fishing related (pots, floats, etc.) (specify)			
	i. Ropes/strapping bands			
L2 Rubber	a. Tyres			
	b. Other (gloves, boots/shoes, olskins etc.) (specify)			
L3 Metal	a. Beverage cans			
	b. Other food cans/wrappers			
	c. Middle size containers (of paint, oil, chemicals)			
	d. Large metalic objects (barrels, pieces of machinery, electric appliances) (specify)			
	e. Cables			
	f. Fishing related (hooks, spears, etc.) (specify)			
L4 Glass / Ceramic	a. Bottles			
	b. Pieces of glass			
	c. Ceramic jars			
	d. Large objects (specify)			
L5 Cloth (textil)/ natural fibres	a. Clothing (clothes, shoes)			
	b. Large pieces (carpets, mattresses, etc) (specify)			
	c. Natural ropes			
	d. Sanitaries (diapers, cotton buds, etc.)			
L6 Wood processed (palettes, crates, etc.)				
L7 Paper and cardboard				
L8 Other (specify)				
L9 Unspecified				

Responsible:	
Remarks :	

Fig. 1.4 Litter protocol used in Medits Survey 2016

Table 1.1 – Sampled individuals for length distributions GSA10, 2016

FAUNISTIC CATEGORY	SPECIES	Specimens measured	Specimens caught	Percentage (%)
Elasmobranchs	CENT GRA	2	2	100%
	CHIM MON	1	1	100%
	DASI PAS	3	3	100%
	ETMO SPI	154	154	100%
	GALU MEL	1630	1630	100%
	MYLI AQU	4	4	100%
	OXYN CEN	1	1	100%
	RAJA AST	4	4	100%
	RAJA CLA	21	21	100%
	RAJA MIR	7	7	100%
	RAJA OXY	1	1	100%
	SCYM LIC	3	3	100%
	SCYO CAN	58	58	100%
	SCYO STE	1	1	100%
	SQUA BLA	14	14	100%
	TORP TOR	1	1	100%
Bony fish	ASPI CUC	49	49	100%
	BOOP BOO	743	743	100%
	CITH MAC	21	21	100%
	DIPL ANN	234	234	100%
	DIPL VUL	4	4	100%
	ENGR ENC	4581	8479	54%
	HELI DAC	535	535	100%
	LEPM BOS	23	23	100%
	LITH MOR	7	7	100%
	LOPH BUD	38	38	100%
	LOPH PIS	4	4	100%
	MERL MER	5103	5103	100%
	MICM POU	5	5	100%
	MULL BAR	7967	7967	100%
	MULL SUR	16	16	100%
	PAGE ACA	793	793	100%
	PAGE BOG	237	237	100%
	PAGE ERY	474	474	100%
	PHYI BLE	675	675	100%
	SARD PIL	2012	2645	76%
	SCOM PNE	54	54	100%
	SOLE VUL	2	2	100%
	SPAR PAG	1	1	100%
	SPIC FLE	2720	2720	100%
	SPIC SMA	365	365	100%
	TRAC MED	203	203	100%

FAUNISTIC CATEGORY	SPECIES	Specimens measured	Specimens caught	Percentage (%)
	TRAC TRA	1778	1778	100%
	TRIG LUC	16	16	100%
	TRIP LAS	3	3	100%
	TRIS CAP	128	128	100%
	ZEUS FAB	35	35	100%
Crustaceans	ARIS FOL	1347	1347	100%
	ARIT ANT	456	456	100%
	NEPR NOR	63	63	100%
	PAPE LON	5431	5431	100%
	SQUI MAN	52	52	100%
Cephalopods	ELED CIR	39	39	100%
	ELED MOS	8	8	100%
	ILLE COI	565	565	100%
	LOLI VUL	225	225	100%
	OCTO VUL	26	26	100%
	SEPI OFF	8	8	100%
	TODA SAG	48	48	100%

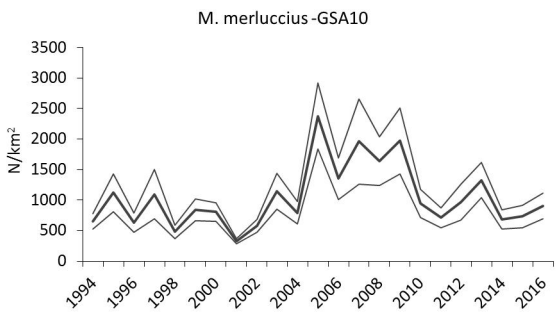
Table 1.2 – Number of specimens for sex and maturity, GSA10 2016

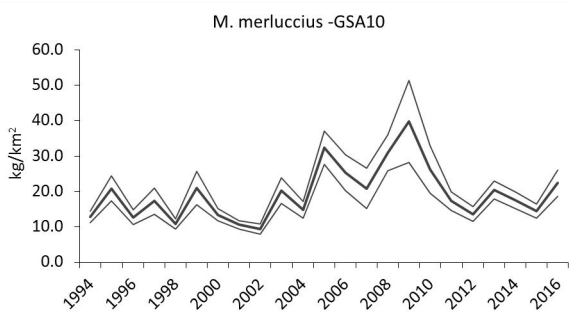
FAUNISTIC CATEGORY	SPECIES	N. of specimens for sex and maturity	Percentage (%)
Elasmobranchs	CENT GRA	2	100%
	CHIM MON	1	100%
	DASI PAS	3	100%
	ETMO SPI	154	100%
	GALU MEL	1630	100%
	MYLI AQU	4	100%
	OXYN CEN	1	100%
	RAJA AST	4	100%
	RAJA CLA	21	100%
	RAJA MIR	7	100%
	RAJA OXY	1	100%
	SCYM LIC	3	100%
	SCYO CAN	58	100%
	SCYO STE	1	100%
	SQUA BLA	14	100%
	TORP TOR	1	100%
Bony fish	ASPI CUC	12	24%
	BOOP BOO	7	1%
	LOPH BUD	31	82%
	LOPH PIS	4	100%
	MERL MER	1525	30%
	MULL BAR	1789	22%

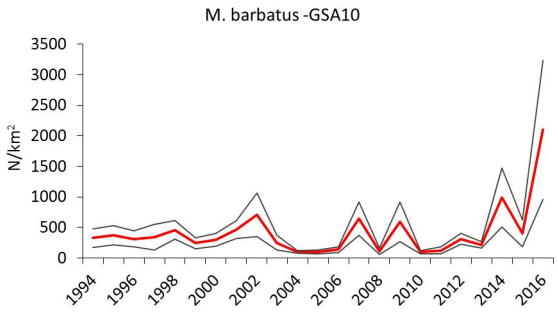
FAUNISTIC CATEGORY	SPECIES	N. of specimens for sex and maturity	Percentage (%)
	MULL SUR	16	100%
	PAGE BOG	12	5%
	PAGE ERY	171	36%
	SOLE VUL	2	100%
	ZEUS FAB	32	91%
Crustaceans	ARIS FOL	1318	98%
	ARIT ANT	453	99%
	NEPR NOR	63	100%
	PAPE LON	5144	95%
	SQUI MAN	52	100%
Cephalopods	ELED CIR	39	100%
	ELED MOS	8	100%
	ILLE COI	415	73%
	LOLI VUL	31	14%
	OCTO VUL	26	100%
	TODA SAG	48	100%

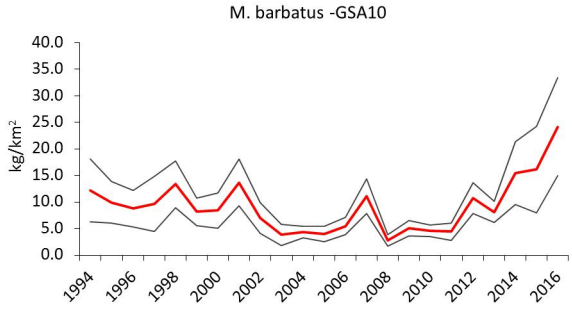
2. Focus on historical trends

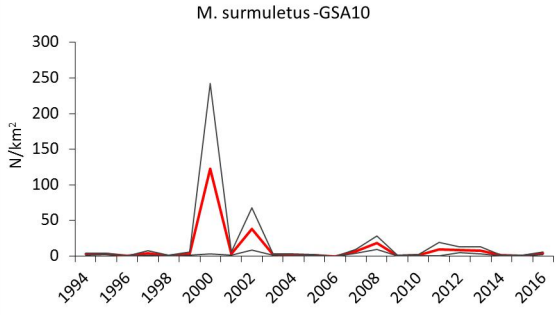
Bony fish 1994-2016, GSA10

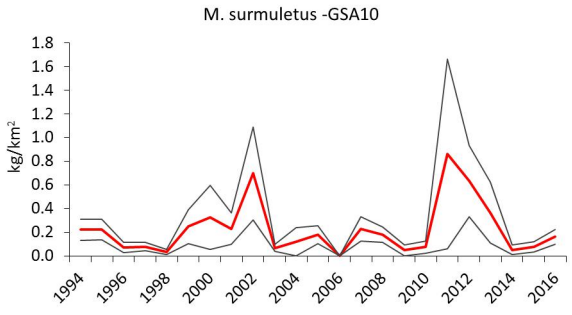


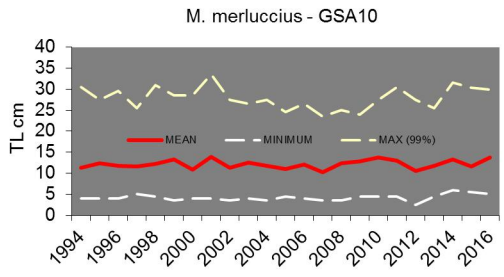


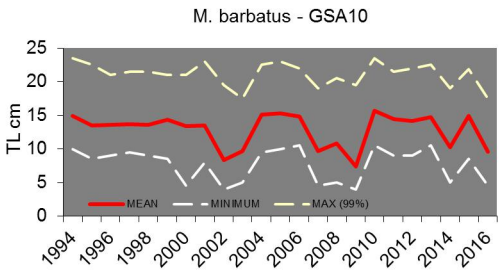


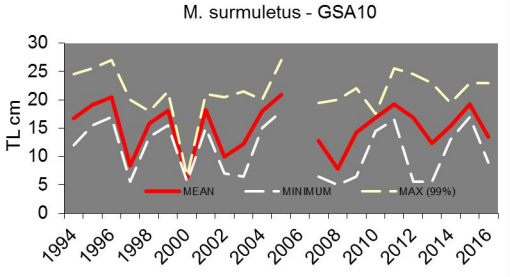




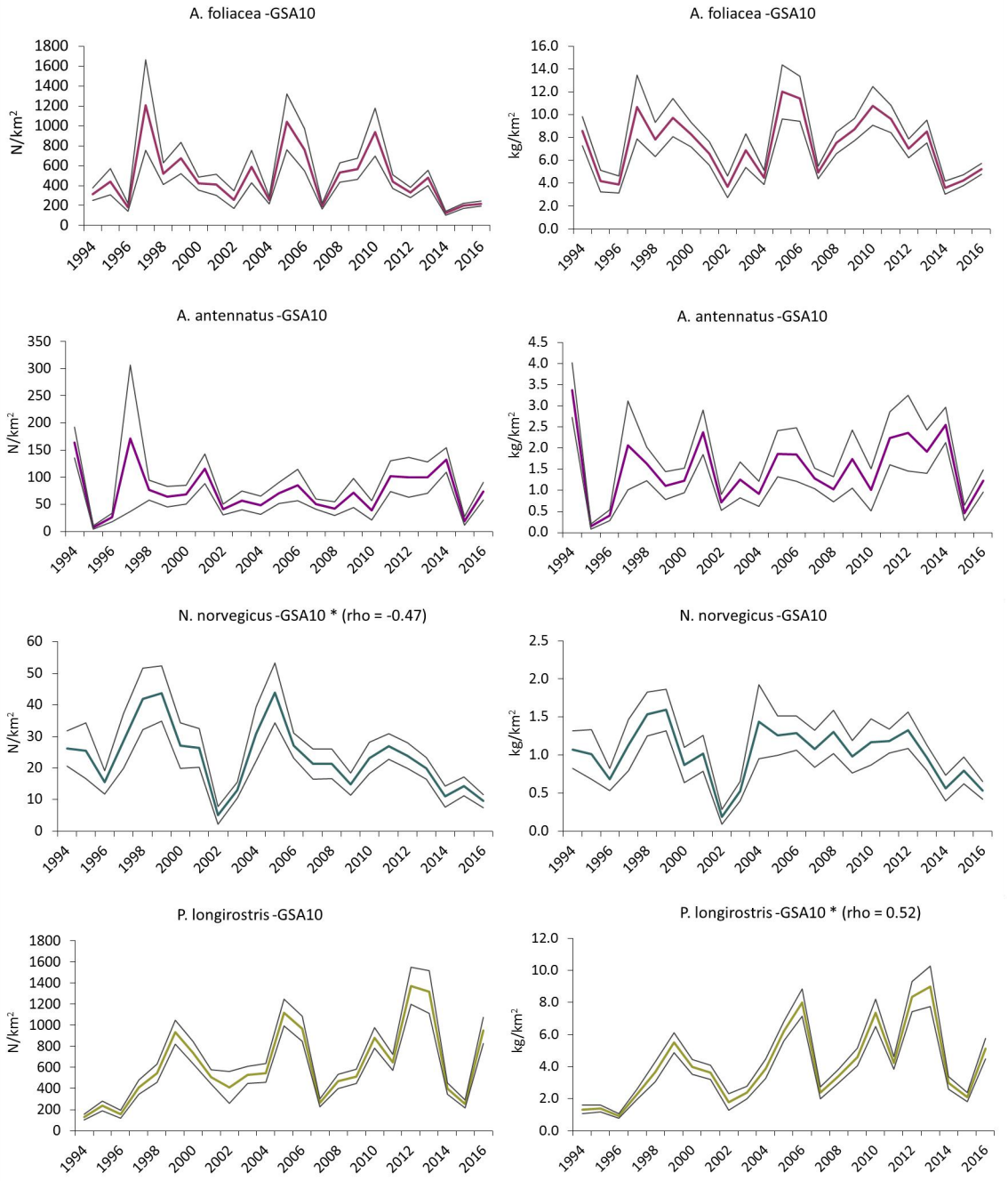


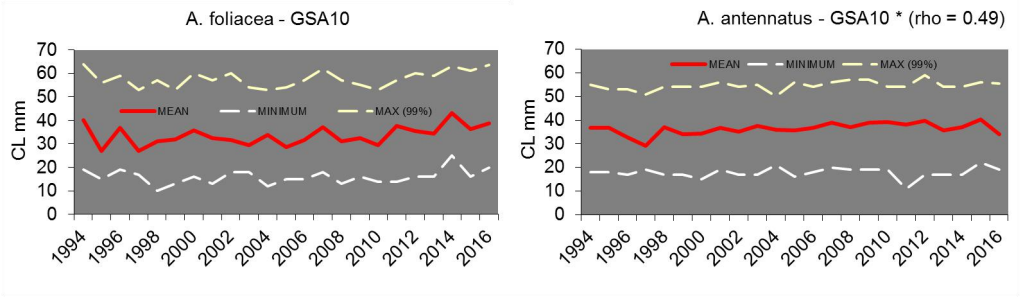




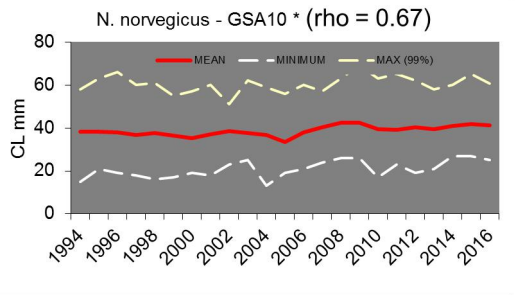


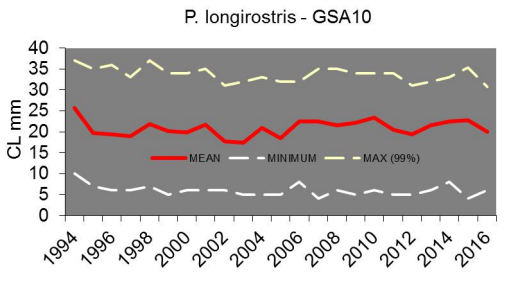
Crustaceans 1994-2016, GSA10



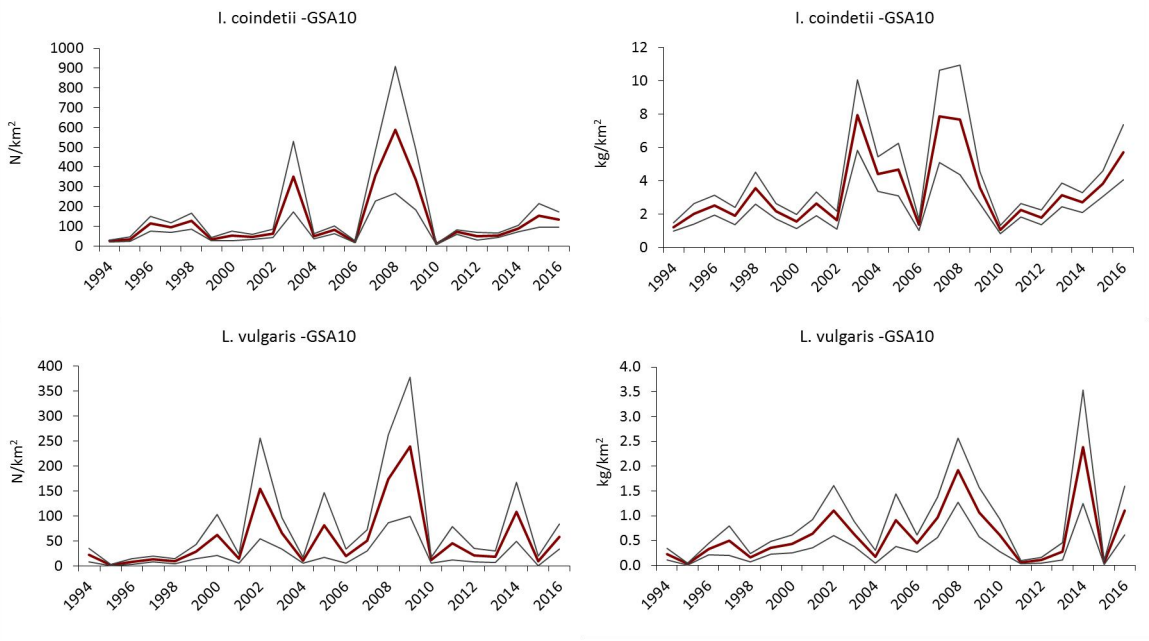

A. foliacea - GSA10
CL mm
MEAN
MINIMUM
MAX (99%)

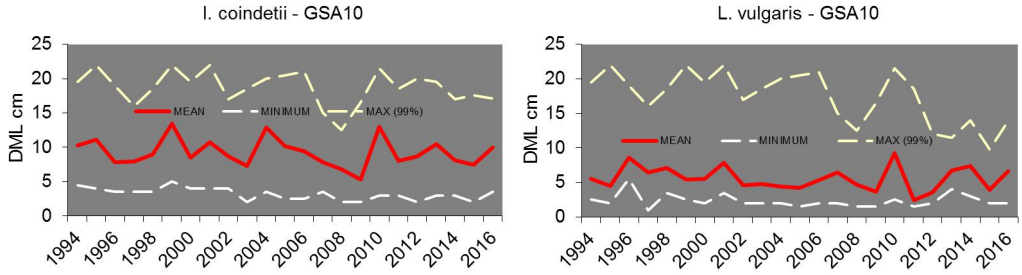
A. antennatus - GSA10 * (rho = 0.49)
CL mm
MEAN
MINIMUM
MAX (99%)


N. norvegicus - GSA10 * (rho = 0.67)
CL mm
MEAN
MINIMUM
MAX (99%)


P. longirostris - GSA10
CL mm
MEAN
MINIMUM
MAX (99%)

Cephlopods 1994-2016, GSA10





Total catches

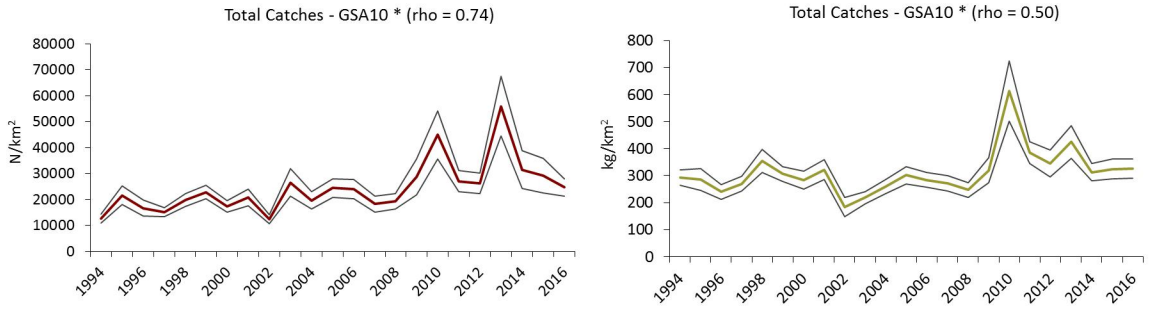


Table 1.3 - Spearman rho – 2016, GSA10

	N/km²	**kg/km²**	**Mean length**
A. foliacea	-0.197	-0.048	0.362
A. antennatus	0.057	0.125	**0.491**
I. coindetii	0.278	0.333	-0.204
L. vulgaris	0.317	0.229	-0.180
M. merluccius	0.264	0.394	0.191
M. barbatus	0.047	0.036	-0.006
M. surmuletus	0.033	0.018	-0.037
N. norvegicus	**-0.466**	-0.145	**0.672**
P. longirostris	0.410	**0.517**	0.271
Total catches	**0.744**	**0.503**	

3. Planning for the next survey

It is not possible to make a plan for the MEDITS survey in the GSA10, because the DCF program is under a tender procedure at national level.

Outline of the report by GSA for presentation of the item 5 in the draft agenda

GSA18

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1. Review of 2016 survey by GSA18

The survey was carried out from 29.07.2016 to 25.08.2016. The vessel utilized was Pasquale & Cristina (PEC), as in previous years. The number of hauls performed was 90, as planned. The survey was carried out late given to technical reasons occurring to the survey vessel Pasquale & Cristina (PEC). The geographic area covered and the map with haul locations is showed in Figure 1.1. The number of hauls in which Simrad was used were 53 and the results with relationship between wing opening and vertical opening *vs* the depth are showed in Figure 1.2. The number of hauls in which DST centi-TD was used was 90. The relationship between the bottom temperature and depth hauls is showed in Figure 1.3. No other measures of environmental variables was recorded. Litter was recorded following the protocol showed in Figure 1.4. The numbers of species classified by taxa were 321 species and 15 faunistic categories: 18 species of Elasmobranchs, 123 species of Osteichthyes, 52 species of Crustaceans, 27 species of Cephalopods, 10 species of Mollusca Bivalvia, 11 species of Mollusca Gastropoda, 8 species of Opistobranchia, 15 species of Tunicata, 1 species of Brachiopoda, 5 species of Bryozoa, 17 species of Cnidaria, 28 species of Echinoderms, 1 species of Hirudinea, 1 species of Polychaeta, 4 species of Porifera.
The total number of classified individuals of the MEDITS reference list was 159793 individuals. The total number of sampled individuals for length distributions was 89554 individuals (Table 1.1). The total number of sampled individuals for sex and maturity was 22918 individuals (Table 1.2). The numbers of samples of hard tissues collected for ageing by target species were: *M. merluccius* 441 otoliths, *M. barbatus* 617 otoliths, *M. surmuletus* 64 otoliths. Genetic samples of *Raja clavata* were collected for common projects.
No particular difficulties were encountered in the application of the new protocol.

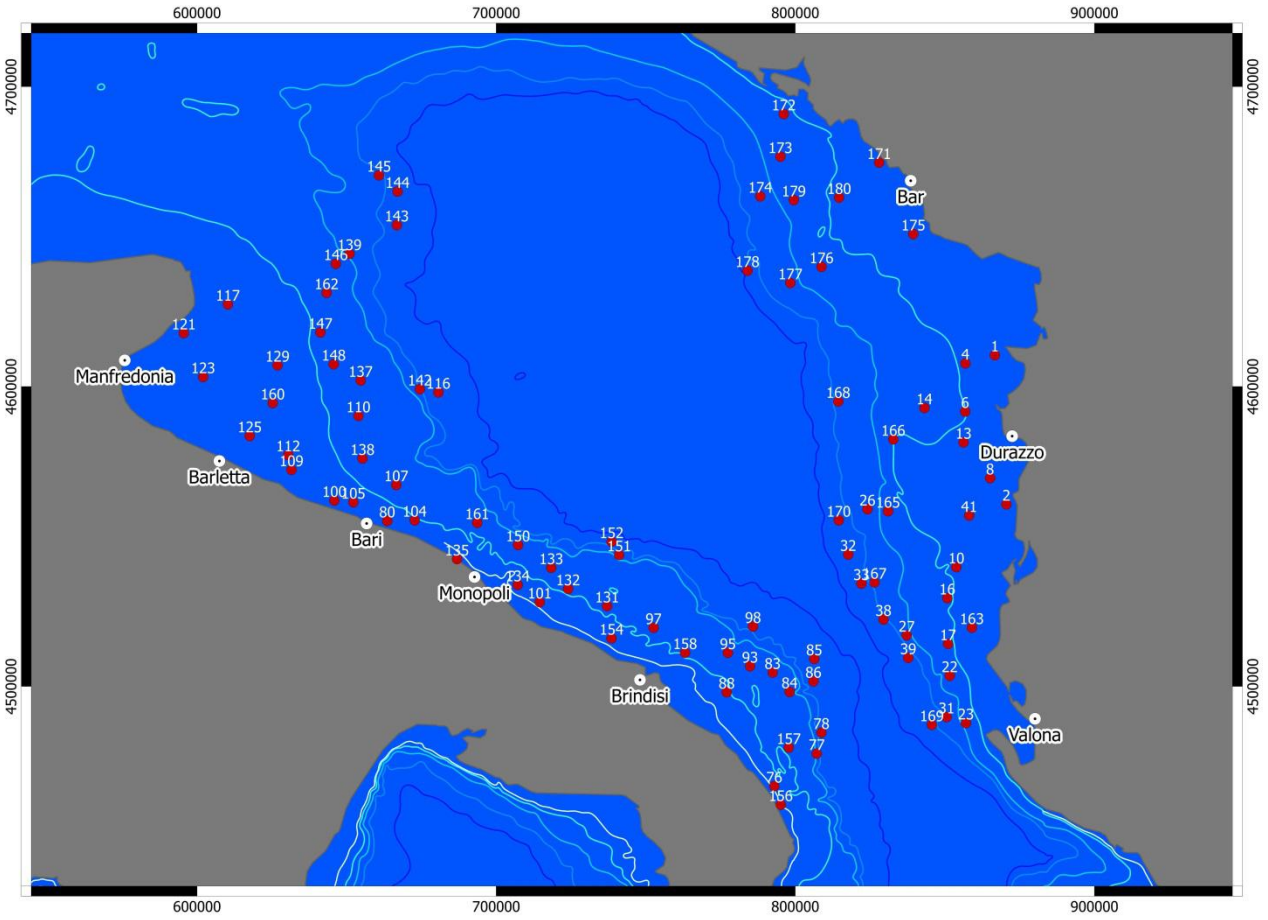


Fig. 1.1 – Hauls position in GSA18 - 2016

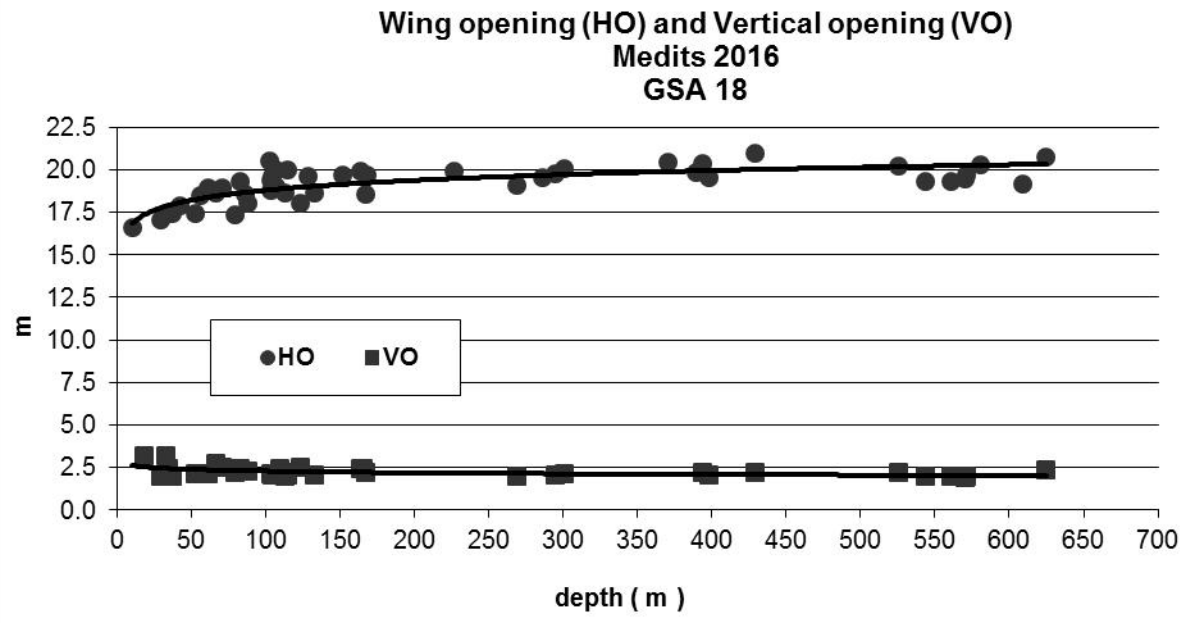


Fig. 1.2 - Wing Opening (HO) and Vertical Opening (VO) in GSA18 - 2016

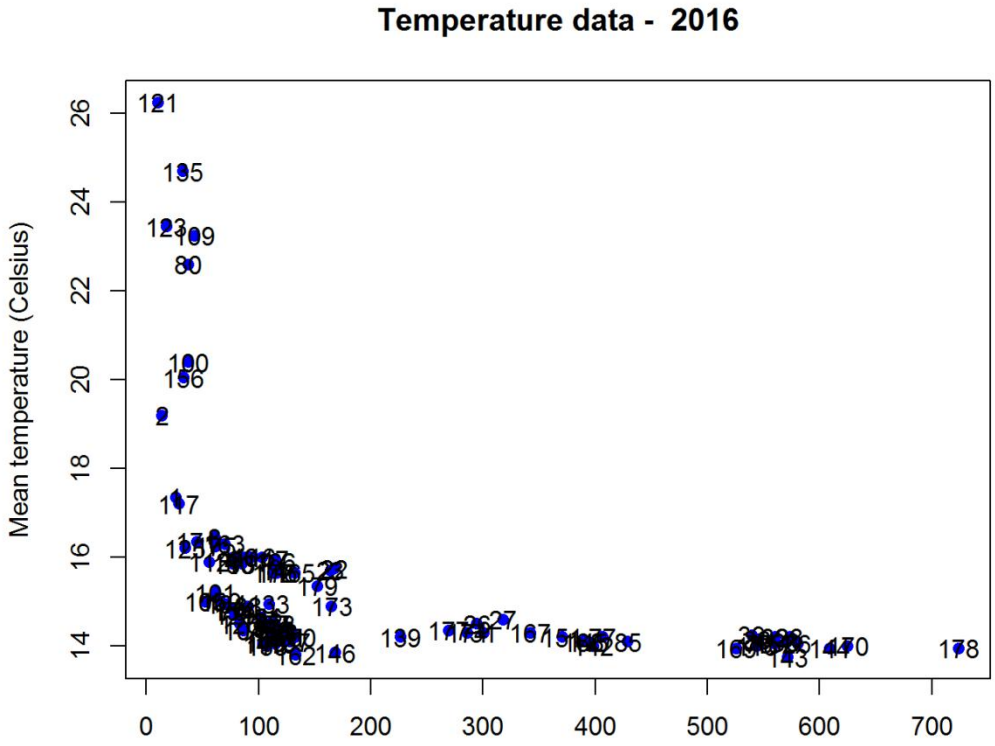
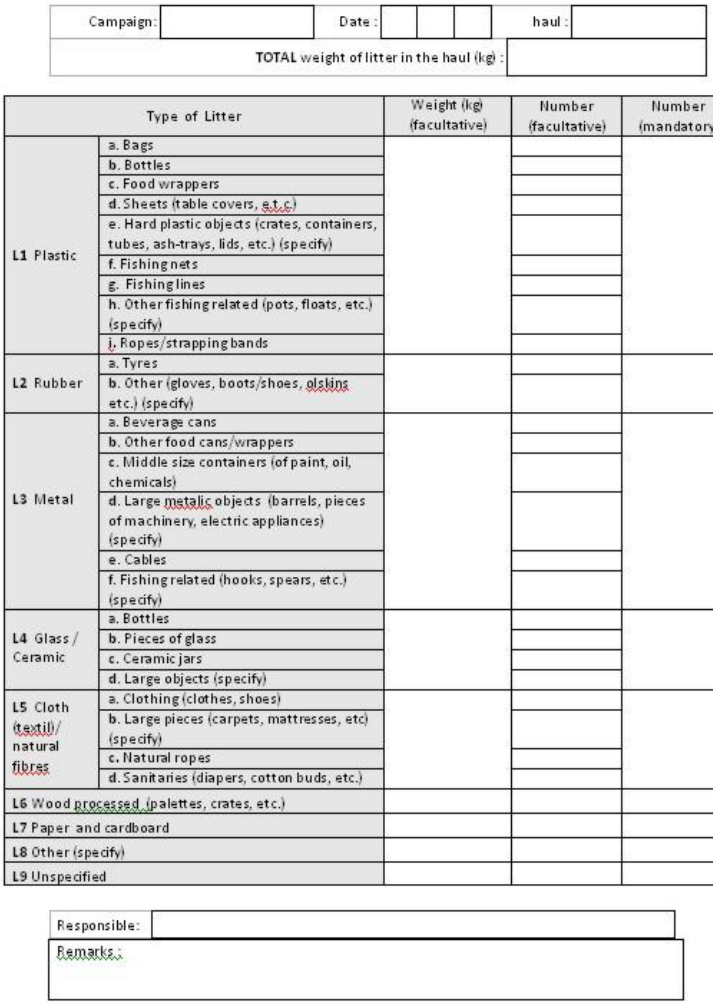


Fig. 1.3 – Bottom temperature GSA18 – 2016



Campaign:		Date :		haul :	
TOTAL weight of litter in the haul (kg) :					

Type of Litter		Weight (kg) (facultative)	Number (facultative)	Number (mandatory)
L1 Plastic	a. Bags			
	b. Bottles			
	c. Food wrappers			
	d. Sheets (table covers, e.t.c.)			
	e. Hard plastic objects (crates, containers, tubes, ash-trays, lids, etc.) (specify)			
	f. Fishing nets			
	g. Fishing lines			
	h. Other fishing related (pots, floats, etc.) (specify)			
	j. Ropes/strapping bands			
L2 Rubber	a. Tyres			
	b. Other (gloves, boots/shoes, oilskins etc.) (specify)			
L3 Metal	a. Beverage cans			
	b. Other food cans/wrappers			
	c. Middle size containers (of paint, oil, chemicals)			
	d. Large metalic objects (barrels, pieces of machinery, electric appliances) (specify)			
	e. Cables			
	f. Fishing related (hooks, spears, etc.) (specify)			
L4 Glass / Ceramic	a. Bottles			
	b. Pieces of glass			
	c. Ceramic jars			
	d. Large objects (specify)			
L5 Cloth (textil)/ natural fibres	a. Clothing (clothes, shoes)			
	b. Large pieces (carpets, mattresses, etc) (specify)			
	c. Natural ropes			
	d. Sanitaries (diapers, cotton buds, etc.)			
L6 Wood processed (palettes, crates, etc.)				
L7 Paper and cardboard				
L8 Other (specify)				
L9 Unspecified				

Responsible:	
Remarks :	

Fig. 1.4 - Litter protocol used in Medits Survey 2016

Table 1.1 – Sampled individuals for length distributions GSA18, 2016

FAUNISTIC CATEGORY	SPECIES	Specimens measured	Specimens caught	Percentage (%)
Elasmobranchs	CENT GRA	1	1	100%
	CHIM MON	46	46	100%
	DASI PAS	9	9	100%
	ETMO SPI	330	330	100%
	GALU MEL	592	592	100%
	MUST MUS	6	6	100%
	MYLI AQU	1	1	100%
	RAJA AST	6	6	100%
	RAJA CIR	2	2	100%
	RAJA CLA	28	28	100%
	RAJA MIR	44	44	100%
	RAJA NID	1	1	100%
	RAJA POL	4	4	100%
	SCYM LIC	4	4	100%

FAUNISTIC CATEGORY	SPECIES	Specimens measured	Specimens caught	Percentage (%)
	SCYO CAN	274	274	100%
	SQUA ACA	2	2	100%
	SQUA BLA	7	7	100%
	TORP MAR	3	3	100%
Bony fish	ASPI CUC	1782	1782	100%
	BOOP BOO	309	309	100%
	CITH MAC	161	161	100%
	DIPL ANN	315	523	60%
	DIPL VUL	2	2	100%
	ENGR ENC	12803	25390	50%
	EUTR GUR	5	5	100%
	HELI DAC	370	370	100%
	LEPM BOS	189	189	100%
	LITH MOR	15	15	100%
	LOPH BUD	65	65	100%
	LOPH PIS	1	1	100%
	MERL MER	2401	2401	100%
	MICM POU	291	291	100%
	MULL BAR	16129	16129	100%
	MULL SUR	72	72	100%
	PAGE ACA	1010	1428	71%
	PAGE BOG	566	566	100%
	PAGE ERY	569	569	100%
	PHYI BLE	604	604	100%
	SARD PIL	10844	15005	72%
	SCOM PNE	1165	1165	100%
	SCOM SCO	20	20	100%
	SOLE VUL	9	9	100%
	SPAR PAG	53	53	100%
	SPIC FLE	5371	7109	76%
	SPIC SMA	577	1906	30%
	TRAC MED	774	1009	77%
	TRAC TRA	3009	3009	100%
	TRIG LUC	79	79	100%
	TRIP LAS	41	41	100%
	TRIS CAP	668	668	100%
	ZEUS FAB	30	30	100%
Crustaceans	ARIS FOL	809	809	100%
	ARIT ANT	834	834	100%
	NEPR NOR	251	251	100%
	PAPE LON	15349	15349	100%
	SQUI MAN	127	127	100%
Cephalopods	ELED CIR	130	130	100%
	ELED MOS	20	20	100%

FAUNISTIC CATEGORY	SPECIES	Specimens measured	Specimens caught	Percentage (%)
	ILLE COI	8215	8215	100%
	LOLI VUL	1997	1997	100%
	OCTO VUL	95	95	100%
	SEPI OFF	38	38	100%
	TODA SAG	30	30	100%

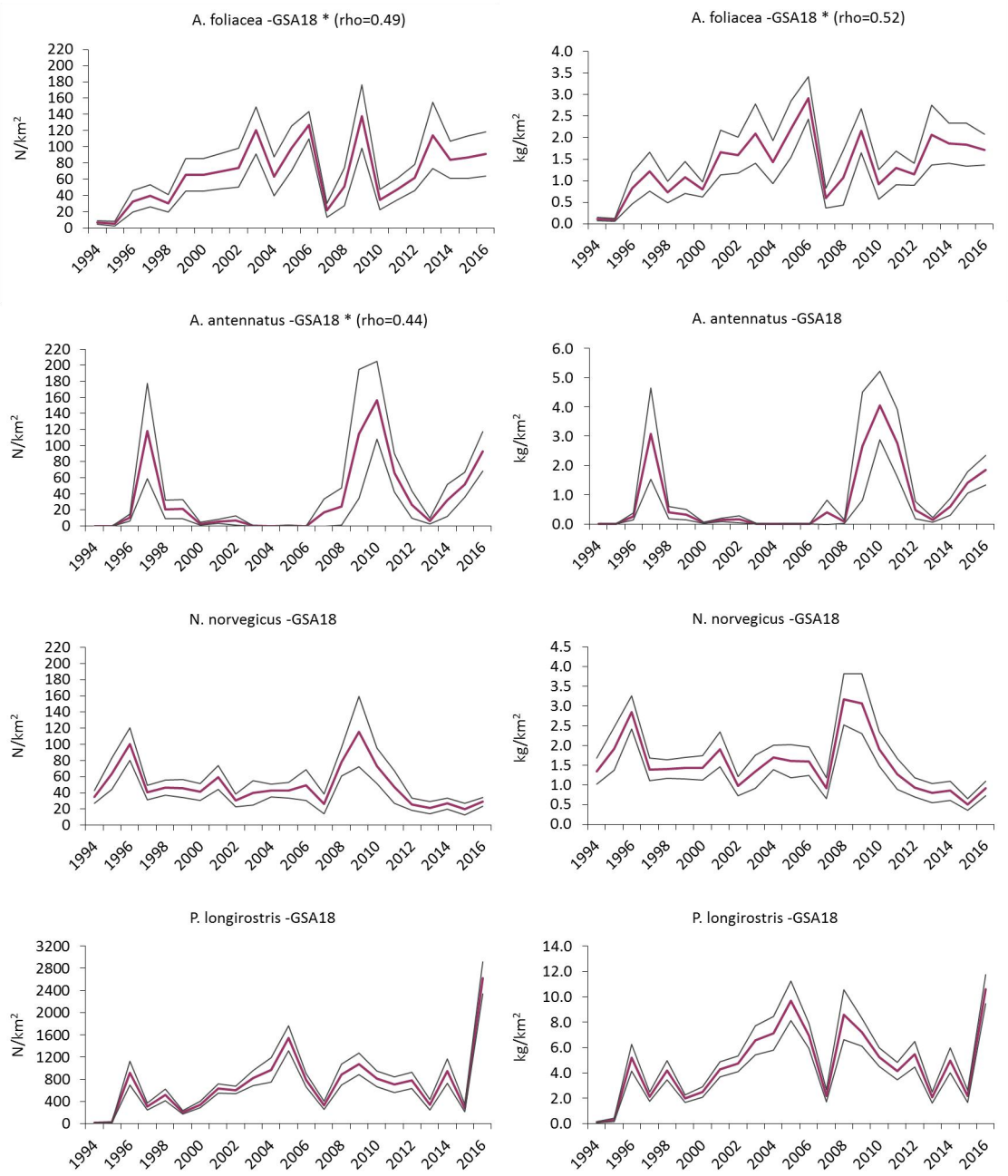
Table 1.2 – Number of specimens for sex and maturity GSA18, 2016

