International bottom trawl survey in the Mediterranean

Instruction manual

Version 8

2016

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The MEDITS programme is conducted within the Data Collection Framework (DCF) in compliance with the Regulations of the European Council n. 199/2008, the European Commission Regulation n. 665/2008 the Commission Decisions n. 949/2008 and n. 93/2010. The financial support is from the European Commission (DG MARE) and Member States.

Preamble

The MEDITS project started in 1994 within the cooperation between several research Institutes from the four Mediterranean Member States of the European Union. The target was to conduct a common bottom trawl survey in the Mediterranean in which all the participants use the same gear, the same sampling protocol and the same methodology.

A first manual with the major specifications was prepared at the start of the project. The manual was revised in 1995, following the 1994 survey and taking into account the methodological improvements acquired during the first survey. Along the years, several improvements were introduced. A new version of the manual was issued each time it was felt necessary to make improvements to the previous protocol. In any case, each time the MEDITS Co-ordination Committee ensured that amendments did not disrupt the consistency of the series. The third version of this manual was edited in 1999, while the fourth one served as a manual for the surveys carried out between 2000 and 2006. The fifth version, although issued in 2007, included improvements adopted by the MEDITS group since 2005, and was the protocol followed from 2005 until 2011 surveys.

In 2012 the revision 6 was issued, which included substantial modifications to the MEDITS manual, though not affecting the main characteristics of the protocol regarding the sampling scheme, methods and gear. This new version included changes in the list of target species and faunistic categories, which were both expanded. In addition, the protocol for otolith sampling and biological parameters measurements was included, while adjusting the storage data formats accordingly.

The version number 7, in continuity with the previous ones, was amending and innovating some aspects, while incorporating more specific and standardised gear checks and proposing a common protocol for the voluntary collection of data on marine litters, in agreements with the requirements of the Marine Strategy Directive Framework (Directive 2008/56/EC).

The present version 8 is introducing more details on the checks of the MEDITS gear and on the aspects related to the taxonomic list and categories in line with the evolution of the Marine Strategy Directive Framework (Directive 2008/56/EC).

Co-ordination of the MEDITS program (2015)

Co-ordination

The MEDITS program is currently co-ordinated at international level by Maria Teresa Spedicato (COISPA Tecnologia&Ricerca, Italy).

The MEDITS group is currently composed as in table 1. The members of the Steering Committee are indicated by the letter N in the same table.

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R= Regional Coordinator; N=National Coordinator; I=International Coordinator

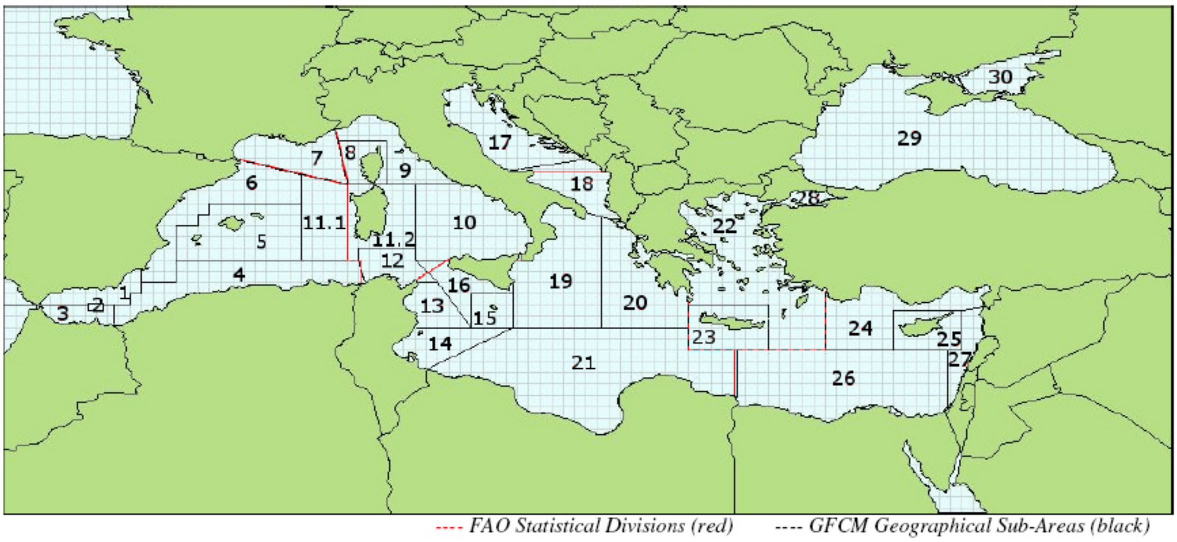
Contents

Introduction

This document is the eighth version of a manual first elaborated in the frame of the MEDITS international project to harmonise the sampling of demersal resources in the Mediterranean Sea.

It is the reference document for research institutes and teams contributing to the MEDITS surveys on the continental shelves and slopes in the Mediterranean (Fig. 1).

GFCM Geographical Sub-Areas (GSAs) (GFCM, 2009)



01 - Northern Alboran Sea	07 - Gulf of Lions	13 - Gulf of Hammamet	19 - Western Ionian Sea	25 - Cyprus Island
02 - Alboran Island	08 - Corsica Island	14 - Gulf of Gabes	20 - Eastern Ionian Sea	26 - South Levant
03 - Southern Alboran Sea	09 - Ligurian and North Tyrrhenian Sea	15 - Malta Island	21 - Southern Ionian Sea	27 - Levant
04 - Algeria	10 - South and Central Tyrrhenian Sea	16 - South of Sicily	22 - Aegean Sea	28 - Marmara Sea
05 - Balearic Island	11.1 - Sardinia (west) 11.2 - Sardinia (east)	17 - Northern Adriatic	23 - Crete Island	29 - Black Sea
06 - Northern Spain	12 - Northern Tunisia	18 - Southern Adriatic Sea	24 - North Levant	30 - Azov Sea

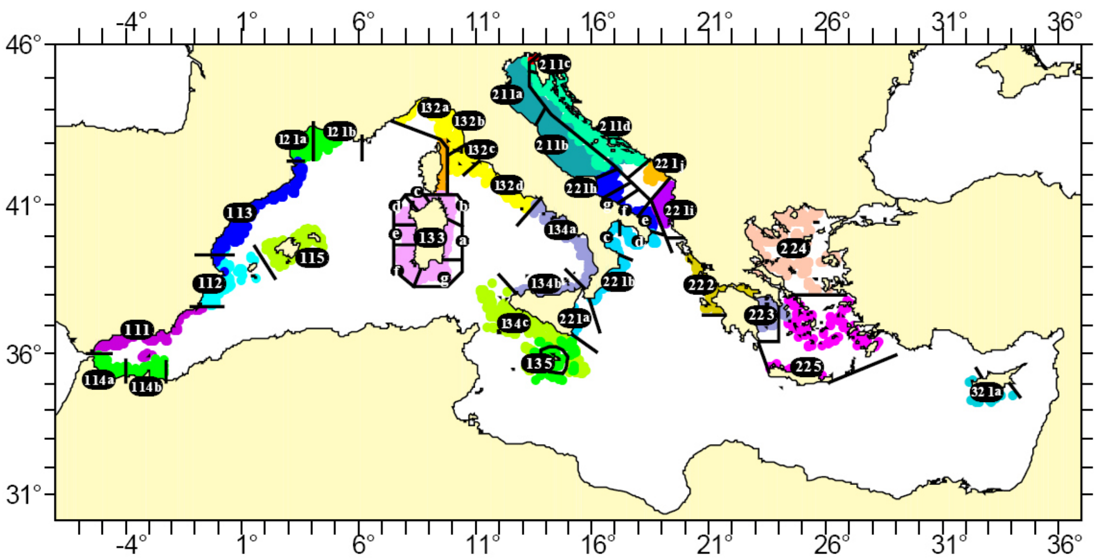


Fig. 1. General map of the area covered by the programme. Top: the GFCM GSAs (RES-GFCM/33/2009/2). Down: the MEDITS strata. Coloured: areas covered by the MEDITS surveys. The designations used and the presentation of cartographic data imply no line as

for the juridicial status of the various areas neither as for the border lines between countries.

The manual describes the sampling gear characteristics (feature and handling), the design of the survey, the sampling methodology and the processing of samples. Finally, it gives the specifications of the data files for data storage and exchange.

This manual includes amendments and improvements to the MEDITS protocol as agreed by the MEDITS Co-ordination Committee up to the 2015 annual meeting. Considering the need for progressing towards new objectives (e.g common data-base) and amendments to be considered in the future, updates to this manual will be carried out as necessary.

The present version of the MEDITS Manual also includes the work performed in the **M**ultidisciplinary **G**roup on **G**ear **P**erformance and Standardization of Gear Data Processing (MGGP, coordinated by Antonello Sala from ISMAR-CNR) established at the MEDITS coordination meeting in Ljubljana (Slovenia, 6-8 March 2012). The MGGP ToR related to the Technical specifications and quality check of the Medits gear was finalised during the MEDITS Coordination Meeting of 2013 (Heraklion, Greece, March 12-14, 2013). Thus, a new regularly check of the MEDITS gears (trawl, rigging, doors) and of the protocol-abiding has been plenary proposed and accepted. This protocol, updated in 2014 and further revised in 2015 to fix some technical details, is the Annex XVI to the present handbook version 8 (2015).

In addition, the common protocol for the voluntary collection of data on Marine Litters, in agreements with the requirements of the Marine Strategy Directive Framework (Directive 2008/56/EC), is reported in the Annex XVII. This protocol was agreed at the MEDITS Coordination Meeting of 2013 (Heraklion, Greece, March 12-14, 2013) and further improved in 2014 and 2015.

[1] Specifications of the sampling gear

According to Bertrand et al. (1997) the adopted gear constitutes a compromise between different constraints. To increase the catch of demersal species, it has been designed with a vertical opening slightly superior to the most common professional gears used in the Mediterranean when the MEDITS survey started. The design of the gear has been drawn up by fishery technologists from specifications defined by the biologists.

1.1 The trawl

The sampling gear is a bottom trawl made of four panels.

Figure 2 shows a schematic drawing of this trawl (IFREMER reference GOC73).

This gear should be operated by a vessel with a towing power of at least 368 kW (500 HP) and 4.5 tons of bollard pull.

The most important gear specifications were:

- to be able to work in all the areas and at all the depths specified by the programme (10-800 m);
- to have a selectivity as low as possible so as to have good images of the populations sampled.

In practice the last requirement was the opposite of what is normally asked to the fishermen, which is to use good selective gears so as to allow the small size individuals to escape. This goal is generally obtained by imposing to all the commercial gears a minimum size for the meshes used. For the Mediterranean the present minimum legal mesh opening for the demersal trawl gears is currently a square-mesh of 40 mm or a diamond-mesh of 50 mm opening, but for the sampling gear to be used during the MEDITS surveys it was decided to limit the mesh size of the codend to **10 mm of mesh side**, which corresponds to about 20 mm of mesh opening.

Even if other sampling gears for survey purposes exist in the world (e.g. the GOV – *Grande OuvertureVerticale* trawl used in the North Sea surveys), it was decided to design a new trawl to better follow the required specifications and for a better adaptation to the particular characteristics of the Mediterranean Sea above mentioned.

For all the report and figures, the mesh side value, or half mesh, will be used to indicate the mesh dimensions. The mesh side is defined by the International Organization for Standardization (**ISO 1107-1974 - Mesh Measurements, definitions**) as:

- the distance between two sequential knots, measured from centre to centre when the yarn between those points is fully extended.

In some cases, the values of mesh opening, or inside measurement, will also be used, but only after an explicit declaration. For knotted netting, the opening of the mesh is defined by the same ISO standard, as the distance between two opposite knots in the same mesh when fully extended in the N-direction, which is the fore-aft direction along the net. For knotless netting it is defined as the distance between two opposite joints in the same meshes when fully extended along its longest possible axis.

On the plan in Figure 2 the mesh sizes are indicated in bar length. The mesh numbers in height correspond to well finished and joined netting sections; the joining mesh should then be subtracted when cutting. The numbers of mesh in width do not include the side seams and these should then be added when cutting.

The nets should be made from good quality polyamide netting (nylon). It will however not be possible for the net manufacturer always to obtain sheet netting of exactly the same length as specified in this manual. Thorough care must be taken to obtain materials with properties as close as possible to the ones specified in Figure 2.

The headline should have **40 floats** resisting to an immersion of 1,300 m depth. Their diameter should be around 20 cm, their individual buoyancy of 2.7 kgf (± 5%), the total buoyancy of the 40 floats being around 108 kgf (± 5%). The 40 floats should be distributed along the headline as follows (Fig. 3 and 8):

- from the end of each wing, one float every 1.50 m, 5 times;
- one pair of floats every 1.50 m on the whole remaining length;
- in the headline bosom a small adjustment of the spacing is necessary.

With this number of floats the vertical opening of the trawl should reach 2.4 to 2.6 m depending on the horizontal opening.

A weighting chain (*ballast chain*) of 120 kg (Nr. 3 × 40) should be secured to the foot rope at 17 cm intervals (with a hanging height of at most 8 cm).

A supplementary chain (only one chain) of 15 kg (around 6.50 m and a diameter of 10 mm) should in addition be secured symmetrically on both parts of the belly bosom in the same way as the first one (garland of 17 cm in length).

1.2 The rigging

The general drawing of the rigging is given in figure 3.

Various details of mounting and connecting are shown in figure 4.

The upper bridle length is 30 m; the lower bridle length is 29 m, plus the adjustment chain of 1 m (the adjustement chain is only found on the lower legs).

To maintain the geometry of the trawl as constant as possible, **two bridle lengths are defined according to the depth**. They are given in the following table:

Depth (in meters)	10 - 200	201 - 800
Bridles length (in meters)	100	150

Following the results of an experiment carried out on board the RV/L'Europe in June 2000, it is recommended to increase the bridle length to 200 m at depths deeper than -500 m. This modification, even though not compulsory, may favour a better and faster contact of the trawl with the seabed.

1.3 The doors (Otter Boards)

The doors are also normalised. They are of type **MorgereWH S** (Figs. 5 and 6). The adopted doors correspond to the size number 8. The warp is shackled in the fore hole of the bracket sheet (see arrow 1 in Figure 2). The short parts of the external crowfoot are shackled in the most back part of the backside sheets, upper and lower (see arrow 2 in Figure 2). The length of the backstrops (shackles not included) are as follow:

long external back-strops: 1.60 m

short upper and lower back-strops: 0.65 m (± 10%).

1.4 Warp diameter and length

Taking the characteristics of the trawl and the rigging into account, the warps should have a diameter of 16 mm, with a minimum thickness of 14 mm and a maximum of 22 mm.

The length of warps to be shot is determined by the operating depth.

The recommended relationship between depth and warp length is given in figure 7. The table in figure 7 gives different warp lengths for a range of warp constructions given by diameter (12-22 mm). The relationships are calculated based on the specifications of the net and doors. Also it is recommended that the warp length should not be less than 200 meters as it will decrease considerably the door spread and increasing the door instability.

Although in certain particular circumstances some adaptations can be made to this relationship, it is recommended to respect the depth/warp length ratio as far as possible.

For the vessels which are not equipped with a device to measure the length of warp shot, it is recommended to standardise the position of the last mark on the warp, for example at the most back warp block.

1.5 Complementary equipment and monitoring systems

The systematic use of a device (**SCANMAR, SIMRAD or other sensors**) to control the trawl geometry (vertical and horizontal openings, contact with the bottom) is highly recommended.

If this is not possible, measurements of the trawl geometry should be taken at various depths on board each vessel at the beginning of the survey to establish relationship between horizontal and vertical opening with parameters easy to measure, like depth and/or warp length.

The sensors should be positioned on the net as shown in figure 8.

Data of the net horizontal and vertical opening measured *in situ* or estimated for each haul, will be included in the TA data file, as specified further on in this manual.
Reliable models of horizontal- and vertical-net opening related to measured parameters or to some other available parameters (i.e. warp length, depth, etc.) will be used to estimate values of net openings and applied when necessary.

A net safety recovery system (**the pennant**) allowing the retrieval of the trawl by the codend can be installed. As far as possible, it is recommended to secure the line as shown in figure 8 and to take care of its fixations. The pennant must be sewed every 3.6 m at the starboard strengthening lacing. Rules for the use of the pennant must be adopted in order to avoid deformations of the gear geometry and drag. Ropes attached to the codend and terminating with a float must be avoided. Ropes starting from the codend and terminating to the wing tip are allowed only if connected to the strengthening lacing at regular intervals (every 1-1.5 m; Figure 8).

[2] Sampling methodology

2.1 Vessel characteristics

The vessels used for the MEDITS surveys should have an engine of at least 370 kW to be able to tow the standard sampling gear (traction at ground run: 4.5 tons). It is strongly recommended that as far as possible the same vessel and crew be used every year in each area so as to reduce variations between years due to vessel effect. The list of the vessels used since the beginning of the survey series is given in the **Annex I**.

2.2 Period of the survey

The period of the MEDITS survey is **centred around June** (from May to July). It is strongly recommended to keep the sampling period consisten among years in order to reduce the time of the survey effect on the time series.

2.3 Hauls localisation

The hauls are positioned following a **depth stratified sampling scheme** with **random drawing of the positions within each stratum**. The number of positions in each stratum is proportional to the area of these strata. Except in the case of peculiar problems (damages noted in previous years, etc.), the hauls are made in the same position from year to year. The decision to make a haul in a given place should not be influenced by the presence of fish shoals detected with the sounder or the sonar.

The following depths are fixed in all areas as strata limits:

10 - 50 m,

51 - 100 m,

101 - 200 m,

201 - 500 m,

501 - 800 m.

Furthermore the strata are limited by lines more or less perpendicular to the coast, depending on the geographical characteristics of each area.

The adopted stratification schemes has been shown in figure 1, while strata are described in **Annex II**. The target number of hauls by area is given in **Annex III**.

It is strongly recommended to maintain the same scheme between years.

The *Posidonia sp.* meadows are excluded from the sampling scheme and should never be trawled.

2.4 Operating the gear

2.4.1 Sampling period in the day

The hauls must be performed only during **daylight**. The daylight period is defined as the time between 30 minutes after sunrise and 30 minutes before sunset.

2.4.2 Haul speed and duration

The standard fishing **speed is 3 knots** on the ground. This recommended speed is very important in order to ensure the best trawl geometry. The actual speed as well as the covered distance should be monitored and recorded.

It is highlighted that a speed lower than 2.8 knots can have a negative effect on the verticality and the stability of the doors which can lie down and get stucked into the mud. In deep waters a speed greater than 3.2 knots can cause the lifting of the gear out of the bottom and must be avoided.

The haul duration is fixed at 30 minutes on depths less than -200 m and at 60 minutes at depths more than -200 m. In case during the fishing operations the haul should be stopped before the completion of the standard duration, **the haul can be considered valid if at least 2/3 of the time or of the distance have been successfully attained**.

2.4.3 Haul start and end definition

The start of the haul is defined as the moment at which the trawl geometry (vertical and horizontal) is stabilised (cf. § 2.4.5).

The end of the haul is defined as the moment at which warp hauling begins.

The haul start and end times should be recorded in UT time (GMT) and not in the local time.

2.4.4 Haul orientation

In general, hauls should be performed at constant depth. The depth variations during the haul should not exceed ± 5% relative to the initial depth. The discrepancies to this target should be recorded. In case of a significant difference between the depth under the vessel as recorded by the eco-sounder onboard and the depth at which the trawl is, the recorded depth should be taken as the latter.

As far as possible and in respect of the previous constraints, the hauls should be rectilinear. If for some reasons that is not possible, the turning circle must be as wide as possible so as not to disrupt the trawl geometry. In all cases the fields "COURSE" and "DISTANCE" of the "TA" data file (see § 5.2 and **Annex X**) should be precisely documented.

2.4.5 Managing the end of shooting operations and the start of the haul

It is important that the gear stays in good contact with the seabed during the whole haul. This should be regularly checked either by an acoustic device during the haul, by the observation of the chains wear and by the observation of benthic organisms in the catches after the haul.

At deeper waters (more than 200 m) some difficulties might be encountered in MEDITS gear setting on the bottom, therefore particular attention must be paid to the shooting operations. In order to decrease the setting time the following recommendations must be considered:

- after the complete shooting of the warps and the winch stopped, a relatively high speed (5-6 knots) should be maintained for around 1 minute, in order to stretch the gear and open the doors ;

- the speed should then be strongly reduced (even to 0) allowing the doors to reach the seabed. The time required varies depending on the vessel and the depth; for example 2-3 minutes at 500 m.
- once the doors are on the seabed, a speed lower than the normal one (2.5-2.7 knots) should be maintained in order to allow the net to reach the bottom.
- once the net is well stabilised the speed will be increased towards the standard speed (3 knots); this moment is defined as the real start of the haul.

The above procedure should be respected as precisely as possible, except in some particular situations where minor adaptations may be absolutely necessary.

For those vessels using a device such as a SCANMAR Trawl Sensor or SIMRAD or other equivalent equipment, the trawl can be considered well stabilised as soon as its vertical opening is between 2 and 3 m.

For the vessels without such a device, preliminary trials shall be made before the survey. The aim of these trials is to determine ship by ship the setting time needed to operate correctly from one vessel to another, taking into consideration the approach of each individual skipper, as well as the best predicting models of the MEDITS behaviour (e.g. horizontal and vertical net openings by warp length).

2.4.6 Trawl geometry while fishing

The trawl is designed to have a vertical opening between 2 and 3 meters at the various depths if the above mentioned adjustments are respected.

When a device like the SCANMAR Trawl Sensor or SIMRAD is used, the vertical and horizontal (between the wings) opening should be checked as often as possible, once the trawl is stabilised. The average values of these two parameters (disregarding the obviously aberrant values) will be reported in the data file for each haul.

When appropriate instruments to control the gear behaviour are not regularly used, reliable models of horizontal and vertical net opening related to some other available parameters (i.e. warp length, depth, etc.) should be used. So that estimated values of net openings can be derived and applied when necessary. Nevertheless the use of these instruments is highly recommended because they give exact information on the gear behaviour. From one side they give the measure of the horizontal and vertical net openings in all the conditions, even when some external and unpredictable effect (i.e. part of the net entangled or damaged, particular types of the bottom) can influence the above parameters and make the possible estimates inaccurate. From the other side, the knowledge of the gear behaviour could improve the setting operations and the determination of the exact tow duration also at high depths.

For each Operative Unit, some specific models of MEDITS gear behavior were produced from the data collected during the project *"Intercalibration des campagnes internationales de chautage démersal en Méditerranée central"* (IRPEM-CE project MED/93/015).

Modelization has also progressed within the MGGP WG, as reported in the Annex 4 - Exercise on the potential impact of different methods to estimate the wing opening on the abundance indices (MEDITS Coordination Meeting 2013, Heraklion).

During trawl survey, if it will be not possible to use the gear monitoring system due to risky hauls (e.g. rocks, relicts, etc.), such models should be used to interpolate any missing values.

General quantitative predictions of MEDITS gear geometry (e.g. horizontal and vertical openings) from other known parameters (e.g. warp length, bottom depth, bridles length, etc.) will be provided to each Operative Unit after the evaluation of the established Working Group (MGGP). The new MEDITS Units or Units without any gear monitoring system are recommended to adopt these new general models consistently throughout the years in order to keeping eventual errors constant in the time series.

All the Operative Units should follow a common standardization of data-processing of the technological parameters (haul duration, horizontal- and vertical-net opening). The data-process must be consistent throughout the years, keeping eventual errors constant in the time series.

2.4.7 Wear of the trawl

Since no system has been developed to prevent the bosom of the trawl from rubbing against the seabed it is recommended that affected sections of the trawl (in particular the lower net panel) be replaced as needed, particularly when they have lost their initial resistance characteristics.

2.4.8 Checks of the sampling equipment

During use, the trawls must be checked at regular intervals by taking a number of check measurements on the geometry of the trawl.

The net should be regularly checked for wear and tear and all damages shall be repaired upon discovery. The net will eventually stretch under normal fishing conditions. The overall status for the net should be checked at the beginning of every cruise. Every year a detailed check should be made of all net and rope dimensions.

The check guide reported in the Annex XVI can be used.

Special attention should be given to ensure that the relationship (difference) between the length of the netting sections in the top and bottom panels are maintained. Lower sections are of the same length than the top sections. These similar lengths have to be maintained by monitoring the net at regular intervals. In the case that the difference is larger than 1 mesh size the longer section must be shortened to the proper size. Also the relationship between the length of the framing ropes and the nets in the wings and arms must be retained.

The percentage the net is stretched on the headline and footrope is given in the specification (Figure 2). When the netting after a period of use loses its stretch, the headline and footrope must be cut off, the net in the wings and arms shortened and remounted on the ropes again.

The trawl consists of four panels: top, bottom and side panels. Each panel has several sections. It is necessary to check the relative length of each netting section. They are all compared with the corresponding sections in the other panels in the way that the top and bottom panel sections are checked against the side panel sections. The best method to compare two sections is to let two persons – one in each end of the section – take around 10 meshes from the centre line of one section in one hand and hold it against 10 meshes from the centre line of the other section in the other hand. The sections must then be stretched and the difference in length observed. Length of side, top and lower panel sections must be equal. The procedure is repeated for each section. In case any difference is detected, a skilled net maker should be consulted to evaluate a possible adjustment.

The length of the groundrope and headline must be compared by holding the two together. The length is adjusted by means of the adjustment chain on the groundrope. The groundrope (40 m) must be 4.30 m longer than the headline (35.70 m).

[3] Treatment of the catches

3.1 Samplings

On board the vessel, the catches are split into the categories and sub-categories as reported in **Annex V** and **XV** of this manual.

For each species the total weight and number of individuals should be collected, excluding the taxonomic category V, G, H for which only the total weight should be collected.

For taxonomic categories D and E the number of individuals is not mandatory.

When the catch of a given species or a fraction of a given species (e.g. juveniles) is too abundant to be measured *in extenso* it is reasonable to take a representative sub-sample of the catch. This sub-sample should be not less than 100 individuals.

The common coding system adopted for the complete set of species (**Annex XV**) is a RUBIN like coding system as defined in the NCC standard[1], even if this international coding system has been no longer maintained for some years. This coding system appears to be a very practical one and it would be very easy in the future to build a correspondence table with any new coding system. In respect to the NCC recommendations and as the MEDITS coding is not strictly identical to the RUBIN one (different use, species not referenced to in the RUBIN code), the "name" of this code has been changed and is for the purpose of the MEDITS called "TM list" (Taxonomic list, formerly FM, i.e. Faunistic list).

The species identifications are made following Fisher *et al*., 1987[2]. For the fish species not included in this work, the descriptions from Whitehead *et al*, 1984[3] have been used. Furthermore, a correspondence with the most updated revisions by international bodies (e.g. Fishbase[4] for fish) is given.

The 2012 review of the species list is based on the checklist of Fauna and Flora of Italian seas. Nevertheless, the species coding is to be strictly kept identical in the data base, even if the scientific species name has been changed, in order to keep the time series consistant.

It is important to precise the extent of species recorded from the catch. Coding for this information is given in **Annex IV**.

Since 2012, the MEDITS reference list of target species (**Annex VI)** includes 82 species, of which 32 are Elasmobranches. The list also includes all species of the *Epinepheus* and *Scomber* genera, for which length measurements should be taken.

For all the 82 species and the two genera mentioned above (*Epinepheus* and *Scomber*) and reported in **Annex VI,** the total number of individuals, the total weight and the individual length should be collected.

This list has been further split in two groups:

- MEDITS G1 includes 41 species with 9 demersal (3 fish, 4 crustaceans and 2 cephalopods) and 32 Selachians. For these species the total number of individuals, the

[1] NCC: Nordic code centre (Stockholm).
[2] Fisher W., M.L., Bauchaud et M. Shneider (rédact.), 1987. Fiches FAO d'identification des espèces pour les besoins de la pêche (révision 1). Méditerranée et mer Noire (volumes I et II). Projet GCP/INT/422/EEC. *FAO*, Rome: 1530 p.
[3] Whitehead P.J.P., M.L. Bauchot, J.C. Hureau, J. Nielsen, E. Tortonese, 1984. Poissons de l'Atlantique du nord-est et de la Méditerranée (3 volumes). *UNESCO*, Paris.
[4] Froese R. & D. Pauly eds, 2002. FishBase. World Wide Web electronic publication. www.fishbase.org.

total weight, the individual length and also biological parameters including sex, maturity, individual weight and age (age has been proposed only for the teleosteans of the Group 1) should be collected;

- MEDITS G2 includes 43 species for which only total number of individuals, total weight and individual length should be collected.

If a live specimen of a rare species or a species subject to conservation measures is caught, efforts should be made to obtain length, weight and sex data and return the specimen back to the sea unharmed, giving it a chance for survival. The specimens should be returned at sea preferably within 4-5 minutes.

3.2 Biological parameters

3.2.1 Measurement units

For fish (Osteichthyes and Elasmobranches) the total length with the tail fully extended should be recorded. The measurement unit is the lower half centimetre. Only for past data (initial years of the survey) measurements at the lower centimetre are allowed.

For crustaceans the cephalo-thoracic length at the lower millimetre should be measured, while for cephalopods, the dorsal mantle length at the lower half centimetre should be obtained. For octopods the measure is taken along the line passing through the eyes.

Sketches of the standard measurements to be obtained are reported in the **Annex VII**.

If a given team wishes to make complementary observations on other species or of another nature, for its own works, it is kindly invited to inform the MEDITS Group (Co-ordination and Steering Committees) to eventually allow to normalise the methodology with other research teams.

For Octopus species, it has been suggested to measure both dorsal and ventral mantle lengths and to confront them, fitting a linear model to the data so that both measurements can be standardized.

For species which tails are often damaged after catch also it is suggested to take other measures, as body length or disc length or disc width (see **Annex VII**) and then compare measures.

3.2.2 Sex and maturity

The sex is defined following four categories: male, female, undetermined (impossible to determine it by eye) and not determined (the individual has not been examined).

Sex data is presented at individual level in the TE file (**Annex XIIIa**) and at aggregated level in the TC file (**Annex XII**). The latter is necessary for estimating the sex ratio of the target species, given that the sampled individuals in TE are sistematically stratified in the length classes and so cannot be used for sex-ratio estimates.

The sexual maturity is defined using the maturity scales given in the **Annex VIIIa to VIIIe** for fish, crustaceans and cephalopods. **The staging reported in the blue column must be adopted**.

The individuals of hermaphroditic species, undergoing a change in sex when observed, are qualified into the sex showing the more developed gonads.

The former MEDITS scale for the description of elasmobranch maturity stages was referred only to oviparous species (Rayadae and Scyliorhinidae). However the majority of elasmobranchs are viviparous or ovoviparous which have a great diversity in ovarian cycles and gestation periods. The examination of male maturity does not present particular problems, considering that they are classified according to the relative sizes and development of claspers and internal spermiducts. For females it is necessary to apply the dissection of the individual to observe the presence of oocytes and the formation of egg-cases in mature oviparous individuals. For this reason it is better to use a specific scale for the viviparous and ovoviviparous species usually fished in the Mediterranean sea as *Squalus acanthias*, *Squalus brainvillei*, *Etmopterus spinax*, *Torpedo* spp., *Dasyatis* spp. for which the reproductive biology is less investigated in several Mediterranean areas. For these reasons the maturity scale for viviparous elasmobranches adopted at WKMSEL 2010 (ICES, 2010) is reported in the **Annex VIIIc**.

While all maturity stages during the MEDITS survey, should be reported using the MEDITS maturity scales**,** a conversion of these maturity scales to the scales proposed at the Workshops on Maturity stages is provided in **Annex IX** in case needed.

Reference

ICES. 2010. Report of the Workshop on Sexual Maturity Staging of Elasmobranches (WKMSEL), 11-15 October 2010, Valletta, Malta. ICES CM 2010/ACOM:48. 132 pp.

3.2.3 Otolith, weight and maturity stage at individual level

The MEDITS meeting held in Nantes on 15-17 March 2011 agreed to increase the information recorded during the MEDITS survey, including the monitoring of new biological variables such as the age of bony fish species coded G1 in the new list of target species (**Annex XIV**), and the individual weight of all the species coded G1 in the same list. Data on the Maturity Stages for the same species should also be collected.

Otoliths of routinely assessed species should also be collected for age determination, useful to estimate, *inter alia*, the probability reaction norm of maturation (PRNM) i.e. the indicator n. 4 of Data Collection Framework (Commission Decisions n. 949/2008 and SEC(2008) 449).

The above decisions were also approved by the 8th Regional Coordination Meeting of the Mediterranean and Black Sea held in Ljubljana (Slovenia) on May 10-13, 2011.

The decisions taken during the MEDITS coordination meeting in Ljubljana (March, 6-8, 2012) based on the above mentioned document are reported in **Annex XIV** that represents the sampling protocol to collect the biological information related to otoliths, individual weight and maturity stage by sex from MEDITS survey 2012 and onwards.

Due to these changes, a new file type; the TE file (**Annex XIIIa**), was introduced in order to store individual data. Consequently, new specifications were also introduced in the TC file (**Annex XII**).

It is reccommended that individual weight of *Nephrops norvegicus* is only measured when individuals still have both claws.

If Operative Units would like to collect biological parameters also for species other than G1 species, they are invited to follow the common protocol both for data collection and data storage.

3.3 Other parameters

The bottom water temperature should be recorded at the start and the end of each haul. This information should be stored in the TA exchange file with the format defined in the **Annex X**.

<u>Thus the information formerly included in TD file has been incorporated in TA file format.</u>

The former recommended sensor was the Vemco minilog TDR –5 to 35°C, however this sensor is currently out of production. It can be replaced by other devices such as the one produced by Star-Oddi.

The sensor should be fixed on the bosom head line. It is important that the clock of the computer which receives the data from the sensor is exactly set accordingly with the UT time (GMT) to have the same times as in the TA file. The temperatures from all the hauls (beginning and end) should be kept and reported in the TA file. These temperature data should correspond to the official time of beginning and end of the haul, assuming that the trawl begins and stops to work properly at these official times.

It is reccomended that when a device for recording temperature or other parameters is replaced by a different system a calibration should be accomplished.

Given that the new sensors collect additional parameters besides temperature a column is added to the TA file for salinity (in ppt).

[4] Inter-calibration of the work at sea

Two possibilities are recommended for the inter-calibration of the working methods between the various vessels:

- an exchange of scientists on board the vessels.
- a co-ordinated trawling operation by the two vessels at the border of the areas covered by these two vessels.

To favour the exchange of scientists one place will be reserved on board of each vessel for the eventual boarding of a scientist from another team. In addition, each co-ordination group will do its best to send a scientist from their own team on board to other vessels participating in the project. It is expected that the reports of these boardings help to identify eventual differences in the working methodology.

Where and when different teams are in charge of adjacent working areas, even though rather difficult and time consuming, they are invited to try and organise some common hauls in parallel to reach an inter-calibration between the two vessels.

[5] Data exchange formats

5.1 General information

Standard formats are defined for the storage and to facilitate the exchange of the data produced by the MEDITS surveys. The exchange files are in .csv format, using semicolon as field separator.

5.2 Files type

Five file types are defined in order to store and exchange the data:

Type A: Characteristics of haul (**Annex X**) - this file includes the data on bottom temperature and stratification, formely included in TD and TT type files;

Type B: Catches by haul (**Annex XI**);

Type C: Length, sex, and maturity at aggregated level (**Annex XII**);

Type E: Age weight and maturity by length at individual level (**Annex XIIIa**).

Type L: collection of marine litter data (**Annex XIIIb**)

The file names are defined as follow:

Position	Variable	Possible values
Character 1-2	Files type	**TA** (haul characteristics) T**B** (catch by haul) T**C** (biological parameters at aggregated level) T**E** (biological parameters at individual level); T**L** (litter categories)
Character 3-5	Country	**MLT**, **ESP**, **FRA**, **ITA**, **SVN**, **HRV**, **ALB**, **MON**, **MOR**, **ML**, **GRC, CYP**
Character 6-7	GSA	**See Annex III**
Character 8-11	Year	**2000**, **2001**, etc.
Character 12	Separator	**.** (point)
Character 13-15	Extension	**csv**

example TAITA192012.csv

5.3 Files structure and information coding

The exchange files format are described in **Annexes X to XIIIa, b**.

Complementary coding tables used to fill in the data files are given in the annexes referred above.

[6] Gear standardization and monitoring

At the MEDITS coordination meeting in Ljubljana (Slovenia, March 6-8, 2012), it was decided to include in this manual further technical specifications regarding the sampling gear (e.g. gear parameters, quality checks related to the gear), as well as to establish a multidisciplinary working group to progress in the harmonization of the MEDITS samplings in the Mediterranean Sea.

The ToRs of this WG can be synthesised as follows:

1) preparing a clear, commented and documented (e.g. using photos, sketches, etc..) checklist for the quality control of the technical characteristics of the MEDITS gear, in order to avoid the use of a gear that has not exactly the same characteristics from year to year;
2) preparing a clear and standard procedure, easy to apply in the field even by non technologists, for the monitoring and collection of the data on the gear performance;
3) evaluate and make available tools that enable, using the same methodological approach, the estimate of the parameters of the gear performance.

More detailed Terms of References are reported in the report of the MEDITS coordination meeting held in Ljubljana (Slovenia, 6-8 March 2012).

The present revision of the technical specifications of the MEDITS manual regarding the gear characteristics and the relevant quality checks should be considered preliminary as they will be further implemented by the established WG, that should report regularly to the MEDITS coordination group the findings of the investigations.

In this version of the MEDITS Handbook the **Quality periodic/annual control checklist, the Glossary of terms and references to the acronyms and the List of gear metrics** have been introduced (see **Annex XVI**). In addition, progresses regarding the point 3) listed above are included in the report of the MEDITS coordination meeting held in Heraklion (Greece, March 12-14, 2013).

[7] The protocol for monitoring Marine Litter

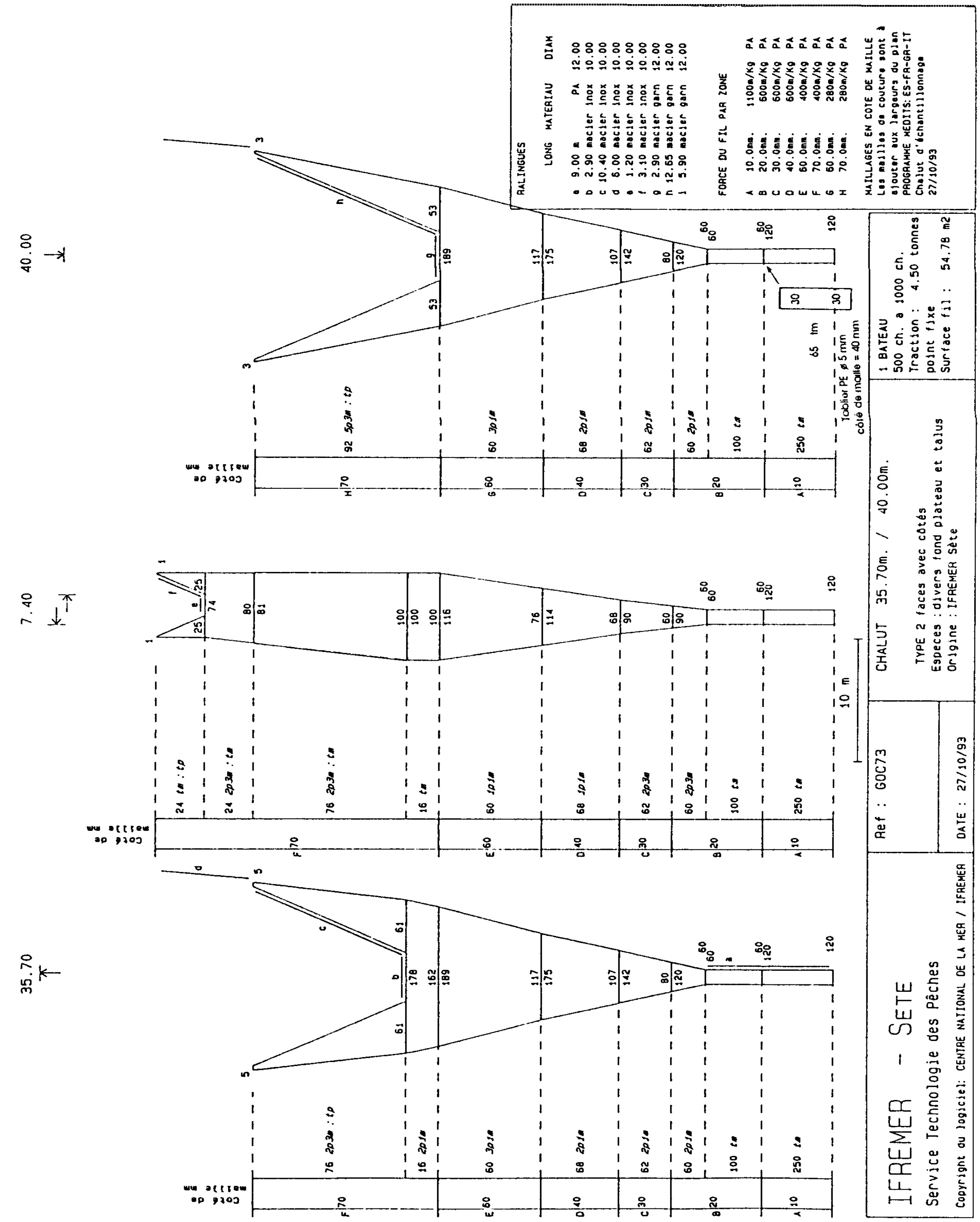
A common protocol for the voluntary collection of data on Marine Litters, in agreements with the requirements of the Marine Strategy Directive Framework (Directive 2008/56/EC) is reported in the **Annex XVII**.

This protocol was agreed at the MEDITS Coordination Meeting of 2013 (Heraklion, Greece, March 12-14, 2013).

[8] Other aspects (MEDITS Rules)

MEDITS internal rules were adopted during the MEDITS meeting, Split (Croatia), 15-16/06/2010 and reviewed during MEDITS meeting in Malta 13-14.04.2016. These are reported in the **Annex XVIII**.

FIGURES OF GEAR SPECIFICATIONS



Note to netmakers: The numbers of meshes shown for netting panel widths do not include selvedge meshes. Five meshes (six knots) per selvedge must be added where indicated . Conversely to obtain panel depths one row (1/2 mesh) must be subtracted from each panel as the joining row is included inm the number of meshes deep.

Fig. 2. Design of the GOC 73 trawl used for the MEDITS survey. It is very important to maintain the original relationship (hanging ratio, difference in length) between the netting lengths and the framing ropes along the headline and footrope.

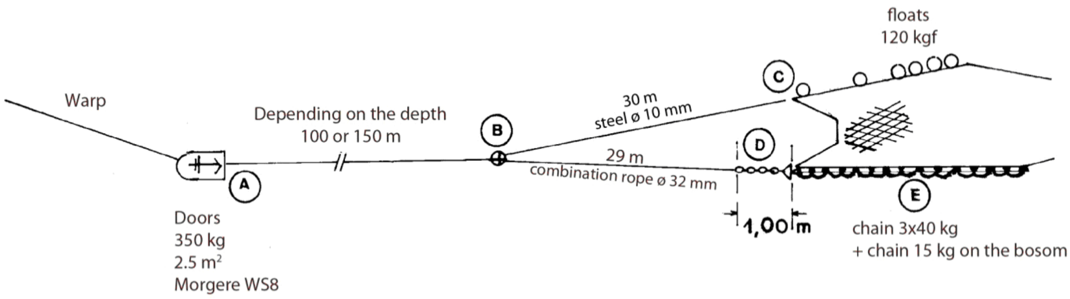


Fig. 3. Gear rigging details adopted for the MEDITS trawl. For the letter A, B, C, D and E refer to Figure 4.The length of the 1 m chain (D) must be adjusted in order to obtain the upper- (steel) and the lower-bridle (combination rope + chain) of the same length (30 m). See Figure 4 for further details.

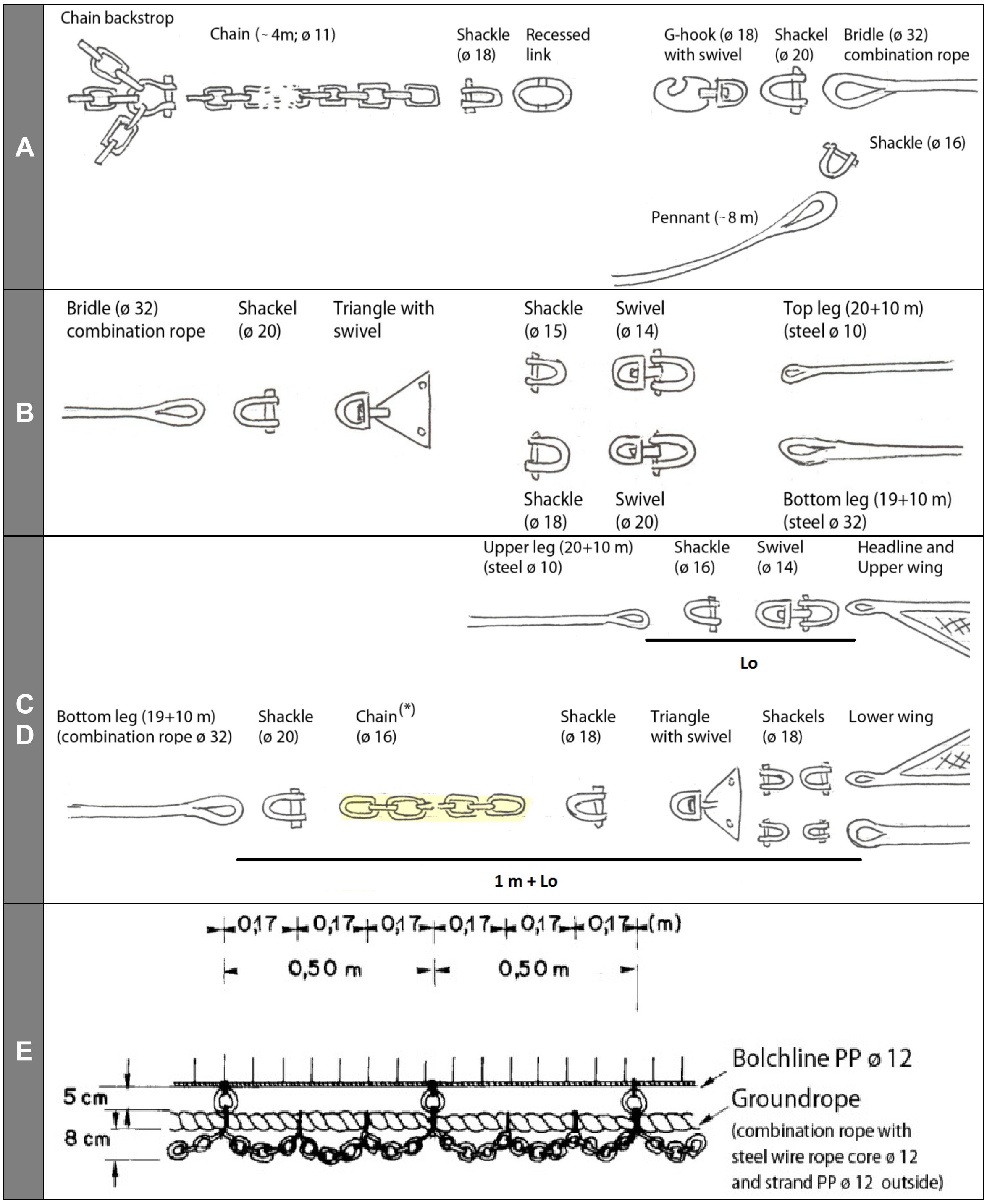
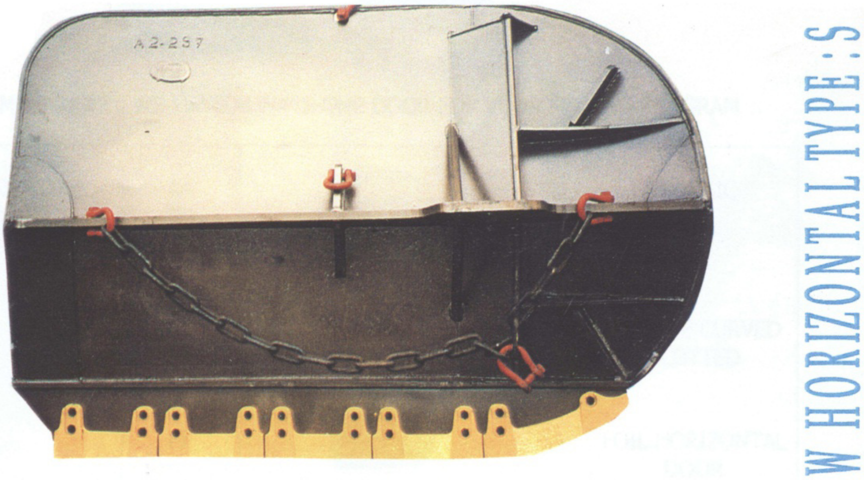


Fig. 4. Various details of the MEDITS trawl gear rigging. The length of the chain (*) must be adjusted in order to obtain the upper- (steel) and the lower-bridle (combination rope + chain) of the same length (30 m). The ballast chain must be rigged at the tip of the lower-bridle.



The otterboard WH can be equipped with chain or with fixed bracket.
In the back side, the otterboard can be equipped with 2 or 3 chains backstrop.

TYPE	DIMENSIONS	SURFACE M2	WEIGHT KG	TYPE	DIMENSIONS	SURFACE M2	POIDS KG
WS 0	1 050 X 750	0.70	60 – 100	WS 14	2 650 X 1 700	4.34	1 000 – 1 200
WS 1	1 300 X 850	1.00	100 – 130	WS 15	1 750 X 1 750	4.62	1 150 – 1 300
WS 2	1 500 X 900	1.12	110 – 150	WS 16	2 800 X 1 800	4.90	1 250 – 1 350
WS 3	1 600 X 1 000	1.36	150 – 180	WS 17	2 900 X 1 900	5.20	1 300 – 1 400
WS 4	1 700 X 1 050	1.62	200 – 240	WS 18	3 050 X 2 000	5.70	1 400 – 1 600
WS 5	1 750 X 1 100	1.74	230 – 280	WS19	3 200 X 2 100	6.10	1 500 – 1 700
WS 6	1 900 X 1 150	1.96	250 – 300	WS 20	3 400 X 2 200	6.60	1 700 – 1 900
WS 7	2 000 X 1 200	2.23	320 – 350	WS 21	3 500 X 2 300	7.30	1 900 – 2 100
WS 8	2 050 X 1 250	2.46	350 – 400	WS 22	3 600 X 2 400	7.58	2 000 – 2 300
WS 9	2 150 X 1 300	2.62	380 – 500	WS 23	3 750 X 2 500	8.82	2 300 – 2 700
WS 10	2 300 X 1 350	2.82	500 – 700	WS 24	4 000 X 2 700	9.31	2 300 – 3 000
WS 11	2 400 X 1 400	2.93	600 – 700	WS 25	4 300 X 2 900	11.10	2 500 – 4 000
WS 12	2 500 X 1 500	3.30	750 – 900	WS 26	4 600 X 3 200	13.00	3 000 – 5 000
WS 13	2 600 X 1 600	3.70	900 – 1 000	WS 27	5 000 X 3 500	15.80	4 000 – 6 000

Fig. 5. Main characteristics of the Morgere W Horizontal (WH) otterboards. For the MEDITS program it was selected the WS8 type. The otterboard weight refers to without- and with-plates in the shoe.

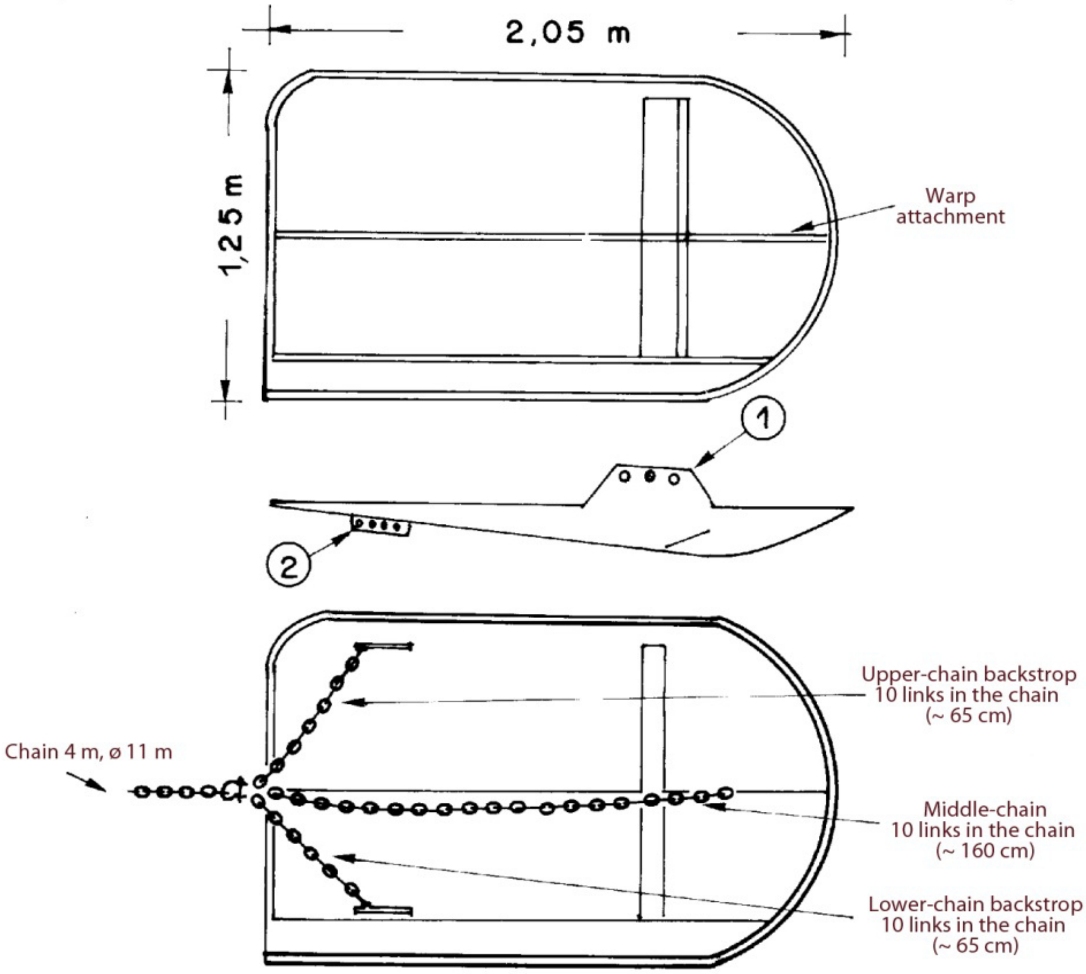
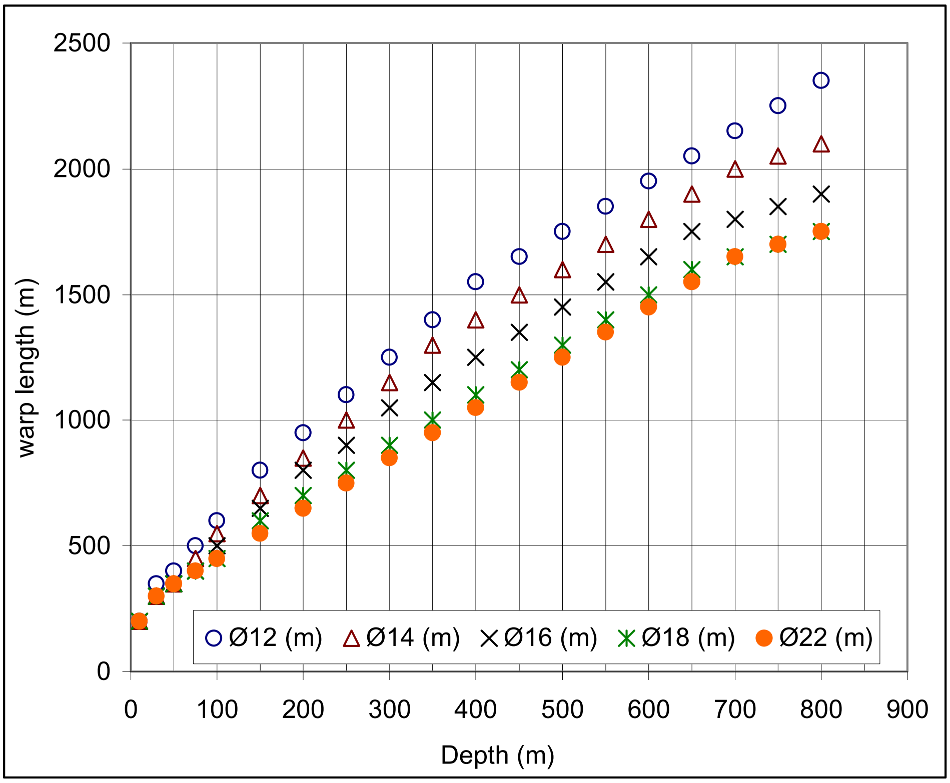


Fig. 6. Morgere WS8 (350 kg; 2.5 m^2). The lengths of the backstrop chains are indicated without the shackles. The warp is shackled in the fore hole of the bracket sheet (see arrow 1). The short parts of the external crowfoot are shackled in the most back part of the backside sheets, upper and lower (see arrow 2).



Relationship between depth (m) and warp length (m) at different warp length diameter (mm)

Depth	Ø12	Ø14	Ø16	Ø18	Ø22
(m)	*(m)*	*(m)*	*(m)*	*(m)*	*(m)*
10	200	200	200	200	200
30	350	300	300	300	300
50	400	350	350	350	350
75	500	450	400	400	400
100	600	550	500	450	450
150	800	700	650	600	550
200	950	850	800	700	650
250	1100	1000	900	800	750
300	1250	1150	1050	900	850
350	1400	1300	1150	1000	950
400	1550	1400	1250	1100	1050
450	1650	1500	1350	1200	1150
500	1750	1600	1450	1300	1250
550	1850	1700	1550	1400	1350
600	1950	1800	1650	1500	1450
650	2050	1900	1750	1600	1550
700	2150	2000	1800	1650	1650
750	2250	2050	1850	1700	1700
800	2350	2100	1900	1750	1750

Fig. 7. Relationship between depth and warp length for the trawl GOC 73.

