November 2009

GENERAL FISHERIES COMMISSION FOR THE MEDITERRANEAN
COMMISSION GÉNÉRALE DES PÊCHES POUR LA MÉDITERRANÉE

GENERAL FISHERIES COMMISSION FOR THE MEDITERRANEAN

SCIENTIFIC ADVISORY COMMITTEE (SAC)

Meeting of the Sub-Committee on Stock Assessment (SCSA)
Malaga, Spain, 30 November – 3 December 2009

REPORT OF THE SECRETARIAT ON THE PROGRESS TO ESTABLISH REGIONAL PROTOCOLS FOR SURVEYS-AT-SEA

* Only available in English

1. Introduction

1. Following the SCSA workshop on methods and protocols for direct assessments (June 2008) which highlighted the need to establish common GFCM protocols for surveys-at-sea, the SAC, at its 11th session (December 2008), agreed to invite national scientists in charge of surveys at sea, the FAO sub-regional projects as well as other projects to forward their related detailed protocols to the GFCM Secretariat in order to make them available for discussion during the present SAC Sub-Committee meetings.

2. It is worth recalling that the ninth meeting of the SAC Sub-Committee on Stock Assessment suggested that "*the use of surveys data to perform stock assessment and to provide management advice, including EAF perspective, is an important step that needs to be further promoted and supported in the SAC so that efforts and investments in undertaking the surveys at sea (trawl surveys, echo surveys, eggs-larvae) are reconciled with their ultimate goal to provide assessments on the status of stocks*".

3. This document reports on the progress made on this issue and provides information to enable the SCSA to take the matter forward.

2. Protocols available

4. So far, the Secretariat received two documents in connection with protocols for trawl surveys and one other for an acoustic survey. These are listed below and included in Appendices I – III for the perusal of the Sub-Committees.

- **Medits Trawl Survey** (since 1994)[1] – Medits instruction manual (version 5, April 2007)
  This trawl survey is currently conducted within the framework of the data collection regulation of the European Union. All 7 EU Mediterranean countries (Italy, France, Spain, Greece, Malta, Cyprus and Slovenia) participate together with Montenegro, Albania, Croatia and Morocco which have conducted the survey periodically over years. Sampling is carried out in 19 GSAs with stations positioned following a depth stratified sampling scheme with random selection of the positions within each stratum. Data are collected for 5 categories of demersal species (fish, cephalopods, crustaceans, other commercial species and non-commercial animal species). The survey is conducted annually during spring-summer.

- **SoleMon - Rapido Trawl Survey** (since 2005)[2] – Overview of survey design and protocol
  This survey has been specifically designed for the assessment of *Solea solea* in the central and northern Adriatic Sea (GSA17). SoleMon monitors several benthic species (flatfish, pectinids, cuttlefish, etc.) which cannot be assessed properly by

[1] J. Bertrand, 17th July 2009
[2] Fabio Grati, CNR-ISMAR, 29th July 2009

otter trawl surveys such as Medits. Three countries (Italy, Croatia and Slovenia) are involved in the survey with sampling having been carried out twice a year (spring and autumn-winter) in 2005 and 2006 and annually in the following years.

- **Medias Acoustic Survey**[3] – Medias Steering Committee Report – February 2008 (including key elements of the protocol)
  Medias is an acoustic survey, supplemented by biological sampling using a pelagic trawl, conducted within the framework of the EU data collection regulation aiming at providing information for assessment of fish stocks and their management. The survey covers 6 geographical areas (Aegean, Gulf of Lions, Adriatic Sea-Slovenia, Adriatic Sea–Italy, Sicily Channel, Iberian Coast) and the target species are *Engraulis encrasicolus* and *Sardina pilchardus*. The six participating countries (Greece, France, Malta, Slovenia, Italy and Spain) are expected to carry out the survey on an annual basis during the summer except on the Iberian Coast where the survey should take place during the anchovy recruitment period (November-December).

5. In addition, the Secretariat was informed that Tunisian (INSTM)4 protocols are described in Annex 3 (pages 21 – 26) and Annex 4 (pages 57 – 67) of the report of the second meeting of the working group on assessment methodology (document GFCM:SAC11/2008/Inf.13).

6. The Sub-Committee on stock assessment is invited to review the available information and protocols, identify additional requirements (if any) and draw up suggestions to be presented at the next session of SAC (Montenegro, 25-29 January 2010) in relation to finalization of GFCM protocols for surveys-at-sea in the Mediterranean and the Black Sea. The SCSA is also solicited to provide clear guidance for the Secretariat to follow up the matter as necessary.