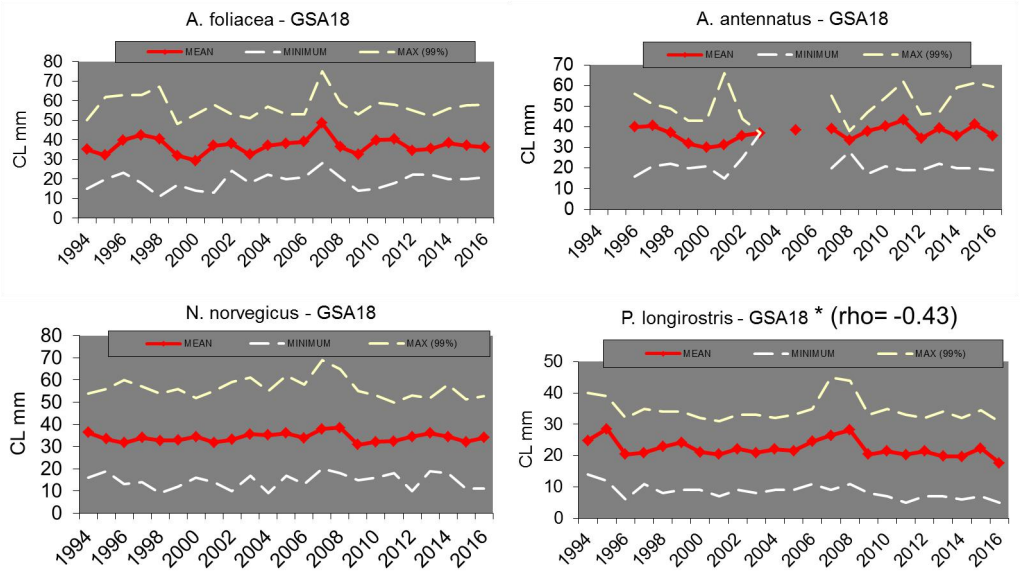
FAUNISTIC CATEGORY	SPECIES	N. of specimens for sex and maturity	Percentage (%)
Elasmobranchs	CENT GRA	1	100%
	CHIM MON	46	100%
	DASI PAS	9	100%
	ETMO SPI	330	100%
	GALU MEL	592	100%
	MUST MUS	6	100%
	MYLI AQU	1	100%
	RAJA AST	6	100%
	RAJA CIR	2	100%
	RAJA CLA	28	100%
	RAJA MIR	44	100%
	RAJA NID	1	100%
	RAJA POL	4	100%
	SCYM LIC	3	75%
	SCYO CAN	274	100%
	SQUA ACA	2	100%
	SQUA BLA	7	100%
	TORP MAR	3	100%
Bony fish	LOPH BUD	61	94%
	LOPH PIS	1	100%
	MERL MER	985	41%
	MULL BAR	3053	19%
	MULL SUR	59	82%
	PAGE BOG	55	10%
	PAGE ERY	289	51%
	SOLE VUL	9	100%
	TRIG LUC	1	1%
	ZEUS FAB	17	57%
Crustaceans	ARIS FOL	786	97%
	ARIT ANT	821	98%
	NEPR NOR	251	100%
	PAPE LON	12988	85%
	SQUI MAN	127	100%

FAUNISTIC CATEGORY	SPECIES	N. of specimens for sex and maturity	Percentage (%)
Cephalopods	ELED CIR	130	100%
	ELED MOS	20	100%
	ILLE COI	1672	20%
	LOLI VUL	87	4%
	OCTO VUL	95	100%
	SEPI OFF	21	55%
	TODA SAG	30	100%

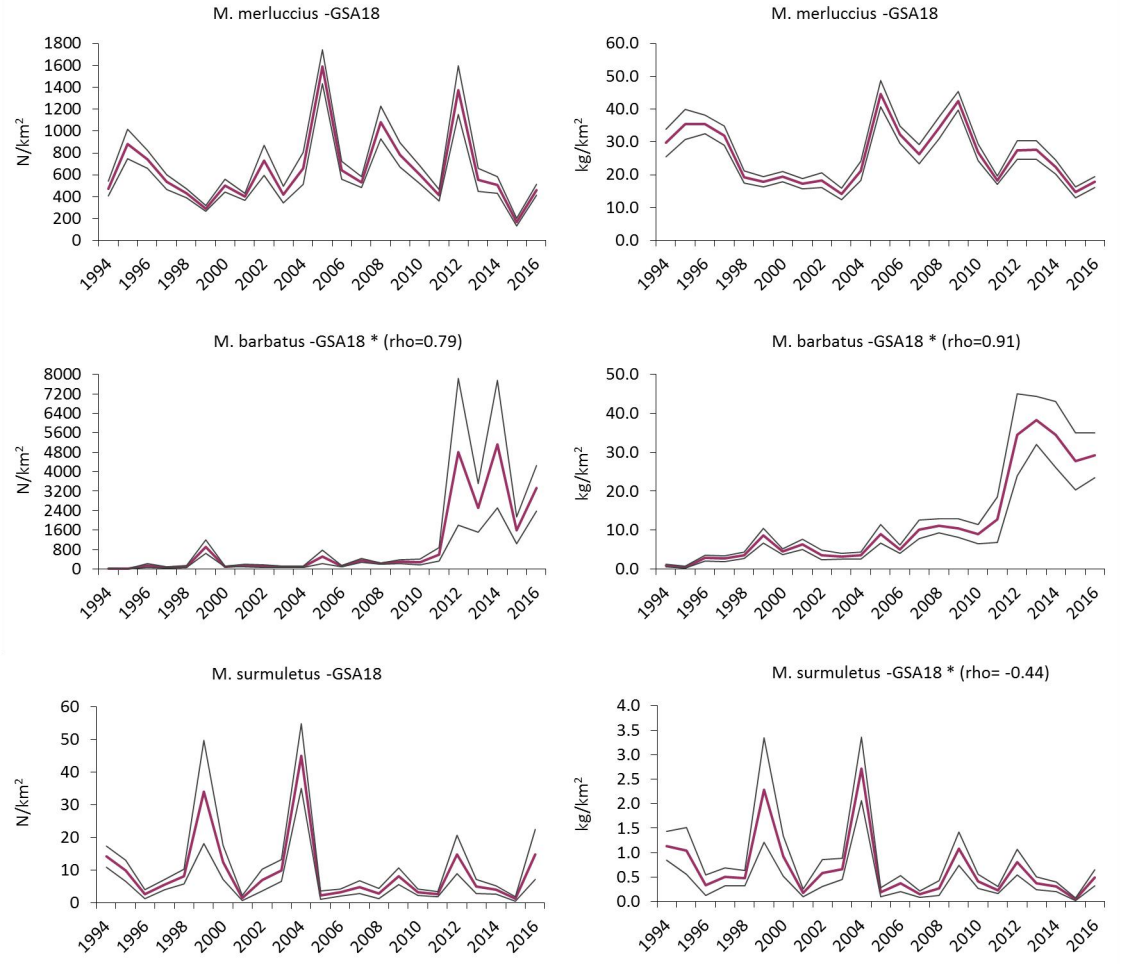
2. Focus on historical trends

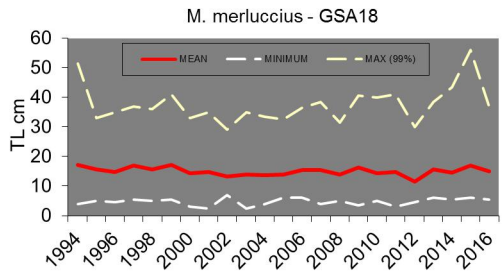
Crustaceans 1994-2016, GSA18

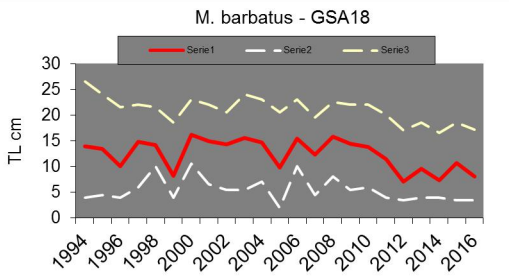


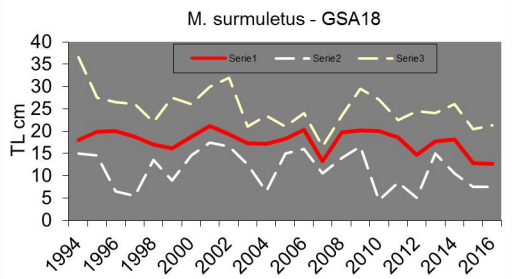


Bony fish 1994-2016, GSA18

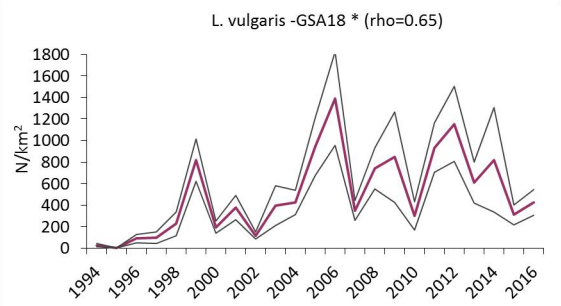


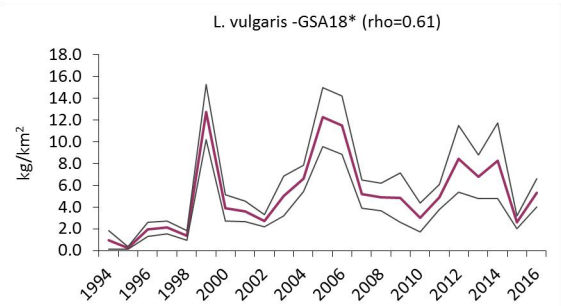


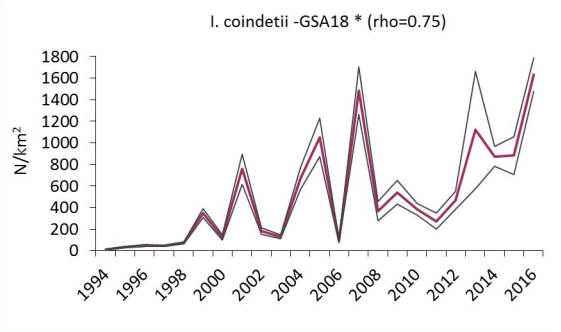


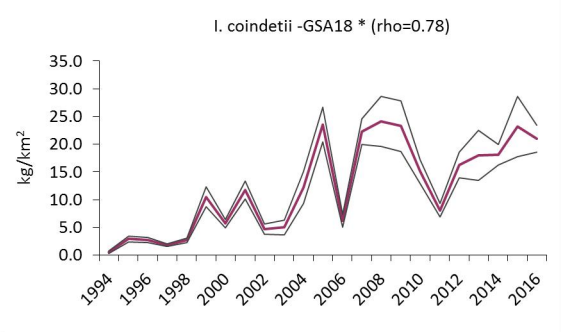


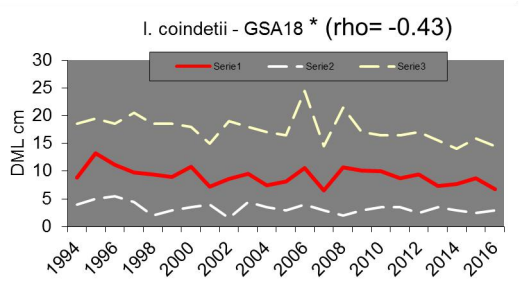
Cephalopods 1994-2016, GSA18

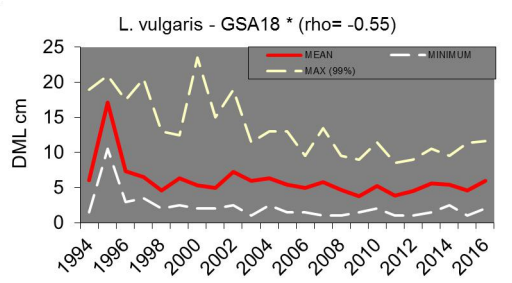












Total catches 1994-2016, GSA18

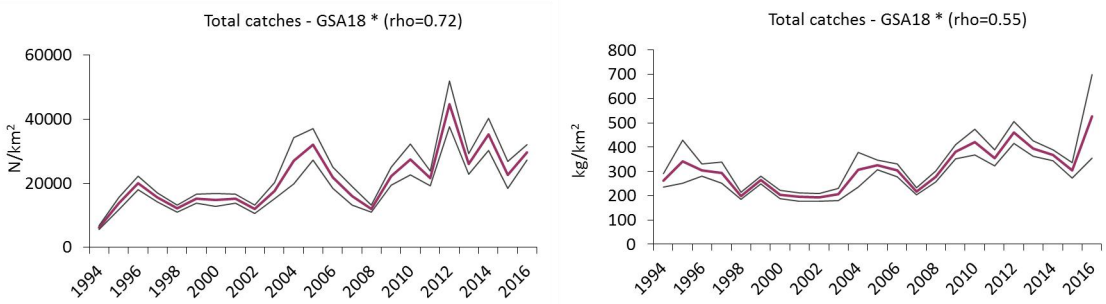


Table 2.1 Spearman rho – Medits 2016 GSA18

	N/km²	kg/km²	Mean length
A. antennatus	**0.476**	**0.450**	0.165
A. foliacea	**0.509**	**0.532**	0.052
I. coindetii	**0.779**	**0.772**	**-0.427**
L. vulgaris	**0.631**	**0.512**	**-0.547**
M. barbatus	**0.812**	**0.914**	-0.410
M. merluccius	-0.029	-0.198	-0.230
M. surmuletus	-0.202	-0.407	-0.308
N. norvegicus	-0.384	**-0.477**	0.081
P. longirostris	**0.434**	0.415	**-0.433**
Total catches	**0.721**	**0.635**	

3. Planning for the next survey

It is not possible to make a plan for MEDITS survey in the GSA18 because the DCF program is under a tender procedure at national level.

DCF 2016

Mediterranean International Trawl Survey (MEDITS) in Greece in 2016

Summary report

The MEDITS Survey was realized in Greece in the frames of the DCF 2016, in the three GSAs of the Greek territory, i.e. GSA 20 (E. Ionian Sea), GSA 22 (Aegean Sea) and GSA 23 (Cretan Sea) (Picture 1). The sampling was made according to the MEDITS manual 8/2016. Additionally, the litters caught by the trawl net were recorded according to the updated Protocol for Litter. Three commercial fishing boats were hired for the survey, one for the area E. Ionian and Argosaronikos Gulf, one for S. Aegean and Cretan Seas and one for the N. Aegean Sea. Details about the boats involved in the Survey are given in the table 1. The scientific team of HCMR (Athens) was in charge of the sampling in GSA 20 and Argosaronikos Gulf (part of GSA 22), the scientific team of HCMR (Crete) was responsible for the sampling of GSA 23 and S. Aegean (part of GSA 22) and the scientific team of FRI (Kavala) was responsible for the survey of N. Aegean (part of GSA 22).

FRI realized the MEDITS Survey in N. Aegean (224) from 5/7/2016 to 8/8/2016, with an interruption between 19-26/7/2016 due to emergency rasons. 24 persons were involved in the sampling (scientific personnel and collaborators). 63 of the 66 stations were sampled by the vessel «MEGALOHARI». 180 species were recorded and otoliths from 568 specimens were collected (269 Merluccius merluccius, 118 Mullus surmuletus, 181 Mullus barbatus). CTD was used for depth, temperature and salinity recording. Measures of the trawl-net used were taken.

HCMR (Crete) realized the MEDITS Survey in S. Aegean (225) and Cretan Seas (GSA 23) from 19/7/2016 to 18/8/2016. Eight persons were involved in the sampling and in the lab analysis of samples (all scientific personnel). 60 stations were sampled by the vessel «NAUTILOS». 170 species were recorded and otoliths were collected from 1398 specimens (292 Merluccius merluccius, 278 Mullus surmuletus, 828 Mullus barbatus). STAR-ODDI sensors were used for depth and temperature recording. New trawl-net used for the sampling.

HCMR (Athens) realized the MEDITS Survey in E. Ionian (220) and Argosaronikos Gulf (223) from 24/6/2016 to 26/7/2016. 17 persons were involved in the sampling and 16 persons were involved in the lab analysis of samples (all scientific personnel). In total 70 stations were sampled by the vessel «TAKIS-MIMIS», 26 in the region of Agosaronikos and 44 in the eastern Ionian Sea. In Argosaronikos were recorded in total 152 species and 165 in the Ionian Sea . In total otoliths of 1359 specimens were collected (401 Merluccius merluccius, 185 Mullus surmuletus, 773 Mullus barbatus). CTD and SCANMAR were used for depth, temperature, salinity and the net geometry recording. New trawl-net used for the sampling.

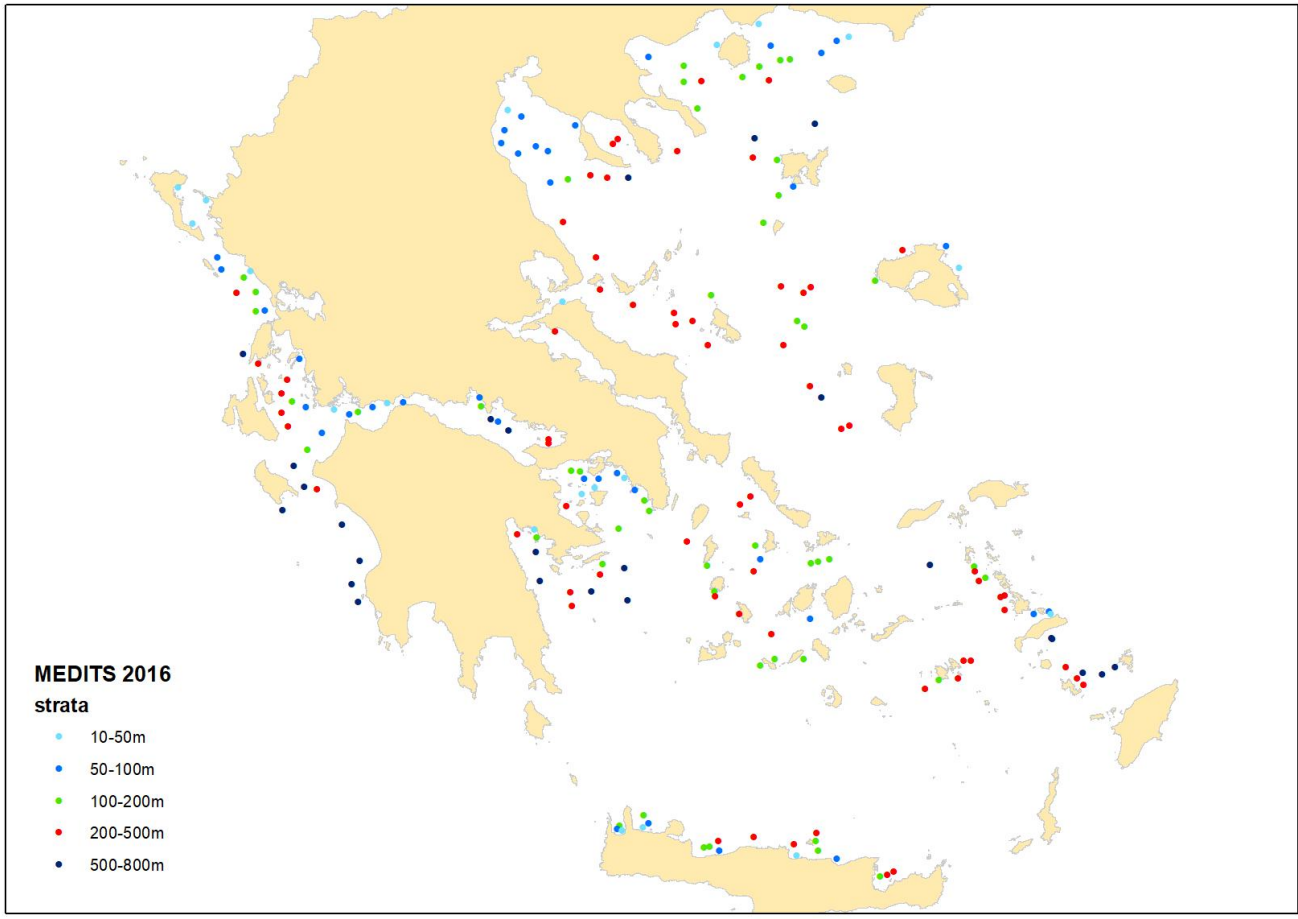
Table 1. Commercial fishing vessels used for the Greek MEDITS Survey in 2014.

Vessel name	Total Length (m)	Institute	Sampling area
MEGALOHARI	33	FRI	N. Aegean (GSA 22, 224)
NAUTILOS	29	HCMR (Crete)	S. Aegean (GSA 22, 225) Cretan Sea (GSA 23, 225)
TAKIS-MIMIS	29	HCMR (Athens)	Argosaronikos (GSA 22, 223) E. Ionion (GSA 20)

The number of stations realized by GSA and depth zone are presented in table 2.

Table 2. Number of stations sampled during 2016 MEDITS Survey in Greece, by GSA and depth zone.

GSA	10-50 m	50-100 m	100-200 m	200-500 m	500-800 m
20 (Ionian)	6	11	7	9	10
22 (Aegean)	8	20	35	44	16
23 (Cretan)	3	4	7	6	1



Picture 1. Greek MEDITS 2016 sampling stations.

Problems encountered

The required number of otoliths and individual weights was very high and produced a lot of extra work not always feasible to accomplish during the works at sea, especially under rough sea conditions. This resulted to a lot of additional working time after the survey, at the lab.

MEDITS REPORT, France GSA 7 and 8

Review of MEDITS France, GSA7 and 8, 2016, Angélique Jadaud

The MEDITS survey was conducted in GSA 7 and 8, from the 20th May until the 26th of June 2016. All the hauls were performed (23 in GSA 8–Eastern Corsica and 65 in GSA 7-Gulf of Lions, with one of the 65 hauls invalidated because of tears of the net). The openings of the net were measured using MAREPORT system, on all the hauls and the bottom temperature and salinity were measured using an Oddistar CTD. The temperature oscillated around 13 and 15 °C and the salinity between 35.7 and 39.3. Macro litters were collected, weighted and counted by sub-category and mostly plastic were analyzed. In GSA 7 and 8 joined, 392 taxa were identified with 12 new species. In GSA7 and 8, 60 taxa (G1 and G2 species) and 51 taxa were respectively measured. Considering sex and maturity 20 taxa (GSA7) and 26 taxa (GSA 8) were sampled (G1 species. Focusing on Total numbers of hard tissues collected for ageing, 5 species were analysed *(Mullus barbatus, M. surmuletus, Lophius budegassa, L. piscatorius and M. Merluccius),* around 600 otoliths of M. barbatus were collected in GSA 7 and also 8, precisions for the other species can be found in the report "Review2016_GSA7_GSA8". Other samplings were done considering different projects; *Raja clavata* samples harvested for population genomics (Pascal Lorance); MEDITS Maturity stages working group, collection of macroscopic photos of hake and red mullet (gonad in the body and separately) and histological samplings (C. Follesa). Moreover, samplings were done considering Marine Strategy Framework Directive (MSFD): characterization of abundance of zooplankton taxa by use of WP2 for 10 stations in the Gulf of Lions and 8 stations in the Eastern Corsica (different depths strata), samples stored in a solution with formol and will be analysed in 2017, Determination of jelly fish. Next year 2017, the survey will be conducted from the 23rd of may until the 26th June (first Eastern Corsica, then Gulf of Lions). Some samplings will be done for MSFD (WP2, CTD, contaminants, stomachs contents and isotopy).

Synthesis of the conclusions of the working group on French fisheries surveys in Mediterranean sea. Angelique Jadaud

In 2016, a working group was conducted by IFREMER on Mediterranean IFREMER Surveys (MEDITS and PELMED/MEDIAS) to propose a strategy for years to come. Similar working groups were conducted for other IFREMER Atlantic surveys (IBTS…). The working group had to consider the potential and the reference expectations revalued in reference to the **Common Fisheries Policy** needs, **Strategy of the EU for the marine environment** (Marine Strategy Framework Directive) and **national needs** (in particular to Fisheries and other uses, by example in coastal area or considering offshore wind or extractions)

The WG had to propose solutions for the continuation of the fisheries monitoring program of the surveys in the area for the next ten years, including reflection on the insertion of the device into a European framework. The priorities should take into account explicitly the obligations of Member States under the DCF (international protocols,…). **Strenghts, weaknesses, opportunities and threats** were listed (detailed in the presentation made during MEDITS meeting, Nicosia, April 2017).

Three different scenarios were tested; **Optimization**, **reduction** and **adding a demersal survey in autumn/winter (quarter 4)**. Considering:

1. **Optimization of MEDITS (**total number of days is constant over 1 cycle), by deployment of traits between strata looking at CVs, or doing the Corsican part (GSA 8) every 2-3 years or 3-year block every 3 years and reallocate days to Gulf of Lions (GSA 7). There is no advantage for the deployment of traits between strata because the coefficients of variation of the indices of abundance in the different strata are comparable. The proposal of making Corsica every 2-3 years or **3-year block** was suggested, leaving 9 days/year available for Gulf of Lions (GSA7). A preference was given to add **4 additional days/year for GSA7**. The feasibility of this "optimization plan" depends on DCMAP requirements, currently annual data by GSA required by the European Commission.
2. **Reduction of MEDITS** (decrease of the numbers of days), by the reduction of the number of hauls or doing the Corsican part (GSA 8) every 2-3 years or 3-year block every 3 years. The advantage of this measure is the decreasing of the cost **by the reduction of number of hauls** or **Corsica every 2-3 years** or **3-year block**: 9 days maximum won, years without Corsica. The disadvantages are the loss of precision for strata with fewer traits (impact on red mullet and hake index) and also the feasibility depends on DCMAP requirements, currently annual data by GSA required by the European Commission
3. **Additionnal demersal survey in autumn/winter (quarter 4)**: To be demonstrated, but would give more information on the seasonality and would be better for some species (considering maturity period by exemple…).

The conclusion of the IFREMER WG was that the feasibility of the different scenarios will depend on DCMAP requirements, currently annual data by GSA required by the European Commission.

The conclusion of the international MEDITS group, was that it was not possible to change the period sampling considering Corsica from an annual basis to a **2-3 years** or a **3-year block** and then 3 years without it. The survey has to be maintained annually. Indeed, there are very low fishing informations (biological samplings) considering eastern Corsica (GSA 8), which means that the MEDITS survey is the only mean to obtain biological informations on demersal species, on a yearly basis. Moreover, this area has been sampled since 1994 on a yearly basis. Changing the sampling period would be a consequent loss of quality of the data. The MEDITS WG recommended to maintain the survey in GSA 8 annually and insisted on the fact that this point should be presented at the RCM-MED.

IFREMER Working group on scientific fishing surveys in the Mediterranean sea, Moving towards the Marine Strategy Framework Directive : Examples in the Mediterranean Sea, Common research activity by partners of MEDITS surveys – April 2017. Anik Brind'Amour, Angélique Jadaud, Damien Delaunay, Verena Trenkel and others.

The main objective of the Marine Strategy Framework Directive (MSFD; 2008/56/EC) is to achieve

or maintain good environmental status (GES) by 2020. To fulfil MSFD requirements, 11 qualitative descriptors and a suite of indicators associated with each descriptor have been selected. European Member States have already initiated the reviews required to provide information for these descriptors and the estimation of the related indicators that will be used to assess the GES. For monitoring purposes, the Biodiversity (D1) and Food web (D4) descriptors were divided into ecosystem components (Fish, Cephalopods, Turtles, ...), with several species per group.

For ecosystem components such as fish and cephalopods, which comprise mobile species, three species-level Criteria are listed under Descriptor 1 in the Decision document: these are Criterion 1.1 Species population distribution, Criterion 1.2 Species population size and Criterion 1.3 Species population condition. The Decision suggests two Indicators for Criterion 1.1, Distributional range (Indicator 1.1.1) and Distributional pattern within the range (Indicator 1.1.2), one, or possibly two, Indicator(s) for Criterion 1.2, Population abundance and/or biomass (Indicator 1.2.1) and two Indicators for Criterion 1.3, Population demographic characteristics (Indicator 1.3.1) and Population genetic structure (Indicator 1.3.2).

To date, metrics of population range (PR) and distribution pattern (DP) within the range have been considered to fulfil the Indicators 1.1.1 and 1.1.2, but these have not been agreed and development of appropriate metrics is ongoing. For this study both metrics are used. Metrics of both species population abundance (PAB) and species population biomass (PBIO) are considered in this study to fulfil the Indicator 1.2.1. Several metrics have been proposed to address the Indicator 1.3.1, but agreement over which metric should be used has not been reached. One potential metric, the proportion of the population exceeding the species' length-at-first-maturity (Bmat), is considered as an Indicator in this study. Currently no metrics of population genetic structure have been proposed to fulfil the Indicator 1.3.2. That indicator is thus excluded from this work.

Concurrently to the species-level Criteria, the MSFD also suggest Criterion, 1.7 Ecosystem Structure, which is relevant to mobile species such as fish. Five potential indicators to assess the status of fish communities against the Ecosystem Structure Criterion 1.7 have either been proposed, or are currently under development. These are the Typical length (TyL), the Mean Maximum Length (MML), the Proportion of Mature Fish in the Community (PMFC), Size-based Species Richness (SBSR) and Size-based Species Evenness (SBSE). Those five indicators are retained for this work.

The proposed analysis consists in computing the ten indicators belonging to the four Criteria in different GSAs to assess the GES of the Mediterranean Sea based on the MSFD approach.

Investigating the genetic structure of the curly line (Raja clavata) in the Northeast Atlantic and evaluate the value of a new method for estimating the abundance of the species in the Bay of Biscay, GENOPOPTAILLES, Pascal LORANCE

The first phase of the GenoPopTaille project analyses the populations structure, connectivity and genetic diversity of the thornback ray in the Altantic and Mediteranean Sea, using high throuput sequencing techniques (RADseq). The main aim of the project is to estimating the total number of adults in the population of the Bay of Biscay. The method relies on the principle of capture-mark-recapture (CMR) which is well tested using physical tags. Instead of physical tags, the project intends to use the genetic fingerprint of adults and recapture via their offsprings. Parent-offspring pairs will be identified by genotyping a large sample of adults and juveniles, which is now possible owing to rapid progress of high-throughput genotyping.

Benthic habitat sensitivity: process-driven vs functional approaches (in the Gulf of Lions) M. Llapasset, S. Vaz, A. Jadaud, 2016

In the Gulf of Lions, various environmental descriptors of sediments, currents, hydrology and food availability were processed in order to produce a risk map of the benthic sensitivity to trawling. This approach can also be enlarged to the whole of the Mediterranean bassin. In parallel, a trawl disturbance index was produced on the basis of in situ observations of the macro-benthic fauna, to illustrate the distribution of sensitive assemblages. This work had shown that the distribution of vulnerable benthic species in the Gulf of Lions was not coherent with that of their environmental preferedum but could be linked to their vulnerability to trawling. Most sensitive bentic species are generally found in areas where fishing effort is low which could reflect the fact that fishery has impacted and restructures seabeds some time ago. It would be interesting to use MEDITS data on benthic invertebrates to check this results in other areas.

Improving management efficiency of SW Europe waters through integrated assessment of marine networks SW Europe Marine Network (SoMarNet), INTEREG-SUDOE, S. Vaz

The South western european region is surrounded by both Atlantic and Mediterranean waters, both of which exhibiting a large number of threatened habitats and being managed as separate entities. This situation may lead to mismatch between conservation and management objectives as well as implemented protection and regulations. In the frame of the last interreg SUDOE call, we have proposed (french, spanish and portugues partners) a project which aims to develop a framework to improve management coherence and efficiency and decrease conflict in natural marine sites. Our goal is thus to provide knowledge usable by multiple stakeholders enabling them to support or challenge (currently implemented and future) spatial planning and management decisions in an integrated framework between the Mediterranean and the Atlantic. If accepted SoMarNet will bring together researchers and stakeholders with multi-disciplinary and complementary expertise which are essential to accomplish this objective. It will make heavy use of survey data from all countries (DATRAS and MEDITS) and will communicate results through website, geoportals and public meetings all through the project.

Demersal Surveys at the Romanian Black Sea Coast

dr. Valodia **MAXIMOV**,

Description of the Romanian Fisheries

The Romanian fishing fleet is operating in the area of competence of the Regional Fisheries Management Organisations - G.F.C.M., Area 37 - Mediterranean and Black Sea, Sub-area 37.4., Division 37.4.2, GSA 29. The Romanian fishing area is comprised between Sulina and Vama Veche; the coastline extends for over 240 km, which can be divided into two main geographical and geomorphologic sectors:

♦ the northern sector (about 158 km in length) lies between the secondary delta of the Chilia branch and Constanta, and is constituted of alluvial sediments;

♦ the southern sector (about 85 km in length) lies between Constanta and Vama Veche and is characterised by promontories with active, high cliffs, separated by large zones with accumulative beaches often protecting littoral lakes.

The distance from the sea shore to the shelf limits (200 m depth) varies from 100 to 200 km in the northern sector and to 50 km in the southern one. The submarine slope of the shelf is very gentle in the north, while in the southern sector the slope increase very quickly (Fig. 1 and 2).

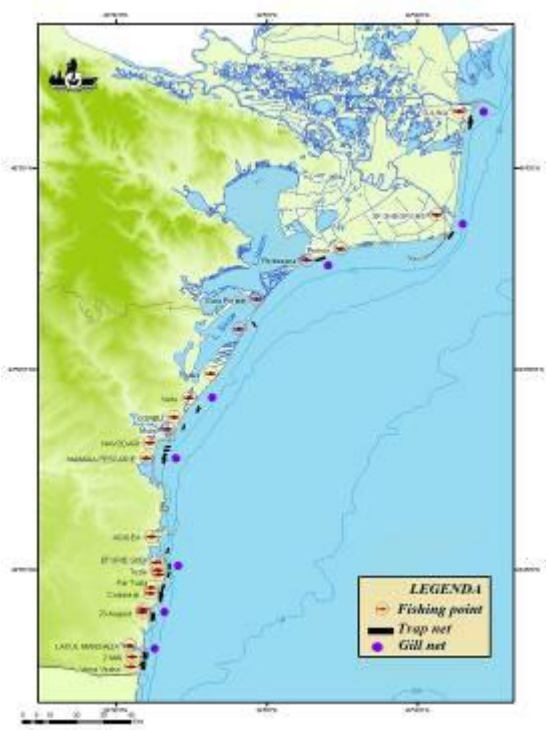


Fig. 1 Fishery ports and distribution area for stationary fishing gears

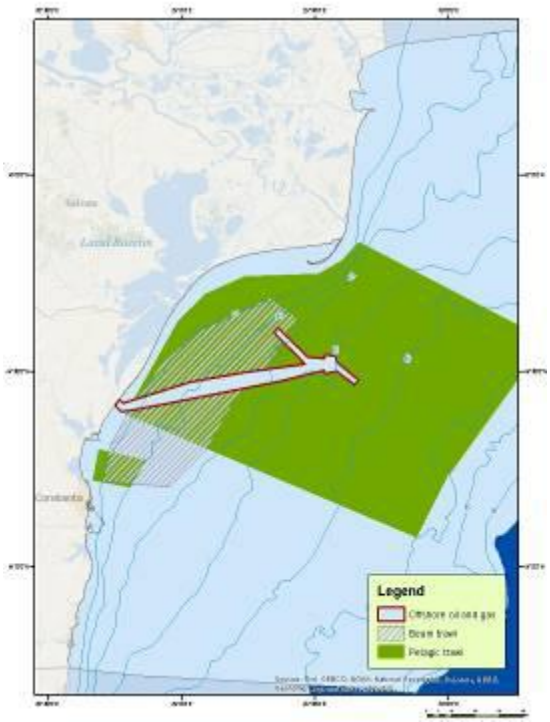


Fig. 2 Distribution of trawling zones for active fishing gears

In the coastal zone of the Romanian marine sector with small depth, fishing with fixed gear is characterized by the concentration of activity mainly in the first six-seven months of the season (March-September), when usually the species migrate to the coastal area for spawning and other species migrate for feeding. Generally, the total fishing season lasts

about eight months. The catch level and the level of fishing productivity differs from one year to another, depending on the fishing effort (number of pound nets and effective fishing days), and also depends on the evolution of hydro climatic conditions and, last but not least, the state of fish stocks. The structure on species in the catches mirrors only partly the composition of Black Sea ichtyofauna from the Romanian sector, because the type of gear used determines the ratio between the different fish species. As a general rule, the small-sized short-lived pelagic species continue to be dominant in catches.

In **2016**, only **151 vessels** were registered, of which **121** were active. Even though compared to the previous years the total number of registered vessels slightly dropped (about 5%), the number of active vessels increased, by the activation of 12 - 18 m and 18 - 24 m LOA vessels, specialized for rapa whelk fishing. The passive fishing gears include the equipment for catching in general the fish migrating for spawning and feeding in shallow waters, namely: long lines and bottom lines; ***gillnets for turbot***, Danube shad, gray mullet, gobies and horse mackerel; trap nets for gobies; sea pound nets. Another category of fishing equipment used in the Romanian coastal zone includes the active fishing gear like beach seine, pelagic trawl and, since 2013, beam trawl.

Qualitative and quantitative structure of catches

After a decreasing trend during 2002-2010, when it dropped from more than 2,000 t, in 2002, to 1,390-1,940 t, during 2003-2006, and below 500 t during 2007 - 2009, reaching a minimum value in 2010/258 t, in the past years the total catch has had an increasing trend, namely 568 t, in 2011, 835 t, in 2012, 1,711 t in 2013, 2,231 t in 2014 (more than 23.31% higher than the previous year), 4,847 in 2015 (more than 105.5 % higher than the previous year) and 6,839.5 tons in 2016, official registered (Fig. 3). During 2011 - 2016, the total catches increased compared to the previous period due to the rapa whelk catches. The main species in the 2016 catches were: rapa whelk (6,504.5 tons / 95 % of total catches); anchovy (102.42 tons); sprat (49.27 tons); turbot (30 tons); horse mackerel (32.34 tons); shad (13.77 tons) and gobies about 20.24 tons (Fig. 4).

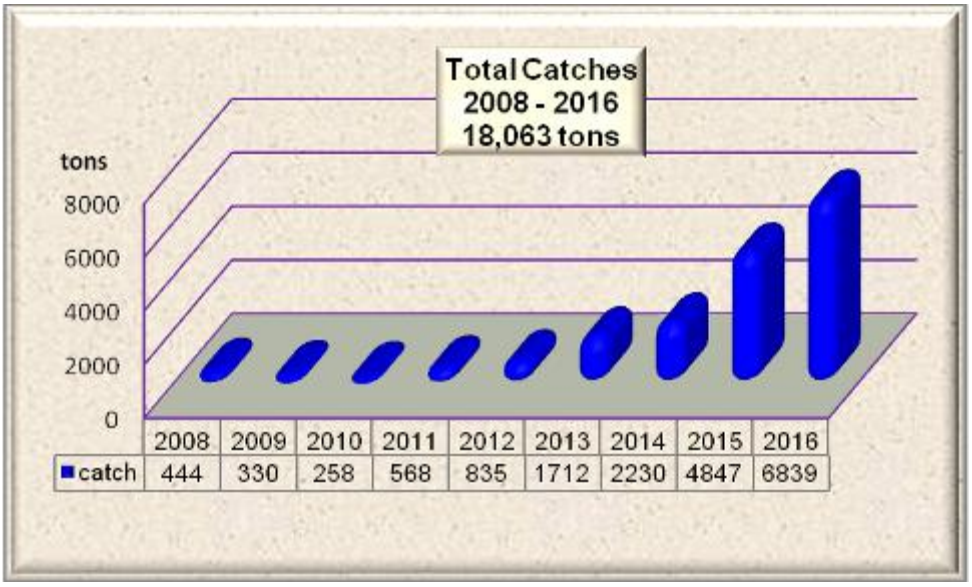


Fig. 3 Total catches at the Romanian littoral

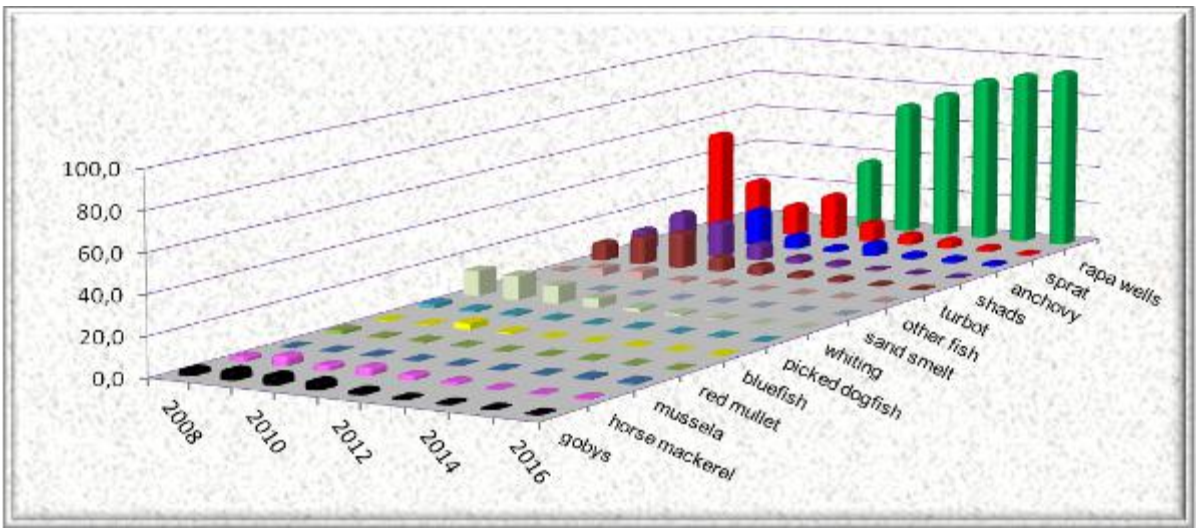


Fig. 4 Structure on species at the Romanian littoral, during 2008 - 2016

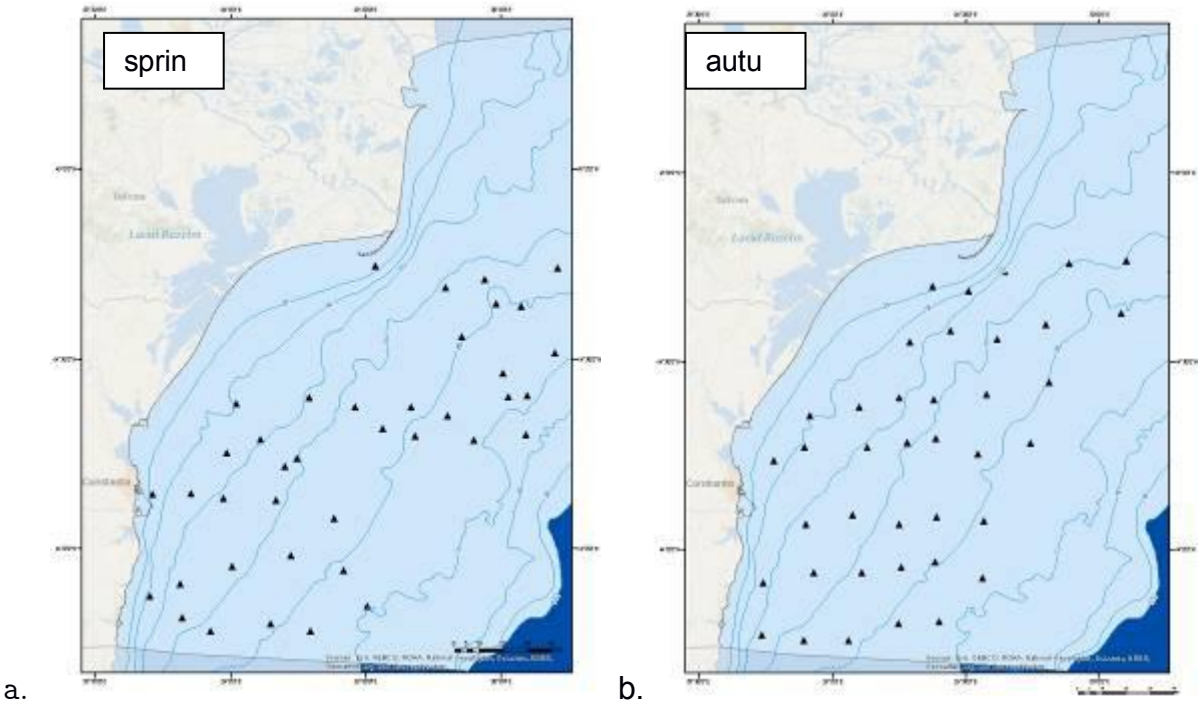
Demersal survey 2016:

♦ *period*: 07–27 may 2016 and 23-27 november / 08-12 december 2016 (Fig. 5).