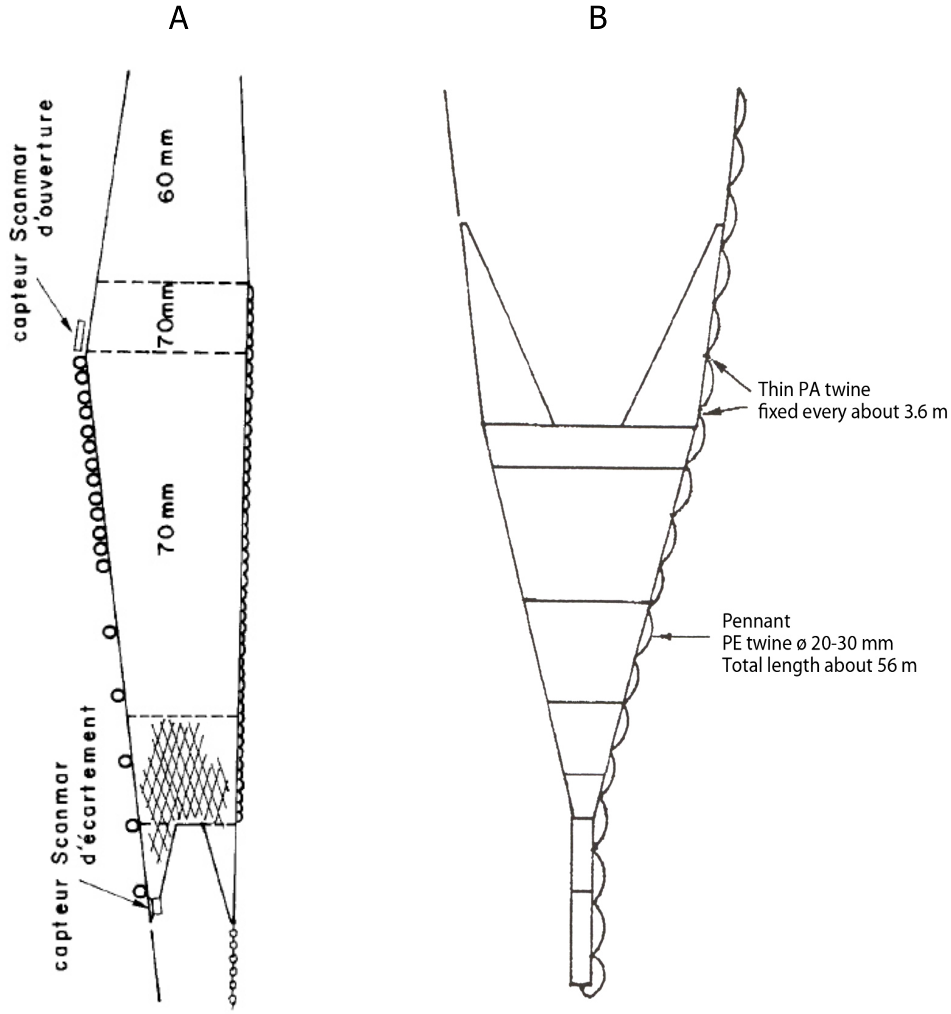


Fig. 8. A. Position of the geometry sensors. B. Details of the pennant adopted for the MEDITS trawl. The pennant must be fixed both at the wing tip and at the codend closure. The pennant must be sewed every 3.6 m at the starboard strengthening lacing.

[9] Annexes

I. Code of countries, vessels and gear

II. Stratification scheme

III. Target number of hauls by area

IV. Code of recorded species, of general observations on hauls and of quadrants

V. Code of faunistic categories. Form to introduce new species

VI. List of reference species

VII. Standard length measurement for Crustaceans, Cephalopods bony fish and Elasmobranches

VIII. Codes of sexual maturity for Fish, Crustaceans and Cephalopods

IX. Protocol for Conversion of maturity scales from the scales proposed at the Workshops on Maturity stages and the MEDITS scales

X. Format of the type A files (Data on hauls)

XI. Format of the type B files (Catches by haul)

XII. Format of the type C files (Length, sex and maturity at aggregated level)

XIIIa. Format of the type E files (Age, weight and maturity by length at individual level)

XIIIb. Format of the type L files (Litter Categories)

XIV. Protocol for sampling otoliths, individual weight and maturity stage of MEDITS target species

XV. TM list of species codes

XVI. Technical specifications and quality check of the Medits gear

XVII. Protocol for monitoring Marine Litter on a voluntary basis

XVIII. Internal rules of the MEDITS group

I. Codes for countries, vessels and gear

Codes for countries (Position 3-5 in the file A)

Code	*Country*
ALB	*Albania*
CYP	*Cyprus*
ESP	*Spain*
FRA	*France*
GRC	*Greece*
HRV	*Croatia*
ITA	*Italy*
MLT	*Malta*
MOR	*Morocco*
MON	*Montenegro*
SVN	*Slovenia*

Vessel codes and characteristics (Vessel code: Position 8-10 in the file A)

Vessel code	Vessel Name	Type	Length (m)	Tonnage (TJB)	Year	Material	Power (kW)	Warp diam (mm)	Warp length (m)
AND	Andrea	R	29.5	211	1998	aluminium	1300	14	2250
BIM	Bianca Maria	P	26.81	116	1988	wood	485	12	3000
BIO	BIOS DVA	R	36.3	336	2009	steel	895	14	1500
CHA	Charif Alidrissi	R	41	397	1986	steel	808	22	3000
COR	Cornide de Saavedra	R	66.7	1524	1970	steel	1651	29	2700
MOL	Miguel Oliver*	R	70	2495	2014	steel	2x1000	20	4000
DAP	Dalla Porta	R	35.3	285	2000	steel	809	14	2500
DEG	Degre	P	23.95	106.46	1996	steel	538	14	3100
DEM	Demetrios	P	27.77	78.24	1991	steel	537	12	3000
EGU	Elisa Guidotti	P	29	69	1991	bois	330	14	2500
EVA	Evagelistria	P	29.1	59.45	2000	steel	497	12	1800
FRP	Francesco Padre	P	25	88	1984	steel	660	14	3000
FUL	Fulmine	P	29	147.2	0	wood	736	14	2500
GAB	Gabriella	P	23	64	1970	wood	441	12	3500
GIS	Gisella	P	29.3	168	1999	iron	432	15	3000
IGO	Igor	P	22.5	102	1979	iron	345	14	2500
IRO	Ioannis Rossos	P	26.3	115.75	1986	iron	368	12	3000
LEU	L'Europe	R	29.6	259.69	1993	aluminium	690	16	2700
LIB	Libera	P	22.3	69	1987	wood	441	14	2500
MEG	Megalochari	P	33	150	2005	steel	367	12	2000
NAU	Nautilos	P	28.4	138	1991	iron	600	14	2500
NAV	Francisco Paula Navarro	R	30.5	178	1987	wood	750	18	2200
NUS	Nuovo Splendore	P	29.45	134.51	1967	wood	685	16	2450
PAR	Kapetan Paraschos	P	26.1	85.71	1989	wood	386	12	2000
PEC	Pasquale e Cristina	P	33.06	158.77	1996	wood	923	16	2500
PRI	Principessa I	P	32	165	1995	steel	403	14	2500
ROS	Roselys	R	0	0	0	wood	0	0	0
SAN	Sant'Anna	P	32.2	97.06	1981	steel	1357	14	3100
TAM	Takis-Mimis	P	28.97	161.70	2002	steel	367	12	2500

*http://www.magrama.gob.es/es/pesca/temas/buques-secretaria-general-pesca/buque-oceanografico-miguel-oliver/default.aspx

Codes for the gear (MEDITS code: Position 11-23 in the file A)

Nature	Gear	MEDITS code	Comments
Trawl	Large opening and 4 faces	GOC73	Standard for all vessels
Rigging	With legs	GC73	Standard for all vessels
Doors	Morgère WH S8	WHS8	Standard for all vessels

II. Stratification scheme (by stratum number) (Stratum: Position 125-129 in the file A)

GSA	Country	Stratum		Depth (m)	Surface (km²)	Area
1	Spain	11101	a	10-50	510	Alboran Sea
1	Spain	11102	a	50-100	1951	
1	Spain	11103	a	100-200	1086	
1	Spain	11104	a	200-500	3461	
1	Spain	11105	a	500-800	4912	
2	Spain	11106	b	10-50	0	Alboran Island
2	Spain	11107	b	50-100	130	Alboran Island
2	Spain	11108	b	100-200	132	
2	Spain	11109	b	200-500	221	
2	Spain	11110	a	500-800	350	
3	Morocco	11401	a	10-50	355	West Morocco
3	Morocco	11402	a	50-100	444	
3	Morocco	11403	a	100-200	487	
3	Morocco	11404	a	200-500	3580	
3	Morocco	11405	a	500-800	1108	
3	Morocco	11406	b	10-50	878	East Morocco
3	Morocco	11407	b	50-100	1098	
3	Morocco	11408	b	100-200	938	
3	Morocco	11409	b	200-500	3507	
3	Morocco	11410	b	500-800	1446	
5	Spain	11501	a	10-50	0	West Baleares
5	Spain	11502	a	50-100	1170	West Baleares
5	Spain	11503	a	100-200	1773	
5	Spain	11504	a	200-500	1123	
5	Spain	11505	a	500-800	2030	
5	Spain	11507	b	50-100	2255	East Baleares
5	Spain	11508	b	100-200	1472	
5	Spain	11509	b	200-500	1518	
5	Spain	11510	b	500-800	1315	
6	Spain	11201	a	10-50	1130	Valenciana
6	Spain	11202	a	50-100	4095	
6	Spain	11203	a	100-200	3302	
6	Spain	11204	a	200-500	4242	
6	Spain	11205	a	500-800	3159	
6	Spain	11301	a	10-50	1896	Tramontana
6	Spain	11302	a	50-100	7219	
6	Spain	11303	a	100-200	3587	
6	Spain	11304	a	200-500	2477	
6	Spain	11305	a	500-800	1399	
7	France	12101	a	10-50	1482	West Gulf of Lions
7	France	12102	a	50-100	3911	
7	France	12103	a	100-200	819	
7	France	12104	a	200-500	709	
7	France	12105	a	500-800	660	
7	France	12106	b	10-50	696	East Gulf of Lions
7	France	12107	b	50-100	2610	
7	France	12108	b	100-200	1734	
7	France	12109	b	200-500	653	
7	France	12110	b	500-800	586	
8	France	13101	a	10-50	0	North East Corsica
8	France	13102	a	50-100	521	North East Corsica
8	France	13103	a	100-200	234	
8	France	13104	a	200-500	920	
8	France	13105	a	500-800	867	

GSA	Country	Stratum		Depth (m)	Surface (km²)	Area
8	France	13106	b	10-50	0	South East Corsica
8	France	13107	b	50-100	524	South East Corsica
8	France	13108	b	100-200	153	
8	France	13109	b	200-500	383	
8	France	13110	b	500-800	960	
9	Italy	13201	a	10-50	657	North Ligurian Sea
9	Italy	13202	a	50-100	729	
9	Italy	13203	a	100-200	658	
9	Italy	13204	a	200-500	1737	
9	Italy	13205	a	500-800	2093	
9	Italy	13206	b	10-50	2053	East Ligurian Sea
9	Italy	13207	b	50-100	1598	
9	Italy	13208	b	100-200	3186	
9	Italy	13209	b	200-500	2449	
9	Italy	13210	b	500-800	879	
9	Italy	13211	c	10-50	945	North Tyrrhenian Sea
9	Italy	13212	c	50-100	1506	
9	Italy	13213	c	100-200	2732	
9	Italy	13214	c	200-500	2828	
9	Italy	13215	c	500-800	3071	
9	Italy	13216	d	10-50	2107	Central Tyrrhenian Sea
9	Italy	13217	d	50-100	2159	
9	Italy	13218	d	100-200	4302	
9	Italy	13219	d	200-500	3573	
9	Italy	13220	d	500-800	3148	
10	Italy	13401	a	10-50	1194	South East Tyrrhenian Sea
10	Italy	13402	a	50-100	1224	
10	Italy	13403	a	100-200	2095	
10	Italy	13404	a	200-500	3238	
10	Italy	13405	a	500-800	5248	
10	Italy	13406	b	10-50	622	South West Tyrrhenian Sea
10	Italy	13407	b	50-100	1003	
10	Italy	13408	b	100-200	1224	
10	Italy	13409	b	200-500	1966	
10	Italy	13410	b	500-800	2441	
11	Italy	13301	a	10-50	822	South East Sardinia
11	Italy	13302	a	50-100	382	
11	Italy	13303	a	100-200	351	
11	Italy	13304	a	200-500	589	
11	Italy	13305	a	500-800	502	
11	Italy	13306	b	10-50	910	North East Sardinia
11	Italy	13307	b	50-100	1592	
11	Italy	13308	b	100-200	839	
11	Italy	13309	b	200-500	765	
11	Italy	13310	b	500-800	855	
11	Italy	13311	c	10-50	627	North Sardinia
11	Italy	13312	c	50-100	796	
11	Italy	13313	c	100-200	512	
11	Italy	13314	c	200-500	500	
11	Italy	13315	c	500-800	242	
11	Italy	13316	d	10-50	431	North West Sardinia
11	Italy	13317	d	50-100	541	
11	Italy	13318	d	100-200	896	
11	Italy	13319	d	200-500	471	
11	Italy	13320	d	500-800	335	
11	Italy	13321	e	10-50	1096	West Sardinia
11	Italy	13322	e	50-100	446	

GSA	Country	Stratum		Depth (m)	Surface (km²)	Area
11	Italy	13323	e	100-200	927	
11	Italy	13324	e	200-500	412	
11	Italy	13325	e	500-800	260	
11	Italy	13326	f	10-50	783	South West Sardinia
11	Italy	13327	f	50-100	987	
11	Italy	13328	f	100-200	2335	
11	Italy	13329	f	200-500	1620	
11	Italy	13330	f	500-800	1041	
11	Italy	13331	g	10-50	705	South Sardinia
11	Italy	13332	g	50-100	350	
11	Italy	13333	g	100-200	768	
11	Italy	13334	g	200-500	1060	
11	Italy	13335	g	500-800	1227	
15	Malta	13501	a	10-50	152	Malta
15	Malta	13502	a	50-100	1473	
15	Malta	13503	a	100-200	3076	
15	Malta	13504	a	200-500	3353	
15	Malta	13505	a	500-800	2526	
16	Italy	13411	c	10-50	3145	Strait of Sicily
16	Italy	13412	c	50-100	6610	
16	Italy	13413	c	100-200	9866	
16	Italy	13414	c	200-500	13424	
16	Italy	13415	c	500-800	15653	
17	Italy	21101	a	10-50	17300	North Adriatic Sea
17	Italy	21102	a	50-100	8200	
17	Italy	21103	a	100-200	0	
17	Italy	21104	a	200-500	0	
17	Italy	21105	a	500-800	0	
17	Italy	21106	b	10-50	4700	Central Adriatic Sea
17	Italy	21107	b	50-100	10350	
17	Italy	21108	b	100-200	14950	
17	Italy	21109	b	200-500	3900	
17	Italy	21110	b	500-800	950	
17	Slovenia	21111	c	10-50	184	North Adriatic-Slovenia
17	Slovenia	21112	c	50-100	0	
17	Slovenia	21113	c	100-200	0	
17	Slovenia	21114	c	200-500	0	
17	Slovenia	21115	c	500-800	0	
17	Croatia	21116	d	10-50	7308	North East Adriatic-Croatia
17	Croatia	21117	d	50-100	14785	
17	Croatia	21118	d	100-200	7225	
17	Croatia	21119	d	200-500	2409	
17	Croatia	21120	d	500-800	0	
18	Italy	22121	e	10-50	261	South West Adriatic Sea
18	Italy	22122	e	50-100	509	
18	Italy	22123	e	100-200	1348	
18	Italy	22124	e	200-500	332	
18	Italy	22125	e	500-800	860	
18	Italy	22126	f	10-50	329	South West Adriatic Sea
18	Italy	22127	f	50-100	599	
18	Italy	22128	f	100-200	1809	
18	Italy	22129	f	200-500	472	
18	Italy	22130	f	500-800	350	
18	Italy	22131	g	10-50	290	South West Adriatic Sea
18	Italy	22132	g	50-100	689	
18	Italy	22133	g	100-200	1214	
18	Italy	22134	g	200-500	260	

GSA	Country	Stratum		Depth (m)	Surface (km²)	Area
18	Italy	22135	g	500-800	336	
18	Italy	22136	h	10-50	1702	South West Adriatic Sea
18	Italy	22137	h	50-100	1307	
18	Italy	22138	h	100-200	1407	
18	Italy	22139	h	200-500	707	
18	Italy	22140	h	500-800	492	
18	Albania	22141	i	10-50	568	South East Adriatic-Albania
18	Albania	22142	i	50-100	2231	
18	Albania	22143	i	100-200	2186	
18	Albania	22144	i	200-500	1840	
18	Albania	22145	i	500-800	1910	
18	Montenegro	22146	j	10-50	280	South Adriatic-Montenegro
18	Montenegro	22147	j	50-100	1100	
18	Montenegro	22148	j	100-200	1700	
18	Montenegro	22149	j	200-500	1150	
18	Montenegro	22150	j	500-800	770	
19	Italy	22101	a	10-50	412	North-Western Ionian Sea (East Sicily)
19	Italy	22102	a	50-100	377	
19	Italy	22103	a	100-200	334	
19	Italy	22104	a	200-500	650	
19	Italy	22105	a	500-800	641	
19	Italy	22106	b	10-50	326	North-Western Ionian Sea (South Calabria)
19	Italy	22107	b	50-100	225	
19	Italy	22108	b	100-200	257	
19	Italy	22109	b	200-500	939	
19	Italy	22110	b	500-800	1370	
19	Italy	22111	c	10-50	599	North-Western Ionian Sea (North Calabria)
19	Italy	22112	c	50-100	321	
19	Italy	22113	c	100-200	393	
19	Italy	22114	c	200-500	1327	
19	Italy	22115	c	500-800	1190	
19	Italy	22116	d	10-50	787	North-Western Ionian Sea (Apulia)
19	Italy	22117	d	50-100	778	
19	Italy	22118	d	100-200	1680	
19	Italy	22119	d	200-500	1439	
19	Italy	22120	d	500-800	2302	
20	Greece	22201	a	10-50	2916	East Ionian Sea
20	Greece	22202	a	50-100	4365	
20	Greece	22203	a	100-200	2536	
20	Greece	22204	a	200-500	3158	
20	Greece	22205	a	500-800	3848	
22	Greece	22301	a	10-50	2467	Argosaronikos
22	Greece	22302	a	50-100	587	
22	Greece	22303	a	100-200	7143	
22	Greece	22304	a	200-500	6074	
22	Greece	22305	a	500-800	8645	
22	Greece	22401	a	10-50	8645	North Aegean Sea
22	Greece	22402	a	50-100	8489	
22	Greece	22403	a	100-200	15823	
22	Greece	22404	a	200-500	19774	
22	Greece	22405	a	500-800	15426	
22	Greece	22501	a	10-50	4206	South Aegean Sea
22	Greece	22502	a	50-100	3436	
22	Greece	22503	a	100-200	12407	
22	Greece	22504	a	200-500	15630	
22	Greece	22505	a	500-800	19579	
23	Greece	22506	a	10-50	712	Crete (Cretan Sea)
23	Greece	22507	a	50-100	654	
23	Greece	22508	a	100-200	862	
23	Greece	22509	a	200-500	2470	
23	Greece	22510	a	500-800	2645	
25	Cyprus	32101	a	10-50	796	Cyprus

25	Cyprus	32102	a	50-100	717
25	Cyprus	32103	a	100-200	918
25	Cyprus	32104	a	200-500	2245
25	Cyprus	32105	a	500-800	6430

III. Target number of hauls by area (based on 2002 onwards records)

Country	GSA	Strata	Surface (km²)	No Hauls	Area
Spain	1, 2	111	12753	35	Northern Alboran Sea
Morocco	3	114	13841		Southern Alboran Sea
Spain	5	115	12656	53	Balearic Islands
Spain	6	112-113	32506	82	Northern Spain
France	7, 8	121, 131	18422	88	Gulf of Lions & Corsica*
Italy	9	132	42410	120	Ligurian, North and Central Tyrrhenian Sea
Italy	10	134a-b	20255	70	Central and Southern Tyrrhenian Sea
Italy	11	133	26975	101	Sardinia
Malta	15	135	10580	44	Malta
Italy	16	134c	48698	120	Strait of Sicily
Italy	17	211a-b	60350	120	Northern Adriatic Sea
Slovenia	17	211c	184	2	Northern Adriatic Sea
Croatia	17	211d	31727	60	Northern Adriatic Sea
Italy	18	221e-h	15273	53	Southern Adriatic Sea
Albania	18	221i	8735	27	Southern Adriatic Sea
Montenegro	18	221j	5000	10	Southern Adriatic Sea
Italy	19	221a-d	16347	70	North-Western Ionian Sea
Greece	20	222	16823	36	Eastern Ionian Sea
Greece	22	223	24916	23	Aegean Sea (Argosaronikos)
Greece	22	224	68157	65	Aegean Sea (North)
Greece	22	225	62601	40	Aegean Sea (South)
Greece	23	225	7343	20	Cretan Sea
Cyprus	25	321	11106	26	Cyprus

*23 hauls in GSA8 and 65 in GSA7

IV. Codes for recorded species, of the observations on hauls and of quadrants

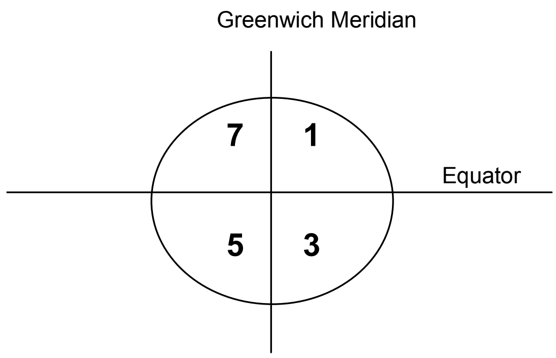
Codes of recorded species (Position 85 in the file A)

MEDITS code	Nature	Comments
0	No standard species recorded	
1	Only the species of the reference list are recorded	See Annex VI
2	The species of the reference list plus some others are recorded	
3	All the caught species are recorded	See Annex XV
4	Species from a national list	

Coding of the observations (Position 112 in the file A)

MEDITS code	Nature	Comments
0	No problem	
1	Slight plugging of the net	
2	Heavy plugging of the net	
3	High abundance of jellyfish	
4	High abundance of plants in the net	
5	Tears of the net	
6	High abundance of benthos	
7		
8		
9	Other	

Coding of the quadrants (Positions 41 and 63 in the file A)



V. Codes of Taxonomic categories. Form to introduce new species codes

Codes of taxonomic categories (Position 24 in the file B)

MEDITS code	Nature	Years of use/introduction
A	Fish	1994-2011
Aa	Fish Agnatha	2014÷
Ae	Fish Chondrichthyes	2012÷
Ao	Fish Osteichthyes	2012÷
B	Crustaceans (Decapoda)	1994-2014
Bam	Amphipoda	2012÷
Bci	Cirripeda	2012÷
Beu	Euphausiacea	2012÷
Bis	Isopoda	2012÷
Bst	Stomatopoda	2012÷
C	Cephalopods	1994-2012÷
D	Other commercial (edible) species	1994-2011
Dec	Echinodermata	2012÷
Dmb	Mollusca Bivalvia	2012÷
Dmg	Mollusca Gastropoda	2012÷
Dmo	Mollusca Opistobranchia	2012÷2014
Dtu	Tunicata (Ascidiacea)	2012÷
E	Other animal species but not commercial (not edible)	1994-2011
Ean	Annellida	2014÷
Eba	Brachiopoda	2012÷
Ebr	Bryozoa	2012÷
Ech	Echiura	2014÷
Ecn	Cnidaria	2012÷
Ect	Ctenophora	2012÷
Eec	Echinodermata	2012÷
Ehi	Hirudinea	2012÷
Emb	Mollusca Bivalvia	2012÷
Emg	Mollusca Gastropoda	2012÷
Emo	Mollusca Opistobranchia	2012÷
Emp	Mollusca Polyplacophora	2014÷
Ene	Nemertea	2014÷
Epo	Polychaeta	2012÷
Epr	Priapulida	2014÷
Esi	Sipuncula	2012÷
Esc	Scaphopoda	2012÷
Esp	Porifera (Sponges)	2012÷
Etu	Tunicata (Ascidiacea)	2012÷
G	portions or products of animal species (shell debris, eggs of gastropods, selachians, etc.)	2012÷
H	portions or products of vegetal species (e.g. leaves of sea grasses, of terrestrial plants, etc.)	2012÷
M	Mammalia (mammals)	2014÷
O	Aves (birds)	2014÷
R	Reptilia (Turtles)	2014÷
V	Plantae (vegetals)	2012÷

Form to introduce new species codes

Name of scientist:				Date:	
GSA:					
Proposed Code		Scientific name	Reference for scientific name description	Geographical position	Stratum
Genus	Species				

Sheet to be send to:

prof. Giulio Relini
Centro di Biologia Marina del Mar Ligure
Dip.Te.Ris. biolmar@unige.it

VI. List of the reference species

The MEDITS reference list (since 2012) includes 82 species, of which 32 are Elasmobranches. The list also includes all species of the *Epinepheus* and *Scomber* genera.

For all the 82 species and all species of the *Epinepheus* and *Scomber* genera, the total number of individuals, the total weight and the individual length should be collected.

This list is further split in two groups:

- MEDITS G1 includes 41 species with 9 demersal (3 fish, 4 crustaceans and 2 cephalopods) and 32 Selachians. For these species the total number of individuals, the total weight, the individual length, and also biological parameters including sex, maturity, individual weight and age (age has been proposed only for the teleosteans of the Group 1) should be collected;
- MEDITS G2 includes 42 species for which only total number of individuals, total weight and individual length and should be collected.

The new list of reference species (Tot. No=total number of individuals in the haul; Tot. W= total weight of the individuals in the haul; the number 1 in the column* MEDITS G1 *and* MEDITS G2 *indicates that the species has been selected for some measurements; the column date indicates when the species has been introduced in the list of target species, the symbol > followed by the year indicates that the species was excluded by the list in that year)

No	Medit LIST proposal 2011	Species group DCF	MEDITS G1	MEDITS G2	Group	Old MEDITS list	Tot. No	Tot. W	Ind. Length	Sex	Mat. stage	Age	Ind. weight	Date	CODE	English common name
	Teleosteans															
1	*Aspitrigla cuculus*	G3		1	Fish	1	x	x	x					1998	ASPI CUC	Red gurnard
2	*Boops boops*	G2		1	Fish	1	x	x	x					2006	BOOPBOO	Bogue
3	*Citharus linguatula*	G3		1	Fish	1	x	x	x					1994	CITH MAC	Spotted flounder
4	*Diplodus annularis*	G3		1	Fish		x	x	x					2012	DIPLANN	Annular seabream
5	*Diplodus puntazzo*	G3		1	Fish		x	x	x					2012	DIPLPUN	Sharpsnout seabream
6	*Diplodus sargus*	G3		1	Fish		x	x	x					2012	DIPLSAR	White sea bream
7	*Diplodus vulgaris*	G3		1	Fish		x	x	x					2012	DIPLVUL	Common two-banded

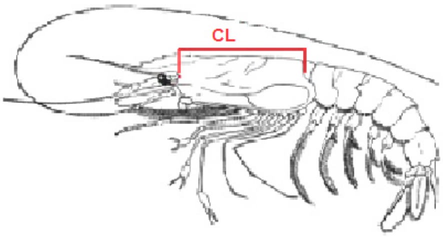
																seabream
8	*Engraulis encrasicolus*	G1		1	Fish		x	x	x					2012	ENGRENC	Anchovy
9	*Epinephelus spp.**	G3		1	Fish		x	x	x					2012	EPINSPP	Grouper
10	*Eutrigla gurnardus*	G2		1	Fish	1	x	x	x					1994	EUTR GUR	Grey gurnard
11	*Helicolenus dactylopterus*	G3		1	Fish	1	x	x	x					1994	HELI DAC	Rockfish
12	*Lepidorhombus boscii*	G3		1	Fish	1	x	x	x					1994	LEPM BOS	Four-spotted megrim
13	*Lithognathus mormyrus*	G3		1	Fish		x	x	x					2012	LITH MOR	Striped seabream
14	*Lophius budegassa*	G2		1	Fish	1	x	x	x					1994	LOPH BUD	Black-bellied angler
15	*Lophius piscatorius*	G2		1	Fish	1	x	x	x					1994	LOPH PIS	Angler
16	***Merluccius merluccius***	**G1**	**1**		**Fish**	**1**	**x**	**x**	**x**	**x**	**x**	**x**	**x**	**1994**	**MERL MER**	**European hake**
17	*Micromesistius poutassou*	G2		1	Fish	1	x	x	x					1994	MICM POU	Blue whiting
18	***Mullus barbatus***	**G1**	**1**		**Fish**	**1**	**x**	**x**	**x**	**x**	**x**	**x**	**x**	**1994**	**MULL BAR**	**Red mullet**
19	***Mullus surmuletus***	**G1**	**1**		**Fish**	**1**	**x**	**x**	**x**	**x**	**x**	**x**	**x**	**1994**	**MULL SUR**	**Striped red mullet**
20	*Pagellus acarne*	G3		1	Fish	1	x	x	x					1994	PAGE ACA	Axillary seabream
21	*Pagellus bogaraveo*	G3		1	Fish	1	x	x	x					1994	PAGE BOG	Blackspot seabream
22	*Pagellus erythrinus*	G2		1	Fish	1	x	x	x					1994	PAGE ERY	Common pandora
23	*Pagrus pagrus*	G3		1	Fish		x	x	x					> 1996	SPAR PAG	Common seabream
24	*Phycis blennoides*	G3		1	Fish	1	x	x	x					1994	PHYI BLE	Greater forkbeard
25	*Polyprion americanus*	G3		1	Fish		x	x	x					2012	POLY AME	Wreckfish
26	*Psetta maxima*	G2		1	Fish		x	x	x					2012	PSET MAX	Turbot
27	*Sardina pilchardus*	G1		1	Fish		x	x	x					2012	SARD PIL	Sardine
28	*Scomber spp.**	G2		1	Fish		x	x	x					2012	SCOM SPP	mackerel
29	*Solea vulgaris*	G1		1	Fish	1	x	x	x					1994	SOLE VUL	Common sole
30	*Spicara flexuosa*	G3		1	Fish	1	x	x	x					1994	SPIC FLE	Picarel
31	*Spicara maena*	G3		1	Fish		x	x	x					2012	SPIC MAE	Blotched picarel
32	*Spicara smaris*	G2		1	Fish	1	x	x	x					1998	SPIC SMA	Picarel
33	*Trachurus mediterraneus*	G2		1	Fish	1	x	x	x					1994	TRAC MED	Mediterranean horse mackerel
34	*Trachurus trachurus*	G2		1	Fish	1	x	x	x					1994	TRAC TRA	Atlantic horse mackerel

35	*Trigla lucerna*	G2		1	Fish	1	x	x	x				2006	TRIGLUC	Tub gurnard
36	*Trigloporus lastoviza*	G3		1	Fish	1	x	x	x				1998	TRIP LAS	Streaked gurnard
37	*Trisopterus minutus capelanus*	G3		1	Fish	1	x	x	x				1994	TRIS CAP	Poor-cod
38	*Zeus faber*	G3		1	Fish	1	x	x	x				1994	ZEUS FAB	John dory
	Elasmobranches														
39	*Centrophorus granulosus*	G1	1		Elasmob.		x	x	x	x	x	x	2012	CENT GRA	Gulper shark
40	*Dalatias licha*	G1	1		Elasmob		x	x	x	x	x	x	2012	SCYM LIC	Kitefin shark
41	*Dipturus batis*	G1	1		Elasmob		x	x	x	x	x	x	2012	RAJA BAT	Skate
42	*Dipturus oxyrinchus*	G1	1		Elasmob		x	x	x	x	x	x	2012	RAJA OXY	Longnosed skate
43	*Etmopterus spinax*	G1	1		Elasmob		x	x	x	x	x	x	2012	ETMO SPI	Velvet belly
44	*Galeorhinus galeus*	G1	1		Elasmob		x	x	x	x	x	x	2012	GALE GAL	Tope shark
45	*Galeus melastomus*	G1	1		Elasmob	1	x	x	x	x	x	x	1999	GALU MEL	Blackmouth catshark
46	*Heptranchias perlo*	G1	1		Elasmob		x	x	x	x	x	x	2012	HEPT PER	Sharpnose sevengill shark
47	*Hexanchus griseus*	G1	1		Elasmob		x	x	x	x	x	x	2012	HEXA GRI	Bluntnose sixgill shark
48	*Leucoraja circularis*	G1	1		Elasmob		x	x	x	x	x	x	2012	RAJA CIR	Sandy ray
49	*Leucoraja melitensis*	G1	1		Elasmob		x	x	x	x	x	x	2012	RAJA MEL	Maltese ray
50	*Mustelus asterias*	G1	1		Elasmob		x	x	x	x	x	x	2012	MUST AST	Starry smoothhound
51	*Mustelus mustelus*	G1	1		Elasmob		x	x	x	x	x	x	2012	MUST MUS	Smoothhound
52	*Mustelus punctulatus*	G1	1		Elasmob		x	x	x	x	x	x	2012	MUST MED	Blackspotted smoothhound
53	*Myliobatis aquila*	G1	1		Elasmob		x	x	x	x	x	x	2012	MYLI AQU	Common eagle ray
54	*Oxynotus centrina*	G1	1		Elasmob		x	x	x	x	x	x	2012	OXYN CEN	Angular rough shark
55	*Raja asterias*	G1	1		Elasmob		x	x	x	x	x	x	2012	RAJA AST	Starry ray
56	*Raja clavata*	G1	1		Elasmob	1	x	x	x	x	x	x	1999	RAJA CLA	Thornback ray
57	*Raja miraletus*	G1	1		Elasmob		x	x	x	x	x	x	2012	RAJA MIR	Brown ray
58	*Raja polistigma*	G1	1		Elasmob		x	x	x	x	x	x	2012	RAJA POL	Speckled ray
59	*Raja undulata*	G1	1		Elasmob		x	x	x	x	x	x	2012	RAJA UND	Undulate ray
60	*Rhinobatos cemiculus*	G1	1		Elasmob		x	x	x	x	x	x	2012	RHIN CEM	Blackchin guitarfish
61	*Rhinobatos rhinobatos*	G1	1		Elasmob		x	x	x	x	x	x	2012	RHIN RHI	Common guitarfish
62	*Rostroraja alba*	G1	1		Elasmob		x	x	x	x	x	x	2012	RAJA ALB	White skate

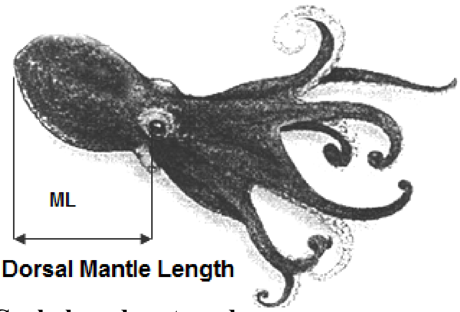
63	*Scyliorhinus canicula*	G1	1		Elasmob	1	x	x	x	x	x		x	1999	SCYO CAN	Smallspotted catshark
64	*Scyliorhinus stellaris*	G1	1		Elasmob		x	x	x	x	x		x	2012	SCYO STE	Nursehound
65	*Squalus acanthias*	G1	1		Elasmob		x	x	x	x	x		x	2012	SQUA ACA	Piked dogfish
66	*Squalus blainvillei*	G1	1		Elasmob		x	x	x	x	x		x	2012	SQUA BLA	Longnose spurdog
67	*Squatina aculeata*	G1	1		Elasmob		x	x	x	x	x		x	2012	SQUT ACU	Sawback angelshark
68	*Squatina oculata*	G1	1		Elasmob		x	x	x	x	x		x	2012	SQUT OCL	Smoothback angelshark
69	*Squatina squatina*	G1	1		Elasmob		x	x	x	x	x		x	2012	SQUT SQU	Angelshark
70	*Torpedo marmorata*	G1	1		Elasmob		x	x	x	x	x		x	2012	TORP MAR	Marbled electric ray
	Crustaceans															
71	***Aristaeomorpha foliacea***	**G1**	**1**		**Cru**	**1**	**x**	**x**	**x**	**x**	**x**		**x**	**1994**	**ARIS FOL**	**Giant red shrimp**
72	***Aristeus antennatus***	**G1**	**1**		**Cru**	**1**	**x**	**x**	**x**	**x**	**x**		**x**	**1994**	**ARIT ANT**	**Blue and red shrimp**
73	***Nephrops norvegicus***	**G1**	**1**		**Cru**	**1**	**x**	**x**	**x**	**x**	**x**		**x**	**1994**	**NEPR NOR**	**Norway lobster**
74	***Parapenaeus longirostris***	**G1**	**1**		**Cru**	**1**	**x**	**x**	**x**	**x**	**x**		**x**	**1994**	**PAPE LON**	**Deep-water pink shrimp**
75	*Palinurus elephas*	G3		1	Cru		x	x	x					2012	PALI ELE	Spiny lobster
76	*Melicertus kerathurus*	G2		1	Cru		x	x	x					2012	PENA KER	Caramote prawn
77	*Squilla mantis*	G2		1	Cru		x	x	x					2012	SQUI MAN	Spottail mantis squillids
	Cephalopods															
78	*Eledone cirrhosa*	G2		1	Cef	1	x	x	x					1994	ELED CIR	Horned octopus
79	*Eledone moschata*	G2		1	Cef	1	x	x	x					1997	ELED MOS	Musky octopus
80	***Illex coindettii***	**G2**	**1**		**Cef**	**1**	**x**	**x**	**x**	**x**	**x**		**x**	**1994**	**ILLE COI**	**Broadtail squid**
81	***Loligo vulgaris***	**G2**	**1**		**Cef**	**1**	**x**	**x**	**x**	**x**	**x**		**x**	**1994**	**LOLI VUL**	**European squid**
82	*Octopus vulgaris*	G2		1	Cef	1	x	x	x					1994	OCTO VUL	Common octopus
83	*Sepia officinalis*	G2		1	Cef	1	x	x	x					1994	SEPI OFF	Common cuttlefish
84	*Todarodes sagittatus*	G2		1	Cef		x	x	x					2012	TODA SAG	Arrow squid

*not all *Epinephelus* and *Scomber* species are listed but the single species should be considered as target

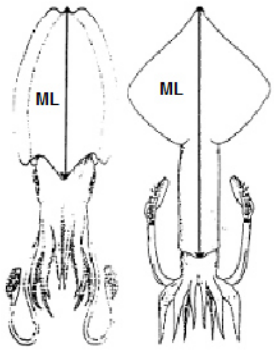
VII. Standard length measurement for Crustaceans, Cephalopods and Fish



Crustaceans
CL: cephalo-thoracic length

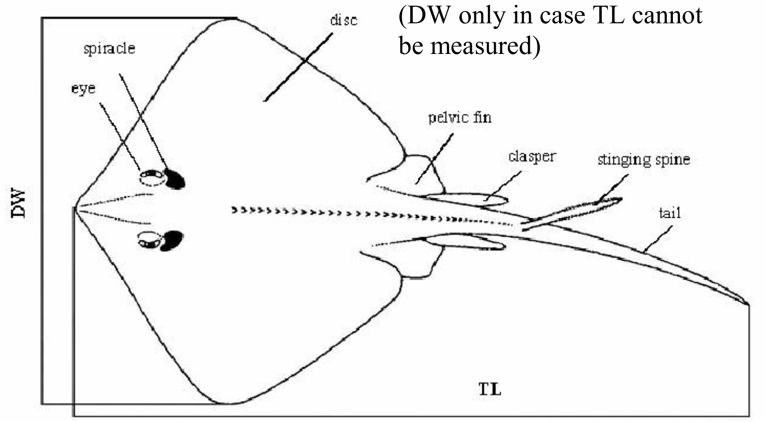


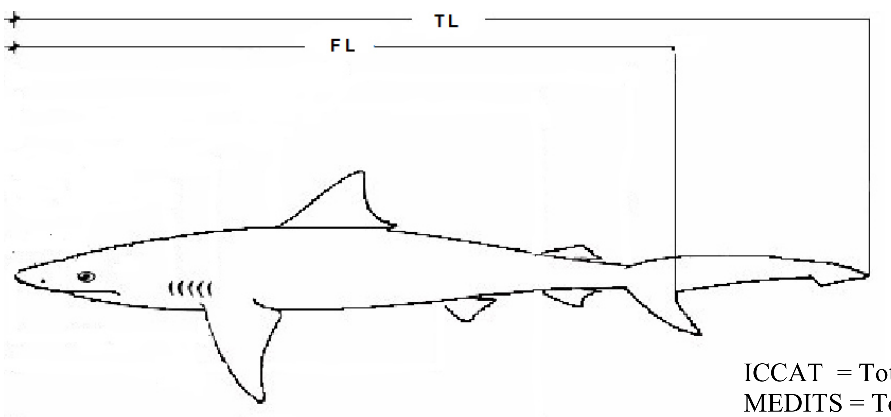
Cephalopods octopoda
Dorsal Mantle Length



Cephalopods decapoda
ML=Dorsal Mantle Length

ICCAT = Disk Width DW
MEDITS = Total LengthTL
(DW only in case TL cannot be measured)

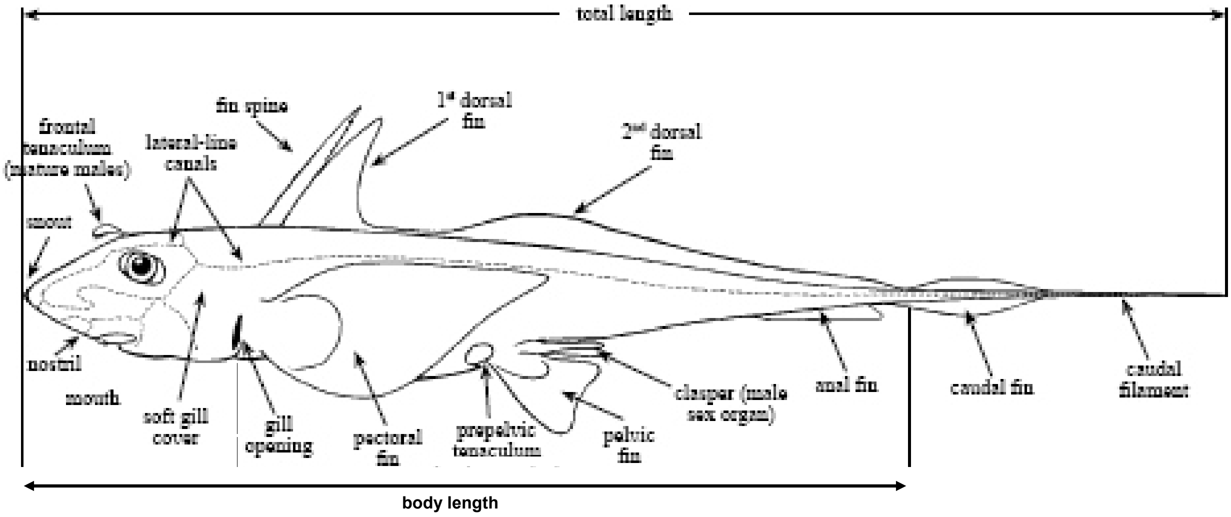




ICCAT = Total Length TL
MEDITS = Total Length TL
(Fork length FL in case TL cannot be taken; e.g. damaged fins)

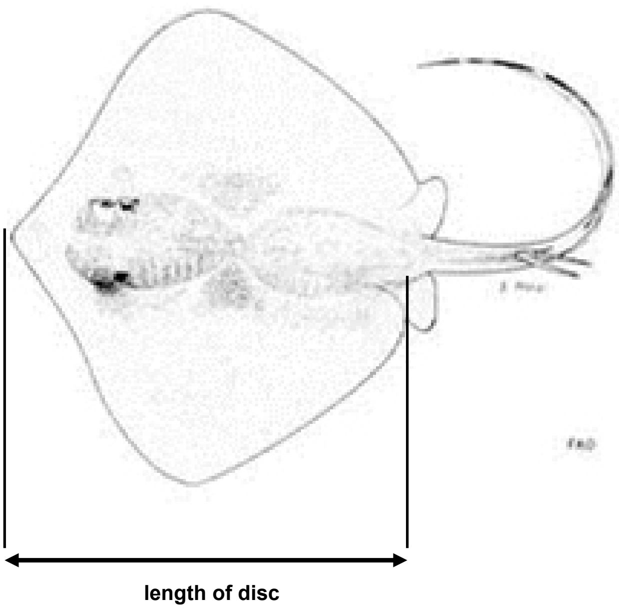
Note: rule to take TL of Elasmobranches holds also for bony fish

- For *chimaeroids* species the total length often is difficult to measure, because the caudal filament can easily be cut. The body length (snout to posterior end of supracaudal fin) is then a preferred measurement. Taking both measures on not damaged specimens can allow to confront both measures fitting a linear model to the data.



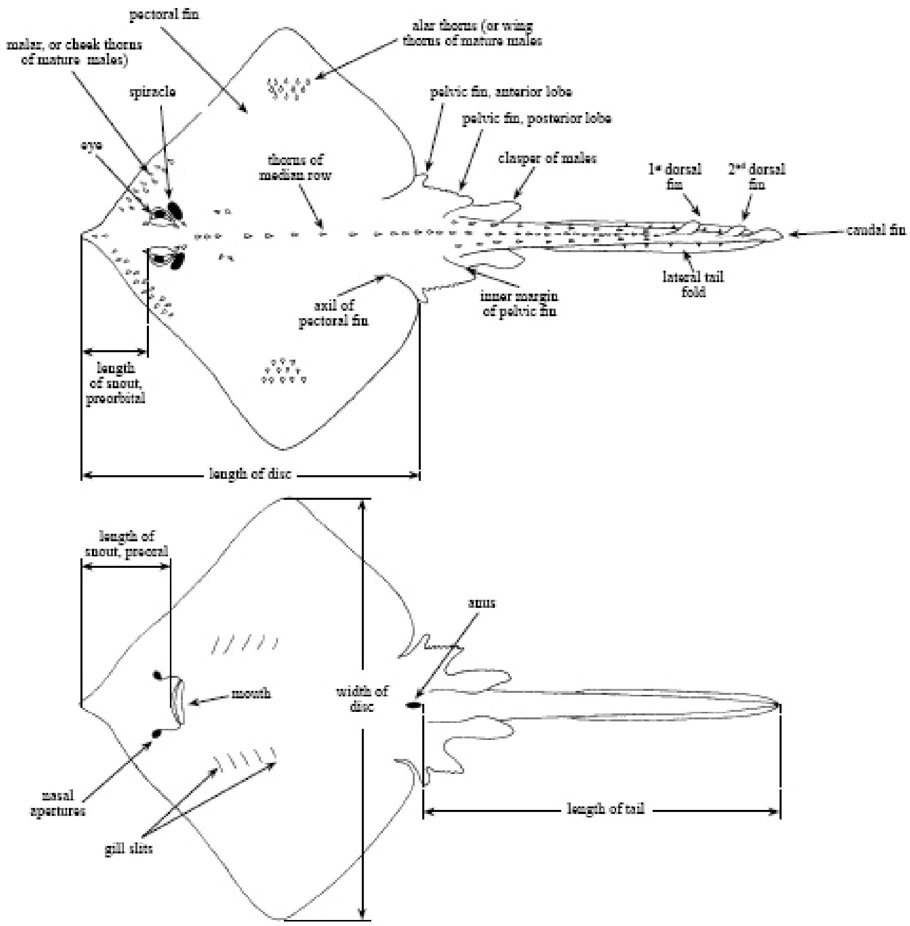
The body length in *chimaeroids* species

- For the same reason in Myliobatidae, Dasyatidae and Rhinopteridae the length of disc can be taken.



Length of disc in the Myliobatidae, Dasyatidae and Rhinopteridae species

- For Rajidae and Torpenidae it is recommended to take other measurements as length and width of the disc.



Length and width of the disc for the Rajidae and Torpenidae species

VIII. Codes of sexual maturity for Fish, Crustaceans and Cephalopods

VIII.A

Bony Fish

SEX	GONAD ASPECT	MATURATION STATE	STAGE	MEDITS
I	Sex not distinguished by naked eye. Gonads very small and translucid, almost transparent. Sex undetermined.	UNDETERMINED	0	0
F	Small pinkish and translucent ovary shorter than 1/3 of the body cavity. Eggs not visible by naked eye.	IMMATURE=VIRGIN	1	1
M	Thin and withish testis shorter than 1/3 of the body cavity.			
F	Small pinkish/reddish ovary shorter than ½ of e body cavity. Eggs not visible by naked eye.	VIRGIN-DEVELOPING*	2a	2
M	Thin withish testis shorter than 1/2 of the body cavity.			
F	Pinkish-reddish/ reddish-orange and translucent ovary long about ½ of the body cavity. Blood vessels visible. Eggs not visible by naked eye.	RECOVERING*	2b	
M	Withish/pinkish testis, more or less symmetrical, long about ½ of the body cavity			
F	Ovary pinkish-yellow in colour with granular appearance, long about 2/3 of the body cavity. Eggs are visible by naked eye trough the ovaric tunica, which is not yet translucent. Under light pressure eggs are not expelled.	MATURING	2c	
M	Withish to creamy testis long about 2/3 of the body cavity. Under light pressure sperm is not expelled.			
F	Ovary orange-pink in colour, with conspicious superficial blood vessels, long from 2/3 to full length of the body cavity. Large transparent, ripe eggs are cleary visible and could be expelled under light pressure. In more advanced conditions, eggs escape freely.	MATURE/SPAWNER	3	3
M	Whitish-creamy soft testis long from 2/3 to full length of the body cavity. Under light pressure, sperm could be expelled. In more advanced conditions, sperm escapes freely.			
F	Reddish ovary shrunked to about 1/2 length of the body cavity. Flaccid ovaric walls; ovary may contain remanants of disintegrating opaque and/or translucent eggs.	SPENT	4a	4
M	Bloodshot and flabby testis shrunken to about 1/2 length of the body cavity			
F	Pinkish and translucent ovary long about 1/3 of the body cavity. Eggs not visible by naked eye.	RESTING*	4b	
M	Whitish/pinkish testis, more or less simmetrical, long about 1/3 of the body cavity.			

**be careful, these stages can be easily confused*

Adult specimens

VIII.B

Elasmobranchs oviparous

SEX	GONAD ASPECT	MATURATION STATE	STAGE	MEDITS
I	Sex not distinguished by naked eye.	UNDETERMINED	0	0
F	Ovary is barely discernible with small isodiametric eggs. Distal part of oviducts is thick-walled and whitish. The nidamental glands are less evident.	IMMATURE/VIRGIN	1	1
M	Claspers are small and flaccid and do not reach the posterior edge of the pelvic fins. Spermducts not differentiated. Testis small and narrow .			
F	Whitish and/or few yellow maturing eggs are visible in the ovary. The distal part of oviducts (uterus) is well developed but empty. The nidamental glands are small.	MATURIN*G	2	2
M	Claspers are larger, but skeleton still flexible. They extend to the posterior edge of the pelvic fins. Spermducts well developed eventually beginning to meander.			
F	Ovaries contain yellow eggs (large yolk eggs). The nidamental glands are enlarged and oviducts are distended.	MATURE	3a	3
M	Claspers extends well beyond the posterior edge of the pelvic fin and their internal structure is generally hard and ossified. Testis greatly enlarged. Spermducts meandering over almost their entire length.			
F	Ovary walls transparent. Oocytes of different sizes, white or yellow. Nidamental glands large. Egg-cases more or less formed in the oviducts (Extruding Stage).	MATURE/EXTRUDING-ACTIVE	3b	
M	Clasper longer than tips of posterior pelvic fin lobes, skeleton hardened with axial cartilages hardened and pointed. Spermducts largely. Sperm flowing on pressure from cloaca (Active Stage).			
F	Ovary walls transparent. Oocytes of different sizes, white or yellow. Oviducts appear much enlarged, collapsed and empty. The nidamental glands diameter are reducing.	RESTING	4a	4
M	Clasper longer than tips of posterior pelvic fin lobes, skeleton hardened with axial cartilages still hardened. Spermducts empty and flaccid.			
F	Ovaries full of small follicles similar to stage 2, enlarged oviducal glands and uterus	REGENERATING*	4b	

*be careful, these stages can be easily confused

Adult specimens

VIII.C

Elasmobranchs viviparous

VIVIPAROUS ELASMOBRANCHES (RAYS AND SHARKS)				
Sex	**GONAD ASPECT**	**MATURATION STATE**	**MATURITY**	**STAGE**
I	**Sex not distinguished by naked eye.**	**UNDETERMINED**	**IMMATURE**	**0**
M	**Claspers flexible and shorter than pelvic fins. Testes small (in rays, sometimes with visible lobules). Sperm ducts straight and thread-like.**	**IMMATURE**	**IMMATURE**	**1**
F	**Ovaries barely visible or small, whitish; undistinguishable ovarian follicles. Oviducal (nidamental) gland may be slightly visible. Uterus is thread-like and narrow.**			
M	**Claspers slightly more robust but still flexible. Clasp-ers as long as or longer than pelvic fins. Testes enlarged; in sharks testes start to segment; in rays lobules clearly visible but do not occupy the whole surface. Sperm ducts developing and beginning to coil (meander).**	**DEVELOPING**	**IMMATURE ***	**2**
F	**Ovaries enlarged with small follicles (oocytes) of dif-ferent size. Some relatively larger yellow follicles may be present. Ovaries lack atretic follicles. Developing oviducal gland and uterus.**			
M	**Claspers fully formed, skeleton hardened, rigid and generally longer than pelvic fins. Testes greatly enlarged; in sharks testes are fully segmented; in rays filled with developed lobules. Sperm ducts tightly coiled and filled with sperm.**	**SPAWNING CAPABLE**	**MATURE**	**3a**
F	**Large ovaries with enlarged yolk follicles all of about the same size so that they can be easily distinguished. Oviducal gland and uterus developed without yolky matter, embryos and not dilated.**	**CAPABLE to RE-PRODUCE**		
M	**Description similar to stage 3a, however with clasper glands dilated, often swollen and reddish (occasion-ally open). Sperm often present in clasper groove or glans. On pressure sperm is observed flowing out of the cloaca or in the sperm ducts.**	**ACTIVELY SPAWNING**	**MATURE**	**3b**
F	**Uteri well filled and rounded with yolk content (usually candle shape). In general segments cannot be distinguished and embryos cannot be observed.**	**EARLY PREGNANCY**	**MATERNAL**	
F	**Uteri well filled and rounded, often with visible segments. Embryos are always visible, small and with a relatively large yolk sac.**	**MID PREGNANCY**	**MATERNAL**	**3c**
F	**Embryos fully formed, yolk sacs reduced or absent. Embryos can be easily measured and sexed.**	**LATE PREGNANCY**	**MATERNAL**	**3d**
M	**Claspers fully formed, similar to stage 3. Testes and spermducts shrunken and flaccid.**	**REGRESSING**	**MATURE**	**4**
F	**Ovaries shrunken without follicle development and with atretic (degenerating) follicles. The oviducal glands diameter may be reducing. Uterus appears much enlarged, collapsed, empty and reddish.**	**REGRESSING**	**MATURE**	**4a**
F	**Ovary with small follicles in different stages of de-velopment with the presence of atretic ones. Uterus enlarged with flaccid walls. Oviducal gland distinguishable.**	**REGENERATING (mature)**	**MATURE ***	**4b**

be careful, these stages can be easily confused

Adult specimens

VIII.D

Crustaceans

SEX	REPRODUCTIVE APPARATUS ASPECT	COLOURING OF FRESH OVARY	MATURATION STATE	STAGE	MEDITS
I	Sex not distinguished by naked eye. Sex undetermined	translucid	UNDETERMINED	0	0
F	Ovary hardy visible in transparence. After dissection of the tegument ovary is small and lobes are flaccid, stringy and poorly developed. *A. foliacea* and *A. antennatus* no sphermatophores on thelycum.	Whitish or traslucid	IMMATURE = VIRGIN *	1	1 FEMALE
M	Petasma is not much visible, and there are not spermatic masses (emi-spermatophores) on the seminal ammpullae, located on side of the V pair of pereiopods. *A. foliacea* and *A. antennatus* : long rostrum				
F	Ovary status to develop. Cephalic and lateral lobes are small but distinguishable by naked eye. Abdominal extension are thin and just visible.	*A. foliacea* : flesh coloured; *A. antennatus:* Ivory coloured with orange pink-violet dotting. *N. norvegicus* : cream. *P. longirostris* : cream orange.	VIRGIN DEVELOPING **	2a	2 FEMALE
M	Petasma appears visible and nearly or completely joined, but there are no spermatic masses in the seminar ammpullae. *A. foliacea* & *A. antennatus* : long or intermediate rostrum.				
F	Ovary status to re-develop. Cephalic and lateral lobes are small but distinguishable by naked eye. Abdominal extension are thin and just visible. Occasionally presence of spermatophores in *A. foliacea* and *A. antennatus* .	*A. foliacea* : flesh coloured; *A. antennatus* : Ivory coloured with orange pink-violet dotting. *N. norvegicus* : cream. *P. longirostris* : cream orange.	RECOVERING**	2b	
M	Petasma appears completely joined, but there are no spermatic masses in the seminar ampullae. *A. foliacea* & *A. antennatus* : short rostrum.				
F	Ovary developed and occupies almost entirely the dorsal portion. The cephalic and lateral lobes are much developed and have a turgid consistence.	*A. foliacea* : light and dark grey; *A. antennatus* : lilla; *N. norvegicus* : light green; *P. longirostris* : light green or grey green.	MATURING OR ALMOST MATURE	2c	
M					
F	Turgid ovary extends to the whole dorsal portion, covery the organs below. Lobes and extensions well developed, in particular the abdominal extention are much evident. Oocytes well visible.	*A. foliacea* : black; *A. antennatus* : violet; *N. norvegicus* : dark grey; *P. longirostris* : brigth green or olive green.	MATURE	2d	
M	Petasma is perfectly visible and completely joined. Spermatic masses in seminar ampullae. *A. foliacea* & *A. antennatus* : small rostum.				
F	Resting ovary. Presence of spermatophores in *A. foliacea* and *A. antennatus* .	Uncoloured.	RESTING ADULT*	2e	
F (*N. norvegicus*)	Eggs on pleiopods		BERRIED	3	3 *N. norvegicus* , FEMALE

Adult specimens (grey shading)

*, ** : WARNING ! Be careful. These stages could be confused each other.