[3] A. Machias, 22nd July 2009
[4] O. Jarboui, 3rd September 2009

International bottom trawl survey in the Mediterranean (Medits)

Instruction manual

Version 5

April 2007

The MEDITS programme is conducted owing to financial support from the European Commission (DG Fish) and the participating countries.

PREAMBLE

The first version of this manual was prepared in 1994 within a co-ordination 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 participants use the same gear and the same methodology. The manual was revised in 1995 after the 1994 survey to take methodological improvements acquired during the first survey into account. During the course of the project, several improvements were made. A new version of the manual has been established when necessary to allow for improvements follow-up. In any case, the Medits co-ordination committee has taken care that the amendments do not disrupt the consistency of the series. The third version of this manual was edited in 1999. The fourth version referred to the surveys carried out since 2000.

This fifth version is an updated of the fourth version, including the improvements adopted by the Medits group since 2005. They have been fully applied for the Medits surveys since 2005. Furthermore, the manual includes all the areas covered by the Medits surveys up to 2007.

Co-ordination of the MEDITS program (2007)

Co-ordination Committee

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Steering Committee

The members of the Co-ordination Committee plus at least one representative by GFCM-GSA and by country covered by the project.

Medits strata	GSAs	Country	Area	Co-ordinator		E-mail
111	1, 2	Spain	Northern Alboran Sea	Luis GIL DE SOLA	*	gildesola@ma.ieo.es
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112-113	6	Spain	Northern Spain	Mariano GARCIA		mariano.garcia@md.ieo.es
121, 131	7, 8	France	Gulf of Lions & Corsica	Arnauld SOUPLET	*	arnauld.souplet@ifremer.fr
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133	11	Italy	Sardinia	Angelo CAU		cau@vaxca1.unica.it
135	15	Malte	Malta	Mark DIMECH	*	mark.dimech@gov.mt
134c	16	Italy	Strait of Sicily	Sergio RAGONESE		sergio.ragonese@iamc.cnr.it
211a-b	17	Italy	Northern Adriatic Sea	Corrado PICCINETTI		corrado.piccinetti@unibo.it
211c	17	Slovenia	Northern Adriatic Sea	Bojan MARCETA	*	Bojan.Marceta@zzrs.si
211d	17	Croatia	Northern Adriatic Sea	Nedo VRGOC	*	vrgoc@izor.hr
221e-h	18	Italy	South Adriatic Sea	Raffaele VACCARELLA		r.vaccarella@provincia.ba.it
221i	18	Albania	South Adriatic Sea	Kastriot OSMANI	*	kastriotosmani@yahoo.com
221j	18	Montenegro	South Adriatic Sea	Aleksandar JOKSIMOVIC	*	acojo@cg.ac.yu
221a-d	19	Italy	Western Ionian Sea	Angelo TURSI		a.tursi@biologia.uniba.it
222	20	Greece	Eastern Ionian Sea	Chrissi-Yianna POLITOU	*	c-y@ath.hcmr.gr
223	22	Greece	Aegean Sea (Argosaronikos)	Chrissi-Yianna POLITOU		c-y@ath.hcmr.gr
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Contents

Introduction

This document is the fifth version of a manual elaborated in the frame of an international project to harmonise the samplings by bottom trawling of the demersal resources in the Mediterranean Sea (MEDITS program). It is the reference document for the surveys to be conducted from 2007 onwards by the research institutes contributing in the Medits surveys on the continental shelves and slopes in the Mediterranean (Fig. 1).

The manual describes the sampling gear characteristics, the sampling methodology and the treatment of the samples. Finally it gives the specifications of the data files for data storage and exchange.

[1] Specifications of the sampling gear

1.1 The trawl

The sampling gear is a bottom trawl made of four panels. The drawing of this trawl (IFREMER reference GOC 73) is given in figure 2. This gear was calculated to be operated by a vessel with a towing power of at least 368 kW (500 ch) and 4.5 tons of bollard pull.

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 those should then be added when cutting.

The floats of the headline, which are 40, should resist to an immersion of 1300 m. 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 follow (Fig. 3 and 7): from the end of each wing, one float every 1.50 m, 5 times; then 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.

The weighting chain of 120 kg (3 × 40) should be secure to the foot rope every 17 cm (with a hanging height of at most 8 cm). A supplementary 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).

1.2 The rigging

The general drawing of the rigging is given in figure 3. Various details of mounting and connection are shown in figure 4. The upper legs length is 30 m; the lower legs length is 29 m, plus the adjustment chain of 1m.