♦ *type of fishing vessel*: B-410 (***STEAUA DE MARE 1***);

♦ *methodology*: evaluation of part of the stock of turbot and other demersal species (agglomerations fishing) was made by the method holistic trawl survey (method surface), that can be applied to restricted areas, without regard of the distribution of the entire stock and used as parameters: vessel speed, and the horizontal opening of the trawl during trawling;

♦ *characteristics*: demersal trawls: 22/27-34 m; horizontal trawl opening - 13 m; vertical trawl opening - 2 m; no trawls: 81; drepth: 13.3 - 80.1 m; trawl speed: 1.6 – 2.2 knots; time trawling: 60 min; catch: 20 - 250 kg.



a. b.

Fig. 5 The distribution points trawling in spring (a) and autumn (b) season, in the Romanian area

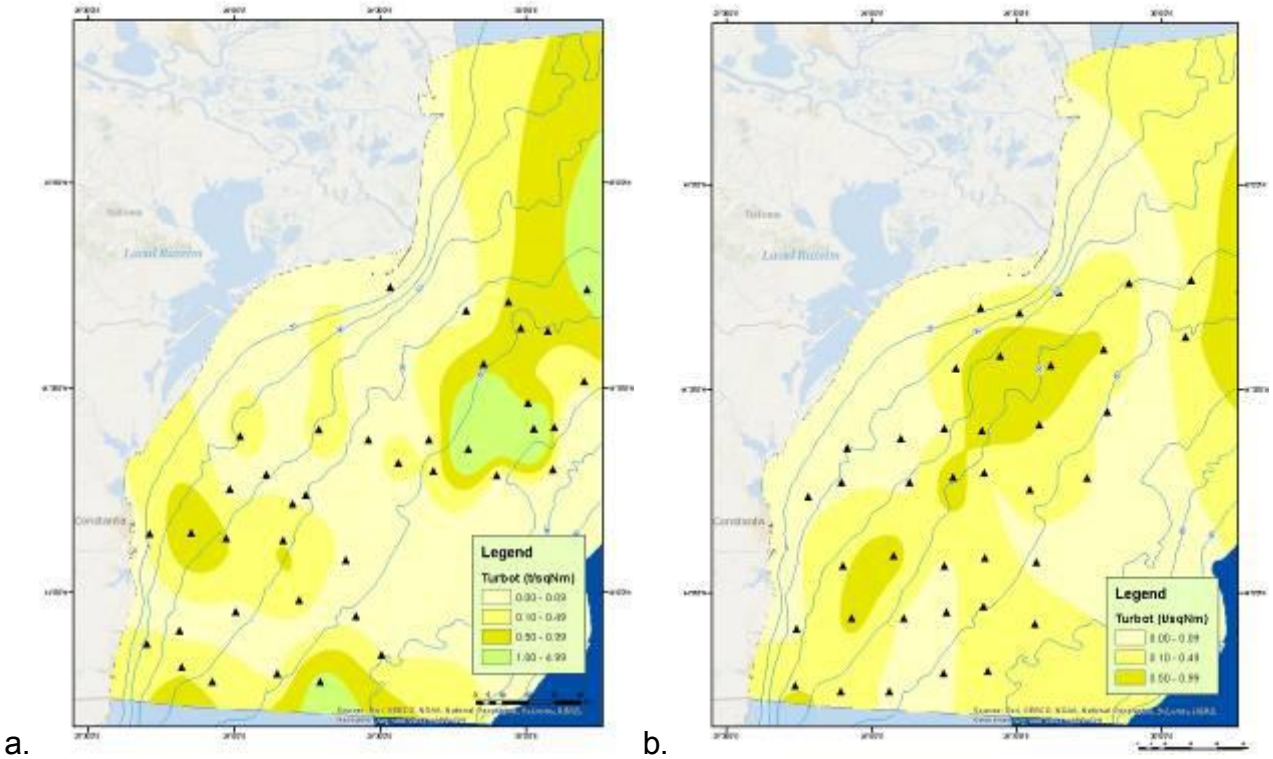
Estimated total biomass:

a. ***Psetta maxima maeotica*** (turbot):

Spring - in the **41** sample trawlings made with the demersal trawl, on a surface of **3,225** Nm², the average values of the catches were of about **0.078 – 0.508** t/Nm². The maximum value was recorded in the depths of 50-70 m along entire Romanian coast, between Sf. Gheorghe and Cap Midia sectors and 30-50 m Cap Midia – Vama Veche sectors (Fig. 6a). The estimated biomass for turbot agglomerations, in the research a area, was of about **2,116.72 to**.

Assessment of turbot agglomerations (tons), in May 2016, in the Romanian area

Depth range (m)	***0 - 30 m***	***30 - 50 m***	***50 - 70 m***	***Total***
Investigated area (Nm^2)	600	1,125	1,500	3,225
Variation of the catches (t/ Nm^2)	0.027 - 0.129	0 - 0.918	0 - 3.112	0 - 3.112
Average catch (t/ Nm^2)	0.078	0.225	0.508	0.423
Biomass of the fishing agglomerations (t)	47.308	253.366	762.884	1365.282
Biomass extrapolated for the Romanian shelf (t)				**2,116.72**



a. b.

Fig. 6 The distribution of the turbot agglomerations in spring (a) and autumn (b), demersal trawl survey, in the Romanian area

The analysis of the structure by lengths and weights of turbot shoals during the survey highlighted the presence of mature specimens and a high homogeneity of fish shoals. The lengths of turbot individuals were within the limits of classes of length 22.0-67.0 cm / 175.0 – 4,650.0 g. The dominant classes were 40.0 - 58.0 cm / 1m121.4 – 3,143.8 g (Fig. 7). Males were dominant – 56.7%, compared to females (38.6%) and juvenil (7.7 %). The average body length was 48.19 cm and the average weight 2,019.23 g.

The age composition of turbot catches indicates the presence of individuals from 2 to 6 years old. Most of the individuals caught are 3 year old (64.18% of all specimens analyzed), followed closely by those 4 years old (16.42.1 %), 5 years old (11.94 %) and 6 years old (5.97%)(Fig. 8).

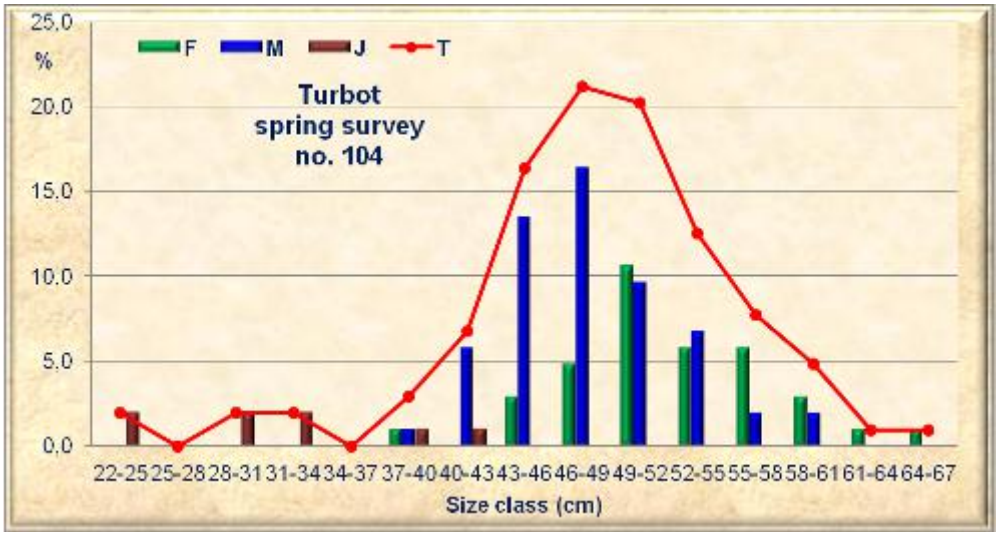


Fig. 7 Structure by lengths of turbot, during the spring survey

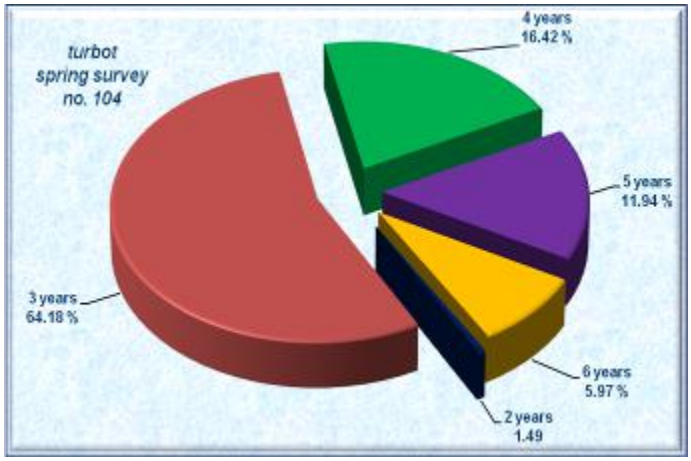


Fig. 8 Structure by age composition of turbot, during the spring survey

Autumn - in the **40** sample trawlings made with the pelagic trawl, on a surface of **3,000** Nm², the average values of the catches were of about **0.068 - 0.299** t/Nm² (Fig. 6b). The maximum value was recorded in the Gura Portita – Vama Veche (30 - 50 m) sectors. The estimated biomass of about **1,372.63 t**.

Assessment of turbot agglomerations (tons), in November/December 2016

Depth range (m)	***0 – 30 m***	***30 – 50 m***	***50 - 70 m***	***Total***
Investigated area (Nm^2)	600	1,125	1,275	3,000
Variation of the catches (t/ Nm^2)	0 - 0.136	0 - 0.887	0 - 0.916	0 – 0.916
Average catch (t/ Nm^2)	0.068	0.299	0.275	0.274
Biomass of the fishing agglomerations (t)	40.821	337.006125	350.738881	823.576
Biomass extrapolated for the Romanian shelf (t)				**1,372.63**

The lengths of turbot individuals were within the limits of classes of length 19.0-70.0 cm / 125.0 – 6,250.0 g. The dominant classes were 46.0 - 64.0 cm / 1,950.0 - 4,050.0 g (Fig. 9). Males were dominant – 57.56%, compared to females (29.17%) and juvenil (15.63%). The average body length was 50.66 cm and the average weight 2,482.8 g.

Age composition of turbot catches indicates the presence of individuals from 2 to 5 years old. Most of the individuals caught are 3 year old (41.0% of all specimens analyzed) and 2 years old (40%), followed closely by those 4 years old (15.0%) and 5 years old (4.0 %) (Fig. 10).

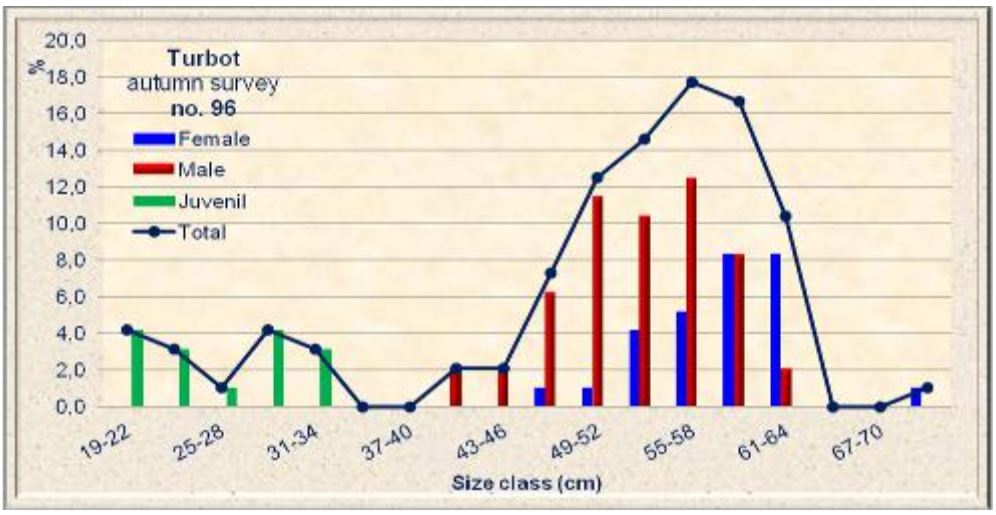


Fig. 9 Structure by lengths of turbot, during the autumn survey

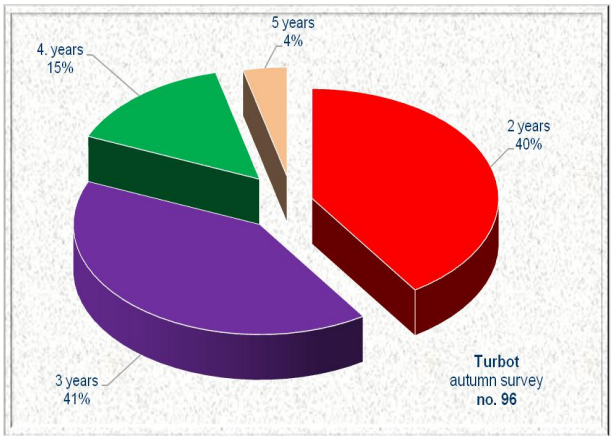


Fig. 10 Structure by age composition of turbot, during the autumn survey

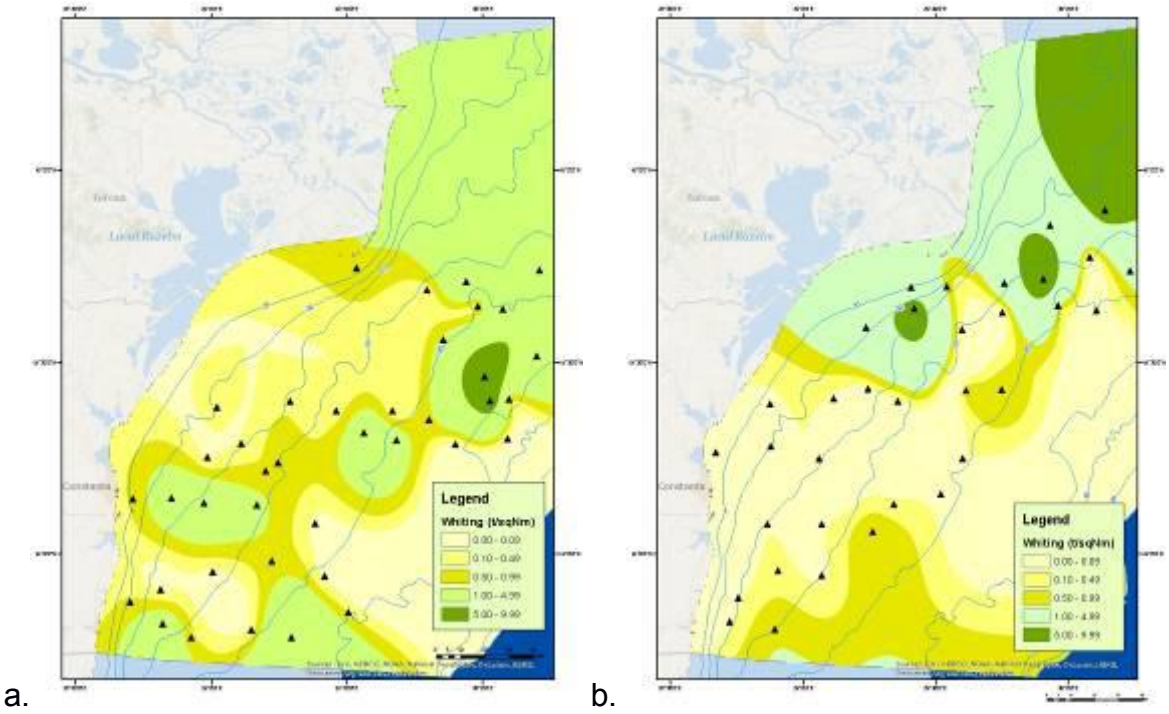
b. ***Merlangius merlangus*** (whiting):

Spring - in the **41** sample trawlings made with the demersal trawl, the on surface of **3,225 Nm²**. The average values of whiting catches were situated in the limits between **0.689 - 1.677 t/Nm².** It revealed that whiting had a flat distribution on a large area between Chituc - Mangalia (0.0 - 2.138 t/Nm² / depth 30 - 50 m, respectively 0.0 - 7.92 t/Nm² / depth 50 - 70 m)(Fig. 11a). The estimated biomass for the Romanian continental shelf was about **6,927.66 t.**

Assessment of whiting agglomerations (tons), in May 2016, in the Romanian area

Depth range (m)	***0 – 30 m***	***30 – 50 m***	***50 - 70 m***	***Total***
Investigated area (Nm²)	600	1,125	1,500	3,225
Variation of the catches (t/Nm²)	0.586 - 0.791	0 - 2.138	0 - 7.919	0 - 7.919
Average catch (t/ Nm²)	0.689	0.600	1.677	1.385
Biomass of the fishing agglomerations (t)	413.679	675.49	2515.782	4468.344
Biomass extrapolated for the Romanian shelf (t)				**6,927.66**

The analysis of structure by lengths and weights of whiting caught during the survey showed that the lengths of whiting individuals are within the limits of classes of length 60.0-160.0 mm / 2.08-33.88 g. The dominant classes are those of 90.0-135.0 mm / 4.99-18.03 g (Fig. 12). Females were dominant - 65.21%, compated to males (34.79%). The average body length was 110.91 mm and the average weight 11.18 g.



a. b.

Fig. 11 The distribution of the whiting agglomerations in spring (a) and autumn (b), demersal trawl survey, in Romanian area

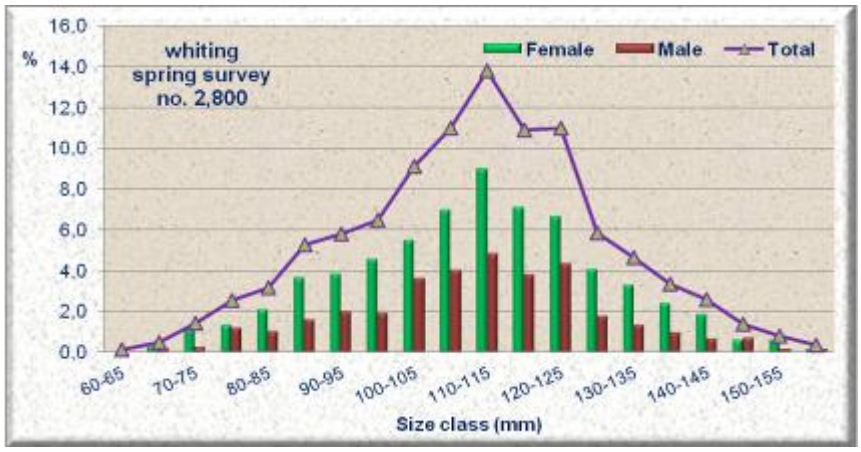


Fig. 12 Structure by lengths of whiting, during the spring survey

Age composition of withing catches indicates the presence of individuals from 0 to 4 years old. Most of the individuals caught are 1 year old (41.8% of all specimens analyzed) and 2 years old (34.6%), followed by those 3 years old (12.2%) and 0 years old (6.6%)(Fig. 13).

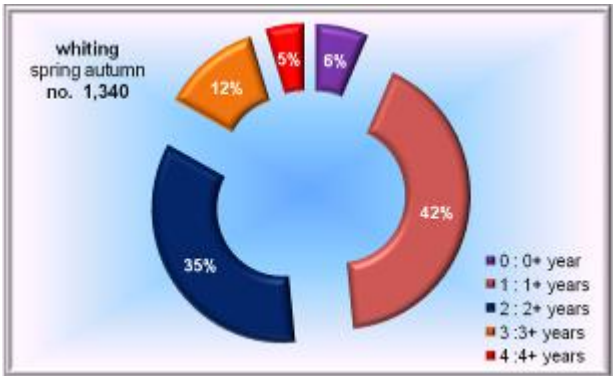


Fig. 13 Structure by age composition of whiting, during the autumn survey

Autumn - in the **40** sample trawlings made with the demersal trawl, on a surface of **3,000** Nm², the average values of the catches were of about **1.112 – 1.473** t/Nm². The maximum value was recorded in the Sulina – Chituc sector (0 -70 m) and Constanta - Managalia sectors (30 - 70 m)(Fig 11b). The estimated biomass for the whiting agglomerations, in the research area, was of about **6,042.48 tones**.

Assessment of whiting agglomerations (tons), in November/December 2016, in the Romanian area

Depth range (m)	***0 – 30 m***	***30 – 50 m***	***50 - 70 m***	***Total***
Investigated area (Nm^2)	600	1,125	1,275	3,000
Variation of the catches (t/ Nm^2)	0 - 3.36	0 - 6.735	0 - 7.998	0 - 7.998
Average catch (t/ Nm^2)	1.473	1.226	1.112	1.208
Biomass of the fishing agglomerations (t)	920.92	1624.64	806.65	3232.73
Biomass extrapolated for the Romanian shelf (t)				**6,042.48**

The analysis of structure by lengths and weights of whiting during the survey showed that lengths of whiting individuals are within the limits of classes of length 80.0-185.0 mm / 5.52 - 42.1 g. The dominant classes are those of 105.0-140.0 mm / 9.39-20.79 g (Fig. 14). Females were dominant - 64.2%, compared to males (35.8%). The average body length was 117.98 mm and the average weight 13.98 g.

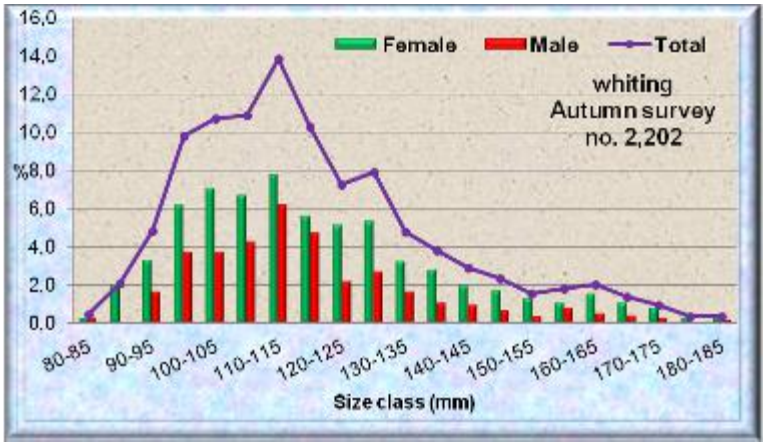


Fig. 14 Structure by lengths of whiting, during the autumn survey

Age composition of whiting catches indicates the presence of individuals from 1 to 5 years old. Most of the individuals caught were 2 years old (42.0% of all specimens analyzed) and 1 year old (39.0%), followed by those 3 years old (11.0%)(Fig. 15).

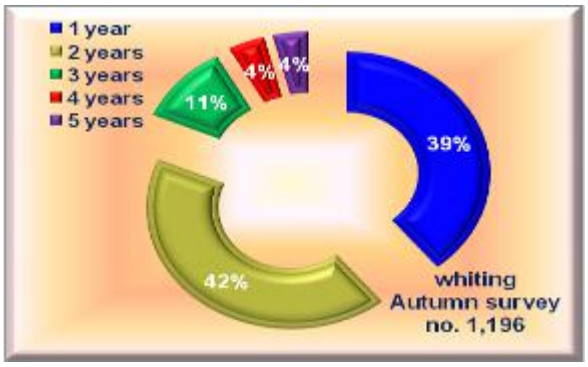


Fig. 15 Structure by age composition of whiting during the autumn survey

c. ***Squalus achanthias*** (piked dogfish)

Spring - in the 42 sample trawlings made with the demersal trawl, on a surface of **3,225**

Nm², the average values of the catches were of about **0.102 - 0.395 t**/Nm². The maximum value was recorded in the Sf. Gheorghe – Cap Midia (50 - 70 m) sectors (Fig. 15a). The estimated biomass in the research area was of about **1,550.15 to**.

Assessment of piked dogfish agglomerations (tons), in May 2016, Romanian area

Depth range (m)	*0 – 30 m*	*30 – 50 m*	*50 - 70 m*	*Total*
Investigated area (Nm²)	600	1,125	1,500	3,225
Variation of the catches (t/ Nm²)	0	0-0.463	0-0.902	0-0.902
Average catch (t/ Nm²)	0	0.102	0.395	0.310
Biomass of the fishing agglomerations (t)	0	114.833	593.922	999.843
Biomass extrapolated for the Romanian shelf (t)				**1,550.15**

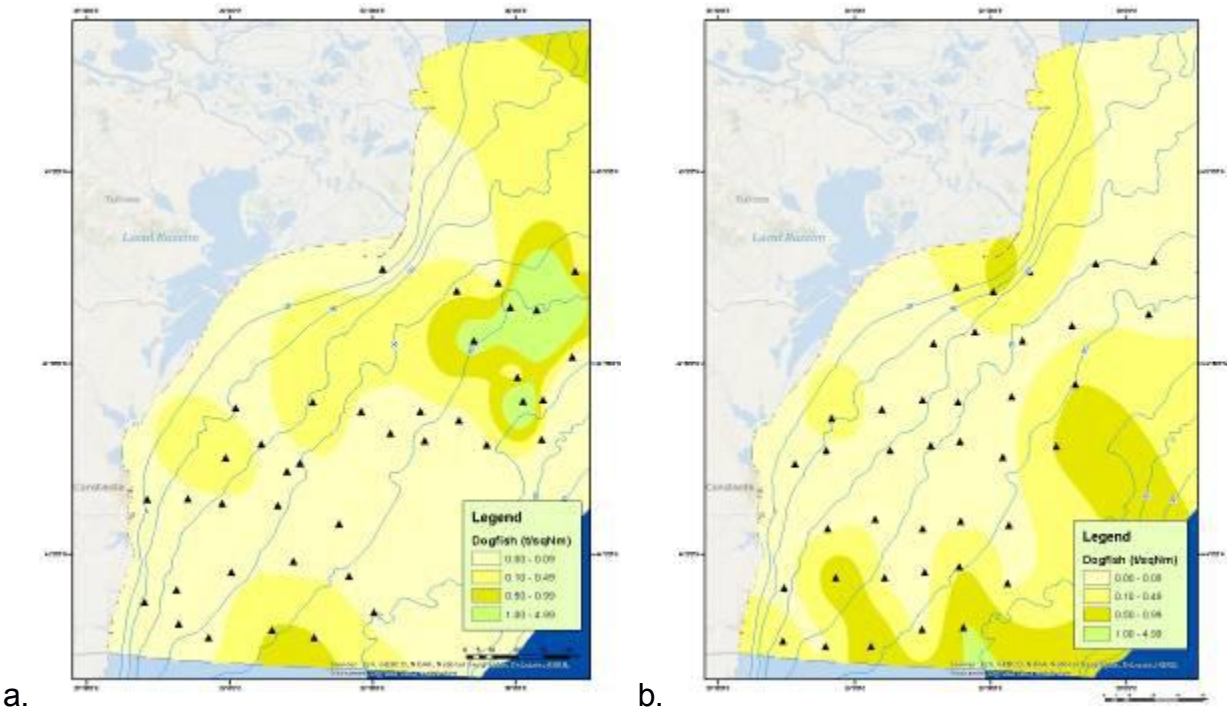


Fig. 15 The distribution of the piked dogfish agglomerations in spring (a) and autumn seson (b), demersal trawl survey, in Romanian area

The lengths of piked dogfish individuals were within the limits of classes of length 108.5-123.5 mm / 4,880 - 8,150 g. The dominant classes were 110.0 - 120.0 cm / 5,486 - 7,057 g (Fig. 16). Only males were identified (100.0%). The average body length was 114.63 cm and the average weight 6,295.21 g.

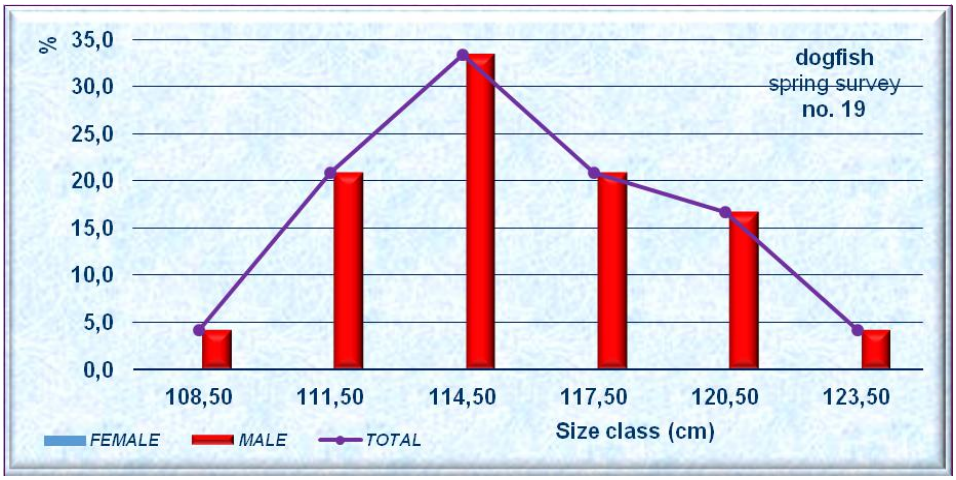


Fig. 16 Structure by lengths of piked dogfish, during the spring survey

Age composition of piked dogfish catches indicates the presence of individuals from 13 to 16 years old. Most of the individuals caught were 14 years old (47.8% of all specimens analyzed) and 15 years old old (26.1%), followed closely by those of 13 years (17.4%) (Fig. 17).

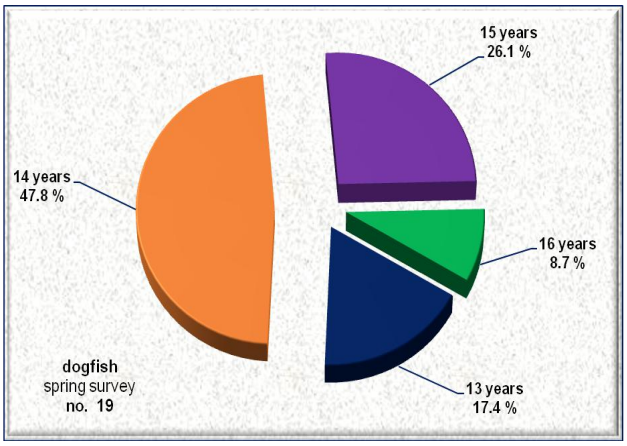


Fig. 17 Structure by age composition of piked dogfish, during spring survey

Autumn - in the **40** sample trawlings made with the demersal trawl, on a surface of **3,000** Nm², the average values of the catches were of about **0.063 – 0.195** t/Nm². The maximum value was recorded in the Chituc - Managalia sectors (50 - 80 m)(Fig 15b). The estimated biomass for the dogfish agglomerations, in the research area, was of about **747.18 tones**.

Assessment of dogfish agglomerations (tons), in November/December 2016, in the Romanian area

Depth range (m)	***0 – 30 m***	***30 – 50 m***	***50 - 70 m***	***Total***
Investigated area (Nm^2)	600	1,125	1,275	3,000
Variation of the catches (t/ Nm^2)	0-0.126	0-0.401	0-1.020	0-1.020
Average catch (t/ Nm^2)	0.063	0.096	0.195	0.149
Biomass of the fishing agglomerations (t)	37.9059	109.115	249.159	448.308
Biomass extrapolated for the Romanian shelf (t)				**747.18**

The lengths of piked dogfish individuals were within the limits of classes of length 101.5-125.5 mm / 4,500 - 8,300 g. The dominant classes were 110.0 - 120.0 cm / 5,470 - 6,829 g (Fig. 18). Only males were identified (100.0%). The average body length was 115.59 cm and the average weight 6,285.0 g.

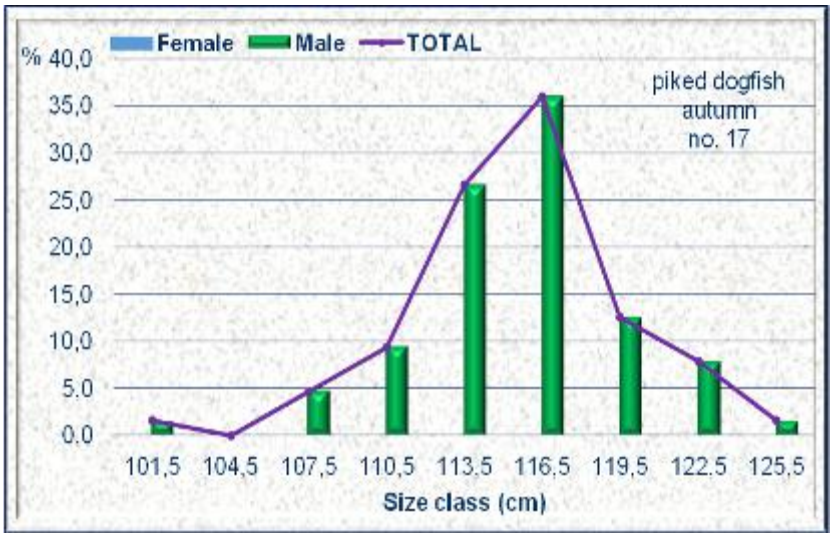


Fig. 18 Structure by lengths of piked dogfish, during the autumn survey

Age composition of piked dogfish catches indicates the presence of individuals from 12 to 17 years old. Most of the individuals caught were 14 years old (34.9%, of all specimens analyzed), 13 years old (25.6%), and 15 years old (20.9%), followed closely by those of 16 years old (11.6%)(Fig. 19).

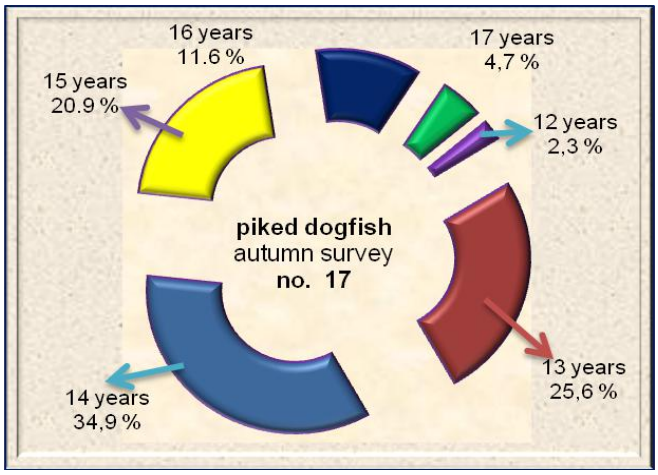
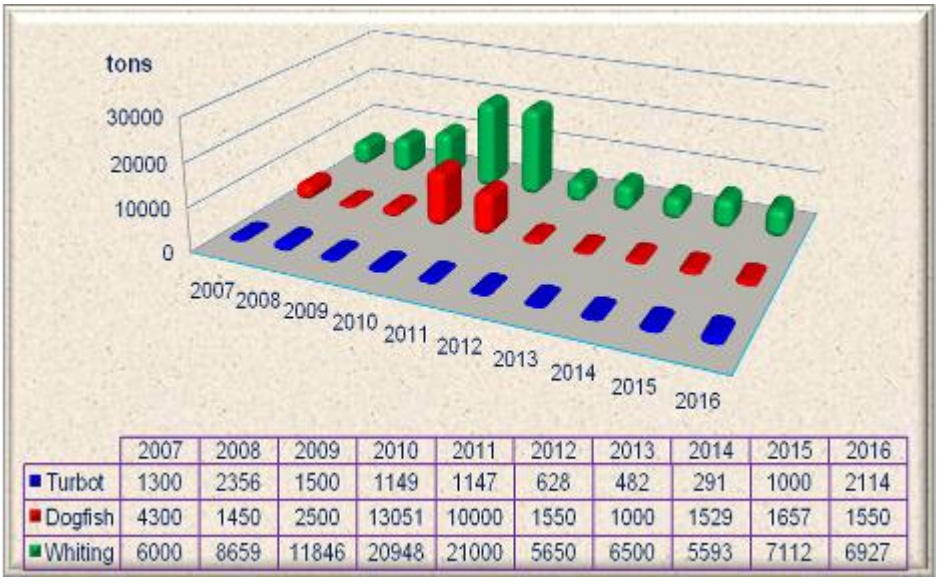


Fig. 19 Structure by age composition of piked dogfish, during autumn survey

The biomass of the main species' agglomerations from the Romanian coast

The swept area method is used for the assessment of the biomass of fishing agglomerations of turbott, whiting and dogfish, based on the statistical processing of productivity data obtained in sampling trawling and industrial trawling. The calculated biomasses by the swept area method for the main species at the Romanian littoral ranged between: turbot (300 tons and 2,400 tons); whiting (5,650 t and 21,000 t) and dogfish (1,529 t and 13,051 t)(Fig. 20).



	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Turbot	1300	2356	1500	1149	1147	628	482	291	1000	2114
Dogfish	4300	1450	2500	13051	10000	1550	1000	1529	1657	1550
Whiting	6000	8659	11846	20948	21000	5650	6500	5593	7112	6927

Fig. 20 The biomass of the main species' agglomerations from the Romanian coast

dr. eng Valodia MAXIMOV

APPENDIX 4 - Presentations (separated by a blank page)

GOBIERNO DE ESPAÑA
MINISTERIO DE ECONOMÍA, INDUSTRIA Y COMPETITIVIDAD

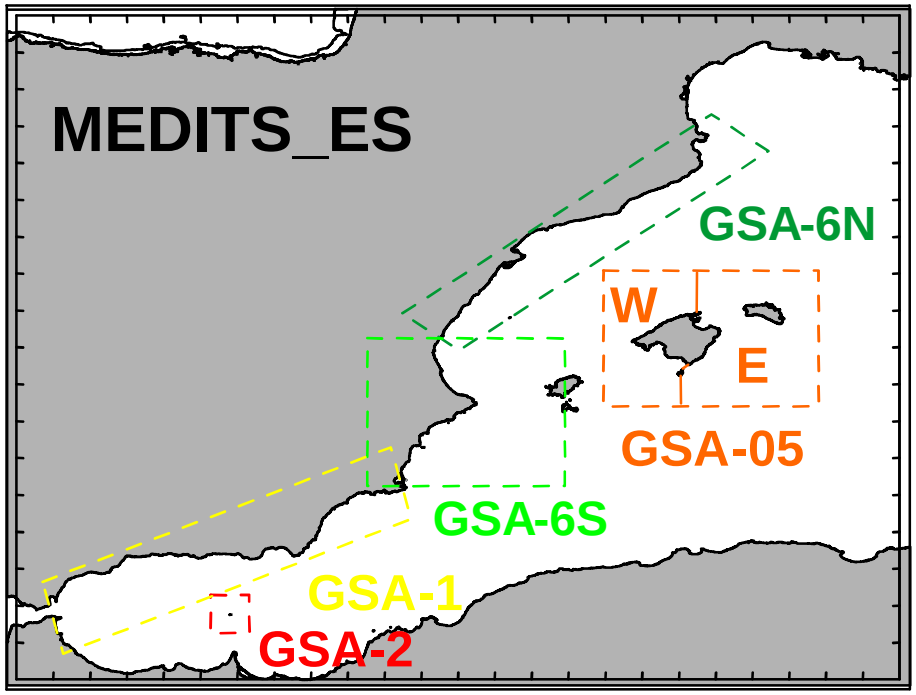
2017 MEDITS Coordination Meeting

INSTITUTO ESPAÑOL DE OCEANOGRAFÍA

MEDITS_ES_2016

23 April - 21 June 2016

MEDITS_ES_2016



Spanish GSAs

- GSA 1: Northern Alboran
- GSA 2: Alboran Island
- GSA 5: Balearic Islands
  - West
  - East
- GSA 6: Northern Spain
  - North
  - South

MEDITS_ES_2016: Hauls

R/V *Miguel Oliver*

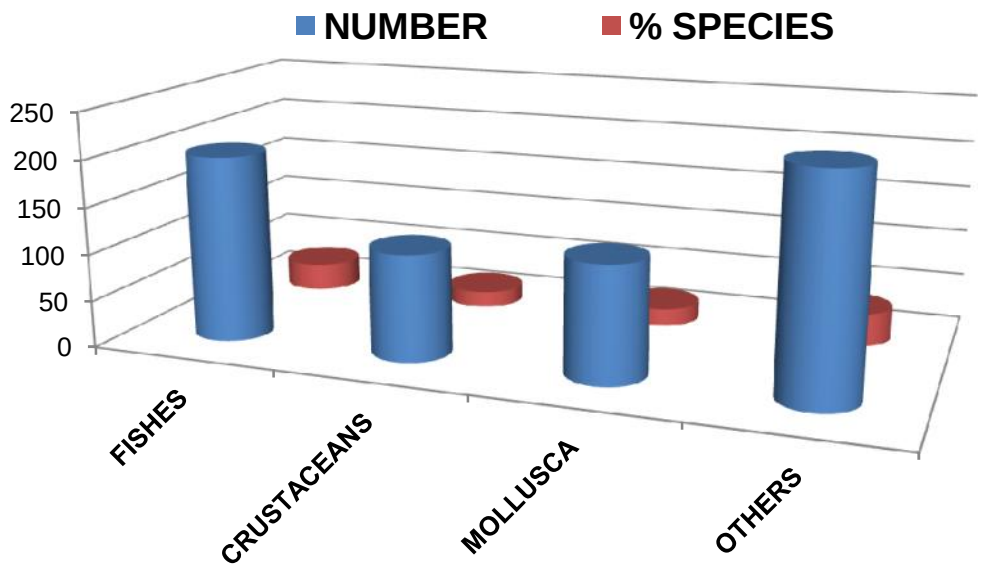
- **Size: 70 x 14 m**
- **GT: 2480 t**
- **Capacity: 18 scientists**

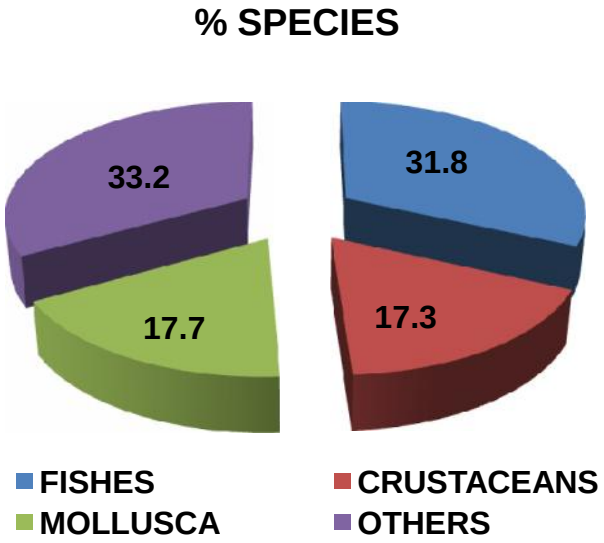
GSAs	Hauls	Days
1-2	71	17
5	53	13
6	106	25
Total	230	55

MEDITS_ES_2016: Catches

Taxa	Species
Fishes	212
Crustaceans	115
Molluscs	118
Others	221
TOTAL	666

Taxa1677341	Number	Weight (kg)
Fishes	772614	14912
Crustaceans	86078	487
Molluscs	36891	1222
Others	781758	5931
TOTAL	1677341	22552





MEDITS_ES_2016: Catches

TELEOSTS	Weight (kg)	Number
Boops boops	225	4692
Chelidonichthys cuculus	122	3364
Chelidonichthys gurnardus	6	176
Chelidonichthys lastoviza	70	1560
Chelidonichthys lucerna	0.026	2
Citharus linguatula	7	264
Diplodus annularis	52	918
Diplodus sargus		
Diplodus vulgaris	24	125
Engraulis encrasicolus	663	54779
Gadiculus argenteus	156	29054
Helicolenus dactylopterus	184	3757
Lepidorhombus boscii	51	1072
Lophius budegassa	214	574
Lophius piscatorius	97	91
Merluccius merluccius	191	10023
Micromesitius poutassou	282	25928
Mullus barbatus	209	5493
Mullus surmuletus	101	1377
Pagellus acarne	242	2726
Pagellus bogaraveo	32	301
Pagellus erythrinus	148	1981
Pagrus pagrus	11	60
Phycis blennoides	203	5072
Sardina pilchardus	101	8597
Scomber spp	10	309
Spicara flexuosa	103	4445
Spicara maena	34	1152
Spicara smaris	506	26681
Trachurus mediterraneus	244	14172
Trachurus trachurus	2741	84584
Trisopterus minutus	98	8566
Zeus faber	44	133

ELASMOBRANCHS	Weight (kg)	Number
Dalatias licha	16	6
Dipturus oxyrhinchus	33	29
Etmopterus spinax	644	877
Galeus melastomus	1348	15810
Leucoraja naevus	51	158
Raja asterias	34	43
Raja clavata	195	214
Raja montagui	2	5
Raja spp	117	340
Scyliorhinus canicula	1000	9825
Torpedo marmorata	10	32

CRUSTACEANS	Weight (kg)	Number
Aristeomorpha foliacea	2	125
Aristeus antennatus	44	2748
Nephrops norvegicus	78	2375
Palinurus elephas	6	10
Parapenaeus longirostris	46	6747
Squilla mantis	3	108

CEPHALOPODS	Weight (kg)	Number
Eledone cirrhosa	97	452
Eledone moschata	18	110
Ilex coindetti	334	5571
Loligo vulgaris	11	82
Octopus vulgaris	385	685
Sepia officinalis	16	75
Todarodes sagittatus	46	149

MEDITS_ES_2016: Biological sampling

Species	Number	Species	Number
Dalatias licha	7	*Merluccius merluccius*	3594
Dipturus oxyrhinchus	29	*Mullus barbatus*	2255
Etmopterus spinax	565	*Mullus surmuletus*	1085
Galeorhinus galeus	1		
Galeus melastomus	3116		
Leucoraja naevus	144	*Aristeomorpha foliacea*	63
Raja asterias	43	*Aristeus antennatus*	1750
Raja clavata	211	*Nephrops norvegicus*	1439
Raja miraletus	72	*Parapenaeus longirostris*	2548
Raja montagui	3		
Raja spp	256		
Scyliorhinus canicula	4682	*Ilex coindetti*	2110
Torpedo marmorata	29	*Loligo vulgaris*	81

Species	Otoliths/Illicia
Merluccius merluccius	781
Mullus barbatus	705
Mullus surmuletus	643
Lophius budegassa	386
Lophius piscatorius	57

MEDITS_ES_2016_Summary.doc

During 2016, the Spanish MEDITS survey was carried out from 23 April to 21 June (60 days), on board R/V *Miguel Oliver*. Four geographic sub-areas (GSAs) were covered: 1 (Northern Alboran), 2 (Alboran Island), 5 (Balearic Islands) and 6 (Northern Spain). A total of 230 hauls were performed, by several teams of the Spanish Institute of Oceanography (71 in GSAs 1 and 2, 53 in GSA 5 and 106 in GSA 6), following the MEDITS protocol. A total of 666 species or taxa (212 fishes, 115 crustaceans, 1118 molluscs and 221 other invertebrates and algae) were identified, counted and weighted. SCANMAR was used in all hauls. The CTD SeaBird-37 was also used in all the hauls attached to the flotsam. The total number of individuals of species captured was 1677341, weighing 22552 kg. The number of individuals measured in length was 160664 and the number of biological sampling made was 28276 individuals. A total of 2572 samples of hard tissues for age estimations were taken from *Merluccius merluccius*, *Mullus barbatus*, *M. surmuletus*, *Lophius budegassa* and *L. piscatorius*. In 2017, the Spanish MEDITS survey is planned from 23 April to 21 June on board R/V *Miguel Oliver*.