VIII.E

Cephalopods

SEX	REPRODUCTIVE APPARATUS ASPECT	EGGS SIZE (mm)	SPERMATOPHORES DEVELOPMENT	MATURATION STATE	STAGE	MEDITS
I	Sex not distinguished by naked eye. Sex undetermined.	Total absence of eggs.	Total absence of spermatophores.	UNDETERMINED	0	0
F	Small and translucid Nidamental Glands (NG) / Oviducal Glands (OG). Ovary is semi-transparent, stringy and lacking granular structure Small semi-transparent NG / OG. Oviduct meander not visible.	*L. vulgaris* & *I. coindetii*: no eggs *S.officinalis*: ø <2mm *E. moschata*: ø <4mm *E. cirrhosa* ø <2mm *O. vulgaris* ø <1mm	Total absence of spermatophores	IMMATURE = VIRGIN	1	1
M	Testis small. Spermatophoric complex (SC) semi-transparent with not visible Vas deferens. Penis appears as a small prominence of SC.					
F	NG / OVG enlarged. NG covering some internal organs. Whitish ovary with granular structure clearly visible, not reaching the posterior half of the mantle cavity. Oviduct meander clearly visible.	Very small eggs	Absence of spermatophores	DEVELOPING	2a	2
M	Enlarged testis with structure not clearly visible. The Vas deferens whitish or white and the spermatophoric organ with white streak.					
F	Large NG covering the viscera below. Ovary occupies the whole posterior half of mantle cavity, containing reticulated oocytes of all sizes tightly packed and probably a few ripe ova at its proximal part. Oviducts fully developed but empty.	*L. vulgaris* & *I. coindetii* : maturing eggs visible by naked eye. *S.officinalis*: 2,1mm< Ø<4mm *E. moschata*: 4mm<Ø<11mm *E. cirrhosa*: 2mm<Ø<5mm *O. vulgaris*: 1mm<Ø<2mm	*L. vulgaris*, *I. coindetii* and *S.officinalis* : few immature spermatophores in Needham's sac. *E. moschata*, *E. cirrhosa*, *O. vulgaris* : few spermatophores, barelly developed and not functional	MATURING	2b	
M	The Vas deferens white, meandering, enlarged. The Needham's sac (SS) with structureless whitish particles inside. Normally the Needham's sac is without funtional spermatophores but sometimes some immature/abortive ones could occur. The testis tight, crispy, with visible structure.					
F	Large NG as previously. Ovary containing higher percentage of large reticulated eggs and some large ripe ova with smooth surface. In Teuthoidea ripe ova in oviducts.	*L. vulgaris* & *I. coindetii* : amber- colored and isodiametric eggs in oviducts and in part of the ovary (ø =2mm in *Loligo* and ø =1mm in *Illex*). *S.officinalis* : medium eggs (4,1mm< ø<6,0mm) and big eggs (6,1mm<ø<8mm) *E. moschata* : ø >11mm (striped eggs). *E. cirrhosa* : ø >5mm *O. vulgaris* : ø >2mm	Well developed spermatophores	MATURE	3a	3
M	Testis as before. Spermatophores packed in the Needham's sac.					
F	NG/OG large but soft and running. Ovary shrinked and flaccid, with only immature oocytes attached to the central tissue and a few loose large ova in the coelom. In Teuthoidea oviduct may contain some mature ova but is no longer packed.	Few large ova	Disintegrating spermatophores	SPENT	3b	
M	Disintegrating spermatophores in the Needham's sac and the penis.					

[grey box] **Adult specimens**

IX. Protocol for Conversion of maturity scales from the scales proposed at the Workshops on Maturity stages and the MEDITS scales

Adopted during the MEDITS meeting, Nantes (France), 15-17/03/2011 and amended during the MEDITS meeting in Heraklion (12-14/03/2013)

The protocol for conversion of maturity scales adopted during the MEDITS Coordination meeting, Nantes (France), 15-17/03/2011 is here reported with some editorial changes .

Conversion of maturity scale for *Merluccius merluccius*

MEDITS SCALE		WKMAT SCALE	
0	INDETERMINED		
1	IMMATURE /VIRGIN	1	IM - VIRGIN
2A	VIRGIN DEVELOPING	1	IM - VIRGIN
2B	RECOVERING	4	SP/RE - SPENT RECOVERY
2C	MATURING	2	MI - MATURING
3	MATURE/SPAWNER	3	MA - SPAWNING
4A	SPENT	4	SP/RE - SPENT RECOVERY
4B	RESTING	4	SP/RE - SPENT RECOVERY
5		5	OS - OMITTED SPAWNING *(shrunken and greyer gonads sexually mature, not contributing to the SSB)*

Notes:

- The WKMAT scale has a unique stage for “Spent/recovery” while in the MEDITS scale these stages are divided in 2B (Recovering), 4A (Spent) and 4B (Resting).
- During the MEDITS meeting in Nantes, it was suggested to include stage 5 (omitted spawning) in the MEDITS scale. However, a better understanding and a feedback from experts using the WKMAT scale to better apply the classification of this stage and to recognize how it can be macroscopically recognized, is necessary.

Conversion of maturity scale for *Lophius spp.*

MEDITS SCALE		WKMAT SCALE	
0	INDETERMINED		
1	IMMATURE /VIRGIN	1	IMMATURE
2A	VIRGIN DEVELOPING	2	DEVELOPING RESTING
2B	RECOVERING	2	DEVELOPING RESTING
2C	MATURING	3	MATURING/PRE SPAWNING
3	MATURE/SPAWNER	4	SPAWNING
4A	SPENT	5	POST-SPAWNING
4B	RESTING	2	DEVELOPING RESTING

Notes:

- The WKMAT scale has a unique stage for “Developing Resting” while in the MEDITS scale these stages are divided in 2A (Virgin developing), 2B (Recovering) and 4B (Resting).

Crustacean maturity scale key

MEDITS SCALE		WKMSC SCALE	
0	INDETERMINED	0	UNDETERMINED
1	IMMATURE VIRGIN	1	IMMATURE
2a	VIRGIN DEVELOPING	2	DEVELOPING/RECOVERING
2b	RECOVERING		
2c	MATURING OR ALMOST	3	MATURING
2d	MATURE	4	MATURE
2e	RESTING ADULT	5	SPENT

3	BERRIED (only for *Nephrops*		

Notes:

- A lot of similarities have been found between the WKMSC and MEDITS scales. Only the stages 2a (Virgin developing) and 2b (Recovering) of the MEDITS scale have been joined into a unique stage 2 (developing/recovering) in the WKMSC one, since differences cannot be found by a macro and micro point of view.
- In the MEDITS scale, for *Nephrops norvegicus* females, there is also a stage 3 (Berried). However, in the WS only ovary stages were analyzed and it wasn suggested to always consider the stage of the ovaries even for females with the eggs in the pleiopods. However the problem remains for the old data: the stage 3 could in fact be either 2B and 2E stages. During the meeting in Nantes it was decided that in case of comparing MEDITS data of *N. norvegicus* with maturity data from the WKMSC scale, the 3 (Berried) stage (MEDITS scale) will be considered as the 5 (Spent) of the WKMSC scale.

Elasmobranches maturity scale key

MEDITS SCALE		**WKMSEL SCALE**	
0	INDETERMINED	0	UNDETERMINED
1	IMMATURE VIRGIN	1	IMMATURE
2	MATURING	2	DEVELOPING
3a	MATURE	3a	SPAWNING CAPABLE
3b	MATURE/EXTRUDING-ACTIVE	3b	ACTIVELY SPAWNING
4a	REGRESSING	4a	REGRESSING
4b	REGENERATING*	4b	REGENERATING*

Notes: *Only for females

- For the Elasmobranches, the first 5 stages present many common points between the two scales (WKMSEL and MEDITS). In the WKMSEL, another stage, 4b (regenerating) for females, has been added. It is similar to stage 2 but with enlarged oviductal glands and uterus. It should be added also in the MEDITS scale.
- The WKMSEL scale regards only the oviparous species. During the WS, a new scale for the viviparous species has been created and is being adopted as part of this manual.

Cephalopods maturity scale key

MEDITS SCALE		**WKMCEPH SCALE**	
0	INDETERMINED	0	UNDETERMINED
1	IMMATURE VIRGIN	1	IMMATURE VIRGIN
2a	DEVELOPING	2a	DEVELOPING
2b	MATURING	2b	MATURING
3a	MATURE	3a	MATURE/SPAWNING
3b	SPENT	3b	SPENT

Notes:

No particular differences have been identified between the WKMCEPH scale and the MEDITS one for the cephalopods.

X. Format of the type A files (Data on the haul)

Name	Type	Position	Range	Comments
TYPE_OF_FILE	2A	1 - 2	TA	Fixed value
COUNTRY	3A	3 - 5	See Annex I	ISO Code
AREA	**2N**	6 - 7	**See Annex III**	**GFCM Code**
VESSEL	3A	8 - 10	See Annex I	MEDITS Code
GEAR	5AN	11 - 15	See Annex I	MEDITS Code
RIGGING	4AN	16 - 19	See Annex I	MEDITS Code
DOORS	4AN	20 - 23	See Annex I	MEDITS Code
YEAR	4N	24 - 27		e.g. 2000
MONTH	2N	28 - 29	1 to 12	
DAY	2N	30 - 31	1 to 28/29/30/31	
HAUL_NUMBER	3N	32 - 34	1 to 999	One series by vessel/year
CODEND_CLOSING	1A	35 - 35	S, C	S: without; C: controlled
PART_OF_THE_CODEND	**1A**	36 - 36	**A, M, P, S**	**Mandatory if codend closing = C; A: anterior, M: middle; P: posterior; S sum of the 3 parts**
SHOOTING_TIME	4N	37 - 40	0 to 2400	In UT Ex: 7 h 25 min > 725
SHOOTING_QUADRANT	1N	41 - 41	1, 3, 5, 7	See Annex IV
SHOOTING_LATITUDE	7N	42 - 48	3400 to 4600	Ex: 36° 40,22' > 3640,22.
SHOOTING_LONGITUDE	7N	49 - 55	0 to 3500	Ex: 4° 19,84' > 419,84
SHOOTING_DEPTH	3N	56 - 58	0, 10 to 800	At the trawl position, in meters; unknown: 0
HAULING_TIME	4N	59 - 62	0 to 2400	In UT Ex: 7 h 25 min > 725
HAULING_QUADRANT	1N	63 - 63	1, 3, 5, 7	See Annex IV
HAULING_LATITUDE	7N	64 - 70	3400 to 4600	Ex: 36° 40,22' > 3640,22.
HAULING_LONGITUDE	7N	71 - 77	0 to 2900	Ex: 4° 19,84' > 419,84
HAULING_DEPTH	3N	78 - 80	0, 10 to 800	At the trawl position, in meters; unknown: 0
HAUL_DURATION	2N	81 - 82	5 to 90	In minutes
VALIDITY	1A	83 - 83	V, I	V: valid; I: invalid.
COURSE	1A	84 - 84	R, N	R: rectilinear; N: not rectilinear
RECORDED_SPECIES	2N	85 - 86	See Annex IV	MEDITS code
DISTANCE	4N	87 - 90	1000 to 9999	Distance over ground in meters
VERTICAL_OPENING	3N	91 - 93	10 to 100	In decimeters
WING_OPENING	3N	94 - 96	50 to 250	In decimeters
GEOMETRICAL_PRECISION	1A	97 - 97	M, E	M: measured; E: estimated.
BRIDLES_LENGTH	3N	98 - 100	100, 150 or 200	In meters
WARP_LENGTH	4N	101 - 104	100 to 2200	In meters
WARP_DIAMETER	2N	105 - 106	10 to 30	In millimeters
HYDROLOGICAL_STATION	5A or 2A	107 - 111		National coding or NA if not available
OBSERVATIONS	1N	112 - 112	0 to 9	MEDITS code (Annex IV)
BOTTOM_TEMPERATURE_BEGINNING	**5N or 2A**	113 - 117	**0 to 30**	**in °C with two decimals; NA if not available**
BOTTOM_TEMPERATURE_END	**5N or 2A**	118 - 122	**0 to 30**	**in °C with two decimals; NA if not available**
MEASURING_SYSTEM	**2A**	123 - 124	**see Annex X.a**	**see Annex X.a; NA if not available**
NUMBER_OF_THE_STRATUM	**6AN**	125 - 130	**see Annex II**	
BOTTOM_SALINITY_BEGINNING	**5N or 2A**	131-135	**0 to 50**	**in ppt with two decimals; NA if not available**
BOTTOM_SALINITY_END	**5N or 2A**	136-140	**0 to 50**	**in ppt with two decimals; NA if not available**
MEASURING_SYSTEM	**2A**	141-142	**see Annex X.a**	**see Annex X.a; NA if not available**

Legend
A: alphabetic field; N: numerical field; AN alpha-numeric field
Before the type of the field there is the number of digit allowed for the field (e.g. 2N: numeric field with length 2)
(1) For the invalid hauls (I), no information on species

Annex X.a

System	Code	Notes
Vemco- Minilog TDR -5 to +35 C°	VA	
Star Oddi temperature sensor	SO	
XBT	XA	
SCANMAR	SA	
SIMRAD	SI	
CTD probe	CT	
SBE 56	SB	Temperature logger introduced by GSA19 in 2013
CTD probe SBE 37	CD	

Note: In case a different system is used this should be communicated to the coordinator to get a code.

XI. Format of the type B files (Catches by haul)

Name	Type	Position	Range	Comments
TYPE_OF_FILE	2A	1 - 2	TB	Fixed value
COUNTRY	3A	3 - 5	See Annex I	ISO Code
AREA	**2N**	6 - 7	**See Annex III**	**GFCM Code**
VESSEL	3A	8 - 10	See Annex I	MEDITS Code
YEAR	4N	11 - 14		e.g. 2000
MONTH	**2N**	**15 - 16**	**1 to 12**	
DAY	**2N**	**17 - 18**	**1 to 28/29/30/31**	
HAUL_NUMBER	3N	19 - 21	1 to 999	One series by vessel/year
CODEND_CLOSING	1A	22 - 22	S, C	S: without; C: controlled
PART_OF_THE_CODEND	1A	23 - 23	A, M, P, S	Mandatory if Codend closing = C; A: anterior, M: middle; P: posterior; S sum of the 3 parts
FAUNISTIC_CATEGORY	**3A**	**24 - 26**	**See Annexe V**	**MEDITS code**
GENUS	4A	27 - 30	See Annex XV	Following the Reference List
SPECIES	3A	31 - 33	See Annex XV	Following the Reference List
NAME_OF_THE_REFERENCE_LIST	2A	34 - 35	See Annex XV	NCC or MEDITS FM list
TOTAL_WEIGHT_IN_THE_HAUL	7N	36 - 42	0 to 9999999	For the given species, in grams
TOTAL_NUMBER_IN_THE_HAUL	7N	43 - 49	0 to 9999999 *	For the given species. Should be equal to the sum of the 3 following fields.
NB_OF_FEMALES	7N	50 - 56	0 to 9999999*	
NB_OF_MALES	7N	57 - 63	0 to 9999999 *	
NB_OF_UNDETERMINED	7N	64 - 70	0 to 9999999 *	Undetermined or not determined

Legend
A: alphabetic field; N: numerical field; AN alpha-numeric field
Before the type of the field there is the number of digit allowed for the field (e.g. 2N: numeric field with length 2)
*Not mandatory for faunistic category V,G,H, D, and E, in this case the number will be 0.

Note: the fields, NB_OF_FEMALES, NB_OF_MALES, are mandatory for the years 1994-2011 for the MEDITS target species, while since 2012 NB_OF_FEMALES, NB_OF_MALES are mandatory for the MEDITS G1 species list, unless the individuals are all UNDETERMINED (in TC as well).
In case the species was not a target in 1994-2011 or is not a G1 species since 2012, the field NB_OF_UNDETERMINED should be always filled and should be equal to the field TOTAL_NUMBER_IN_THE_HAUL. The fields, NB_OF_FEMALES and NB_OF_MALES will be 0.

XII. Format of type C files (length and aggregated biological parameters)

Name	Type	Position	Range	Comments
TYPE_OF_FILE	2A	1 - 2	TC	Fixed value
COUNTRY	3A	3 - 5	See Annex I	ISO Code
AREA	**2N**	**6 - 7**	**See Annex III**	**GFCM Code**
VESSEL	3A	8 - 10	See Annex I	MEDITS Code
YEAR	4N	11 - 14		e.g. 2000
MONTH	**2N**	**15 - 16**	**1 to 12**	
DAY	**2N**	**17 - 18**	**1 to 28/29/30/31**	
HAUL_NUMBER	3N	19 - 21	1 to 999	One series by vessel/year
CODEND_CLOSING	1A	22 - 22	S, C	S: without; C: controlled
PART_OF_THE_CODEND	1A	23 - 23	A, M, P, S	Mandatory if Codend closing = C; A: anterior, M: middle; P: posterior; S sum of the 3 parts
FAUNISTIC_CATEGORY	**3A**	**24 - 26**	**See Annexe V**	**MEDITS code**
GENUS	4A	27 - 30	See Annex XV	Following the Reference List
SPECIES	3A	31 - 33	See Annex XV	Following the Reference List
LENGTH_CLASSES_CODE	1A or 1N	34 - 34	m, 0, 1#	Type of classes: m: 1 mm; 0: 0.5 cm; 1: 1cm
WEIGHT_OF_THE_FRACTION	6N	35 - 40	0 to 999999	Weight of the fraction in the whole haul in grams
WEIGHT_OF_THE_SAMPLE_MEASURED	6N	41 - 46	0 to 999999	Weight of the sample really measured for length, sex and maturity stages (in grams)
SEX	1A	47 - 47	M, F, I, N	M: male; F: female; I: indetermined; N: not determined
NO_OF_INDIVIDUAL_OF_THE_ABOVE_SEX_MEASURED	6N	48 - 53	1 to 999999	Number of individuals of the above sex measured in the sample
LENGTH_CLASS	4N	54 - 57	1 to 9999	Identifier: lower limit of the class in mm; e.g. 30.5-31 cm ->305 (LENGTH_CLASS_CODE:0)
MATURITY	**1N or 2A**	58 - 59	0 to 4; **ND***: Not Determined (allowed from 2012)**	**See Annexes VIIIa-VIIIe. Maturity codes are according to the blue column since 2007 onwards; ND: Not Determined (allowed from 2012 for species G2 and for species G1 only in case staging is particularly difficult, despite the specimens are sexed)**
MATSUB##	**2A**	60 - 61	from A to E; **ND***: Not Determined (allowed from 2012)**	**introduced in 2007; See Annexes VIIIa-VIIIe maturity codes are according to the blue column since 2007 onwards; ND: Not Determined (allowed from 2012 for species G2 and for species G1 only in case staging is particularly difficult, despite the specimens are sexed).**
NUMBER_OF_INDIVIDUALS_IN_THE_LENGTH_CLASS_AND_MATURITY_STAGE	6N	62 - 67	1 to 999999	**No of individuals per maturity stage and length class for a given sex. The length classes without any individual are excluded from the file. The sum of No of individuals per class and sex is the No of individuals measured per sex. When maturiy stage is ND (since 2012) this field is the No per class and sex.**

Legend
A: alphabetic field; N: numerical field; AN alpha-numeric field
Before the type of the field there is the number of digit allowed for the field (e.g. 2N: numeric field with length 2)
* All numerical fields (N) are right justified; all alphanumeric fields (A) fields are left justified
** The word "Fraction" means any sub-group of individual from the total catch of a species (males, females, large sized individuals, small individuals, juveniles, etc.) on which it could be proceed to a sub-sample. For example: total weight = 1000 g which is divided into 100g of big individuals and 900 g of small. The big individuals will be entirely measured (WEIGHT_OF_THE_FRACTION = 100; WEIGTH_OF_THE_SAMPLED_MEASURED = 100). The small ones will be sub –sampled with a ratio of 1/10 (WEIGHT_OF_THE_FRACTION + 900; WEIGTH_OF_THE_SAMPLED_MEASURED = 90)
***Not Determined code (ND) was included in case length measures only were taken, as for the species coded MEDITS G2 in the Annex VI of this manual.
the class of 1 cm is allowed until 2012 as in the past years some species could have been measured at 1 cm.
##this field should be specified even when stage is 1 or 2 (in this case the field is NA) it cannot be 0 or empty.

XIII.A. Format of type E files (biological parameters at individual level)

Name	Type	Position	Range	Comments
TYPE_OF_FILE	2A	1 - 2	TE	Fixed value
COUNTRY	3A	3 - 5	See Annex I	ISO Code
AREA	**2N**	6 - 7	**See Annex III**	**GFCM Code**
VESSEL	3A	8 - 10	See Annex I	MEDITS Code
YEAR	4N	11 - 14		e.g. 2000
MONTH	**2N**	**15 - 16**	**1 to 12**	
DAY	**2N**	**17 - 18**	**1 to 28/29/30/31**	
HAUL_NUMBER	3N	19 - 21	1 to 999	One series by vessel/year
FAUNISTIC_CATEGORY	**3A**	**22 - 24**	**See Annexe V**	**MEDITS code**
GENUS	4A	25 - 28	See Annex XV	Following the Reference List
SPECIES	3A	29 - 31	See Annex XV	Following the Reference List
LENGTH_CLASSES_CODE	1A or 1N	32 - 32	m, 0	Type of classes: m: 1 mm; 0: 0.5 cm
SEX	1A	33 - 33	M, F, I, N	M: male; F: female; I: indetermined; N: not determined
NO_PER_SEX_MEASURED_IN_SUB_SAMPLE_FOR_OTOLITH	6N	34 - 39	0 to 999999	Number of individuals of the above sex measured in the sub-sample for otolith
LENGTH_CLASS	4N	40 - 43	1 to 9999	Identifier: lower limit of the class in mm; e.g. 30.5-31 cm ->305 (LENGTH_CLASS_CODE:0)
MATURITY	1N	44 - 44	0 to 4	See **Annexes VIIIa-VIIIe** maturity codes are according to the blue column
MATSUB	1A	45 - 45	from A to E or O	See **Annexes VIIIa-VIIIe** maturity codes are according to the blue column. The code O is used in case of omitted maturity sub-stage.
INDIVIDUAL_WEIGHT	6N or 2A	46 - 51	0.1 to 999999; ND: not determined	It is mandatory only for the species in List G1. See **Annex VI.** The weight is in grams and decimals are allowed (e.g. 2.5)
NO_PER_SEX_MEASURED_IN_SUB_SAMPLE_FOR_WEIGHT	6N	52 - 57	1 to 999999	Number of individuals of the above sex measured in the sub-sample for individual weight. In case otoliths are taken, individual weight should be reported
OTOLITH_SAMPLED	2A	58 - 59	Y or N* for Teleosts and NR for the other species	Y: otolith sampled; N: otolith not sampled; NR: not requested; for species in G1 list see **Annex VI**
NO_PER_SEX_MEASURED_IN_SUB_SAMPLE_FOR_AGEING	6N	60 - 65	0 to 999999	Number of individuals of the above sex measured in the sub-sample for ageing
OTOLITH_READ	2A	66 - 67	Y or N for Teleosts and NR for the other species	NR: not requested; Y: otolith read; N: otolith not read
AGE	4N or 2A	68 - 71	-1 to 99 for Teleosts, UR for unreadable, NR for the other species; -1 reading in progress or length class completed	Also decimal number for age (e.g. 10.5); NR: not requested; for species in G1 list see **Annex VI** UR unreadable otolith
OTOLITH_CODE	35AN	72 - 106	[Country][GSA][Vessel][Year][Haul][Genr_Spec][Stage][Sex][Length][individual code]	ITA10PEC2012100MULL_BAR2AM110_xxxxxx
RECORD_NUMBER	N	107-113	0 to 100.000	Record identifier by year

Legend
A: alphabetic field; N: numerical field; AN alpha-numeric field
Before the type of the field there is the number of digit allowed for the field (e.g. 2N: numeric field with length 2)
NR species for which ageing is not requested
*in case, for example, the individual is sampled for the individual weight only
This table will be filled in only for specimens (already entered in TC) for which individual measures have been collected

Note: Otolith Code with underscore at the sub-maturity stage, if the maturity stage is only numerical.
Note: LENGTH_CLASSES_CODE and LENGTH_CLASS between TC and TE should be consistent.

XIII.B. Format of type L files (litter recording)

Name	Type	Position	Range	Comments
TYPE_OF_FILE	2A	1-2	TL	Fixed value
COUNTRY	3A	3-5	See Annex I	ISO Code
AREA	2N	6-7	See Annex III	GFCM Code
VESSEL	3A	8-10	See Annex I	MEDITS Code
YEAR	4N	11-14		e.g. 2000
MONTH	2N	15-16	1 to 12	
DAY	2N	17-18	1 to 28/29/30/31	
HAUL_NUMBER	3N	19-21	1 to 999	One series by vessel/year
LITTER_CATEGORY	2AN	22-23	from L1 to L9 and L0 (no litter)	See Annexe XVII
LITTER_SUB-CATEGORY	1A or 1N or 2A	24	from a to j or 0	See Annexe XVII or NA
TOTAL_WEIGHT_IN_THE_ CATEGORY_HAUL	7N or 2A	25-31	0 to 9999999	For the given category, in grams (facultative) or NA
TOTAL_NUMBER_IN_THE_CATEGORY_HAUL_	7N	32-38	1 to 9999999	For the given category
TOTAL_WEIGHT_IN_ THE_SUB-CATEGORY_ HAUL	7N or 2A	39-45	0 to 9999999	For the given sub-category, in grams (facultative) or NA
TOTAL_NUMBER_IN_ THE_SUB-CATEGORY_ HAUL	7N or 2A	46-52	0 to 9999999	For the given sub-category (facultative) or NA

XIV. Protocol for sampling otoliths, individual weight and maturity stages of MEDITS target species

Adopted during the MEDITS meeting, Ljubljana (Slovenia), 6-8/03/2012

A document with an overview on this subject was prepared by Maria Teresa Spedicato and circulated to the group. This document was discussed during the MEDITS coordination meeting (Ljubljana, Slovenia, 6-8/03/2012) and is attached as Annex 6 to this Coordination meeting report.

The decisions taken during the MEDITS coordination meeting in Ljubljana (Slovenia, 6-8/03/2012) based on the above mentioned document are reported in this annex and represent the sampling protocol to collect the biological information related to otoliths, individual weight and maturity stage by sex from MEDITS survey in 2012.

Objectives

The MEDITS meeting held in Nantes on 15-17 March 2011 agreed to increase the information recorded during the MEDITS survey, including the monitoring of new biological variables, such as age of bony fish species coded G1 in the new list of target species, and individual weight of all the species coded G1 in the same list. Data on the Maturity Stages for the same species should also be collected.

Age monitoring of bony fish, which implies otolith sampling, requires a common protocol to harmonise sampling technique, sample size, and information recording.

It is thus important to first identify the objectives of the new implementation.

Sampling otoliths can be aimed to:

1) estimate indices of abundance at age and monitoring of stock structure along the time;
2) monitor the spatial distribution of age groups;
3) use length at age data to estimate growth curves;
4) estimate structured survey indices to be used in tuning procedures for stock assessment;
5) use age data to estimate, in particular, the probability reaction norm of maturation (PRNM) i.e. the indicator n. 4 of the DCF.

Monitoring of individual weight can be aimed to:

1) estimate length-weight relationship of target species;
2) estimate growth curve in weight, if also otoliths are sampled;
3) estimate the condition factor of the sampled species as a welfare indicator of wild population;
4) use weight at length to estimate the ecosystem indicator that requires individual weight (as plarge in the DCF).

Monitoring of maturity can be aimed to:

1) estimate the indices of abundance, trends and spatial distribution by life stage (e.g. spawner).

Sampling frame

A sampling protocol that enables the simultaneous fulfilment of all these objectives is preferable, in terms of costs and sampling effort.

The group decided to adopt the ***length-stratified random sampling in which a fixed number of individuals are randomly collected from each length class by sex to take otoliths, individual weight and maturity stages.***

This let lean towards the ALK-like sampling, that is also the one adopted in the trawl surveys carried out in Europe, like in Evohe and IBTS.

Regarding the G1 species for which otoliths should not be sampled, the sample size for individual weight and maturity stages will be set according to a similar framework as for the species sampled for otoliths, as specified in the table 2. The precision of the body weight will be 0.1 grams.

Sampling requirements and size

The following criteria were taken into account to set the sample size for each length class:

– for the smallest size groups, that presumably contain only one age group, the number of otoliths per length class may be reduced. Conversely more otoliths per length are required for the larger length classes (see Tab. 1 as a general criterion);
– for estimating indicator n. 4, a number of 100 individuals by age class is required, mainly at maturity stages 2a, 2b, 2c and 3. Thus, to identify a criterion for balancing the number of individuals by length class, avoiding an oversampling of the juveniles, the $L_{m25\%}$ (length at 25% maturity) was chosen as a reference size (lower bound among different estimates if available) for collecting a higher number of individuals in the higher length classes, as these likely account for a larger portion of the length frequency distribution. If information of $L_{m25\%}$ is not available the criterion will be to take a higher sample if the portion of the length class is more than 5% (see Tab. 1).
– sex, maturity and individual weight data should be reported for all the target species for which otoliths and age data are collected and for all the G1 species of the MEDITS list;
– for individual weight and maturity stage samplings, the number of individuals per length class may be reduced for the smallest size groups, conversely more individuals per length are required for the larger length classes; by analogy with the second dash $L_{m25\%}$ can be a reference size for collecting a higher number of individuals. If information of $L_{m25\%}$ is not available the criterion will be to take an higher sample if the portion of the length class is more than 5% (see Tab. 1).
– targets should be set to ensure that data are collected from the entire survey area;
– participants are encouraged to collect age samples also from other commercially important species and any other species deemed important to the DCF.

The optimum number of otoliths per length class cannot be given in a universal form and the number of individual weight and maturity stage as well.
A description of the optimum sample size of age readings and length measurements dependent on a universal cost function is given in Oeberst (2000). According to Mandado and Vasquez (2011) a sample of 20 otoliths in a stratified sampling by length class was considered the optimum for a species with 30-40 length classes. Experiences gathered in the DCF for samplings of commercial catches in Italian GSAs evidenced an acceptable coefficient of variations (around 5%) when sampling 5 otoliths by sex per length class (0.5 or 1 cm depending on the species).
The analyses showed that the necessary number age readings in a length class depend on (AA.VV., 2011):

- the portion of the length class within the length frequency,
- the maximum variance of the portions of the age-groups within the length class.

The table 1 below gives for BITS (AA.VV., 2011) a criterion for establishing the minimum number of otoliths by length class.

Table 1 – Minimum number of otoliths by length class in BITS survey (AA.VV., 2011).

Criterion	**Sample size**
With probably only one age-group (age-group 0, 1)	**2 to 5**
With probably more than on age-group	
Portion of the length class less than 5%	**10**
Portion of the length class more than 5%	**20**

The above criteria hold also for establishing the minimum number for collecting individual weight and maturity stages data.

Therefore, the number of individuals suggested in the IBTS survey protocols (AA.VV., 2010a, b) for the same species as in MEDITS, or for species with comparable number of size classes, can be taken into consideration as a first approximation. In addition, the requirements for the calculation of the indicator n. 4 of DCF, for which a number of 100 otoliths per age class by sex can be considered suitable for the indicator estimate, should be also taken into account.

In the following table 2, a sample size is proposed for the MEDITS species coded as G1 in the new list of target species (Annex VI of this report).

Table 2 – Sample size by length class and sex proposed for otoliths, individual weight and maturity stages for the MEDITS species coded as G1 in the new list of target species. The spatial coverage is the GSA.

Species	**length class**	**sample size**	**sex**
Merluccius merluccius	**1 cm**	**5 otoliths**	**by sex (<Lm25%)**
		10 otoliths	**by sex (>=Lm25%)**
Mullus barbatus	**0.5 cm**	**6 otoliths**	**by sex (<Lm25%)**
		14 otoliths	**by sex (>=Lm25%)**
Mullus surmuletus	**0.5 cm**	**6 otoliths**	**by sex (<Lm25%)**
		14 otoliths	**by sex (>=Lm25%)**
Crustaceans	**1 mm**	**6 individuals**	**Juveniles ((<Lm25%) or portion of the length class less than 5%)**
		14 individuals	**by sex (>=Lm25%)**
Cephalopods*	**0.5 cm**	**6 individuals**	**Juveniles ((<Lm25%) or portion of the length class less than 5%)**
		30 individuals	**by sex (>=Lm25%)**
Elasmobraches	**1 cm**	**5 individuals**	**Juveniles ((<Lm25%) or portion of the length class less than 5%)**
		10 individuals	**by sex (>=Lm25%)**

*the number of individuals per length class is increased for cephalopods taking into account the higher variability of individual weight.

After analysing the characteristics of the G1 MEDITS species and the requirements of the indicator n. 4 of DCF, *P. erythrinus* has been excluded, because the sexual hermaphrodite pattern makes the attribution to a sex from year to year uncertain.

It is expected that for the species in table 2 the number of otoliths required for the estimation of indicator n.4 in the DCF should be fulfilled.

It is recommended that otoliths, individual weight and maturity stages are collected in each haul. This would avoid autocorrelation in the sample (e.g. individuals belonging to the same school).

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. Otolith are then dried stored for later age determination.

Consequently, the number of fish selected for otolith extraction, should be equal to the number of fish for which individual weight, sex and maturity stage are obtained.

For those species for which otoliths are not taken, the number of fish selected for measuring individual weight, sex and maturity stage are equal to the numbers suggested for age reading.

In some vessels or in particular weather conditions during the MEDITS survey, individual weight cannot be measured accurately and the use of frozen samples is unavoidable. Thus, it is recommended to develop conversion factors between fresh and frozen samples.

Estimates of abundance indices at age

After the age distribution is allocated to the length distribution, the age based indices are calculated. The precision of the ALK can be estimated using the method of Baird (1983) or Oeberst (2000).

In the estimates of the abundance indices at age, it is necessary to compute the average numbers at length and associated variances as a first step.

The mean stratified standardization formulas by Souplet (1996) shall be used for the computation of average numbers at length and associated variances by stratum (formulas (1) and (2) below) and for the total area (formulas (3) and (4) below):

$$\bar{x}_{k,j} = \frac{\sum_{h=1}^{H} x_{h,k,j}}{\sum_{h=1}^{H} A_{h,k}} \qquad (1)$$

$$V(\bar{x}_{k,j}) = \frac{1}{H-1}\sum_{h=1}^{H} A_{h,k}\left(\frac{x_{h,k,j}}{A_{h,k}} - \bar{x}_{k,j}\right)^2 \qquad (2)$$

$$I_j = \sum_{k=1}^{K} W_k * \bar{x}_{k,j} \qquad (3)$$

$$V(I_j) = \sum_{k=1}^{K} \frac{W_k^2 S(\bar{x}_{h,j})^2}{\sum_{h=1}^{H} A_{h,k}}(1 - f_k) \qquad (4)$$

where:

$x_{h,k,j}$ is the number of individuals in the haul *h* of the stratum *k* and length class *j*;

$A_{h,k}$ is the swept area of haul *h* in stratum *k;*

$\bar{x}_{k,j}$ is the average number at length *j* in the stratum *k;*

$V(\bar{x}_{k,j})$ is the variance of the average number at length *j* in the stratum *k;*

W_k is the stratum weight calculated as the area of stratum *k* divided by the GSA area;

I_j is the abundance index of the length class *j*;

$V(I_j)$ is the variance of the abundance index of the length class;

f_k is the finite population correction factor.

In a second phase, when building the age-length key, the computation of the proportions at age *i* per length class *j* and associated variances is computed as:

$$p_{i,j} = \frac{n_{i,j}}{n_j} \qquad (5)$$

$$V(p_{i,j}) = \frac{p_{i,j}(1 - p_{i,j})}{n_j} \qquad (6)$$

where :

$n_{i,j}$ is the number of otoliths of age *i* in the length class *j*;

n_j is the total number of otolith in the length class *j*;

$p_{i,j}$ is the proportion of age *i* in the length class *j;*

$V(p_{i,j})$ is the variance of the proportion of age *i* in the length class *j.*

In a third phase, the computation of mean numbers at age and the associated variances are computed. The mean numbers at age are given by :

$$I_i = \sum_{j=1}^{J} I_j * p_{i,j} \qquad (7)$$

and the associated variance is:

$$V(I_i) = \sum_{j=1}^{J} \left[V(I_j) p_{i,j}^2 + I_j^2 V(p_{i,j}) + V(p_{i,j}) V(I_j) \right] \qquad (8)$$

where

I_i is the abundance index of the age class *i* and $V(I_i)$ its variance.

These computations are done by sex and the total age composition is given for each age *i* by:

$$Itot_i = Ima_i + Ife_i \qquad (9)$$

its variance is:

$$V(Itot_i) = V(Ima_i) + V(Ife_i) \qquad (10)$$

and the sampling being independent on sex the covariance is not considered.

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XV. TM list of species codes

TAXONOMIC LIST OF THE MEDITERRANEAN
to be used in the trawl surveys
Name of the list: TM

The present list is destined to code the marine species encountered in the Mediterranean. It has been built following the principle used in the Nordic Code Centre (Stockholm). For most of the species the codes are identical to those proposed by the NCC. However some species can be coded differently. In addition numerous Mediterranean species are not included in the NCC code and have been added. So the present list is specific. It has to be referred as the TM list (Taxonomic list not only Faunistic, FM list).

The first fish list has been established according to the following work:

Hureau J.-C. et Th. Monod (réd.), 1973. Catalogue des poissons de l'Atlantique du nord-est et de la Méditerranée. Unesco, Paris, Vol I, xxii + 683 p.; vol II, 331 p. [réimpression comprenant le *Supplément 1978*, par E. Tortonese et J. -C. Hureau (réd), en 1979]. The reference of the species following this work is reported as "C" (for Clofnam) in the column "Source" with number which is attributed to this species in the Catalogue in the column "Reference".

This list has been increased with reference to the following works:

- Fisher W., M.L., Bauchot et M. Schneider (rédact.), 1987. Fiches FAO d'identification des espèces pour les besoins de la pêche. (Révision 1). Méditerranée et mer Noire. Zone de pêche 37. Volume I. Végétaux et Invertébrés. Volume II. Vertébrés. Publication préparée par la FAO, résultat d'un accord entre la FAO et la Commission des Communautés Européennes (Projet GCP/INT/422/EEC) financée conjointement par ces deux organisations. Rome, FAO, 1530 p.

The reference of the species coming from this book are reported as "F" (for FAO) in the "Source" with the reference given to this species. Important reference are also the three volumes of FNAM: Whitehead *et al*., 1984, 1986 (W).

For most of the Invertebrates, the species have been named according to the following works:

- Zariquiey Alvarez R., 1968. Crustaceos decapodos ibéricos. Invest. Pesq. 32, 510 p.
- Riedl R., 1963. Fauna und flora der Adria. Paul Parey Ed. – 640 pp.

The references to these works are mentioned as Z and R respectively in the column "Source" (see other references below).

Until 2011 the source file of this list was located at the "Ecologie et modèles pour l’halieutique" department of Ifremer in Nantes.

In 2012 the list has been review by Società Italiana di Biologia Marina (prof. Giulio Relini and dr. Alessandro Mannini) following the subdivision in the following main categories:

A fishes, B Crustaceans (Decapoda, Cirripedia, , Eufausiacea, Isopoda, Stomatopoda), C Cephalopods, D Other commercial (edible) species, E Other animal species but not commercial (not edible) for this classification the main references is Fisher *et al*. 1987, *Fiches FAO* d'*identification* des *espèces* pour les *besoins* de la *pêche*. *Méditerranée et mer Noire*. mimeo

Six more categories were added:

- G = portions or products of animal species (shell debris, eggs of gastropods, selachians, etc.);
- H = portions or products of vegetal species (e.g. leaves of sea grasses, of terrestrial plants, etc.);
- M = Mammalia (mammals);
- O = Aves (birds);
- R = Reptilia (turtles);

- V = Plantae (vegetals).

The categories A, B, D E were sub-divided in the following subcategories:

-Aa = Fish Agnata;
-Ae = Fish Chondrichthyes;
- Ao = Fish Osteichthyes;
- Bam = Amphipoda;
- Bci = Cirripedia;
- Bis = Isopoda;
- Beu = Euphausiacea;
- Bst = Stomatopoda
- Dec/ Eec = Echinodermata;
- Dmb/Emb = Mollusca Bivalvia;
- Dmg/Emg = Mollusca Gastropoda;
- Dmo/Emo = Mollusca Opisthobranchia;
- Dtu/ Etu = Tunicata;
- Ean = Annellida;
- Eba = Brachiopoda;
- Ebr = Bryozoa;
- Ech = Echiura;
- Ecn = Cnidaria;
- Ect = Ctenophora;
- Ehi = Hirudinea;
- Emp = Polyplacophora;
- Ene = Nemertea;
- Epo = Polychaeta;
- Epr = Priapulida;
- Esc = Scaphopoda;
- Esi = Sipuncula;
- Esp = Porifera (sponges).

In addition the following codes were added (column ‘Remarks’ in the list)

AL = alien species
Δ = species not yet recorded in the Italian Seas.
ΔΔ = species not yet recorded in the Mediterranean Sea

CODLON represents the Length classes code: m = 1 mm; 0 = 0,5 cm; 1 = 1 cm;

In the column “GSAs” are reported the GSAs in which the taxon was recorded.

In the column ‘Year’ of the table the year in which the species was recorded for the first time is reported,

Other new codes for new species could be added.

It was decided to not consider species lower than 1 cm like Isopoda, Amphipoda, small Polychaets etc. For the moment the species listed in the previous version (Relini *et al.*, 2008) are maintained.

It was decided for the moment to maintain, when applicable, two codes for one species and to avoid the presence of the same code for different genus (the first 4 letters of the species code). The species (taxon) codes included in the data tables are based on the TM list. <u>So, to maintain the consistency of the data series, they cannot be changed even if a species name is reviewed</u>.

The codes are reported in alphabetical order in the list.

Codes of source column are:

C = Clofnam (Hureau and Monod, 1973);
F = Fisher *et al*., 1987;
G = Golani *et al*., 2002;
P = Guerra, 1992;
R = Riedl 1968 (Italian editions 1991) ;
T = Tortonese, 1965;
Y = Galil *et al*., 2002;
Z = Zariquiey 1968.

All the problems dealing with the list and in particular introduction of new species will be managed by the following WG: Relini Giulio (leader), Massuti Enric, Jadaud Angelique and Porzia Maiorano. Proposals for new species will be sent to Giulio Relini (See **Annex V**).

To know the valid scientific name of species present in Italian seas the main reference is the checklist of Fauna and Flora of Italian seas (Relini, 2008;2010). WoRMS (World Register of Marine Species) was checked for updating the scientific name, when applicable.

Regarding the alien species the recent papers by Galil (2011) and Zenetos et al. (2012) have been taken into account.

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TM MEDITS list (2014 updated)

TM list (all species)										
N.	MEDITS Code	Scientific Name valid	Authorship	Source	Reference	Remarks	CATFAU	CODLON	GSAs	Year
1	ABRAVER	Abralia veranyi	(Rüppell, 1844)	F, P	ENOP, 121		C	0	1, 2, 5, 6, 7, 8, 9, 10, 11, 15, 16, 17, 18, 19, 20, 22, 23, 25	
2	ABRIMOR	Abraliopsis morisii	(Vérany, 1839)	F, P	ENOP, 123s		C	0	19	2011 (19)
3	ABRRALB	Abra alba	(Wood, 1802)	R	p. 339 Tav. 129		Emb	0	1, 6, 16, 19	
4	ABRRLON	Abra longicallus	(Scacchi, 1835)				Emb		1, 19	2013 (1)
5	ACANEXI	Acanthephyra eximia	Smith, 1884	Z	84		B	m	1, 2, 5, 6, 7, 9, 11, 16, 19	
6	ACANPEL	Acanthephyra pelagica	(Risso, 1816)	Z	86		B	m	1, 2, 5, 6, 7, 8, 9, 10, 11, 19, 22	
7	ACANSPP	Acanthephyra spp.	A. Milne-Edwards, 1881	Z	83		B	m	5, 7, 10, 11, 15, 16, 19	2011 (10, 19)
8	ACATPAL	Acantholabrus palloni	(Risso, 1810)	C	145.2.1		Ao	0	7, 8, 9, 10, 11, 15, 16, 17, 18, 19, 20, 22, 25	
9	ACROPRE	Acrothamnion preissii	Wollaston, 1968				V		1, 2, 5, 6	2013 (1, 2, 5, 6)
10	ACTARIC	Actinauge richardi	(Marion, 1882)	F	HORM		Ecn	0	1, 2, 10, 15, 16, 18, 19	2011 (10, 18, 19)
11	ACTASPP	Actinauge spp.	Verrill, 1883				Ecn		7	2013 (7)
12	ACTICAR	Actinia cari	Delle Chiaje, 1822				Ecn		16	2013 (16)
13	ACTIEQU	Actinia equina	(Linnaeus, 1758)	F	ACT		Ecn	0	19	2011 (19)
14	ACTISPP	Actinia spp.	Linnaeus, 1767	F	ACT		Ecn	0	2, 6, 19	2011 (19)
15	ACTNDAE	Actiniidae	Rafinesque, 1815				Ecn		1, 2, 5, 6	2013 (1, 2, 5, 6)
16	ADAMCAR	Adamsia palliata	(Fabricius, 1779)			**e1**	Ecn	0	5, 16, 19	2011 (19)
17	ADAMSPP	Adamsia spp.	Forbes, 1840				Ecn		5, 18	2013 (18)
18	AEGIDAE	Aegidae	White, 1850				Bis		5	2013 (5)
19	AEODMAR	Nemastoma marginatum	J. Agardh, 1842			**v1**	V		1, 2, 5, 6	2013 (1, 2, 5, 6)

20	AEQOFOR	Aequorea forskalea	Péron & Lesueur, 1810				Ecn		5	2013 (5)
21	AEQUCOM	Aequipecten commutatus	(Monterosato, 1875)				Dmb		10	2013 (10)
22	AEQUOPE	Aequipecten opercularis	(Linnaeus, 1758)	F	PECT Aeq 1	**d1**	Dmb	0	1, 5, 6, 9, 16, 17, 18, 19	
23	AGELORO	Agelas oroides	(Schmidt, 1864)	R	p. 116 Tav. 39		Esp	0	19	2011 (19)
24	AGLAPLU	Aglaophenia pluma	(Linnaeus, 1758)				Ecn		16	2013 (16)
25	AGLJTRI	Aglaja tricolorata	Renier, 1807				Emo		16	2013 (16)
26	ALCDSPP	Alcyonidium spp.	Lamouroux, 1813				Ebr		7	2013 (7)
27	ALCODAE	Alcyoniidae	Lamouroux, 1812				Ecn		15	2012 (15)
28	ALCYACA	Alcyonium acaule	Marion, 1878				Ecn		1, 5, 10, 16	2013 (1, 5)
29	ALCYGLO	Alcyonium glomeratum	(Hassal, 1843)			Δ	Ecn		6	2013 (6)
30	ALCYPAL	Alcyonium palmatum	Pallas, 1766	R	p. 170 Tav. 62		Ecn	0	1, 2, 5, 6, 9, 10, 16, 17, 18, 19	
31	ALCYSPP	Alcyonium spp.	Linnaeus, 1758				Ecn		7, 8	2013 (7, 8)
32	ALEPROS	Alepocephalus rostratus	Risso, 1820	C	30.1.1		Ao	0	1, 2, 5, 6, 7, 9, 11, 16	
33	ALLOMED	Alloteuthis media	(Linnaeus, 1758)	F, P	LOLIG Allot 3, 112		C	0	1, 2, 5, 6, 7, 8, 9, 10, 11, 15, 16, 17, 18, 19, 20, 22, 23, 25	
34	ALLOSPP	Alloteuthis spp.	Wülker, 1920	F, P	LOLIG Allot, 111		C	0	2, 6, 7, 8, 9, 15, 16, 17, 22, 23	
35	ALLOSUB	Alloteuthis subulata	(Lamarck, 1798)	F, P	LOLIG Allot 2, 113		C	0	1, 2, 5, 6, 7, 8, 9, 10, 11, 15, 16, 17, 18, 19, 20, 22	
36	ALOPVUL	Alopias vulpinus	(Bonnaterre, 1788)	C	9.1.1		Ae	0	19	
37	ALOSALO	Alosa alosa	(Linnaeus, 1758)	C	33.6.1	Δ	Ao	0	6	2013 (6)
38	ALOSFAL	Alosa fallax	(Lacepède, 1803)	C	33.6.3		Ao	0	1, 6, 7, 8, 9, 10, 11, 16, 17, 18, 19, 20, 22	
39	ALPEDAE	Alpheidae	Rafinesque, 1815	Z	136		B		1	2013 (1)
40	ALPHGLA	Alpheus glaber	(Olivi, 1792)	F	ALPH Alph 5		B	m	1, 2, 5, 6, 7, 8, 9, 10, 11, 15, 16, 17, 18, 19, 20, 22, 25	
41	ALPHMAC	Alpheus macrocheles	(Hailstone, 1835)	Z	144		B		1	2013 (1)
42	ALPHPLA	Alpheus platydactylus	Coutière, 1897		WoRMS		B	m	1	
43	ALPHSPP	Alpheus spp.	Fabricius, 1798	Z	143		B		1, 7, 8, 22	2013 (1)

44	AMATSEM	Amathia semiconvoluta	Lamouroux, 1824	R	p. 531 Tav. 211		Ebr	0	10, 18, 19	2011 (10, 18, 19)
45	AMPADOH	Amphianthus dohrnii	(Koch, 1878)				Ecn		10, 16	2013 (16)
46	AMPBAMP	Amphibalanus amphitrite amphitrite	(Darwin, 1854)				Bci		16	2013 (16)
47	AMPHSQU	Amphipholis squamata	(Delle Chiaje, 1828)	R, T	p. 573 Tav. 226, 231		Eec	0	1, 18	2011 (18)
48	AMPIODA	Amphipoda	Latreille, 1816				Bam		1, 5, 6, 25	2013 (1, 5, 6)
49	AMPUCHI	Amphiura chiajei	Forbes, 1843	T	224		Eec	0	16, 18	2013 (16)
50	AMPUSPP	Amphiura spp.	Forbes, 1843	T	222		Eec	0	5	2013 (5)
51	AMYGLUT	Amygdalum politum	(Verrill & Smith, 1880)			**e2**	Emb	0	1, 2, 19	
52	ANADCOR	Anadara corbuloides	(Monterosato, 1878)				Dmb	0	5, 9, 18	2011 (9, 18)
53	ANADDIL	Anadara transversa	(Say, 1822)	F	ARC Anad 3	**d2**	Dmb	0	1, 6, 9, 18	
54	ANADINA	Anadara inaequivalvis	(Bruguière, 1789)			**d3**	Dmb		1	2013 (1)
55	ANADPOL	Anadara polii	(Mayer, 1868)				Dmb		16	2013 (16)
56	ANAMRIS	Anamathia rissoana	(Roux, 1828)	Z	465		B	m	6, 10, 11, 15, 16, 18, 19	
57	ANAPBIC	Anapagurus bicorniger	A. Milne-Edwards & Bouvier, 1892	Z	259		B	m	1, 6	
58	ANAPCHI	Anapagurus chiroacanthus	(Lilljeborg, 1856)	Z	257		B		1, 2, 5, 6	2013 (1, 2, 5, 6)
59	ANAPLAE	Anapagurus laevis	(Bell, 1846)	Z	256		B	m	1, 5, 6, 9, 16	
60	ANAPSPP	Anapagurus spp.	Henderson, 1886	Z	255		B		7	2015 (7)
61	ANCINIC	Ancistroteuthis lichtensteinii	(Férussac, 1835)	F, P	ONYCHO, 139		C	0	1, 2, 5, 6, 7, 9, 10, 11, 15, 16, 17, 18, 19, 22	
62	ANCOLES	Ancistrocheirus lesueurii	(d'Orbigny, 1842)	F, P	ENOP, 130		C	0	19	2011 (19)
63	ANDRPAR	Andresia parthenopea	(Andrès, 1883)	R	p. 161 Tav. 59		Ecn	0	10	2011 (10)
64	ANGUANG	Anguilla anguilla	(Linnaeus, 1758)	C	71.1.1		Ao	0	1, 7, 22	
65	ANNEIDA	Annelida	Lamarck, 1809				Ean		1, 5	2013 (1, 5)
66	ANOMEPH	Anomia ephippium	Linnaeus, 1758	F	ANOM		Emb	0	1, 5, 6, 10, 16, 18, 19	2011 (10, 18)

67	ANSEPLA	Anseropoda placenta	(Pennant, 1777)	R, T	p. 567 Tav. 224, 176		Eec	0	1, 2, 5, 6, 7, 8, 9, 11, 15, 16, 18, 19	2011 (9, 18)
68	ANTAENT	Antalis entalis	(Linnaeus, 1758)			Δ	Esc		7	2015 (7)
69	ANTAINA	Antalis inaequicostata	(Dautzenberg, 1891)				Esc		16	2013 (16)
70	ANTAPAN	Antalis panorma	(Chenu, 1843)				Esc		16	2013 (16)
71	ANTEMED	Antedon mediterranea	(Lamarck, 1816)	R, T	p. 545 Tav. 217, 29		Eec	0	1, 5, 6, 9, 10, 11, 15, 16, 18, 19	2011 (9, 10, 18, 19)
72	ANTESPP	Antedon spp.	De Fréminville, 1811	T	27		Eec	0	7, 8	2013 (7, 8)
73	ANTHANT	Anthias anthias	(Linnaeus, 1758)	C	124.2.1		Ao	0	1, 5, 6, 7, 8, 9, 10, 11, 15, 16, 17, 18, 19, 22	
74	ANTOMEG	Gaidropsarus biscayensis	(Collett, 1890)	C	101.19.2	**a1**	Ao	0	1, 2, 5, 6, 7, 8, 9, 10, 11, 16, 17, 18, 19	
75	ANTOSPP	Gaidropsarus spp.	Rafinesque, 1810	C	101.19	**a2**	Ao	0	1, 6, 7, 8, 15, 16, 17, 18, 20, 22, 23	
76	APERADR	Pseudosimnia adriatica	(G.B. Sowerby I, 1828)			**e3**	Emg	0	10	2011 (10)
77	APHIMIN	Aphia minuta	(Risso, 1810)	C	162.2.1		Ao	0	1, 5, 6, 8, 9, 10, 11, 16, 17, 18, 19, 22, 25	
78	APHODAE	Aphroditidae	Malmgren, 1867				Epo		1, 2, 5, 6, 15	2013 (1, 2, 5, 6)
79	APHRACU	Aphrodita aculeata	Linnaeus, 1758	R	p. 364 Tav. 140		Epo	0	1, 2, 5, 6, 7, 8, 9, 10, 11, 16, 17, 18, 19	2011 (9, 10, 18, 19)
80	APHRSPP	Aphrodita spp.	Linnaeus, 1758				Epo		1, 2, 5, 6, 7, 8, 10	2013 (1, 2, 5, 6)
81	APLAAER	Aplysina aerophoba	Nardo, 1833	R	121 s		Esp	0	1, 2, 5, 6	2013 (1, 2, 5, 6)
82	APLEDAE	Aplysiidae	Lamarck, 1809				Emo		7	2015 (7)
83	APLICON	Aplidium conicum	(Olivi, 1792)				Etu		5, 6, 16	2013 (5, 6)
84	APLIELE	Aplidium elegans	(Giard, 1872)				Etu		5	2013 (5)
85	APLIHAO	Aplidium haouarianum	(Pérès, 1956)				Etu		5	2013 (5)
86	APLINOR	Aplidium nordmanni	(Milne-Edwards, 1841)				Etu		5	2013 (5)
87	APLIPAL	Aplidium pallidum	(Verrill, 1871)				Etu		1, 2, 5, 6	2013 (1, 2, 5, 6)
88	APLIPRO	Aplidium proliferum	(Milne-Edwards, 1841)				Etu		16	2013 (16)
89	APLISPP	Aplidium spp.	Savigny, 1816				Etu		1, 5, 16	2013 (1, 5)

90	APLYDEP	Aplysia depilans	Gmelin, 1791				Emo		16	2013 (16)
91	APLYFAS	Aplysia fasciata	Poiret, 1789	R	p. 281 Tav. 108		Emo	0	5, 16, 18	2011 (18)
92	APLYPAR	Aplysia parvula	Mörch, 1863				Emo		16	2013 (16)
93	APLYPUN	Aplysia punctata	(Cuvier, 1803)				Emo		5, 6, 16	2013 (5, 6)
94	APLYSPP	Aplysia spp.	Linnaeus, 1767	R	p. 279		Emo	0	5, 6, 9, 16, 18	2011 (18)
95	APOGIMB	Apogon imberbis	(Linnaeus, 1758)	C	127.1.1		Ao	0	7, 9, 11, 15, 25	
96	APORPES	Aporrhais pespelecani	(Linnaeus, 1758)	F	APOR Apor 1		Dmg	0	1, 6, 7, 8, 9, 10, 16, 17, 18, 19	
97	APORSER	Aporrhais serresianus	(Michaud, 1828)	F	APOR Apor 2		Dmg	0	1, 2, 5, 6, 8, 9, 10, 16, 18, 19	
98	APORSPP	Aporrhais spp.	Da Costa, 1778				Dmg		1, 2, 5, 6, 7, 8, 16	2013 (1, 2, 5, 6)
99	APTECAE	Apterichtus caecus	(Linnaeus, 1758)	C	86.2.1		Ao	0	6, 7, 9	
100	ARCANOA	Arca noae	Linnaeus, 1758				Dmb		1, 2, 5, 6	2013 (1, 2, 5, 6)
101	ARCATET	Arca tetragona	Poli, 1795				Dmb		1, 2, 5, 16	2013 (1, 2, 5)
102	ARCOBAL	Arcopagia balaustina	(Linnaeus, 1758)				Emb		7	2015 (7)
103	ARGESPY	Argentina sphyraena	Linnaeus, 1758	C	46.1.1		Ao	0	1, 5, 6, 7, 8, 9, 10, 11, 15, 16, 17, 18, 19, 20, 22, 23, 25	
104	ARGOOLE	Ranella olearium	(Linnaeus, 1758)	F	CYM Argo 1	**d4**	Dmg	0	1, 2, 5, 6, 9, 11, 16, 18, 19	
105	ARGRHEM	Argyropelecus hemigymnus	Cocco, 1829	C	38.2.1		Ao	0	1, 2, 5, 6, 7, 8, 9, 10, 11, 15, 16, 17, 18, 19, 20, 22, 23, 25	
106	ARGUARG	Argonauta argo	Linnaeus, 1758	F, P	ARGO Argo 1, 261		C	0	16, 19	2011 (19)
107	ARIOBAL	Ariosoma balearicum	(Delaroche, 1809)	C	82.2.1		Ao	0	8, 9, 10, 11, 17, 18, 19	
108	ARISFOL	Aristaeomorpha foliacea	(Risso, 1827)	F	ARIST Aris 1		B	m	5, 6, 7, 8, 9, 10, 11, 15, 16, 17, 18, 19, 20, 22, 25	
109	ARITANT	Aristeus antennatus	(Risso, 1816)	F	ARIST Arist 1		B	m	1, 2, 5, 6, 7, 8, 9, 10, 11, 15, 16, 17, 18, 19, 20, 22, 25	
110	ARMILOV	Armina loveni	(Bergh, 1866)			Δ	Emo	0	7	2013 (7)
111	ARMIMAC	Armina maculata	Rafinesque, 1814	F	NAT Natic 1		Dmo	0	5, 6, 11	