To maintain the geometry of the trawl as constant as possible two bridles length are defined according to the depth. They are given in the following table:

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

Accordingly with some experiment made on board the RV/L'Europe in June 2000, it is recommended to increase the bridle length to 200 m in depths deeper than 500 m. This modification is not compulsory but it can favour a better and faster contact of the trawl with the ground.

1.3 The doors

The doors are also normalised. They are of type Morgere WH S (Fig.5). 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 Fig. 5). 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 Fig. 5). The length of the back-strops (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, at least of 14 mm, at most of 20 mm. The length of warps to be shot is determined by the depth. The recommended relationship between depth and warp length is given in figure 6. Although in certain peculiar 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 shot warp, 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 equipments

The systematic use of a device to control the trawl geometry (vertical and horizontal openings, contact with the bottom) is highly recommended. The sensors should be positioned as shown in figure 7. If it is not possible, measurements of the trawl geometry should be made at various depths on board each vessel at the beginning of the survey to establish a graph. For each haul it will noted in the data files if the indications of trawl opening are estimated or measured *in situ*.

A security device allowing to get back the trawl by the codend can be installed. As far as possible, it is recommended to secure this lazy line as shown in figure 7 and to take care of its fixations.

[2] Sampling methodology

2.1 Vessel characteristics

The vessels used for the Medits surveys might have a horse power 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 the same vessel and crew be used as much as possible every year in each area to carry out the survey series in view of reducing variations between years due to vessel effect. The list of the vessels used since the beginning of the survey series is given in **annex I**.

2.2 Period of the survey

The period of the Medits survey is centred on June (from May to July).

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 surface 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 shoal eventually detected with the sounder or the sonar.

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

10 - 50 m,
50 - 100 m,
100 - 200 m,
200 - 500 m,
500 - 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 are shown in figure 1. It is strongly recommended to strictly maintain the same scheme between years. The strata are described in **annex II**. The target number of hauls by area is given in **annex III**.

The *Posidonia sp.* grasslands are excluded from the sampling scheme and should never been trawled.

2.4 Operating the gear

2.4.1 Sampling period in the day

The hauls must be made 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 a very important target to insure 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 stuck in the mud. A speed greater than 3.2 knots can take the trawl off the ground at great depths.

The haul duration is fixed at 30 minutes on depths less than 200 m and at 60 minutes at depths more than 200 m.

2.4.3 Haul start and end definition

The start of the haul is defined as the moment from which the trawl geometry (vertical and horizontal) is stabilised (cf. § 3.4.5.). The end of the haul is defined as the moment of the beginning of warp hauling.

2.4.4 Haul orientation

In general the hauls are made at constant depth. The depth variations during the haul should not exceed ± 5% relatively to the initial depth. The discrepancies to this target should be recorded. In case of important difference between the depth under the vessel and the depth at which the trawl is, the recorded depth is those at which the trawl is. 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 will be as wide as possible for not to disrupt the trawl geometry. In all cases the fields "PARCOU" and "DISTANCE" of the "A" data file (see § 6.2.) should be precisely documented.

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

After the complete shooting of the warps and the braking of the winches a relatively high speed (5-6 knots) will be maintained for around 1 minute to allow the trawl to well draw both in length and in width.

The speed will then be strongly reduced (even to 0) during the needed time (variable depending on each vessel and each depth: for example 2-3 minutes at 500 m) in such a way that the doors reach the ground.

Once the doors are on the ground a speed lower than the normal one (2.5-2.7 knots) should be maintained to allow the trawl to get down to the ground.

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.

Except some peculiar situations in which some adaptations – as small as possible – to these management would be absolutely necessary, it is recommended to respect as precisely as possible the above described procedures.

For the vessels using a device such SCANMAR the trawl can be considered as well stabilised as soon as its vertical opening is between 2 and 3 m.

For the vessels without such a device, preliminary trials will be made before the survey. These trials will target to determine, ship by ship, the time needed to correctly operate the trawl, taking the depth and the working practice of each skipper into account.

2.4.6 Setting of the trawl on the ground

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

2.4.7 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 SCANMAR 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.

2.4.8 Wear of the trawl

It has not been foreseen any system preventing the bosom of the trawl against rubbing on the ground. It is then recommended to change the rubbing pieces of the trawl as often as needed, particularly when they have lost their initial resistance characteristics.