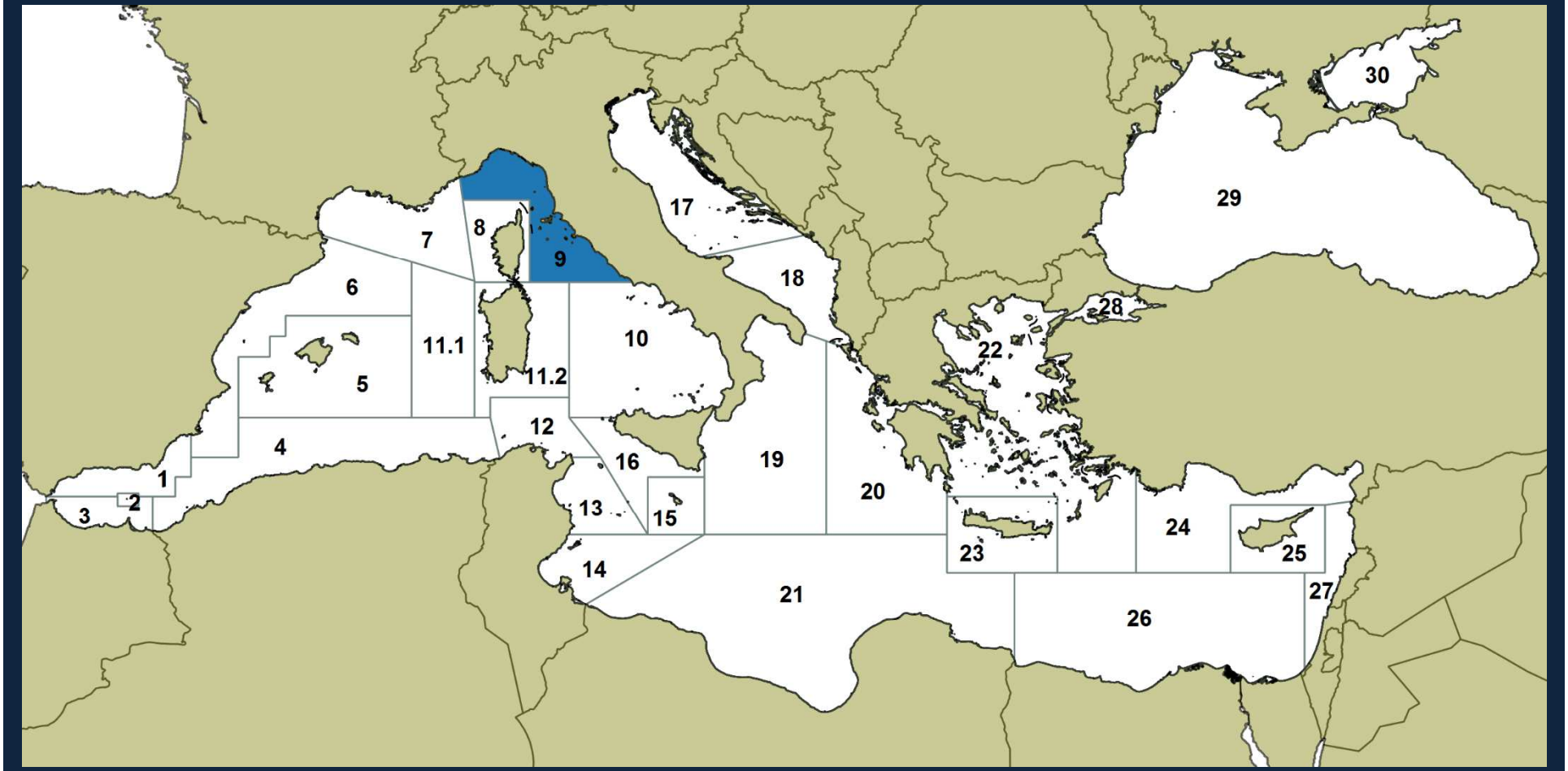
- **Outline Report GSAs 1-2.doc**
- **Outline Report GSA 5.docx**
- **Outline Report GSA 6.docx**

MEDITS_ES_2017

2016 MEDITS survey in the GSA9

Ligurian Sea, northern and Central Tyrrhenian Sea

GSA 9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Medits 2016 – Period in which the survey was carried out

Date	N° progressive days	Valid Hauls	Notes
21/05/2016	1	5	Sampling activities
22/05/2016	2	4	Sampling activities
23/05/2016	3	5	Sampling activities
24/05/2016	4	5	Sampling activities
25/05/2016	5	5	Sampling activities
26/05/2016	6	5	Sampling activities
27/05/2016	7	5	Sampling activities
28/05/2016	8	3	Sampling activities
29/05/2016	9	5	Sampling activities
30/05/2016	10	-	Stand by
31/05/2016	11	-	Stand by
01/06/2016	12	-	Stand by
02/06/2016	13	5	Sampling activities
03/06/2016	14	5	Sampling activities
04/06/2016	15	4	Sampling activities
05/06/2016	16	7	Sampling activities
06/06/2016	17	5	Sampling activities
07/06/2016	18	6	Sampling activities
08/06/2016	19	5	Sampling activities
09/06/2016	20	6	Sampling activities
10/06/2016	21	4	Sampling activities
11/06/2016	22	5	Sampling activities
12/06/2016	23	7	Sampling activities
13/06/2016	24	6	Sampling activities
14/06/2016	25	5	Sampling activities
15/06/2016	26	5	Sampling activities
16/06/2016	27	3	Sampling activities
Total	**27**	**120**	

Medits – Coordination meeting – Nicosia (Cyprus) April 5-6, 2017

Name of the vessel	**LIBERA**
Mooring port	Fiumicino (Rome)
Registration number	RM8125
Year of construction	1991
Length (LOA)	25.5 m
Tonnage (GT)	69 t
Engine brand	Guascor
Engine power (kW)	522
Maximum number of engine revolution	1800
Maximum capacity of warps	2000 m

Vessel characteristics

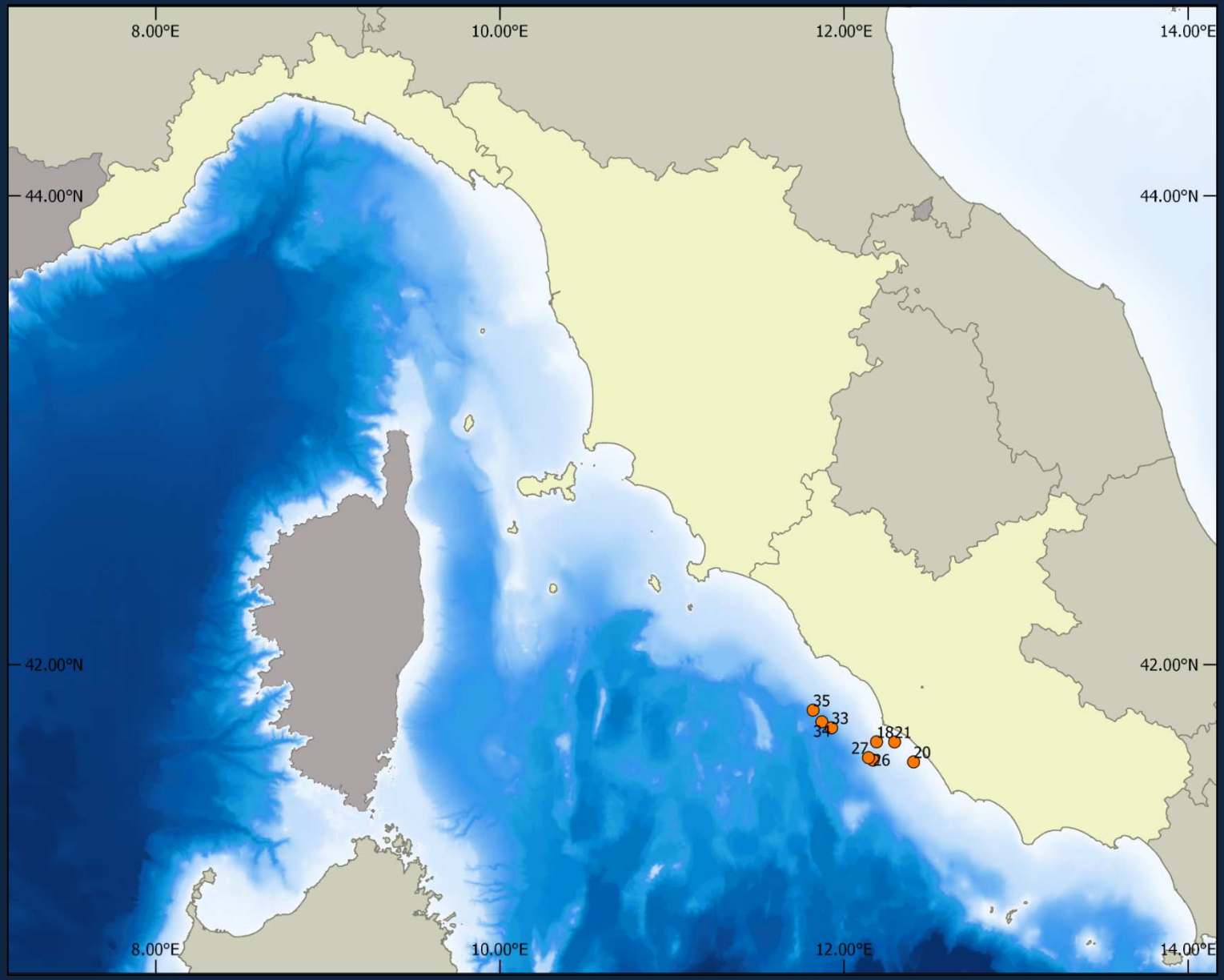
Period: 2004-2015

Name of the vessel	S. ANNA
Mooring port	Mazara del Vallo (TP)
Registration number	MV0292
Year of construction	1981
Length (LOA)	32.2 m
Tonnage (GT)	197 t
Engine brand	M.A.K.
Engine power (kW)	744
Maximum number of engine revolution	1800
Maximum capacity of warps	3100 m

Vessel characteristics

Period: 2016

Intercalibration – Position of the hauls



Intercalibration

- ✓ Statistically rigorous approach to estimating differences in catchability between the two vessels (FV Libera and FV Sant'Anna)
- ✓ Data analysed: biomass indices obtained in the paired tows performed during the inter-calibration survey
- ✓ Model applied: Negative Binomial GLMM (Generalized Linear Mixed Modelling) to model the catches obtained by the two vessels
- ✓ The R library *glmmADMB* was used for the analysis
- ✓ The initial model that was used is the following:

$$weight = depth \times vessel + \text{offset}(swept) + (1 \mid site)$$

Where: *weight* is the catch in kg in each tow;
depth is the mean depth (m) at each tow;
vessel is a two-levels factor (1 = FV Libera; 2 = FV Sant'Anna);
swept is the logarithm of the swept area in each tow (used as offset in the model);
site represents each paired tow, and is used as a random effect in the model.

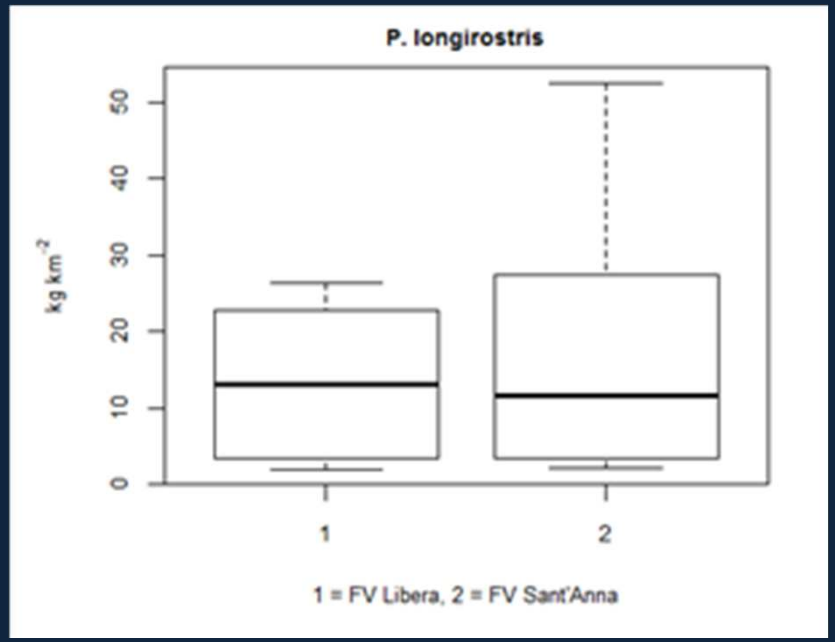
Intercalibration

- ✓ Starting from the initial model a backward stepwise selection procedure base on AIC (Akaike's Information Criterion) was performed to select the best model.
- ✓ As concerns model validation, we checked for over-dispersion, and we performed a visual analysis of residuals to check for homogeneity and normality.

Main results

Parapenaeus longirostris

Boxplot of the catches (biomass index) of deep-water rose shrimp obtained by the two vessels.



Intercalibration Main results - *Parapenaeus longirostris*

The model with the lowest AIC was the following. However, **no significant effect of the factor vessel was observed**.

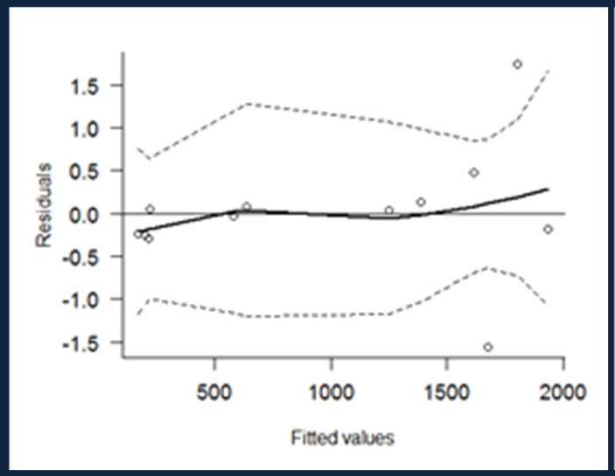
Call:
glmmadmb(weight ~ vessel + offset(swept) + (1|site), family = nbinom)
AIC: 185.6

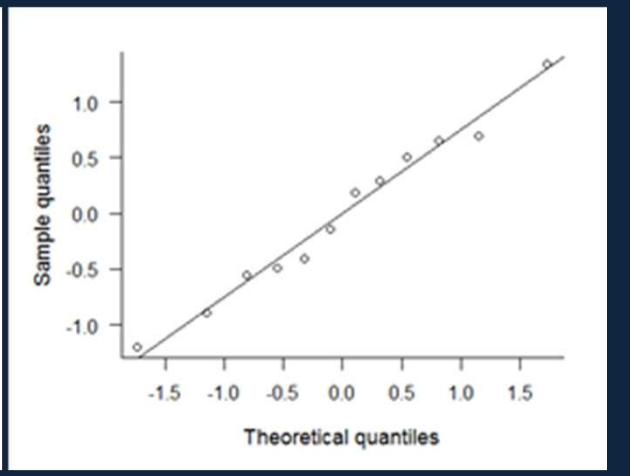
Coefficients:

	Estimate	Std. Error	z value	Pr(>|z|)
Intercept	9.956492	0.705950	14.10	<0.001
vessel2	0.410530	0.225490	1.82	0.069

The graphs show the plot of residuals versus fitted values (to check for homogeneity) and the QQ-plot (for normality).

Therefore, we can assume homogeneity and normality of the residuals

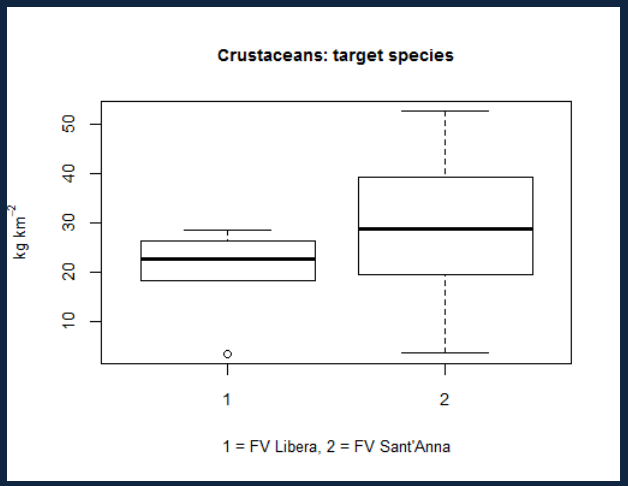




The dispersion due to the model was 1.01; therefore, we can assume there is no over-dispersion.

Intercalibration Main results - Crustaceans: target species

The figure shows a boxplot of the combined catches (biomass index) of blue and red shrimp (*Aristeus antennatus*), giant red shrimp (*Aristaeomorpha foliacea*), deep-water rose shrimp (*P. longirostris*), and Norway lobster (*Nephrops norvegicus*) obtained by the two vessels.



The model with the lowest AIC was the following. However, **no significant effect of the factor vessel was observed**.

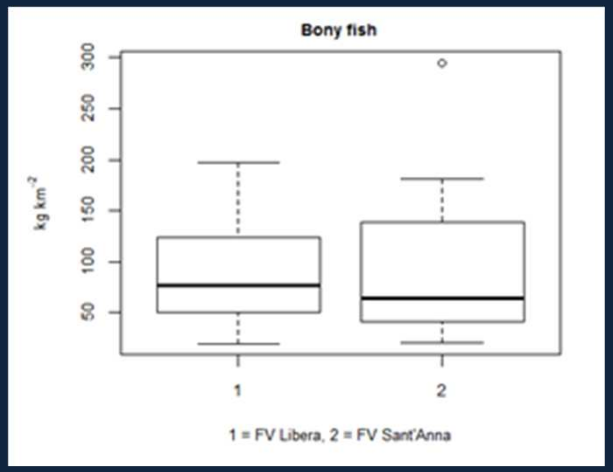
Call:
glmmadmb(weight ~ vessel + offset(swept) + (1|site), family = nbinom)
AIC: 200.9

Coefficients:

	Estimate	Std. Error	z value	Pr(>|z|)
Intercept	9.778	0.328	29.82	<0.001
vessel2	0.268	0.160	1.68	0.094

The dispersion due to the model was 0.81; therefore, we can assume there is no over-dispersion.

Intercalibration Main results – Bony fish



The following figure is showing a boxplot of the combined catches (biomass index) of all the bony fish (small pelagics, i.e. anchovy and sardine, were not included) obtained by the two vessels.

The model with the lowest AIC was the following.
However, **no significant effect of the factor vessel was observed**. A significant effect of depth is highlighted, showing a slight decrease of fish biomass with increasing depth. However, this effect is not linked to difference in catchability by the two vessels.

Call:
glmmadmb(weight ~ depth + offset(swept) + (1|site), family = nbinom)

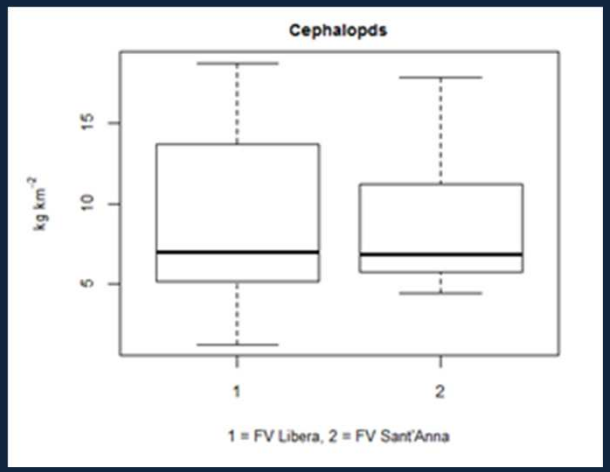
AIC: 298.4

Coefficients:

	Estimate	Std. Error	z value	Pr(>|z|)
Intercept	11.929639	0.246850	48.33	<0.001
depth	-0.002549	0.000699	-3.64	<0.001

The dispersion due to the model was 0.93; therefore, we can assume there is no over-dispersion.

Intercalibration Main results – Cephalopods



The following figure is showing a boxplot of the combined catches (biomass index) of all the cephalopods obtained by the two vessels.

The model with the lowest AIC was the following. However, **no significant effect of the factor vessel was observed**.

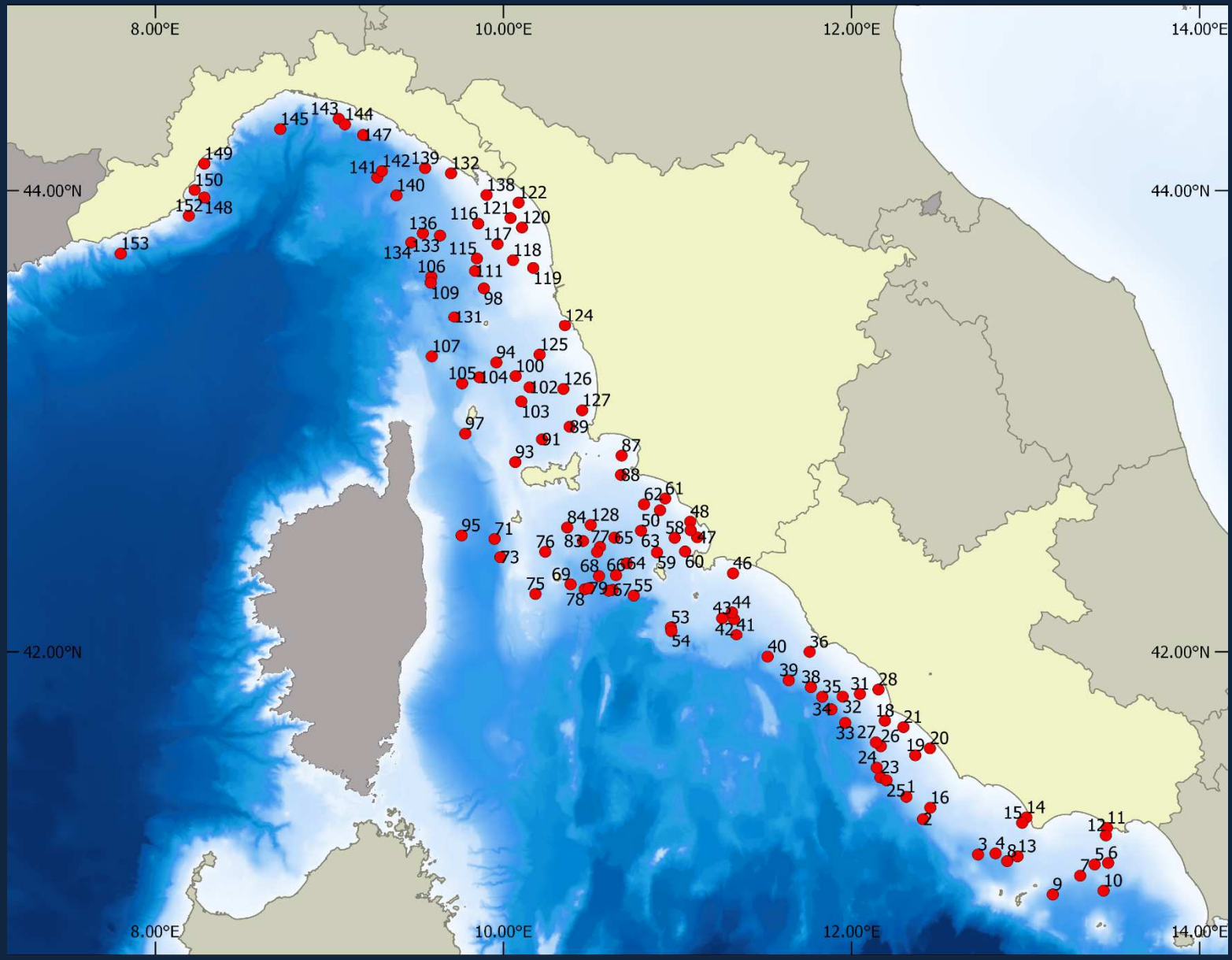
Call:
glmmadmb(weight ~ depth * vessel + offset(swept) + (1|site), family = nbinom)
AIC: 237.4

Coefficients:

	Estimate	Std. Error	z value	Pr(>|z|)
Intercept	9.207588	0.320030	28.77	<0.001
depth	-0.000410	0.000912	-0.45	0.65
vessel2	-0.259701	0.453130	-0.57	0.57
depth:vessel2	0.000870	0.001294	0.67	0.50

The dispersion due to the model was 1.22; therefore, we can assume there is no over-dispersion.

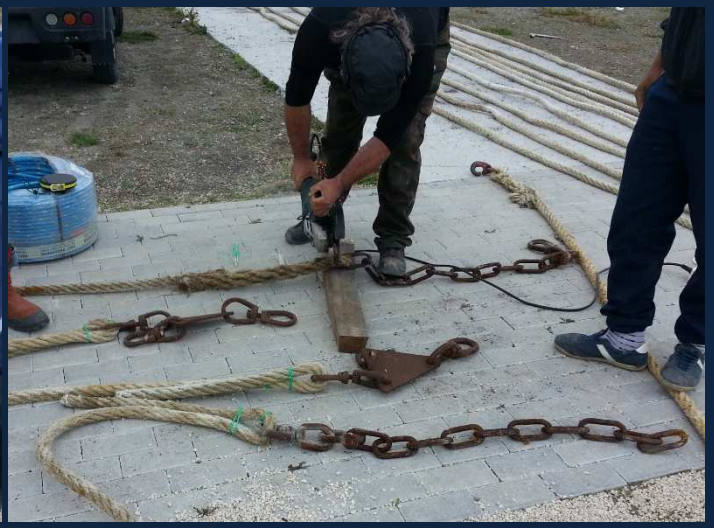
Geographic position of the hauls



Number of hauls and allocation in the bathymetric strata

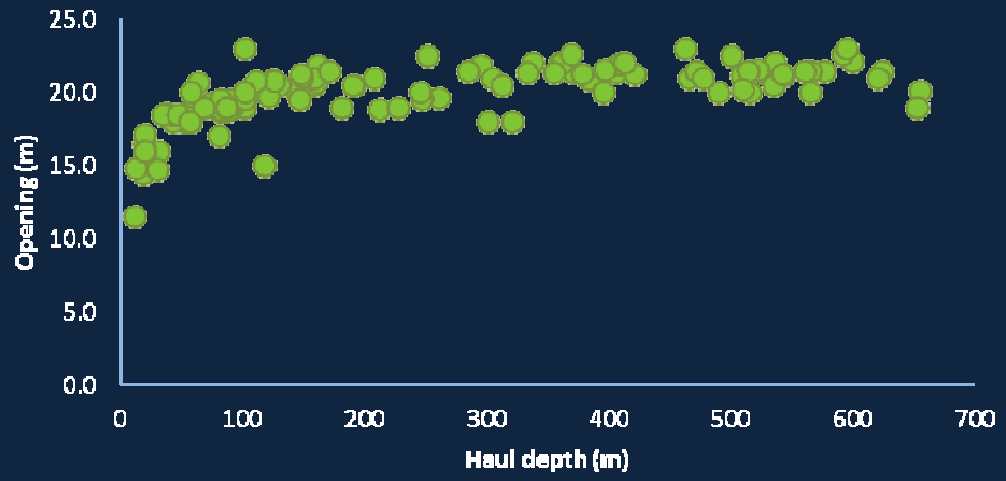
Survey MEDITS 2016		
Bathymetric strata	**GSA9 n. of hauls**	**GSA9 Area (km^2)**
Stratum A (10-50 m)	15	5762
Stratum B (51-100 m)	17	5992
Stratum C (101-200 m)	31	10878
Stratum D (201-500 m)	36	10587
Stratum E (501-800 m)	21	9191
Total	**120**	**42410**
Macro-stratum 10-200 m	**63**	**22632**
Macro-stratum 201-800 m	**57**	**19778**

Quality check of the MEDITS gear



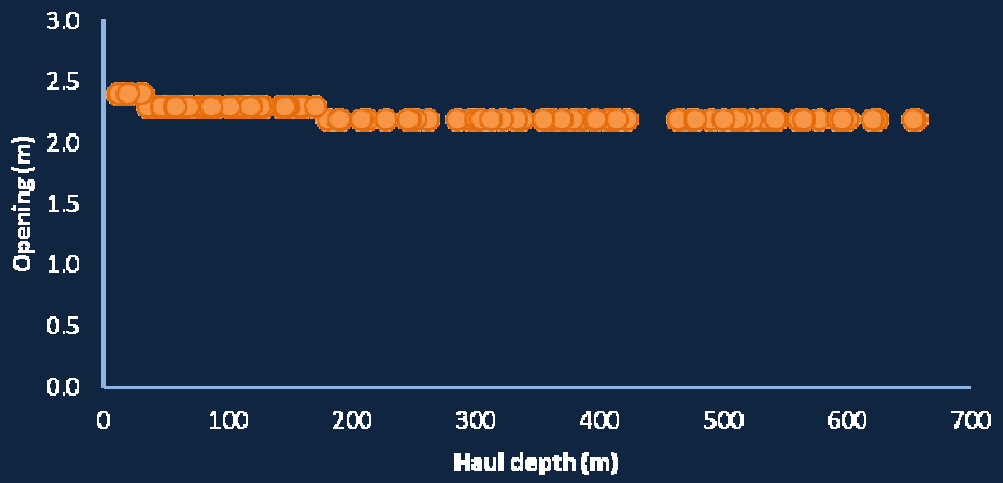
Net measurements

Wing Opening

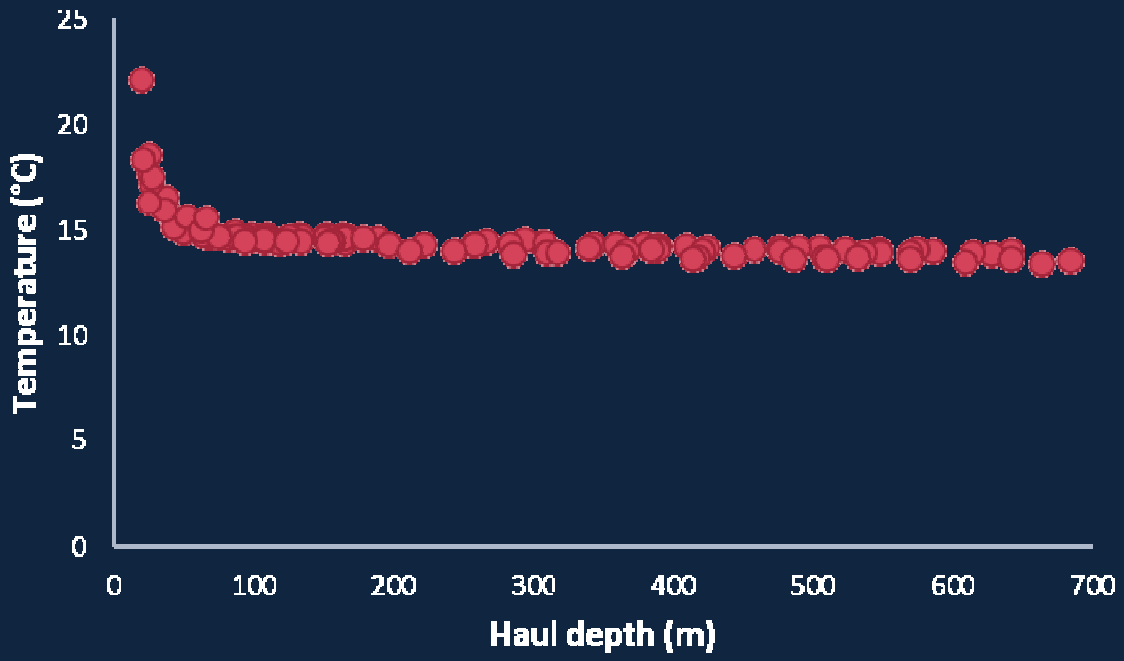


Positive hauls: 113

Vertical Opening



Sea bottom temperature



Positive hauls: 118

Number of species classified by taxa collected during the 2016 Medits survey

Taxa	Number of species
Fish Osteichthyes	123
Fish Elasmobranchs	16
Cephalopods	27
Crustaceans Decapoda	46
Crustaceans Cirripeda	1
Crustaceans Euphausiacea	1
Crustaceans Stomatopoda	2
Mollusca bivalvia	5
Mollusca Gastropoda	8
Mollusca Opistobranchia	2
Brachiopoda	1
Cnidaria	10
Echinoderms	26
Hirudinea	1
Polychaeta	1
Sponges	3
Tunicata	6
Vegetalia	2
Total	**281**

Medits – Coordination meeting – Nicosia (Cyprus) April 5-6, 2017

Total number of classified individuals of the MEDITS reference list collected during the 2016 Medits survey

	Medits code	Scientific name	N. of specimens caught
Bony fish	ENGRENC	*Engraulis encrasicolus*	116297
	SARDPIL	*Sardina pilchardus*	19128
	MERLMER	*Merluccius merluccius*	12000
	TRACMED	*Trachurus mediterraneus*	9690
	TRACTRA	*Trachurus trachurus*	6994
	MULLBAR	*Mullus barbatus*	5092
	PHYIBLE	*Phycis blennoides*	1843
	HELIDAC	*Helicolenus dactylopterus*	1442
	PAGEACA	*Pagellus acarne*	1272
	TRISCAP	*Trisopterus capelanus*	1077
	SPICFLE	*Spicara flexuosa*	984
	SPICSMA	*Spicara smaris*	917
	DIPLANN	*Diplodus annularis*	686
	PAGEERY	*Pagellus erythrinus*	672
	MICMPOU	*Micromesistius poutassou*	555
	BOOPBOO	*Boops boops*	370
	PAGEBOG	*Pagellus bogaraveo*	290
	LEPMBOS	*Lepidorhombus boscii*	224
	ASPICUC	*Aspitrigla cuculus*	93
	EUTRGUR	*Eutrigla gurnardus*	85
	CITHMAC	*Citharus linguatula*	76
	ZEUSFAB	*Zeus faber*	72
	MULLSUR	*Mullus surmuletus*	70
	LOPHBUD	*Lophius budegassa*	56
	TRIGLUC	*Chelidonichthys lucerna*	49
	SPICMAE	*Spicara maena*	16
	DIPLVUL	*Diplodus vulgaris*	5
	SCOMSCO	*Scomber scombrus*	4
	DIPLPUN	*Diplodus puntazzo*	3
	LOPHPIS	*Lophius piscatorius*	3
	SOLEVUL	*Solea vulgaris*	3
	TRIPLAS	*Trigloporus lastoviza*	2
	SCOMPNE	*Scomber colias*	1
	SPARPAG	*Pagrus pagrus*	1

	Medits code	Scientific name	N. of specimens caught
Elasmobranchs	GALUMEL	*Galeus melastomus*	2724
	SCYOCAN	*Scyliorhinus canicula*	871
	ETMOSPI	*Etmopterus spinax*	299
	RAJACLA	*Raja clavata*	159
	RAJAMIR	*Raja miraletus*	38
	RAJAOXY	*Dipturus oxyrhinchus*	20
	SQUABLA	*Squalus blainvillei*	20
	TORPMAR	*Torpedo marmorata*	11
	RAJAAST	*Raja asterias*	6
	RAJAPOL	*Raja polistigma*	4
	SCYMLIC	*Dalatias licha*	4
	CENTGRA	*Centrophorus granulosus*	2
	HEXAGRI	*Hexanchus griseus*	2
	RAJACIR	*Leucoraja circularis*	2
Cephalopods	ILLECOI	*Illex coindetii*	527
	ELEDCIR	*Eledone cirrhosa*	416
	LOLIVUL	*Loligo vulgaris*	192
	TODASAG	*Todarodes sagittatus*	26
	OCTOVUL	*Octopus vulgaris*	16
	SEPIOFF	*Sepia officinalis*	4
	ELEDMOS	*Eledone moschata*	2
Crustaceans	PAPELON	*Parapenaeus longirostris*	17517
	NEPRNOR	*Nephrops norvegicus*	1775
	ARISFOL	*Aristaeomorpha foliacea*	558
	ARITANT	*Aristeus antennatus*	146
	SQUIMAN	*Squilla mantis*	52

Medits – Coordination meeting – Nicosia (Cyprus) April 5-6, 2017

Total number of sampled individuals for length distributions collected during the 2016 Medits survey

	Medits code	Scientific name	N. of specimens measured	% on the total catch
Bony fish	ASPICUC	*Aspitrigla cuculus*	93	100
	BOOPBOO	*Boops boops*	370	100
	LEPMBOS	*Lepidorhombus boscii*	224	100
	LOPHPIS	*Lophius piscatorius*	3	100
	PAGEBOG	*Pagellus bogaraveo*	290	100
	PHYIBLE	*Phycis blennoides*	1843	100
	SCOMPNE	*Scomber colias*	1	100
	SCOMSCO	*Scomber scombrus*	4	100
	SOLEVUL	*Solea vulgaris*	3	100
	SPICMAE	*Spicara maena*	16	100
	TRIGLUC	*Chelidonichthys lucerna*	49	100
	TRIPLAS	*Trigloporus lastoviza*	2	100
	ZEUSFAB	*Zeus faber*	72	100
	CITHMAC	*Citharus linguatula*	75	99
	MULLSUR	*Mullus surmuletus*	69	99
	LOPHBUD	*Lophius budegassa*	55	98
	TRISCAP	*Trisopterus capelanus*	1049	97
	MICMPOU	*Micromesistius poutassou*	523	94
	SPICFLE	*Spicara flexuosa*	927	94
	HELIDAC	*Helicolenus dactylopterus*	1351	94
	PAGEERY	*Pagellus erythrinus*	626	93
	EUTRGUR	*Eutrigla gurnardus*	73	86
	SPICSMA	*Spicara smaris*	780	85
	DIPLVUL	*Diplodus vulgaris*	4	80
	MULLBAR	*Mullus barbatus*	3495	69
	DIPLANN	*Diplodus annularis*	404	59
	MERLMER	*Merluccius merluccius*	6406	53
	TRACTRA	*Trachurus trachurus*	3525	50
	PAGEACA	*Pagellus acarne*	405	32
	TRACMED	*Trachurus mediterraneus*	2676	28
	SARDPIL	*Sardina pilchardus*	3064	16
	ENGRENC	*Engraulis encrasicolus*	5645	5
	DIPLPUN	*Diplodus puntazzo*	0	0
	SPARPAG	*Pagrus pagrus*	0	0