112	ARMINEA	Armina neapolitana	(Delle Chiaje, 1824)				Emo		16	2013 (16)
113	ARMISPP	Armina spp.	Rafinesque, 1814				Emo		5, 6	2013 (5, 6)
114	ARMITIG	Armina tigrina	Rafinesque, 1814	R	p. 292 Tav. 112		Dmo	0	6, 9, 10, 16, 18, 19	
115	ARNOIMP	Arnoglossus imperialis	(Rafinesque, 1810)	C	196.2.2		Ao	0	1, 2, 5, 6, 7, 8, 9, 11, 15, 16, 17, 18, 20, 22	
116	ARNOKES	Arnoglossus kessleri	Schmidt, 1915	C	196.2.3		Ao	0	10, 19, 20, 22	2011 (10, 19)
117	ARNOLAT	Arnoglossus laterna	(Walbaum, 1792)	C	196.2.1		Ao	0	1, 2, 5, 6, 7, 8, 9, 10, 11, 15, 16, 17, 18, 19, 20, 22, 23, 25	
118	ARNORUP	Arnoglossus rueppelii	(Cocco, 1844)	C	196.2.4		Ao	0	1, 5, 6, 7, 8, 9, 10, 11, 15, 16, 17, 18, 19, 20, 22, 23, 25	
119	ARNOSPP	Arnoglossus spp.	Bleeker, 1862	C	196,2		Ao	0	7, 8, 11, 17, 19	2011 (19)
120	ARNOTHO	Arnoglossus thori	Kyle, 1913	C	196.2.5		Ao	0	1, 2, 5, 6, 7, 8, 9, 10, 11, 15, 16, 17, 18, 19, 20, 22, 23, 25	
121	ASCDDAE	Ascidiidae	Herdman, 1882				Etu		1, 2, 5, 6	2013 (1, 2, 5, 6)
122	ASCEASP	Ascidiella aspersa	(O.F. Müller, 1776)	R	p. 590 Tav. 236		Etu	0	1, 5, 6, 16, 18, 19	2011 (19)
123	ASCESCA	Ascidiella scabra	(O.F. Müller, 1776)				Etu	0	1, 5, 6, 19	2011 (19)
124	ASCESPP	Ascidiella spp.	Roule, 1884	R	p. 590		Etu	0	18, 19	2011 (18)
125	ASCIINV	Ascidia involuta	Heller, 1875				Etu		5	2013 (5)
126	ASCIMEN	Ascidia mentula	O.F. Müller, 1776	R	p. 591 Tav. 236		Etu	0	1, 2, 5, 6, 9, 10, 16, 18, 19	2011 (9, 10, 18, 19)
127	ASCISPP	Ascidia spp.	Linnaeus, 1767				Etu		1, 2, 5, 6, 9, 22, 23	2013 (1, 2, 5, 6)
128	ASCIVIR	Ascidia virginea	O.F. Müller, 1776	R	p. 591 Tav. 236		Etu	0	1, 5, 6, 10, 16, 18	2011 (10, 18)
129	ASCOFLA	Ascidonia flavomaculata	(Heller, 1864)	Z	175s		B		5	2013 (5)
130	ASDOMUE	Aspidosiphon muelleri muelleri	Diesing, 1851	R	p. 216 Tav. 82		Esi	0	18	2011 (18)
131	ASPATAX	Asparagopsis taxiformis	Trevisan de Saint-Léon, 1845				V		1, 2, 5, 6	2013 (1, 2, 5, 6)
132	ASPICUC	Chelidonichthys cuculus	(Linnaeus, 1758)	C	185.2.1	**a3**	Ao	0	1, 2, 5, 6, 7, 8, 9, 10, 11, 15, 16, 17, 18, 19, 20, 22, 23, 25	

133	ASPIOBS	Chelidonichthys obscurus	(Walbaum, 1792)	C	185.2.2	**a4**	Ao	0	1, 5, 6, 7, 8, 9, 10, 11, 15, 16, 19, 20, 22	
134	ASTEDEA	Asteroidea	Blainville, 1830	T	111		Eec	0	1	2013 (1)
135	ASTNGIB	Asterina gibbosa	(Pennant, 1777)	T	169		Eec	0	2	2014 (2)
136	ASTRARA	Astropecten aranciacus	(Linnaeus, 1758)	R, T	p. 563 Tav. 223, 137		Eec	0	5, 7, 8, 9, 11, 16, 18, 19	2011 (9, 18, 19)
137	ASTRBIS	Astropecten bispinosus	(Otto, 1823)	R, T	p. 565 Tav. 223, 140		Eec	0	9, 10, 11, 16, 18, 19	2011 (9, 10, 18, 19)
138	ASTRIRR	Astropecten irregularis pentacanthus	(Delle Chiaje, 1827)	R, T	p. 565 Tav. 223, 132		Eec	0	1, 2, 5, 6, 7, 8, 9, 10, 11, 15, 16, 18, 19	2011 (9, 10, 18, 19)
139	ASTRJON	Astropecten jonstoni	(Delle Chiaje, 1827)	T	135		Eec	0	19	2011 (19)
140	ASTRSPI	Astropecten spinulosus	(Philippi, 1837)	R, T	p. 565 Tav. 223, 143		Eec	0	5, 6, 9, 11, 19	2011 (9, 19)
141	ASTRSPP	Astropecten spp.	Gray, 1840	R, T	p.563, 130		Eec	0	5, 6, 7, 8, 9, 15, 17, 18, 19	
142	ASTSMED	Astrospartus mediterraneus	(Risso, 1826)	R, T	p. 570 Tav. 225, 212		Eec	0	1, 6, 10, 15, 16	2011 (10)
143	ATECDAE	Atelecyclidae	Ortmann, 1893	Z	341		B		1, 2, 5, 6	2013 (1, 2, 5, 6)
144	ATELROT	Atelecyclus rotundatus	(Olivi, 1792)		342		B	m	1, 2, 5, 6, 9, 11, 18, 19	
145	ATHANIT	Athanas nitescens	(Leach, 1813)	Z	137		B		19	2014 (19)
146	ATHEBOY	Atherina boyeri	Risso, 1810	C	183.1.2		Ao	0	11, 25	2012 (25)
147	ATOLSPP	Atolla spp.	Haeckel, 1880			Δ	Ecn		5	2014 (5)
148	ATRIFRA	Atrina fragilis	(Linnaeus, 1767)	F	PINN Atr 4		Dmb	0	9, 16, 17, 18, 19	
149	AULOFIL	Aulopus filamentosus	(Bloch, 1792)	C	50.1.1		Ao	0	1, 5, 6, 8, 9, 10, 11, 15, 16, 17, 18, 19, 20, 22, 23, 25	
150	AUREAUR	Aurelia aurita	(Linnaeus, 1758)	C	157.2.1		Ecn	0	1, 5	2013 (1, 5)
151	AUXIROC	Auxis rochei	(Risso, 1810)				Ao		11	2014 (11)
152	AXINCAN	Axinella cannabina	(Esper, 1794)	R	p. 112 Tav. 38		Esp	0	16, 19	2011 (19)
153	AXINDAM	Axinella damicornis	(Esper, 1794)	R	112		Esp	0	5	2013 (5)
154	AXINPOL	Axinella polypoides	Schmidt, 1862	R	112		Esp	0	2, 5, 16, 19	2013 (2, 5)
155	AXINSPP	Axinella spp.	Schmidt, 1862	R	112		Esp	0	1, 5, 10, 16, 18	2013 (1, 5)
156	AXINVER	Axinella verrucosa	(Esper, 1794)	R	112		Esp	0	1, 2, 5, 6, 19	2013 (1, 2, 5, 6)

157	BALATRI	Balanus trigonus	Darwin, 1854				Bci		22	2015 (22)
158	BALICAR	Balistes capriscus	Gmelin, 1789	C	201.1.2	**a5**	Ao	0	9, 16, 19, 25	
159	BALOEUR	Balanophyllia europaea	(Risso, 1826)				Ecn		22	2015 (22)
160	BARBBAR	Barbatia barbata	(Linnaeus, 1758)				Emb		5	2013 (5)
161	BASOPRO	Bathysolea profundicola	(Vaillant, 1888)	C	198.2.1		Ao	0	1, 2, 6, 15	
162	BATHDUB	Bathypterois dubius	Vaillant, 1888	F	CHLOR	**a6**	Ao	0	5, 6, 9, 10, 15, 16, 19, 22	
163	BATHMED	Bathypterois dubius	Vaillant, 1888	F	CHLOR	**a6**	Ao	0	5, 6, 9, 10, 15, 16, 19, 22	
164	BATISPO	Bathypolypus sponsalis	(P. Fischer & H. Fischer, 1892)	F, P	OCT Bath 2, 249		C	0	1, 2, 5, 6, 7, 9, 11, 15, 16, 20, 22	
165	BATONIG	Bathophilus nigerrimus	Giglioli, 1882	C	42.2.1		Ao	0	1, 6, 9, 10, 19, 25	2011 (9, 10, 19)
166	BATYLON	Bathynectes longipes	(Risso, 1816)	Z	382		B	m	20	2014 (20)
167	BATYMAR	Bathynectes maravigna	(Prestandrea, 1839)	F	PORT	**b1**	B	m	1, 2, 5, 6, 9, 10, 11, 15, 16, 17, 18, 19, 20, 22, 25	
168	BATYSUP	Bathynectes maravigna	(Prestandrea, 1839)	F	PORT	**b1**	B	m	1, 2, 5, 6, 9, 10, 11, 15, 16, 17, 18, 19, 20, 22, 25	
169	BEANCYL	Beania cylindrica	(Hincks, 1886)				Ebr		1, 2, 5, 6	2013 (1, 2, 5, 6)
170	BELLAPO	Bellottia apoda	Giglioli, 1883	C	172.3.1		Ao	0	1, 6, 9, 16, 20, 22, 25	
171	BELOBEL	Belone belone	(Linnaeus, 1761)	C	90.1.1		Ao	0	17	2014 (17)
172	BENSGLA	Benthosema glaciale	(Reinhardt, 1837)	C	58.2.1		Ao	0	1, 2, 5, 6, 7, 8, 9, 17, 19, 20, 22, 23, 25	
173	BENTROB	Benthocometes robustus	(Goode & Bean, 1886)	C	172.4.1		Ao	0	1, 5, 6, 7, 8, 9, 10, 11, 15, 16, 18, 19, 20, 22	
174	BERTAUR	Berthella aurantiaca	(Risso, 1818)	R	p. 289 Tav. 111		Emo	0	5, 18, 19	2011 (18)
175	BERTSPP	Berthella spp.	Blainville, 1824				Emo		18	2013 (18)
176	BIDDEAE	Biddulphiaceae	Kützing, 1844				V		1	2014 (1)
177	BITTRET	Bittium reticulatum	(Da Costa, 1778)				Emg		16	2013 (16)
178	BIVAVIA	Bivalvia	Linnaeus, 1758				Emb		1, 2, 5, 6	2013 (1, 2, 5, 6)
179	BLEIDAE	Blenniidae	Rafinesque, 1810	C	164	**a7**	Ao	0	11, 17, 20, 22, 23, 25	
180	BLENGAT	Parablennius gattorugine	(Linnaeus, 1758)	C	164.1.8	**a8**	Ao	0	11, 17	
181	BLENINC	Parablennius incognitus	(Bath, 1968)	C	164.1.9	**a9**	Ao	0	25	2012 (25)

182	BLENOCE	Blennius ocellaris	Linnaeus, 1758	C	164.1.1		Ao	0	1, 2, 5, 6, 7, 8, 9, 10, 11, 15, 16, 17, 18, 19, 20, 22, 23, 25	
183	BLENPAV	Salaria pavo	(Risso, 1810)	C	164.1.12	**a10**	Ao	0	9, 17	
184	BLENROU	Parablennius rouxi	(Cocco, 1833)	C	164.1.14	**a11**	Ao	0	25	2012 (25)
185	BLENSPP	Blenniidae		C	164	**a7**	Ao	0	11, 17, 20, 22, 23, 25	
186	BLENTEN	Parablennius tentacularis	(Brünnich, 1768)	C	164.1.18	**a12**	Ao	0	1, 5, 11, 17, 22, 25	
187	BOLMRUG	Bolma rugosa	(Linnaeus, 1767)				Emg		5, 16	2013 (5)
188	BONNSPP	Bonnemaisonia spp.	C. Agardh, 1822				V		5	2013 (5)
189	BOOPBOO	Boops boops	(Linnaeus, 1758)	C	139.2.1		Ao	0	1, 2, 5, 6, 7, 8, 9, 10, 11, 15, 16, 17, 18, 19, 20, 22, 23, 25	
190	BOROANT	Borostomias antarcticus	(Lönnberg, 1905)	C	39.2.1		Ao	0	1, 5, 6	
191	BOTHPOD	Bothus podas	(Delaroche, 1809)	C	196.1.1		Ao	0	1, 5, 6, 9, 10, 11, 15, 16, 18, 19, 20, 22, 23, 25	
192	BOTOLEA	Botrylloides leachii	(Savigny, 1816)				Etu		18	2013 (18)
193	BOTRSCH	Botryllus schlosseri	(Pallas, 1766)	R	p. 594 Tav. 238		Etu	0	1, 5, 6, 9, 10, 11, 18, 19	2011 (9, 10, 18, 19)
194	BOTRSPP	Botryllus spp.	Gaertner, 1774	R	p. 594		Etu	0	6, 9, 10, 17	2011 (9)
195	BOTYBOT	Botryocladia botryoides	Feldmann, 1941				V		5	2013 (5)
196	BOTYMAD	Botryocladia madagascariensis	Feldmann, 1945				V		1, 2, 5, 6	2013 (1, 2, 5, 6)
197	BRACRII	Brachioteuthis riisei	(Steenstrup, 1882)	F, P	BRACHIO Bra. 2, 163		C	0	1, 2, 6, 19, 22	
198	BRAHSPP	Branchiomma spp.	Kölliker, 1858				Epo		5	2013 (5)
199	BRAMBRA	Brama brama	(Bonnaterre, 1788)	C	133.2.1		Ao	0	10, 11, 15, 16, 22, 23	2011 (10)
200	BRANSEX	Brachynotus sexdentatus	(Risso, 1827)	Z	431		B	m	10, 18	2011 (10)
201	BRAOODA	Brachiopoda	Duméril, 1805				Eba		2, 5	2013 (2, 5)
202	BRINCOR	Hymenodiscus coronata	(G.O. Sars, 1872)	R, T	p. 563 Tav. 223, 194s	**e4**	Eec	0	1, 2, 15, 16, 19	2011 (19)
203	BRIOATL	Brissopsis atlantica	Mortensen, 1907	T	374	Δ	Eec	0	1, 2, 5, 6	2014 (1, 2, 5, 6)
204	BRIOLYR	Brissopsis lyrifera	(Forbes, 1841)	T	372		Eec	0	1, 6, 7, 8, 16, 19	2011 (19)
205	BRIOMED	Brissopsis atlantica mediterranea	Mortensen, 1913	T	374		Eec	0	19	2014 (19)

206	BRISUNI	Brissus unicolor	(Leske, 1778)	R, T	p. 561 Tav. 222, 375		Eec	0	9	2011 (9)
207	BRYOZOA	Bryozoa					Ebr		1, 2, 5, 6	2014 (1, 2, 5, 6)
208	BUBAVER	Bubaris vermiculata	(Bowerbank, 1866)				Esp		18	2013 (18)
209	BUCCCOR	Euthria cornea	(Linnaeus, 1758)	F	BUCC Buc 1	**d5**	Dmg	0	1, 6, 16	
210	BUCCHUN	Buccinum humphreysianum	Bennet, 1824	F	BUCC	Δ	Dmg	0	1, 2, 6, 16	
211	BUGLLUT	Buglossidium luteum	(Risso, 1810)	C	198.3.1		Ao	0	6, 7, 8, 9, 11, 16, 17, 19, 22	
212	BUGUNER	Bugula neritina	(Linnaeus, 1758)				Ebr		16	2013 (16)
213	BUGUSIM	Bugula simplex	Hinks, 1886				Ebr		18	2015
214	BUGUSPP	Bugula spp.	Oken, 1815				Ebr		18	2014 (18)
215	BULLSTR	Bulla striata	Bruguière, 1792				Emo		1, 2, 5, 6, 16	2013 (1, 2, 5, 6)
216	BUNOVER	Aulactinia verrucosa	(Pennant, 1777)	R	p. 161 Tav. 59	**e5**	Ecn	0	6, 16, 18	2011 (18)
217	BURSLEA	Bursatella leachi	Blainville, 1817	R	p. 281 Tav. 108	AL	Emo	0	18	2011 (18)
218	CALAGRA	Calappa granulata	(Linnaeus, 1758)	F	CAL Cal 2		B	m	1, 2, 5, 6, 8, 9, 11, 15, 16, 17, 18, 19, 20, 22, 25	
219	CALAPEL	Calappa pelii	Herklots, 1851	Y	84	AL	B	m	20, 22	2014 (20, 22)
220	CALATUE	Calappa tuerkayana	Pastore, 1995		WoRMS		B	m	19	2011 (19)
221	CALCTUB	Calcinus tubularis	(Linnaeus, 1767)		WoRMS		B	m	1, 6, 15	
222	CALGVER	Callogorgia verticillata	(Pallas, 1766)	R	p. 174 Tav. 63		Ecn	0	6, 10, 11, 16	2011 (10)
223	CALICHI	Calyptraea chinensis	(Linnaeus, 1758)	R	p. 250 Tav. 95	**e6**	Emg	0	1, 2, 5, 6, 15	
224	CALLRIS	Callionymus risso	Lesueur, 1814	C	163a.1.7	**a13**	Ao	0	1, 6, 7, 9, 16, 17, 19, 20, 22, 23, 25	
225	CALLRUB	Callanthias ruber	(Rafinesque, 1810)	C	124.3.1		Ao	0	1, 2, 6, 7, 8, 9, 11, 15, 16, 17, 18, 19, 20, 22, 25	
226	CALMFAS	Callionymus fasciatus	Valenciennes, 1837	C	163a.1.3		Ao	0	17, 19, 22, 23	2011 (19)
227	CALMLYR	Callionymus lyra	Linnaeus, 1758	C	163a.1.1		Ao	0	1, 2, 6, 7, 8, 11, 16, 17, 19, 20, 22	

228	CALMMAC	Callionymus maculatus	Rafinesque, 1810	C	163a.1.3		Ao	0	1, 2, 5, 6, 7, 8, 9, 10, 11, 15, 16, 17, 18, 19, 20, 22	
229	CALMPHA	Synchiropus phaeton	(Günther, 1861)	C	163a.1.4	**a14**	Ao	0	1, 2, 5, 6, 7, 8, 9, 10, 11, 15, 16, 17, 18, 19, 20, 22, 23, 25	
230	CALMPUS	Callionymus pusillus	Delaroche, 1809	C	163.1.5		Ao	0	1	2013 (1)
231	CALMRIS	Callionymus risso	Lesueur, 1814	C	163a.1.7	**a13**	Ao	0	1, 6, 7, 9, 16, 17, 19, 20, 22, 23, 25	
232	CALMSPP	Callionymus spp.	Linnaeus, 1758	C	163a.1		Ao	0	5, 6, 7, 8, 9, 11, 15, 17, 20, 22, 23, 25	
233	CALOCOR	Calocarides coronatus	(Trybom, 1904)			Δ	B	m	1, 2, 6	
234	CALOMAC	Calocaris macandreae	Bell, 1853	Z	225		B	m	1, 2, 5, 6, 9, 20, 22	
235	CALPNOB	Calpensia nobilis	(Esper, 1796)				Ebr	0	18	2011 (18)
236	CALSCHI	Callista chione	(Linnaeus, 1758)				Dmb		16	2013 (16)
237	CALTPAR	Calliactis parasitica	(Couch, 1842)	F	HORM		Ecn	0	1, 2, 5, 9, 10, 16, 18, 19	2011 (10, 18, 19)
238	CALUSUT	Callumbonella suturalis	(Philippi, 1836)				Emg		2, 5	2013 (2, 5)
239	CALYCHI	Calyptraea chinensis	(Linnaeus, 1758)	R	p. 250 Tav. 95	**e6**	Emg	0	1, 2, 5, 6, 15, 16	2013 (1, 2, 5, 6)
240	CAMPHIN	Campanularia hincksii	Alder, 1856				Ecn		6	2013 (6)
241	CANCCAN	Bivetiella cancellata	(Linnaeus, 1767)	F	GASTEROPODA F14	**d6**	Dmg	0	1, 5, 6	
242	CANIGRA	Calliostoma granulatum	(Born, 1778)	F	TROCH		Emg	0	1, 5, 6, 9, 10, 16, 18, 19	
243	CANILAU	Calliostoma laugieri	(Payraudeau, 1826)	R	p. 234 Tav. 88		Emg	0	10	2011 (10)
244	CANISPP	Calliostoma spp.	Swainson, 1840				Emg		1, 5, 6	2013 (1, 5, 6)
245	CANIZIZ	Calliostoma zizyphinum	(Linnaeus, 1758)	R	p. 234 Tav. 88		Emg	0	5, 9, 19	2011 (9)
246	CAPOAPE	Capros aper	(Linnaeus, 1758)	C	123.1.1		Ao	0	1, 2, 5, 6, 7, 8, 9, 10, 11, 15, 16, 17, 18, 19, 20, 22, 23, 25	
247	CAPUUNG	Capulus ungaricus	(Linnaeus, 1758)				Emg		5, 16	2013 (5)
248	CARARHO	Caranx rhonchus	Geoffroy Saint-Hilaire, 1817	C	131.1.5		Ao	0	1, 6, 11, 20	
249	CARASPP	Caranx spp.	Lacepède, 1801	C	131.1		Ao	0	22	2014 (22)

250	CARDACU	Acanthocardia aculeata	(Linnaeus, 1758)	F	CARD Acan 1	**d7**	Dmb	0	1, 5, 6, 9, 10, 16, 18, 19	
251	CARDECH	Acanthocardia echinata	(Linnaeus, 1758)	F	CARD Acan 2	**d8**	Dmb	0	1, 6, 7, 8, 9, 16	
252	CARDPAU	Acanthocardia paucicostata	(G. B. Sowerby II, 1834)			**d9**	Dmb		1, 9, 10, 16	2013 (1)
253	CARDSPI	Acanthocardia spinosa	(Lightfoot, 1786)			**d10**	Dmb	0	6, 16	
254	CARDSPP	Acanthocardia spp.	Gray, 1851			**d11**	Dmb		9, 16	2013 (16)
255	CARDTUB	Acanthocardia tuberculata	(Linnaeus, 1758)			**d12**	Dmb		1, 5, 16	2013 (1, 5)
256	CARECAR	Caretta caretta	(Linnaeus, 1758)				R		17	2014 (17)
257	CARISPP	Cardiomya	Adams, 1864	R	p. 348		Emb	0	6, 17	
258	CARISTE	Caridion steveni	Lebour, 1930	F	HIPPOL	Δ	B	m	6	
259	CARPACU	Carapus acus	(Brünnich, 1768)	C	175.1.1		Ao	0	1, 2, 5, 6, 7, 8, 9, 10, 11, 15, 16, 17, 18, 19, 20, 22, 25	
260	CARRDAE	Cardiidae	Lamarck, 1809				Emb		5	2013 (5)
261	CARYSMI	Caryophyllia smithii	Stokes & Broderip, 1828	R	p. 169 Tav. 61		Ecn	0	5, 6, 9, 16, 18	2011 (18)
262	CARYSPP	Caryophyllia spp.	Lamarck, 1801				Ecn		5, 19	2013 (5)
263	CASSECH	Galeodea echinophora	(Linnaeus, 1758)	F	CASS Cass 1	**d13**	Dmg	0	1, 2, 6, 7, 9, 10, 11, 15, 16, 17, 18, 19	
264	CASSSAB	Semicassis saburon	(Bruguière, 1792)	F	CAS Phal 2	**d14**	Dmg	0	1, 2, 6, 10, 16	
265	CASSSPP	Galeodea spp.	Link, 1807			**d15**	Dmg		16, 17	2013 (16)
266	CASSTYR	Galeodea rugosa	(Linnaeus, 1771)	F	CASS Cass 2	**d16**	Dmg	0	1, 2, 5, 6, 9, 10, 11, 15, 16, 17, 18	
267	CATAALL	Cataetyx alleni	(Byrne, 1906)	C	172.6.1		Ao	0	1, 5, 6, 7, 9, 11	
268	CAULPRO	Caulerpa prolifera	Lamouroux, 1809				V		1, 2, 5, 6	2013 (1, 2, 5, 6)
269	CAULRAC	Caulerpa racemosa	J. Agardh, 1873				V		1, 2, 5, 6	2013 (1, 2, 5, 6)
270	CAVOTRI	Cavolinia tridentata	(Forsskål, 1775)				Emo	0	9, 16, 19	2011 (9)
271	CEATEAE	Ceratiaceae	Kofoid, 1907				V		1	2014 (1)
272	CECACIR	Centracanthus cirrus	Rafinesque, 1810	C	141.1.1		Ao	0	2, 5, 6, 7, 8, 9, 10, 11, 15, 16, 17, 18, 19, 20, 22, 23, 25	
273	CELLHAS	Celleporina caliciformis	(Lamouroux, 1816)			**e7**	Ebr	0	10, 18	2011 (18)
274	CELPPUM	Cellepora pumicosa	(Pallas, 1766)				Ebr		18	2013 (18)

275	CELRFIS	Cellaria fistulosa	(Linnaeus, 1758)				Ebr		5	2013 (5)
276	CELRSAL	Cellaria salicornioides	Lamouroux, 1816				Ebr		10, 18	2013 (10, 18)
277	CENONIG	Centrolophus niger	(Gmelin, 1789)	C	176.1.1		Ao	0	1, 2, 5, 6, 7, 8, 9, 10, 11, 15, 16, 18, 19, 20, 22	
278	CENSLON	Centrostephanus longispinus	(Philippi, 1845)	R, T	p. 556 Tav. 221, 311		Eec	0	1, 2, 5, 7, 8, 15, 16, 18	2011 (18)
279	CENTGRA	Centrophorus granulosus	(Bloch & Schneider, 1801)	C	16.1.2		Ae	0	1, 2, 5, 6, 7, 8, 9, 10, 11, 15, 16, 18, 19, 20, 22, 25	
280	CENTUYA	Squalus uyato	Rafinesque, 1810	C	16.2.4	**a15**	Ae	0	7, 8, 10, 15, 16, 20, 25	
281	CEPAEGG	Eggs capsules of Cephalopoda					G		20	2015 (20)
282	CEPHVOL	Dactylopterus volitans	(Linnaeus, 1758)	C	193.1.1	**a16**	Ao	0	1, 5, 6, 11, 15, 16, 19, 20, 22, 25	
283	CEPOMAC	Cepola macrophthalma	(Linnaeus, 1758)	C	128.1.1		Ao	0	1, 2, 5, 6, 7, 8, 9, 10, 11, 15, 16, 17, 18, 19, 20, 22, 23, 25	
284	CERAMAD	Ceratoscopelus maderensis	(Lowe, 1839)	C	58.4.1		Ao	0	1, 2, 5, 6, 8, 9, 10, 11, 16, 17, 18, 19, 20, 22, 25	
285	CEREPED	Cereus pedunculatus	(Pennant, 1777)				Ecn		16	2013 (16)
286	CERIMEM	Cerianthus membranaceus	(Spallanzani, 1784)				Ecn		1, 6	2013 (1, 6)
287	CERISPP	Cerianthus spp.	Delle Chiaje, 1830				Ecn		1, 2, 5, 6	2013 (1, 2, 5, 6)
288	CERMGRE	Ceramaster grenadensis	(Perrier, 1881)				Eec	0	16, 19	2011 (19)
289	CERSEDU	Cerastoderma edule	(Linnaeus, 1758)				Dmb		16	2013 (16)
290	CERTVUL	Cerithium vulgatum	Bruguière, 1792			**d17**	Dmg		9, 16	2013 (16)
291	CERUSPP	Ceratium spp.	Schrank, 1793				V		1	2014 (1)
292	CHAELON	Chaetaster longipes	(Retzius, 1805)	R, T	p. 565 Tav. 223, 154		Eec	0	1, 2, 5, 6, 16, 18, 19	2011 (18)
293	CHAMGAL	Chamelea gallina	(Linnaeus, 1758)				Dmb		1, 5, 16	2013 (1, 5)
294	CHATVAR	Chaetopterus variopedatus	(Renier, 1804)				Epo		5	2013 (5)
295	CHAUSLO	Chauliodus sloani	Bloch & Schneider, 1801	C	40.1.1		Ao	0	1, 2, 5, 6, 7, 8, 9, 10, 11, 15, 16, 17, 18, 19, 20, 22, 25	
296	CHELAFR	Chelidonura africana	Pruvot-Fol, 1953				Emo		10	2013 (10)
297	CHEOLAB	Chelon labrosus	(Risso, 1827)	C	181.2.1		Ao	0	1, 6	

298	CHIMMON	Chimaera monstrosa	Linnaeus, 1758	C	26.1.1		Ae	0	1, 2, 5, 6, 7, 8, 9, 10, 11, 15, 16, 17, 18, 19, 20, 22, 25	
299	CHIRVER	Chiroteuthis veranii	(Férussac, 1835)	F, P	CHIRO Chiro 1, 185		C	0	11, 19	2011 (19)
300	CHLAOPE	Aequipecten opercularis	(Linnaeus, 1758)	F	PECT Aeq 1	**d1**	Dmb	0	1, 5, 6, 9, 17, 18, 19	
301	CHLASPP	Mimachlamys spp.	Iredale, 1929				Dmb		5, 6, 16	2014 (5, 6)
302	CHLAVAR	Mimachlamys varia	(Linnaeus, 1758)	F	PECT Chlam 1	**d18**	Dmb	0	1, 5, 6, 7, 8, 9, 10, 15, 16, 17, 18, 19	
303	CHLEVEN	Chloeia venusta	Quatrefages, 1866				Epo		5	2013 (5)
304	CHLOGRA	Chlorotocus crassicornis	(A. Costa, 1871)	Z	98	**b2**	B	m	1, 2, 5, 6, 7, 8, 9, 10, 11, 15, 16, 17, 18, 19, 20, 22, 23, 25	
305	CHMAGRY	Chama gryphoides	Linnaeus, 1758				Emb		16	2013 (16)
306	CHODNUC	Chondrilla nucula	Schmidt, 1862	R	109		Esp	0	19	2014 (19)
307	CHONREN	Chondrosia reniformis	Nardo, 1847	R	p. 109 Tav. 36		Esp	0	5, 10, 18, 19	2011 (10, 18)
308	CHROCHR	Chromis chromis	(Linnaeus, 1758)	C	144.1.1		Ao	0	8, 9, 11, 16, 22, 25	
309	CHRYHYS	Chrysaora hysoscella	(Linnaeus, 1767)				Ecn		6	2013 (6)
310	CHTESIC	Chtenopteryx sicula	(Vérany, 1851)	F, P	CTENO Cteno 1, 115		C	0	9, 11, 19	2011 (9, 19)
311	CHYLVER	Chylocladia verticillata	Bliding, 1928				V		1, 2, 5, 6	2013 (1, 2, 5, 6)
312	CIDACID	Cidaris cidaris	(Linnaeus, 1758)	R, T	p. 555 Tav. 221, 303		Eec	0	1, 2, 5, 6, 7, 8, 9, 10, 11, 15, 16, 18, 19	2011 (9, 10, 18, 19)
313	CIONEDW	Ciona edwardsi	Roule, 1884				Etu		5	2013 (5)
314	CIONINT	Ciona intestinalis	(Linnaeus, 1767)	F	CION Cion 1		Etu	0	2, 5, 6, 9, 16, 18	2011 (18)
315	CIONSPP	Ciona spp.	Fleming, 1822				Etu		5	2013 (5)
316	CIRCCAS	Venus casina	Linnaeus, 1758	F	VEN	**d19**	Dmb	0	1, 5, 6, 19	
317	CIROBOR	Natatolana borealis	(Lilljeborg, 1851)	R	p. 484 Tav. 193	**b3**	Bis	0	1, 2, 5, 6, 19	
318	CITHMAC	Citharus linguatula	(Linnaeus, 1758)	C	194.1.1	**a17**	Ao	0	1, 2, 5, 6, 7, 8, 9, 10, 11, 15, 16, 17, 18, 19, 20, 22, 23, 25	
319	CLADSPP	Cladophora spp.	Kützing, 1843				V		20	2015 (20)

320	CLATCOR	Clathria coralloides	(Scopoli, 1772)	R	116 Tav. IV 118		Esp	0	1, 2, 5, 6, 16	2013 (1, 2, 5, 6)
321	CLAUFAS	Clausinella fasciata	(Da Costa, 1778)				Emb		7, 8	2013 (1, 2, 5, 6, 7, 8)
322	CLIBERY	Clibanarius erythropus	(Latreille, 1818)	Z	239		B		20	2015 (20)
323	CLIOCEL	Cliona celata	Grant, 1826	R	112		Esp	m	1, 2, 5, 6	2013 (1, 2, 5, 6)
324	CLIOVIR	Cliona viridis	(Schmidt, 1862)	R	112		Esp	0	1, 2, 5, 6	2013 (1, 2, 5, 6)
325	CLOPBIC	Chlopsis bicolor	Rafinesque, 1810	C	77.1.1		Ao	0	1, 5, 6, 7, 9, 18, 19	
326	CLORAGA	Chlorophthalmus agassizi	Bonaparte, 1840	C	55.1.1		Ao	0	1, 2, 5, 6, 7, 8, 9, 10, 11, 15, 16, 17, 18, 19, 20, 22, 23, 25	
327	CLPOLYP	Polyplacophora	Gray, 1821				Emp		5	2013 (5)
328	CNIDRIA	Cnidaria	Hatschek, 1888				Ecn		1, 5, 6	2014 (1, 5, 6)
329	COBLGAL	Coryphoblennius galerita	(Linnaeus, 1758)	C	164.2.1		Ao	0	7	
330	CODIADH	Codium adhaerens	C. Agardh, 1822				V		19	2014 (19)
331	CODIBUR	Codium bursa	C. Agardh, 1817	R	p. 26 Tav. 9		V		1, 5, 6, 7, 8, 9, 11, 18, 19	2011 (9, 18)
332	CODISPP	Codium spp.	Stackhouse, 1797				V		7, 8	2013 (7, 8)
333	CODIVER	Codium vermilara	Delle Chiaje, 1829	R	p. 26 Tav. 9		V		1, 5, 6, 9, 11, 18	2011 (18)
334	COELCOE	Coelorinchus caelorhincus	(Risso, 1810)	C	99.12.1	**a18**	Ao	0	1, 2, 5, 6, 7, 8, 9, 10, 11, 15, 16, 17, 18, 19, 20, 22, 23, 25	
335	COELMED	Coelorinchus mediterraneus	Iwamoto & Ungaro, 2002		FishBase		Ao	0	11	2014 (11)
336	COELOCC	Coelorinchus occa	(Goode & Bean, 1885)	C	99.12.2		Ao	0	1, 2, 6, 15	
337	COLPSIN	Colpomenia sinuosa	Derbès & Solier, 1851				V		1, 6	2013 (1, 6)
338	COLUGRA	Colus gracilis	(Da Costa, 1778)			Δ	Emg		1, 2, 5, 6	2013 (1, 2, 5, 6)
339	COLUJEF	Colus jeffreysianus	(P. Fischer, 1868)			Δ	Emg		1, 2	2013 (1, 2)
340	COLUSPP	Colus spp.	Röding, 1798			Δ	Emg		5	2013 (5)
341	CONGCON	Conger conger	(Linnaeus, 1758)	C	82.1.1		Ao	0	1, 2, 5, 6, 7, 8, 9, 10, 11, 15, 16, 17, 18, 19, 20, 22, 23, 25	
342	CORAMEY	Coralliophila meyendorffii	(Calcara, 1845)				Emg		16	2013 (16)

343	CORASQU	Hirtomurex squamosus	(Bivona, 1838)			**e8**	Emg		5, 16	2013 (5)
344	CORIJUL	Coris julis	(Linnaeus, 1758)	C	145.4.1		Ao	0	1, 2, 5, 6, 8, 9, 11, 15, 16, 20, 22, 25	
345	CORLEAE	Corallinaceae	Lamouroux, 1812				V		1, 2, 5, 6	2013 (1, 2, 5, 6)
346	CORSCAS	Corystes cassivelaunus	(Pennant, 1777)	Z	340		B	m	9	2011 (9)
347	COSCTEN	Coscinasterias tenuispina	(Lamarck, 1816)	T	186		Eec	0	5	2013 (5)
348	CRAICRA	Craniella cranium	(Müller, 1776)				Esp		1, 2, 5, 6	2013 (1, 2, 5, 6)
349	CRANSPP	Crangon	Fabricius, 1798	F	CRANG		B	m	9, 11, 22, 25	
350	CRASGIG	Crassostrea gigas	(Thunberg, 1793)	F	OSTR Crass 1	AL	Dmb	0	5, 6	
351	CRASSPP	Crassostrea	Sacco, 1897	F	OSTR		Dmb	0	1, 6	
352	CREPGIB	Crepidula moulinsii	Michaud, 1829			**e9**	Emg		16	2013 (16)
353	CREPUNG	Crepidula unguiformis	Lamarck, 1822				Emg		16	2013 (16)
354	CRYPTUN	Cryptonemia tunaeformis	Zanardini				V		5	2013 (5)
355	CTENORA	Ctenophora	Eschscholtz, 1829				Ect		1, 2, 5, 6	2013 (1, 2, 5, 6)
356	CTEORUP	Ctenolabrus rupestris	(Linnaeus, 1758)	C	145.5.2		Ao	0	17	2014 (17)
357	CUBIGRA	Cubiceps gracilis	(Lowe, 1843)	C	177.2.1		Ao	0	10, 15, 16, 19, 22	
358	CUSPCUS	Cuspidaria cuspidata	(Olivi, 1792)	R	p. 348 Tav. 133		Emb	0	1, 6	
359	CUSPROS	Cuspidaria rostrata	(Spengler, 1793)				Emb		16	2013 (16)
360	CUSPSPP	Cuspidaria spp.	Nardo, 1840				Emb		1	2013 (1)
361	CUTLCHI	Cutleria chilosa	Silva, 1957				V		1, 2, 5, 6	2013 (1, 2, 5, 6)
362	CUTLSPP	Cutleria spp.	Greville, 1830				V		1, 2, 5, 6	2013 (1, 2, 5, 6)
363	CYCLBRA	Cyclothone braueri	Jespersen & Tåning, 1926	C	37.4.3		Ao	m	1, 5, 6, 9	2011 (9)
364	CYCLPIG	Cyclothone pygmaea	Jespersen & Tåning, 1926	C	37.4.8		Ao	m	1, 6, 9	
365	CYCLSPP	Cyclothone spp.	Goode & Bean, 1883	C	37,4		Ao	m	6, 22	
366	CYLICYL	Cylichna cylindracea	(Pennant, 1777)	R	p. 275 Tav. 106		Emo	0	18	2011 (18)

367	CYMACOR	Monoplex corrugatus	(Lamarck, 1816)	F	CYM Cym 1	**d20**	Dmg	0	1, 6, 16	
368	CYMBOLL	Cymbium olla	(Linnaeus, 1758)			Δ	Dmg	0	1	
369	CYMONOD	Cymodocea nodosa	Ascherson, 1870				V		18, 19	2013 (18)
370	CYMUPER	Cymbulia peronii	Blainville, 1818	R	p. 279 Tav. 107		Emo	0	1, 5, 6, 9, 11, 18	2011 (9)
371	CYSSCOM	Cystoseira compressa	Gerloff & Nizamuddin, 1975				V		18	2011 (18)
372	CYSSSPI	Cystoseira spinosa	Sauvageau, 1912				V		5	2013 (5)
373	CYSSSPP	Cystoseira spp.	C. Agardh, 1820				V		5	2013 (5)
374	CYSSZOS	Cystoseira zosteroides	C. Agardh, 1820				V		5	2013 (5)
375	CYSTDEL	Cystodytes dellechiajei	(Della Valle, 1877)				Etu	0	1, 5, 18	2011 (18)
376	DALOIMB	Dalophis imberbis	(Delaroche, 1809)	C	86.3.1		Ao	0	7, 8, 9, 10, 11, 15, 16, 17, 18, 19	
377	DARDARR	Dardanus arrosor	(Herbst, 1796)	Z	241		B	m	1, 2, 5, 6, 7, 8, 9, 10, 11, 16, 17, 18, 19	
378	DARDCAL	Dardanus calidus	(Risso, 1827)	Z	242		B	m	5, 6, 9, 16	
379	DARDSPP	Dardanus spp.	Paulson, 1875	Z	240		B	m	9	2011 (9)
380	DASICEN	Dasyatis centroura	(Mitchill, 1815)	C	22.1.2		Ae	0	5, 15, 17, 19, 22, 23, 25	
381	DASIPAS	Dasyatis pastinaca	(Linnaeus, 1758)	C	22.1.1		Ae	0	5, 6, 7, 8, 9, 10, 11, 15, 16, 17, 19, 20, 22, 23, 25	
382	DASISPP	Dasyatis spp.	Rafinesque, 1810				Ae		16	2014 (16)
383	DASITOR	Dasyatis tortonesei	Capapé, 1975	C	22.1.4		Ae	0	7, 8, 15, 22, 25	
384	DASIVIO	Pteroplatytrygon violacea	(Bonaparte, 1832)	C	22.1.3	**a19**	Ae	0	1, 6, 7, 9, 10, 16, 17	
385	DASYSPP	Dasya spp.	C. Agardh, 1824	C	22.1		V	0	5	2014 (5)
386	DECAODA	Decapoda	Latreille, 1803	Z	feb-21		B		1, 9	2013 (1)
387	DELEEAE	Delesseriaceae	Bory, 1828				V		1, 2, 5, 6	2013 (1, 2, 5, 6)
388	DENDGRA	Dendrodoris grandiflora	(Rapp, 1827)				Emo		16	2013 (16)
389	DENDLIM	Dendrodoris limbata	(Cuvier, 1804)				Emo		5	2013 (5)
390	DENDSPP	Dendrodoris spp.	Ehrenberg, 1831	R	p. 306		Emo	0	18	2011 (18)
391	DENOGRO	Dendrodoa grossularia	(Van Beneden, 1846)			Δ	Etu		5	2013 (5)

392	DENRCOR	Dendrophyllia cornigera	(Lamarck, 1816)				Ecn		1, 6, 16	2013 (1, 6)
393	DENRRAM	Dendrophyllia ramea	(Linnaeus, 1758)				Ecn		16	2013 (16)
394	DENTDEN	Dentex dentex	(Linnaeus, 1758)	C	139.3.1		Ao	0	1, 5, 6, 7, 8, 9, 11, 15, 16, 17, 18, 19, 20, 22, 25	
395	DENTGIB	Dentex gibbosus	(Rafinesque, 1810)	C	139.3.3		Ao	0	15, 16, 17, 18, 19, 20, 22	
396	DENTMAC	Dentex macrophthalmus	(Bloch, 1791)	C	139.3.4		Ao	0	10, 15, 16, 17, 18, 20, 22, 25	
397	DENTMAR	Dentex maroccanus	Valenciennes, 1830	C	139.3.5		Ao	0	1, 6, 18, 20, 22, 23, 25	
398	DENTSPP	Dentaliidae	Children, 1834	R	p. 310		Esc	0	1, 6	
399	DEOSARA	Sergestes arachnipodus	(Cocco, 1832)		WoRMS	**b4**	B	m	19, 20, 22	2011 (19)
400	DERBTEN	Derbesia tenuissima	P.L. Crouan & H.M. Crouan, 1867				V		1, 2, 5, 6	2013 (1, 2, 5, 6)
401	DESCANN	Desmacella annexa	Schmidt, 1870				Esp		18	2013 (18)
402	DESMCRI	Desmophyllum dianthus	(Esper, 1794)			**e10**	Ecn		15, 16, 19	2013 (16)
403	DIAHMIN	Diaphana minuta	Brown, 1827				Emo		16	2013 (16)
404	DIAPHOL	Diaphus holti	Tåning, 1918	C	58.6.5		Ao	0	1, 5, 6, 7, 8, 9, 16, 19, 20, 22, 25	
405	DIAPMET	Diaphus metopoclampus	(Cocco, 1829)	C	58.6.7		Ao	0	9, 10, 11, 15, 16, 19, 20, 22, 25	
406	DIAPRAF	Diaphus rafinesquii	(Cocco, 1838)	C	58.6.9		Ao	0	5, 8, 9, 10, 11, 15, 16, 17, 18, 19, 20, 22, 23, 25	
407	DIAPSPP	Diaphus spp.	Eigenmann, 1890	C	58,6		Ao	0	1, 6, 8, 9, 11, 15, 16, 20, 22	
408	DIAZVIO	Diazona violacea	Savigny, 1816	R	p. 590 Tav. 235		Etu	0	1, 2, 5, 6, 10, 16, 18	2011 (10, 18)
409	DICAMAY	Dicranodromia mahieuxii	A. Milne-Edwards, 1883	Z	297	**b5** Δ Δ	B	m	1	
410	DICELAB	Dicentrarchus labrax	(Linnaeus, 1758)	C	124.4.1		Ao	0	6, 7, 8, 9, 10, 16, 17, 19	
411	DICOCUN	Dicologlossa cuneata	(Moreau, 1881)	C	198.4.2		Ao	0	1, 15, 19?	
412	DICOHEX	Dicologlossa hexophthalma	(Bennett, 1831)	C	198.4.2		Ao	0	6	2013 (6)
413	DICSLES	Dictyotales	Bory, 1828			Δ	V		5	2014 (5)
414	DICTDIC	Dictyota dichotoma	Lamouroux, 1809				V		5, 6	2013 (5, 6)
415	DICYPOL	Dictyopteris polypodioides	Lamouroux, 1809				V		1, 2, 5, 6	2013 (1, 2, 5, 6)
416	DIDELAH	Didemnum lahillei	Hartmeyer, 1909				Etu		18	2013 (18)
417	DIDEMAC	Didemnum maculosum	(Milne-Edwards, 1841)	R	p. 588 Tav.		Etu	0	18	2011 (18)

					234					
418	DIDESPP	Didemnum spp.	Savigny, 1816	R	p. 588		Etu	0	18	2011 (18)
419	DIDMEAE	Didemnidae	Giard, 1872				Etu		1, 2, 5, 6	2013 (1, 2, 5, 6)
420	DIODGIB	Diodora gibberula	(Lamarck, 1822)				Emg		1, 2, 5, 6	2013 (1, 2, 5, 6)
421	DIODGRA	Diodora graeca	(Linnaeus, 1758)				Emg		5	2013 (5)
422	DIODITA	Diodora italica	(Defrance, 1820)	R	p. 233 Tav. 87		Emg	0	5, 6, 18	
423	DIODSPP	Diodora spp.	Gray, 1821				Emg		5, 6	2013 (5, 6)
424	DIOPNEA	Diopatra neapolitana	Delle Chiaje, 1841				Epo		7	2013 (7)
425	DIPGBIM	Diplecogaster bimaculata bimaculata	(Bonnaterre, 1788)	C	208.2.1		Ao	0	1, 2, 5, 6, 9, 16, 17, 22	
426	DIPLANN	Diplodus annularis	(Linnaeus, 1758)	C	139.4.1		Ao	0	1, 5, 6, 7, 8, 9, 10, 11, 16, 17, 18, 19, 20, 22, 23, 25	
427	DIPLCER	Diplodus cervinus cervinus	(Lowe, 1838)	C	139.4.2.		Ao	0	1, 6	
428	DIPLPUN	Diplodus puntazzo	(Walbaum, 1792)	C	139.8.1	**a20**	Ao	0	1, 6, 8, 9, 11, 16, 17, 22, 23	
429	DIPLSAR	Diplodus sargus sargus	(Linnaeus, 1758)	C	139.4.3		Ao	0	6, 7, 8, 9, 11, 16, 17, 19, 22, 23	
430	DIPLSPP	Diplodus spp.	Rafinesque, 1810	C	139.4		Ao	0	17	2014 (17)
431	DIPLVUL	Diplodus vulgaris	(Geoffroy Saint-Hilaire, 1817)	C	139.4.4		Ao	0	1, 5, 6, 7, 8, 9, 10, 11, 15, 16, 17, 18, 19, 20, 22	
432	DIPOLIS	Diplosoma listerianum	(Milne-Edwards, 1841)				Etu		1, 2, 5, 6	2013 (1, 2, 5, 6)
433	DISMVAR	Distomus variolosus	Gaertner, 1774	R	p. 594 Tav. 238		Etu	0	16, 18	2011 (18)
434	DISOMAL	Distolambrus maltzami	(Miers, 1881)	Z	442		B		5, 6, 16	2013 (5)
435	DISTMAG	Distaplia magnilarva	(Della Valle, 1881)				Etu	0	18	2011 (18)
436	DONASPP	Donax spp.	Linnaeus, 1758				Dmb		7	2015 (7)
437	DORHTHO	Dorhynchus thomsoni	Wyville Thomson, 1873	Z	467	**b6**	B	m	1, 2, 5, 6	
438	DORILAN	Medorippe lanata	(Linnaeus, 1767)	Z	312	**b7**	B	m	1, 2, 6, 7, 9, 10, 15, 16, 18, 19, 20, 22, 25	
439	DORITHO	Dorhynchus thomsoni	Wyville Thomson, 1873	Z	467	**b6**	B	m	1, 2, 5, 6	
440	DORSPSE	Doris pseudoargus	Rapp, 1827				Emo	0	1, 5, 18	2011 (18)

441	DORSSPP	Doris spp.	Linnaeus, 1758				Emo		1, 5, 6, 10, 18	2013 (1, 5, 6)
442	DORSSTI	Doris sticta	(Iredale & O'Donoghue, 1923)				Emo	0	18	2011 (18)
443	DORSVER	Doris verrucosa	Linnaeus, 1758	R	p. 304 Tav. 116		Emo	0	1, 6	
444	DOSISPP	Dosinia spp.	Scopoli, 1777	F	VEN Dos		Dmb	0	6	
445	DROMPER	Dromia personata	(Linnaeus, 1758)	F	DROM Drom 1		B	m	1, 2, 5, 6, 15, 16, 17, 18, 20, 22, 25	
446	DUSSELO	Dussumieria elopsoides	Bleeker, 1849	G	48	Δ AL	Ao	0	25	
447	EBALCRA	Ebalia cranchii	Leach, 1817	Z	329		B	m	1, 5, 6	
448	EBALDES	Ebalia deshayesi	Lucas, 1846	Z	333		B		16	2013 (16)
449	EBALGRA	Ebalia granulosa	H. Milne Edwards, 1837	Z	331		B	m	20	2014 (20)
450	EBALNUX	Ebalia nux	A. Milne-Edwards, 1883	Z	328		B	m	1, 6, 19	
451	EBALSPP	Ebalia spp.	Leach, 1817	Z	322		B		1, 5, 6	2013 (1, 5, 6)
452	EBALTUB	Ebalia tuberosa	(Pennant, 1777)	Z	326		B		5, 6	2013 (5, 6)
453	ECHASEP	Echinaster sepositus	(Retzius, 1783)	R, T	p. 567 Tav. 224, 181		Eec	0	1, 2, 5, 6, 7, 8, 9, 11, 16, 18, 19	2011 (9, 18, 19)
454	ECHCCOR	Echinocardium cordatum	(Pennant, 1777)	R, T	p. 560 Tav. 222, 360		Eec	0	9	2011 (9)
455	ECHCMED	Echinocardium mediterraneum	(Forbes, 1844)	T	365		Eec	0	18	2011 (18)
456	ECHDDAE	Echinidae	Gray, 1825	T	327		Eec	0	1, 2, 5, 6, 19	2013 (1, 2, 5, 6)
457	ECHEMIR	Echelus myrus	(Linnaeus, 1758)	C	84.1.1		Ao	0	1, 5, 6, 7, 8, 9, 10, 11, 15, 16, 17, 18, 19, 20, 22, 23, 25	
458	ECHIDEN	Echiodon dentatus	(Cuvier, 1829)	C	175.2.2		Ao	0	1, 5, 6, 9, 15, 17, 18, 19, 25	
459	ECHNACU	Gracilechinus acutus	Lamarck, 1816	R, T	p. 558 Tav. 221, 328s	**e11**	Eec	0	1, 2, 5, 6, 9, 10, 16, 17, 18, 19	2011 (9, 18)
460	ECHNMEL	Echinus melo	Lamarck, 1816	R, T	p. 558 Tav. 221, 332		Eec	0	1, 2, 5, 6, 9, 10, 11, 18, 19	2011 (9, 10, 18, 19)
461	ECHRURA	Echiura	Newby, 1940				Ech		1, 2, 5, 6	2013 (1, 2, 5, 6)
462	ECHTVIP	Echiichthys vipera	(Cuvier, 1829)	C	148.1.4		Ao	0	6	2013 (6)

463	ELECRIS	Electrona risso	(Cocco, 1829)	C	58.8.1		Ao	0	1, 2, 6, 9, 10, 16, 18, 19, 22, 25	
464	ELEDCIR	Eledone cirrhosa	(Lamarck, 1798)	F, P	OCT Eled 1, 245		C	0	1, 2, 5, 6, 7, 8, 9, 10, 11, 15, 16, 17, 18, 19, 20, 22, 23, 25	
465	ELEDMOS	Eledone moschata	(Lamarck, 1798)	F, P	OCT Eled 2, 247		C	0	1, 2, 5, 6, 7, 8, 9, 10, 11, 15, 16, 17, 18, 19, 20, 22, 23, 25	
466	ELEDSPP	Eledone spp.	Leach, 1817	F, P	OCT Eled, 245		C	0	7, 8	
467	ELYSVIR	Elysia viridis	(Montagu, 1804)				Emo		16	2013 (16)
468	ENGRENC	Engraulis encrasicolus	(Linnaeus, 1758)	C	35.1.1		Ao	0	1, 5, 6, 7, 8, 9, 10, 11, 15, 16, 17, 18, 19, 20, 22, 23, 25	
469	EPIAMAC	Epigamia macrophtalma	(Marenzeller, 1874)				Epo		2	2013 (2)
470	EPIGCON	Epigonus constanciae	(Giglioli, 1880)	C	127.2.3		Ao	0	1, 5, 6, 7, 8, 9, 15, 16, 19, 20, 22, 25	
471	EPIGDEN	Epigonus denticulatus	Dieuzeide, 1950	C	127.2.2		Ao	0	1, 2, 5, 6, 7, 8, 9, 10, 11, 15, 16, 17, 18, 19, 20, 22, 25	
472	EPIGSPP	Epigonus spp.	Rafinesque, 1810	C	127,2		Ao	0	7, 8, 9, 22, 23	2011 (9)
473	EPIGTEL	Epigonus telescopus	(Risso, 1810)	C	127.2.1		Ao	0	1, 2, 5, 6, 7, 8, 9, 10, 11, 15, 16, 17, 18, 19, 20, 22, 23, 25	
474	EPINAEN	Epinephelus aeneus	(Geoffroy Saint-Hilaire, 1817)	C	124.5.1		Ao	0	10, 15, 16, 18, 19, 20, 22, 23, 25	
475	EPINALE	Epinephelus costae	(Steindachner, 1878)	C	124.5.2	**a21**	Ao	0	16, 20	
476	EPINGUA	Epinephelus marginatus	(Lowe, 1834)	C	124.5.4	**a22**	Ao	0	8, 15, 16, 20	
477	EPITCLA	Epitonium clathratulum	(Kanmacher, 1798)				Emg		10	2014 (10)
478	EPITCLU	Epitonium clathrus	(Linnaeus, 1758)			Δ	Emg		7	2015 (7)
479	EPIZARE	Epizoanthus arenaceus	Delle Chiaje, 1823	R	p. 161 Tav. 58		Ecn	0	18	2011 (18)
480	EPIZPAG	Epizoanthus paguricola	Roule, 1900			Δ	Ecn		6	2013 (6)
481	EPIZSPP	Epizoanthus spp.	Gray, 1867	R	p. 160 Tav. 58		Ecn	0	1, 6, 19	2011 (19)
482	ERETKLE	Eretmophorus kleinenbergi	Giglioli, 1889	C	103.1.1		Ao	0	6	
483	ERGACLO	Ergasticus clouei	A. Milne-Edwards, 1882	Z	463		B	m	1, 2, 6, 20, 22	
484	ERIPVER	Eriphia verrucosa	(Forsskål, 1775)	Z	393		B		15, 16, 19, 22, 25	2013 (16)
485	EROSSPU	Erosaria spurca	(Linnaeus, 1758)				Emg		22	2015 (22)
486	ERUGMAS	Erugosquilla massavensis	(Kossmann, 1880)				B		25	2014 (25)