	Medits code	Scientific name	N. of specimens measured	% on the total catch
Elasmobranchs	CENTGRA	*Centrophorus granulosus*	2	100
	ETMOSPI	*Etmopterus spinax*	299	100
	HEXAGRI	*Hexanchus griseus*	2	100
	RAJAAST	*Raja asterias*	6	100
	RAJACIR	*Leucoraja circularis*	2	100
	RAJACLA	*Raja clavata*	159	100
	RAJAMIR	*Raja miraletus*	38	100
	RAJAPOL	*Raja polistigma*	4	100
	SCYMLIC	*Dalatias licha*	4	100
	SCYOCAN	*Scyliorhinus canicula*	871	100
	SQUABLA	*Squalus blainvillei*	20	100
	GALUMEL	*Galeus melastomus*	2592	95
	RAJAOXY	*Dipturus oxyrhinchus*	17	85
	TORPMAR	*Torpedo marmorata*	9	82
Cephalopods	ELEDMOS	*Eledone moschata*	2	100
	ILLECOI	*Illex coindetii*	527	100
	SEPIOFF	*Sepia officinalis*	4	100
	ELEDCIR	*Eledone cirrhosa*	415	100
	LOLIVUL	*Loligo vulgaris*	187	97
	TODASAG	*Todarodes sagittatus*	23	88
	OCTOVUL	*Octopus vulgaris*	14	88
Crustaceans	ARISFOL	*Aristaeomorpha foliacea*	558	100
	ARITANT	*Aristeus antennatus*	146	100
	NEPRNOR	*Nephrops norvegicus*	1775	100
	SQUIMAN	*Squilla mantis*	52	100
	PAPELON	*Parapenaeus longirostris*	8660	49

Medits – Coordination meeting – Nicosia (Cyprus) April 5-6, 2017

Total number of sampled individuals for sex and maturity collected during the 2016 Medits survey

	Medits code	Scientific name	N. of specimens for sex and maturity	% on the total catch
Bony fish	MERLMER	*Merluccius merluccius*	1332	11
	MULLBAR	*Mullus barbatus*	3394	67
	MULLSUR	*Mullus surmuletus*	68	97
Elasmobranchs	CENTGRA	*Centrophorus granulosus*	2	100
	ETMOSPI	*Etmopterus spinax*	299	100
	GALUMEL	*Galeus melastomus*	2592	95
	HEXAGRI	*Hexanchus griseus*	2	100
	RAJAAST	*Raja asterias*	6	100
	RAJACIR	*Leucoraja circularis*	2	100
	RAJACLA	*Raja clavata*	159	100
	RAJAMIR	*Raja miraletus*	38	100
	RAJAOXY	*Dipturus oxyrhinchus*	17	85
	RAJAPOL	*Raja polistigma*	4	100
	SCYMLIC	*Dalatias licha*	4	100
	SCYOCAN	*Scyliorhinus canicula*	871	100
	SQUABLA	*Squalus blainvillei*	20	100
	TORPMAR	*Torpedo marmorata*	9	82
Cepha-lopods	ILLECOI	*Illex coindetii*	485	92
	LOLIVUL	*Loligo vulgaris*	14	7
Crustaceans	ARISFOL	*Aristaeomorpha foliacea*	558	100
	ARITANT	*Aristeus antennatus*	146	100
	NEPRNOR	*Nephrops norvegicus*	1775	100
	PAPELON	*Parapenaeus longirostris*	8660	49

Total number of sampled individuals for individual weight collected during the 2016 Medits survey

	Medits code	Scientific name	N. of specimens for individual weight	% on the total catch
Bony fish	MERLMER	*Merluccius merluccius*	427	4
	MULLBAR	*Mullus barbatus*	568	11
	MULLSUR	*Mullus surmuletus*	69	99
Elasmobranchs	CENTGRA	*Centrophorus granulosus*	2	100
	ETMOSPI	*Etmopterus spinax*	233	78
	GALUMEL	*Galeus melastomus*	627	23
	HEXAGRI	*Hexanchus griseus*	2	100
	RAJAAST	*Raja asterias*	6	100
	RAJACIR	*Leucoraja circularis*	2	100
	RAJACLA	*Raja clavata*	158	99
	RAJAMIR	*Raja miraletus*	38	100
	RAJAOXY	*Dipturus oxyrhinchus*	17	85
	RAJAPOL	*Raja polistigma*	4	100
	SCYMLIC	*Dalatias licha*	4	100
	SCYOCAN	*Scyliorhinus canicula*	517	59
	SQUABLA	*Squalus blainvillei*	20	100
	TORPMAR	*Torpedo marmorata*	7	64
Cepha-lopods	ILLECOI	*Illex coindetii*	505	96
	LOLIVUL	*Loligo vulgaris*	124	65
Crustaceans	ARISFOL	*Aristaeomorpha foliacea*	354	63
	ARITANT	*Aristeus antennatus*	146	100
	NEPRNOR	*Nephrops norvegicus*	608	34
	PAPELON	*Parapenaeus longirostris*	543	3

Number of samples of hard tissues collected for ageing by target species during the 2016 Medits survey

	Number of otoliths collected	Size range covered
Merluccius merluccius	382	4.5 - 66.5 cm TL
Mullus barbatus	535	8.5 - 26.0 cm TL
Mullus surmuletus	69	14.5 - 33.0 cm TL

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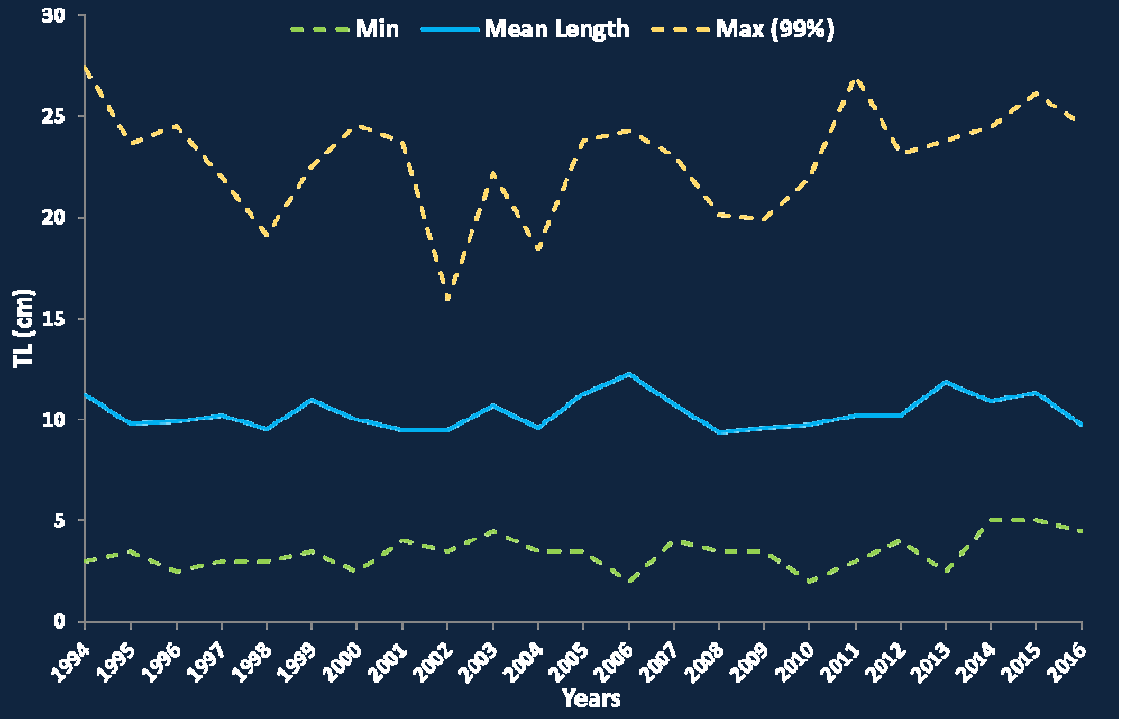
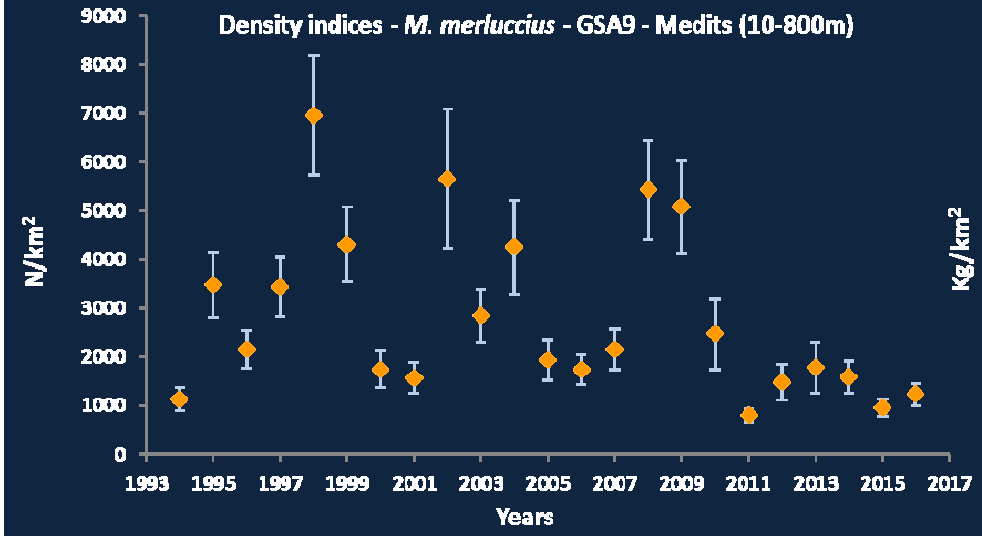
Merluccius merluccius

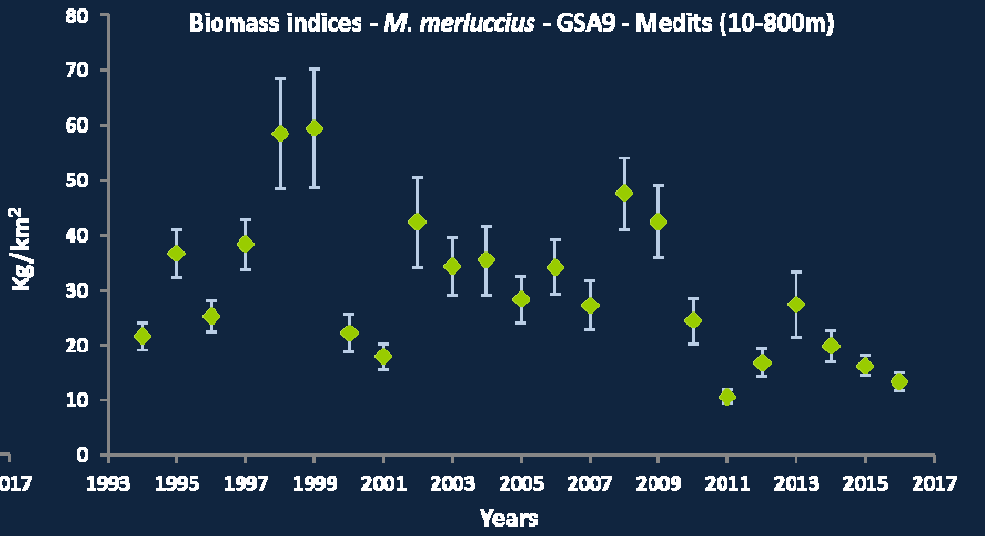
Historical trends of the demographic structure, density and biomass indices

Spearman's ρ

Density	Biomass	Mean length
-0.408	-0.47	0.183







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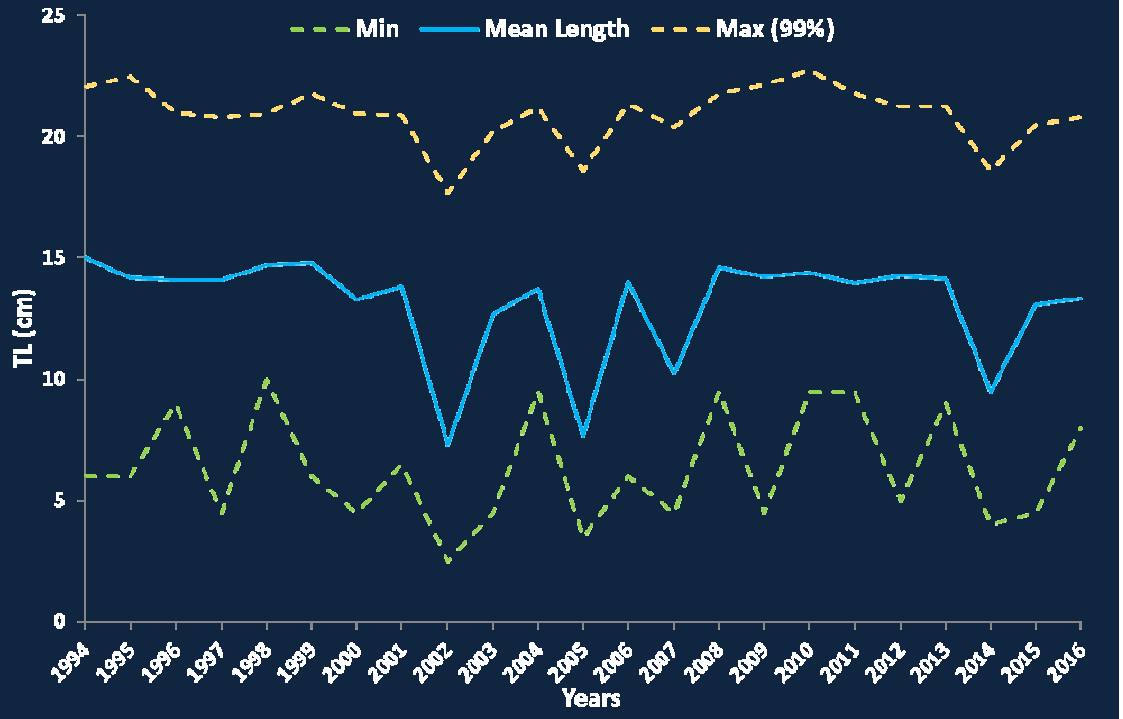
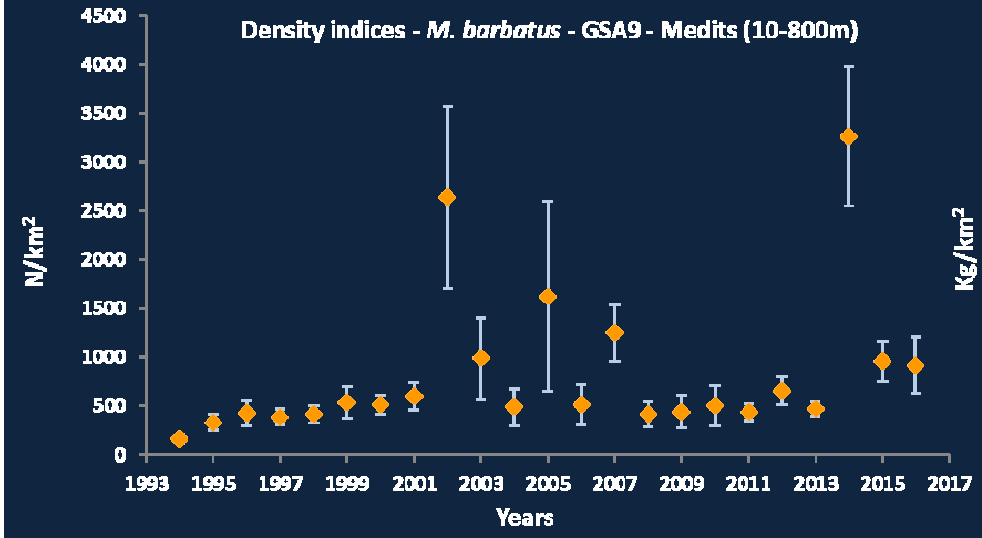
Mullus barbatus

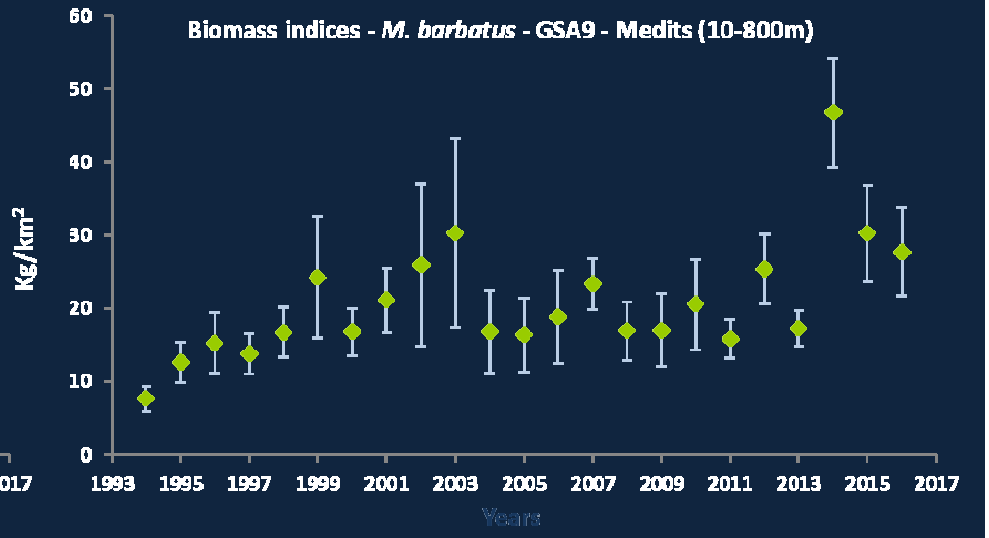
Historical trends of the demographic structure, density and biomass indices

Spearman's ρ

Density	Biomass	Mean length
0.488	0.619	-0.286







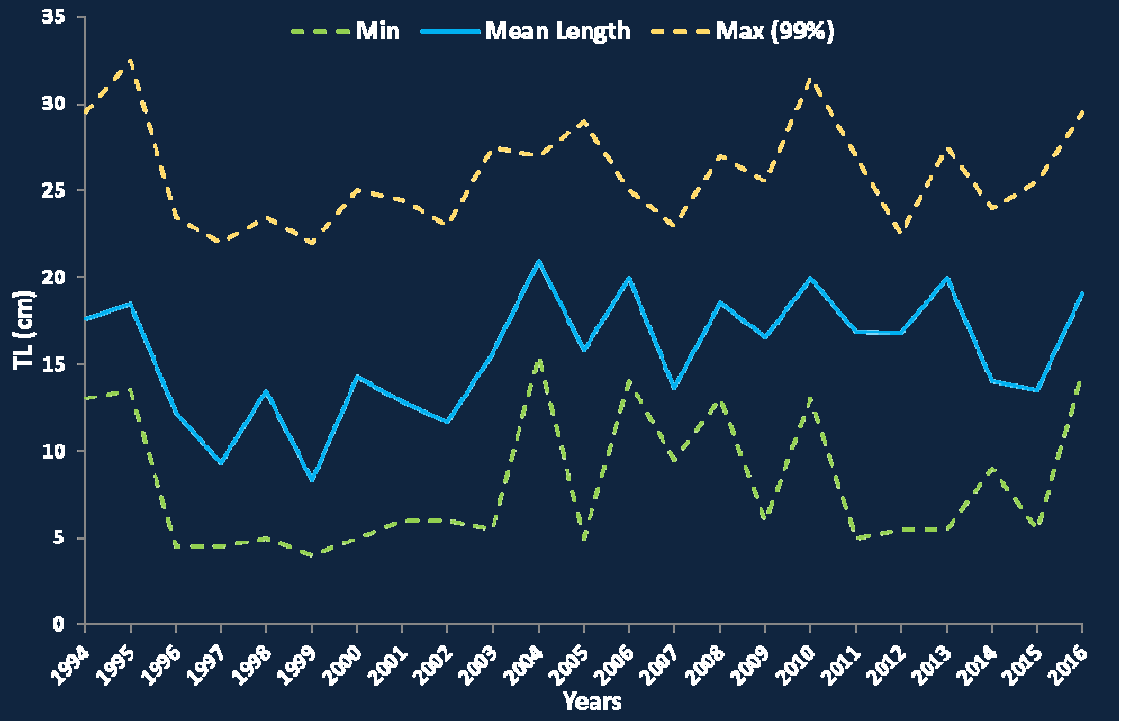
Medits – Coordination meeting – Nicosia (Cyprus) April 5-6, 2017

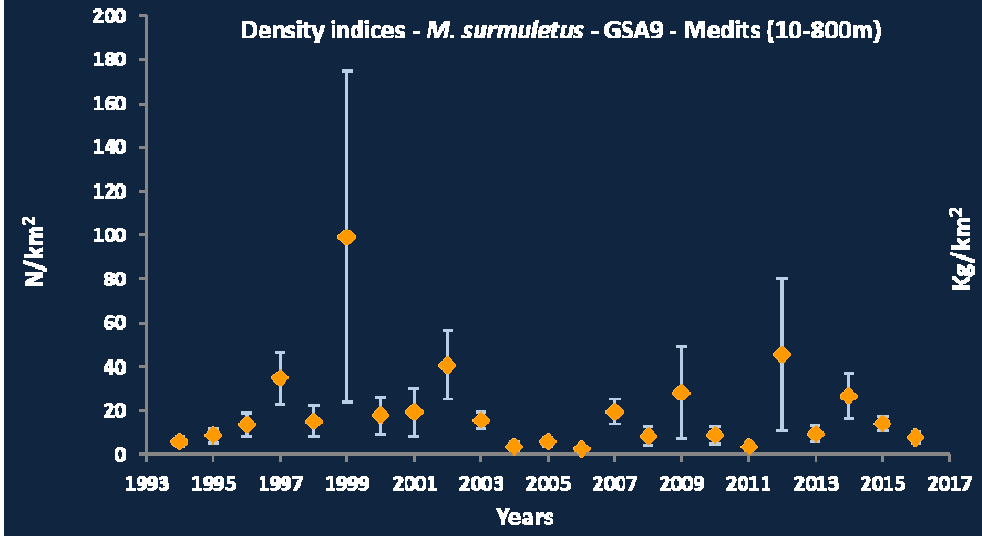
Mullus surmuletus

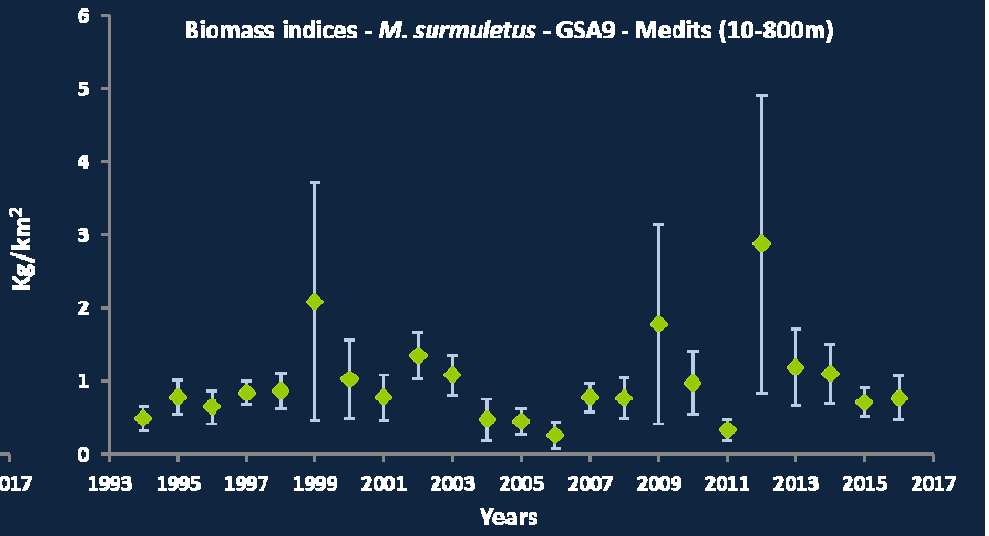
Historical trends of the demographic structure, density and biomass indices

Spearman's ρ

Density	Biomass	Mean length
-0.084	0.08	0.385







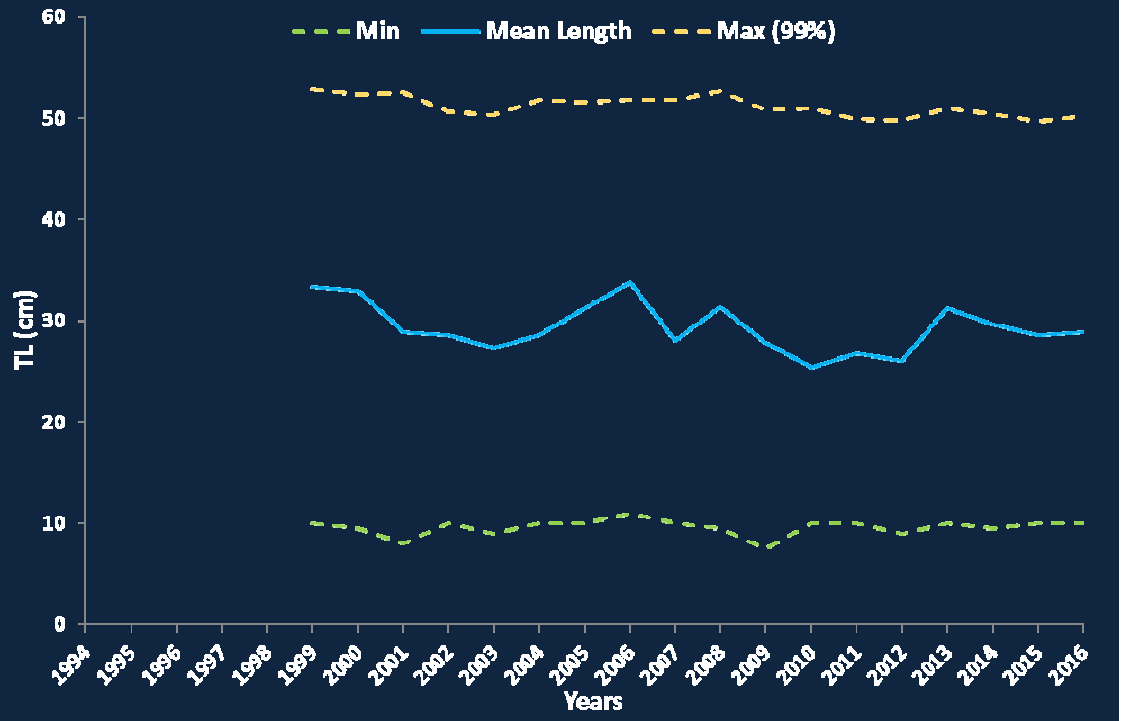
Medits – Coordination meeting – Nicosia (Cyprus) April 5-6, 2017

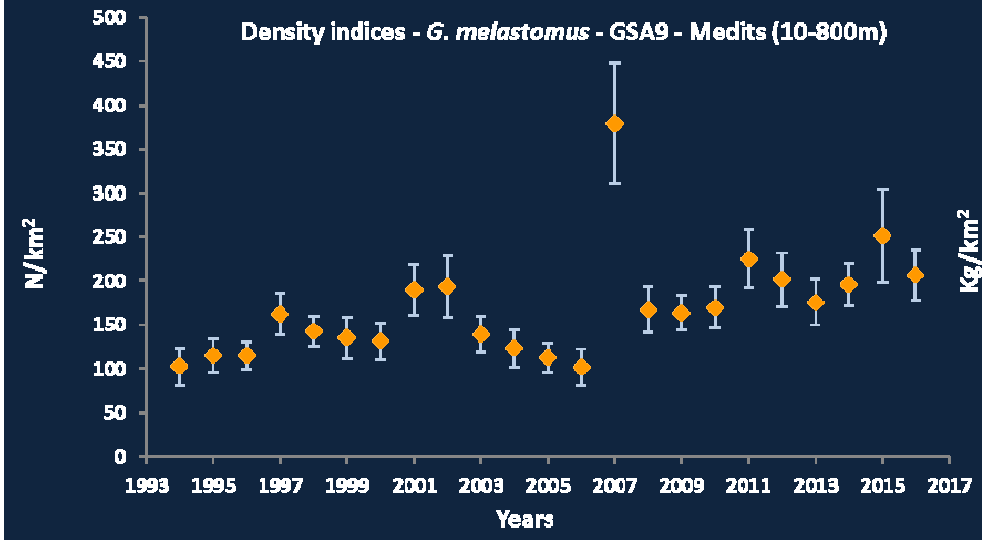
Galeus melastomus

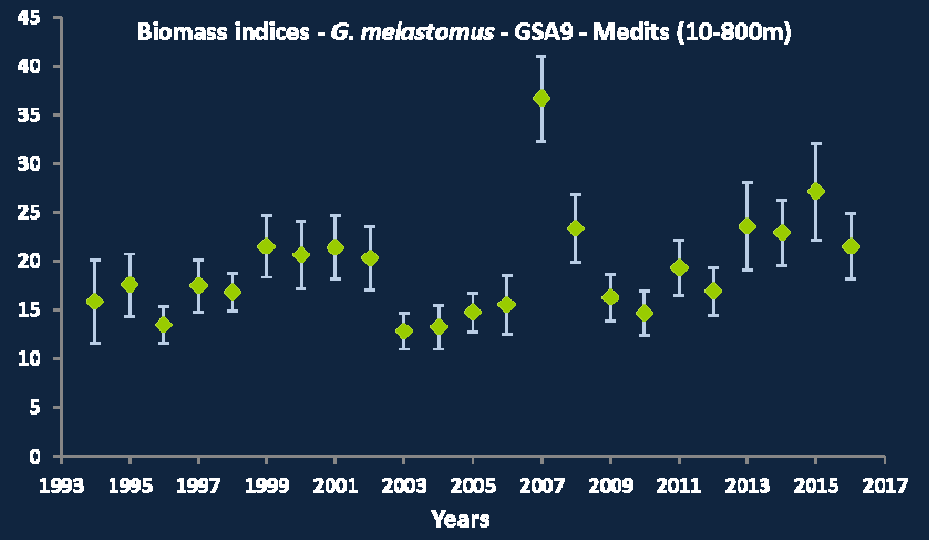
Historical trends of the demographic structure, density and biomass indices

Spearman's ρ

Density	Biomass	Mean length
0.689	0.402	-0.29







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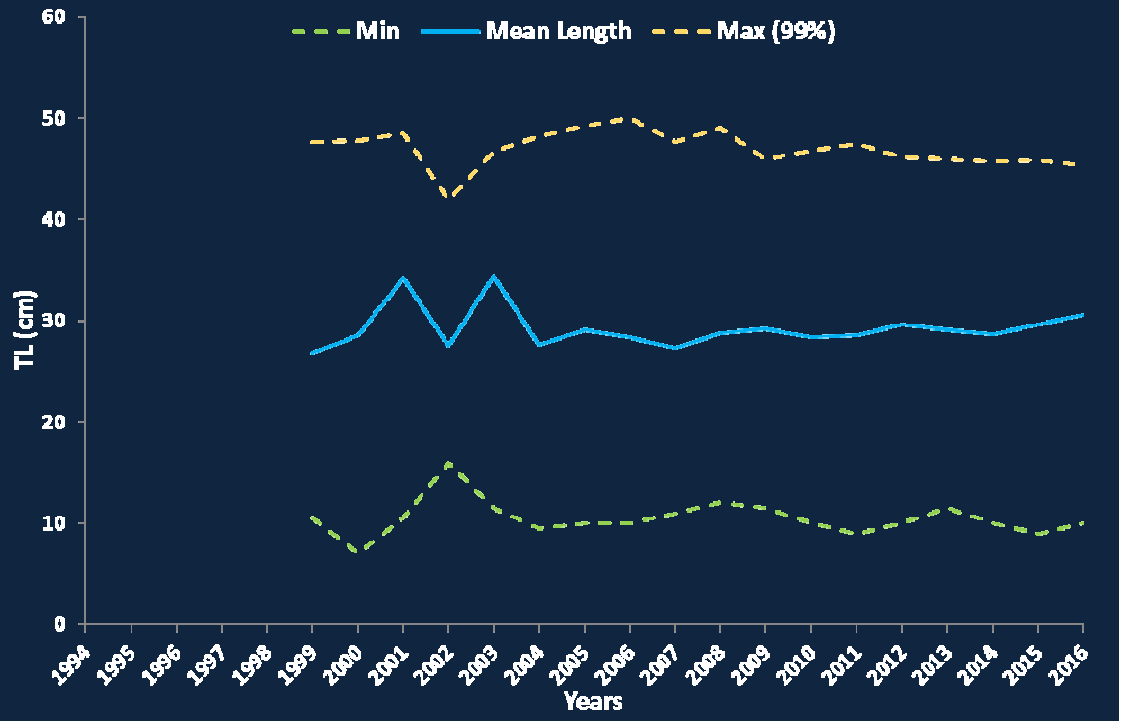
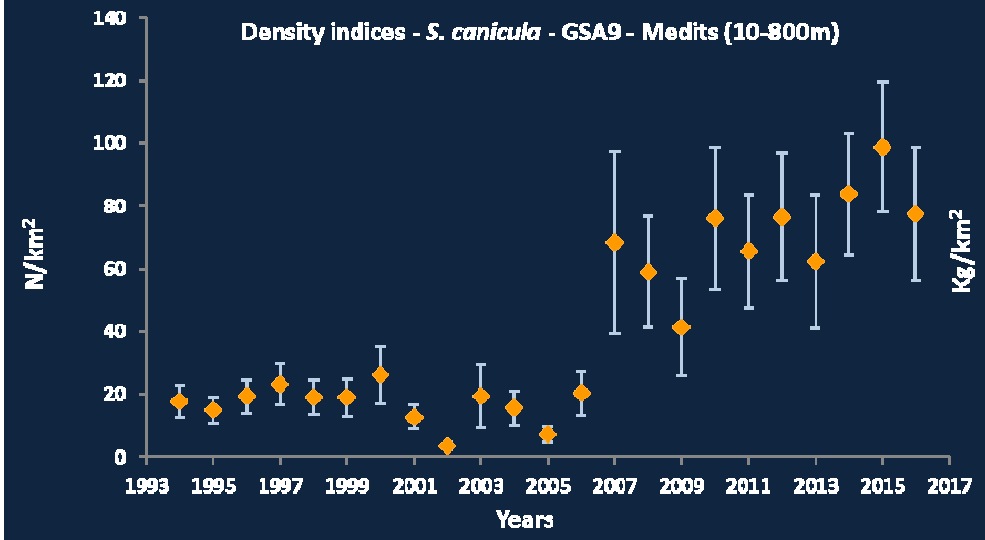
Scyliorhinus canicula

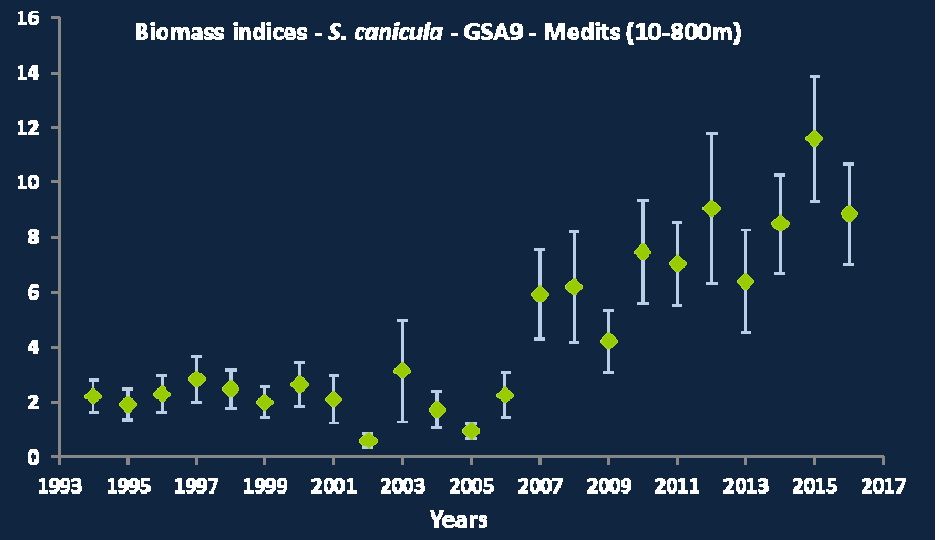
Historical trends of the demographic structure, density and biomass indices

Spearman's ρ

Density	Biomass	Mean length
0.777	0.762	0.327







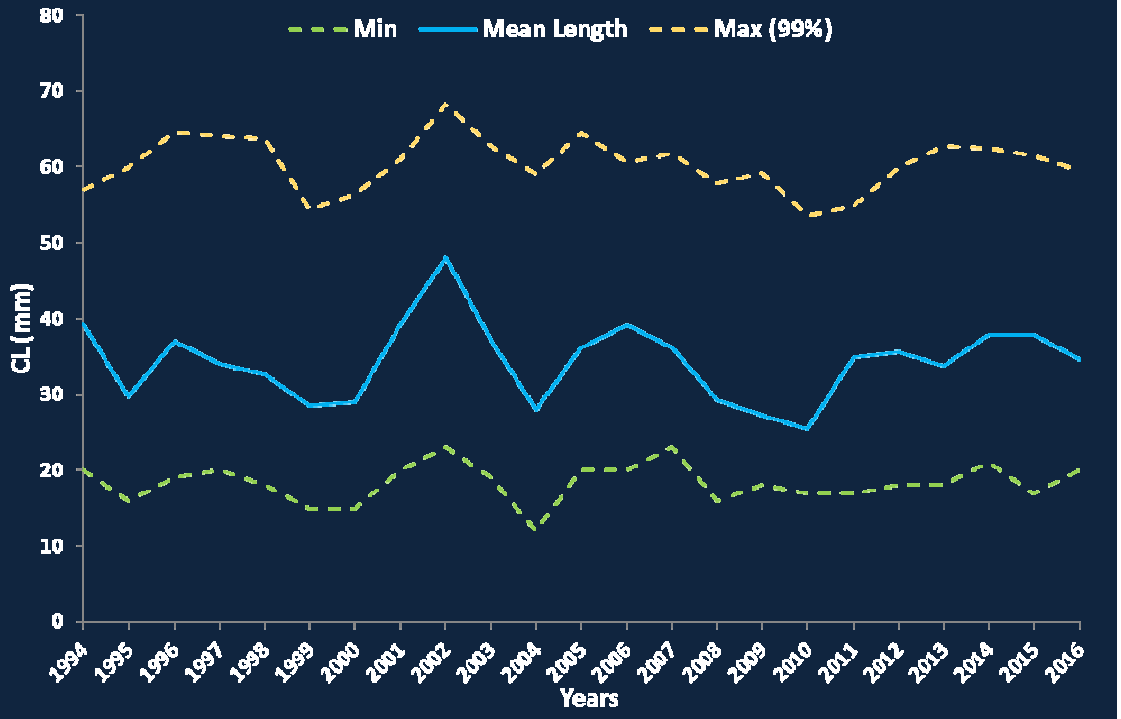
Medits – Coordination meeting – Nicosia (Cyprus) April 5-6, 2017

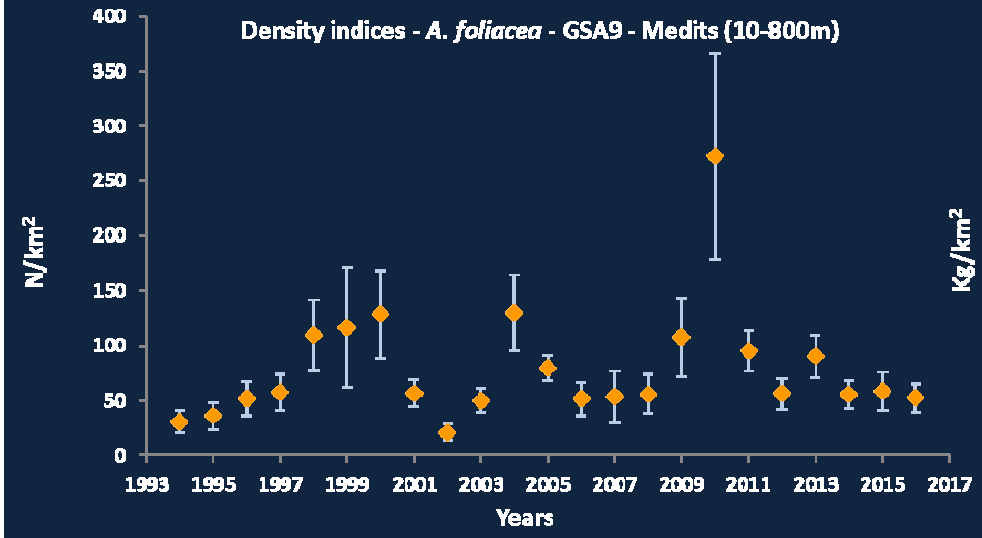
Aristaeomorpha foliacea

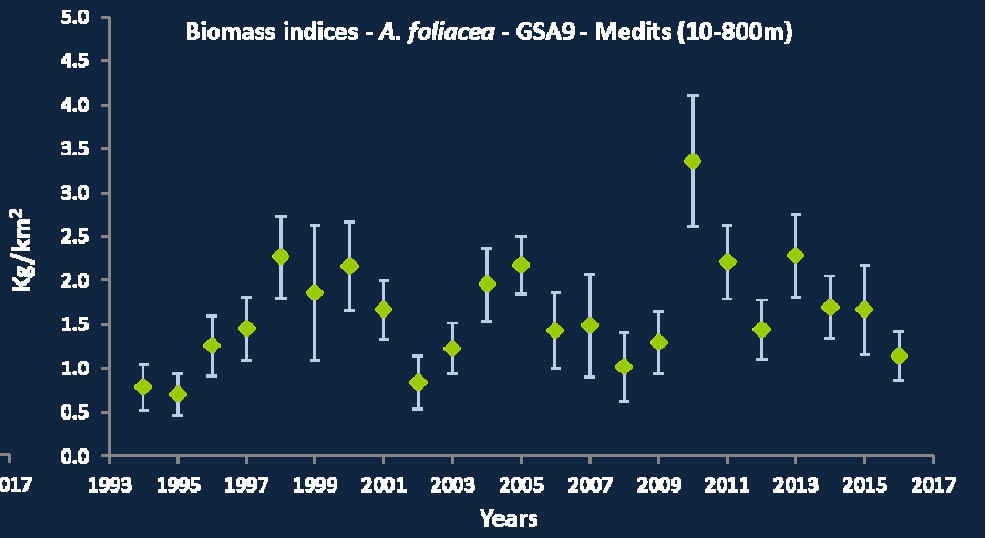
Historical trends of the demographic structure, density and biomass indices

Spearman's ρ

Density	Biomass	Mean length
0.192	0.265	-0.027





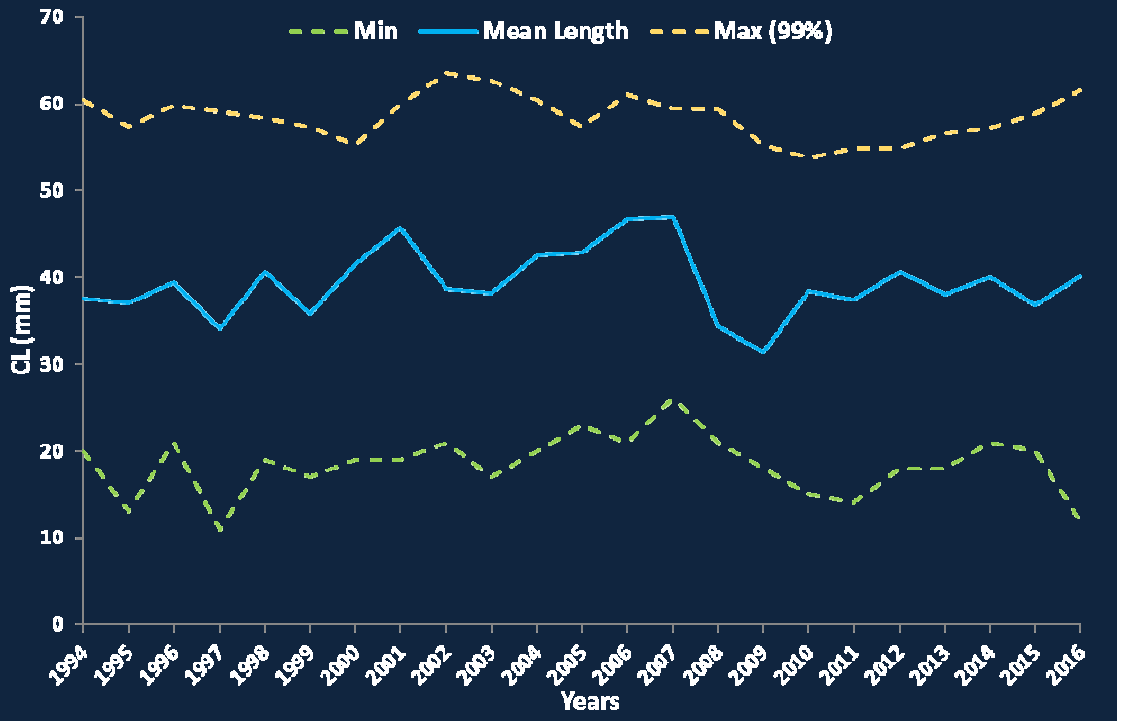


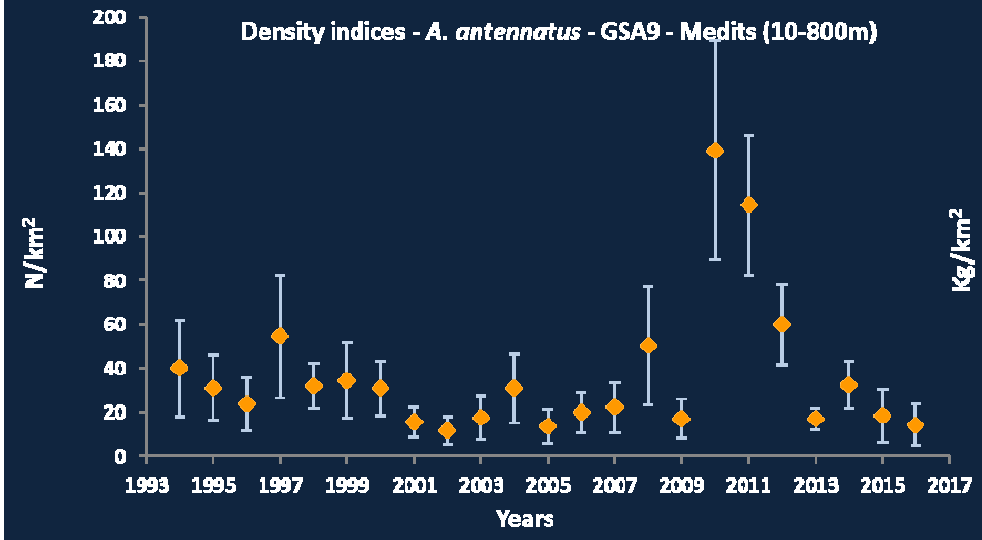
Aristeus antennatus

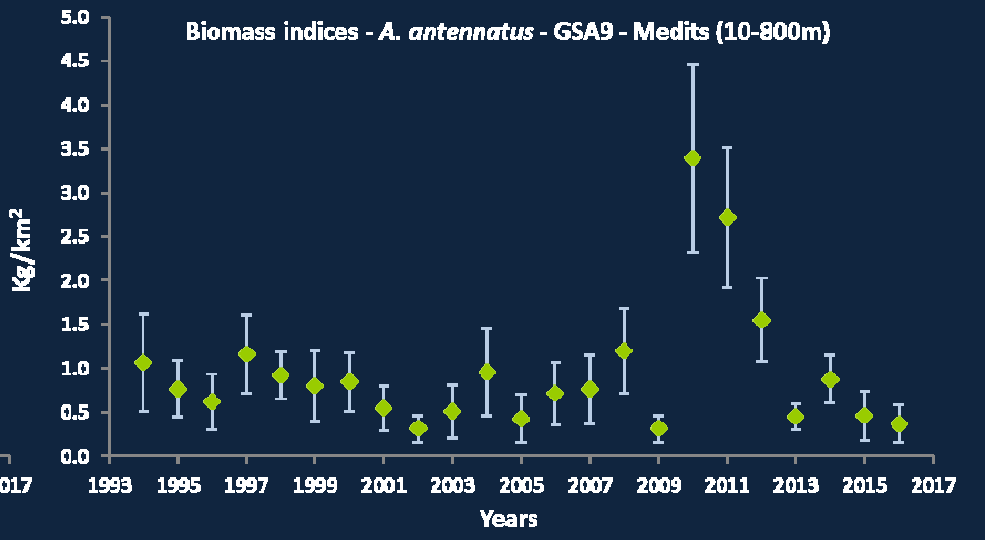
Historical trends of the demographic structure, density and biomass indices

Spearman's ρ

Density	Biomass	Mean length
-0.112	-0.114	0.026







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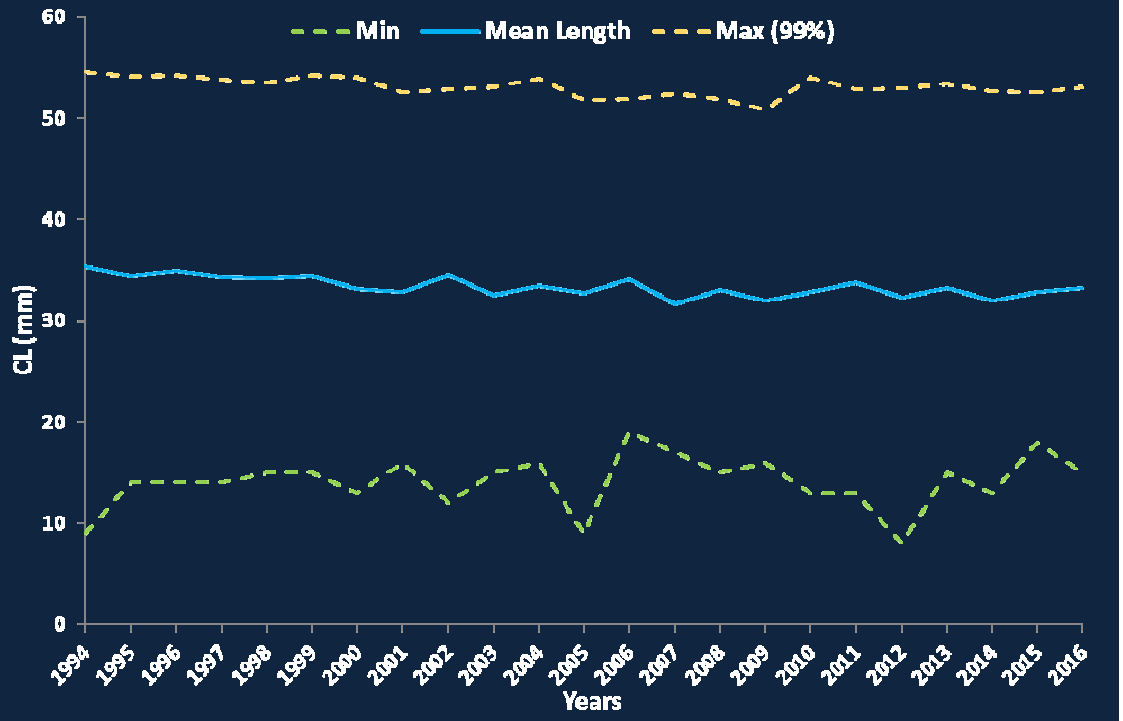
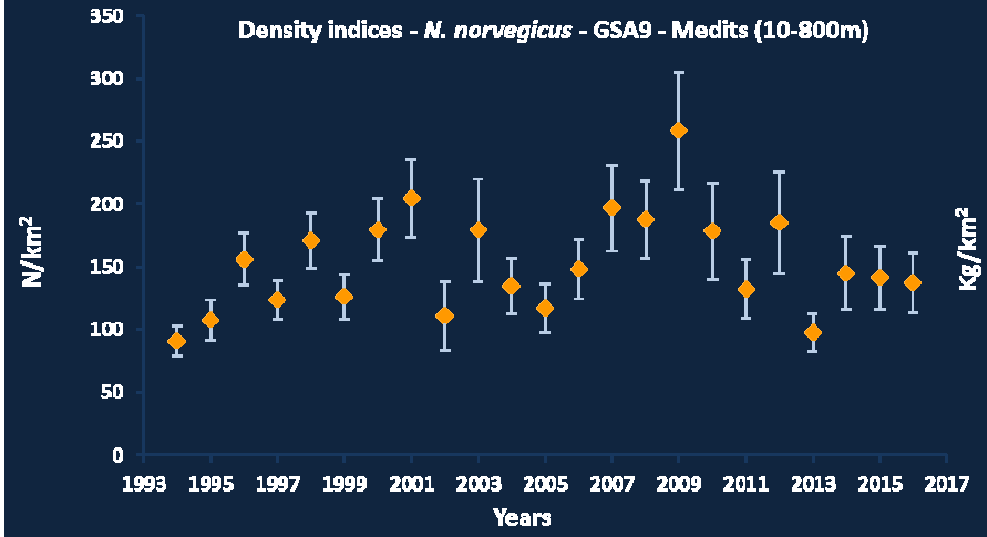
Nephrops norvegicus

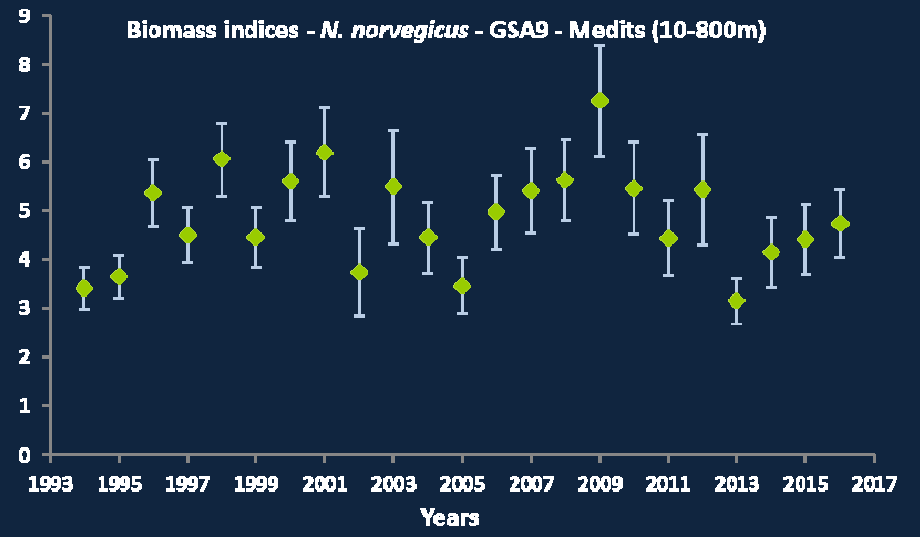
Historical trends of the demographic structure, density and biomass indices

Spearman's ρ

Density	Biomass	Mean length
0.214	-0.022	-0.613







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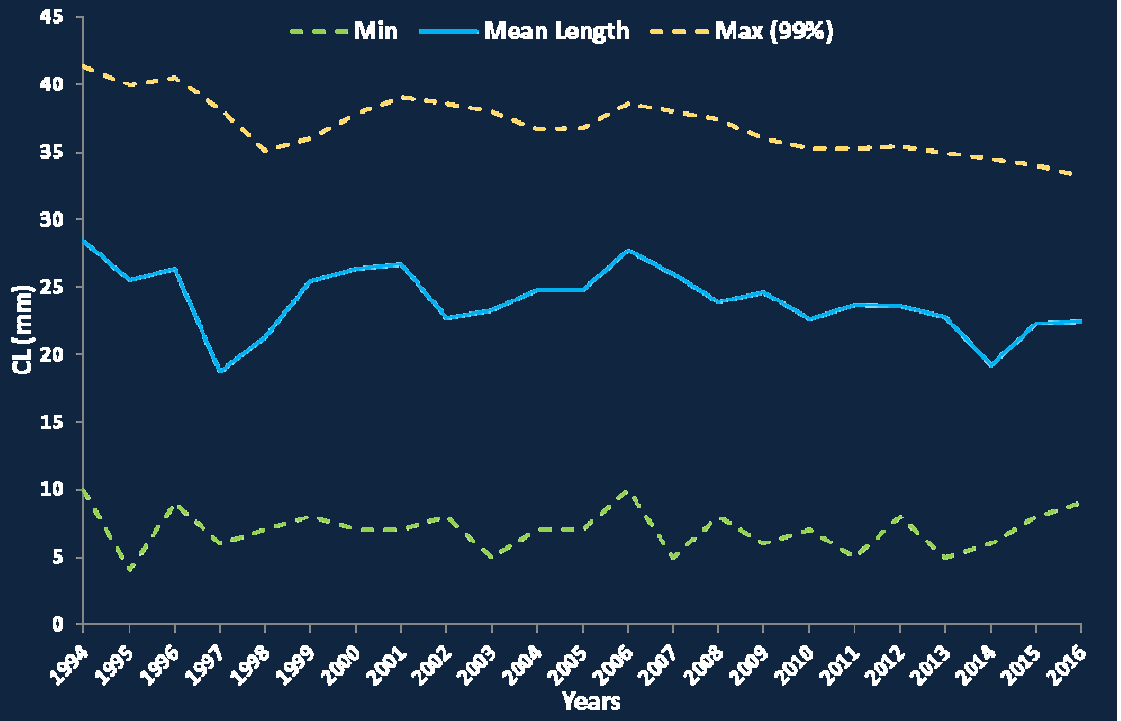
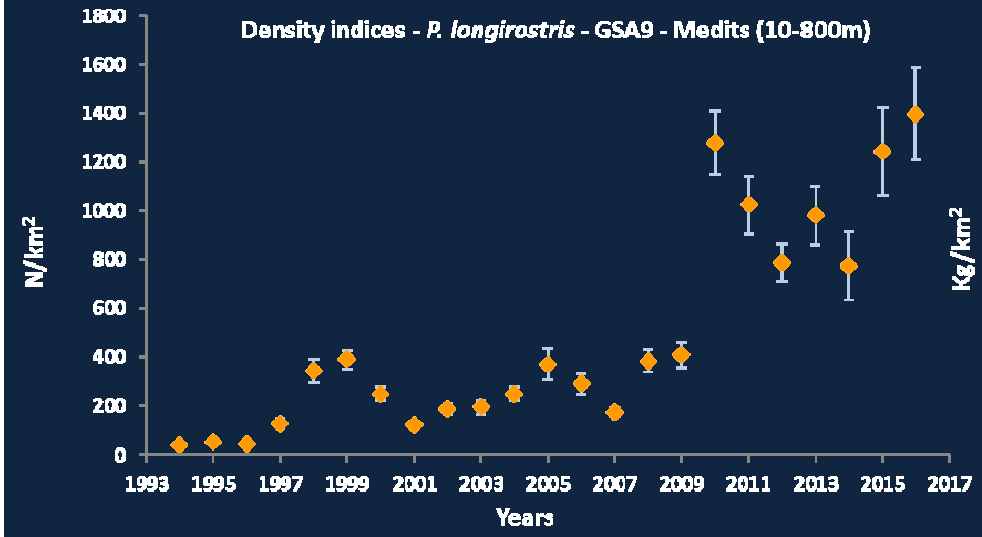
Parapenaeus longirostris

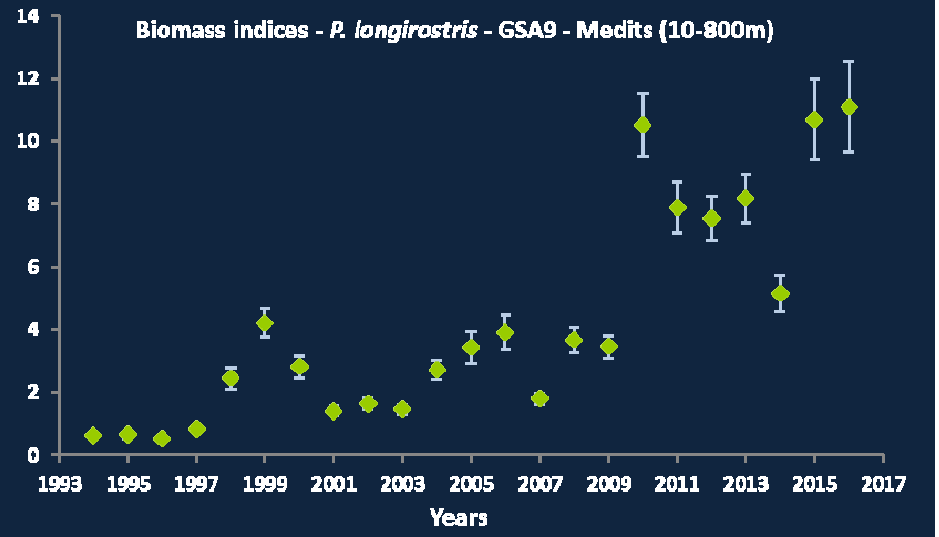
Historical trends of the demographic structure, density and biomass indices

Spearman's ρ

Density	Biomass	Mean length
0.858	0.875	-0.492





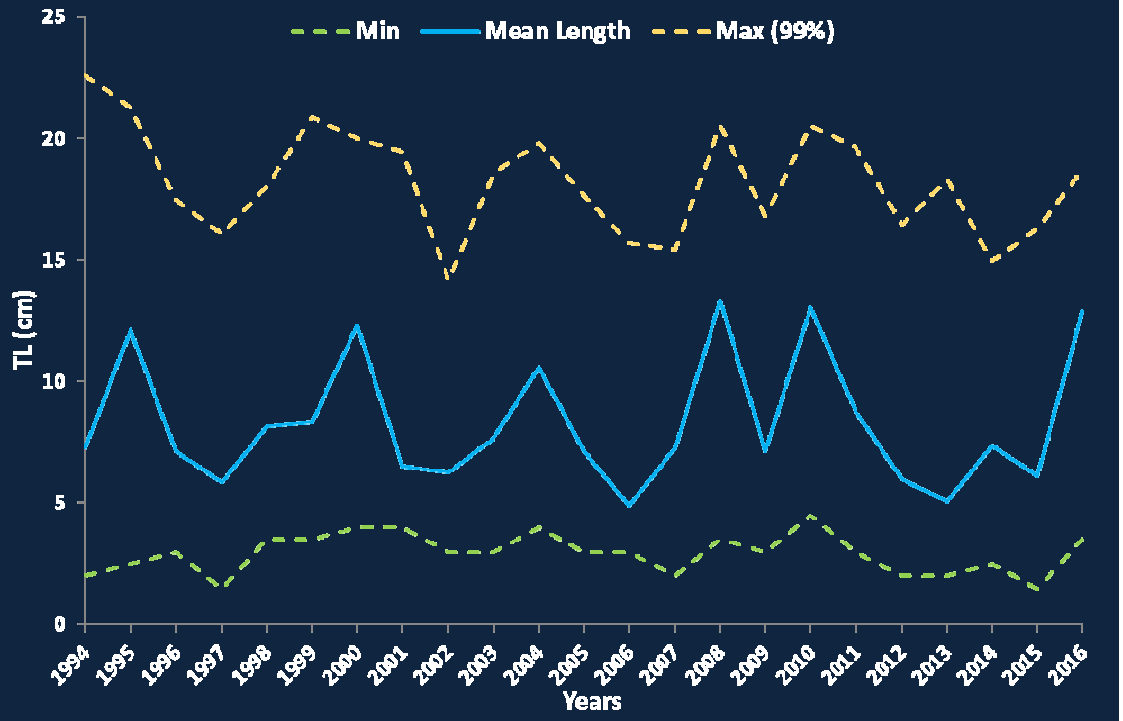


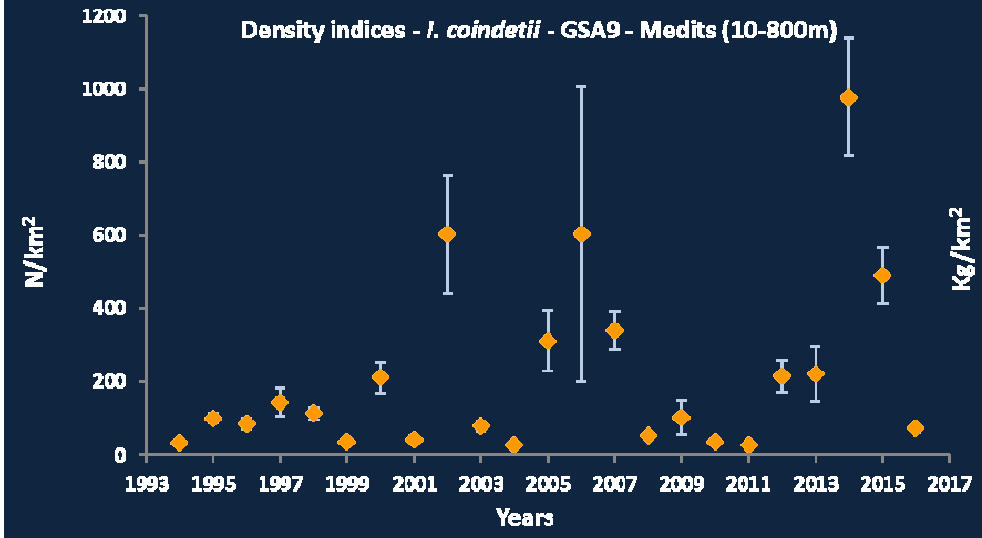
Illex coindetii

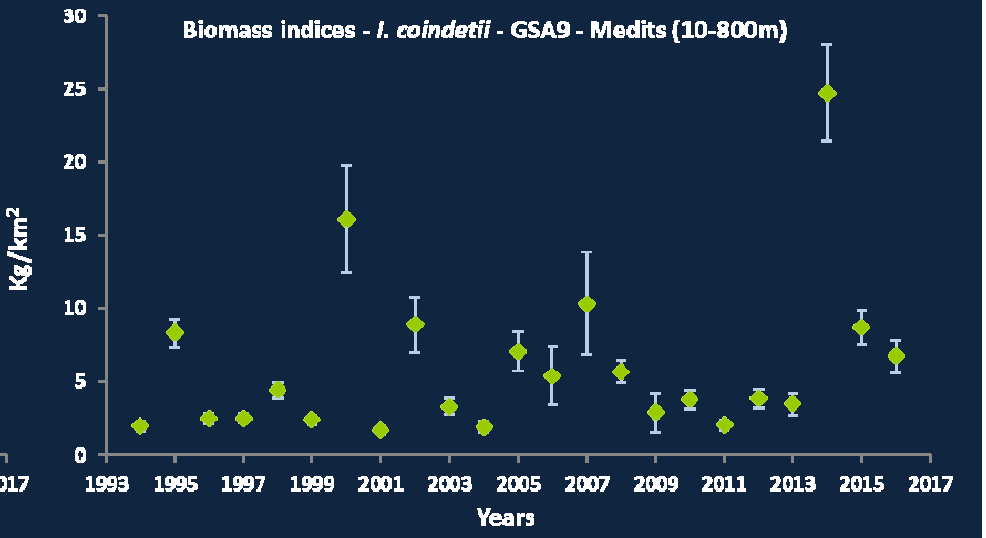
Historical trends of the demographic structure, density and biomass indices

Spearman's ρ

Density	Biomass	Mean length
0.265	0.307	-0.099





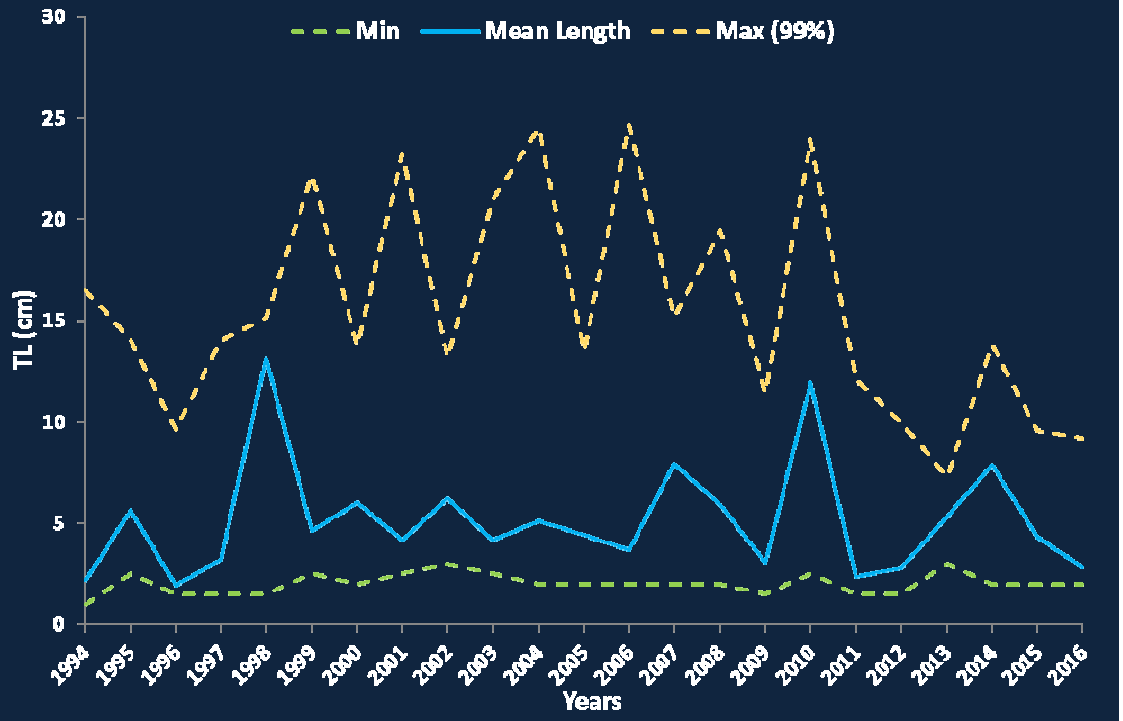


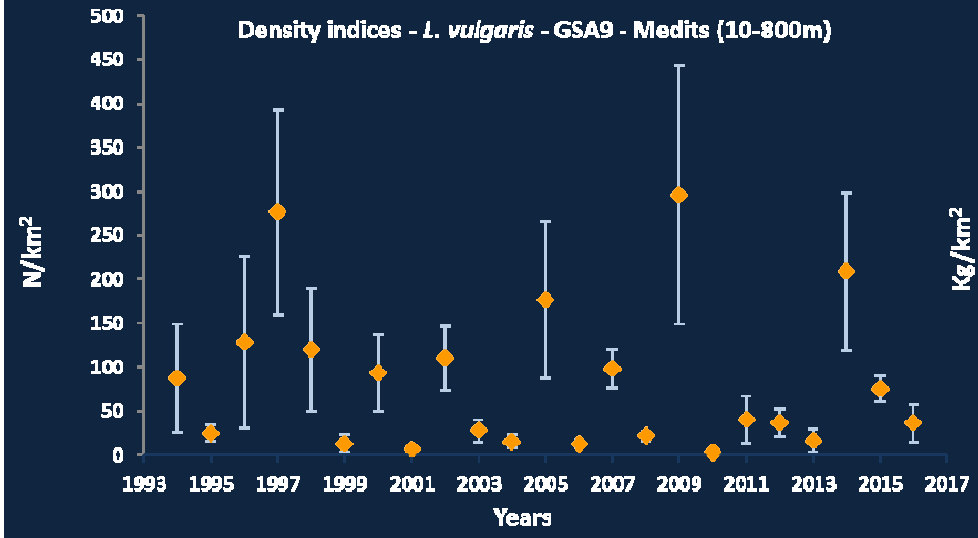
Loligo vulgaris

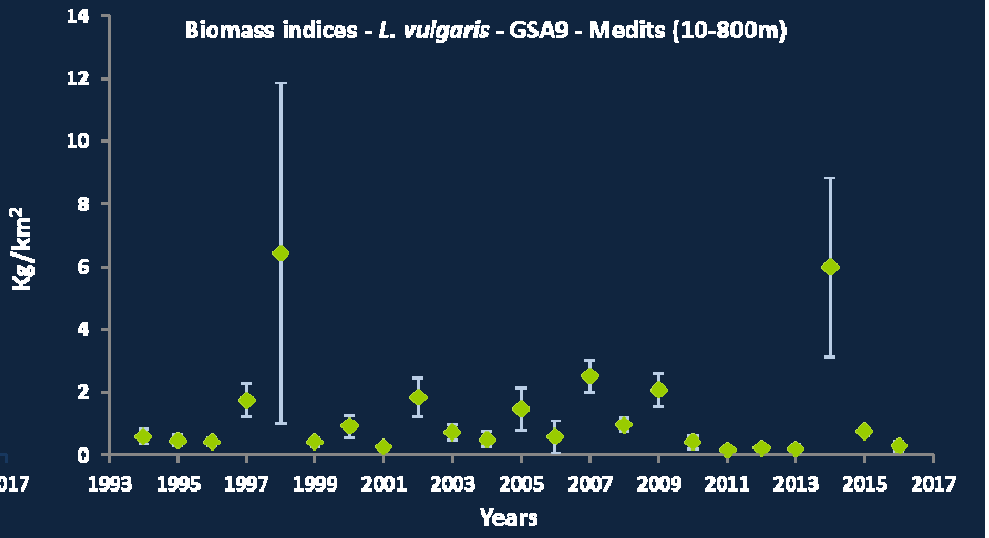
Historical trends of the demographic structure, density and biomass indices

Spearman's ρ

Density	Biomass	Mean length
-0.108	-0.151	0.02







Results of Spearman's rho test

	Density		Biomass		Mean length	
	ρ value	significance	ρ value	significance	ρ value	significance
M. merluccius	-0.408	n.s.	-0.470	*	0.183	n.s.
M. barbatus	0.488	*	0.619	**	-0.286	n.s.
M. surmuletus	-0.084	n.s.	0.080	n.s.	0.385	n.s.
N. norvegicus	0.214	n.s.	-0.022	n.s.	-0.613	**
P. longirostris	0.858	***	0.875	***	-0.492	*
A. foliacea	0.192	n.s.	0.265	n.s.	-0.027	n.s.
A. antennatus	-0.112	n.s.	-0.114	n.s.	0.026	n.s.
I. coindetii	0.265	n.s.	0.307	n.s.	-0.099	n.s.
L. vulgaris	-0.108	n.s.	-0.151	n.s.	0.02	n.s.
G. melastomus	0.689	***	0.402	n.s.	-0.29	n.s.
S. canicula	0.777	***	0.762	***	0.327	n.s.

n.s. = not significant * = $p<0.05$ ** = $p<0.01$ *** = $p<0.001$

Litter was recorded in all hauls and classified according to the following scheme:

Type of Litter		Weight (kg) (mandatory for category and sub-category)	Number (facultative for subcategory)	Number (mandatory for category)
	a. Bags			
L1 Plastic	**b**. Bottles			
	c. Food wrappers			
	d. Sheets (table covers, e.t.c.)			
	e. Hard plastic objects (crates, containers, tubes, ash-trays, lids, etc.) ()			
	f. Fishing nets			
	g. Fishing lines			
	h. Other fishing related (pots, floats, etc.) ()			
	i. Ropes/strapping bands			
	j others			
	a. Tyres			
L2 Rubber	**b**. Other (gloves, boots/shoes, olskins etc.) ()			
	a. Beverage cans			
	b. Other food cans/wrappers			
	c. Middle size containers (of paint, oil, chemicals)			
	d. Large metalic objects (barrels, pieces of machinery, electric appliances) ()			
L3 Metal	**e**. Cables			
	f. Fishing related (hooks, spears, etc.) ()			
	a. Bottles			
L4	**b**. Pieces of glass			
Glass / Ceramic	**c**. Ceramic jars			
	d. Large objects (specify)			
	a. Clothing (clothes, shoes)			
L5 Cloth (textil)/ natural fibres	**b**. Large pieces (carpets, mattresses, etc) (specify)			
	c. Natural ropes			
	d. Sanitaries (diapers, cotton buds, etc.)			
L6 Wood processed (palettes, crates, etc.)				
L7 Paper and cardboard				
L8 Other (specify)				
L9 Unspecified				

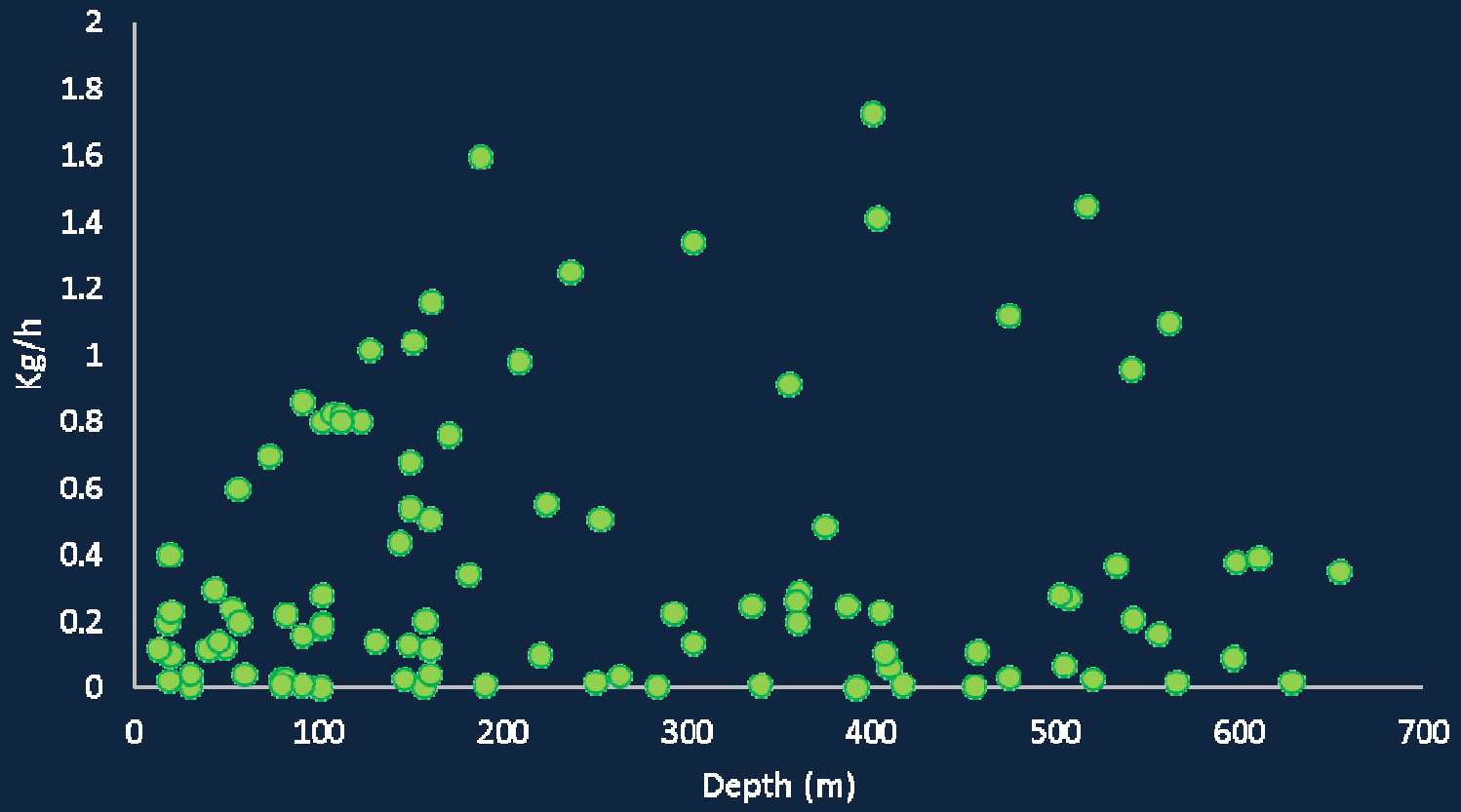
655 m depth

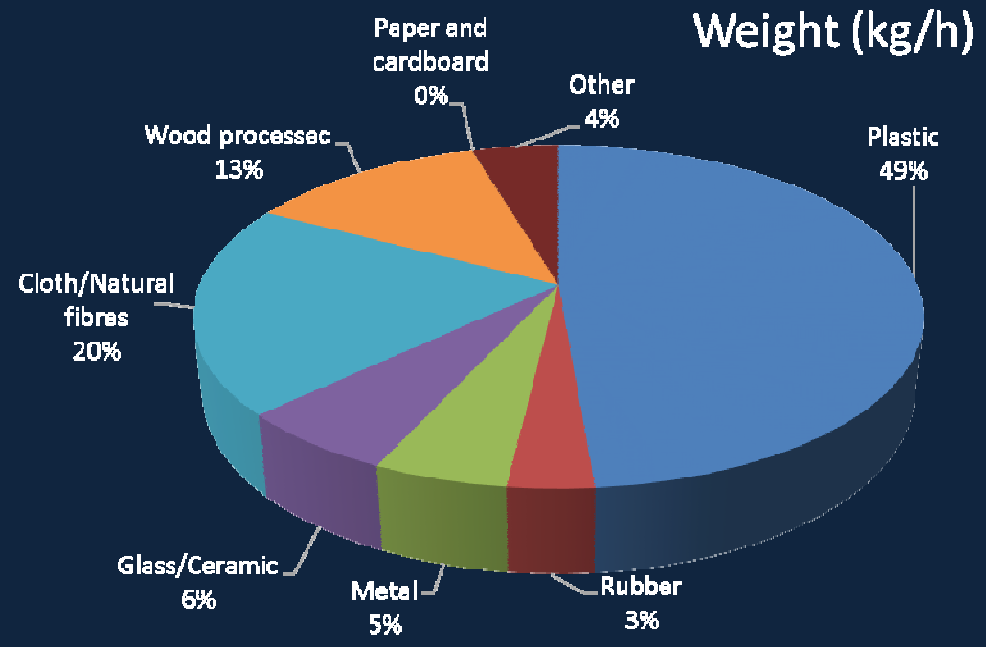
101 m depth

542 m depth

333 m depth

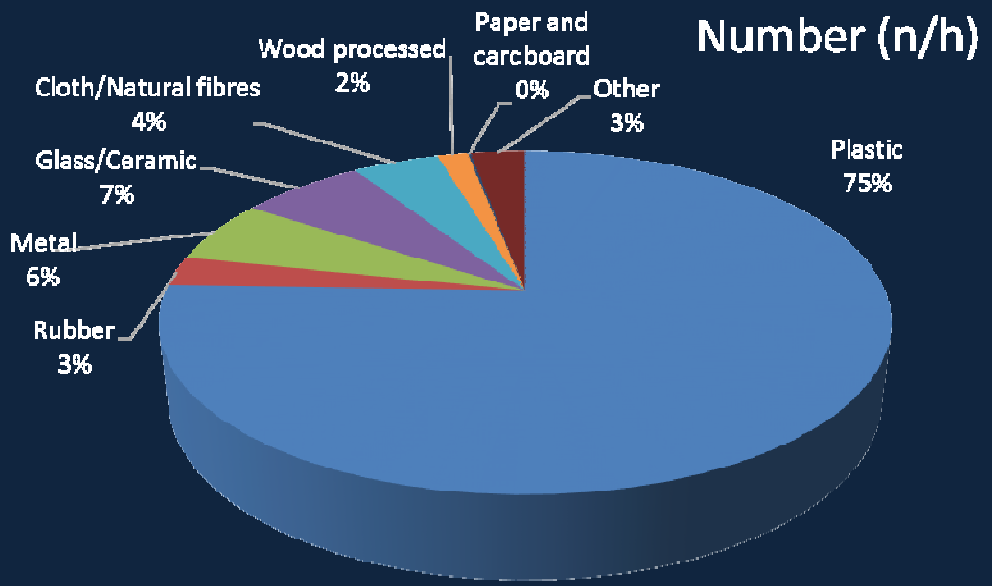
Recording of litter



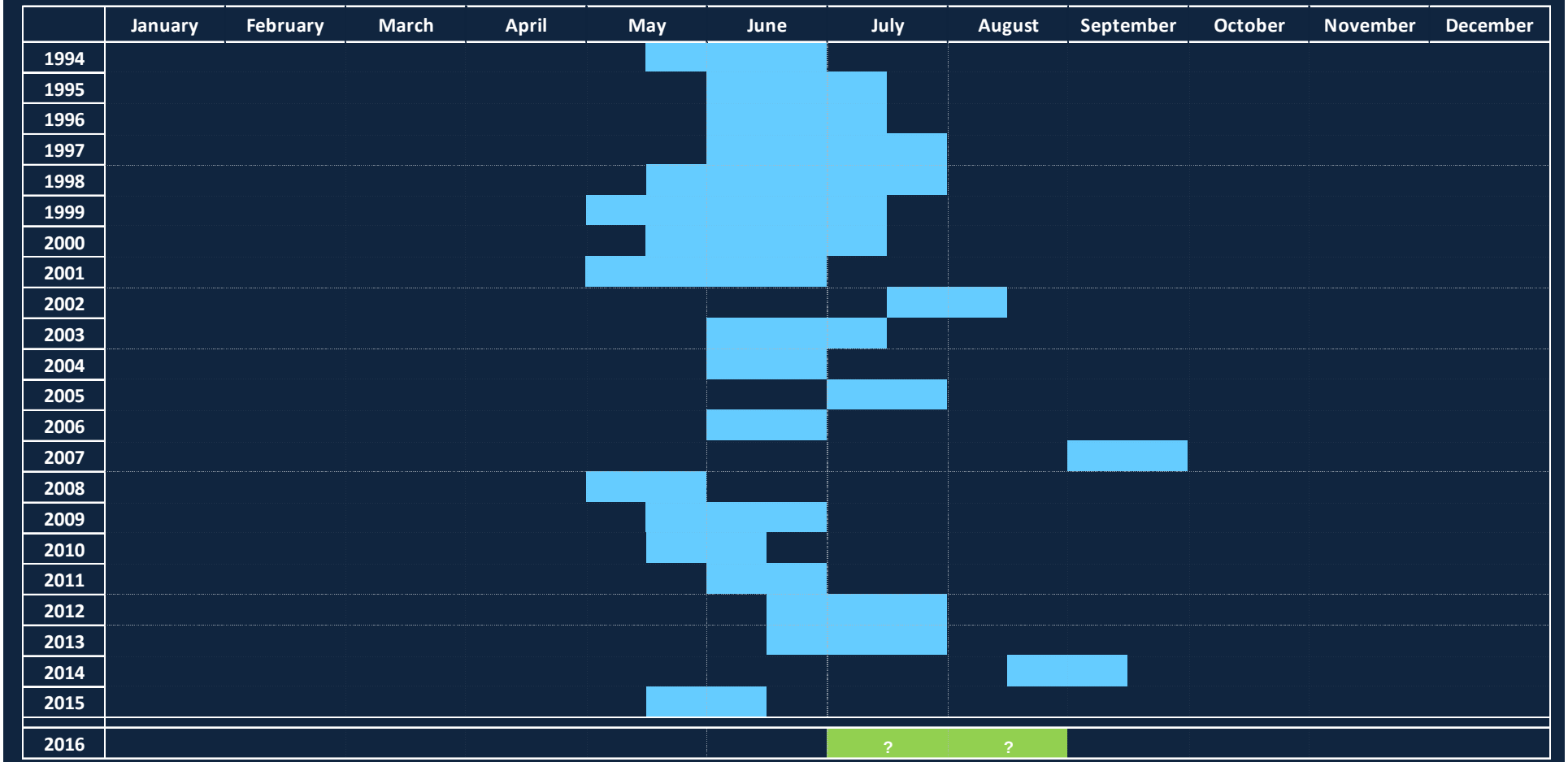


Litter 2016

	N of hauls	Occurrence %
Plastic	104	86.7
Rubber	12	10.0
Metal	23	19.2
Glass/Ceramic	23	19.2
Cloth/Natural fibres	19	15.8
Wood processed	6	5.0
Paper and cardboard	1	0.8
Other	14	11.7
No litter	13	10.8