487	ERYLPAP	Erylus papulifer	Pulitzer-Finali, 1983				Esp		19	2014 (19)
488	ETEOSIP	Eteone siphodonta	(Delle Chiaje, 1830)				Epo		10	2014 (10)
489	ETHUMAS	Ethusa mascarone	(Herbst, 1785)	Z	309		B	m	1, 5, 6, 9, 16, 17, 19, 20, 22	
490	ETMOSPI	Etmopterus spinax	(Linnaeus, 1758)	C	16.6.1		Ae	0	1, 2, 5, 6, 7, 8, 9, 10, 11, 15, 16, 17, 18, 19, 20, 22, 23, 25	
491	EUCHLIG	Euchirograpsus liguricus	H. Milne-Edwards, 1853	Z	429		B	m	1	
492	EUDESPP	Eudendrium spp.	Ehrenberg, 1834				Ecn		16	2013 (16)
493	EUDIBAN	Eudistoma banyulense	(Brément, 1912)			Δ	Etu		5	2013 (5)
494	EUDIMUC	Eudistoma mucosum	(Drasche, 1883)				Etu		5	2013 (5)
495	EUDISPP	Eudistoma spp.	Caullery, 1909				Etu		5	2013 (5)
496	EUDITRI	Eudistoma tridentatum	(Heiden, 1894)			Δ	Etu		5	2013 (5)
497	EUNCTOR	Leodice torquata	(Quatrefages, 1866)			**e12**	Epo		5	2013 (5)
498	EUNICAV	Eunicella cavolini	(Koch, 1887)				Ecn		16	2013 (16)
499	EUNIFIL	Eunicella filiformis	(Studer, 1879)			Δ	Ecn		1, 2	2014 (1, 2)
500	EUNISIN	Eunicella singularis	(Esper, 1791)				Ecn		5	2014 (5)
501	EUNISPP	Eunicella spp.	Verrill, 1869				Ecn		1, 5, 6	2013 (1, 5, 6)
502	EUNIVER	Eunicella verrucosa	(Pallas, 1766)				Ecn	0	1, 6, 9, 16	2011 (9)
503	EUPADAE	Euphausiidae	Dana, 1852	R	p. 428	**b8**	Beu	m	1, 6, 11, 17, 20	
504	EUPHKRO	Euphausia krohni	(Brandt, 1851)	R	p. 429 Tav. 170		Beu	m	19	2011 (19)
505	EUPHSPP	Euphausiidae	Dana, 1852	R	p. 428	**b8**	Beu	m	1, 6, 11, 17, 20	
506	EUPOPLA	Eupogodon planus	Kützing, 1845				V		1, 2, 5, 6	2013 (1, 2, 5, 6)
507	EUPRFOL	Euphrosine foliosa	Audouin & Milne-Edwards, 1833				Epo		6	2013 (6)
508	EUPUCEA	Euphausiacea	Dana, 1852				B		1, 5, 6	2013 (1, 5, 6)
509	EURYASP	Eurynome aspera	(Pennant, 1777)	Z	462		B	m	1, 2, 5, 6, 16, 20, 22	
510	EURYSPP	Eurynome spp.	Leach, 1814	Z	461		B		6	2013 (6)
511	EUSPGRO	Euspira grossularia	(Marche-Marchad, 1957)				Emg		1	2013 (1)
512	EUSPMAC	Euspira macilenta	(Philippi, 1844)				Emg		19	2014 (19)
513	EUSPNIT	Euspira nitida	(Donovan, 1804)				Dmg		20	2015 (20)

514	EUSPSPP	Euspira spp.	Agassiz, 1837			**e20**	Emg		5	2013 (5)
515	EUTRGUR	Eutrigla gurnardus	(Linnaeus, 1758)	C	185.3.1		Ao	0	5, 6, 7, 8, 9, 11, 15, 16, 17, 18, 19, 20, 22, 25	
516	EVERBAL	Evermannella balbo	(Risso, 1820)	C	60.1.1		Ao	0	1, 5, 6, 9, 11, 16, 19, 22	
517	FACCOXY	Facciolella oxyrhyncha	(Bellotti, 1883)	C	80.2.1		Ao	0	5, 15, 16, 25	2013 (5)
518	FILISPP	Filicrisia spp.	d'Orbigny, 1853				Ebr		18	2014 (18)
519	FILOIMP	Filograna implexa	Berkeley, 1835				Epo		1, 2, 5, 6	2013 (1, 2, 5, 6)
520	FISSDAE	Fissurellidae	Fleming, 1822				Emg		5, 6	2013 (5, 6)
521	FISTCOM	Fistularia commersonii	Rüppell, 1838	G	80	AL	Ao	0	25	2014 (25)
522	FLABPET	Flabellia petiolata	Nizamuddin, 1987				V		5	2013 (5)
523	FLEXFLE	Flexopecten flexuosus	(Poli, 1795)	F	PETC Flex		Dmb	0	5, 6, 15	
524	FLEXGLA	Flexopecten glaber glaber	(Linnaeus, 1758)	F	PETC Flex 1		Dmb	0	19	2011 (19)
525	FLEXPRO	Flexopecten glaber proteus	(Dillwyn, 1817)				Emb		16	2013 (16)
526	FMBONEL	Bonelliidae	Lacaze-Duthiers, 1858				Ech		1, 2, 5, 6	2013 (1, 2, 5, 6)
527	FRONVER	Frondipora verrucosa	(Lamouroux, 1821)	R	p. 531 Tav. 210		Ebr	0	16, 18	2011 (18)
528	FUNCWOO	Funchalia woodwardi	Johnson, 1868	F	PEN		B	m	5, 6, 9, 10	
529	FUNIQUA	Funiculina quadrangularis	(Pallas, 1766)	R	p. 174 Tav. 64		Ecn	0	1, 2, 5, 6, 7, 8, 9, 10, 15, 16, 18	2011 (9, 10, 18)
530	FUSIROS	Fusinus rostratus	(Olivi, 1792)	F	FASC Fus 1	**e13**	Emg	0	1, 6, 9, 16, 17, 18, 19	
531	FUSISPP	Fusinus spp.	Rafinesque, 1815				Emg		5, 16	2013 (16)
532	FUSISYR	Fusinus syracusanus	(Linnaeus, 1758)	R	p. 264 Tav. 102		Emg	0	10, 18	2011 (10, 18)
533	FUSTUND	Fusiturris undatiruga	(Bivona, 1838)				Emg	0	1, 6	
534	GADAMAR	Gadella maraldi	(Risso, 1810)	C	103.3.1		Ao	0	1, 5, 6, 7, 8, 9, 10, 11, 15, 16, 17, 18, 19, 20, 22	
535	GADIARG	Gadiculus argenteus	Guichenot, 1850	C	101.5.1		Ao	0	1, 2, 5, 6, 7, 8, 9, 10, 11, 15, 16, 17, 18, 19, 20, 22, 23, 25	
536	GADUMER	Merlangius merlangus	(Linnaeus, 1758)	C	101.7.1	**a23**	Ao	0	17, 18, 20, 22	

537	GAIDMED	Gaidropsarus mediterraneus	(Linnaeus, 1758)	C	101.20.1		Ao	0	7, 8, 9, 10, 11, 15, 16, 17, 20, 22, 23, 25	
538	GAIDSPP	Gaidropsarus spp.	Rafinesque, 1810	C	101.19	**a2**	Ao	0	1, 6, 7, 8, 15, 16, 17, 18, 20, 22, 23	2013 (7, 8)
539	GAIDVUL	Gaidropsarus vulgaris	(Cloquet, 1824)	C	101.20.4		Ao	0	7, 8, 11, 16, 22	
540	GALADIS	Galathea dispersa	Bate, 1859	Z	278		B	m	1, 2, 6, 8, 11, 16, 22	
541	GALAINT	Galathea intermedia	Liljeborg, 1851	Z	279		B	m	1, 2, 6, 9, 11, 16, 19	
542	GALANEX	Galathea nexa	Embleton, 1834	Z	277		B	m	1, 6	
543	GALASPP	Galathea spp.	Fabricius, 1793	Z	271		B		1, 5, 6, 16	2013 (1, 5, 6)
544	GALASTR	Galathea strigosa	(Linnaeus, 1761)	Z	274		B		5, 16, 25	2013 (16)
545	GALEGAL	Galeorhinus galeus	(Linnaeus, 1758)	C	13.3.1		Ae	0	1, 8, 10, 16, 20, 22, 23	
546	GALTARM	Galiteuthis armata	Joubin, 1898	P	211		C	0	19	2014 (19)
547	GALUATL	Galeus atlanticus	(Vaillant, 1888)	F	SCYL Gal 11	Δ	Ae	0	1, 2, 15	
548	GALUMEL	Galeus melastomus	Rafinesque, 1810	C	11.3.1		Ae	0	1, 2, 5, 6, 7, 8, 9, 10, 11, 15, 16, 17, 18, 19, 20, 22, 23, 25	
549	GASREGG	Eggs capsules of Gastropoda					G		20, 22	2015 (20, 22)
550	GASRODA	Gastropoda	Cuvier, 1795				Emg		1, 2, 5, 6	2013 (1, 2, 5, 6)
551	GASTRUB	Gastropteron rubrum	(Rafinesque, 1814)				Emo		1, 2, 5, 6, 16	2013 (1, 2, 5, 6, 16)
552	GELISPP	Gelidium spp.	Lamouroux, 1813				V		1, 6	2013 (1, 6)
553	GENNELE	Gennadas elegans	(Smith, 1882)	F	ARIST		B	m	1, 2, 5, 6, 9, 11, 15, 16, 19, 20, 22	
554	GENOMAC	Genocidaris maculata	Agassiz, 1869	R, T	p. 558 Tav. 221, 321		Eec	0	16, 19	2011 (19)
555	GEODCYD	Geodia cydonium	(Jameson, 1811)	R	108 118 Tav. IV		Esp	0	16	2013 (16)
556	GEODSPP	Geodia spp.	Lamarck, 1815	R	108		Esp	0	18	2014 (18)
557	GERYLON	Geryon longipes	A. Milne-Edwards, 1882	F	GER Ger 2		B	m	1, 2, 5, 6, 7, 8, 9, 10, 11, 15, 16, 17, 18, 19, 20, 22	
558	GERYTRI	Geryon trispinosus	(Herbst, 1803)		WoRMS	Δ	B		7	2015 (7)
559	GIBBMAG	Gibbula magus	(Linnaeus, 1758)				Emg		16	2013 (16)

560	GIBBSPP	Gibbula spp.	Risso, 1826	R	p. 234		Dmg	0	5, 6, 9, 16	
561	GLOIFUR	Gloiocladia furcata	J. Agardh, 1842				V		5	2013 (5)
562	GLOIMIC	Gloiocladia microspora	Sánchez & Rodríguez-Prieto et al., 2009			Δ	V		5	2013 (5)
563	GLOIREP	Gloiocladia repens	Sánchez & Rodríguez-Prieto, 2007				V		5	2013 (5)
564	GLOSLEI	Glossanodon leioglossus	(Valenciennes, 1848)	C	46.2.1		Ao	0	1, 2, 5, 6, 7, 8, 9, 10, 11, 15, 16, 18, 19	
565	GLOSVAL	Felimare picta	(Philippi, 1936)	R	p. 304 Tav. 116	**e14**	Emo	0	1	
566	GLOUHUM	Glossus humanus	(Linnaeus, 1758)	F	GLOSS Gloss 1		Emb	0	6, 7, 9, 16, 17, 18	
567	GLYCGLY	Glycymeris glycymeris	(Linnaeus, 1758)				Emb		5, 16	2013 (5)
568	GLYCSPP	Glycimeris spp.	Da Costa, 1778				Dmb		16	2013 (16)
569	GNATMYS	Gnathophis mystax	(Delaroche, 1809)	C	82.3.1		Ao	0	1, 5, 6, 7, 9, 10, 11, 15, 16, 17, 18, 19, 20, 22, 23, 25	
570	GOBICOB	Gobius cobitis	Pallas, 1814	C	162.1.5		Ao	0	16	2014 (16)
571	GOBICOL	Deltentosteus collonianus	(Risso, 1820)	C	162.10.2	**a24**	Ao	0	5, 9, 11, 15, 22, 25	
572	GOBICRU	Gobius cruentatus	Gmelin, 1789	C	162.1.6		Ao	0	11, 16, 25	2014 (11, 25)
573	GOBIFAL	Gobius fallax	Sarato, 1889	C	162.1.7		Ao	0	1, 6	2013 (1, 6)
574	GOBIFRI	Lesueurigobius friesii	(Malm, 1874)	C	162.16.2	**a25**	Ao	0	1, 2, 5, 6, 7, 8, 9, 10, 15, 17, 16, 18, 19, 20, 22, 23, 25	
575	GOBIGEN	Gobius geniporus	Valenciennes, 1837	C	162.1.8		Ao	0	1, 5, 6, 9, 16, 19	
576	GOBILIN	Crystallogobius linearis	(Düben, 1845)	C	162.9.1	**a26**	Ao	0	1, 5, 6, 9	
577	GOBINIG	Gobius niger	Linnaeus, 1758	C	162.1.1		Ao	0	1, 5, 6, 7, 8, 9, 10, 11, 16, 17, 18, 19, 20, 22, 23, 25	
578	GOBIPAG	Gobius paganellus	Linnaeus, 1758	C	162.1.9		Ao	0	20, 22	2014 (20, 22)
579	GOBIQUA	Deltentosteus quadrimaculatus	(Valenciennes, 1837)	C	162.10.1	**a27**	Ao	0	1, 5, 6, 7, 8, 9, 10, 11, 15, 16, 17, 18, 19, 20, 22, 23, 25	
580	GOBISAN	Lesueurigobius sanzi	(De Buen, 1918)	C	162.16.4	**a28** Δ	Ao	0	1, 5, 6, 7, 15, 16	
581	GOBISPP	Gobius spp.	Linnaeus, 1758	C	162		Ao	0	1, 5, 6, 7, 8, 9, 11, 15, 16, 17, 18, 19, 20, 22, 23, 25	

582	GOBISUE	Lesueurigobius suerii	(Risso, 1810)	C	162.16.1	**a29**	Ao	0	1, 6, 7, 9, 10, 15, 16, 17, 18, 19, 22, 25	
583	GOBIVIT	Gobius vittatus	Vinciguerra, 1883	C	162.1.12		Ao	0	17	2014 (17)
584	GOLFVUL	Golfingia vulgaris vulgaris	(Blainville, 1827)				Esi		7	2015 (7)
585	GONERHO	Goneplax rhomboides	(Linnaeus, 1758)	Z	414		B	m	1, 5, 6, 7, 8, 9, 10, 11, 15, 16, 17, 18, 19, 20, 22, 25	
586	GONICOC	Gonichthys cocco	(Cocco, 1829)	C	58.9.1		Ao	0	1, 10, 16, 19, 22	
587	GONODEN	Gonostoma denudatum	Rafinesque, 1810	C	37.1.1		Ao	0	6, 8, 9, 10, 16, 19, 22, 25	
588	GONOSPP	Gonostoma spp.	Rafinesque, 1810	C	37.1		Ao	0	9	2011 (9)
589	GORGDAE	Gorgoniidae	Lamouroux, 1812				Ecn		1, 2, 6, 15	2013 (1, 2, 6)
590	GOUAWIL	Gouania willdenowi	(Risso, 1810)	C	208.3.1		Ao	0	22	2014 (22)
591	GRACCOR	Gracilaria corallicola	Zanardini, 1865				V		5	2013 (5)
592	GRACSPP	Gracilaria spp.	Greville, 1830				V		5	2013 (5)
593	GRALLON	Gracilariopsis longissima	Steentoft, Irvine & Farnham, 1995				V		2	2013 (2)
594	GRAPDAE	Grapsidae	MacLeay, 1838	Z	420		B		20	2015 (20)
595	GRYPVIT	Gryphus vitreus	(Born, 1778)	R	p. 539 Tav. 215		Eba	0	1, 2, 5, 6, 7, 8, 9, 10, 11, 16, 18, 19	2011 (9, 10, 18, 19)
596	GYMACIC	Gymnammodytes cicerelus	(Rafinesque, 1810)	C	147.2.1		Ao	0	5, 11, 19, 22	
597	GYMNALT	Gymnura altavela	(Linnaeus, 1758)	C	22.2.1		Ae	0	19, 22	
598	HACEATT	Hacelia attenuata	Gray, 1840	T	164		Eec	0	2, 5, 6, 15, 16	2013 (2, 5, 6)
599	HADRCRA	Hadriania craticulata	Bucquoy, Dautzenberg & Dollfus, 1882	F	MUR	**d21**	Dmg	0	6, 7	
600	HALEHAL	Halecium halecinum	(Linnaeus, 1758)				Ecn		16	2013 (16)
601	HALESPP	Halecium spp.	Oken, 1815				Ecn		16	2013 (16)
602	HALIANG	Haliclona angulata	(Bowerbank, 1866)				Esp	0	18	2013 (18)
603	HALIFUL	Haliclona fulva	(Topsent, 1893)				Esp	0	16	2013 (16)
604	HALISIM	Haliclona simulans	(Johnston, 1842)				Esp	0	5	2013 (5)
605	HALISPP	Haliclona spp.	Grant, 1836	R	119		Esp	0	1, 2, 5, 6, 18	2013 (1, 2, 5, 6)

606	HALOPAP	Halocynthia papillosa	(Linnaeus, 1767)	R	p. 597 Tav. 238		Etu	0	5, 6, 9, 10, 16, 18	2011 (9, 10, 18)
607	HALPFIL	Halopteris filicina	Kützing, 1843				V		5	2013 (5)
608	HALPSPP	Halopteris spp.	Allman, 1877				Ecn		18	2013 (18)
609	HALSINC	Halopithys incurva	Batters, 1902				V		5	2013 (5)
610	HALTLAM	Haliotis tuberculata lamellosa	Lamarck, 1822			Δ	Dmg		5	2014 (5)
611	HALTTUB	Haliotis tuberculata tuberculata	Linnaeus, 1758				Dmg		1, 2, 5, 6	2013 (1, 2, 5, 6)
612	HALYFLO	Halymenia floresii	C. Agardh, 1817				V		18	2014 (18)
613	HALYSPP	Halymenia spp.	C. Agardh, 1817				V		1, 2, 5, 6	2013 (1, 2, 5, 6)
614	HAMIHYD	Haminoea hydatis	(Linnaeus, 1758)				Emo		16	2013 (16)
615	HAMINAV	Haminoea navicula	(Da Costa, 1778)	R	p. 274 Tav. 106		Emo	0	19	2011 (19)
616	HARMEXT	Harmothoe extenuata	(Grube, 1840)				Epo		16	2013 (16)
617	HARMIMB	Harmothoe imbricata	(Linnaeus, 1767)				Epo		19	2014 (19)
618	HAVEINE	Havelockia inermis	(Heller, 1868)	T	90		Eec	0	7	2013 (7)
619	HEBESCA	Hebella scandens	(Bale, 1888)				Ecn		2	2013 (2)
620	HEDIDIV	Hediste diversicolor	(O.F. Müller, 1776)	R	p. 375 Tav. 144		Epo	0	9, 18	2011 (9, 18)
621	HELIDAC	Helicolenus dactylopterus	(Delaroche, 1809)	C	184.2.1		Ao	0	1, 2, 5, 6, 7, 8, 9, 10, 11, 15, 16, 17, 18, 19, 20, 22, 23, 25	
622	HEPTPER	Heptranchias perlo	(Bonnaterre, 1788)	C	3.2.1		Ae	0	1, 2, 9, 11, 15, 16, 18, 19, 20, 22, 25	
623	HESISPL	Hesione splendida	Savigny, 1818				Epo		16	2013 (16)
624	HETAMIN	Paralepas minuta	(Philippi, 1836)			**b9**	Bci		16	2013 (16)
625	HETEDIS	Heteroteuthis dispar	(Rüppell, 1844)	F, P	SEPIOL, 87		C	m	1, 5, 6, 9, 10, 11, 16, 17, 18, 19, 20, 22, 23	
626	HETOSCU	Heteranomia squamula	(Linnaeus, 1758)				Emb		22	2015 (22)
627	HEXAGRI	Hexanchus griseus	(Bonnaterre, 1788)	C	3.1.1		Ae	0	6, 7, 8, 9, 10, 11, 15, 16, 22	
628	HIATARC	Hiatella arctica	(Linnaeus, 1767)	R	p. 342 Tav. 131		Emb	0	5, 18	2011 (18)
629	HIATRUG	Hiatella rugosa	(Linnaeus, 1767)				Emb		16	2013 (16)
630	HIATSPP	Hiatella spp.	Bosc, 1801	R	p. 342		Emb	0	9	2011 (9)

631	HIDINOR	Hydroides norvegicus	Gunnerus, 1768				Epo		20, 22	2015 (20, 22)
632	HINIINC	Nassarius incrassatus	(Strøm, 1768)	F	NASS Hin	**d22**	Dmg	0	6	
633	HINIRET	Nassarius reticulatus	(Linnaeus, 1758)	F	NASS Hin 1	**d23**	Dmg	0	1, 6, 17	
634	HIPODAE	Hippolytidae	Bate, 1888	Z	117		B		20	2015 (20)
635	HIPPGUT	Hippocampus guttulatus	Cuvier, 1829	C	97.4.2		Ao	0	9, 11, 16, 19, 25	2011 (9)
636	HIPPHIC	Hippocampus hippocampus	(Linnaeus, 1758)	C	97.4.1		Ao	0	1, 6, 9, 16, 17, 18, 19, 20, 22, 25	
637	HIPPSPP	Hippocampus spp.	Rafinesque, 1810	C	97.4		Ao	0	16	2014 (16)
638	HIPSCOM	Hippospongia communis	(Lamarck, 1814)	R	121		Esp	0	22	2015 (22)
639	HIRUNEA	Hirudinea	Lamarck, 1818				Ehi		5	2014 (5)
640	HISTBON	Histioteuthis bonnellii	(Férussac, 1835)	F, P	HISTIO, 155		C	0	1, 2, 5, 6, 7, 8, 9, 10, 11, 15, 16, 17, 18, 19, 20, 22	
641	HISTREV	Histioteuthis reversa	(Verrill, 1880)	F, P	HISTIO, 158		C	0	1, 2, 5, 6, 7, 8, 9, 10, 11, 15, 16, 17, 18, 19, 20, 22	
642	HISTSPP	Histioteuthis spp.	d'Orbigny, 1841	F, P	HISTIO, 153		C	0	1, 2, 5, 6, 7, 8, 15, 16, 17, 19	
643	HOLOFOR	Holothuria forskali	Delle Chiaje, 1823	R, T	p. 548 Tav. 218, 64		Eec	0	1, 5, 6, 7, 10, 16, 17, 18	2011 (10, 18)
644	HOLOHEL	Holothuria helleri	Marenzeller, 1877	R, T	p. 550 Tav. 218, 63		Eec	0	19	2011 (19)
645	HOLOMAM	Holothuria mammata	Grube, 1840	T	57		Eec	0	7, 8, 9, 18	2013 (7, 8)
646	HOLOPOL	Holothuria poli	Delle Chiaje, 1824	R, T	p. 550 Tav. 218, 58		Eec	0	1, 5, 9, 10, 18, 19	2011 (9, 10, 18, 19)
647	HOLOSAN	Holothuria sanctori	Delle Chiaje, 1823	T	61		Eec	0	5	2013 (5)
648	HOLOSPP	Holothuria spp.	Linnaeus, 1767	T	52		Eec	0	1, 2, 5, 6, 9, 17, 22, 23	2013 (1, 2, 5, 6)
649	HOLOTUB	Holothuria tubulosa	Gmelin, 1791	F, T	HOL Hol 1, 53		Eec	0	1, 5, 6, 9, 10, 11, 16, 18	2011 (9, 10, 18)
650	HOMAVUL	Homarus gammarus	(Linnaeus, 1758)	F	NEPH Hom 1	**b10**	B	m	6, 7, 11, 16, 17, 18, 19, 22	
651	HOMOBAR	Homola barbata	(Fabricius, 1793)	Z	304		B	m	1, 2, 5, 6, 9, 15, 16, 18, 19, 20, 22, 25	

652	HOPLMED	Hoplostethus mediterraneus mediterraneus	Cuvier, 1829	C	115.2.1		Ao	0	1, 2, 5, 6, 7, 8, 9, 10, 11, 15, 16, 17, 18, 19, 20, 22, 23, 25	
653	HORMALB	Hormathia alba	(Andrès, 1880)			Δ	Ecn		1	2014 (1)
654	HORMCOR	Hormathia coronata	(Gosse, 1858)				Ecn		18	2013 (18)
655	HYALSPP	Hyalinoecia spp.	Malmgren, 1867				Epo		5	2013 (5)
656	HYALTUB	Hyalinoecia tubicola	(O.F. Müller, 1776)				Epo		1, 2, 5, 6, 16	2013 (1, 2, 5, 6)
657	HYDAECH	Hydractiniaechinata	(Fleming, 1828)				Ecn		7	2015 (7)
658	HYDOINA	Hydroidolina	Collins & Marques, 2004				Ecn		1	2014 (1)
659	HYDRZOA	Hydrozoa	Owen, 1843				Ecn		1, 2, 5, 6, 15	2013 (1, 2, 5, 6)
660	HYGOBEN	Hygophum benoiti	(Cocco, 1838)	C	58.10.2		Ao	0	1, 2, 5, 6, 7, 8, 9, 10, 16, 17, 18, 19, 20, 22	
661	HYGOHIG	Hygophum hygomii	(Lütken, 1892)	C	58.10.1		Ao	0	1, 5, 6, 8, 9, 10, 16, 18, 19, 22, 25	
662	HYGOSPP	Hygophum spp.	Bolin, 1939	C	58,10		Ao	0	5, 6, 8, 10, 22	2011 (8, 10)
663	HYMDSPP	Hymedesmia spp.	Bowerbank, 1864	R	111		Esp	m	22	2015 (22)
664	HYMEITA	Hymenocephalus italicus	Giglioli, 1884	C	99.5.1		Ao	0	1, 2, 5, 6, 7, 8, 9, 10, 11, 15, 16, 17, 18, 19, 20, 22, 23, 25	
665	HYMPDEB	Hymenopenaeus debilis	Smith, 1882	Z	47	Δ	B		1, 2	2013 (1, 2)
666	HYMPSPP	Hymenopenaeus spp.	Smith, 1882	Z	47	Δ	B	m	1	
667	HYPESPP	Hyperiidae	Dana, 1852	R	p. 492		Bam	0	5, 6, 10	
668	HYPSSPP	Hypselodoris spp.	Stimpson, 1855				Emo	0	5, 10	2011 (10)
669	ICHTOVA	Ichthyococcus ovatus	(Cocco, 1838)	C	37.6.1		Ao	0	1, 6, 9, 10, 19, 22, 25	
670	IDOTSPP	Idotea spp.	Fabricius, 1798				Bis		1	2013 (1)
671	ILIANUC	Ilia nucleus	(Linnaeus, 1758)	Z	322		B	m	6, 9, 11, 16, 25	2011 (9)
672	ILLECOI	Illex coindetii	(Vérany, 1839)	F, P	OMMAS III 1, 168		C	0	1, 2, 5, 6, 7, 8, 9, 10, 11, 15, 16, 17, 18, 19, 20, 22, 23, 25	
673	INACAGU	Inachus aguiarii	Brito Capello, 1876	Z	473	Δ	B		1, 2	2013 (1, 2)
674	INACCOM	Inachus communissimus	Rizza, 1839	Z	470		B	m	1, 6, 9, 11, 15, 18, 19, 20, 22	
675	INACDOR	Inachus dorsettensis	(Pennant, 1777)	Z	472		B	m	1, 2, 5, 6, 7, 8, 9, 10, 16, 17, 18, 19, 20, 22	

676	INACLEP	Inachus leptochirus	Leach, 1817	Z	472		B		5, 6, 7, 8	2013 (7, 8)
677	INACPAR	Inachus parvirostris	(Risso, 1816)		WoRMS		B	m	5, 9, 11, 16	2011 (9)
678	INACPHA	Inachus phalangium	(Fabricius, 1775)	Z	472		B	m	7, 8	2013 (7, 8)
679	INACSPP	Inachus spp.	Weber, 1795	Z	467		B	m	9, 15, 16, 17, 18, 19, 20, 22, 25	2011 (9, 18, 19)
680	INACTHO	Inachus thoracicus	Roux, 1830	Z	473		B	m	1, 5, 6, 9, 16, 19, 20, 22	
681	IRCIORO	Ircinia oros	(Schmidt, 1864)				Esp	0	5, 6	2014 (5, 6)
682	IRCISPP	Ircinia spp.	Nardo, 1833	R	p. 121		Esp	0	5, 16, 18	2011 (18)
683	ISIDELO	Isidella elongata	(Esper, 1788)	R	p. 174 Tav. 63		Ecn	0	1, 2, 7, 8, 9, 10, 16, 18, 19	2011 (10, 18, 19)
684	ISOPODA	Isopoda	Latreille, 1817				Bis		1, 2, 5, 6	2013 (1, 2, 5, 6)
685	JANIRUB	Jania rubens	Lamouroux, 1816				V		1	2013 (1)
686	JANTPAL	Janthina pallida	Thompson, 1840				Emg		16	2013 (16)
687	JAXENOC	Jaxea nocturna	Nardo, 1847	Z	226		B	m	22	
688	JORUTOM	Jorunna tomentosa	(Cuvier, 1804)	R	p. 306 Tav. 117		Emo	0	18	2011 (18)
689	KALLPAT	Kallymenia patens	Codomier, 1980				V		1, 2, 5, 6	2013 (1, 2, 5, 6)
690	KALLSPP	Kallymenia spp.	J. Agardh, 1842				V		5	2013 (5)
691	KALMEAE	Kallymeniaceae	Kylin, 1928				V		5	2013 (5)
692	KALORAM	Kaloplocamus ramosus	(Cantraine, 1835)				Emo		7, 8	2013 (7, 8)
693	LABIDIG	Labidoplax digitata	(Montagu, 1815)	R, T	p. 552 Tav. 219, 106s	**e15**	Eec	0	10	2011 (10)
694	LABITHO	Labidoplax thomsoni	(Herapath, 1865)			**e15**	Eec		18	2015
695	LABODAE	Labridae	Cuvier, 1816	C	37		Ao	0	17	2014 (17)
696	LABRMER	Labrus merula	Linnaeus, 1758	C	145.1.3		Ao	0	11	2014 (11)
697	LABRVIR	Labrus viridis	Linnaeus, 1758	C	145.1.4		Ao	0	7, 8, 11, 15, 22, 23	
698	LABSBIM	Labrus mixtus	Linnaeus, 1758	C	145.1.1	**a30**	Ao	0	5, 11, 16, 17, 22	
699	LAETHYS	Laetmonice hystrix	(Savigny, 1818)	R	p. 365 Tav. 140		Epo	0	1, 5, 6, 9, 16, 18, 19	2011 (9, 18, 19)
700	LAETSPP	Laetmonice spp.	Kinberg, 1856				Epo		7, 8	2013 (7, 8)
701	LAEVCAR	Laevicardium oblongum	(Gmelin, 1791)	F	CARD Laev 1		Dmb	0	1, 5, 6, 16, 17, 18, 19	

702	LAEVCRA	Laevicardium crassum	(Gmelin, 1791)				Dmb		1, 5	2013 (1, 5)
703	LAEVSPP	Laevicardium spp.	Swainson, 1840				Dmb		1, 17	2013 (1)
704	LAGOLAG	Lagocephalus lagocephalus lagocephalus	(Linnaeus, 1758)	C	204.2.1		Ao	0	22	
705	LAGOSCE	Lagocephalus sceleratus	(Gmelin, 1789)	G	CIESM Atlas	AL	Ao	0	25	2014 (25)
706	LAGOSUE	Lagocephalus suezensis	Clark & Gohar, 1953	G	206	Δ AL	Ao	0	25	2012 (25)
707	LAMACRO	Lampanyctus crocodilus	(Risso, 1810)	C	58.12.1		Ao	0	1, 2, 5, 6, 7, 8, 9, 10, 11, 15, 16, 17, 18, 19, 20, 22, 23, 25	
708	LAMAPUS	Lampanyctus pusillus	(Johnson, 1890)	C	58.12.10		Ao	0	8, 9, 16, 18, 22	
709	LAMASPP	Lampanyctus spp.	Bonaparte, 1840	C	58.12		Ao	0	1, 8, 9, 17, 22, 23	
710	LAMEPER	Lamellaria perspicua	(Linnaeus, 1758)				Emg		6, 7, 16	2013 (6)
711	LAMESPP	Lamellaria spp.	Montagu, 1815				Emg		1	2013 (1)
712	LAMIROD	Laminaria rodriguezii	Bornet, 1888				V		1, 2, 5, 6	2013 (1, 2, 5, 6)
713	LAMISPP	Laminaria spp.	Lamouroux, 1813				V		2, 6	2013 (2, 6)
714	LAMPGUT	Lampris guttatus	(Brünnich, 1788)	C	105.1.1		Ao	0	18	
715	LAPPFAS	Lappanella fasciata	(Cocco, 1833)	C	145.7.1		Ao	0	1, 6, 7, 8, 9, 11, 16, 18, 22	
716	LATRELE	Latreillia elegans	Roux, 1830	Z	307		B	m	7, 8, 9, 10, 11, 15, 16, 19, 20, 22, 25	2011 (9, 10, 19)
717	LATRSPP	Latreillia	Roux, 1830	Z	307		B	m	9, 18, 22, 23	
718	LAURCHO	Laurencia chondrioides	Børgesen, 1918				V		1, 2, 5, 6	2013 (1, 2, 5, 6)
719	LEIOGLA	Leiopathes glaberrima	(Esper, 1788)				Ecn		16	2013 (16)
720	LEPALEP	Lepadogaster lepadogaster	(Bonnaterre, 1788)	C	208.4.1		Ao	0	9, 15, 17	
721	LEPASPP	Lepadogaster spp.	Goüan, 1770	C	208.4		Ao	0	5, 8, 9, 17	2011 (9)
722	LEPCPUG	Leptochela pugnax	De Man, 1916	Y	54	Δ AL	B	m	22	2014 (22)
723	LEPGSAR	Leptogorgia sarmentosa	(Esper, 1789)	R	p. 174 Tav. 63		Ecn	0	10, 16, 18	2011 (18)
724	LEPICAU	Lepidopus caudatus	(Euphrasen, 1788)	C	155.4.1		Ao	0	1, 2, 5, 6, 7, 8, 9, 10, 11, 15, 16, 17, 18, 19, 20, 22, 23, 25	
725	LEPMBOS	Lepidorhombus boscii	(Risso, 1810)	C	195.2.2		Ao	0	1, 2, 5, 6, 7, 8, 9, 10, 11, 15, 16, 17, 18, 19, 20, 22, 23, 25	
726	LEPMSPP	Lepidorhombus spp.	Günther, 1862	C	195.2		Ao	0	17	2014 (17)

727	LEPMWHS	Lepidorhombus whiffiagonis	(Walbaum, 1792)	C	195.2.1		Ao	0	1, 2, 5, 6, 7, 8, 9, 10, 11, 15, 16, 17, 18, 19, 20, 22, 23, 25	
728	LEPOLEP	Lepidion lepidion	(Risso, 1810)	C	103.6.1		Ao	0	5, 6, 7, 8, 9, 11, 17	
729	LEPRPHA	Leptometra phalangium	(Müller, 1841)	R, T	p. 546 Tav. 217, 33		Eec	0	1, 2, 5, 6, 9, 10, 11, 16, 18	2011 (9, 10, 18)
730	LEPRSPP	Leptometra spp.	Clark, 1908	T	33		Eec	0	7, 8	2013 (7, 8)
731	LEPSANA	Lepas anatifera	Linnaeus, 1758				Bci		16	2013 (16)
732	LEPTCAV	Lepidotrigla cavillone	(Lacepède, 1801)	C	185.4.1		Ao	0	1, 2, 5, 6, 7, 8, 9, 10, 11, 15, 16, 17, 18, 19, 20, 22, 23, 25	
733	LEPTDIE	Lepidotrigla dieuzeidei	Blanc & Hureau, 1973	C	185.4.2		Ao	0	1, 2, 5, 6, 7, 8, 9, 10, 11, 15, 16, 17, 18, 20, 22, 23, 25	
734	LEPTSPP	Lepidotrigla spp.	Günther, 1860	C	185.4		Ao	0	17	2014 (17)
735	LEPYINH	Leptosynapta inhaerens	(O.F. Müller, 1776)	T	104		Eec	0	16	2013 (16)
736	LESTJAY	Lestidiops jayakari jayakari	(Boulenger, 1889)	C	63.2.3		Ao	0	16	2014 (16)
737	LESTSPD	Lestidiops sphyrenoides	(Risso, 1820)	C	63.2.1		Ao	0	6, 7, 8, 17, 22	
738	LESTSPP	Lestidiops spp.	Hubbs, 1916	C	63,2		Ao	0	6, 10, 17, 22	
739	LESUSPP	Lesueurigobius spp.	Whitley, 1950	C	162.16		Ao	0	5	2014 (5)
740	LICHAMI	Lichia amia	(Linnaeus, 1758)	C	131.5.1		Ao	0	6, 22	
741	LIGUENS	Ligur ensiferus	(Risso, 1816)	Z	133		B	m	1, 2, 5, 6, 7, 8, 9, 11, 15, 19, 22	
742	LIMALIM	Lima lima	(Linnaeus, 1758)				Emb		5	2013 (5)
743	LIMASPP	Lima spp.	Bruguière, 1797				Emb		5	2014 (5)
744	LIMRHIA	Limaria hians	(Gmelin, 1791)				Emb		5	2013 (5)
745	LIPOADR	Microlipophrys adriaticus	(Steindachner & Kolombatovic, 1883)	C	164.1.2	**a31**	Ao	0	25	2012 (25)
746	LISSCHI	Lissa chiragra	(Fabricius, 1775)	Z	459		B	m	1, 2, 5, 6, 11, 16, 18	
747	LITHMOR	Lithognathus mormyrus	(Linnaeus, 1758)	C	139.5.1		Ao	0	6, 7, 8, 9, 10, 11, 16, 17, 18, 19, 22, 23	
748	LITOCOR	Lithothamnion corallioides	P.L. Crouan & H.M. Crouan, 1867				V		5	2013 (5)
749	LITOMIN	Lithothamnion minervae	Basso, 1995				V		1, 2, 5, 6	2013 (1, 2, 5, 6)
750	LITOSPP	Lithothamnion spp.	Heydrich, 1897				V		1, 2, 5, 6	2013 (1, 2, 5, 6)

751	LITOVAL	Lithothamnion valens	Foslie, 1909				V		5	2013 (5)
752	LITPRAC	Lithophyllum racemus	Foslie, 1901				V		1, 2, 5, 6	2013 (1, 2, 5, 6)
753	LITPSPP	Lithophyllum spp.	Philippi, 1837				V		5	2013 (5)
754	LITTNER	Melarhaphe neritoides	(Linnaeus, 1758)			**e16**	Emg		16	2013 (16)
755	LIZAAUR	Liza aurata	(Risso, 1810)	C	181.3.2		Ao	0	1, 6, 7, 9, 10, 11, 16, 17, 19, 22	
756	LIZARAM	Liza ramada	(Risso, 1827)	C	181.3.1		Ao	0	1, 6, 7, 9, 17, 18, 19, 22	
757	LIZASAL	Liza saliens	(Risso, 1810)	C	181.3.4		Ao	0	7, 9, 11	
758	LOBAGIG	Lobatus gigas	Linnaeus, 1758			Δ	Dmb		1, 2, 5, 6	2013 (1, 2, 5, 6)
759	LOBIDOF	Lobianchia dofleini	(Zugmayer, 1911)	C	58.14.12		Ao	0	1, 2, 5, 6, 8, 9, 10, 16, 18, 19, 20, 22, 23, 25	
760	LOBIGEM	Lobianchia gemellarii	(Cocco, 1838)	C	58.14.1		Ao	0	5, 10, 15, 16, 17, 19, 22	
761	LOBISPP	Lobianchia spp.	Gatti, 1904	C	58.14		Ao	0	5, 16	2014 (5)
762	LOLIEGG	Eggs capsules of Loliginidae					G		20	2015 (20)
763	LOLIFOR	Loligo forbesii	Steenstrup, 1857	F, P	LOLIG Lolig 2, 110		C	0	1, 2, 5, 6, 7, 8, 9, 10, 11, 15, 16, 17, 18, 19, 20, 22, 23, 25	
764	LOLISPP	Loligo spp.	Lamarck, 1798	F, P	LOLIG Lolig, 108		C	0	7, 8, 11, 22	
765	LOLIVUL	Loligo vulgaris	Lamarck, 1798	F, P	LOLIG Lolig 1, 108		C	0	1, 2, 5, 6, 7, 8, 9, 10, 11, 15, 16, 17, 18, 19, 20, 22, 23, 25	
766	LOPEPER	Lophelia pertusa	(Linnaeus, 1758)	R	p. 169 Tav. 61		Ecn	0	9, 15, 16, 19	2011 (9, 19)
767	LOPHBUD	Lophius budegassa	Spinola, 1807	C	210.1.2		Ao	0	1, 2, 5, 6, 7, 8, 9, 10, 11, 15, 16, 17, 18, 19, 20, 22, 23, 25	
768	LOPHPIS	Lophius piscatorius	Linnaeus, 1758	C	210.1.1		Ao	0	1, 2, 5, 6, 7, 8, 9, 10, 11, 15, 16, 17, 18, 19, 20, 22, 23, 25	
769	LOPHSPP	Lophius spp.	Linnaeus, 1758	C	210,1		Ao	0	7, 8, 9, 22, 23	
770	LOPOTYP	Lophogaster typicus	M. Sars, 1857	R	p. 471 Tav. 189		B	m	1, 5, 6, 9, 17, 19, 20, 22	
771	LUIDCIL	Luidia ciliaris	(Philippi, 1837)	R, T	p. 565 Tav. 223, 148		Eec	0	1, 2, 5, 6, 9, 15, 16, 18, 19	2011 (9, 18)
772	LUIDSAR	Luidia sarsii	(Düben & Koren, 1846)	T	150		Eec	0	1, 2, 5, 6, 9, 10, 16, 18, 19	2011 (10, 18)

773	LUIDSPP	Luidia spp.	Forbes, 1839	T	148		Eec	0	1, 2, 6, 16	2013 (1, 2, 6)
774	LUMBLAT	Lumbrineris latreilli	Audouin & Milne-Edwards, 1834				Epo		18	2014 (18)
775	LUMBSPP	Lumbrineris spp.	Blainville, 1828				Epo		10	2013 (10)
776	LUNACAT	Euspira catena	(Da Costa, 1778)	F	NAT	**e17**	Emg	0	6, 16	
777	LUNAFUS	Euspira fusca	(Blainville, 1825)	F	NAT	**e18**	Emg	0	1, 2, 5, 6, 9, 16, 19	
778	LUNAGUI	Euspira guilleminii	(Payraudeau, 1826)			**e19**	Emg		16	2013 (16)
779	LUNASPP	Euspira spp.	Agassiz, 1837			**e20**	Emg		1, 5	2013 (1, 5)
780	LUTRSPP	Lutraria spp.	Lamarck, 1799	R	p. 342		Emb	0	1, 6, 19	
781	LYSMSET	Lysmata seticaudata	(Risso, 1816)	Z	178		B	m	20, 22, 25	2014 (20, 22, 25)
782	LYTOMYR	Lytocarpia myriophyllum	(Linnaeus, 1758)	R	p. 133 Tav. 46		Ecn	0	1, 10, 16, 18, 19	2011 (18, 19)
783	MACOSCO	Macroramphosus scolopax	(Linnaeus, 1758)	C	96.1.1		Ao	0	1, 2, 5, 6, 7, 8, 9, 10, 11, 15, 16, 17, 18, 19, 20, 22, 23, 25	
784	MACRLIN	Macropodia linaresi	Forest & Zariquiey-Alvarez, 1964	Z	479		B	m	1, 2, 5, 6, 15	
785	MACRLOG	Macropodia longirostris	(Fabricius, 1775)	Z	481		B		5, 10, 16, 18, 20, 22, 25	2013 (16)
786	MACRLON	Macropodia longipes	(A. Milne-Edwards & Bouvier, 1899)	Z	482		B	m	1, 2, 5, 6, 9, 10, 15, 16, 17, 18, 19, 20, 22, 25	
787	MACRROS	Macropodia rostrata	(Linnaeus, 1761)	F	MAJI		B	m	1, 5, 6, 9, 10, 16, 19, 20	
788	MACRSPP	Macropodia spp.	Leach, 1814	Z	476		B	m	9, 16	2011 (9)
789	MACRTEN	Macropodia tenuirostris	(Leach, 1814)	Z	482	Δ	B	m	7	2013 (7)
790	MADROCU	Madrepora oculata	Linnaeus, 1758				Ecn		16, 19	2013 (16)
791	MAJABRA	Maja brachydactyla	Balss, 1922		WoRMS	Δ	B	m	7	2013 (7)
792	MAJACRI	Maja crispata	Risso, 1827	F	MAJI Maja		B	m	1, 2, 5, 6, 9, 11, 16, 17, 18, 19, 20, 22, 25	
793	MAJAGOL	Maja goltziana	d'Oliveira, 1888	Z	447		B	m	11, 16, 18, 20, 22, 25	2011 (18)
794	MAJASQU	Maja squinado	(Herbst, 1788)	F	MAJI Maja 1		B	m	5, 7, 8, 9, 10, 11, 15, 16, 17, 18, 19, 20, 22, 25	
795	MAJIDAE	Majidae	Samouelle, 1819	Z	443		B		1, 25	2013 (1)
796	MARIBLA	Marionia blainvillea	(Risso, 1818)				Emo		1, 5, 7	2013 (1, 5)

797	MARTGLA	Marthasterias glacialis	(Linnaeus, 1758)	R, T	p. 563 Tav. 223, 188		Eec	0	1, 2, 5, 6, 9, 10, 11, 15, 16, 17, 18, 19	2011 (9, 10, 18, 19)
798	MAURMUE	Maurolicus muelleri	(Gmelin, 1789)	C	37.8.1		Ao	0	1, 2, 5, 6, 7, 8, 9, 10, 11, 15, 16, 17, 18, 19, 20, 22, 23, 25	
799	MCPIARC	Liocarcinus navigator	(Herbst, 1794)	F	PORT Lioc 3	**b11**	B	m	1, 6, 25	
800	MCPICOR	Liocarcinus corrugatus	(Pennant, 1777)	Z	372	**b12**	B	m	1, 5, 6, 9, 15, 16, 18, 22	
801	MCPIDEP	Liocarcinus depurator	(Linnaeus, 1758)	F	PORT Lioc 4	**b13**	B	m	1, 2, 5, 6, 7, 8, 9, 10, 11, 15, 16, 17, 18, 19, 20, 22, 25	
802	MCPIMAC	Liocarcinus maculatus	(Risso, 1827)	F	PORT Lioc	**b14**	B	m	1, 6, 9, 10	
803	MCPIPUB	Necora puber	(Linnaeus, 1767)	F	PORT Neco 1	**b15**Δ	B	m	7	
804	MCPISPP	Liocarcinus spp.	Stimpson, 1871		WoRMS	**b16**	B		1, 2, 5, 6, 22, 23	2013 (1, 2, 5, 6)
805	MCPITUB	Macropipus tuberculatus	(Roux, 1830)	F	PORT Macro 1		B	m	1, 2, 5, 6, 7, 8, 9, 10, 11, 15, 16, 17, 18, 19, 20, 22	
806	MCPIVER	Liocarcinus vernalis	(Risso, 1816)	Z	377	**b17**	B	m	9, 10, 16, 18, 25	2011 (9, 10)
807	MEGANOR	Meganyctiphanes norvegica	(M. Sars, 1857)	R	p. 429 Tav. 170		Beu	m	1, 5, 6, 9, 10, 11, 17	
808	MEGETRU	Megerlia truncata	(Linnaeus, 1767)				Eba		16	2013 (16)
809	MELAATL	Melanostigma atlanticum	Koefoed, 1952	C	170.6.1		Ao	0	5, 6, 7	
810	MELIVIR	Melibe viridis	(Kelaart, 1858)			AL	Emo		20	2015 (20)
811	MERLMER	Merluccius merluccius	(Linnaeus, 1758)	C	100.1.1		Ao	0	1, 2, 5, 6, 7, 8, 9, 10, 11, 15, 16, 17, 18, 19, 20, 22, 23, 25	
812	MESOINT	Mesothuria intestinalis	(Ascanius, 1805)	T	69		Eec	0	1, 6, 16, 19	2013 (1, 6)
813	METRSEN	Metridium senile	Linnaeus, 1761			Δ	Ecn		7	2013 (7)
814	MICDTEN	Microdictyon tenuius	Gray, 1866				V		1, 2, 5, 6	2013 (1, 2, 5, 6)
815	MICICOC	Microichthys coccoi	Rüppell, 1852	C	127.4.1		Ao	0	9, 10, 18, 19	2011 (9, 10, 18)
816	MICMPOU	Micromesistius poutassou	(Risso, 1827)	C	101.8.1		Ao	0	1, 2, 5, 6, 7, 8, 9, 10, 11, 15, 16, 17, 18, 19, 20, 22, 23	
817	MICOCLA	Microcosmus claudicans	(Savigny, 1816)				Dtu		5, 16	2013 (16)
818	MICOPOL	Microcosmus polymorphus	Heller, 1877				Dtu		5, 18	2013 (18)

819	MICOSAB	Microcosmus sabatieri	Roule, 1885	F	PYUR Micr 2		Dtu	0	1, 2, 5, 6, 7, 8, 9, 17	
820	MICOSPP	Microcosmus spp.	Heller, 1877	F	PYUR Micr		Dtu	0	1, 5, 6, 8, 9, 11, 16, 18	2011 (9, 18)
821	MICOSQU	Microcosmus squamiger	Michaelsen, 1927			AL	Dtu	0	18	2011 (18)
822	MICOVUL	Microcosmus vulgaris	Heller, 1877	F	PYUR Micr 3		Dtu	0	10, 11, 16, 18, 19	2011 (10, 18, 19)
823	MICUAZE	Microchirus azevia	(Brito Capello, 1867)	C	198.5.2	**a32**Δ	Ao	0	1	
824	MICUBOS	Microchirus boscanion	(Chabanaud, 1926)	C	198.5.4	Δ Δ	Ao	0	1	
825	MICUOCE	Microchirus ocellatus	(Linnaeus, 1758)	C	198.5.3		Ao	0	1, 5, 6, 9, 11, 15, 16, 17, 18, 19, 20, 22	
826	MICUVAR	Microchirus variegatus	(Donovan, 1808)	C	198.5.1		Ao	0	1, 2, 5, 6, 7, 8, 9, 11, 15, 16, 17, 18, 19, 20, 22, 25	
827	MODIADR	Gibbomodiola adriatica	(Lamarck, 1819)	F	MYTIL	**d24**	Dmb		16	2013 (16)
828	MODIBAR	Modiolus barbatus	(Linnaeus, 1758)	F	MYTIL Modi 1		Dmb	0	18	2011 (18)
829	MODIMOD	Modiolus modiolus	(Linnaeus, 1758)			Δ	Dmb		5	2014 (5)
830	MODOSUB	Musculus subpictus	(Cantraine, 1835)			**d25**	Dmb	0	18, 19	2011 (18)
831	MOLAMOL	Mola mola	(Linnaeus, 1758)	C	207.1.1		Ao	0	1, 5, 6, 7, 9, 17	
832	MOLGAPP	Molgula appendiculata	Heller, 1877				Etu		1, 5, 6	2013 (1, 5, 6)
833	MOLGMAN	Molgula manhattensis	(De Kay, 1843)				Etu		10	2014 (10)
834	MOLGOCC	Molgula occulta	Kupffer, 1875				Etu	0	18	2011 (18)
835	MOLGSOC	Molgula socialis	Alder, 1863				Etu		16	2013 (16)
836	MOLGSPP	Molgula spp.	Forbes, 1848	R	p. 597		Etu	0	6, 19	2011 (19)
837	MOLPMUC	Molpadia musculus	Risso, 1826	T	98		Eec	0	1, 6, 16, 18, 19	2013 (1, 6)
838	MOLPSPP	Molpadia spp.	Cuvier, 1817	T	97		Eec	0	7	2015 (7)
839	MOLVDYP	Molva dypterygia	(Pennant, 1784)	C	101.14.2		Ao	0	1, 2, 5, 6, 7, 8, 9, 10, 11, 15, 16, 17, 18, 19, 20, 22, 23	
840	MOLVMAC	Molva macrophthalma	(Rafinesque, 1810)	F	GADI Molv 1		Ao	0	1, 5, 6, 7, 8, 11	2013 (7, 8)

841	MOLVMOL	Molva molva	(Linnaeus, 1758)	C	101.14.1		Ao	0	1, 6, 7, 8, 9, 10, 11, 15, 16, 17, 18, 22, 23	
842	MONIPAT	Monia patelliformis	(Linnaeus, 1761)				Dmb		19	2014 (19)
843	MONISQU	Monia squama	(Gmelin, 1791)			Δ	Dmb		7	2015 (7)
844	MONOHIS	Monochirus hispidus	Rafinesque, 1814	C	198.6.1		Ao	0	1, 5, 6, 7, 9, 10, 11, 15, 16, 17, 18, 19, 20, 22, 25	
845	MORAMOR	Mora moro	(Risso, 1810)	C	103.7.1		Ao	0	1, 5, 6, 7, 8, 9, 10, 11, 15, 16, 17, 18, 19, 22	
846	MORIRUG	Galeodea rugosa	(Linnaeus, 1771)	F	CASS Cass 2	**d16**	Dmg	0	1, 2, 5, 6, 9, 10, 11, 15, 17, 18	
847	MUGICEP	Mugil cephalus	Linnaeus, 1758	C	181.1.1		Ao	0	6, 9, 10, 16, 17, 18, 19, 20	
848	MUGISPP	Mugilidae	Jarocki, 1822	C	181	**a33**	Ao	0	9	
849	MUGLDAE	Mugilidae		C	181	**a33**	Ao	0	9	
850	MULLBAR	Mullus barbatus	Linnaeus, 1758	C	138.1.1		Ao	0	1, 2, 5, 6, 7, 8, 9, 10, 11, 15, 16, 17, 18, 19, 20, 22, 23, 25	
851	MULLSUR	Mullus surmuletus	Linnaeus, 1758	C	138.1.2		Ao	0	1, 2, 5, 6, 7, 8, 9, 10, 11, 15, 16, 17, 18, 19, 20, 22, 23, 25	
852	MUNICUR	Munida curvimana	A. Milne-Edwards & Bouvier, 1894	Z	283		B	m	7, 8, 22	
853	MUNIINT	Munida intermedia	A. Milne-Edwards & Bouvier, 1899	Z	286	**b18**	B	m	1, 2, 5, 6, 7, 8, 9, 10, 11, 15, 16, 17, 18, 19, 20, 22	
854	MUNIIRI	Munida rutllanti	B. Zariquiey Alvarez. 1952	Z	283	**b19**	B	m	1, 5, 6, 7, 10, 16, 19, 20, 22	
855	MUNIPER	Munida intermedia	A. Milne-Edwards & Bouvier, 1899	Z	286	**b18**	B	m	1, 2, 5, 6, 7, 8, 9, 10, 11, 15, 17, 18, 19, 20, 22	
856	MUNIRUG	Munida rugosa	(Fabricius, 1775)	Z	285		B	m	1, 7, 9, 10, 17, 18, 19, 20, 22	
857	MUNISPP	Munida spp.	Leach, 1820	Z	281		B	m	7, 8, 9, 11, 16, 17, 18, 19, 20, 22, 23	
858	MUNITEN	Munida tenuimana	G.O. Sars, 1872	Z	288		B	m	1, 5, 6, 7, 8, 10, 15, 19, 22	
859	MURAHEL	Muraena helena	Linnaeus, 1758	C	73.1.1		Ao	0	1, 2, 5, 8, 11, 15, 16, 18, 20, 22, 25	
860	MUREBRA	Bolinus brandaris	(Linnaeus, 1758)	F	MUR Bol 1	**d26**	Dmg	0	1, 5, 6, 7, 8, 9, 10, 16, 17, 18, 19	

861	MUREEGG	Eggs capsules of Muricidae					G		10, 18	2011 (10, 18)
862	MURETRU	Hexaplex trunculus	(Linnaeus, 1758)	R	p. 259 Tav. 100	**d27**	Dmg	0	1, 6, 8, 9, 10, 16, 17, 18	
863	MUSCCOS	Musculus costulatus	(Risso, 1826)				Dmb		18	2013 (18)
864	MUSTAST	Mustelus asterias	Cloquet, 1819	C	13c.5.2		Ae	0	5, 15, 16, 17, 18	
865	MUSTMED	Mustelus punctulatus	Risso, 1827	C	13c.5.3	**a34**	Ae	0	1, 15, 16, 17	
866	MUSTMUS	Mustelus mustelus	(Linnaeus, 1758)	C	13c.5.1		Ae	0	1, 5, 6, 8, 9, 10, 11, 15, 16, 17, 18, 19, 20, 22, 25	
867	MYCAMAS	Mycale massa	(Schmidt, 1862)	R	114		Esp	0	18	2013 (18)
868	MYCASPP	Mycale spp.	Gray, 1867	R	114		Esp	0	18	2013 (18)
869	MYCOPUN	Myctophum punctatum	Rafinesque, 1810	C	58.1.1		Ao	0	1, 2, 5, 6, 7, 8, 9, 10, 11, 15, 16, 17, 18, 19, 20, 22, 23, 25	
870	MYCOSPP	Myctophidae	Gill, 1893	C	58	**a35**	Ao	0	1, 5, 6, 7, 8, 9, 10, 11, 15, 16, 17, 18, 19, 20, 22, 25	
871	MYCPDAE	Myctophidae		C	58	**a35**	Ao	0	1, 5, 6, 7, 8, 9, 10, 11, 15, 16, 17, 18, 19, 20, 22, 25	
872	MYCTSPP	Mycteroperca spp.	Gill, 1862	C	124.6		Ao	0	16	2014 (16)
873	MYLIAQU	Myliobatis aquila	(Linnaeus, 1758)	C	23.1.1		Ae	0	1, 5, 6, 9, 10, 11, 15, 16, 17, 18, 20, 22, 23	
874	MYRITRU	Myriapora truncata	(Pallas, 1766)				Ebr		5, 6, 16	2013 (5, 6)
875	MYSIUND	Mysia undata	(Pennant, 1777)				Emb		16	2013 (16)
876	MYTIEDU	Mytilus edulis	Linnaeus, 1758			Δ	Dmb		1	2013 (1)
877	MYTIGAL	Mytilus galloprovincialis	Lamarck, 1819	F	MYTIL Mytil 1		Dmb	0	1, 6, 7, 10, 16, 17, 18, 19	
878	MYTISPP	Mytilidae	Rafinesque, 1815	F	MYTIL	**d28**	Dmb	0	1, 6	
879	MYTLDAE	Mytilidae	Rafinesque, 1815	F	MYTIL	**d28**	Dmb	0	1, 6	
880	MYXISPP	Myxilla spp.	Schmidt, 1862	R	115		Esp	0	18	2013 (18)
881	NANSOBI	Nansenia oblita	(Facciolà, 1887)	C	46.4.2		Ao	0	5, 6, 9, 16, 19	
882	NASRDAE	Nassariidae	Iredale, 1916	F	NASS	**d29**	Dmg	0	17	
883	NASSLIM	Nassarius lima	(Dillwyn, 1817)	R	p. 264 Tav. 101		Dmg	0	9, 16, 19	2011 (9)
884	NASSMUT	Nassarius mutabilis	(Linnaeus, 1758)	F	NASS Nass 1		Dmg	0	9, 16	2011 (9)