Period of the Medits survey and schedule for 2016

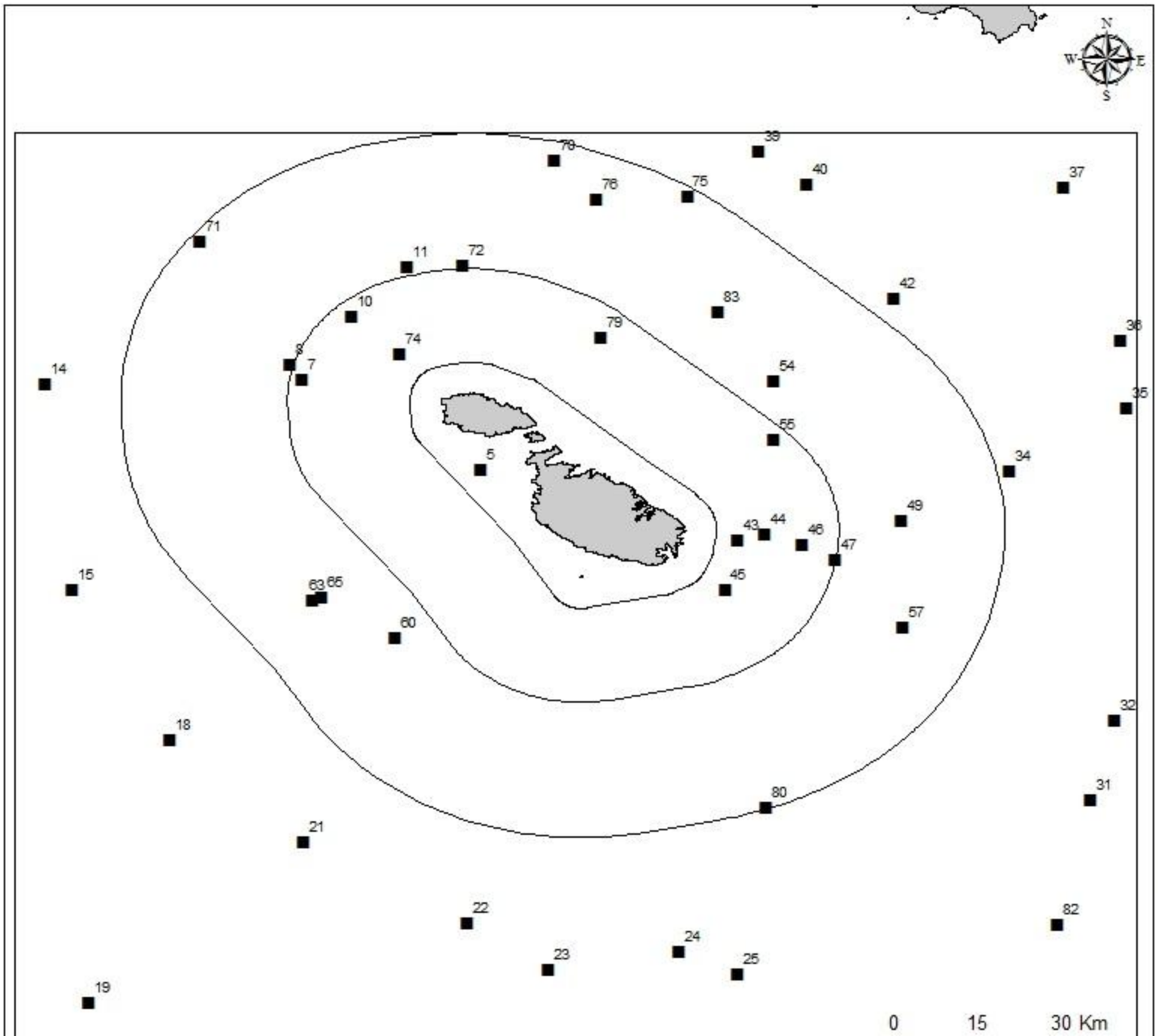


Review on achievement of the 2016 MEDITS survey in GSA15

Reno Micallef

Medits 2016

- Sampling period:
  22/08/2016 to 04/09/2016
- Sampling vessel: DEGRE



Ministry for Sustaina
the Environment and

Legend

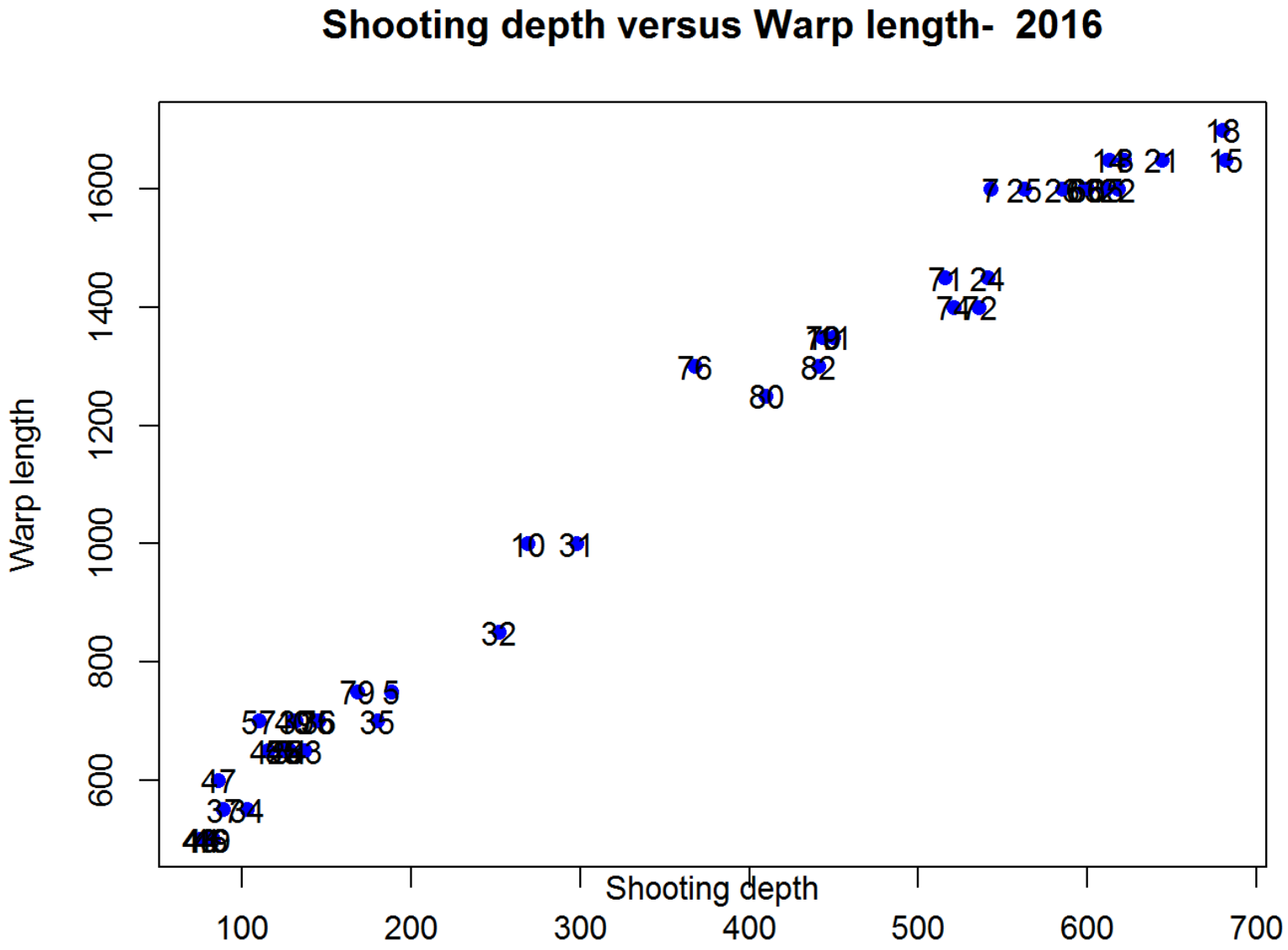
- Haul Positions
- 3, 12, 25 Nautic
- GSA15

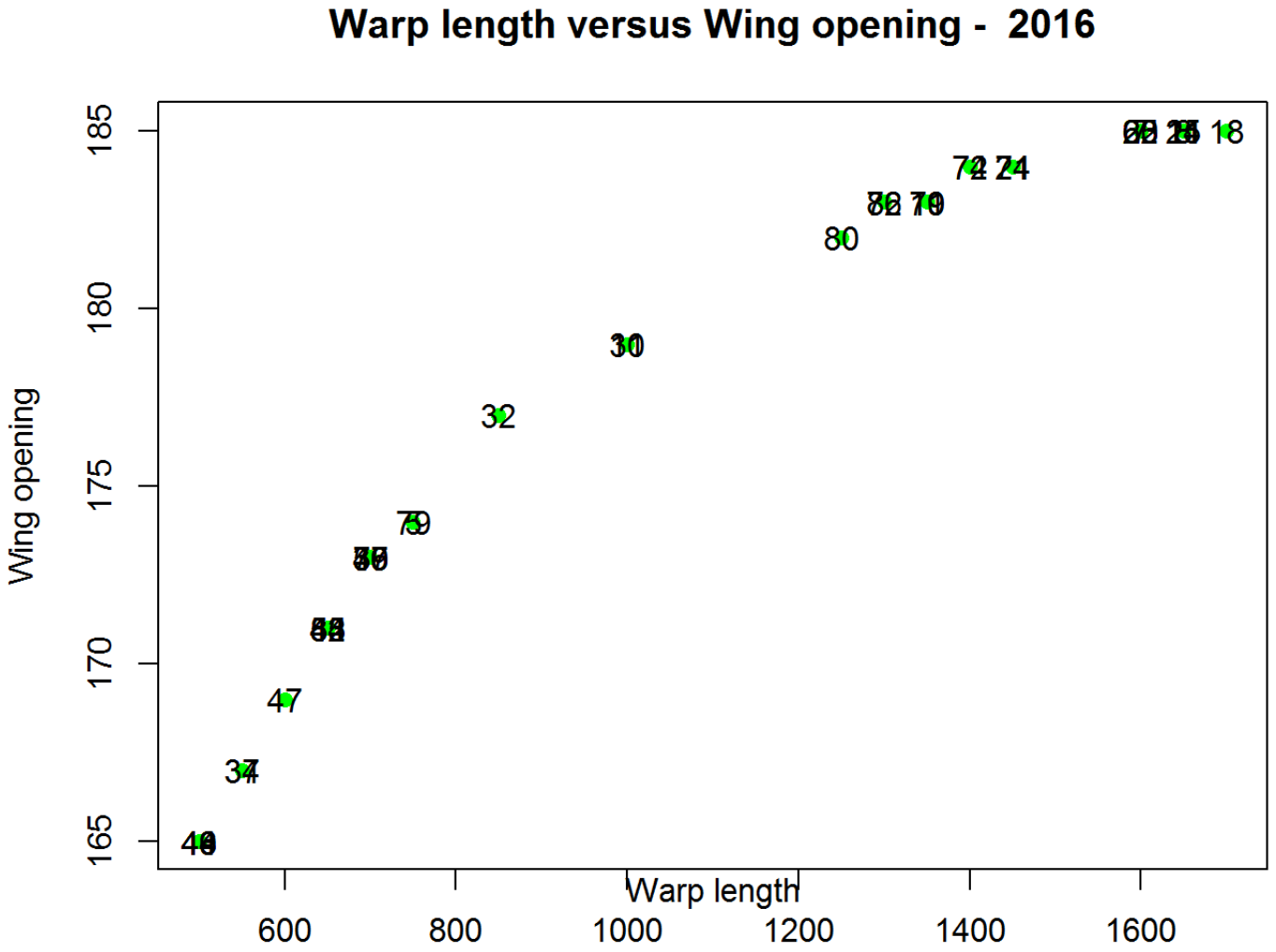
Datum: WGS 84

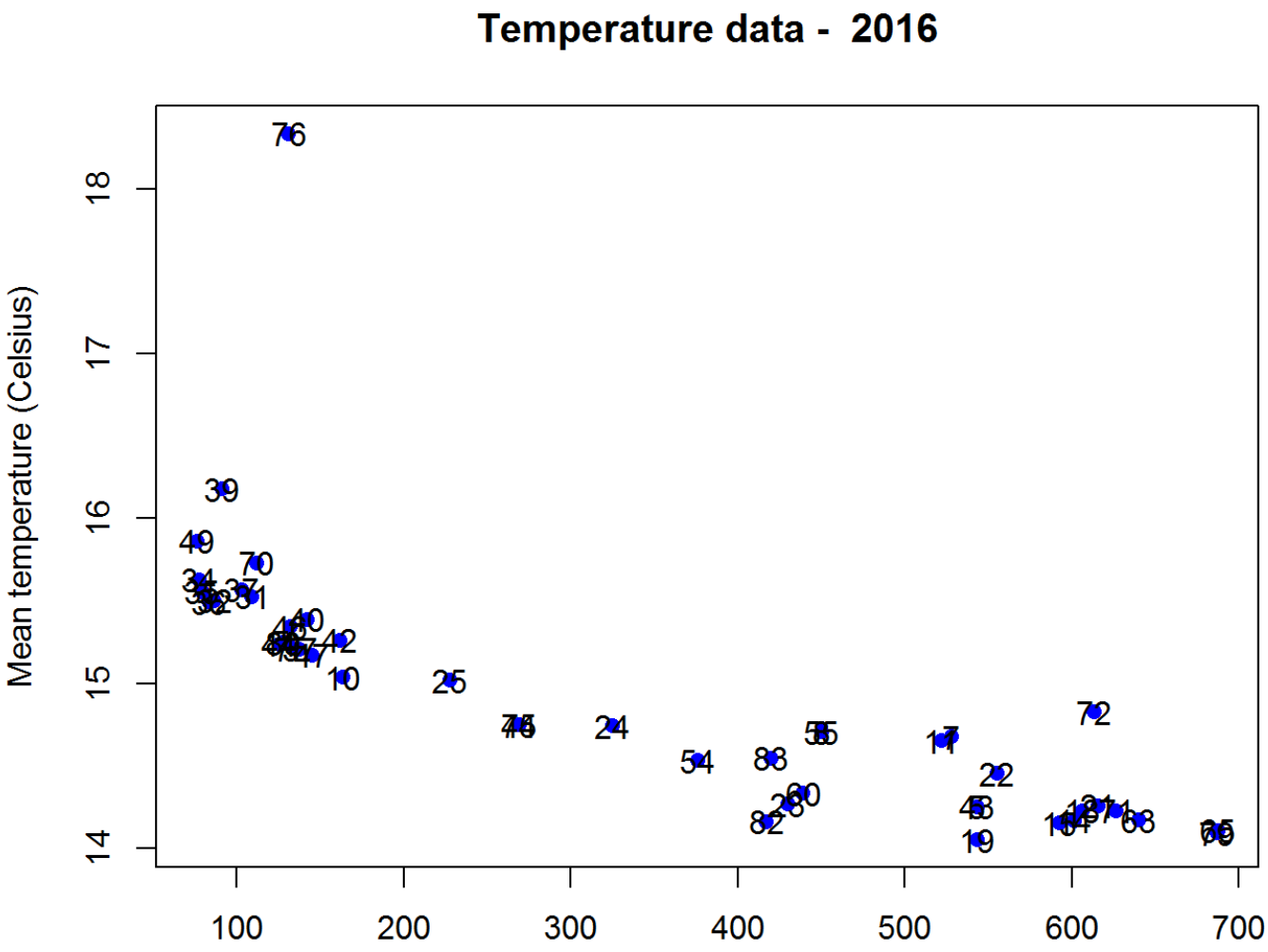
INDICATIV
Not to be used fo di

HO, VO and Temperature

- Since DFA (MSDEC) do not have these instruments, readings of HO and VO vs Depths are dependent on models
- Bottom sea temperature was measured at each haul using the SeaStar probe.

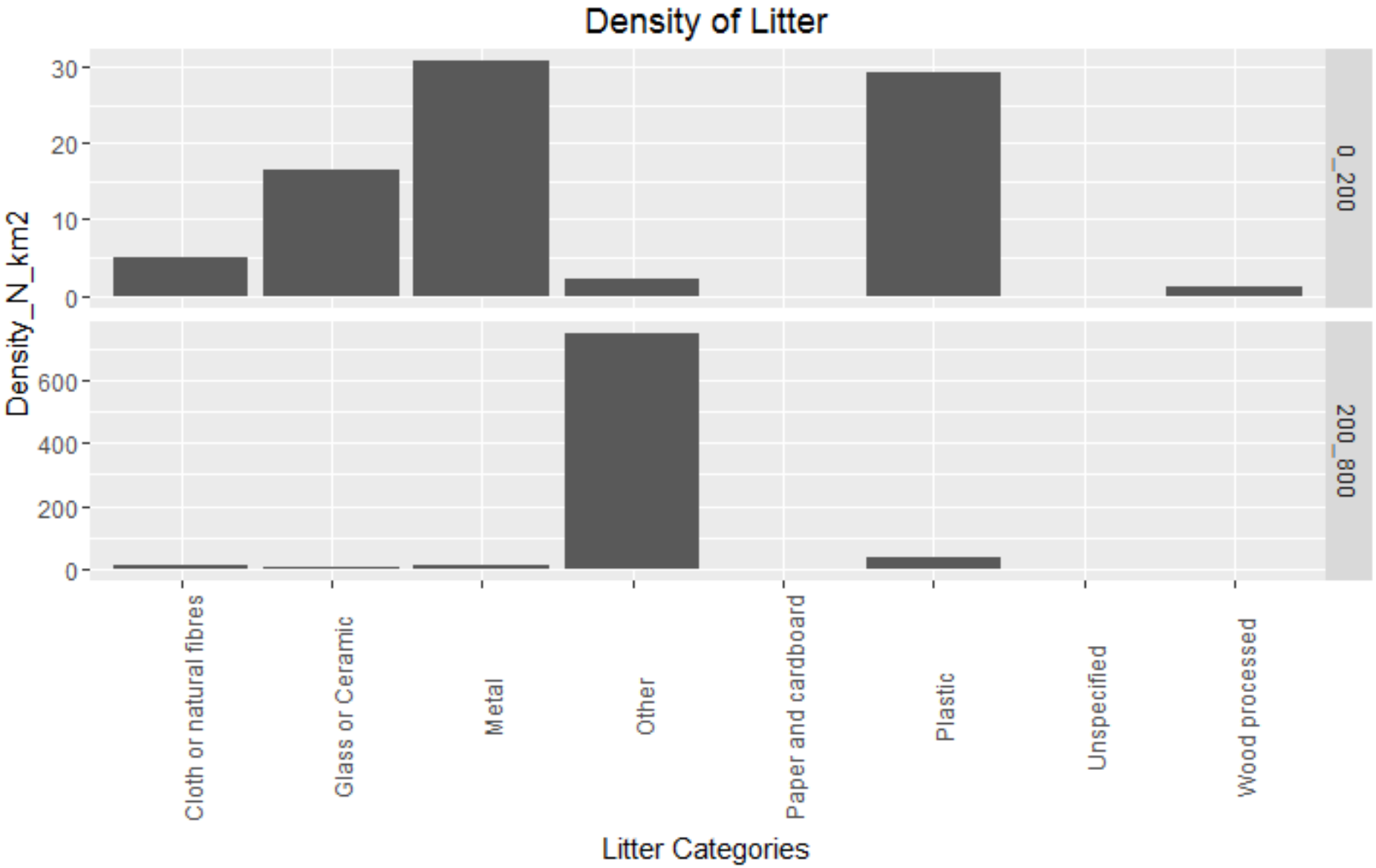

Shooting depth versus Warp length- 2016
Warp length
Shooting depth
600
800
1000
1200
1400
1600
100
200
300
400
500
600
700

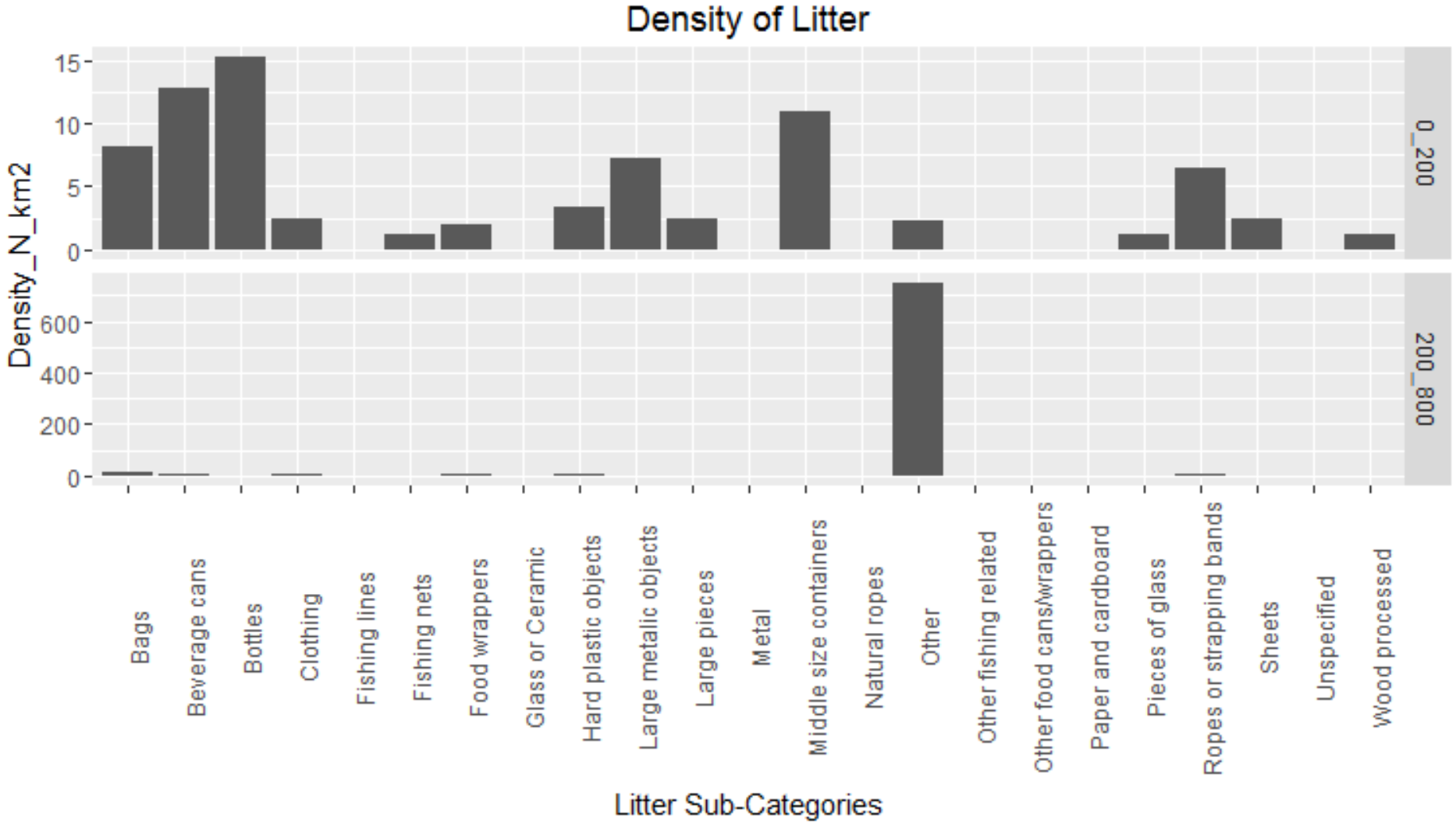

Warp length versus Wing opening - 2016
Wing opening
Warp length
165
170
175
180
185
600
800
1000
1200
1400
1600

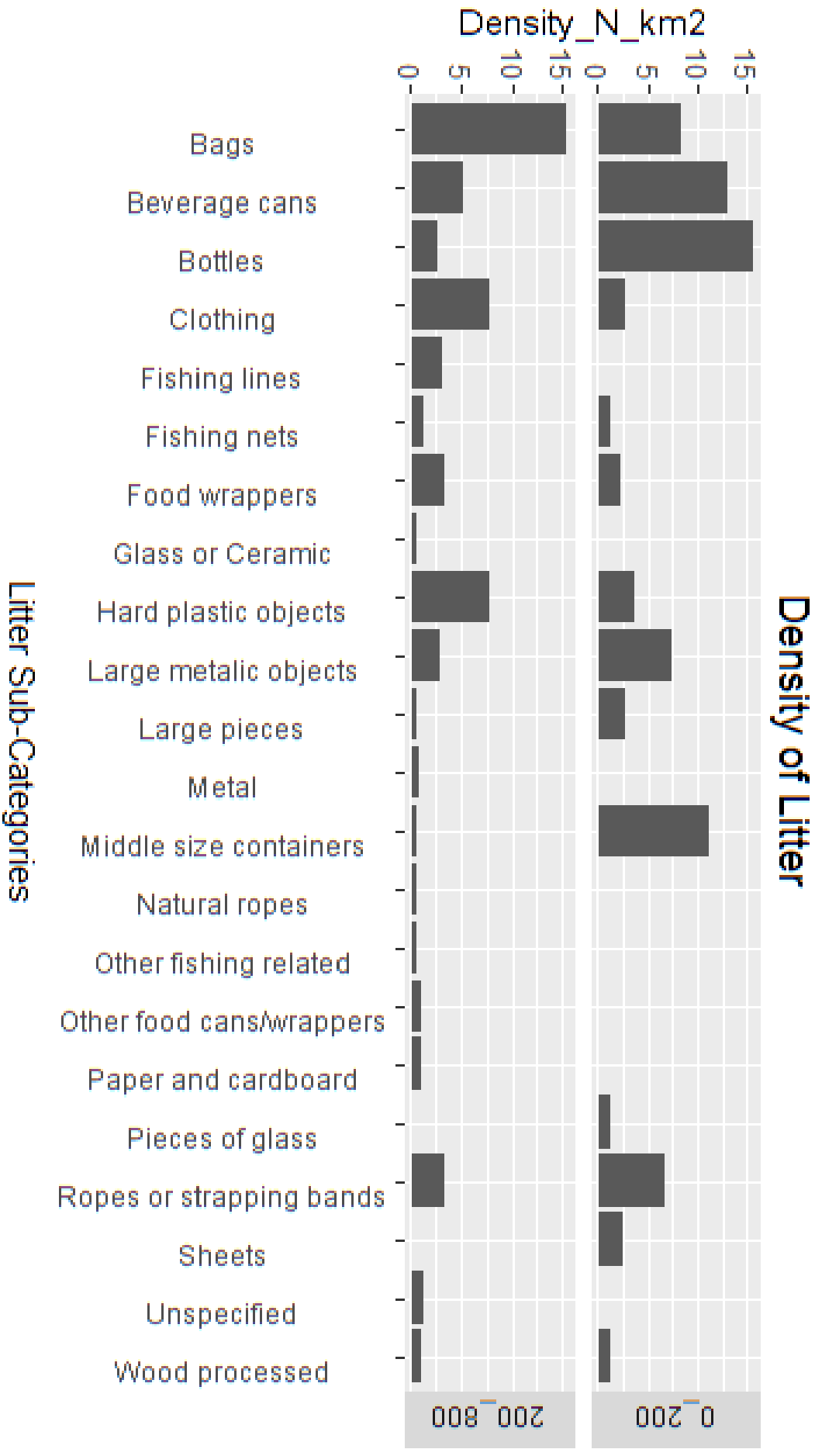

Temperature data - 2016
Mean temperature (Celsius)
14
15
16
17
18
100
200
300
400
500
600
700

Litter recording

- recorded in the form of photographs.
- A great part of marine litter consisted of limestone slabs from FADs fisheries.
- The only bias that can be present would be that more litter can be registered in areas that are less frequently trawled, leading to unrealistic conclusions.


Density of Litter
Density_N_km2
30
20
10
0
600
400
200
0
0_200
200_800
Cloth or natural fibres
Glass or Ceramic
Metal
Other
Paper and cardboard
Plastic
Unspecified
Wood processed
Litter Categories


Density of Litter
Density_N_km2
15
10
5
0
600
400
200
0
0_200
200_800
Bags
Beverage cans
Bottles
Clothing
Fishing lines
Fishing nets
Food wrappers
Glass or Ceramic
Hard plastic objects
Large metalic objects
Large pieces
Metal
Middle size containers
Natural ropes
Other
Other fishing related
Other food cans/wrappers
Paper and cardboard
Pieces of glass
Ropes or strapping bands
Sheets
Unspecified
Wood processed
Litter Sub-Categories


Density_N_km2
0
5
10
15
Bags
Beverage cans
Bottles
Clothing
Fishing lines
Fishing nets
Food wrappers
Glass or Ceramic
Hard plastic objects
Large metalic objects
Large pieces
Metal
Middle size containers
Natural ropes
Other fishing related
Other food cans/wrappers
Paper and cardboard
Pieces of glass
Ropes or strapping bands
Sheets
Unspecified
Wood processed
Litter Sub-Categories
200_800
0_200
Density of Litter

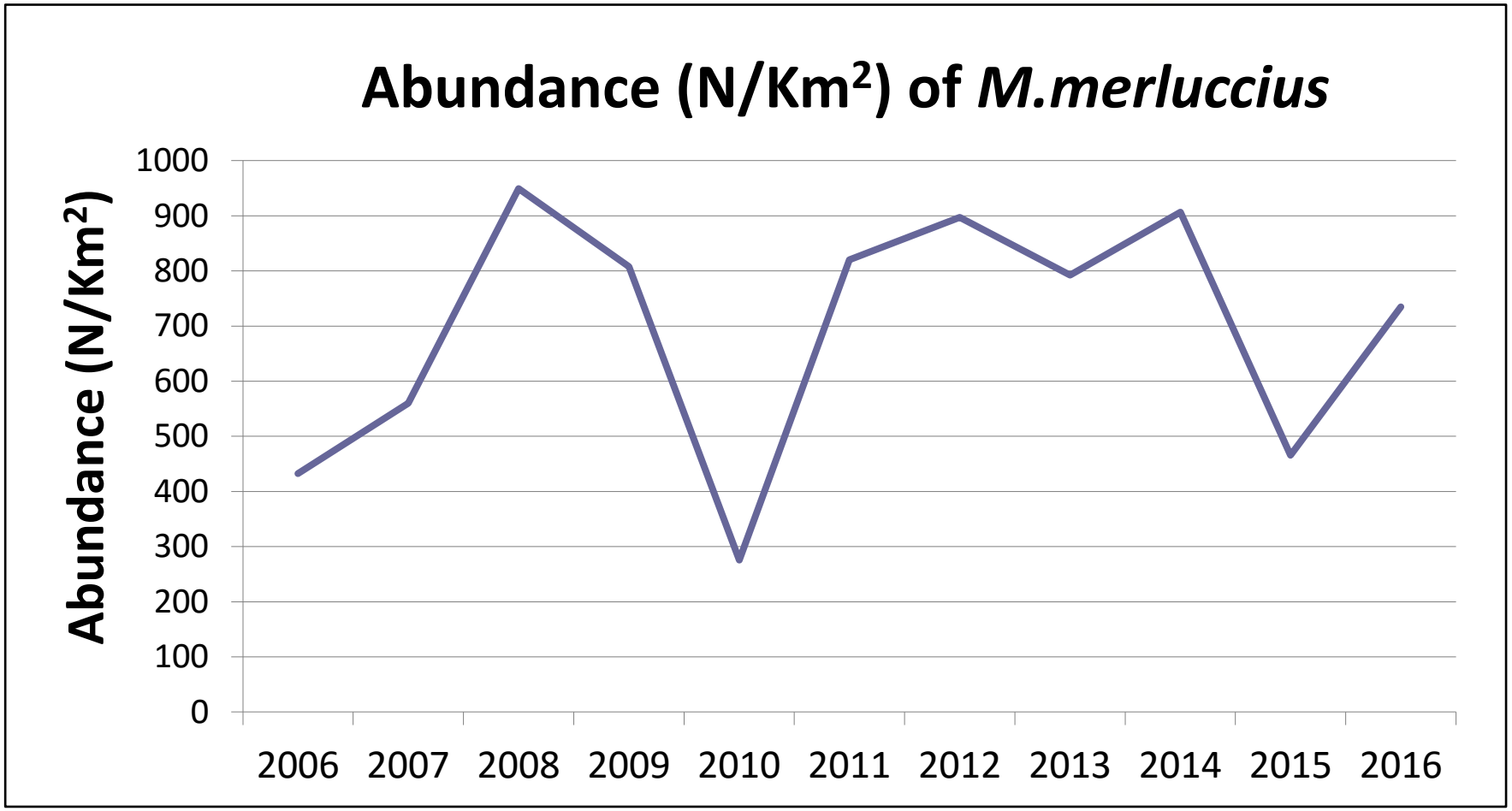
Biological sample

- Species identified: 135 (all present in FM list)
- Samples for length distribution: 11,294
- Samples for sex and maturity: 7,885

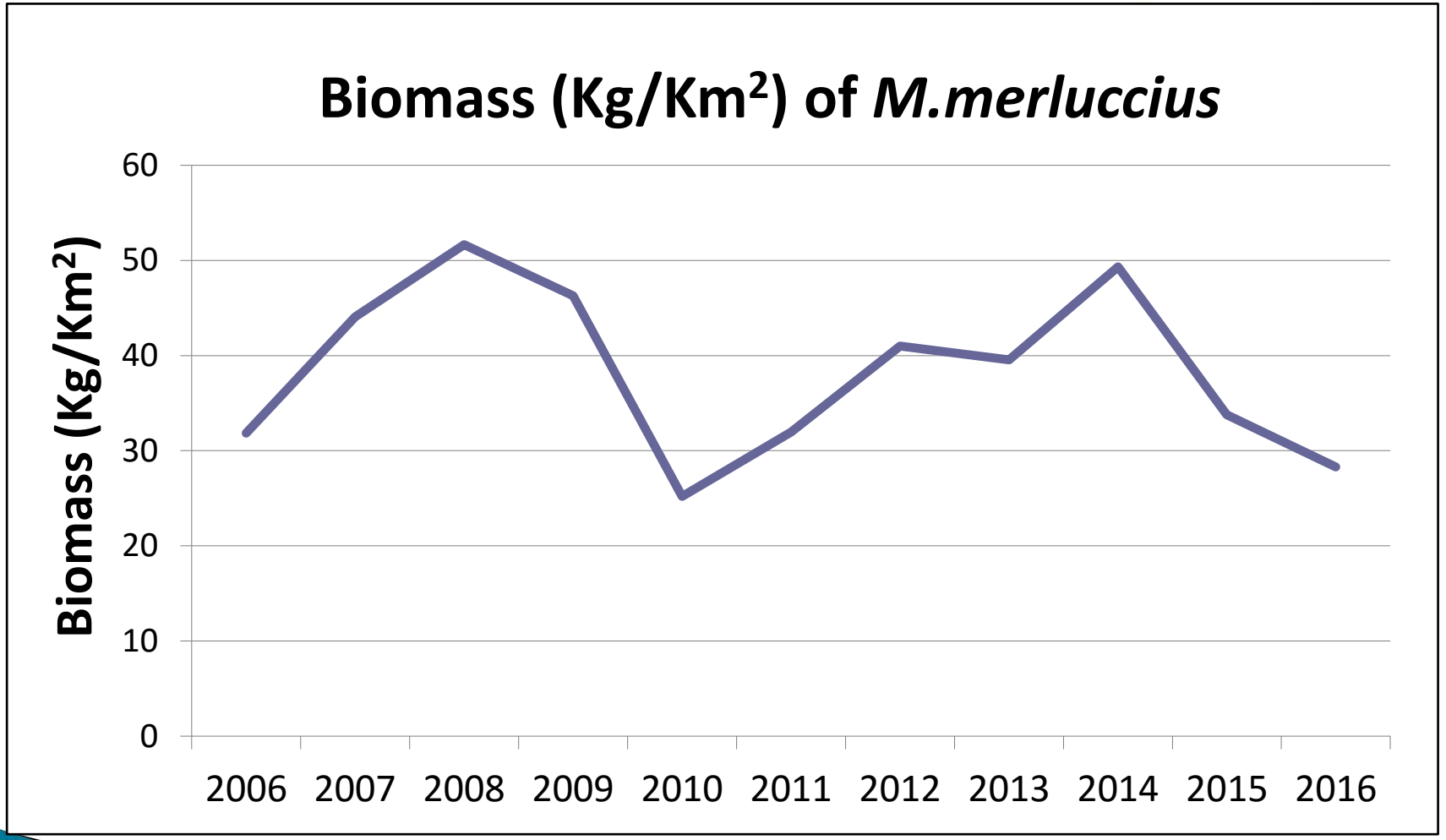
Data Checks

- Data was checked by means of the RoME data check programme.
- LitterR was used to analyse litter data.