885	NASSSPP	Nassariidae	Iredale, 1916	F	NASS	**d29**	Dmg	0	17	
886	NATCDAE	Naticidae	Guilding, 1834	F	NAT	**d30**	Dmg	0	1, 6, 9, 17, 19	
887	NATIHEB	Naticarius hebraeus	(Martyn, 1786)			**d31**	Dmg		16	2013 (16)
888	NATIMIL	Naticarius stercusmuscarum	(Gmelin, 1791)	F	NAT Natic 2	**d32**	Dmg	0	6, 9, 10, 16, 18, 19	
889	NATISPP	Naticidae	Guilding, 1834	F	NAT	**d30**	Dmg	0	1, 6, 9, 17, 19	
890	NAUCDUC	Naucrates ductor	(Linnaeus, 1758)	C	131.6.1		Ao	0	16, 17	
891	NEMAENS	Nematocarcinus ensifer	(Smith, 1882)	Z	94		B	m	22	2014 (22)
892	NEMAEXI	Nematocarcinus exilis	(Bate, 1888)		WoRMS		B		19	2014 (19)
893	NEMEANT	Nemertesia antennina	(Linnaeus, 1758)	R	p. 133 Tav. 46		Ecn	0	16, 18, 19	2011 (18)
894	NEMERAM	Nemertesia ramosa	(Lamarck, 1816)				Ecn	0	16, 18, 19	2011 (18)
895	NEMESPP	Nemertesia spp.	Lamouroux, 1812				Ecn		16	2013 (16)
896	NEMISCO	Nemichthys scolopaceus	Richardson, 1848	C	76.1.1		Ao	0	1, 5, 6, 7, 9, 10, 11, 16, 18, 19	
897	NEOGMAM	Neogoniolithon mamillosum	Setchell & Mason, 1943				V		5	2013 (5)
898	NEOPCOC	Neopycnodonte cochlear	(Poli, 1795)	F	GRYPH Neop 1		Emb	0	1, 2, 5, 6, 9, 10, 15, 16, 18, 19	2011 (9, 10, 18, 19)
899	NEORCAR	Neorossia caroli	(Joubin, 1902)	F, P	SEPIOL, 85		C	0	1, 2, 5, 6, 7, 8, 9, 10, 11, 15, 16, 17, 18, 19, 20, 22	
900	NEPRNOR	Nephrops norvegicus	(Linnaeus, 1758)	F	NEPH Neph 1		B	m	1, 2, 5, 6, 7, 8, 9, 10, 11, 15, 16, 17, 18, 19, 20, 22, 23	
901	NERESPP	Nereis spp.	Linnaeus, 1758				Epo		18	2014 (18)
902	NEROMAC	Nerophis maculatus	Rafinesque, 1810	C	97.2.1		Ao	0	10	
903	NERPPAR	Nereiphylla paretti	Blainville, 1828				Epo		19	2014 (19)
904	NETOBRE	Dysomma brevirostre	(Facciolà, 1887)	C	81.1.1	**a36**	Ao	0	6, 8, 19	
905	NETTMEL	Nettastoma melanurum	Rafinesque, 1810	C	80.1.1		Ao	0	1, 5, 6, 7, 8, 9, 10, 11, 15, 16, 17, 18, 19, 20, 22, 25	
906	NEURFOL	Neurocaulon foliosum	Zanardini, 1843				V		1, 2, 5, 6	2013 (1, 2, 5, 6)
907	NEVEJOS	Neverita josephinia	Risso, 1826	F	NAT nev 1		Emg	0	9, 19	2011 (9)
908	NEZUAEQ	Nezumia aequalis	(Günther, 1878)	C	99.9.1		Ao	0	1, 2, 5, 6, 7, 9, 11, 15, 16, 17, 22, 23	

909	NEZUSCL	Nezumia sclerorhynchus	(Valenciennes, 1838)	C	99.9.2		Ao	0	1, 7, 8, 9, 10, 11, 15, 16, 17, 18, 19, 20, 22, 25	
910	NITOFLA	Nitophyllum flabellatum	Ercegovic, 1949				V		1, 2, 5, 6	2013 (1, 2, 5, 6)
911	NITOPUN	Nitophyllum punctatum	Greville, 1830				V		1, 2, 5, 6	2013 (1, 2, 5, 6)
912	NOTABON	Notacanthus bonaparte	Risso, 1840	C	89.1.2		Ao	0	1, 2, 5, 6, 7, 8, 9, 10, 11, 15, 16, 18, 19, 20, 22, 25	
913	NOTORIS	Arctozenus risso	(Bonaparte, 1840)	C	63.4.1	**a37**	Ao	0	1, 2, 5, 6, 7, 8, 9, 10, 11, 16, 18	
914	NOTRPUN	Notarchus punctatus	Philippi, 1836	R	p. 281 Tav. 108		Emo	0	18	2011 (18)
915	NOTSBOL	Notoscopelus bolini	Nafpaktitis, 1975	C	58.17.5	**a38**	Ao	0	1, 6, 7, 8, 9, 19, 22, 25	
916	NOTSELO	Notoscopelus elongatus	(Costa, 1844)	C	58.17.3		Ao	0	1, 2, 5, 6, 8, 9, 10, 15, 16, 17, 18, 19, 20, 22, 25	
917	NOTSKRO	Notoscopelus bolini	Nafpaktitis, 1975	C	58.17.5	**a38**	Ao	0	1, 6, 7, 8, 9, 19, 22, 25	
918	NOTSSPP	Notoscopelus spp.	Günther, 1864	C	58,17		Ao	0	5, 8, 10, 17	2011 (10)
919	NUCUNUC	Nucula nucleus	(Linnaeus, 1758)	R	p. 314 Tav. 120		Emb	0	9, 18, 19	2011 (9, 19)
920	NUCUSUL	Nucula sulcata	Bronn, 1831				Emb		1, 6, 16, 19	2013 (1, 6)
921	NUDIBRA	Nudibranchia	Cuvier, 1817				Emo		5, 6, 9, 15	2013 (5, 6)
922	OBLAMEL	Oblada melanura	(Linnaeus, 1758)	C	139.6.1		Ao	0	6, 7, 9, 11, 17	
923	OCENERI	Ocenebra erinaceus	(Linnaeus, 1758)	R	p. 261 Tav. 100		Dmg	0	1, 2, 6, 10, 16	
924	OCNUPLA	Ocnus planci	(Brandt, 1835)	T	81s		Eec	0	7, 8, 9, 10, 16, 18	2011 (9, 18)
925	OCTESIC	Octopoteuthis sicula	Rüppell, 1844	F, P	OCTO Oct 1, 133		C	0	19	2011 (19)
926	OCTODEP	Macrotritopus defilippi	(Vérany, 1851)	F, P	OCT Oct 10, 241s	**c1**	C	0	1, 6, 7, 8, 9, 11, 15, 16, 17, 18, 19, 22, 25	
927	OCTOMAC	Callistoctopus macropus	(Risso, 1826)	F, P	OCT Oct 2, 237s	**c2**	C	0	5, 6, 7, 9, 10, 11, 15, 16, 17, 18, 19, 20, 25	
928	OCTOSAL	Octopus salutii	Vérany, 1836	F, P	OCT Oct 23, 239		C	0	1, 2, 5, 6, 7, 8, 9, 10, 11, 15, 16, 17, 18, 19, 20, 22, 23	
929	OCTOSPP	Octopus spp.	Cuvier, 1798	F, P	OCT Oct, 234		C	0	7, 8, 9, 16, 17, 22	

930	OCTOTET	Pteroctopus tetracirrhus	(Delle Chiaje, 1830)	F, P	OCT Pter 1, 243	**c3**	C	0	1, 2, 5, 6, 7, 8, 9, 10, 11, 15, 16, 18, 19, 20, 22, 23	
931	OCTOVUL	Octopus vulgaris	Cuvier, 1797	F, P	OCT Oct 1, 235		C	0	1, 2, 5, 6, 7, 8, 9, 10, 11, 15, 16, 17, 18, 19, 20, 22, 23, 25	
932	OCYTTUB	Ocythoe tuberculata	Rafinesque, 1814	F, P	OCY ocy 1, 259		C	0	6	
933	ODOAMED	Odontaster mediterraneus	(Marenzeller, 1893)	T	152		Eec	0	1, 2, 6, 16, 18, 19	2011 (18, 19)
934	ODODBAL	Odondebuenia balearica	(Pellegrin & Fage, 1907)	C	162.20.1		Ao	0	1, 2, 5, 6	2013 (1, 2, 5, 6)
935	ODONTAU	Carcharias taurus	Rafinesque, 1810	C	5.1.3	**a39**	Ae	0	5	
936	OEDALAB	Oedalechilus labeo	(Cuvier, 1829)	C	181.4.1		Ao	0	10	
937	OKENELE	Okenia elegans	(Leuckart, 1828)				Emg		7	2013 (7)
938	OLIGATE	Grammonus ater	(Risso, 1810)	C	172.1.1	**a40**	Ao	0	7, 8, 9, 11, 17	
939	OMMADAE	Ommastrephidae	Steenstrup, 1857	P	165		C	0	6	2013 (6)
940	ONYCBAN	Onychoteuthis banksii	(Leach, 1817)	F, P	ONYCHO, 137		C	0	1, 5, 6, 7, 8, 9, 10, 15, 16, 17, 19	
941	OPDELON	Ophioderma longicauda	(Bruzelius, 1805)	R, T	p. 573 Tav. 226, 259		Eec	0	1, 2, 5, 6, 10, 11, 16	2011 (10)
942	OPDIBAR	Ophidion barbatum	Linnaeus, 1758	C	173.1.1		Ao	0	1, 2, 6, 7, 8, 9, 10, 11, 15, 16, 17, 18, 19, 22, 25	
943	OPDIROC	Ophidion rochei	Müller, 1845	C	173.1.2+3		Ao	0	1, 5, 22	
944	OPHANIG	Ophiocomina nigra	(Abildgaard, 1789)	T	251		Eec	0	5, 7, 8, 16	2013 (7, 8, 16)
945	OPHCRUF	Ophichthus rufus	(Rafinesque, 1810)	C	86.1.2		Ao	0	1, 2, 5, 6, 7, 8, 9, 10, 11, 15, 18, 19, 20, 22	
946	OPHDOPH	Ophidiaster ophidianus	(Lamarck, 1816)	R, T	p. 567 Tav. 224, 160		Eec	0	6, 18	2011 (18)
947	OPHEDAE	Ophiuridae	Müller & Troschel, 1840	T	265		Eec	0	15	2012 (15)
948	OPHISER	Ophisurus serpens	(Linnaeus, 1758)	C	86.4.1		Ao	0	1, 5, 6, 7, 8, 9, 10, 11, 16, 18, 19, 22, 23	
949	OPHNSET	Ophiacantha setosa	(Bruzelius, 1805)	T	218		Eec	0	1, 5, 6	2013 (1, 5, 6)

950	OPHOFRA	Ophiothrix fragilis	(Abildgaard, 1789)	R, T	p. 572 Tav. 226, 242		Eec	0	1, 2, 5, 6, 7, 8, 9, 10, 16	
951	OPHOLUT	Ophiothrix luetkeni	Wyville Thomson, 1873			Δ Δ	Eec	0	6	2013 (6)
952	OPHOQUI	Ophiothrix quinquemaculata	(Delle Chiaje, 1828)	T	249		Eec	0	18	2013 (18)
953	OPHOSPP	Ophiothrix spp.	Müller & Troschel, 1840	R, T	p. 571, 241		Eec	0	7, 8, 10, 16, 18	2011 (10)
954	OPHRDEA	Ophiuroidea	Gray, 1840	T	197		Eec	0	1, 2, 5, 6, 9	2013 (1, 2, 5, 6)
955	OPHSANN	Ophiopsila annulosa	(M. Sars, 1859)	T	255		Eec	0	16	2013 (16)
956	OPHSARA	Ophiopsila aranea	Forbes, 1843	T	253		Eec	0	16	2013 (16)
957	OPHSSPP	Ophiopsila spp.	Forbes, 1843	T	253		Eec	0	1, 2, 5, 6	2013 (1, 2, 5, 6)
958	OPHTBAL	Ophiactis balli	(Thompson, 1840)	T	240		Eec	0	6	2013 (6)
959	OPHUALB	Ophiura albida	Forbes, 1839	T	272		Eec	0	19	2014 (19)
960	OPHUOPH	Ophiura ophiura	(Linnaeus, 1758)	T	268s	**e41**	Eec	0	5, 6, 7, 8, 9, 10, 16, 18, 19	2011 (9, 10, 18, 19)
961	OPHUSPP	Ophiura spp.	Lamarck, 1801	T	267		Eec	0	5	2013 (5)
962	OPHYPEN	Ophiomyxa pentagona	(Lamarck, 1816)	T	217		Eec	0	19	2014 (19)
963	OPISSPP	Opisthobranchia	Milne-Edwards, 1848	R	p. 269		Emo	0	1, 2, 5, 6, 19	
964	OPLOSPP	Oplophoridae	Dana, 1852	Z	83		B	m	7, 22	
965	OPTOAGA	Opisthoteuthis calypso	Villanueva, Collins, Sánchez and Voss, 2002		WoRMS	**c4**	C	m	1, 6	
966	OPTOSPP	Opisthoteuthis spp.	Verrill, 1883	P	226		C	m	1	2014 (1)
967	OSCALOB	Oscarella lobularis	(Schmidt, 1862)	R	108		Esp	0	1, 2, 5, 6	2013 (1, 2, 5, 6)
968	OSMNPEL	Osmundea pelagosae	Nam, 1994				V		1, 2, 5, 6	2013 (1, 2, 5, 6)
969	OSMUVOL	Osmundaria volubilis	Norris, 1991				V		5, 6, 11, 18	2011 (18)
970	OSTEDAE	Ostreidae	Rafinesque, 1815				Emb		1, 2, 5, 6	2013 (1, 2, 5, 6)
971	OSTREDU	Ostrea edulis	Linnaeus, 1758	F	OSTR Ostr 1		Dmb	0	1, 5, 6, 7, 9, 10, 16, 17, 18, 19	
972	OSTRSPP	Ostrea	Linnaeus, 1758	R	p. 326		Dmb	0	1, 6, 9, 10, 16, 18	

973	OWENDAE	Oweniidae	Rioja, 1917				Epo		5	2013 (5)
974	OXYNCEN	Oxynotus centrina	(Linnaeus, 1758)	C	15.1.1		Ae	0	1, 5, 7, 8, 9, 10, 11, 15, 16, 17, 18, 19, 20, 22, 25	
975	PACHMON	Pachastrella monilifera	Schmidt, 1868				Esp		18	2013 (18)
976	PAGEACA	Pagellus acarne	(Risso, 1827)	C	139.7.2		Ao	0	1, 2, 5, 6, 7, 8, 9, 10, 11, 15, 16, 17, 18, 19, 20, 22, 23, 25	
977	PAGEBOG	Pagellus bogaraveo	(Brünnich, 1768)	C	139.7.3		Ao	0	1, 2, 5, 6, 7, 8, 9, 10, 11, 15, 16, 17, 18, 19, 20, 22, 23, 25	
978	PAGEERY	Pagellus erythrinus	(Linnaeus, 1758)	C	139.7.1		Ao	0	1, 2, 5, 6, 7, 8, 9, 10, 11, 15, 16, 17, 18, 19, 20, 22, 23, 25	
979	PAGGDAE	Paguridae	Latreille, 1802	Z	27/242		B		1, 5, 9, 25	2013 (1, 5)
980	PAGIERE	Paguristes eremita	(Linnaeus, 1767)		WoRMS		B	m	1, 5, 6, 16	
981	PAGOECH	Pagodula echinata	(Kiener, 1840)				Emg		16	2013 (16)
982	PAGRCOE	Pagrus caeruleostictus	(Valenciennes, 1830)	C	139.11.2		Ao	0	16	2014 (16)
983	PAGUALA	Pagurus alatus	(Fabricius, 1775)	Z	247		B	m	1, 2, 5, 6, 7, 9, 10, 16, 18, 19	
984	PAGUANA	Pagurus anachoretus	Risso, 1827	Z	249		B		1, 6, 9	2013 (1, 6)
985	PAGUCUA	Pagurus cuanensis	Bell, 1846	Z	247		B	m	1, 6, 7, 9, 10, 16, 18	
986	PAGUEXC	Pagurus excavatus	(Herbst, 1791)	Z	247		B	m	1, 2, 5, 6, 7, 8, 9, 10, 18	
987	PAGUFOR	Pagurus forbesii	Bell, 1846	Z	246s		B	m	1, 5, 6, 18	
988	PAGUPRI	Pagurus prideaux	Leach, 1815	Z	250		B	m	1, 2, 5, 6, 7, 8, 9, 11, 16, 18, 19	
989	PAGUPUB	Pagurus pubescentulus	(A. Milne-Edwards & Bouvier, 1892)		WoRMS		B		1, 2, 5, 6	2013 (1, 2, 5, 6)
990	PAGUSPP	Pagurus spp.	Fabricius, 1775	Z	243		B	m	5, 6, 9, 10, 15, 16, 18, 19	2011 (9, 10, 19)
991	PALASER	Palaemon serratus	(Pennant, 1777)	Z	165		B		25	2014 (25)
992	PALIELE	Palinurus elephas	(Fabricius, 1787)	F	PALIN Palin 1		B	m	1, 2, 5, 6, 7, 8, 9, 10, 11, 15, 16, 17, 18, 19, 22, 23	
993	PALIMAU	Palinurus mauritanicus	Gruvel, 1911	F	PALIN Palin 3		B	m	1, 2, 5, 6, 7, 8, 9, 11, 16, 22	
994	PALISPP	Palinurus spp.	Weber, 1795	F	PALIN		B	m	5	
995	PALLINC	Palliolum incomparabile	(Risso, 1826)				Emb		5, 16	2013 (5)

996	PALLSPP	Palliolum spp.	Monterosato, 1884				Emb		5	2013 (5)
997	PALLTIG	Palliolum tigerinum	(O.F. Müller, 1776)			Δ	Emb		5	2014 (5)
998	PALMCRA	Palmophyllum crassum	Rabenhorst, 1868				V		5	2013 (5)
999	PALNDAE	Palinuridae	Latreille, 1802	Z	212		B		2	2013 (2)
1000	PALUCAR	Palicus caronii	(Roux, 1828)	Z	411		B		1, 2, 5, 6, 20, 22	2013 (1, 2, 5, 6)
1001	PANDBRE	Pandalina brevirostris	(Rathke, 1843)	Z	115		B		5	2013 (5)
1002	PANDPRO	Pandalina profunda	Holthuis, 1946	F	PANDL		B	m	1, 5, 6, 20, 22	
1003	PAPANAR	Plesionika narval	(Fabricius, 1787)	F	PANDL Parapnd	**b20**	B	m	1, 2, 5, 6, 7, 9, 11, 17, 19, 22	
1004	PAPELON	Parapenaeus longirostris	(Lucas, 1846)	F	PEN Parap 1		B	m	1, 2, 5, 6, 7, 8, 9, 10, 11, 15, 16, 17, 18, 19, 20, 22, 23, 25	
1005	PAPOOCT	Parapristipoma octolineatum	(Valenciennes, 1833)	C	136.3.2	Δ	Ao	0	15	
1006	PARALEP	Eutelichthys leptochirus	Tortonese, 1959	C	192.3.3	**a41**	Ao	0	1, 5, 6	
1007	PARAMUR	Paraliparis murieli	Matallanas, 1984	C	FishBase	Δ	Ao	0	5, 6	2013 (5, 6)
1008	PARCLIV	Paracentrotus lividus	(Lamarck, 1816)	F	ECHIN Para 1	337	Dec	0	1, 9, 10, 11, 16	2011 (9, 10)
1009	PARDCRA	Paradrepanophorus crassus	(Quatrefages, 1846)				Ene		1, 2, 5, 6	2013 (1, 2, 5, 6)
1010	PAREMON	Paractaea monodi	Guinot, 1969		WoRMS		B		25	2014 (25)
1011	PARHDAE	Parthenopidae	MacLeay, 1838	Z	437	**b21**	B	m	9, 10, 15, 17, 19	2011 (10, 19)
1012	PARLCOR	Paralepis coregonoides	Risso, 1820	C	63.1	**a42**	Ao	0	1, 2, 5, 6, 7, 8, 9, 16, 19, 20	
1013	PARLSPE	Paralepis coregonoides	Risso, 1820	C	63.1	**a42**	Ao	0	1, 2, 5, 6, 7, 8, 9, 16, 19, 20	
1014	PARMCLA	Paramuricea clavata	(Risso, 1826)				Ecn		1, 6, 16	2013 (1, 6)
1015	PAROCUV	Paromola cuvieri	(Risso, 1816)	F	HOM Par 1		B	m	5, 6, 7, 8, 9, 10, 11, 15, 16, 17, 18, 19, 20, 25	
1016	PARSFER	Parasquilla ferussaci	(Roux, 1828)				Bst	m	10, 16	2011 (10)
1017	PARTANG	Derilambrus angulifrons	(Latreille, 1825)	Z	439	**b22**	B	m	6, 11, 15, 19	
1018	PARTEXP	Parthenope expansa	(Miers, 1879)		WoRMS	**b23**	B		1, 2, 5, 6	2013 (1, 2, 5, 6)
1019	PARTMAC	Spinolambrus macrochelos	(Herbst, 1790)	Z	439	**b24**	B	m	2, 5, 6, 9, 10, 11, 15, 16, 18, 19, 20, 22	
1020	PARTMAS	Parthenopoides massena	(Roux, 1830)	Z	441	**b25**	B	m	1, 2, 5, 6, 9, 15, 16, 20, 22	

1021	PARTSPP	Parthenopidae	MacLeay, 1838	Z	437	**b21**	B	m	9, 10, 15, 17, 19	2011 (10, 19)
1022	PARUHYN	Paracucumaria hyndmani	(Wyville Thomson, 1840)			**e42**	Eec		1, 2, 5, 6	2013 (1, 2, 5, 6)
1023	PARYSPI	Paralcyonium spinulosum	Delle Chiaje, 1822				Ecn		18	2015
1024	PARZAXI	Parazoanthus axinellae	(Schmidt, 1862)				Ecn		1, 2, 5, 6	2013 (1, 2, 5, 6)
1025	PASIMUL	Pasiphaea multidentata	Esmark, 1866	F	PASI Pasi 1		B	m	1, 2, 5, 6, 7, 8, 9, 10, 11, 15, 16, 17, 18, 19, 22, 25	
1026	PASISIV	Pasiphaea sivado	(Risso, 1816)	F	PASI Pasi 2		B	m	1, 2, 5, 6, 7, 8, 9, 10, 11, 15, 16, 17, 18, 19, 20, 22, 25	
1027	PASISPP	Pasiphaea spp.	Savigny, 1816	Z	70		B	m	7, 8, 10, 16, 17, 19, 22	2011 (10, 19)
1028	PAYRINT	Euspira intricata	(Donovan, 1804)			**e21**	Emg	0	16	2013 (16)
1029	PECNDAE	Pectinidae	Rafinesque, 1815				Emb		1	2013 (1)
1030	PECTJAC	Pecten jacobaeus	(Linnaeus, 1758)	F	PECT Pect 1		Dmb	0	1, 5, 6, 7, 8, 9, 16, 17, 19	
1031	PECTMAX	Pecten maximus	(Linnaeus, 1758)	F	PECT	Δ	Dmb	0	1, 5, 6	
1032	PECTSPP	Pecten spp.	O.F. Müller, 1776	F	PECT		Dmb	0	5, 10, 16, 18	
1033	PELANOC	Pelagia noctiluca	(Forsskål, 1775)	R	p. 155 Tav. 57		Ecn	0	5, 6, 7, 9, 10, 11, 18	2011 (10, 18)
1034	PELSPLA	Peltaster placenta	(Müller & Troschel, 1842)	T	157s		Eec	0	5, 9, 10, 15, 16, 18, 19	2011 (10, 18, 19)
1035	PELTATR	Peltodoris atromaculata	Bergh, 1880	R	p. 305 Tav. 117	**e22**	Emo	0	1, 5, 6, 11, 16	
1036	PELTSTE	Discodoris stellifera	(Vayssière, 1904)			**e23**	Emo		18	2013 (18)
1037	PENAJAP	Penaeus japonicus	Bate, 1888	Y	32	AL	B	m	25	2014 (25)
1038	PENAKER	Penaeus kerathurus	(Forsskål, 1775)	F	PEN Pen 1	**b26**	B	m	6, 9, 11, 16, 17, 18, 19, 20, 22	
1039	PENDDAE	Pennatulidae	Ehrenberg, 1834				Ecn		1, 15	2013 (1)
1040	PENNACU	Pennatula aculeata	Danielssen, 1860			Δ	Ecn		2	2013 (2)
1041	PENNPHO	Pennatula phosphorea	Linnaeus, 1758	R	p. 175 Tav. 64		Ecn	0	1, 2, 5, 7, 9, 10, 11, 16, 17, 18, 19	
1042	PENNRUB	Pennatula rubra	(Ellis, 1761)	R	p. 174 Tav. 64		Ecn	0	1, 2, 5, 6, 7, 8, 9, 10, 15, 16, 18, 19	2011 (10, 18, 19)

1043	PENNSPP	Pennatula spp.	Linnaeus, 1758				Ecn		7, 9	2013 (7)
1044	PENOSER	Penaeopsis serrata	Bate, 1881		WoRMS		B		2	2013 (2)
1045	PENRHEL	Penares helleri	(Schmidt, 1864)	R	108		Esp	m	22	2015 (22)
1046	PENTFAS	Pentapora fascialis fascialis	(Pallas, 1766)				Ebr		1, 2, 5, 6, 16	2013 (1, 2, 5, 6)
1047	PENTFOL	Pentapora foliacea	(Ellis & Solander, 1786)				Ebr		5	2014 (5)
1048	PERCGRA	Periclimenes granulatus	Holthuis, 1950	Z	182		B	m	1, 6	
1049	PERICAT	Peristedion cataphractum	(Linnaeus, 1758)	C	186.1.1		Ao	0	1, 2, 5, 6, 7, 8, 9, 10, 11, 15, 16, 17, 18, 19, 20, 22, 23, 25	
1050	PERPPER	Periphylla periphylla	(Péron & Lesueur, 1810)				Ecn		1, 2, 5, 6	2013 (1, 2, 5, 6)
1051	PETOMAR	Petromyzon marinus	Linnaeus, 1758				Aa		17	2014 (17)
1052	PETRFIC	Petrosia ficiformis	(Poiret, 1789)	R	p. 119 Tav. 40		Esp	0	16, 19	2011 (19)
1053	PEYSINA	Peyssonnelia inamoena	Pilger, 1911				V		1, 2, 5, 6	2013 (1, 2, 5, 6)
1054	PEYSROS	Peyssonnelia rosa-marina	Boudouresque & Denizot, 1973				V		5	2013 (5)
1055	PEYSRUB	Peyssonnelia rubra	J. Agardh, 1851				V		1, 2, 5, 6	2013 (1, 2, 5, 6)
1056	PEYSSPP	Peyssonnelia spp.	Decaisne, 1841				V		5	2013 (5)
1057	PEYSSQU	Peyssonnelia squamaria	Decaisne, 1842				V		5, 6	2013 (5, 6)
1058	PEYSSTO	Peyssonnelia stoechas	Boudouresque & Denizot, 1975				V		1, 2, 5, 6	2013 (1, 2, 5, 6)
1059	PHACSTR	Phascolion strombus	(Montagu, 1804)				Esi		16, 19	2013 (16)
1060	PHAEEAE	Phaeophyceae	Kjellman, 1891				V		1	2013 (1)
1061	PHALGRA	Semicassis granulata	(Born, 1778)	F	CASS Phal 1	**d33**	Dmg	0	1, 5, 16, 18	
1062	PHASMAM	Phallusia mammillata	(Cuvier, 1815)	R	p. 591 Tav. 236		Etu	0	1, 5, 6, 7, 8, 9, 10, 11, 16, 17, 18, 19	2011 (9, 18, 19)
1063	PHILECH	Philocheras echinulatus	(M. Sars, 1862)	FZ	CRANG 194		B	m	1, 2, 5, 6, 8, 9, 17, 19, 22	
1064	PHILSCU	Philocheras sculptus	(Bell, 1847)	Z	195		B		1, 6	2013 (1, 6)
1065	PHINAPE	Philine aperta	(Linnaeus, 1767)	R	p. 275 Tav. 106	**e24**	Emo	0	1, 5, 9, 10, 16, 18, 19	2011 (10, 18, 19)

1066	PHIPDEP	Philinopsis depicta	(Renier, 1807)				Emo	0	10	2011 (10)
1067	PHRNSEM	Phrosina semilunata	Risso, 1882				Bam		1, 6	2013 (1, 6)
1068	PHROSED	Phronima sedentaria	(Forsskål, 1775)	R	p. 492 Tav. 195		Bam		1, 5, 6, 17, 19, 25	2011 (19)
1069	PHROSPP	Phronima spp.	Latreille, 1802				Bam	m	7	2013 (7)
1070	PHRYREG	Zeugopterus regius	(Bonnaterre, 1788)	C	195.3.1	**a43**	Ao	0	5, 11, 17, 22	
1071	PHYIBLE	Phycis blennoides	(Brünnich, 1768)	C	101.15.2		Ao	0	1, 2, 5, 6, 7, 8, 9, 10, 11, 15, 16, 17, 18, 19, 20, 22, 23, 25	
1072	PHYIPHY	Phycis phycis	(Linnaeus, 1766)	C	101.15.1		Ao	0	1, 5, 6, 7, 8, 9, 11, 15, 16, 17, 18, 19, 20, 22, 23	
1073	PHYLTRU	Hexaplex trunculus	(Linnaeus, 1758)	R	p. 259 Tav. 100	**d27**	Dmg	0	1, 6, 8, 9, 10, 17, 18	
1074	PHYMCAL	Phymatolithon calcareum	Adey & McKibbin, 1970				V		5	2013 (5)
1075	PHYOURN	Phyllophorus urna	Grube, 1840	R, T	p. 551 Tav. 218, 93		Eec	0	6, 9, 16, 18	2011 (9)
1076	PHYPCRI	Phyllophora crispa	Dixon, 1964				V		5	2013 (5)
1077	PHYPHER	Phyllophora herediae	J. Agardh, 1842				V		5	2013 (5)
1078	PHYRDAE	Phyllophoridae	Östergren, 1907	T	92		Eec	0	7	2015 (7)
1079	PHYSDAL	Physiculus dalwigki	Kaup, 1858	C	103.8.1		Ao	0	7, 8, 9, 11, 22	
1080	PILUHIR	Pilumnus hirtellus	(Linnaeus, 1761)	Z	392		B		1, 2, 5, 6, 9, 16, 17, 19, 25	2013 (1, 2, 5, 6)
1081	PILUSPI	Pilumnus spinifer	H. Milne-Edwards, 1834	Z	391		B	m	1, 5, 6, 11, 18, 19, 20, 22	
1082	PILUSPP	Pilumnus spp.	Leach, 1816	Z	389		B		1, 6, 22	2013 (1, 6)
1083	PILUVIL	Pilumnus villosissimus	(Rafinesque, 1814)	Z	392		B	m	1, 5, 18, 22	
1084	PINNNOB	Pinna nobilis	Linnaeus, 1758	F	PINN Pinn 1		Dmb	0	1, 6, 16, 18, 19	
1085	PINNPEC	Atrina pectinata	(Linnaeus, 1767)	R	p. 322 Tav. 123	**d34**	Dmb	0	1, 6, 7	
1086	PINNRUD	Pinna rudis	Linnaeus, 1758				Dmb		18	2013 (18)
1087	PINNSPP	Pinna spp.	Linnaeus, 1758				Dmb		17, 18	2013 (18)
1088	PINOPIN	Nepinnotheres pinnotheres	(Linnaeus, 1758)	Z	409	**b27**	B	m	1, 6	
1089	PINOPIS	Pinnotheres pisum	(Linnaeus, 1767)	Z	408		B		6, 16	2013 (6)
1090	PISAARN	Pisa armata	(Latreille, 1803)	Z	454		B	m	1, 2, 5, 6, 7, 8, 9, 11, 16, 17, 18, 19, 20, 22	

1091	PISAHIR	Pisa hirticornis	(Herbst, 1804)		WoRMS		B		1, 2, 5, 6	2013 (1, 2, 5, 6)
1092	PISANOD	Pisa nodipes	(Leach, 1815)	Z	454		B	m	5, 6, 10, 11, 16, 19	
1093	PISASPP	Pisa spp.	Leach, 1814	Z	448		B	m	5, 9, 15, 16, 22, 25	2011 (9)
1094	PISILON	Pisidia longicornis	(Linnaeus, 1767)	Z	293		B	m	1, 6	
1095	PITARUD	Pitar rudis	(Poli, 1795)				Emb		1, 5	2013 (1, 5)
1096	PLADARG	Platydoris argo	(Linnaeus, 1767)				Emo		6	2013 (6)
1097	PLAGCOS	Plagiobrissus costae	(Gasco, 1876)	T	379		Eec	0	18	2014 (18)
1098	PLATFLE	Platichthys flesus	(Linnaeus, 1758)	C	197.8.1		Ao	0	17, 22	
1099	PLAYSPP	Platyscelus spp.	Bate, 1861				Bam		1, 2, 5, 6	2013 (1, 2, 5, 6)
1100	PLEBMEM	Pleurobranchus membranaceus	(Montagu, 1815)				Emo		7	2013 (7)
1101	PLEBTES	Pleurobranchus testudinarius	Cantraine, 1835				Emo		5, 16	2013 (5)
1102	PLERMEC	Pleurobranchaea meckeli	(Blainville, 1825)	R	p. 289 Tav. 111		Emo	0	1, 5, 6, 7, 8, 9, 10, 16, 18, 19	
1103	PLERSPP	Pleurobranchaea spp.	Leue, 1813				Emo		15	2012 (15)
1104	PLESACA	Plesionika acanthonotus	(Smith, 1882)	Z	102		B	m	1, 2, 5, 6, 7, 8, 9, 10, 11, 15, 16, 18, 19, 20, 22, 25	
1105	PLESANT	Plesionika antigai	Zariquiey-Alvarez, 1955	Z	100		B	m	1, 2, 5, 6, 7, 8, 9, 10, 11, 15, 16, 18, 19, 20, 22, 25	
1106	PLESEDW	Plesionika edwardsii	(Brandt, 1851)	FZ	PANDL Plesio 2 109		B	m	1, 2, 5, 6, 7, 8, 9, 10, 11, 15, 16, 17, 18, 19, 20, 22, 25	
1107	PLESENS	Plesionika ensis	(A. Milne-Edwards, 1881)	Z	106	Δ	B		15	2012 (15)
1108	PLESGIG	Plesionika gigliolii	(Senna, 1902)	Z	106		B	m	1, 2, 5, 6, 7, 8, 9, 10, 11, 15, 16, 18, 19, 20, 22, 25	
1109	PLESHET	Plesionika heterocarpus	(A. Costa, 1871)	FZ	PANDL Plesio 8/ 100		B	m	1, 2, 5, 6, 7, 8, 9, 10, 11, 15, 16, 17, 18, 19, 20, 22, 23, 25	
1110	PLESMAR	Plesionika martia	(A. Milne-Edwards, 1883)	FZ	PANDL Plesio 1/105		B	m	1, 2, 5, 6, 7, 8, 9, 10, 11, 15, 16, 17, 18, 19, 20, 22, 23, 25	
1111	PLESSPP	Plesionika spp.	Bate, 1888	Z	99		B	m	7, 8, 9, 11, 15, 16, 17, 19, 22, 23, 25	2011 (9, 19)

1112	PLEUPIL	Pleurobrachia pileus	(O.F. Müller, 1776)	R	p. 177 Tav. 66		Ect	0	1, 6	
1113	PLULDAE	Plumulariidae	Agassiz, 1862				Ecn		1, 6	2013 (1, 6)
1114	PLUMSPP	Plumularia spp.	Lamarck, 1816				Ecn		1, 2, 5, 6	2013 (1, 2, 5, 6)
1115	PLUTBIF	Plutonaster bifrons	(Wyville Thomson, 1873)	T	129	Δ	Eec	0	7, 8	2013 (7, 8)
1116	PNEUMED	Pneumoderma mediterraneum	Van Beneden, 1838				Emo		19	2014 (19)
1117	POECCOM	Poecillastra compressa	(Bowerbank, 1866)				Esp		18	2013 (18)
1118	POLARIS	Polyacanthonotus rissoanus	(De Filippi & Vérany, 1857)	C	89.2.1		Ao	0	1, 5, 6, 11	
1119	POLBHEN	Polybius henslowii	Leach, 1820	FZ	PORT 380		B	m	1, 2, 11, 25	
1120	POLCTYP	Polycheles typhlops	Heller, 1862	Z	209		B	m	1, 2, 5, 6, 7, 8, 9, 10, 11, 15, 16, 17, 18, 19, 20, 22, 25	
1121	POLDDAE	Polyclinidae	Milne-Edwards, 1841				Etu		1, 5	2013 (1, 5)
1122	POLHETA	Polychaeta	Grube, 1850				Epo		1, 2, 5, 6	2013 (1, 2, 5, 6)
1123	POLIAZE	Polyclinella azemai	Harant, 1930				Etu		5	2013 (5)
1124	POLMMAM	Polymastia penicillus	(Montagu, 1814)	R	109 s	**e25**	Esp	0	5, 6	2013 (5, 6)
1125	POLNLAC	Polysyncraton lacazei	(Giard, 1872)				Etu		1, 2, 5, 6	2013 (1, 2, 5, 6)
1126	POLOADR	Polycitor adriaticus	(Drasche, 1883)				Etu		1, 5	2013 (1, 5)
1127	POLOCRI	Polycitor crystallinus	(Renier, 1804)				Etu		5	2013 (5)
1128	POLOSPP	Polycitor spp.	Renier, 1804				Etu		5	2013 (5)
1129	POLRMAM	Polycarpa mamillaris	(Gaertner, 1774)				Etu		1, 5, 6	2013 (1, 5, 6)
1130	POLRPOM	Polycarpa pomaria	(Savigny, 1816)				Etu		1, 2, 5, 6, 10, 18	2013 (10)
1131	POLRSPP	Polycarpa spp.	Heller, 1877				Etu		5	2013 (5)
1132	POLSELO	Polysiphonia elongata	Sprengel, 1827				V		5	2013 (5)
1133	POLSNIG	Polysiphonia nigra	Batters, 1902			Δ	V		5	2013 (5)
1134	POLSSUB	Polysiphonia subulifera	Harvey, 1834				V		5	2013 (5)
1135	POLYAME	Polyprion americanus	(Bloch & Schneider, 1801)	C	124.7.1		Ao	0	5, 6, 7, 8, 9, 11, 17, 19, 22	
1136	POMOTRI	Spirobranchus triqueter	(Linnaeus, 1758)			**e26**	Epo		16	2013 (16)

1137	POMSMAR	Pomatoschistus marmoratus	(Risso, 1810)	C	162.21.4		Ao	0	1, 5, 6, 7, 9, 18	
1138	POMSMIC	Pomatoschistus microps	(Krøyer, 1838)	C	162.21.5		Ao	0	1, 6	
1139	POMSMIN	Pomatoschistus minutus	(Pallas, 1770)	C	162.21.1		Ao	0	6, 9, 16, 17, 18	
1140	POMSNOR	Pomatoschistus norvegicus	(Collett, 1902)	C	162.21.6		Ao	0	7	2015 (7)
1141	POMSSPP	Pomatoschistus spp.	Gill, 1863	C	162.21		Ao	0	1, 17	2013 (1)
1142	POMTSAL	Pomatomus saltatrix	(Linnaeus, 1766)	C	129.1.1		Ao	0	6, 9, 16	
1143	PONNPIN	Pontonia pinnophylax	(Otto, 1821)	Z	174		B		5	2014 (5)
1144	PONOMUR	Pontobdella muricata	(Linnaeus, 1758)	R	p. 396 Tav. 152		Ehi	0	1, 5, 9, 10, 11, 16	2011 (9)
1145	PONPNOR	Pontophilus norvegicus	(M. Sars, 1861)		WoRMS		B	m	5, 6, 9, 11, 19, 20	
1146	PONPSPI	Pontophilus spinosus	(Leach, 1816)	FZ	CRANG Pontop 1/192		B	m	1, 2, 5, 6, 7, 8, 9, 10, 11, 16, 17, 18, 19, 20, 22	
1147	PONTCAT	Aegaeon cataphractus	(Olivi, 1792)	Z	188	**b28**	B	m	1, 5, 6, 7, 8, 9, 10, 15, 16, 18, 19, 20, 22	
1148	PONTLAC	Aegaeon lacazei	(Gourret, 1887)	FZ	CRANG Pont 1 188s	**b29**	B	m	1, 2, 5, 6, 7, 8, 9, 10, 11, 16, 17, 18, 19, 20, 22, 25	
1149	PONTSPP	Aegaeon spp.	Agassiz, 1846	Z	187s	**b30**	B		1, 2, 5, 6, 16	2013 (1, 2, 5, 6)
1150	PORIERA	Porifera	Grant, 1836				Esp		1, 2, 5, 6, 9, 15	2013 (1, 2, 5, 6)
1151	PORNHAS	Portunus hastatus	(Linnaeus, 1767)	Z	384		B		10	2014 (10)
1152	PORTDAE	Portunidae	Rafinesque, 1815	Z	29 352		B		11	2014 (11)
1153	PORTLAT	Portumnus latipes	(Pennant, 1777)	Z	357		B		25	2012 (25)
1154	POSIEGA	Sea ball of Posidonia oceanica					H		10, 11, 18	2011 (10, 18)
1155	POSILEA	Leaves of Posidonia oceanica					H		10	2011 (10)
1156	POSIOCE	Posidonia oceanica	Delile, 1813	R	p. 76 Tav. 26		V		1, 5, 6, 9, 11, 19	2011 (9)
1157	PRIADAE	Priapulidae	Gosse, 1855				Epr		7	2015 (7)
1158	PROCEDU	Processa edulis edulis	(Risso, 1816)	FZ	PROC Proc 2 153		B	m	7, 16, 17, 18	

1159	PROCELE	Processa elegantula	Nouvel & Holthuis, 1957	Z	158		B	m	22	2014 (22)
1160	PROCMED	Processa canaliculata	Leach, 1815	FZ	PROC Proc 1 158	**b31**	B	m	1, 2, 5, 6, 7, 9, 10, 11, 17, 18, 19, 20, 22	
1161	PROCNOU	Processa nouveli	Al-Adhub & Williamson, 1975	F	PROC		B	m	1, 2, 5, 6, 22	
1162	PROCSPP	Processa spp.	Leach, 1815	Z	151		B	m	7, 8, 9, 10, 17, 19, 22, 25	2011 (9, 10, 19)
1163	PROPCAR	Protoptilum carpenteri	Kölliker, 1872				Ecn		19	2014 (19)
1164	PROSSPP	Prosobranchia	Milne-Edwards, 1848	R	p. 231		Emg	0	1, 5, 6, 7	
1165	PROTINT	Protula intestinum	(Savigny, 1818)				Epo		16	2013 (16)
1166	PROTTUB	Protula tubularia	(Montagu, 1803)				Epo		16	2013 (16)
1167	PSAMMIC	Psammechinus microtuberculatus	(Blainville, 1825)	R, T	p. 558 Tav. 221, 333		Eec	0	1, 5, 6, 9, 11, 16, 19	
1168	PSEAFER	Pseudaphya ferreri	(De Buen & Fage, 1908)	C	162.23.1		Ao	m	1, 2, 5, 6	2013 (1, 2, 5, 6)
1169	PSECGRY	Pseudochama gryphina	(Lamarck, 1819)				Emb		16	2013 (16)
1170	PSEDCER	Pseudosquillopsis cerisii	(Roux, 1828)	R	p. 426 Tav. 167		Bst	m	19	2011 (19)
1171	PSEMCLA	Pseudamussium clavatum	(Poli, 1795)				Emb		16	2013 (16)
1172	PSENPEL	Psenes pellucidus	Lütken, 1880	C / G	177.3.2 / 188	AL	Ao	0	5	
1173	PSEOCYR	Pseudodistoma cyrnusense	Pérès, 1952				Etu		5	2013 (5)
1174	PSETMAX	Scophthalmus maximus	(Linnaeus, 1758)	C	195.4.1	**a44**	Ao	0	1, 6, 7, 8, 9, 10, 11, 16, 17, 18, 20, 22	
1175	PSEUSYR	Ocnus syracusanus	Panning, 1949	T	80s	**e27**	Eec	0	10, 16, 18	2011 (18)
1176	PSEVCAR	Pseudosimnia carnea	(Poiret, 1789)				Emg	m	1, 6, 10, 16	
1177	PTEAPEL	Pteragogus pelycus	Randall, 1981	G	162	Δ AL	Ao	0	25	
1178	PTEDSPI	Pteroeides spinosum	(Ellis, 1764)	R	p. 174 Tav. 64		Ecn	0	1, 5, 6, 7, 8, 9, 10, 16, 18, 19	2011 (9, 10, 18, 19)
1179	PTEDSPP	Pteroeides spp.	Herklots, 1858				Ecn		7, 8	2013 (7, 8)
1180	PTEOBOV	Pteromylaeus bovinus	(Geoffroy Saint-Hilaire, 1817)	C	23.2.1		Ae	0	10, 16, 17, 19	
1181	PTERHIR	Pteria hirundo	(Linnaeus, 1758)	F	PTER		Emb	0	1, 2, 5, 6, 7, 9, 10, 16, 18, 19	
1182	PUNTPUN	Diplodus puntazzo	(Walbaum, 1792)	C	139.8.1	**a20**	Ao	0	1, 6, 8, 9, 11, 16, 17, 22, 23	

1183	PYROATL	Pyrosoma atlanticum	Péron, 1804	R	p. 599 Tav. 240		Etu	0	1, 2, 5, 6, 9, 11, 19	2011 (9, 19)
1184	PYROSPP	Pyrosoma	Péron, 1804	R	p. 599		Etu	0	9, 11	2011 (9)
1185	PYRTMAR	Pyroteuthis margaritifera	(Rüppell, 1844)	F, P	ENOP, 126		C	0	19, 22	2011 (19)
1186	PYURDUR	Pyura dura	(Heller, 1877)	F	PYUR		Etu	0	1, 5, 18, 19	2011 (18)
1187	PYURMIC	Pyura microcosmus	(Savigny, 1816)	F	PYUR		Etu	0	1, 5, 10, 16, 18, 19	2011 (18, 19)
1188	PYURSPP	Pyura spp.	Molina, 1782	F	PYUR		Etu	0	18	2011 (18)
1189	PYURTES	Pyura tessellata	(Forbes, 1848)				Etu		5	2013 (5)
1190	RAJAALB	Rostroraja alba	(Lacepède, 1803)	C	21.1.18	**a45**	Ae	0	5, 8, 15, 16, 17, 22	
1191	RAJAAST	Raja asterias	Delaroche, 1809	C	21.1.2		Ae	0	1, 5, 6, 7, 8, 9, 10, 11, 16, 17, 18, 19, 20, 22, 23, 25	
1192	RAJABAT	Dipturus batis	(Linnaeus, 1758)	C	21.1.10	**a46**	Ae	0	2, 8, 9, 16	
1193	RAJABRA	Raja brachyura	Lafont, 1871	C	21.1.3		Ae	0	5, 7, 8, 11, 15, 16, 20, 22, 25	
1194	RAJACIR	Leucoraja circularis	(Couch, 1838)	C	21.1.14	**a47**	Ae	0	1, 2, 5, 6, 7, 8, 9, 11, 15, 16, 17, 18, 19, 22, 25	
1195	RAJACLA	Raja clavata	Linnaeus, 1758	C	21.1.4		Ae	0	1, 2, 5, 6, 7, 8, 9, 10, 11, 15, 16, 17, 18, 20, 22, 23, 25	
1196	RAJAEGG	Eggs capsules of Rajidae					G		10, 11, 18	2011 (10, 18)
1197	RAJAFUL	Leucoraja fullonica	(Linnaeus, 1758)	C	21.1.13	**a48**	Ae	0	7, 8, 9, 15, 16, 18, 19, 22, 25	
1198	RAJAMEL	Leucoraja melitensis	(Clark, 1926)	C	21.1.21	**a49**	Ae	0	1, 2, 15, 16, 17, 22	
1199	RAJAMIR	Raja miraletus	Linnaeus, 1758	C	21.1.1		Ae	0	1, 5, 6, 7, 8, 9, 10, 11, 15, 16, 17, 18, 19, 20, 22, 23, 25	
1200	RAJAMON	Raja montagui	Fowler, 1910	C	21.1.7		Ae	0	1, 5, 6, 7, 8, 9, 10, 15, 16, 17, 18, 20, 22, 25	
1201	RAJANAE	Leucoraja naevus	(Müller & Henle, 1841)	C	21.1.15	**a50**	Ae	0	1, 2, 5, 6, 7, 8, 16, 20, 22	
1202	RAJANID	Dipturus nidarosiensis	(Storm, 1881)	C	21.1.11	**a51**	Ae	0	11, 18	2014 (11)
1203	RAJAOXY	Dipturus oxyrinchus	(Linnaeus, 1758)	C	21.1.12	**a52**	Ae	0	1, 2, 5, 6, 7, 8, 9, 10, 11, 15, 16, 17, 18, 19, 20, 22, 23, 25	
1204	RAJAPOL	Raja polystigma	Regan, 1923	C	21.1.22		Ae	0	1, 5, 6, 7, 8, 9, 10, 11, 15, 16, 17, 18, 19, 20, 22, 25	
1205	RAJARDA	Raja radula	Delaroche, 1809	C	21.1.23		Ae	0	1, 5, 6, 8, 15, 16, 20, 22, 23, 25	

1206	RAJASPP	Raja spp.	Linnaeus, 1758	C	21.1.12		Ae	0	6, 7, 8, 9, 11, 16, 17, 19, 22, 25	
1207	RAJAUND	Raja undulata	Lacepède, 1802	C	21.1.25		Ae	0	15, 16, 20, 22	
1208	RASPSPP	Raspailia spp.	Nardo, 1833	R	114		Esp	0	18	2013 (18)
1209	RASPTYP	Raspailia viminalis	Schmidt, 1862	R	114	**e28**	Esp	0	1, 2, 5, 6, 18	2013 (1, 2, 5, 6)
1210	REGAGLE	Regalecus glesne	Ascanius, 1772	C	106.1.1		Ao	0	7	
1211	RETEBEA	Reteporella beaniana	(King, 1846)			Δ	Ebr		1, 2, 5	2014
1212	RETEGRI	Reteporella grimaldii	(Jullien, 1903)				Ebr		1, 5, 16	2013 (1, 5)
1213	RETESPP	Reteporella spp.	Busk, 1884				Ebr		7	2013 (7)
1214	RHIPMAR	Rhinoptera marginata	(Geoffroy Saint-Hilaire, 1817)	C	24.1.1		Ae	0	17	
1215	RHIZPYR	Rhizaxinella pyrifera	(Delle Chiaje, 1828)	R	p. 112 Tav. 37		Esp	0	9, 16, 18	2011 (9, 18)
1216	RHODEAE	Rhodymeniaceae	Harvey, 1849				V		1, 2, 5, 6	2013 (1, 2, 5, 6)
1217	RHOPSPP	Rhodophyllis spp.	Kützing, 1847				V		1, 6	2013 (1, 6)
1218	RHYNHEP	Rhynchogadus hepaticus	(Facciolà, 1884)	C	103.9.1		Ao	0	6, 16	
1219	RHYSOLI	Chiton olivaceus	Spengler, 1797			**e29**	Emp		1, 2, 5, 6	2013 (1, 2, 5, 6)
1220	RHYSSPP	Chiton spp.	Thiele, 1893			**e30**	Emp		1, 2, 5, 6	2013 (1, 2, 5, 6)
1221	RICHFRE	Richardina fredericii	Lo Bianco, 1903	Z	68		B	m	1, 6	
1222	RISSDES	Rissoides desmaresti	(Risso, 1816)	F	SQUIL		Bst	m	5, 6, 9, 10, 11, 16, 17, 18, 19, 20, 22	
1223	RISSPAL	Rissoides pallidus	(Giesbrecht, 1910)	F	SQUIL		Bst	m	1, 6, 9, 10, 11, 16, 17, 18, 19, 20, 22	
1224	RISSSPP	Rissoides spp.	Manning & Lewinsohn, 1982				Bst		6, 16	2013 (6)
1225	RIZOPUL	Rhizostoma pulmo	(Macri, 1778)	R	p. 155 Tav. 57		Ecn	0	1, 9, 10, 18	2011 (9, 18)
1226	ROCHCAR	Rochinia carpenteri	(Wyville Thomson, 1873)	Z	464	Δ	B	m	1, 2	
1227	RODRPIN	Rodriguezella pinnata	Schmitz, 1901				V		1, 2, 5, 6	2013 (1, 2, 5, 6)

1228	RODRSPP	Rodriguezella spp.	Schmitz, 1895				V		1, 2, 5, 6	2013 (1, 2, 5, 6)
1229	RODRSTR	Rodriguezella strafforelloi	Schmitz, 1895				V		1, 2, 5, 6	2013 (1, 2, 5, 6)
1230	RONDMIN	Rondeletiola minor	(Naef, 1912)	F, P	SEPIOL, 92		C	0	1, 2, 5, 6, 7, 9, 10, 11, 15, 16, 17, 18, 19, 20, 22, 25	
1231	ROSSMAC	Rossia macrosoma	(Delle Chiaje, 1830)	F, P	SEPIOL Ross 1, 83		C	0	1, 2, 5, 6, 7, 8, 9, 10, 11, 15, 16, 17, 18, 19, 20, 22, 23, 25	
1232	ROSSSPP	Rossia spp.	Owen, 1834	P	83		C	0	22	2014 (22)
1233	RUVEPRE	Ruvettus pretiosus	Cocco, 1833	C	153.7.1		Ao	0	16	2014 (16)
1234	RYTITIN	Rytiphlaea tinctoria	C. Agardh, 1824				V		5	2013 (5)
1235	SABEPAV	Sabella pavonina	Savigny, 1822				Epo		5	2013 (5)
1236	SABESPA	Sabella spallanzanii	(Gmelin, 1791)				Epo		5, 6, 16	2013 (5)
1237	SABESPP	Sabella spp.	Linnaeus, 1767				Epo		5	2013 (5)
1238	SABLDAE	Sabellidae	Latreille, 1825				Epo		5	2013 (5)
1239	SADASAR	Sarda sarda	(Bloch, 1793)	C	158.4.1		Ao	0	6, 9, 11, 17, 18	
1240	SAGAELE	Sagartia elegans	(Dalyell, 1848)	R	p. 167 Tav. 60		Ecn	0	10, 18	2011 (10, 18)
1241	SALOTRU	Salmo trutta trutta	Linnaeus, 1758	C	45.1.2		Ao	0	17	
1242	SALPMAX	Salpa maxima	Forsskål, 1775				Etu		1, 5, 6	2013 (1, 5, 6)
1243	SALPSPP	Salpa spp.	Forsskål, 1775				Etu		5, 6, 16	2013 (5, 6)
1244	SALVCLA	Salvatoria clavata	(Claparède, 1863)				Epo		1	2013 (1)
1245	SARCFOE	Sarcotragus foetidus	Schmidt, 1862				Esp	0	16, 19	2011 (19)
1246	SARDPIL	Sardina pilchardus	(Walbaum, 1792)	C	33.3.1		Ao	0	1, 2, 5, 6, 7, 8, 9, 10, 11, 15, 16, 17, 18, 19, 20, 22, 23, 25	
1247	SARGHOR	Sargassum hornschuchii	C. Agardh, 1820				V		18	2013 (18)
1248	SARIAUR	Sardinella aurita	Valenciennes, 1847	C	33.4.1		Ao	0	1, 5, 6, 7, 8, 9, 10, 11, 15, 16, 17, 18, 19, 20, 22, 23, 25	
1249	SARIMAD	Sardinella maderensis	(Lowe, 1838)	C	33.4.2		Ao	0	20	
1250	SARPSAL	Sarpa salpa	(Linnaeus, 1758)	C	139.9.1		Ao	0	7, 8, 9, 11, 22	
1251	SAURUND	Saurida undosquamis	(Richardson, 1848)	G	68	Δ AL	Ao	0	25	2012 (25)
1252	SAXIJEF	Saxicavella jeffreysi	Winckworth, 1930				Emb		16	2013 (16)

1253	SCAEUNI	Scaeurgus unicirrhus	(Delle Chiaje, 1841)	F, P	OCT Scae 1, 241		C	0	1, 2, 5, 6, 7, 8, 9, 10, 11, 15, 16, 17, 18, 19, 20, 22, 23, 25	
1254	SCAHODA	Scaphopoda	Bronn, 1862				Esc		20	2015 (20)
1255	SCALSCA	Scalpellum scalpellum	(Linnaeus, 1767)	R	p. 417 Tav. 162		Bci	m	1, 5, 6, 10, 16, 18, 19	
1256	SCAPNIG	Scaphander lignarius	(Linnaeus, 1758)	R	p. 275 Tav. 106		Dmg	0	1, 2, 5, 6, 9, 10, 11, 16, 17, 18, 19	
1257	SCASSCA	Scalarispongia scalaris	(Schmidt, 1862)				Esp		18, 19	2013 (18)
1258	SCHEMED	Schedophilus medusophagus	(Cocco, 1839)	C	176.3.1		Ao	0	2, 5, 9, 10, 16	2011 (9, 10)
1259	SCHEOVA	Schedophilus ovalis	(Cuvier, 1833)	C	176.3.2		Ao	0	1, 5, 8, 9, 11, 17	
1260	SCHICAN	Ova canaliferus	(Lamarck, 1816)	R, T	p. 561 Tav. 222, 369s	**e31**	Eec	0	6, 9, 10, 16, 18, 19	2011 (9, 18)
1261	SCHOMAM	Schizomavella mamillata	(Hincks, 1880)				Ebr		19	2014 (19)
1262	SCHOSPP	Schizomavella spp.	Canu & Bassler, 1917				Ebr		18	2015
1263	SCHZSAN	Schizobrachiella sanguinea	(Norman, 1868)				Ebr		16	2013 (16)
1264	SCIAUMB	Sciaena umbra	Linnaeus, 1758	C	137.1.1		Ao	0	6, 15, 16, 19	
1265	SCOBSAU	Scomberesox saurus saurus	(Walbaum, 1792)	C	91.1.1		Ao	0	9, 10, 22	
1266	SCOHRHO	Scophthalmus rhombus	(Linnaeus, 1758)	C	195.1.1		Ao	0	1, 6, 7, 8, 9, 11, 15, 17, 18, 19, 20, 22	
1267	SCOMPNE	Scomber colias	Gmelin, 1789	C	156.1.2	**a53**	Ao	0	1, 2, 5, 6, 7, 8, 9, 10, 11, 15, 16, 17, 18, 19, 20, 22, 23, 25	
1268	SCOMSCO	Scomber scombrus	Linnaeus, 1758	C	156.1.1		Ao	0	1, 2, 5, 6, 7, 8, 9, 10, 11, 15, 16, 17, 18, 19, 20, 22, 23, 25	
1269	SCOMSPP	Scomber spp.	Linnaeus, 1758	C	156,1		Ao	0	6, 15, 16, 17	2013 (6)
1270	SCORELO	Scorpaena elongata	Cadenat, 1943	C	184.1.3		Ao	0	1, 2, 5, 6, 7, 8, 9, 10, 11, 15, 16, 17, 18, 19, 20, 22, 23, 25	
1271	SCORLOP	Scorpaena loppei	Cadenat, 1943	C	184.1.5		Ao	0	1, 2, 5, 6, 7, 8, 9, 11, 16	
1272	SCORMAD	Scorpaena maderensis	Valenciennes, 1833	C	184.1.6		Ao	0	7, 22	
1273	SCORNOT	Scorpaena notata	Rafinesque, 1810	C	184.1.7		Ao	0	1, 2, 5, 6, 7, 8, 9, 10, 11, 15, 16, 17, 18, 19, 20, 22, 23, 25	
1274	SCORPOR	Scorpaena porcus	Linnaeus, 1758	C	184.1.1		Ao	0	1, 2, 5, 6, 7, 8, 9, 10, 11, 15, 16, 17, 18, 19, 20, 22, 23, 25	
1275	SCORSCO	Scorpaena scrofa	Linnaeus, 1758	C	184.1.8		Ao	0	1, 5, 6, 7, 8, 9, 10, 11, 15, 16, 17, 18, 19, 20, 22, 23, 25	

1276	SCORSPP	Scorpaena spp.	Linnaeus, 1758	C	184,1		Ao	0	1, 7, 8, 10, 11, 15, 16, 17, 20, 22, 25	2011 (10)
1277	SCRUSCR	Scrupocellaria scrupea	Busk, 1852				Ebr		10, 18	2013 (10, 18)
1278	SCYLARC	Scyllarus arctus	(Linnaeus, 1758)	F	SCYL Scylr 1		B	m	1, 5, 6, 7, 9, 19, 22, 25	
1279	SCYLCAP	Scyllarus caparti	Holthuis, 1952	Y	76	AL	B	m	25	2014 (25)
1280	SCYLLAT	Scyllarides latus	(Latreille, 1803)	F	SCYL Scyld 1		B	m	5, 6, 9, 11, 16, 19, 20, 25	
1281	SCYLPYG	Scyllarus pygmaeus	(Bate, 1888)	F	SCYL Scylr 2		B	m	2, 5, 6, 18, 19, 22	
1282	SCYMLIC	Dalatias licha	(Bonnaterre, 1788)	C	16.4.3	**a54**	Ae	0	1, 2, 5, 6, 7, 8, 9, 11, 10, 15, 16, 17, 18, 19, 20, 22	
1283	SCYOCAN	Scyliorhinus canicula	(Linnaeus, 1758)	C	11.1.1		Ae	0	1, 2, 5, 6, 7, 8, 9, 10, 11, 15, 16, 17, 18, 19, 20, 22, 23, 25	
1284	SCYOEGG	Eggs capsules of Scyliorhinidae					G		10, 18	2013 (10, 18)
1285	SCYOSTE	Scyliorhinus stellaris	(Linnaeus, 1758)	C	11.1.2		Ae	0	6, 7, 8, 9, 10, 11, 15, 16, 17, 18, 19, 22, 25	
1286	SEBDSPP	Sebdenia spp.	Berthold, 1882				V		5	2013 (5)
1287	SEPENEG	Sepietta neglecta	Naef, 1916	F, P	SEPIOL, 106		C	0	5, 6, 9, 10, 15, 16, 17, 20, 22	
1288	SEPEOBS	Sepietta obscura	Naef, 1916	F, P	SEPIOL, 103		C	0	6, 10, 15, 16, 17, 18	
1289	SEPEOWE	Sepietta oweniana	(d'Orbigny, 1841)	F, P	SEPIOL, 104		C	0	1, 2, 5, 6, 7, 8, 9, 10, 11, 15, 16, 17, 18, 19, 20, 22	
1290	SEPESPP	Sepietta spp.	Naef, 1912	F, P	SEPIOL, 103		C	0	5, 8, 9, 10, 11, 16, 17, 18, 20, 22, 25	
1291	SEPIEGG	Eggs capsules of Sepiidae					G		10, 18, 19	2013 (10, 18)
1292	SEPIELE	Sepia elegans	Blainville, 1827	F, P	SEP Sep 3, 79		C	0	1, 2, 5, 6, 7, 8, 9, 10, 11, 15, 16, 17, 18, 19, 20, 22, 23, 25	
1293	SEPIOFF	Sepia officinalis	Linnaeus, 1758	F, P	SEP Sep 1, 77		C	0	1, 2, 5, 6, 7, 8, 9, 10, 11, 15, 16, 17, 18, 19, 20, 22, 23, 25	
1294	SEPIORB	Sepia orbignyana	Férussac, 1826	F, P	SEP Sep 4, 80		C	0	1, 2, 5, 6, 7, 8, 9, 10, 11, 15, 16, 17, 18, 19, 20, 22, 23, 25	

1295	SEPISPP	Sepia spp.	Linnaeus, 1758	F, P	SEP Sep 1, 76		C	0	1, 6, 7, 8, 9, 15, 16, 17	
1296	SEPLDAE	Sepiolidae	Leach, 1817	P	82		C	0	1, 2, 5, 6, 15, 25	2013 (1, 2, 5, 6)
1297	SEPOAFF	Sepiola affinis	Naef, 1912	F, P	SEPIOL, 99		C	0	6, 10, 15, 16, 17, 18, 19, 20, 22	
1298	SEPOINT	Sepiola intermedia	Naef, 1912	F, P	SEPIOL, 100		C	0	1, 6, 7, 9, 10, 16, 17, 18, 19, 20, 22	
1299	SEPOLIG	Sepiola ligulata	Naef, 1912	F, P	SEPIOL, 97		C	0	6, 9, 10, 15, 16, 17, 19, 20, 22	
1300	SEPOROB	Sepiola robusta	Naef, 1912	F, P	SEPIOL, 97		C	0	1, 5, 6, 7, 9, 17, 18, 19, 20, 22	
1301	SEPORON	Sepiola rondeletii	Leach, 1817	F, P	SEPIOL, 99		C	0	7, 8, 9, 10, 15, 16, 17, 18, 19, 20, 22	
1302	SEPOSPP	Sepiola spp.	Leach, 1817	F, P	SEP, 92		C	0	1, 5, 6, 7, 8, 9, 10, 11, 15, 16, 17, 18, 19, 20, 22, 23, 25	
1303	SERAATR	Serranus atricauda	Günther, 1874	C	124.1.2	Δ	Ao	0	22	
1304	SERACAB	Serranus cabrilla	(Linnaeus, 1758)	C	124.1.1		Ao	0	1, 2, 5, 6, 7, 8, 9, 10, 11, 15, 16, 17, 18, 19, 20, 22, 23, 25	
1305	SERAHEP	Serranus hepatus	(Linnaeus, 1758)	C	124.1.3		Ao	0	1, 2, 5, 6, 7, 8, 9, 10, 11, 15, 16, 17, 18, 19, 20, 22, 23, 25	
1306	SERASCR	Serranus scriba	(Linnaeus, 1758)	C	124.1.4		Ao	0	8, 9, 10, 11, 16, 17, 18, 20, 22, 25	
1307	SEREDAE	Sergestidae	Dana, 1852	Z	59		B		9, 17, 19, 20, 22, 25	2012 (25)
1308	SERGARC	Eusergestes arcticus	(Krøyer, 1855)	Z	61	**b32**	B	m	1, 2, 5, 6, 7, 8, 9, 10, 11, 16, 18, 20, 22	
1309	SERGROB	Sergia robusta	(Smith, 1882)	Z	61	**b33**	B	m	1, 2, 5, 6, 7, 8, 9, 10, 11, 16, 19, 20, 22	
1310	SERGSAR	Allosergestes sargassi	(Ortmann, 1893)	Z	62	**b34**	B	m	1, 5, 6, 9, 10, 20	
1311	SERIDUM	Seriola dumerili	(Risso, 1810)	C	131.9.1		Ao	0	6, 9, 10, 11, 17, 19, 22	
1312	SERPSPP	Serpula spp.	Linnaeus, 1758				Epo		10	2013 (10)
1313	SERPVER	Serpula vermicularis	Linnaeus, 1767				Epo		5, 16, 19	2013 (5)
1314	SERRDAE	Serranidae	Swainson, 1839	C	124a		Ao	0	16	2014 (16)
1315	SERTCRA	Sertularella crassicaulis	(Heller, 1868)				Ecn		10	2013 (10)
1316	SERTSPP	Sertularella spp.	Gray, 1848				Ecn		16, 18	2013 (16)

1317	SERUDAE	Serpulidae	Rafinesque, 1815				Epo		5, 9	2013 (5)
1318	SHELDEB	Shell drebis					G		10	2011 (10)
1319	SICYCAR	Sicyonia carinata	(Brünnich, 1768)	Z	57		B	m	11, 15, 16, 17, 19	2011 (19)
1320	SIGALUR	Siganus luridus	(Rüppell, 1829)	G	178	AL	Ao	0	25	2012 (25)
1321	SIGARIV	Siganus rivulatus	Forsskål & Niebuhr, 1775	G	180	Δ AL	Ao	0	22, 25	2012 (25)
1322	SIPHRAE	Siphonophorae	Eschscholtz, 1829				Ecn		1, 2, 5, 6	2013 (1, 2, 5, 6)
1323	SIPNDAE	Sipunculidae	Rafinesque, 1814				Esi		1, 5, 6	2013 (1, 5, 6)
1324	SIPUNUD	Sipunculus nudus	Linnaeus, 1766				Esi		5	2013 (5)
1325	SIPUSPP	Sipunculus spp.	Linnaeus, 1766				Esi		7	2015 (7)
1326	SMITCER	Smittina cervicornis	(Pallas, 1766)				Ebr		5	2014 (5)
1327	SOLCSCO	Solecurtus scopula	(Turton, 1822)				Emb		16	2013 (16)
1328	SOLCSTR	Solecurtus strigilatus	(Linnaeus, 1758)				Emb		10	2013 (10)
1329	SOLEIMP	Pegusa impar	(Bennett, 1831)	C	198.1.2	**a55**	Ao	0	5, 7, 9, 11, 16, 17, 18, 20	
1330	SOLEKLE	Synapturichthys kleinii	(Risso, 1827)	C	198.1.3	**a56**	Ao	0	5, 8, 11, 16, 17, 20, 22	
1331	SOLELAS	Pegusa lascaris	(Risso, 1810)	C	198.1.4	**a57**	Ao	0	1, 7, 9, 10, 11, 15, 16, 17, 22	
1332	SOLESEN	Solea senegalensis	Kaup, 1858	C / G	198.1.6 / 194	Δ	Ao	0	1, 6	
1333	SOLESPP	Solea spp.	Quensel, 1806	C	198,1		Ao	0	7, 8, 15, 16, 17, 19, 20, 22	2011 (19)
1334	SOLEVUL	Solea solea	(Linnaeus, 1758)	C	198.1.1	**a58**	Ao	0	1, 5, 6, 7, 8, 9, 10, 11, 15, 16, 17, 18, 19, 20, 22, 23, 25	
1335	SOLOMEM	Solenocera membranacea	(Risso, 1816)	F	SOLENO Soleno		B	m	1, 2, 5, 6, 7, 8, 9, 10, 11, 15, 16, 17, 18, 19, 20, 22	
1336	SPARAUR	Sparus aurata	Linnaeus, 1758	C	139.1.1		Ao	0	1, 6, 7, 9, 10, 11, 16, 17, 18, 19, 20, 22	
1337	SPARCAE	Pagrus caeruleostictus	(Valenciennes, 1830)	C	139.11.2	**a59**	Ao	0	18	
1338	SPARPAG	Pagrus pagrus	(Linnaeus, 1758)	C	139.11.3	**a60**	Ao	0	1, 2, 5, 6, 7, 8, 9, 10, 11, 15, 16, 17, 18, 19, 20, 22, 23, 25	
1339	SPASCRE	Sparisoma cretense	(Linnaeus, 1758)	C	152.1.1		Ao	0	25	2012 (25)
1340	SPATINE	Spatangus subinermis	Pomel, 1887	T	357s	**e32**	Eec	0	18	2013 (18)
1341	SPATPUR	Spatangus purpureus	O.F. Müller, 1776	R, T	p. 559 Tav. 222, 352		Eec	0	1, 2, 5, 6, 7, 8, 9, 10, 11, 15, 16, 18, 19	2011 (9, 18)

1342	SPHAGRA	Sphaerechinus granularis	(Lamarck, 1816)	F, T	TOX Sphaer 1, 323		Eec	0	1, 5, 6, 11, 16, 18, 19	2011 (18)
1343	SPHENIT	Sphaerozius nitidus	Stimpson, 1858		WoRMS	Δ	B		1	2013 (1)
1344	SPHOCUT	Sphoeroides pachygaster	(Müller & Troschel, 1848)	C / G	204.3.2 / 208	**a61** AL	Ao	0	1, 6, 15, 16, 18, 19, 20, 25	
1345	SPHRCOR	Sphaerococcus coronopifolius	Stackhouse, 1797				V		5	2013 (5)
1346	SPHRRHI	Sphaerococcus rhizophylloides	Rodríguez & Femenìas, 1895			Δ	V		5	2013 (5)
1347	SPHYSPY	Sphyraena sphyraena	(Linnaeus, 1758)	C	180.1.1		Ao	0	1, 6, 7, 9, 10, 16, 17, 18, 19, 20, 22, 23	
1348	SPICFLE	Spicara flexuosa	Rafinesque, 1810	C	141.2.2		Ao	0	1, 2, 6, 7, 8, 9, 10, 11, 15, 16, 17, 18, 19, 20, 22, 23, 25	
1349	SPICMAE	Spicara maena	(Linnaeus, 1758)	C	141.2.1		Ao	0	1, 5, 6, 7, 8, 9, 10, 11, 15, 16, 17, 18, 19, 20, 22, 23, 25	
1350	SPICSMA	Spicara smaris	(Linnaeus, 1758)	C	141.2.3		Ao	0	1, 2, 5, 6, 7, 8, 9, 10, 11, 15, 16, 17, 18, 19, 20, 22, 23, 25	
1351	SPICSPP	Spicara spp.	Rafinesque, 1810	C	141,2		Ao	0	7, 8	
1352	SPISSOL	Spisula solida	(Linnaeus, 1758)			Δ	Dmb		1, 2	2014 (1, 2)
1353	SPISSPP	Spisula spp.	Gray, 1837	F	MACTR		Emb	0	1, 6	
1354	SPISSUB	Spisula subtruncata	(Da Costa, 1778)	F	MACTR		Emb	0	6	
1355	SPOADAE	Spongiidae	Gray, 1867	R	120		Esp	0	5	2013 (5)
1356	SPODCAN	Spondyliosoma cantharus	(Linnaeus, 1758)	C	139.10.1		Ao	0	1, 5, 6, 7, 8, 9, 10, 11, 15, 16, 17, 18, 19, 22	
1357	SPOGFRU	Spongites fruticulosa	Kützing, 1841				V		5	2013 (5)
1358	SPONOFF	Spongia officinalis	Linnaeus, 1759	F R	SPONG Spong 1a, 120		Esp	0	5, 11, 16, 19	2011 (19)
1359	SPRASPR	Sprattus sprattus	(Linnaeus, 1758)	C	33.5.1		Ao	0	6, 7, 8, 16, 17, 18, 19, 20, 22	
1360	SQUAACA	Squalus acanthias	Linnaeus, 1758	C	16.1.1		Ae	0	1, 5, 6, 7, 8, 9, 10, 11, 16, 17, 18, 20, 22, 23, 25	
1361	SQUABLA	Squalus blainville	(Risso, 1827)	C	16.1.2		Ae	0	5, 6, 7, 8, 9, 10, 11, 15, 16, 17, 18, 19, 20, 22, 25	
1362	SQUIMAN	Squilla mantis	(Linnaeus, 1758)	F	SQUIL Squil 5		Bst	m	1, 6, 7, 8, 9, 10, 11, 15, 16, 17, 18, 19, 20, 22, 23, 25	

1363	SQUTACU	Squatina aculeata	Cuvier, 1829	C	17.1.2		Ae	0	8, 15, 22	
1364	SQUTOCL	Squatina oculata	Bonaparte, 1840	C	17.1.3		Ae	0	15, 22	
1365	SQUTSPP	Squatina spp.	Duméril, 1806	C	17,1		Ae	0	8	
1366	SQUTSQU	Squatina squatina	(Linnaeus, 1758)	C	17.1.1		Ae	0	7, 8, 15	
1367	STENSPI	Stenopus spinosus	Risso, 1827	Z	66		B	m	9, 20, 22	2011 (9)
1368	STEPDIA	Stephanolepis diaspros	Fraser-Brunner, 1940	C / G	202.1.2 / 200	AL	Ao	0	22, 25	
1369	STERSCU	Sternaspis scutata	(Ranzani, 1817)	R	p. 383 Tav. 147		Epo	0	1, 9, 10, 16, 18	2011 (9, 10)
1370	STICREG	Parastichopus regalis	(Cuvier, 1817)	F, T	STICH Stich 1, 66s	**e33**	Eec	0	1, 2, 5, 6, 9, 10, 11, 15, 16, 17, 18, 19	
1371	STOLLEU	Stoloteuthis leucoptera	(Verrill, 1878)	F, P	SEPIOL, 89		C	0	1, 6, 9	
1372	STOMBOA	Stomias boa boa	(Risso, 1810)	C	41.1.1		Ao	0	1, 2, 5, 6, 7, 8, 9, 10, 11, 15, 16, 17, 18, 19, 20, 22, 25	
1373	STROFIA	Stromateus fiatola	Linnaeus, 1758	C	179.1.1		Ao	0	6, 9, 16, 19	
1374	STYECAN	Styela canopus	(Savigny, 1816)				Etu		1, 2, 5, 6	2013 (1, 2, 5, 6)
1375	STYEPLI	Styela plicata	(Lesueur, 1823)				Etu		1, 2, 5, 6	2013 (1, 2, 5, 6)
1376	STYESPP	Styela spp.	Fleming, 1822	F	STYEL		Etu	0	18	2011 (18)
1377	STYLAFF	Stylocidaris affinis	(Philippi, 1845)	R, T	p. 555 Tav. 221, 305		Eec	0	5, 9, 10, 11, 15, 16, 18	2011 (10, 18)
1378	SUBECAR	Suberites carnosus	(Johnston, 1842)	R	p. 111 Tav. 37		Esp	0	7	
1379	SUBEDOM	Suberites domuncula	(Olivi, 1792)	R	p. 111 Tav. 37		Esp	0	1, 2, 5, 6, 9, 10, 11, 16, 17, 18, 19	
1380	SUBEFIC	Suberites ficus	(Johnston, 1842)				Esp		7, 8, 22	2013 (7, 8)
1381	SUBESPP	Suberites spp.	Nardo, 1833	R	p. 111		Esp	0	9, 17, 18, 19	
1382	SUDIHYA	Sudis hyalina	Rafinesque, 1810	C	63.5.1		Ao	0	10, 15, 16, 18, 19, 22, 25	2011 (10, 18, 19)
1383	SYMBVER	Symbolophorus veranyi	(Moreau, 1888)	C	58.19.1		Ao	0	1, 5, 6, 7, 8, 9, 10, 16, 17, 18, 19, 20, 22	
1384	SYMDCIN	Symphodus cinereus	(Bonnaterre, 1788)	C	145.9.3		Ao	0	1, 5, 8, 9, 10, 11, 15, 16, 17, 19, 22, 25	

1385	SYMDDOD	Symphodus doderleini	Jordan, 1890	C	145.9.5		Ao	0	11, 25	2014 (11, 25)
1386	SYMDMED	Symphodus mediterraneus	(Linnaeus, 1758)	C	145.9.6		Ao	0	8, 11, 16, 17, 22, 25	
1387	SYMDOCE	Symphodus ocellatus	(Linnaeus, 1758)	C	145.9.9		Ao	0	8, 9, 11, 25	
1388	SYMDROI	Symphodus roissali	(Risso, 1810)	C	145.9.11		Ao	0	9, 10, 11, 17	2011 (9, 10)
1389	SYMDROS	Symphodus rostratus	(Bloch, 1791)	C	145.9.1		Ao	0	8, 25	
1390	SYMDSPP	Symphodus spp.	Rafinesque, 1810	C	145.9		Ao	0	11, 17, 20, 22	2014 (11, 17, 20, 22)
1391	SYMDTIN	Symphodus tinca	(Linnaeus, 1758)	C	145.9.12		Ao	0	8, 11, 22, 25	
1392	SYMPLIG	Symphurus ligulatus	(Cocco, 1844)	C	199.2.2		Ao	0	1, 5, 6, 7, 8, 9, 10, 11, 15, 16, 18, 19, 20, 22	
1393	SYMPNIG	Symphurus nigrescens	Rafinesque, 1810	C	199.2.1		Ao	0	1, 2, 5, 6, 7, 8, 9, 10, 11, 15, 16, 17, 18, 19, 20, 22, 23, 25	
1394	SYMPSPP	Symphurus spp.	Rafinesque, 1810	C	199.2		Ao	0	11, 16, 20, 22	2014 (11, 20, 22)
1395	SYNAGAM	Synalpheus gambarelloides	(Nardo, 1847)	Z	141		B	m	22	2014 (22)
1396	SYNDSAU	Synodus saurus	(Linnaeus, 1758)	C	51.1.2		Ao	0	1, 5, 6, 8, 9, 10, 11, 15, 16, 18, 19, 20, 22, 23, 25	
1397	SYNGABA	Syngnathus abaster	Risso, 1827	C	97.1.2		Ao	0	16	2014 (16)
1398	SYNGACU	Syngnathus acus	Linnaeus, 1758	C	97.1.1		Ao	0	1, 5, 6, 7, 8, 11, 15, 16, 17, 18, 19, 20, 22, 23, 25	
1399	SYNGPHL	Syngnathus phlegon	Risso, 1827	C	97.1.3		Ao	0	6, 17, 22	
1400	SYNGSPP	Syngnathus spp.	Linnaeus, 1758	C	97,1		Ao	0	7, 11, 17, 18, 20, 22	2011 (18)
1401	SYNGTAE	Syngnathus taenionotus	Canestrini, 1871	C	97.1.6		Ao	0	7, 22	
1402	SYNGTEN	Syngnathus tenuirostris	Rathke, 1837	C	97.1.7		Ao	0	17, 19	2011 (19)
1403	SYNGTYP	Syngnathus typhle	Linnaeus, 1758	C	97.1.8		Ao	0	11, 17, 19, 22, 25	
1404	SYNOBLO	Synoicum blochmanni	(Heiden, 1894)			Δ	Etu		5	2014 (5)
1405	SYNTDAE	Synaptidae	Burmeister, 1837	T	101		Eec	0	7	2015 (7)
1406	SYSTDEB	Systellaspis debilis	(A. Milne-Edwards, 1881)	Z	93	Δ	B	m	7	2013 (7)
1407	TALOMUL	Talochlamys multistriata	(Poli, 1795)				Emb		20	2015 (20)
1408	TECTFIL	Tectonatica sagraiana	(d'Orbigny, 1842)			**e34**	Emg		16	2013 (16)
1409	TELLALB	Tellina albicans	Gmelin, 1791				Dmb		19	2014 (19)

1410	TELLCRA	Arcopagia crassa	(Pennant, 1777)			**d35**	Dmb		16	2013 (16)
1411	TELLFAB	Tellina fabula	Gmelin, 1791				Dmb		16	2013 (16)
1412	TELLPLA	Tellina planata	Linnaeus, 1758				Dmb		16	2013 (16)
1413	TELLSPP	Tellina spp.	Linnaeus, 1758	F	TELL		Dmb	0	1, 6, 10	
1414	TELMFOR	Telmatactis forskali	(Hemprich & Ehrenberg, 1834)	R	p. 166 Tav. 60		Ecn	0	18	2011 (18)
1415	TENAOBT	Tenagodus obtusus	(Schumacher, 1817)				Emg		16	2013 (16)
1416	TERENAV	Teredo navalis	Linnaeus, 1758				Emb		16, 19	2013 (16)
1417	TETAAUR	Tethya aurantium	(Pallas, 1766)	R	p. 109 Tav. 36		Esp	0	1, 5, 6, 9, 18	2011 (9, 18)
1418	TETACIT	Tethya citrina	Sarà & Melone, 1965	R	p. 110 Tav. 36		Esp	0	16, 18	2011 (18)
1419	TETHFIM	Tethys fimbria	Linnaeus, 1767	R	p. 292 Tav. 112		Emo	0	1, 5, 6, 7, 8, 9, 10, 16, 17, 18, 19	
1420	TETYSUB	Tethyaster subinermis	(Philippi, 1837)	T	145		Eec	0	1, 2, 5, 6, 9, 10, 15, 16, 18, 19	2011 (9, 10, 18)
1421	THAIDEM	Thalia democratica	(Forsskål, 1775)				Etu		19	2014 (19)
1422	THALPAV	Thalassoma pavo	(Linnaeus, 1758)	C	145.10.1		Ao	0	17	2014 (17)
1423	THAMPOI	Thalamita poissonii	(Audouin, 1826)	Y	118	Δ AL	B	m	22, 25	
1424	THENMUR	Thenea muricata	(Bowerbank, 1858)	R	p. 108 Tav. 35		Esp	0	1, 2, 5, 6, 9, 16, 18, 19	2011 (9)
1425	THIASCU	Thia scutellata	(Fabricius, 1793)	Z	343		B	m	22	2014 (22)
1426	THRAPHA	Thracia phaseolina	(Lamarck, 1818)				Emb		1, 16, 19	2013 (1, 16)
1427	THRASPP	Thracia spp.	Blainville, 1824				Emb		16	2013 (16)
1428	THYLARE	Thylacodes arenarius	(Linnaeus, 1758)				Emg		20	2015 (20)
1429	THYNFUS	Thyone fusus	(O.F. Müller, 1776)	T	88s		Eec	0	16, 18	2013 (16, 18)
1430	THYOELO	Leptopentacta elongata	(Düben & Koren, 1844)	R, T	p. 551 Tav. 218, 85s	**e35**	Eec	0	1, 6, 7, 8, 9, 10, 16, 18	2011 (9, 18)
1431	THYOSPP	Leptopentacta spp.	Clark, 1938	T	83s	**e36**	Eec	0	16	2013 (16)
1432	THYOTER	Leptopentacta tergestina	(M. Sars, 1857)	R, T	p. 551 Tav. 218, 83s	**e37**	Eec	0	1, 5, 6, 9, 10, 16, 18	2011 (9)
1433	TODASAG	Todarodes sagittatus	(Lamarck, 1798)	F, P	OMMAS Todarod, 172		C	0	1, 2, 5, 6, 7, 8, 9, 10, 11, 15, 16, 17, 18, 19, 20, 22, 23, 25	

1434	TODIEBL	Todaropsis eblanae	(Ball, 1841)	F, P	OMMAS Todarod, 170		C	0	1, 2, 5, 6, 7, 8, 9, 10, 11, 15, 16, 17, 18, 19, 20, 22, 23, 25	
1435	TONNGAL	Tonna galea	(Linnaeus, 1758)	F	TONN Tonn 1		Dmg	0	6, 16, 18, 19	2011 (18)
1436	TORPMAR	Torpedo marmorata	Risso, 1810	C	20.1.2		Ae	0	1, 2, 5, 6, 7, 8, 9, 10, 11, 15, 16, 17, 18, 19, 20, 22, 23, 25	
1437	TORPNOB	Torpedo nobiliana	Bonaparte, 1835	C	20.1.3		Ae	0	1, 2, 6, 7, 8, 9, 11, 15, 16, 17, 19, 20, 22, 25	
1438	TORPSPP	Torpedo spp.	Houttuyn, 1764	C	20,1		Ae	0	7, 8, 11, 17	
1439	TORPTOR	Torpedo torpedo	(Linnaeus, 1758)	C	20.1.1		Ae	0	1, 7, 8, 9, 10, 11, 16, 17, 18, 19, 20, 22, 25	
1440	TRACMED	Trachurus mediterraneus	(Steindachner, 1868)	C	131.10.3		Ao	0	1, 2, 5, 6, 7, 8, 9, 10, 11, 15, 16, 17, 18, 19, 20, 22, 23, 25	
1441	TRACPIC	Trachurus picturatus	(Bowdich, 1825)	C	131.10.4		Ao	0	1, 2, 5, 6, 7, 8, 9, 10, 11, 15, 16, 17, 18, 19, 20, 22, 23, 25	
1442	TRACTRA	Trachurus trachurus	(Linnaeus, 1758)	C	131.10.1		Ao	0	1, 2, 5, 6, 7, 8, 9, 10, 11, 15, 16, 17, 18, 19, 20, 22, 23, 25	
1443	TRAHARA	Trachinus araneus	Cuvier, 1829	C	148.1.2		Ao	0	6, 7, 8, 9, 11, 16, 17, 20, 22	
1444	TRAHDRA	Trachinus draco	Linnaeus, 1758	C	148.1.1		Ao	0	1, 2, 5, 6, 7, 8, 9, 10, 11, 15, 16, 17, 18, 19, 20, 22, 23, 25	
1445	TRAHRAD	Trachinus radiatus	Cuvier, 1829	C	148.1.3		Ao	0	1, 2, 5, 6, 7, 8, 9, 11, 15, 16, 17, 18, 20, 22, 25	
1446	TRAPTRA	Trachipterus trachypterus	(Gmelin, 1789)	C	107.1.1		Ao	0	6, 17, 22	2013 (6)
1447	TRARTRA	Trachyrincus scabrus	(Rafinesque, 1810)	C	99.1.1	**a62**	Ao	0	1, 2, 5, 6, 7, 8, 9, 11, 17, 18, 19, 25	
1448	TRAYCRI	Trachyscorpia cristulata echinata	(Köhler, 1896)	C / G	184.7.1 / 98	Δ AL	Ao	0	1, 2	
1449	TRIGLUC	Chelidonichthys lucerna	(Linnaeus, 1758)	C	185.1.2	**a63**	Ao	0	1, 5, 6, 7, 8, 9, 10, 11, 15, 16, 17, 18, 19, 20, 22, 23, 25	
1450	TRIGLYR	Trigla lyra	Linnaeus, 1758	C	185.1.1		Ao	0	1, 2, 5, 6, 7, 8, 9, 10, 11, 15, 16, 17, 18, 19, 20, 22, 23, 25	
1451	TRIILEP	Trichiurus lepturus	Linnaeus, 1758	C	155.1.1		Ao	0	25	
1452	TRILDAE	Triglidae	Risso, 1826	C	185		Ao	0	16	2014 (16)
1453	TRIOHOM	Tritonia hombergii	Cuvier, 1803			Δ	Emo		7	2013 (7)

1454	TRIPLAS	Trigloporus lastoviza	(Bonnaterre, 1788)	C	185.5.1		Ao	0	1, 2, 5, 6, 7, 8, 9, 10, 11, 15, 16, 18, 19, 20, 22, 23, 25	
1455	TRISCAP	Trisopterus capelanus	(Lacepède, 1800)	C	101.11.1		Ao	0	1, 5, 6, 7, 8, 9, 10, 11, 15, 16, 17, 18, 19, 20, 22, 23	
1456	TRISLUS	Trisopterus luscus	(Linnaeus, 1758)	C	101.11.3		Ao	0	6, 7	
1457	TRITNOD	Charonia lampas	(Linnaeus, 1758)	F	CYM Char 1	**d36**	Dmg	0	1, 2, 5, 6, 7, 16	
1458	TRIVMON	Trivia monacha	(Da Costa, 1778)				Emg		1, 2, 5, 6	2013 (1, 2, 5, 6)
1459	TROPMUR	Trophonopsis muricata	(Montagu, 1803)				Emg		16	2013 (16)
1460	TROPSPP	Trophonopsis spp.	Bucquoy, Dautzenberg & Dollfus, 1882				Emg		16	2013 (16)
1461	TUBPSPP	Tubulipora spp.	Lamarck, 1816				Ebr		18	2014 (18)
1462	TUBUANN	Tubulanus annulatus	(Montagu, 1804)				Ene		5	2013 (5)
1463	TUBUSPP	Tubulanus spp.	Renier, 1804				Ene		7	2013 (7)
1464	TURRCOM	Turritella communis	Risso, 1826	R	p. 246 Tav. 94		Emg	0	1, 5, 6, 9, 16, 17, 18	
1465	TURRSIM	Fusiturris similis	(Bivona, 1838)			**e38**	Emg	0	1, 2, 6, 16	
1466	TURRSPP	Turritella spp.	Lamarck, 1799	F	TURR		Emg	0	1, 5, 6, 17	
1467	TURRTUR	Turritella turbona	Monterosato, 1877				Emg		5, 16	2013 (5)
1468	TYPTSPO	Typton spongicola	O.G. Costa, 1844	Z	176		B		5, 6, 18	2013 (5, 6)
1469	ULVAOLI	Umbraulva olivascens	Furnari, 2006			**v2**	V		1, 2, 5, 6	2013 (1, 2, 5, 6)
1470	ULVASPP	Ulva spp.	Linnaeus, 1753				V		1, 2, 5, 6	2013 (1, 2, 5, 6)
1471	UMBAMED	Umbraculum umbraculum	(Lightfoot, 1786)	R	p. 287 Tav. 111	**e39**	Emo	0	1, 2, 5, 6	
1472	UMBRCAN	Umbrina canariensis	Valenciennes, 1843	C	137.4.2		Ao	0	6, 15, 16	
1473	UMBRCIR	Umbrina cirrosa	(Linnaeus, 1758)	C	137.4.1		Ao	0	6, 9, 17	
1474	UMBRRON	Umbrina ronchus	Valenciennes, 1843	C	137.4.3		Ao	0	6	
1475	UPENMOL	Upeneus moluccensis	(Bleeker, 1855)	C / G	138.3.1 / 134	Δ AL	Ao	0	25	
1476	UPENPOR	Upeneus pori	Ben-Tuvia & Golani, 1989	G	136	Δ AL	Ao	0	25	2012 (25)

1477	UPOGPUS	Upogebia pusilla	(Petagna, 1792)	Z	231		B	m	22	2014 (22)
1478	UPOGSPP	Upogebia spp.	Leach, 1814	Z	230		B		1, 2, 5, 6	2013 (1, 2, 5, 6)
1479	UPOGTIP	Upogebia tipica	(Nardo, 1869)	Z	231		B		1, 2, 5, 6	2013 (1, 2, 5, 6)
1480	URANSCA	Uranoscopus scaber	Linnaeus, 1758	C	149.1.1		Ao	0	1, 2, 5, 6, 7, 8, 9, 10, 11, 15, 16, 17, 18, 19, 20, 22, 23, 25	
1481	VALOMAC	Valonia macrophysa	Kützing, 1843				V		5	2013 (5)
1482	VALOSPP	Valonia spp.	C. Agardh, 1823				V		7, 8	2013 (7, 8)
1483	VALOUTR	Valonia utricularis	C. Agardh, 1823				V		5	2013 (5)
1484	VENEDEC	Ruditapes decussatus	(Linnaeus, 1758)			**d37**	Dmb		1, 2, 5, 6	2013 (1, 2, 5, 6)
1485	VENESPP	Venerupis spp.	Lamarck, 1818				Dmb		1, 2, 5, 6, 16	2013 (16)
1486	VENTHAL	Kirchenpaueria halecioides	(Alder, 1859)			**e40**	Ecn		16	2013 (16)
1487	VENUNUX	Venus nux	Gmelin, 1791				Dmb		1, 5, 6	2013 (1, 5, 6)
1488	VENUSPP	Venus spp.	Linnaeus, 1758	F	VEN		Dmb	0	1, 6	
1489	VENUVER	Venus verrucosa	Linnaeus, 1758	F	VEN Ven 1		Dmb	0	5, 6, 16, 19	
1490	VERECYN	Veretillum cynomorium	(Pallas, 1766)				Ecn		1, 2, 5, 6	2013 (1, 2, 5, 6)
1491	VERESPP	Veretillum spp.	Cuvier, 1798				Ecn		7	2013 (7)
1492	VERMINF	Vermiliopsis infundibulum	(Philippi, 1884)				Epo		18	2015
1493	VERTDAE	Veretillidae	Herklots, 1858				Ecn		1	2013 (1)
1494	VINCATT	Vinciguerria attenuata	(Cocco, 1838)	C	37.12.1		Ao	0	1, 6, 10, 11, 18, 19, 20, 22, 25	
1495	VINCPOW	Vinciguerria poweriae	(Cocco, 1838)	C	37.12.3		Ao	0	1, 6, 8, 9, 22, 23	
1496	VINCSPP	Vinciguerria spp.	Jordan & Evermann, 1896	C	37,12		Ao	0	6, 20	2013 (6)
1497	VIRGMIR	Virgularia mirabilis	(Müller, 1776)				Ecn		5, 6, 16	2013 (5, 6)
1498	XANHDAE	Xanthidae	MacLeay, 1838	Z	29 387		B		1, 2, 5, 6, 25	2013 (1, 2, 5, 6)
1499	XANTCOU	Monodaeus couchii	(Couch, 1851)	Z	400	**b35**	B	m	1, 2, 5, 6, 9, 10, 11, 16, 18, 19, 20, 22	
1500	XANTPIL	Xantho pilipes	A. Milne-Edwards, 1867	Z	395		B	m	5, 10	2011 (10)

1501	XANTPOR	Xantho poressa	(Olivi, 1792)	Z	395		B		5	2014 (5)
1502	XANTSPP	Xantho spp.	Leach, 1814	Z	394		B		1, 6, 18	2013 (1, 6)
1503	XENOCRI	Xenophora crispa	(König, 1825)	F	XENOPH		Emg	m	1, 2, 5, 6, 16	
1504	XIPHGLA	Xiphias gladius	Linnaeus, 1758	C	161.1.1		Ao	0	5, 16	
1505	XYRINOV	Xyrichtys novacula	(Linnaeus, 1758)	C	145.11.1		Ao	0	10, 11, 16, 19, 22, 25	2011 (10, 19)
1506	ZANASPP	Zanardinia spp.	Nardo, 1857				V		5	2014 (5)
1507	ZANATYP	Zanardinia typus	Silva, 2000				V		1, 2, 5, 6	2013 (1, 2, 5, 6)
1508	ZEUSFAB	Zeus faber	Linnaeus, 1758	C	120.1.1		Ao	0	1, 2, 5, 6, 7, 8, 9, 10, 11, 15, 16, 17, 18, 19, 20, 22, 23, 25	
1509	ZONATOU	Zonaria tournefortii	Montagne, 1846				V		22	2015 (22)
1510	ZOSTOPH	Zosterisessor ophiocephalus	(Pallas, 1814)	C	162.26.1		Ao	0	7	

the shaded cell identify no more valid code

Legend of codes:	
AL= alien species	C= Cephalopoda
Δ= species not yet recorded in Italian seas	Dec/Eec= Echinodermata
Δ Δ= species not yet recorded in the Mediterranean sea	Dmb/Emb= Mollusca Bivalvia
Aa= Fish Agnatha	Dmg/Emg= Mollusca Gastropoda
Ae= Fish Chondrichthyes	Dmo/Emo= Mollusca Opisthobranchia
Ao= Fish Osteichthyes	Dtu/Etu= Tunicata
B= Crustaceans Decapoda	Ean = Annelida
Bam= Crustaceans Amphipoda	Eba= Brachiopoda
Bci= Crustaceans Cirripedia	Ebr= Bryozoa
Beu= Crustaceans Euphausiacea	Ech= Echiura
Bis= Crustaceans Isopoda	Ecn= Cnidaria
Bst= Crustaceans Stomatopoda	Ect= Ctenophora
Ehi = Hirudinea	Source:
Emp= Polyplacophora	C= Clofnam, 1973
Ene= Nemertea	F= Fisher et al., 1987
Epo= Polychaeta	G = Golani et al., 2002
Epr= Priapulida	R= Riedl, 1968
Esc = Scaphopoda	Y = Galil et al., 2002

Esi= Sipuncula Esp= Porifera (sponges) G= Portions or products of animal species (shell debris, eggs of gastropods, selachians, etc.) H= Portions or products of vegetal species (e.g. leaves of seagrasses, of terrestrial plants, etc.) M= Mammalia (mammals) O= Aves (birds) R= Reptilia (turtles) V= Plantae (vegetals)	Z= Zariquiey, 1968 Codlon (Length classes code): m= 1 mm 0 = 0.5 cm 1= 1 cm

REMARKS

a1: The previous name was Antonogadus megalokynodon (Kolombatovic, 1894);
a2: The previous name was Antonogadus spp. (Wheeler, 1969); The species Gaidropsarus spp. has two codes ANTOSPP(old) and the new one GAIDSPP;
a3: The previous name was Aspitrigla cuculus(Linnaeus, 1758);
a4: The previous name was Aspitrigla obscura (Bloch & Schneider, 1801);
a5: The previous name was Balistes carolinensis Gmelin, 1789;
a6: The previous name was Bathypterois mediterraneus Bauchot, 1962;The species Bathypterois dubiushas two codes BATHDUBand BATHMED(the code BATHMED is considered non valid)
a7: The family Blenniidae has two codesBLENNSPP(wrong) and the new one BLEIDAE;
a8: The previous name was Blennius gattorugine Linnaeus, 1758;
a9: The previous name was Blennius incognitus Bath, 1968;
a10: The previous name was Blennius pavo Risso, 1810orLipophrys pavo (Risso, 1810);
a11: The previous name was Blennius rouxi Cocco, 1833;
a12: The previous name wasBlennius tentacularis Brünnich, 1768;
a13: The species Callionymus rissoLesueur, 1814 has two codes CALLRISand CALMRIS(the code CALLRIS is considered non valid);
a14: The previous name was Callionymus phaeton Günther, 1861;
a15: The previous name was Centrophorus uyato (Rafinesque, 1810);
a16: The previous name was Cephalacanthus volitans (Linnaeus, 1758);
a17: The previous name was Citharus macrolepidotus (Bloch, 1787);
a18: The previous name was Coelorhynchus coelorhynchus (Risso, 1810);
a19: The previous name was Dasyatis violacea (Bonaparte, 1832);
a20: The species Diplodus puntazzo (Walbaum, 1792) has two codes DIPLPUNand PUNTPUN (the code PUNTPUN is considered non valid);
a21: The previous name was Epinephelus alexandrinus (Valenciennes, 1828);
a22: The previous name was Epinephelus guaza (Jordan & Evermann, 1896);
a23: The previous name was Gadus merlangus Linnaeus, 1758;

a24: The previous name was Gobius colonialus Risso, 1820;
a25: The previous name was Gobius friesiiMalm, 1874;
a26: The previous name was Gobius linearis Düben, 1845;
a27: The previous name was Gobius quadrimaculatus Valenciennes, 1837;
a28: The previous name was Gobius sanzoi De Buen, 1918;
a29: The previous name was Gobius sueriiRisso, 1810;
a30: The previous name was Labrus bimaculatus Linnaeus, 1758;
a31: The previous name was Lipophrys adriaticus (Steindachner & Kolombatovic, 1883);
a32: The previous name was Microchirus theophila (Risso, 1810);
a33: The family Mugilidae has two codesMUGISPP(wrong) and the new one MUGLDAE;
a34: The previous name was Mustelus mediterraneus Quignard & Capapé, 1972;
a35: The family Myctophidae has two codesMYCOSPP(wrong) and the new one MYCPDAE;
a36: The previous name was Nettodarus brevirostris (Facciolà, 1887);
a37: The previous name was Notolepis rissoi (Bonaparte, 1840);
a38: The previous name was Notoscopelus kroeyeri (Malm, 1861);The species Notoscopelus bolinihas two codes NOTSBOL and NOTSKRO(the code NOTSKRO is considered non valid);
a39: The previous name was Odontaspis taurus (Rafinesque, 1810)orEugomphodus taurus(Rafinesque, 1810);
a40: The previous name was Oligopus ater Risso, 1810;
a41: The previous name was Paraliparis leptochirus (Tortonese, 1959);
a42: The previous name was Paralepis speciosa Bellotti, 1878;The species Paralepis coregonoideshas two codes PARLCORand PARLSPE(the code PARLSPE is considered non valid);
a43: The previous name was Phrynorhombus regius (Bonnaterre, 1788);
a44: The previous name was Psetta maxima (Linnaeus, 1758);
a45: The previous name was Raja alba Lacepède, 1803;
a46: The previous name was Raja batis Linnaeus, 1758;
a47: The previous name was Raja circularis Couch, 1838;
a48: The previous name was Raja fullonica Linnaeus, 1758;
a49: The previous name was Raja melitensis Clark, 1926;
a50: The previous name was Raja naevus Müller & Henle, 1841;
a51: The previous name was Raja nidarosiensis Storm, 1881;
a52: The previous name was Raja oxyrinchus Linnaeus, 1758;
a53: The previous name was Scomber pneumatophorus japonicus Temminck & Schlegel, 1844;
a54: The previous name was Scymnorhinus licha (Bonnaterre, 1788);
a55: The previous name was Solea impar Bennett, 1831;
a56: The previous name was Solea kleini (Risso, 1827);
a57: The previous name was Solea lascaris (Risso, 1810);

a58: The previous name was Solea vulgaris Quensel, 1806;
a59: The previous name was Sparus coeruleostictus (Valenciennes, 1830);
a60: The previous name was Sparus pagrus Linnaeus, 1758;
a61: The previous name was Sphoeroides cutaneus (Günther, 1870);
a62: The previous name was Trachyrhynchus trachyrhynchus (Risso, 1810);
a63: The previous name was Trigla lucerna Linnaeus, 1758;
b1: The previous name was Bathynectes superbus(Costa, 1853);The species Bathynectes maravigna has two codes BATYMAR and BATYSUP (the code BATYSUP is considered non valid);
b2: The previous name was Chlorotocus gracilipes A. Milne-Edwards, 1882;
b3: The previous name was Cirolana borealis Lilljeborg, 1851;
b4: The previous name was Deosergestes arachnipodus(Cocco, 1832);
b5: The previous name was Dicranodromia mayheuxi A. Milne-Edwards, 1883;
b6: The species Dorhynchus thomsoniThomson, 1873 has two codes DORHTHOand DORITHO(the code DORITHO is considered non valid);
b7: The previous name was Dorippe lanata (Linnaeus, 1767);
b8: The family Euphausiidaehas two codes EUPHSPP(wrong) and the new one EUPADAE;
b9: The previous name was Heteralepas minuta (Philippi, 1836);
b10: The previous name was Homarus vulgaris H. Milne Edwards, 1837;
b11: The previous name was Macropipus arcuatus Leach, 1814;
b12: The previous name was Macropipus corrugatus(Pennant, 1777);
b13: The previous name was Macropipus depurator (Linnaeus, 1758);
b14: The previous name was Macropipus maculatus (Risso, 1827);
b15: The previous name was Macropipus puber (Linnaeus, 1767);
b16: The previous name was Macropipus spp. Prestandrea, 1833;
b17: The previous name was Macropipus vernalis (Risso, 1827);
b18: The previous name was Munida perarmata A. Milne Edwards & Bouvier, 1894; The species Munida intermediahas two codes MUNIINTand MUNIPER(the code MUNIPERis considered non valid);
b19: The previous name was Munida iris A.Milne-Edwards, 1880 a species that occurs in the western Atlantic while the Mediterranean species is Munida rutllantiZariquiey Alvarez, 1952;
b20: The previous name was Parapandalus narval(Fabricius, 1787);
b21: The family Parthenopidae has two codesPARTSPP (wrong) and the new one PARHDAE;
b22: The previous name was Parthenope angulifrons Latreille, 1825;
b23: The previous name was Velolambrus expansus (Miers, 1879);
b24: The previous name was Parthenope macrochelos (Herbst, 1790);
b25: The previous name was Parthenope massena (Roux, 1830);
b26: An other name used in the past was Melicertus kerathurus(Forsskål, 1775);
b27: The previous name was Pinnotheres pinnotheres (Linnaeus, 1758);

b28: The previous name was Pontocaris cataphractus (Olivi, 1792);
b29: The previous name was Pontocaris lacazei (Gourret, 1887);
b30: The previous name was Pontocaris spp. Bate, 1888;
b31: The previous name was Processa mediterranea Leach, 1815;
b32: The previous name was Sergestes arcticus Krøyer, 1855;
b33: The previous name was Sergestes robustus Smith, 1882;
b34: The previous name was Sergestes sargassi Ortmann, 1893;
b35: The previous name was Xanthocouchi Couch, 1851;
c1: The previous name wasOctopus defilippi Vérany, 1851;
c2: The previous name wasOctopus macropus Risso, 1826;
c3: The previous name wasOctopus tetracirrhus Delle Chiaje, 1830;
c4: The previous name wasOpisthoteuthis agassizii Verrill, 1883 (species of Western Atlantic);
d1: The previous name wasChlamys opercularis (Linnaeus, 1758);The species Aequipecten opercularishas two codesAEQUOPEand CHLAOPE (the code CHLAOPE is considered non valid);
d2: The previous name was Anadara diluvii (Lamarck, 1805)orScapharca demiri Piani, 1981;
d3: An other name used in the past was Scapharca inaequivalvis (Bruguière, 1789);
d4: The previous name was Argobuccinum olearium (Linnaeus, 1758);
d5: The previous name was Buccinulum corneum (Linnaeus, 1758);
d6: The previous name was Cancellaria cancellata (Linnaeus, 1767);
d7: The previous name was Cardium aculeatum Linnaeus, 1758;
d8: The previous name was Cardium echinatum Linnaeus, 1758;
d9: The previous name was Cardium paucicostatum G. B. Sowerby II, 1834;
d10: The previous name was Cardium spinosum (Meuschen, 1787);
d11: The previous name was Cardium spp. Linnaeus, 1758;
d12: The previous name was Cardium tuberculatum Linnaeus, 1758;
d13: The previous name was Cassidaria echinophora (Linnaeus, 1758);
d14: The previous name was Cassis saburon(Bruguière, 1792)orPhalium saburon (Bruguière, 1792);
d15: The previous name was Cassidaria spp. Lamarck, 1816;
d16: The previous name was Cassidaria tyrrhena (Gmelin, 1791)or Morio rugosa (Gmelin, 1791);The species Galeodea rugosahas two codes CASSTYR and MORIRUG(the code MORIRUG is considered non valid);
d17: An other name used in the past was Thericium vulgatum(Bruguière, 1792);
d18: The previous name was Chlamys varia (Linnaeus, 1758);
d19: The previous name was Circomphalus casinus (Linnaeus, 1758);
d20: The previous name was Cymatium corrugatum corrugatum (Lamarck, 1816);
d21: An other name used in the past was Hadriania oretea (De Gregorio, 1885);

d22: The previous name was Hinia incrassata (Strøm, 1768);
d23: The previous name was Hinia reticulata (Linnaeus, 1758);
d24: The previous name was Modiolus adriaticus (Lamarck, 1819);
d25: The previous name was Modiolarca subpicta (Cantraine, 1835);
d26: The previous name was Murex brandaris Linnaeus, 1758;
d27: The previous name was Murex trunculus Linnaeus, 1758orPhylonotus truncularioposis (Linnaeus, 1758); The species Hexaplex trunculushas two codes MURETRUand PHYLTRU(the code PHYLTRU is considered non valid);
d28: The family Mytilidae has two codesMYTISPP(wrong) and the new one MYTLDAE;
d29: The family Nassariidae has two codesNASSSPP (wrong) and the new one NASRDAE;
d30: The family Naticidae has two codesNATISPP (wrong) and the new one NATCDAE;
d31: The previous name was Natica hebraea (Martyn, 1786);
d32: The previous name was Naticarius millepunctatus (Gmelin, 1791)orNatica stercusmuscarum (Gmelin, 1791);
d33: The previous name was Phalium granulatum (Born, 1778);
d34: The previous name was Pinna pectinata Linnaeus, 1767;
d35: The previous name was Tellina crassa Pennant, 1777;
d36: The previous name was Triton nodifer Lamarck, 1822 or Charonia rubicunda(Perry, 1811);
d37: The previous name was Venerupis decussata (Linnaeus, 1758);
e1: The previous name was Adamsia carciniopados (Otto, 1823);
e2: The previous name was Amygdalum luteum Jeffreys, 1880;
e3: The previous name was Aperiovula adriatica(G. B. Sowerby I, 1828);
e4: The previous name was Brisingella coronata (G.O. Sars, 1872);
e5: The previous name was Bunodactis verrucosa (Pennant, 1777);
e6: The species Calyptraea chinensis (Linnaeus, 1758) has two codesCALICHI(old) and the new one CALYCHI;
e7: The previous name was Celleporina hassalli (Johnston, 1847);
e8: The previous name was Coralliophila squamosa(Bivona, 1838);
e9: The previous name was Crepidula gibbosa Defrance, 1818;
e10: The previous name was Desmophyllum cristagalli Milne Edwards & Haime, 1848;
e11: The previous name was Echinus acutus Lamarck, 1816;
e12: The previous name was Eunice torquata Quatrefages, 1866;
e13: An other name used in the past was Fusinus sanctaeluciae (Salis Marschlins, 1793);
e14: The previous name was Glossodoris valenciennesi (Cantraine, 1841)orHypselodoris picta (Philippi, 1836);
e15: The previous name was Labidoplax digitata (Montagu, 1815); following WoRMS the update name of the genus is Oestergreniabut the previous name Labidoplax is still used in many international checklist;
e16: The previous name was Littorina neritoides (Linnaeus, 1758);

e17: The previous name was Lunatia catena (Da Costa, 1778)orPolinices catena (Da Costa, 1778);
e18: The previous name was Lunatia fusca (Blainville, 1825)orPolinices fusca (Blainville, 1825);
e19: The previous name was Lunatia guilleminii(Payraudeau, 1826) or Polinices guillemini (Payraudeau, 1826);
e20: The previous name was Lunatia spp. Gray, 1847 orPolinices spp. Montfort, 1810;
e21: The previous name was Payraudeautia intricata (Donovan, 1804);
e22: An other name used in the past was Discodoris atromaculata (Bergh, 1880);
e23: The previous name was Peltodoris stellifera (Vayssière, 1904);
e24: The previous name was Philine quadripartita Ascanius, 1772;
e25: The previous name was Polymastia mammillaris (Koltun, 1966);
e26: The previous name was Pomatoceros triqueter (Linnaeus, 1758);
e27: The previous name was Pseudocnus syracusanus (Grube, l840);
e28: The previous name was Raspailia typica Nardo, 1833;
e29: The previous name was Rhyssoplax olivaceus Spengler, 1797;
e30: The previous name was Rhyssoplax spp. Thiele, 1893;
e31: The previous name was Schizaster canaliferus (Lamarck, 1816);
e32: The previous name was Spatangus inermis Mortensen, 1913;
e33: The previous name was Stichopus regalis (Cuvier, 1817);
e34: The previous name was Tectonatica filosa (Philippi, 1845);
e35: The previous name was Trachythyone elongata (Düben & Koren, 1846);
e36: The previous name was Trachythyone spp. Studer, 1876;
e37: The previous name was Trachythyone tergestina (M. Sars, 1857);
e38: The previous name was Turris similis (Bivona, 1838);
e39: The previous name was Umbraculum mediterraneum (Lamarck, 1819);
e40: The previous name was Ventromma halecioides(Alder, 1859);
e41: It is a synonym of Ophiura texturata Lamarck, 1816;
e42: The update scientific name is Panningia hyndmani(Thompson, 1840)
v1: The previous name was Aeodes marginata Schmitz, 1894;
v2: The previous name was Ulva olivascens Dangeard, 1961;

XVI - Technical specifications and quality check of the Medits gear

by Antonello Sala (ISMAR, CNR, Italy)

XVI.1 - Guidelines for the gear quality control

XVI.1.1 - Towing cable

Check/measure with a calliper the warp diameter. It is important as the warp length/depth relationship must be in agreement with the table in Fig. 7 of this Handbook.

XVI.1.2 Otterboard

Assuming that the otterboard is the Morgere WS 8 type, measurement of the otterboard length and height can be easily carried out ashore, they must be 2050 and 1250 mm respectively.
See Figure 6 of this Handbook for the rigging, check the upper- and lower-backstrops they must be 65 cm, while the middle chain must be 160 cm. If you have to shorten the chain of one or some links in only one otterboard, it is recommended you replace the entire backstrops in both the otterboards.

XVI.1.3 Bridles and combination rope

To regularly check the respect of the protocol for all the components that could be altered by the use. For example the last protocol adopted provides that the upper- and lower-bridles have the same length. But because the lower one is a combination rope, it is subject to lengthen after some period of work at sea. The same is not true for the upper bridle which is made of steel. The result is that, after a certain period of time, the lower bridle could become longer than the upper one. The resulting extension affects the gear behaviour by decreasing the vertical net opening and increasing the bottom contact.
See Figure 2 of this Handbook. The combination rope (100 or 150 m and the lower bridle 29 m) is made of two parts: an external in PP and an internal part in steel. The nominal outer diameter should be 32 mm of PES 4 strands (see Figure 2) having an internal part (not defined before creating the current manual) of a metallic cross-section of approx. 36 mm^2. As also the internal diameter of the current combination ropes must be standardized, a check with your local company producer/manufacturer is required, take notes and communicate the values to the MEDITS coordinator. It is the internal part that is relevant for the weight of the rope, and the weight might affects the trawl openings. In the future such information will be included in the Handbook revision.

XVI.1.4. Floats

Detailed information on the floats is provided in the text of this manual.
The main checks are:
- check there are 40 floats on the headline;
- their diameter should be of around 20 cm;
- the 40 floats should be distributed along the headline:
    - from each wing tip, one float every 1.50 m for 5 times;
    - one pair of floats every 1.50 m on the whole remaining length;
    - in the headline (bosom) a small adjustment of the spacing might be necessary.