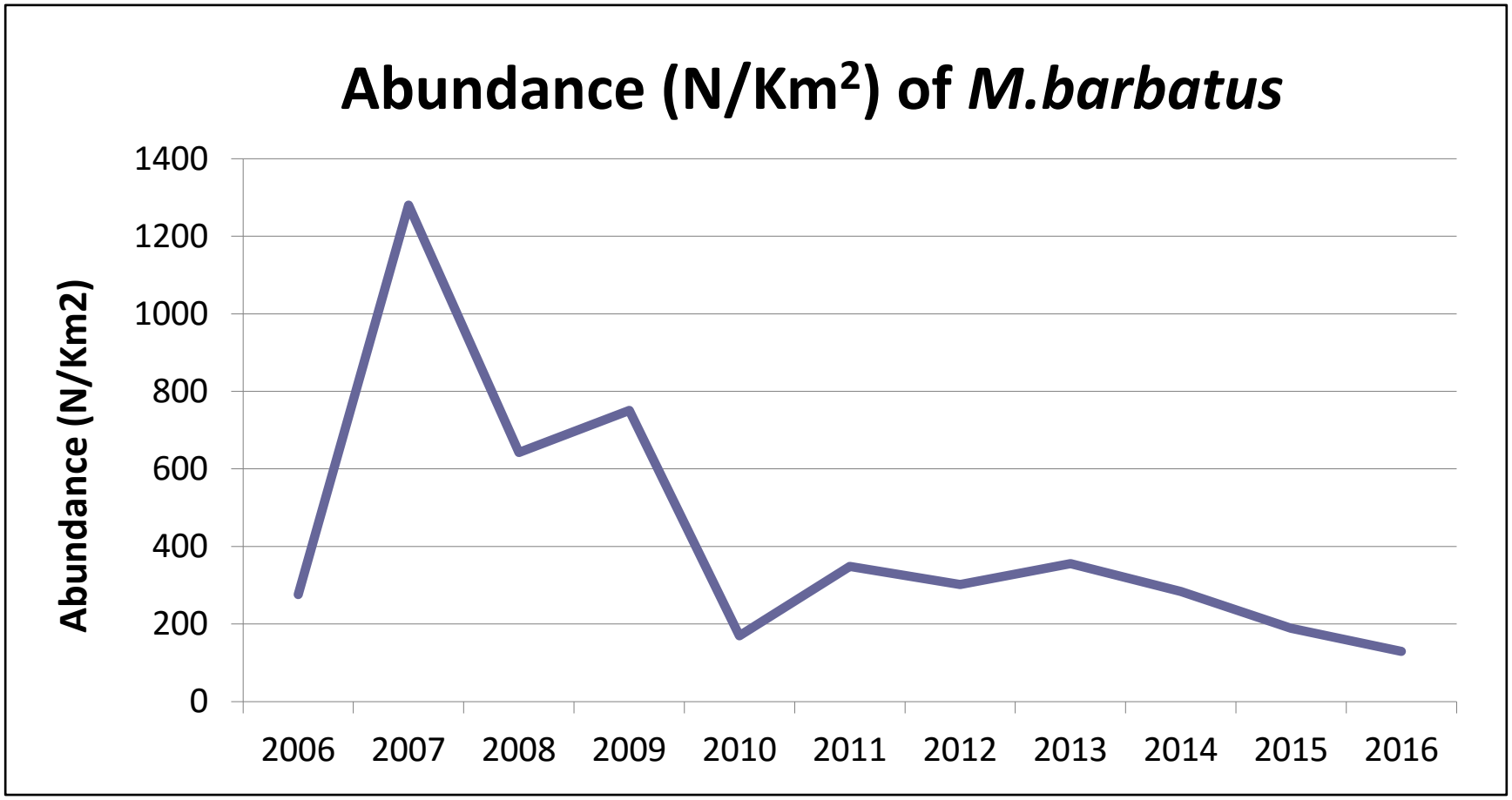
Historical trends:



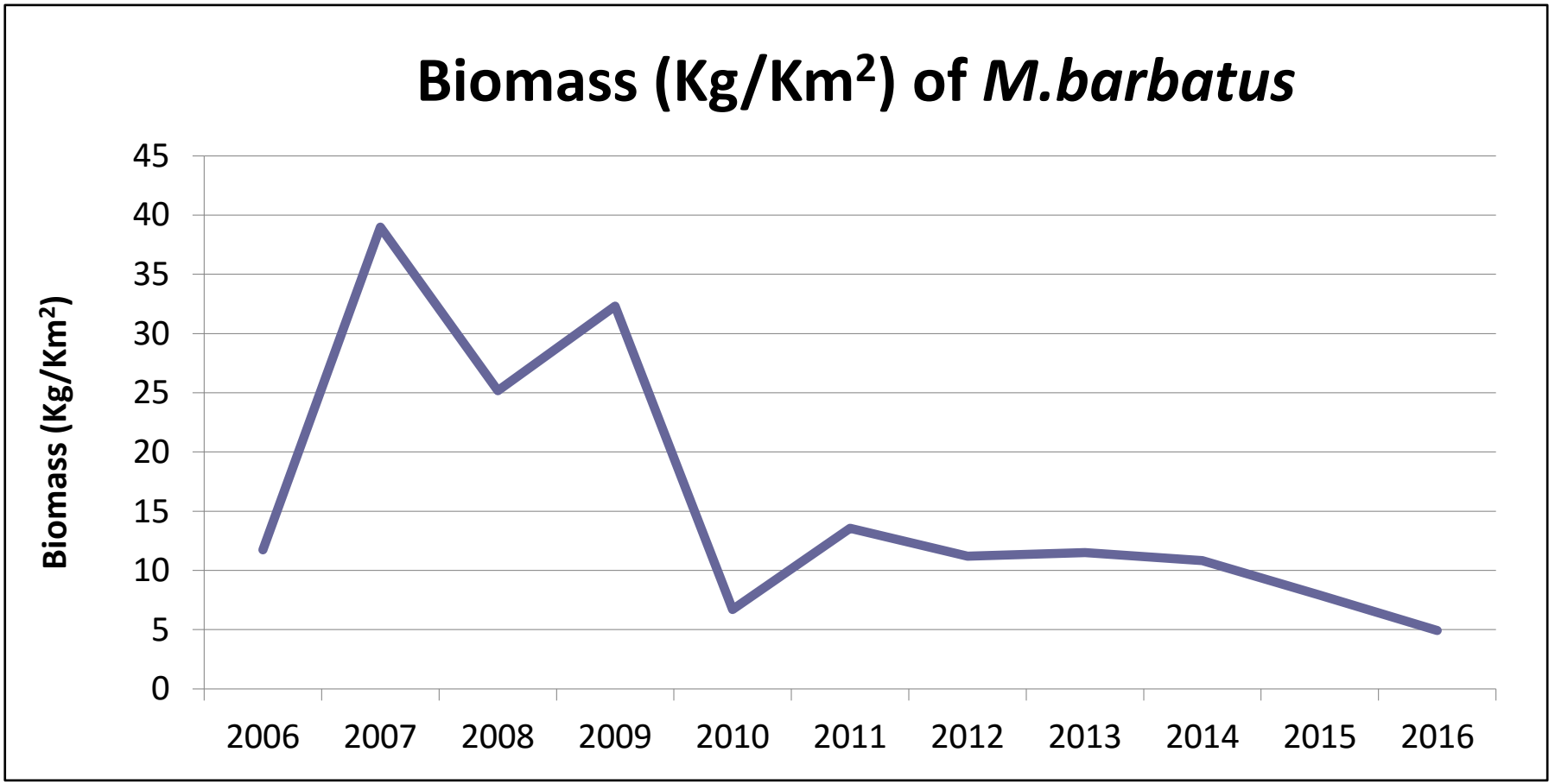
Historical trends



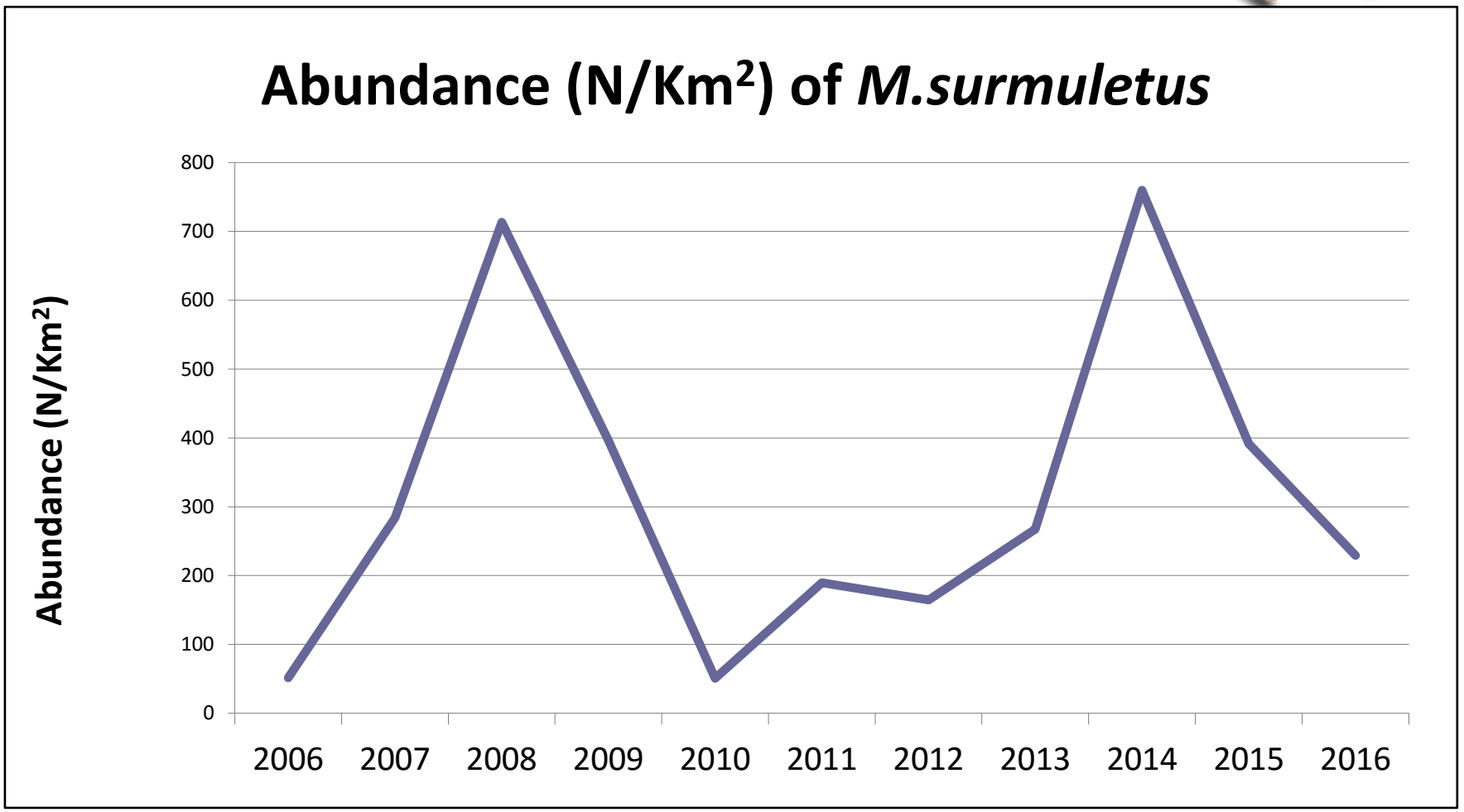
Historical trends



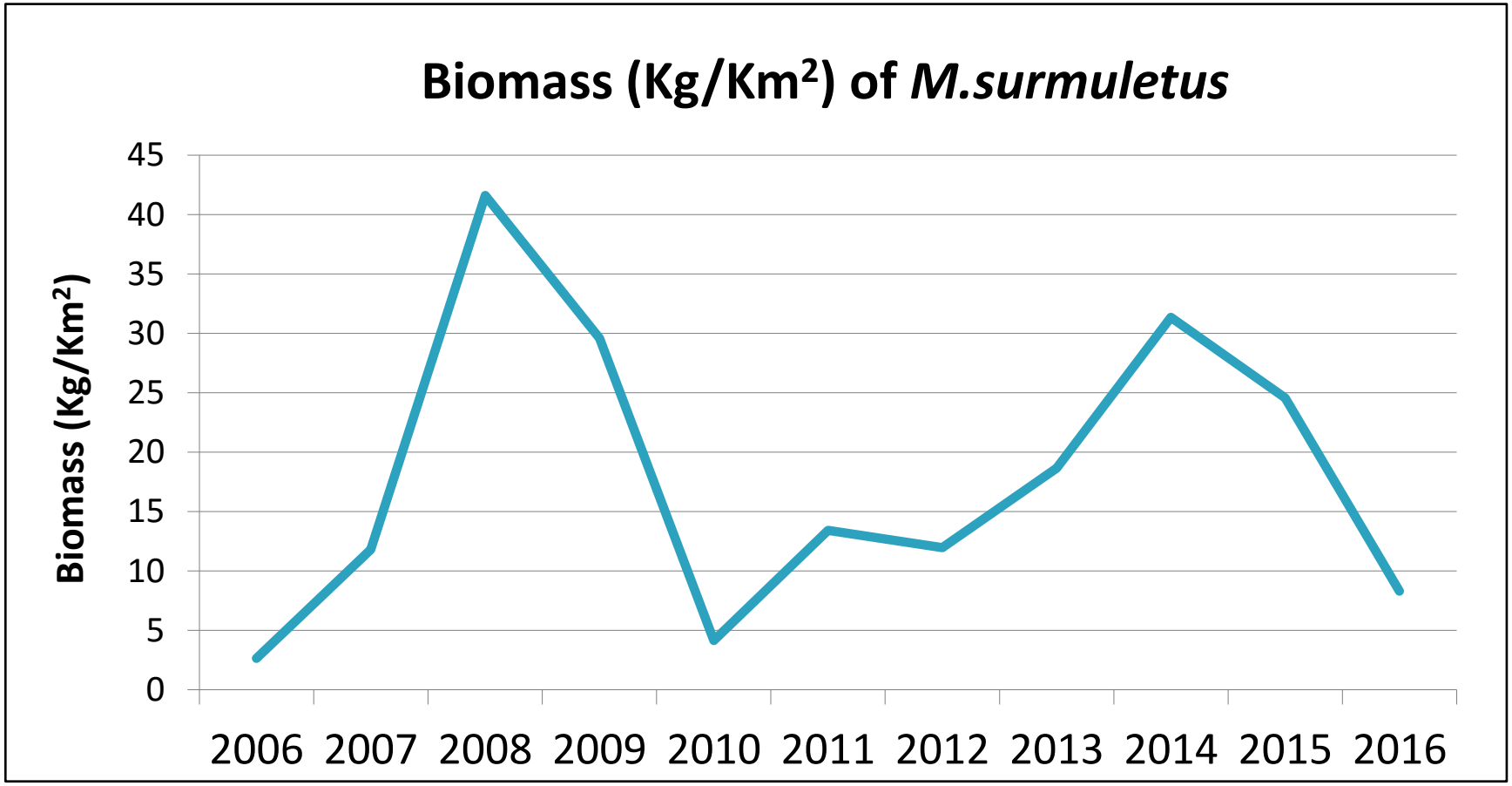
Historical trends



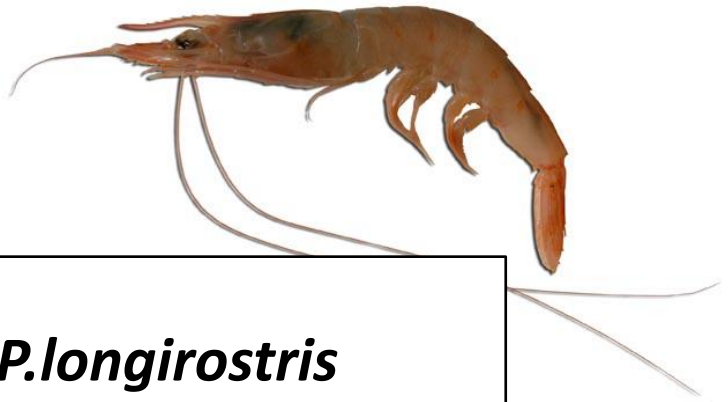
Historical trends

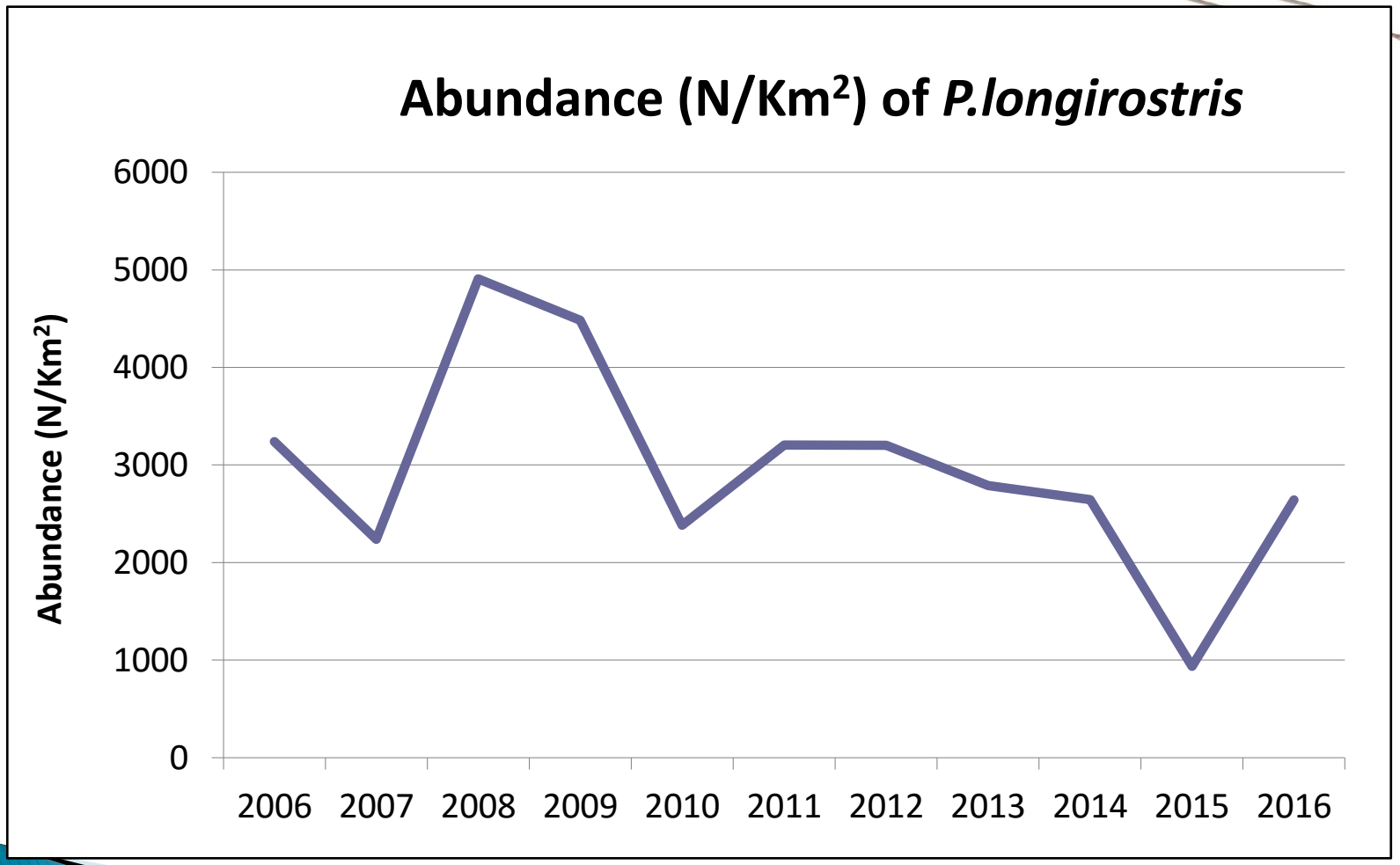


Historical trends

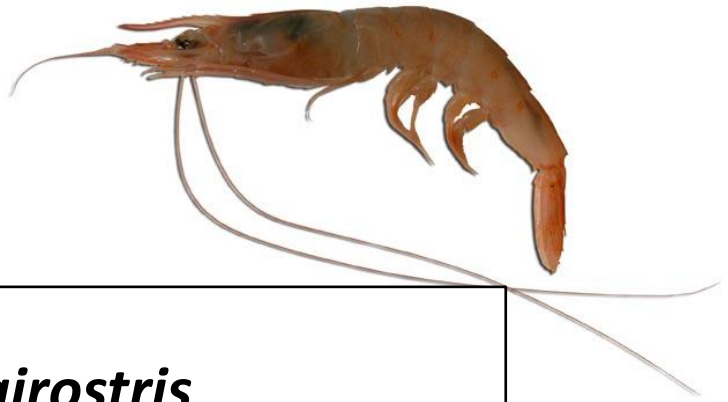


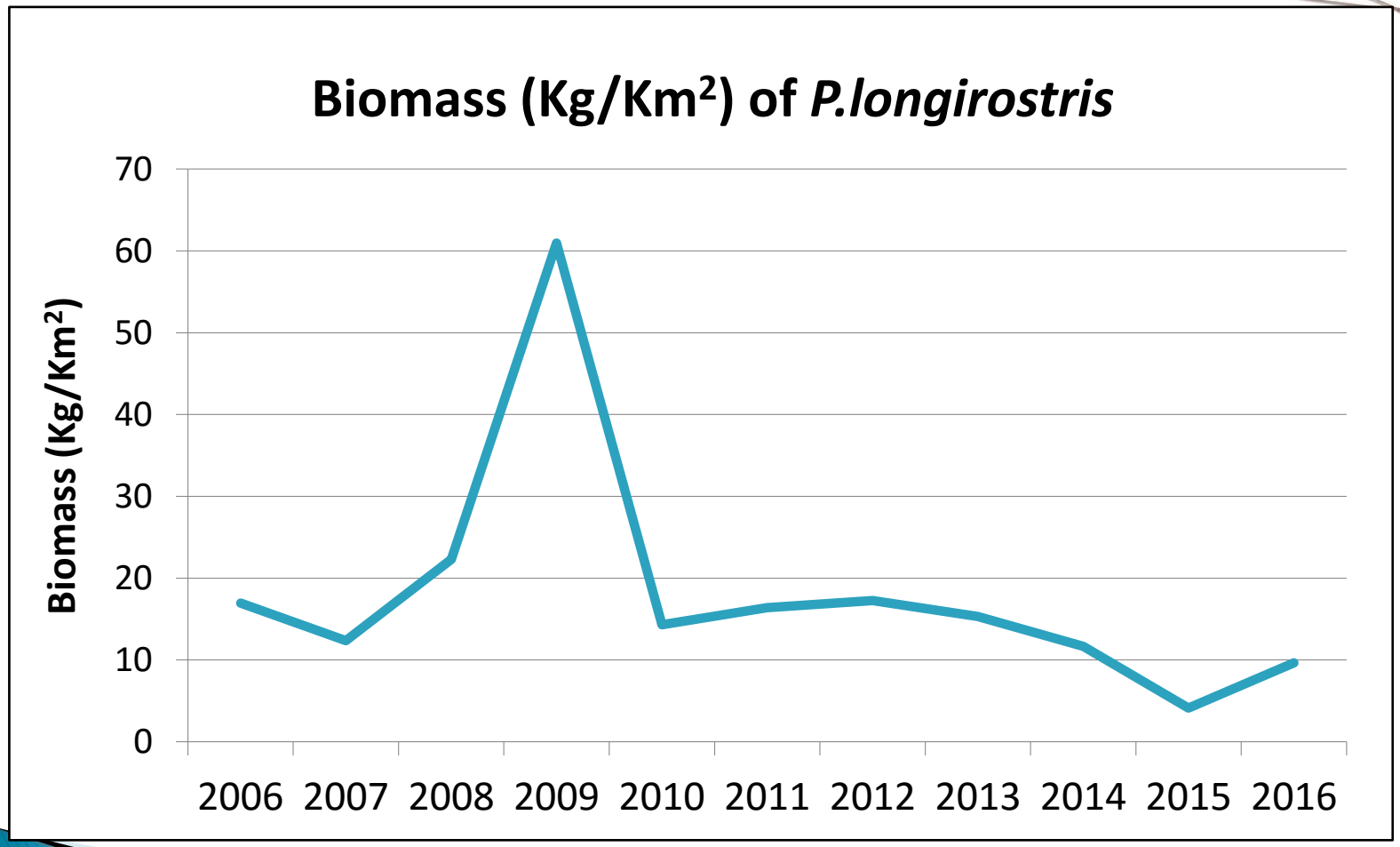
Historical trends



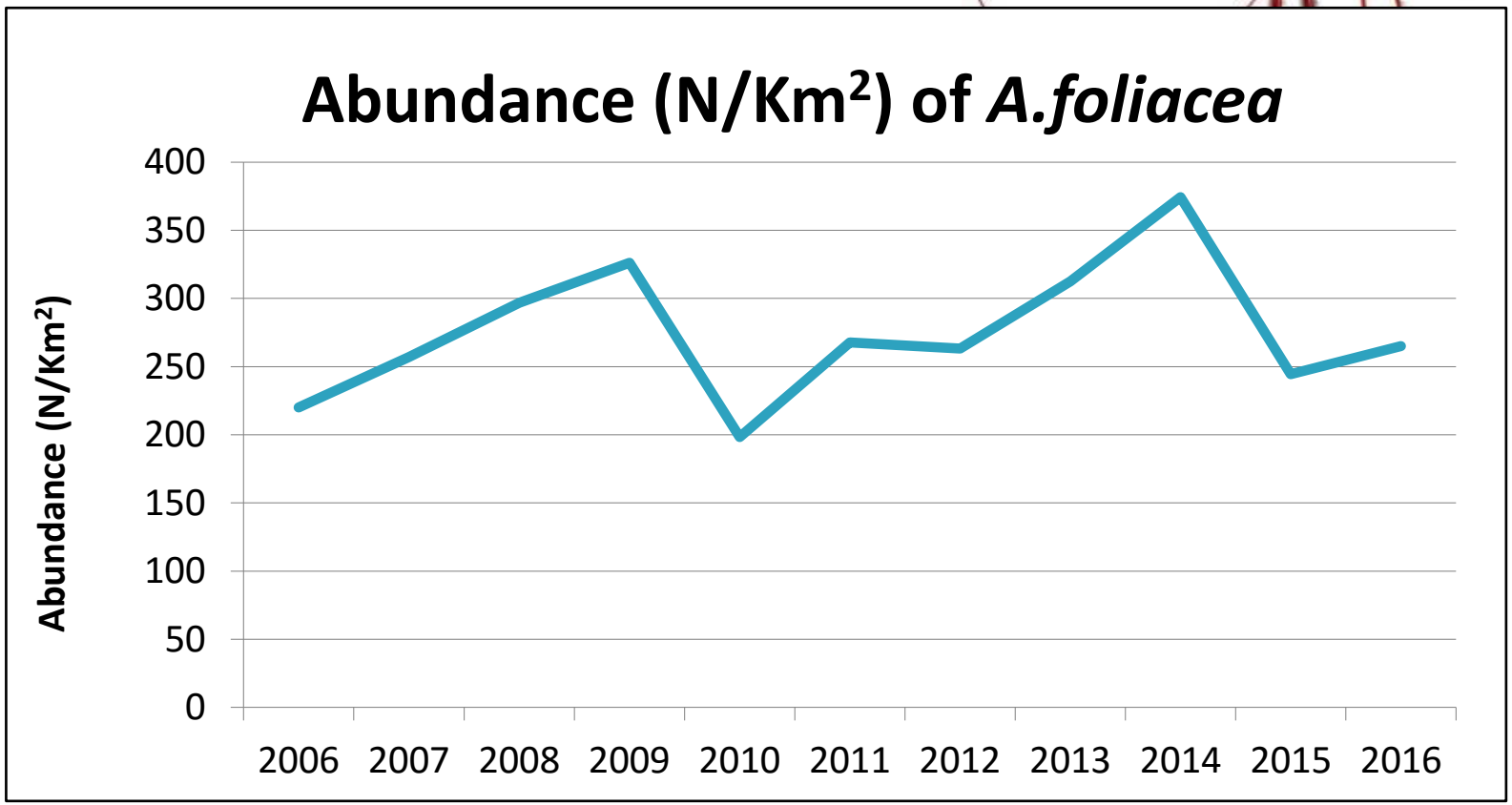


Historical trends

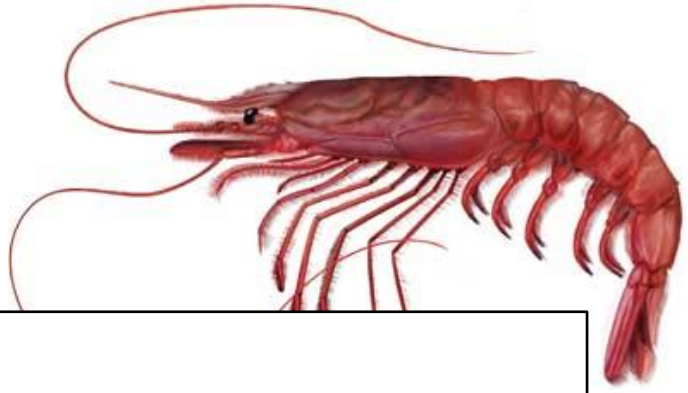


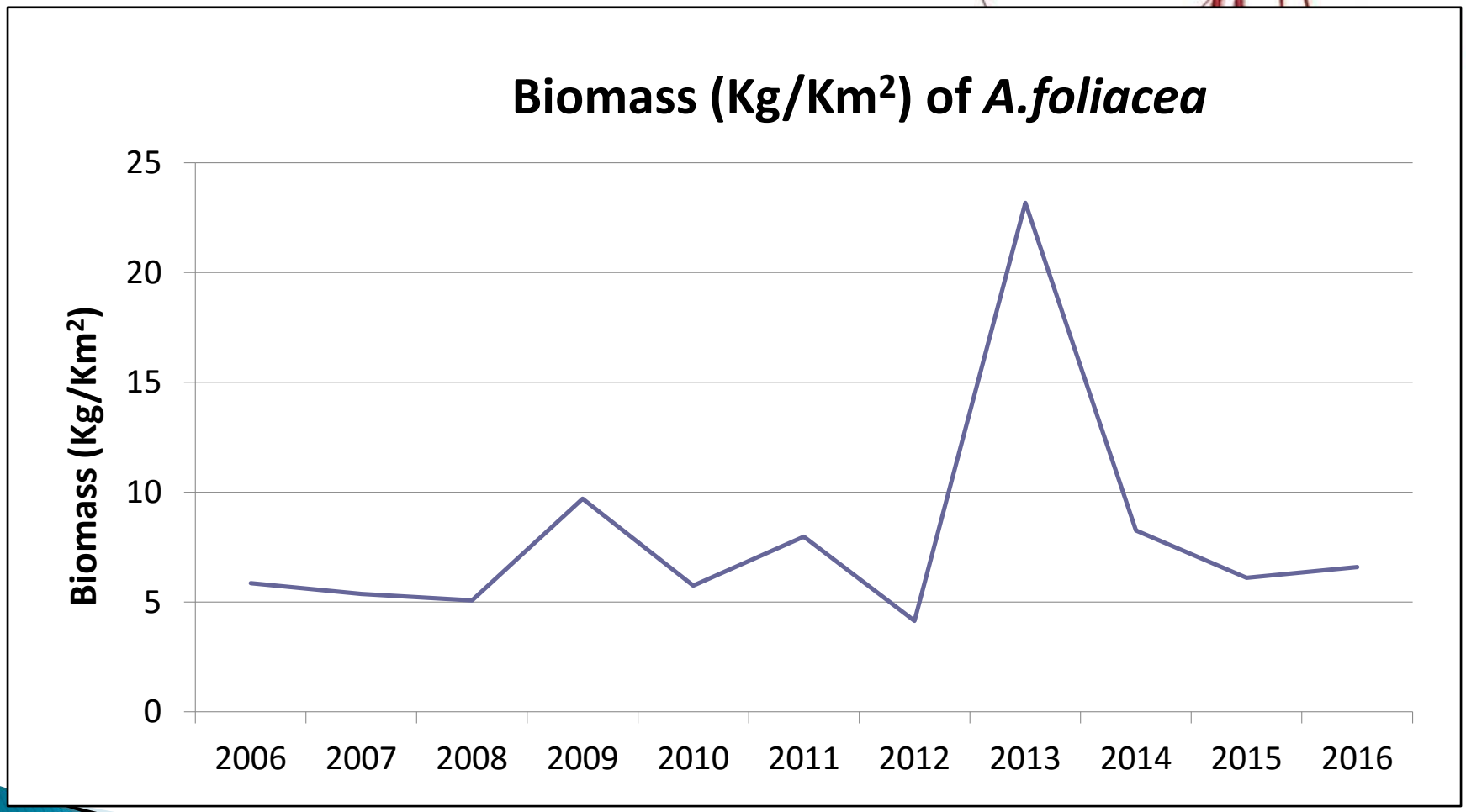


Historical trends



Historical trends





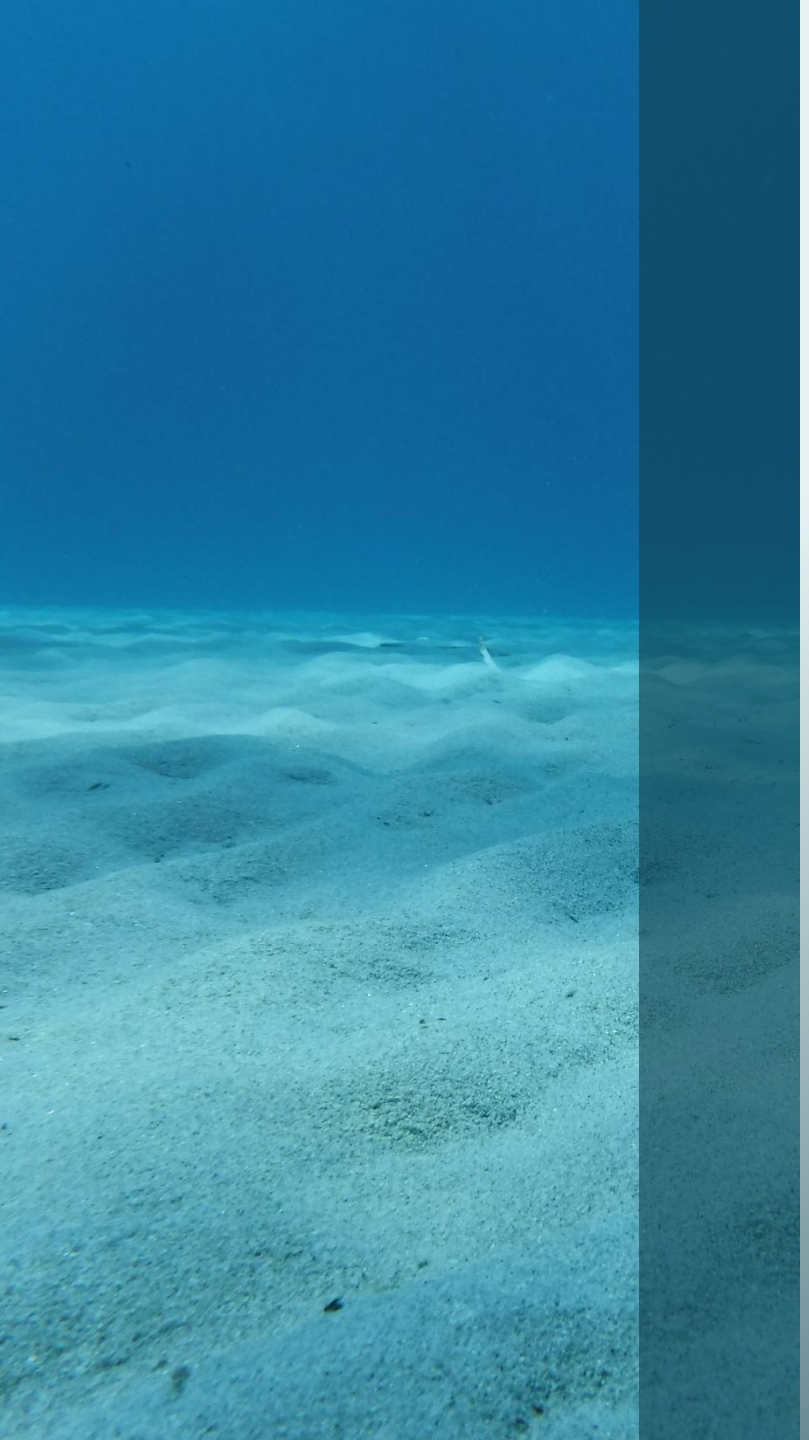
Age Reading

- All samples were collected.
- Samples from Medits 2012 – 2016 were read.

Future Plans

- A direct order was issued for the sampling vessel
- The sampling session for 2016 should be performed between August 2016.
- Work is being conducted to issue another tender for the otoliths extraction and age reading on 2017 samples.

Thanks for your attention



Food and Agriculture Organization of the United Nations

General Fisheries Commission for the Mediterranean
Commission générale des pêches pour la Méditerranée

The implementation of demersal surveys in the context of the mid-term (2017-2020) strategy

MEDITS Coordination Meeting
Nicosia (Cyprus), 5-6 April 2017

GFCM Secretariat

The need for a strategy

This mid-term strategy is the fruit of the commitment of GFCM contracting parties, cooperating non-contracting parties and partner organizations to improve, by 2020, the sustainability of Mediterranean and Black Sea fisheries and ensure that the alarming trend in the status of commercially exploited stocks is reversed……..

The need for a strategy

Why?

- **Stocks under pressure**, stagnant fisheries sector
- Need for **regional response**
- Countries require **support** to undertake actions and **comply with recommendations and international commitments**

When?

- **Mid term vision** (2017 – 2020): strategy should **revert current negative trends** and lay down the **foundation towards sustainable fisheries**
- Launching needs to start immediately

Who?

- Riparian States
- GFCM
- Other relevant actors with interest on various aspects related to fisheries: **Integrative vision**

How?

- Coordinated actions executed at various scales (national, subregional. regional)
- Supported by partners and **tailored actions** (Mediterranean & Black Sea)
- **Dedicated funds**: externals donors and contributors
- **National Commitment**

GFCM mid-term strategy (2017–2020)

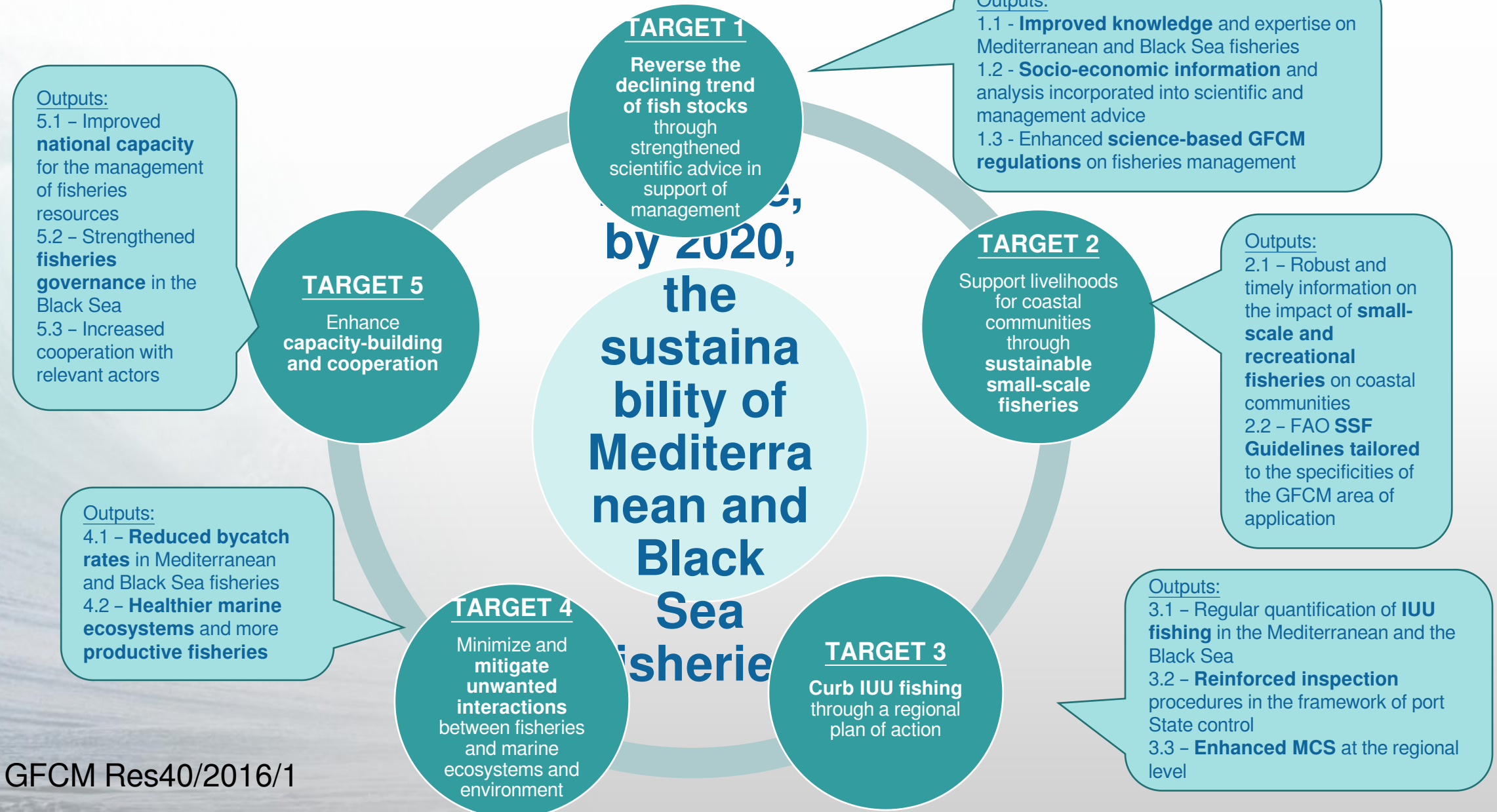
STRATEGY

General Fisheries Commission for the Mediterranean (GFCM)

The mid-term strategy is based on 5 key actions identified by the GFCM subsidiary bodies and intends to capitalize on accomplishments in the region over recent years in the field of stock assessment and fisheries management, marine environment, control and capacity building……..

The Mediterranean and Black Sea strategy: renewed commitment towards sustainability

General Fisheries Commission for the Mediterranean (GFCM)



GFCM Res40/2016/1

The Mediterranean and Black Sea strategy: renewed commitment towards sustainability

TARGET 1

Reverse the declining trend of fish stocks through strengthened scientific advice in support of management

Implementation of Regional surveys at sea

acoustic pelagic survey

demersal trawl survey

Regional surveys at sea: demersal trawl survey

Rationale: The motivation for establishing pan Mediterranean and Black Sea survey lies in the fact that comprehensive biological studies of the biological status of most of the demersal fish stocks **in some Mediterranean areas** are still lacking. To target this issue, the GFCM wishes to promote such studies and one way of doing so is establish international surveys (**in not covered areas**) exploring the main demersal stocks.

Objectives

This proposal aim to conduct co-coordinated both a) demersal trawling and b) pelagic acoustic surveys in different Mediterranean and Black Sea areas and it will allow the possibility to formulate scientifically based advice for improved conservation of the stocks:

- to contribute to the characterization of demersal and pelagic fisheries resources in the Mediterranean & Black Sea in term of population distribution (relative abundance indices) as well as demographic structures (length distributions);

- to provide data for modelling the dynamic of the main target species per GFCM sub-region. In this scope, estimation of total mortality of the exploited species constitutes an important aim.

In additions….

- The **use of a wide data sets** in all Mediterranean and Black Sea regions should be harmonising in order to capture the most relevant biological events. This would permit **more accurate estimates of life history parameters such as mortality and growth**.

- It would provide valuable records for the **estimation of stock-recruitment relationships** and contribute to the collection of **ecosystem indicators**.

- At the same time, data to better assess the spatial occupation of the different components of the stocks would be available (e.g. **seasonal distribution, spatial segregation and community structure, reproduction and recruitment areas**).

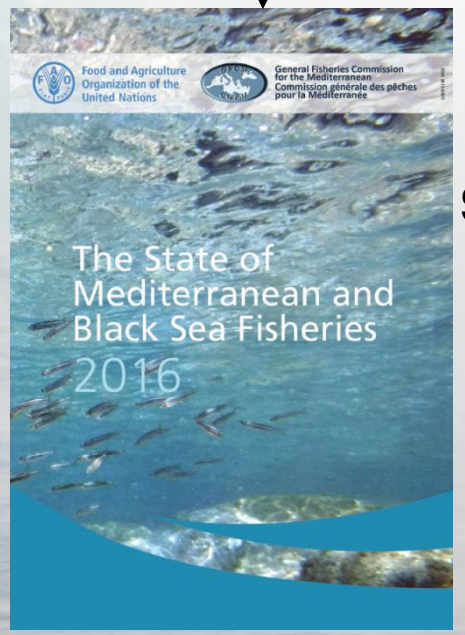
- The gain in accuracy would, in turn, make also more **robust the evaluation of changes in the population indicators** and of the input parameters for population and community modelling.

Methodologies

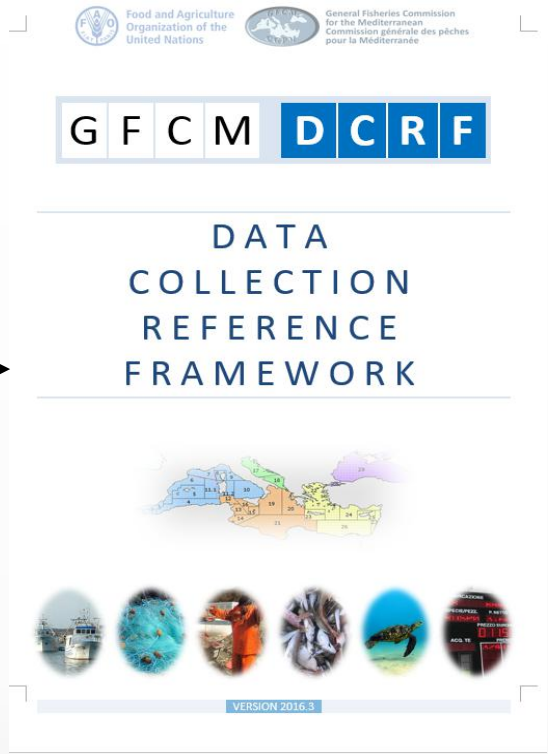
New demersal surveys should be carried out during the spring-summer period with homogeneous methodology and operational protocols among participants. A simplify version of the MEDITS-Handbook, 2016 will be used as reference (a discussion on it there will be during the incoming Coordination meeting Slovenia 15 May 2017). Overall:

- For each species the total weight and number of individual should be recorded.
- Furthermore, for a pool of selected and target species, collected information should include total length, weight, age, sex composition and also maturity. The list of target species as in the Medits manual will be checked and complemented with other species of regional/sub-regional interest (as in the GFCM-DCRF, 2016).
- Ecosystem data, discards and incidental catch of vulnerable species will be also monitored.

All data collected through existing surveys and the new one(s)



SoMFi 2018



Ad hoc meeting(s) for the analysis of data at sub-regional and/or regional level

General Fisheries Commission for the Mediterranean (GFCM)

Next step.....

Coordination meeting for the implementation of scientific surveys in the Mediterranean

Ljubljana, Slovenia, 15 May 2017

DRAFT AGENDA AND TIMETABLE

MONDAY 15 MAY

Morning session, 9:30-13:00

Afternoon session, 14:30-17:00

1. **Opening, arrangements of the meeting**
   - Objectives of the meeting and adoption of the agenda
   - Introduction of the relevant activities under the GFCM mid-term strategy

2. **Surveys implementation in the Mediterranean Sea**
   - Overview by national experts
   - Regional programs in place (e.g. MEDITS, MEDIAS etc.)
   - General discussion

3. **Definition of technical aspects for demersal and pelagic surveys**
   - Identification of potential area(s) and availability of survey vessel(s)
     - ✓ spatial and temporal coverage
   - Methodologies on board
   - Roadmap
     - ✓ sampling gear(s)
     - ✓ survey designs
     - ✓ scientific crew
   - Discussion on joint analysis and management of data

4. **Role of the survey coordinator in each country**

5. **Analysis of capacity-building needs**

6. **Conclusions: roadmap for the implementation of surveys-at-sea**

Thanks for your kind attention

GFCM Secretariat