As specified at the section 1.1 of this Handbook, the individual buoyancy of the floats should be 2.7 kgf (±5%), the total buoyancy of the 40 floats being around 108 kgf (±5%).

XVI.1.5. Bolchline, ballast chain

Bolsh- or bolchline. Rope attached along edge of lower wings and bosom netting (Figure XVI.1.1) for securing in bights to fishing line (ref. Multilingual dictionary of fishing gear, 1992). The bolchline and footrope must have the same length, that is 40 m, and can be measured as showed for the headline. The footrope is made of stainless steel covered by a twisted polypropylene (PP) rope and is connected in bights to the bolchline through metal rings. On the lower side of the footrope, the ballast chain (10 mm, 2 kg/m) is connected in bights to the footrope (Figure 3 of this Handbook).

The main checks required are:

- distance between the bolchline and the footrope must be 5 cm;
- the bightings between the bolchline and the footrope must have a distance of 50 cm;
- ballast chain has bightings every 17 cm and the inner height must be 8 cm;
- check (with the company manufacturer/provider) that the ballast chain is of 2 kg/m.

As the Operative Units have different number of hauls to perform each cruise and the differences in the ballast chain might affect the performance of the GOC73, it is highly recommended to have a new ballast chain at the beginning of every cruise in order to avoid any wear and tear effect on the chain.

Practical example for the calculation of the total ballast chain weight by respecting the standard MEDITS requirements:

Footrope length	40 m
Bight distance	17 cm (0.17 m)
Number of bights	40 / 0.17 = 235
Chain length for each bight	25.72 cm *(e.g. application of the arc formulae)*
Total ballast chain length	235 x 25.72 = 6044 cm (60.44 m)
Total ballast chain weight	60.44 x 2 kg/m = **120.88 kg**

The rigging of the ballast chain is important to keep constant the overall ballast chain weight. An example in the following table shows the effect of a small variation in the bight distance/height on the chain weight (e.g. *blue is the correct value*).

Bights distance [cm]	**20**	**20**	**17**	**17**
Bights height [cm]	8	10	8	10
Total chain length [cm]	55.30	62.80	60.44	70
Total chain weight [kg]	**110**	**125**	**120**	**140**

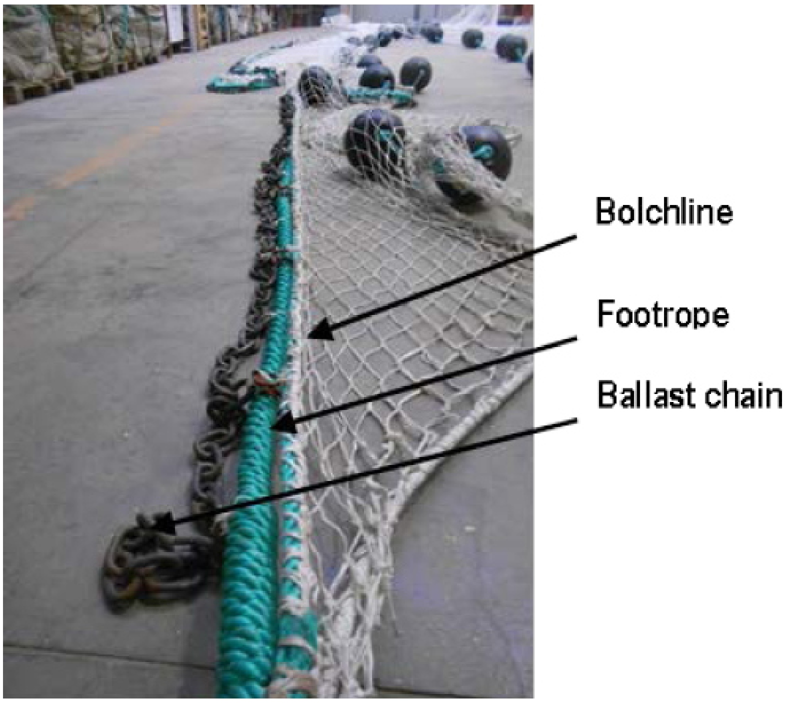


Figure XVI.1.1 - Particular of the bolchline, footrope and ballast chain in the GOC73.

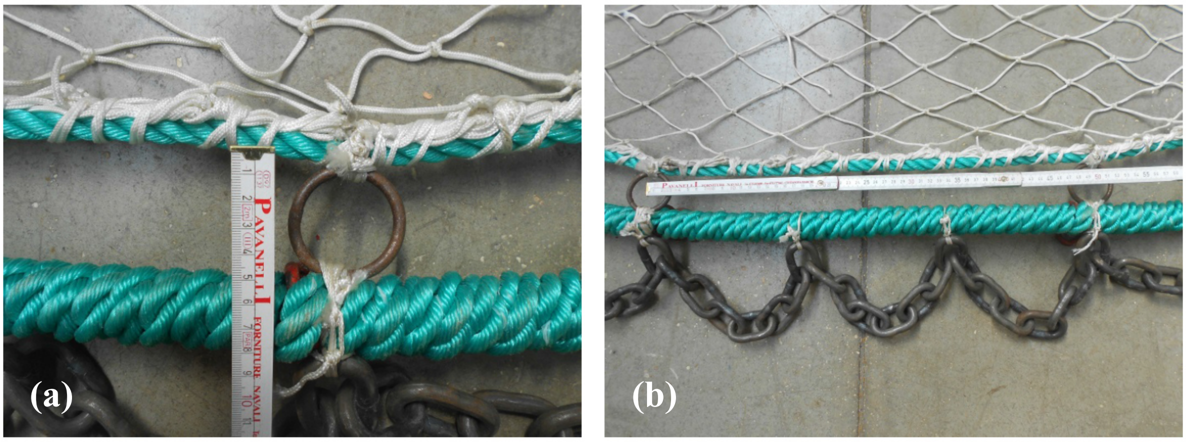


Figure XVI.1.2. In (a) measurement of the distance between the bolchline and the footrope (5 cm) and (b) between the bightings on the bolchline (50 cm).

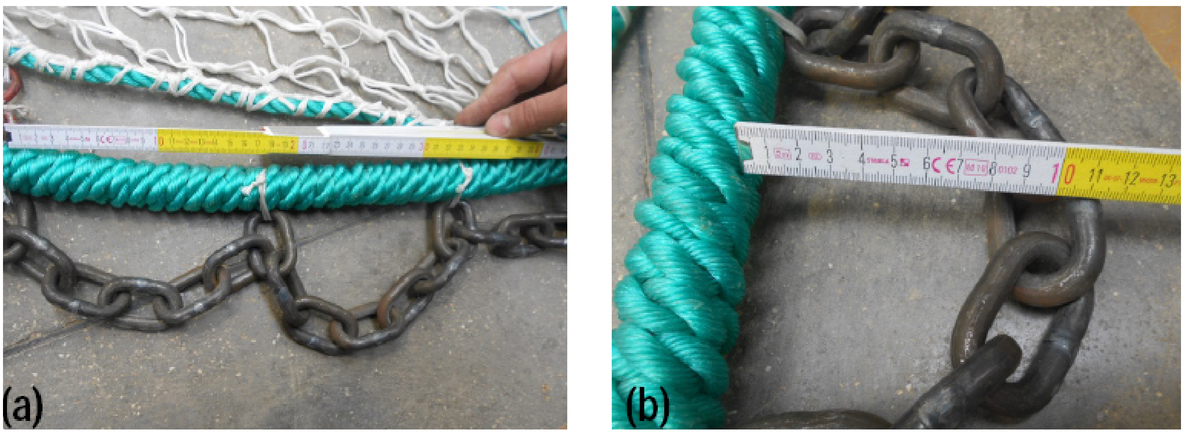


Figure XVI.1.3. In (a) Measurement of the distance between ballast chain bights (17 cm) and (b) of the inner height of the chain bightings (8 cm). Having such rigging the total weight of the chain must be around 120 kg. (c) supplementary chain (only one chain) of 15 kg (around 6.50 m and a diameter of 10 mm).

XVI.1.6. Headline, footrope and sideline

The main checks are:

- the groundrope (40 m) must be 4.30 m longer than the headline (35.70 m);
- the length of the groundrope and headline must be compared. The length is adjusted by means of the adjustment chain on the groundrope.

Both the headline and the groundrope must be measured by dividing the rope in three parts. Having Figure 1 of this Handbook as reference, for the headline we have 2.90 m (b) at the bosom, two pieces of 10.40 m (c) and 6.00 m (d) for a total of 35.70 m. While for the footrope, we have 2.90 m (g) at the bosom, two pieces of 12.65 m (h) and 5.90 m (i) for a total of 40.0 m. See Figure XVI.1.5, Figure XVI.1.6 and Figure XVI.1.8.

The weighting chain (*ballast chain*) of 120 kg (Nr. 3 × 40 m) should be secure to the footrope every 17 cm (with a hanging height of at most 8 cm). A supplementary chain (only one chain) of 15 kg (around 6.50 m and a diameter of 10 mm) should in addition been secured symmetrically on both parts of the belly bosom in the same way as the first one (garland of 17 cm in length).

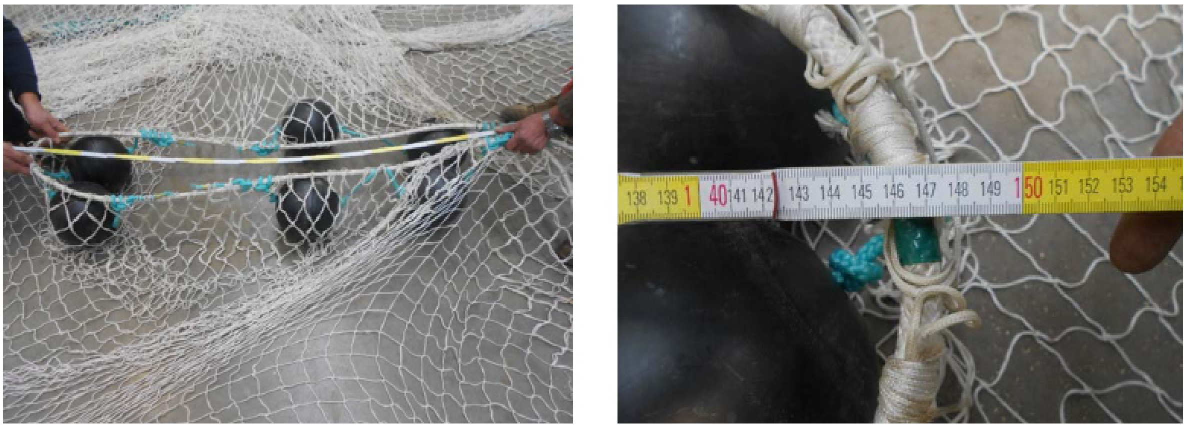


Figure XVI.1.4. Measurement of the headline at the bosom level. We measured 1.46 m, which multiplied by two is 2.92 m.

Figure XVI.1.5. Measurement of headline at wings. The measurement should start from the end of the bosom (see the transversal seams) to the end of the wing. The headline in this part should be 10.40 m (c).

Figure XVI.1.6. Measurement of headline at wing tips. The measurement should start from the end of the wing to the end of the line. The headline in this part should be 6.00 m (d).

XVI.1.7. Trawl netting

Referring to the GOC73 acronyms in Figure XVI.1.8, the nettings in the upper-panel have been defined with the letter A, while the nettings in the side-panels with the letter B and with the letter C the nettings in the lower-panel. Furthermore, the number after the letters define the level of each netting: *e.g.* same number means same level and, as it can be seen in the GOC drawing of Figure XVI.1.8, the nettings with the same numbers have the same height.

The height of a netting (*H*) is calculated by multiplying the stretched mesh size (*MS*) of the netting by the number of meshes in height:

(*NH*): *H=MSxNH*.

In general the design of any trawl is conceived to distribute the net drag not homogeneously among the upper- (UP), lower- (LP) and side-panel (SP). In order to guarantee a correct trawl bottom contact, the UP has more drag than the LP, so that during towing the UP is more stretched while the LP is slacked. Despite the equal longitudinal number of meshes both in the UP and LP, the unequal drag distribution may cause a different stretching of the twines, resulting in a different effective panels length. For this reason, prior to any field cruise, all the nettings need to be measured in the longitudinal axis (N-direction), without considering seams. Normally, the different action of the drag on the three panels will cause that the upper nettings are more likely to be stretched; the lower nettings tend to shrink, and the side nettings are almost in a neutral situation.
Considering the schematic view of the GOC73 drawing with acronyms on pieces of netting provided in Figure XVI.1.8, the side nettings B6/B7/B8/B9 must be considered for the reasons abovementioned as reference nettings to be compared on with the respective upper- (A6/A7/A8/A9) and lower-nettings C6/C7/C8.

Before proceeding in explaining the procedures for the netting checks, it is important to define the transverse- and the longitudinal-seam meanings (Figure XVI.1.7).
The **transverse seams** join two nettings in the transverse direction (T), they are the references for the measurement of the netting height. While the **longitudinal seams** (strengthening lacing) join two nettings in the longitudinal direction (N) and they are rows of meshes laced together in order to strengthen the netting.

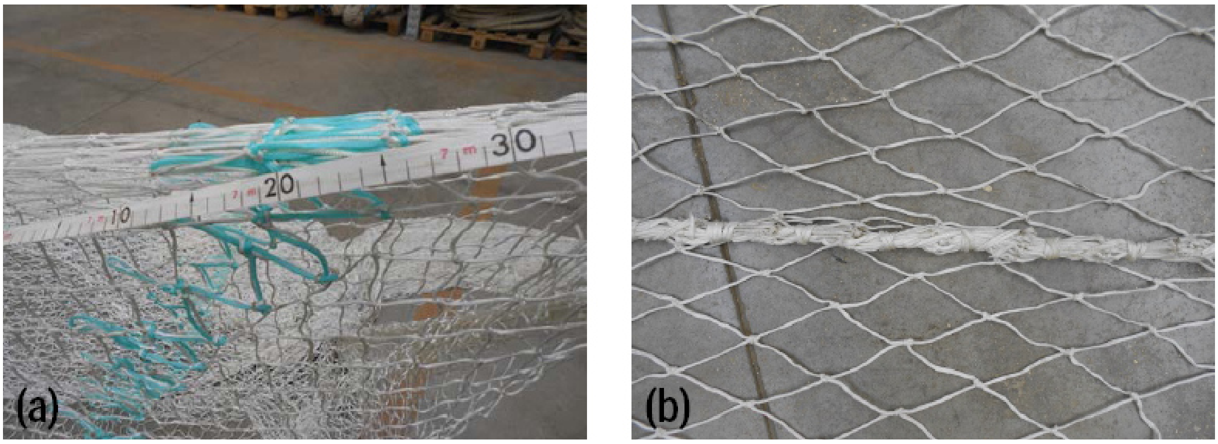


Figure XVI.1.7. The transverse seams (a) join two nettings in the transverse direction (T), they are the references for the measurement of the netting height. The longitudinal seams (b) or strengthening lacing join two nettings in the longitudinal direction (N). They are rows of meshes which may be laced together in order to strengthen the netting.

The main check is to check that all the nettings at the same level have the same height.
To speed up simplify the proceedure step-by-step for each netting from B6 to B8:

1. calculate the netting height of the side panel (B6): *H=NHxMS*, where *NH* is the number of meshes in height (N-direction) and *MS* is the stretched mesh size. For B6 is then: *H(B6)=60x120=7200 mm*.

2. After having verified the coherence of the height of the side netting (B6) with the design of the GOC 73 (Figure 1 of this Handbook), identify the beginning and the end of the netting you have to compare with (A6) by looking at the transverse

seams and then align the transverse seams of A6 with those of B6. Always align the center part of the nettings and not the lateral part. To facilitate the comparison of the netting heights, you have another possibility, that is measuring with a meter both the upper- and the lower- netting avoiding the abovementioned seams alignment procedure;

3. In case of differences we have two options:
   a. change the whole lower- or upper- netting. It allows to restore the original netting properties and it is the best solution with wear-and-tear nettings or when nettings have been fouled by obstructions on the sea bed. But it is more expensive than net mending;
   b. remove or add rows of meshes in the upper- or lower- panel (net mending). It is cheaper than replacing with a new netting (recommended only if a netting has been mended 1-2 times), but it results in a changing of the net drawing.

The total height of codend and extension nettings (A1+A2, see Figure XVI.1.1), must be equal to the length of the selvedge rope (line *a* in Figure XVI.1.1). Then it must be *H(A2+A1)=a=40x100+20x250=9000 mm*.

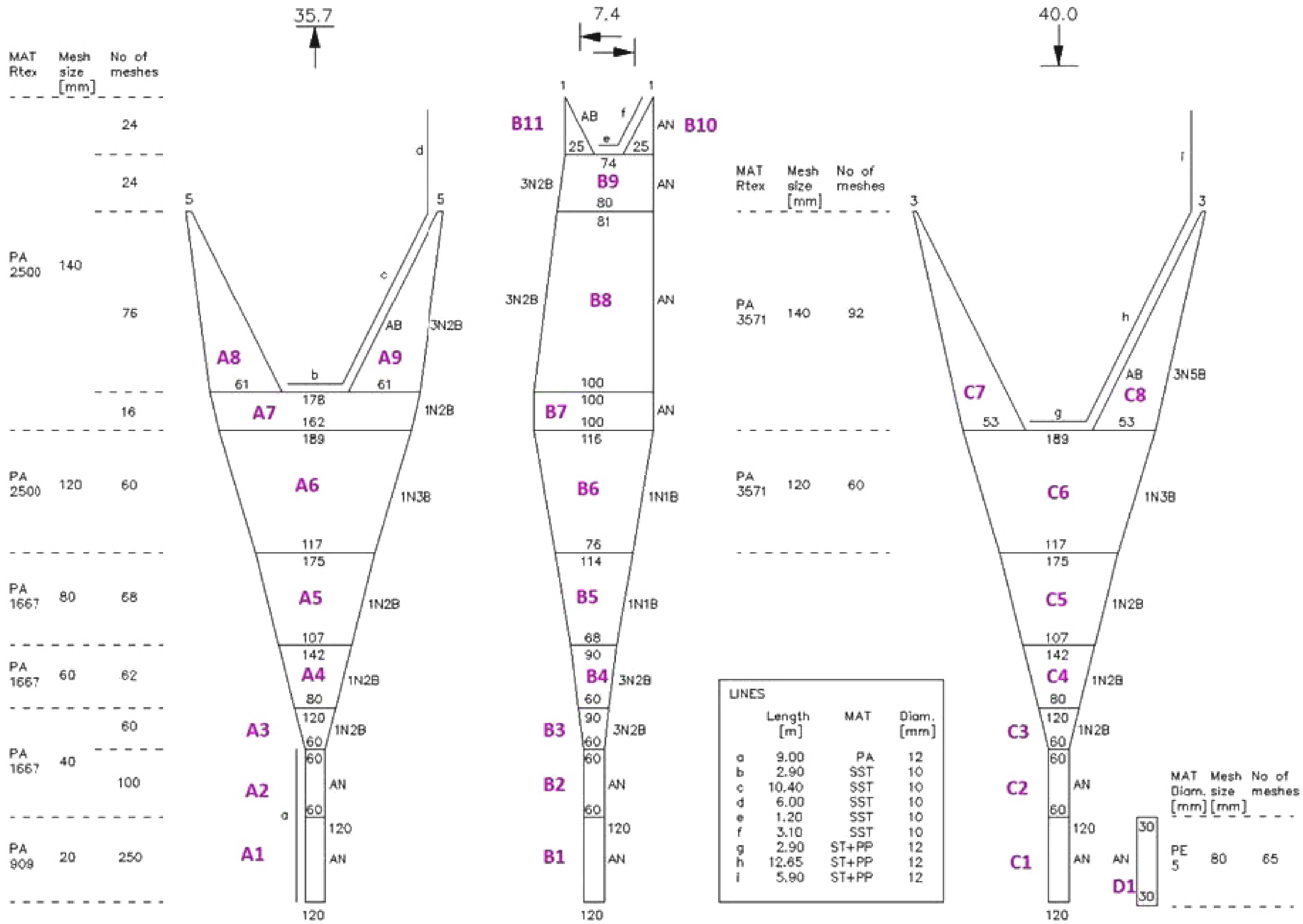


Figure XVI.1.8. Design of the GOC 73 trawl used for the MEDITS survey, with acronyms specified for each netting.

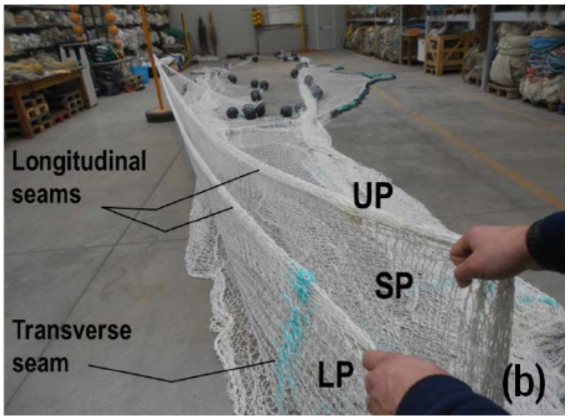


Figure XVI.1.9. Identification of the beginning and the end of each netting by looking at the transverse seams (a) and alignment of the transverse seams (b).

XVI.2 - Quality time-0 control checklist

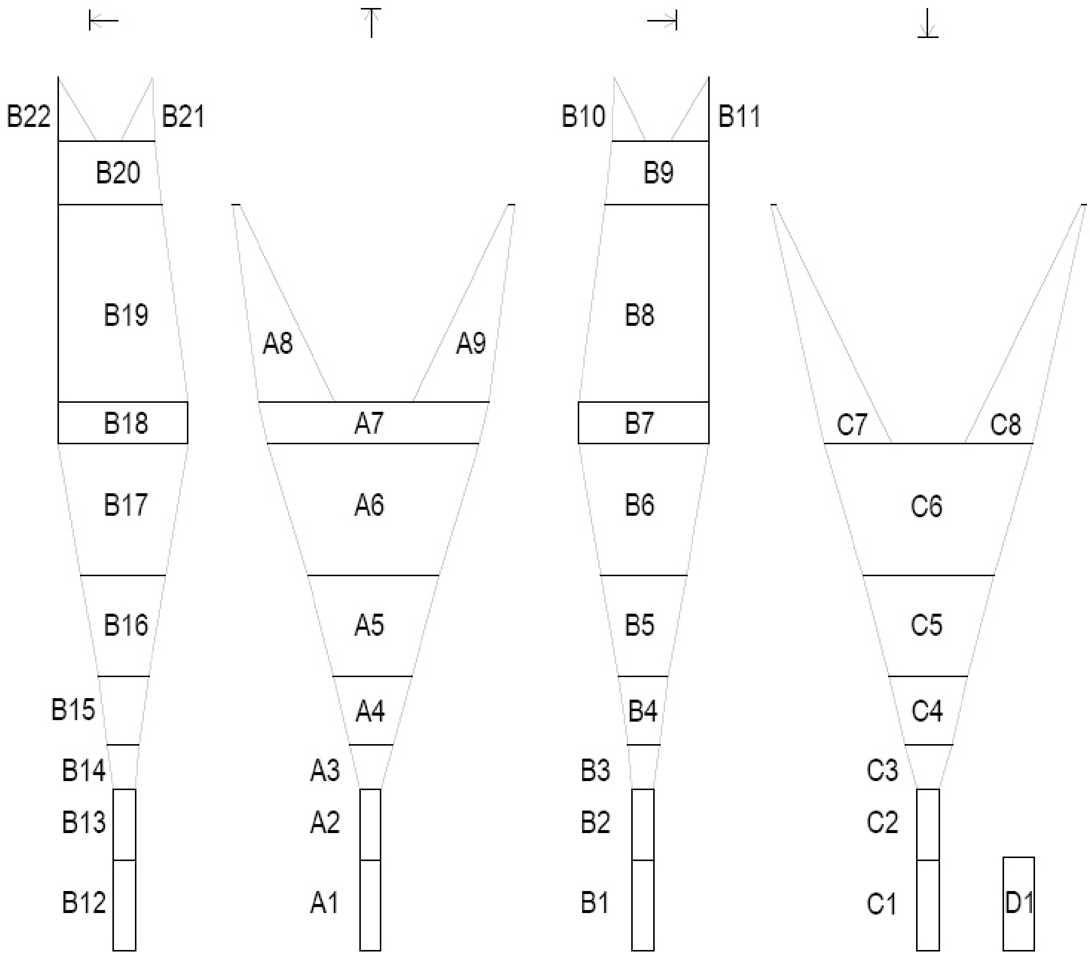
Time-0 checks are necessary both with a new trawl and when a Medits gear is measured for the first time (e.g. whenever measured).
The following modules have been developed in order to be printed out and form a sort of ‘record book’ for the quality certification of each Medits gear (e.g. GOC73, otterboard, and rigging parts).
It is recommended that each Medits trawl and otterboard are classified with the following rules of codification:

Trawl: **GOC73_OUXXX_YYYY_NN**
Otterboard: **WHS8_OUXXX_YYYY_NN**
where OUXXX stands for the Operative Unit number; YYYY is the year of trawl purchasing; and NN is an yearly progressive serial number (e.g. reset to 01 each year).

General information of the MEDITS gear inspection table

Operative Unit	
Inspection Nr.	
Date of inspection	
Name of the control operator	
GOC73 trawl code	
Otterboard code	

Top panel, Lower panel, Side panel (port), Side panel (starboard)



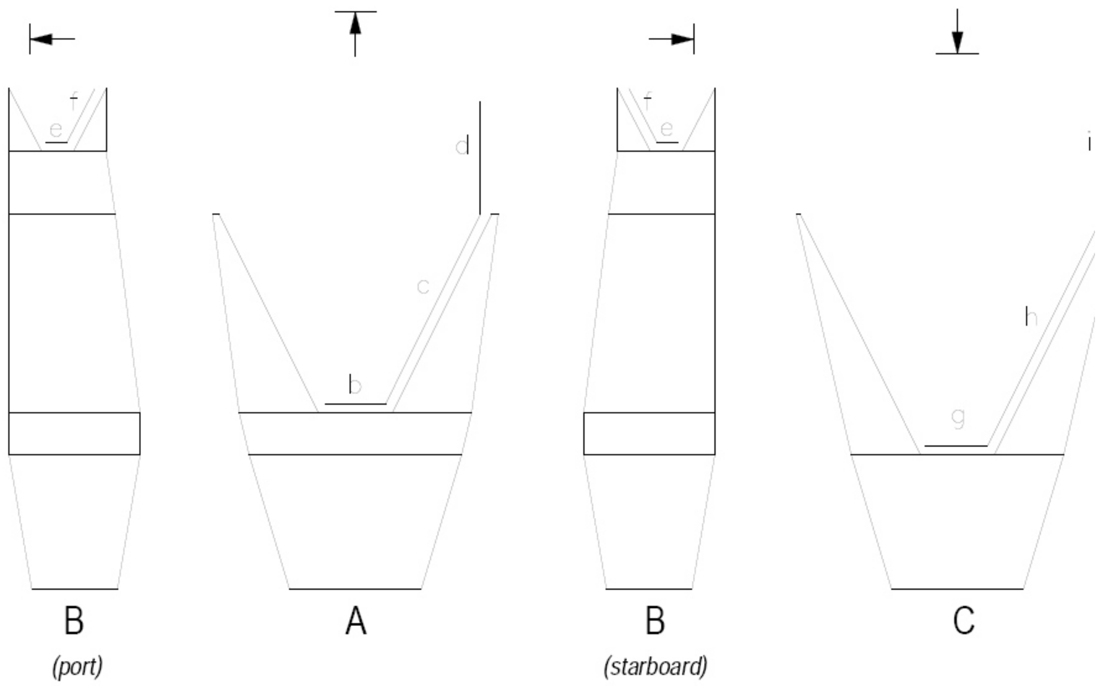
Top panel												
ID Netting	Mesh size [mm]		Netting Width				Netting Height					
	Nom	Eff	Mesh Fore (Nr)		Mesh Aft (Nr)		(Nr)		[m]			
			Nom	Eff	Nom	Eff	Nom	Eff	Nom	Eff		
A1	20		120		120		250		5.00			
A2	40		60		60		100		4.00			
A3	40		120		60		60		2.40			
A4	60		142		80		62		3.72			
A5	80		175		107		68		5.44			
A6	120		189		117		60		7.20			
A7	140		178		162		16		2.24			
A8	140		5		61		76		10.64			
A9	140		5		61		76		10.64			

Lower panel										
ID Netting	Mesh size [mm]		Netting Width				Netting Height			
			Mesh Fore (Nr)		Mesh Aft (Nr)		(Nr)		[m]	
	Nom	Eff	Nom	Eff	Nom	Eff	Nom	Eff	Nom	Eff
C1	20		120		120		250		5.00	
C2	40		60		60		100		4.00	
C3	40		120		60		60		2.40	
C4	60		142		80		62		3.72	
C5	80		175		107		68		5.44	
C6	120		189		117		60		7.20	
C7	140		3		53		92		12.88	
C8	140		3		53		92		12.88	

Side panel *(port)*										
ID Netting	Mesh size [mm]		Netting Width				Netting Height			
			Mesh Fore (Nr)		Mesh Aft (Nr)		(Nr)		[m]	
	Nom	Eff	Nom	Eff	Nom	Eff	Nom	Eff	Nom	Eff
B12	20		120		120		250		5.00	
B13	40		60		60		100		4.00	
B14	40		90		60		60		2.40	
B15	60		90		60		62		3.72	
B16	80		114		68		68		5.44	
B17	120		116		76		60		7.20	
B18	140		100		100		16		2.24	
B19	140		81		100		76		10.64	
B20	140		74		80		24		3.36	
B21	140		1		25		24		3.36	
B22	140		1		25		24		3.36	

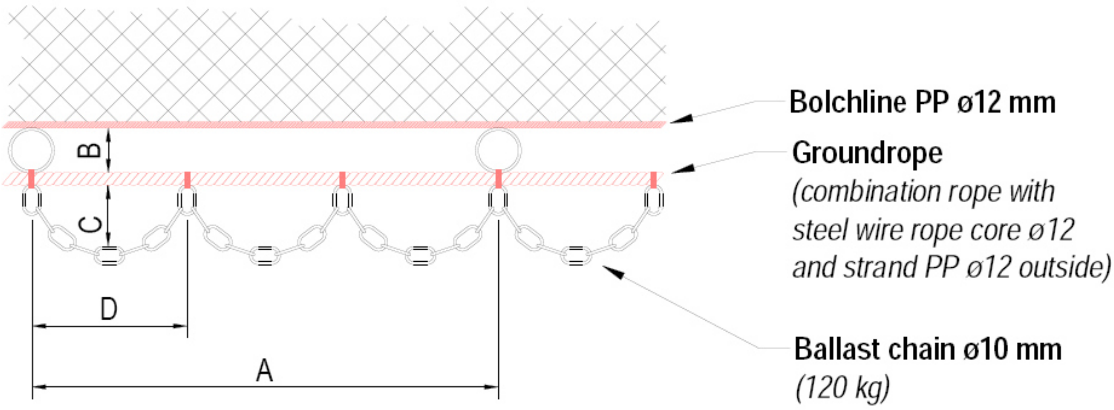
Side panel *(starboard)*												
ID Netting	Mesh size [mm]		Netting Width				Netting Height			
			Mesh Fore (Nr)		Mesh Aft (Nr)		(Nr)		[m]	
	Nom	Eff	Nom	Eff	Nom	Eff	Nom	Eff	Nom	Eff
B1	20		120		120		250		5.00	
B2	40		60		60		100		4.00	
B3	40		90		60		60		2.40	
B4	60		90		60		62		3.72	
B5	80		114		68		68		5.44	
B6	120		116		76		60		7.20	
B7	140		100		100		16		2.24	
B8	140		81		100		76		10.64	
B9	140		74		80		24		3.36	
B10	140		1		25		24		3.36	
B11	140		1		25		24		3.36	

Lines (Headline, sidelines, bolchline, footrope)



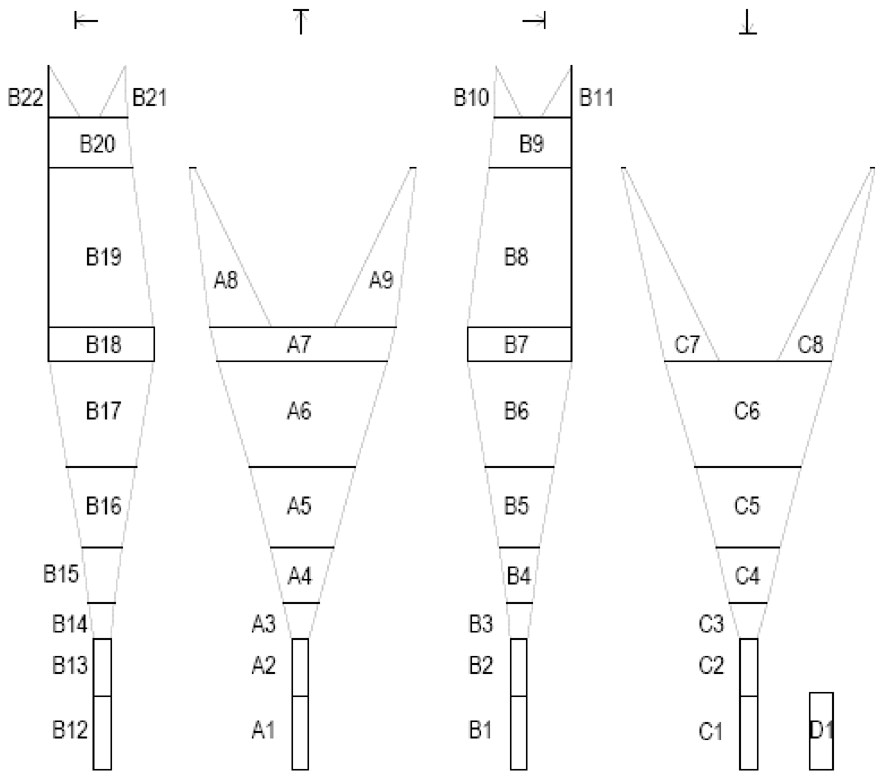
Lines *(headline, sidelines, bolchline, footrope)*										
ID Panel	Lines		Material		Diameter [mm]		Length [m]			
							Nom		Eff	
			Nom	Eff	Nom	Eff	Port	Starboard	Port	Starboard
A	Headline	b	Steel		10		2.90			
		c	Steel		10		10.40	10.40		
		d	Steel		10		6.00	6.00		
B (port)	Sideline	e	Steel		10		1.20			
		f	Steel		10		3.10	3.10		
B (starboard)	Sideline	e	Steel		10		1.20			
		f	Steel		10		3.10	3.10		
C	Bolchline	g	PP		12		2.90			
		h	PP		12		12.65	12.65		
		i	PP		12		5.90	5.90		
	Footrope	g	Steel + PP		36		2.90			
		h	Steel + PP		36		12.65	12.65		
		i	Steel + PP		36		5.90	5.90		

Floats						
ID Float	Nr		Diameter [mm]		Distance [m]	
	Nom	Eff	Nom	Eff	Nom	Eff
1	1		200		1.5	
2	1		200		1.5	
3	1		200		1.5	
4	1		200		1.5	
5	1		200		1.5	
6	2		200		1.5	
7	2		200		1.5	
8	2		200		1.5	
9	2		200		1.5	
10	2		200		1.5	
11	2		200			
12	2		200			
13	2		200			
14	2		200			
15	2		200			
16	2		200		1.5	
17	2		200		1.5	
18	2		200		1.5	
19	2		200		1.5	
20	2		200		1.5	
21	1		200		1.5	
22	1		200		1.5	
23	1		200		1.5	
24	1		200		1.5	
25	1		200		1.5	



Groundgear		
Rigging	Measure [cm]	
	Nom	Eff
A	51	
B	5	
C	8	
D	17	
Ballast chain	Nom	Eff
Type	*Genovese*	
Diameter [mm]	10	
Pitch [mm]	40	
Linear density [kg/m]	2	
Total weight [kg]	120	

XVI.3. Quality periodic/annual control checklist and gear maintenance

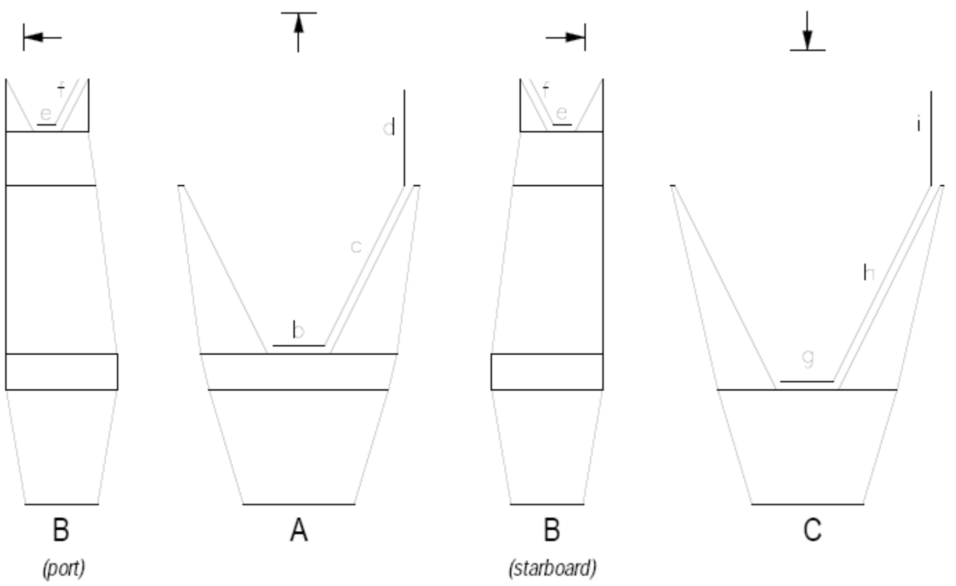


Top panel				
ID Netting	Mesh size [mm]		Netting Height [m]	
	Nom	Eff	Nom	Eff
A1	20		5.00	
A2	40		4.00	
A3	40		2.40	
A4	60		3.72	
A5	80		5.44	
A6	120		7.20	
A7	140		2.24	
A8	140		10.64	
A9	140		10.64	

Lower panel				
ID Netting	Mesh size [mm]		Netting Height [m]	
	Nom	Eff	Nom	Eff
C1	20		5.00	
C2	40		4.00	
C3	40		2.40	
C4	60		3.72	
C5	80		5.44	
C6	120		7.20	
C7	140		12.88	
C8	140		12.88	

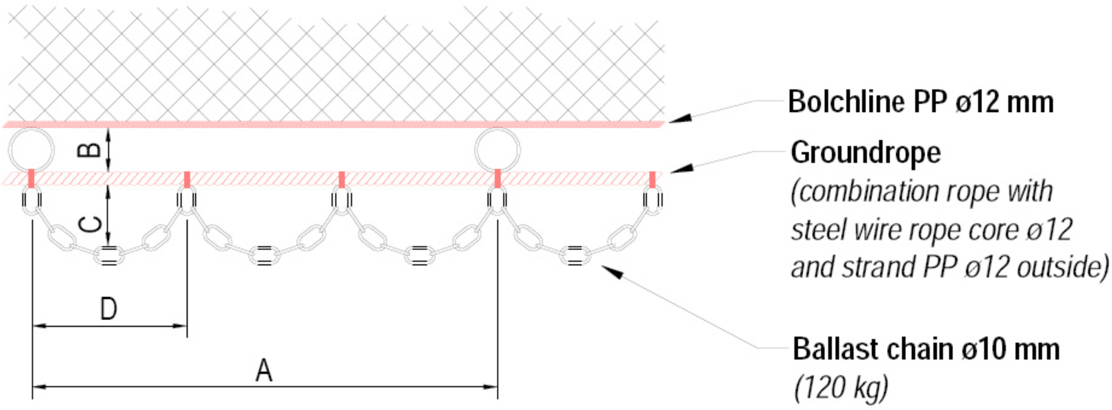
Side panel *(port)*				
ID Netting	Mesh size [mm]		Netting Height [m]	
	Nom	Eff	Nom	Eff
B12	20		5.00	
B13	40		4.00	
B14	40		2.40	
B15	60		3.72	
B16	80		5.44	
B17	120		7.20	
B18	140		2.24	
B19	140		10.64	
B20	140		3.36	
B21	140		3.36	
B22	140		3.36	

Side panel *(starboard)*				
ID Netting	Mesh size [mm]		Netting Height [m]	
	Nom	Eff	Nom	Eff
B1	20		5.00	
B2	40		4.00	
B3	40		2.40	
B4	60		3.72	
B5	80		5.44	
B6	120		7.20	
B7	140		2.24	
B8	140		10.64	
B9	140		3.36	
B10	140		3.36	
B11	140		3.36	



Lines *(headline, sidelines, bolchline, footrope)*						
ID Panel	Lines		Length [m]			
			Nom		Eff	
			Port	Starboard	Port	Starboard
A	Headline	b	2.90			
		c	10.40	10.40		
		d	6.00	6.00		
B (port)	Sideline	e	1.20			
		f	3.10	3.10		
B (starboard)	Sideline	e	1.20			
		f	3.10	3.10		
C	Bolchline	g	2.90			
		h	12.65	12.65		
		i	5.90	5.90		
	Footrope	g	2.90			
		h	12.65	12.65		
		i	5.90	5.90		

Floats				
ID Float	Nr		Distance [m]	
	Nom	Eff	Nom	Eff
1	1		1.5	
2	1		1.5	
3	1		1.5	
4	1		1.5	
5	1		1.5	
6	2		1.5	
7	2		1.5	
8	2		1.5	
9	2		1.5	
10	2		1.5	
11	2			
12	2			
13	2			
14	2			
15	2			
16	2		1.5	
17	2		1.5	
18	2		1.5	
19	2		1.5	
20	2		1.5	
21	1		1.5	
22	1		1.5	
23	1		1.5	
24	1		1.5	
25	1		1.5	



Groundgear		
Rigging	Measure [cm]	
	Nom	Eff
A	51	
B	5	
C	8	
D	17	
Ballast chain	Nom	Eff
Type	*Genovese*	
Diameter [mm]	10	
Pitch [mm]	40	
Linear density [kg/m]	2	
Total weight [kg]	120	

XVI.4. - Glossary of terms and references to the acronyms used in the current Medits Handbook

AB direction (AB). Direction parallel to a rectilinear sequence of mesh bars, each from adjacent meshes.

Bar cut (B). A cut parallel to a line of sequential mesh bars, each from adjacent meshes, and severing one or more bars.

Beam. Wood or steel spar which holds the net of a beam trawl open horizontally.

Beam trawl. The horizontal opening of this trawl is provided by a beam, made of wood or metal, which may be 10 long or more. Beam trawls are used mainly for flatfish and shrimp fishing.

Belly. Section of panel between wings and extension piece of the trawl.

Body. The centre which is usually the main part of a net or section of a trawl.

Bottom otter trawl. Trawl towed by a single boat. Its horizontal opening is obtained by the use of otterboards which are relatively heavy and equipped with a steel sole designed to withstand rough contact with the bottom.

Bottom trawl . Trawl designed and rigged to work near the bottom. According to the type used, one may distinguished: low opening trawls (specially designed for the capture of demersal species) such as beam trawls and shrimp, sole or nephrops trawls; and high opening trawls, suitable mainly for the capture of the semi. demersal or pelagic species.

Codend. Netting bag made up of one or more panels (pieces of netting) of the same mesh size attached to one another along their sides in the axis of the trawl by a seam where a side rope may also be attached.

Double rigging (double rig). In certain cases, the trawler can be specifically rigged with outriggers to tow two (or even four) trawls at the same time.

Dredge. An apparatus usually in the form of an oblong iron frame with an attached bag net.

Extension. Means the untapered section, made of one or more panels, between the trawl body and the codend.

Float. A buoyant unit used to give lift or to mark the position of a net, or both.

Headline (headrope). The principal upper frame rope of a net to which the netting is attached.

Horizontal cut (T). A cut parallel to the general course of the netting yarn just beyond the knots.

Lower panel. All the net sections of the lower part of the trawl net.

Lower wing. Net section extending forward from one side of the belly and usually joined to the adjacent top wing (two panel trawls) or adjacent side wing (four panel trawls).

Midwater otter trawl (pelagic one boat trawl). Trawl towed by a single boat. The horizontal opening of the net is controlled by otterboards, usually of a hydrodinamic shape, and which normally do not touch the ground.

Midwater pair trawl. Towed by two boats, thus ensuring the horizontal opening of the net, this net is designed and rigged to work in midwater.

Midwater trawl (pelagic trawl). Trawl usually much larger then bottom trawl, designed and rigged to work in midwater, including surface water. The front net sections are very often made with very large meshes or ropes, which heard the fish schools toward the net aft section. They may be towed by one or two boats.

Otterboard (trawl board, trawl door, board, door). Shearing device, two of which hold open horizontally the wings and mouth of a trawl.

Otter twin trawls. Gear comprising two identical trawl nets ("twin") working together, opened horizontally by a single pair of otterboards. The inner wings are attached to a sledge towed simultaneously with the otterboards from a common crowfoot.

Pennant. Handling wire connecting warp to bridle and allowing the bridle to by-pass the otterboard when shooting or hauling the gear.

Piece of netting. A section of netting consisting of a uniform size mesh

Pair trawling. Method in which the trawl is towed by two boats of similar power. The separation of the boats controls the opening of the net.

Rig. The process of fitting the necessary ropes and accessories so as to make a net ready for fishing.

Side wing. Lower or upper wing of side panel of a four panel trawl

Single rig. Gear consisting of a single trawl net.

Strengthening bag. A cylindrical piece of netting completely surrounding the codend of the trawl and which may be attached to the codend in intervals. It shall have at least the same dimensions (length and width) as the part of the codend to which it is attached.

Suberkrub otterboard. All steel cambered midwater otterboard with vertical aspect greater then its horizontal aspect.

Sweep. The rope usually of wire or combination rope, between otterboards and net.

Top panel. All the net sections of the upper part of the trawl.

Top wing (upper wing). Net section extending forward from one side of the square and usually joined to the adjacent lower wing (two panel trawls) or adjacent side wing (four panel trawls).

Vertical cut (N). A cut at right angles to the general course of the netting yarn just beyond the knots.

Warp. Long flexible steel rope connecting vessel to the trawl gear.

Wing. Tapered net section extending forward from one side of the main body of the net.

XVI.5. - List of gear metrics

In order to define main geometrical characteristics of the fishing gear, major gear metrics are listed below.

Lengths of the net. It Is the overall distance, along the longitudinal axis between, between the wings and the extension. When not specified, the codend is not included.

Headline length. It is the length of the upper combination rope, usually expressed in meters.

Footrope length. It is the length of the lower combination rope, usually expressed in meters.

Mouth horizontal opening. it is the horizontal distance between the ends of the headline.

Mouth vertical opening. It is the vertical distance (height) of the headline bosom from the ground.

Fishing circumference. Is the length, in meters, of the circumference obtained considering a vertical section of the net at the footrope bosom.

Door length. It is the horizontal overall distance between the forward and aft edges of the otterboard. On a cambered otterboard the length is measured along a direction parallel to the shoe.

Door weight. The weight, as usually indicated by manufacturers, is the weight in air. It should be noted that, when considering otterboard performance, the effective weight of the otterboard is the weight in water.

Horizontal door spread. It is the distance between the otterboards measured along a perpendicular at the trawling direction.

XVII - Protocol for monitoring Marine Litter on a voluntary basis

Proposal for collecting data on litter during MEDITS trawl surveys

Fabio Fiorentino, Evgenia Lefkaditou, Angelique Jadaud, Pier Luigi Carbonara, Giuseppe Lembo and Francois Galgani

This proposal is based on the document "Procédure pour l'observation des macro déchets au cours des campagnes halieutiques", version 1.0 (2012) prepared by Badts & Galgani (Ifremer). It was prepared taking into account the suggestions of Marine Litter Technical Recommendations for the Implementation of MSFD Requirement (Galgani et al., 2011), CEFAS protocol for the litter recording (ICES, 2012), as well as the results of a relevant study in the Tyrrhenian Sea (Serena et al., 2011).

Aim: This document concerns a protocol for data collection on macro litter in the framework of scientific fishery surveys. The procedure covers observations of macro-litter present in the catches of fishing gears used during fisheries surveys (trawl nets, drags, hand lines, etc.). The protocol does not concern observation of floating litter or non-fisheries surveys.

Definition of marine litter: In the framework of the directive for the Marine Strategy for the Good Environmental Status of the sea, marine litter consists of items that have been deliberately discarded, unintentionally lost or transported by winds and rivers into the sea and on beaches. It mainly consists of plastics, wood, metals, glass, rubber, clothing and paper. Land-based sources account for up to 80% of marine litter – these include tourism, sewage and illegal or poorly managed landfills. The main sea-based sources are shipping and fishing (EU, 2010).

Abstract: This protocol is aimed to standardize the procedure to collect data on litter caught during the MEDITS trawl surveys. Information on litter composition is recorded in terms of total weight of litter not yet separated into different categories and number and weight by litter categories. Thirty four (34) different typologies were identified including 9 main categories related to litter material and 25 sub-categories related to source and main litter findings. Litter data are reported in a specific form to be integrated with haul information included in TA files, in order to estimate a standardized index of total and by categories litter abundance per square kilometer, aiming to future recommendation depending on litter sources.

Procedure to collect litter data: On board the vessel, the litter collected is weighted as total and split into the categories and sub-categories as reported in the list below. It is mandatory to record or estimate total weight, regardless the categories and subcategories, and number of items for each main category: It is facultative to register weight by categories and number of items by sub-category. In case of large amount of litter in the catch, all big sized objects of litter must be recorded while a subsample could be analysed for small sized litter (e.g. lids). Litter should be coded as total, by category and sub-category. Detailed data on total weight and litter composition must be reported in the specific form on litter.
Qualitative and quantitative data on the litter have to be connected to data regarding the characteristics of the haul (Date, code of haul, the GPS positions of the haul (start and end), trawled distance, average speed, characteristics of the haul (horizontal opening), depth of haul etc.), contained in file TA.

Data related to the fishing set and gear performance allows calculating the sampled surfaces for each haul and estimating a standardized index of total and by categories litter abundance per square kilometer.
A photograph of total litter separated from fish catch in a haul, including a label with main haul data (Figure 1), is recommended as it might be used to future analysis of litter composition by Image Analysis Tools.
Organisms attached on litter might be also noted.

The list of the litter typology and codes :

L0 No litter in the net

L1 Plastic (including PVC, polypropylene, polyethylene)

- L1a. Bags
- L1b. Bottles
- L1c. Food wrappers
- L1d. Sheets (table-cover, etc.)
- L1e. Hard plastic objects (crates, containers, tubes, ash-trays, lids, etc.)
- L1f. Fishing nets
- L1g. Fishing lines
- L1h. Other fishing related (pots, floats, etc.)
- L1i. Synthetic ropes/strapping bands
- L1j. others

L2 Ruber

- L2a. Tyres
- L2b. Other (gloves, floats, boots/shoes, olskins, sanitaries)

L3 Metal

- L3a. Beverage cans
- L3b. Other food cans/wrappers
- L3c. Middle size containers (of paint, oil, chemicals)
- L3d. Large metalic objects (barrels, pieces of machinery, electric appliances)
- L3e. Cables
- L3f. Fishing related (hooks, spears, etc.)
- L3g. remnant from the war

L4 Glass / Ceramic/Concrete

- L4a. Bottles
- L4b. Pieces of glass
- L4c. Ceramic jars
- L4d. Large objects (ceramic basins, etc.)

L5 Cloth (textil) / **Natural fibres**

- L5a. Clothing (clothes, shoes, etc.)
- L5b. Large pieces (carpets, mattresses, etc.)
- L5c. Natural ropes
- L5d. Sanitaries (diapers, cotton buds, etc.)

L6 Wood processed (palettes, crates, etc.)

L7 Paper and cardboard

L8 Other

L9 Unspecified

References

Badts V., & F. Galgani, 2012. Procédure pour l'observation des macro déchets au cours des campagnes halieutiques", version 1.0 (2012) (Ifremer).

European Union, 2010. Marine Litter: Time To Clean Up Our Act. http://ec.europa.eu/environment/marine/pdf/flyer_marine_litter.pdf

ICES. 2012. Manual for the International Bottom Trawl Surveys. Series of ICES Survey Protocols. SISP 1-IBTS VIII. 68 pp.

Galgani F., G.Hanke, S. Werner & H. Piha, 2011. Marine Litter Technical Recommendations for the Implementation of MSFD Requirement. MSFD GES Technical Subgroup Marine Litter. JRC Scientific and Technical Reports. EUR 25009 EN. ISSN 1831-9424. DOI 10.2788/92438 : 93 pp.

Serena F., A.J Abella., R.T.Baino, E. Cecchi, M. Ria , R. Silvestri & A. Voliani, 2011. Anthropogenic waste in the Marine Ecosystem. Biol. Mar. Mediterr. 18 (1): 161-164

Figure 1. Litter collected during a MEDITS haul in Argosaronikos Gulf (Aegean Sea).

Campaign: ______ Date : __ __ __ Haul : ______

TOTAL weight of litter in the haul (kg) : ______

Type of Litter		Weight (kg) (mandatory for category and sub-category)	Number (facultative for subcategory)	Number (mandatory for category)
L0	No litter in the net			
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.)			
	f. Fishing nets			
	g. Fishing lines			
	h. Other fishing related (pots, floats, etc.)			
	i. Ropes/strapping bands			
	j others			
L2 Rubber	**a**. Tyres			
	b. Other (gloves, boots/shoes, olskins etc.)			
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)			
	e. Cables			
	f. Fishing related (hooks, spears, etc.)			
	g. remnant from the war			
L4 Glass / Ceramic/ Concrete	**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 :

XVIII. Internal rules of the MEDITS group

Adopted at the MEDITS meeting, Split (Croatia), 15-16/06/2010

1.Objective of the document

This document presents the way of working of the international group organised to coordinate the activity done by different countries to implement the MEDITS surveys.

2.The MEDITS survey initiative

Some Mediterranean countries have decided to join their efforts to carry out systematic bottom trawl surveys (acronym MEDITS) to produce basic information on benthic and demersal species in term of life history traits, population and community distribution and demographic structure.

The initiative started in 1993 and the first MEDITS survey was conducted by four countries in 1994. Since 2001, the European countries bordering the Mediterranean Sea are obliged to carry out MEDITS surveys yearly in the framework of the European Data Collection regulation. In 2010, ten Mediterranean countries collaborated in the project, and permanent links are maintained with the relevant bodies of the European Union and GFCM. All the information related to the MEDITS surveys is given in the MEDITS website.

All the countries interested to contribute to this challenge in view of extending the MEDITS survey coverage in the Mediterranean and Black Sea are warmly welcome in the MEDITS initiative.

3.The mandate of the MEDITS group

The MEDITS group has been created to coordinate the activity done in the MEDITS framework. Basically the aim of the group is to ensure consistency and coherence of the MEDITS surveys into space and time. With this goal, the group can review the standards defined to carry out the survey, including the sampling scheme, the gears used and the common observations to be done during the surveys. It can be entrusted with questions related to quality management of the surveys as well as about common management of the data. The group may also incite for the development of common research between the partners.

The terms of reference of the group include requests from the EU-RCM Med & BS, issues addressed by the GFCM, and questions from internal initiative.

4.Composition of the MEDITS group

The MEDITS group is open to all the scientists involved in the MEDITS surveys.

In each country participating in the MEDITS surveys, the contact point is the national coordinator of MEDITS. When relevant taking into account the national organisation of research activity and the characteristics of the surveyed area, regional coordinators may be identified near a national coordinator.

The activity of the group is managed by a steering committee.

4.1 The steering committee

The steering committee is the reference entity of the MEDITS group. The steering committee validates all the decisions taken in the name of the MEDITS group. It endorses the terms of reference, timings and agendas of the MEDITS sessions. It ratifies the conclusions and recommendations elaborated by the group.

The MEDITS steering committee is composed by scientists coming from the research groups involved in the MEDITS surveys, on the basis of one member by country. These scientists are the national coordinators of the MEDITS survey or their representative.

4.2 Chairpersonship

The MEDITS coordinator is in charge of animation of the MEDITS group, including the annual sessions of the group (preparation of the agenda, convening of the meeting, chair of the session, coordination and spreading of the report) and the in between activity (relationship with the other bodies, coordination of the tasks, management of the internal communication). The coordinator (or representative from the steering committee) participates in the RCM Med&BS upon request, for ensuring the link between the two Groups.

The mandate of the coordinator of the MEDITS group is for three years. The new coordinator is nominated by the steering committee at the end of an annual session, for immediate effect. One coordinator can be nominated for a maximum of two consecutive mandates. When the MEDITS coordinator is the national coordinator of one partner, a new national coordinator is nominated for this country.

5. Internal rules of the group

5.1 Annual session

The MEDITS group meets at least once a year. This meeting may include plenary sessions and sessions limited to the steering committee.

The plenary sessions of the MEDITS group are open to scientists from the member countries at the convenience of the relevant national coordinators. Furthermore, the MEDITS meetings are open to other scientists from invitation by the general coordinator.

In principle, date and place of the next annual meeting are defined by common agreement during the actual session. Nevertheless, they can be changed later by common agreement of the steering committee members, particularly to take into account the calendar of the reference bodies (GFCM and EU-RCM Med&BS). The place of the next meeting is decided from invitation given by the members.

The usual mode of working is elaboration of recommendations in the plenary meetings, then decision by consensus by the steering committee.

The requests submitted by external bodies (GFCM) must be transmitted to the MEDITS coordinator at least two months before the date of the next annual session.

5.2 Other activities

The MEDITS group may create ad hoc working groups in view of development of common activity on topics of interest in link with the MEDITS surveys (to progress on specific research questions, etc.). In this scope, the MEDITS group may incite and facilitate common publications at a global scale.

5.3 Website

A website presents the activity of the MEDITS group. It is managed by one of the members. The content of the website is validated by the steering committee. To facilitate exchanges between the members of the group, the group can open a private or a cooperative website.

6. Data Policy

The access to the MEDITS data is regulated by the EU Reg. 199/2008 (Data Collection Framework). Data that are made available for specific projects, like the preparation and publication of scientific papers/reports, or for the objectives of ad hoc working group, should be used only for these specific purposes (other uses are not allowed) and after the agreement of the MEDITS group. For that, it is recommended to present the proposals in the annual MEDITS coordination meetings. Another way to request this agreement could be through contact with the general and national coordinators.