[3] Treatment of the catches

3.1 Samplings

On board on the vessel the catches are split into five categories (**Annex IV**):

Category A: Fish
Category B: Crustaceans *Decapoda* and *Stomatopoda*
Category C: Cephalopods
Category D: Other commercial species
Category E: Other non commercial animal species

For each species the total weight and number of individuals is recorded

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 seems reasonable to make a sub-sample not exceeding 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 with the NCC recommendations and as the MEDITS coding is not strictly identical to the RUBIN one (different use, species not referenced to in the RUBBIN code) the "name" of this code has been changed and is for the purpose of the MEDITS "**FM list**".

The species identifications are made according to Fisher and *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. This review is based on the one maintained by the Ifremer's Fishery information system[5]. Nevertheless, it is underlined that the species coding has to be kept strictly identical in the data base, even if the species name has been changed.

As no zero value is included in the tables, it is important to precise the extend of species potentially recorded from the catch. Coding for this information is given in **Annex V**.

A reference list of 38 species of fish, crustaceans and cephalopods is given in **Annex VI**. For all these species the length frequencies by sex must be reported as well as the maturity stage of the gonads (see below). Since 2006, it is recommended to include all the selacians in this group.

3.2 Biological parameters

3.2.1 Measurement units

For fish the length is ever the overall length, the tail being extended following its longer dimension. The measurement unit is the lower half centimetre.

For Crustaceans the length is measured in term of cephalo-thoracic length at the lower millimetre (**Annex VII**).

For Cephalopods the length is the mantle length at the lower half centimetre (**Annex VII**).

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[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.

[5] Woehrling D., 2004. Le référentiel taxinomique du système d'information halieutique de l'Ifremer. Ifremer, DRV/RH/DT/04-04. 12 p.

If a given team wish, for its own works, to make complementary observations on other species or of an other nature, 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.

3.2.2 Sex and maturity

The sex is defined following four categories: male, female, undetermined (impossible to determine it by eye) and not determine (the individual has not been examined). The sexual maturity is defined with reference to the identification keys given in **Annex VIII** for the fish and **Annex IX** for the Crustaceans and Cephalopods. For Crustaceans the maturity stages is recorded only for the females.

The individuals of hermaphrodite species being currently changing sex are qualified by the sex of whom the gonad is the more developed

3.3 Other parameters

The bottom water temperature should be recorded at the start and the end of each haul. This information is stored in an exchange file with the format defined in **Annex XIII**. The recommended sensor is the Vemco minilog TDR –5 to 35°C which records both temperature and depth. It 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 "**A**" file. The data should be recorded in one file by haul and not in one file for several hauls. The temperatures from all the hauls (beginning and end) should be kept and reported in the file of type 4 (**D**) and they 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.

[4] Inter-calibration of the work at sea

To try an inter-calibration of the working methods between the various vessels two possibilities are recommended: an exchange of scientist on board the vessels and where and when it could be possible a co-ordination of trawling operation, together by the two vessels, at the border of the areas covered by these two vessels respectively.

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 their best to send scientist from their own team on board of other vessels participating in the project. It is expected that the reports of these boarding help to identify eventual differences in the working methodology.

Where and when different teams are in charge of adjacent working areas, they are invited, although it seems rather difficult and time consuming, to act in concert together to try to 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 exchange of the data produced by the Medits surveys. The exchange files are in an ASCII format.

5.2 Files type

Four files types are defined to store and exchange the data:
Type A: Characteristics of each haul (**Annex X**)
Type B: Catch of each haul in weight, number and number by sex (**Annex XI**)
Type C: Biological parameters for the species in the reference list (length, sex, maturity) (**Annex XII**)
Type D: Temperature data (**Annex XIII**)
Type T: List of hauls by stratum (**Annex XIV**)

The files names are defined as follow:

Position	Variable	Possible values
Character 1	Files type	**A** (haul characteristics) **B** (catch by haul) **C** (biological parameters) **D** (temperature) **T** (list of hauls)
Character 2-3	Country	**MA**, **ES**, **FR**, **IT**, **SL**, **HR**, **AL**, **MO**, **ML**, **GR, CY**
Character 4	Area	**1** to **5** for Italy, **1** to **3** for Greece, **1** to **2** for Spain, **_** (underscore) for the other countries
Character 5-8	Year	**2000**, **2001**, etc.
Character 9	Separator	**.** (point)
Character 10-12	Extension	**TXT** for A, B, C, D files, **DAT** for S and T

5.3 Files structure and information's coding

The exchange files format are described in **Annexes X to XIV**. Complementary coding tables used to fill in the data files are given in annexes referred above.

Figures

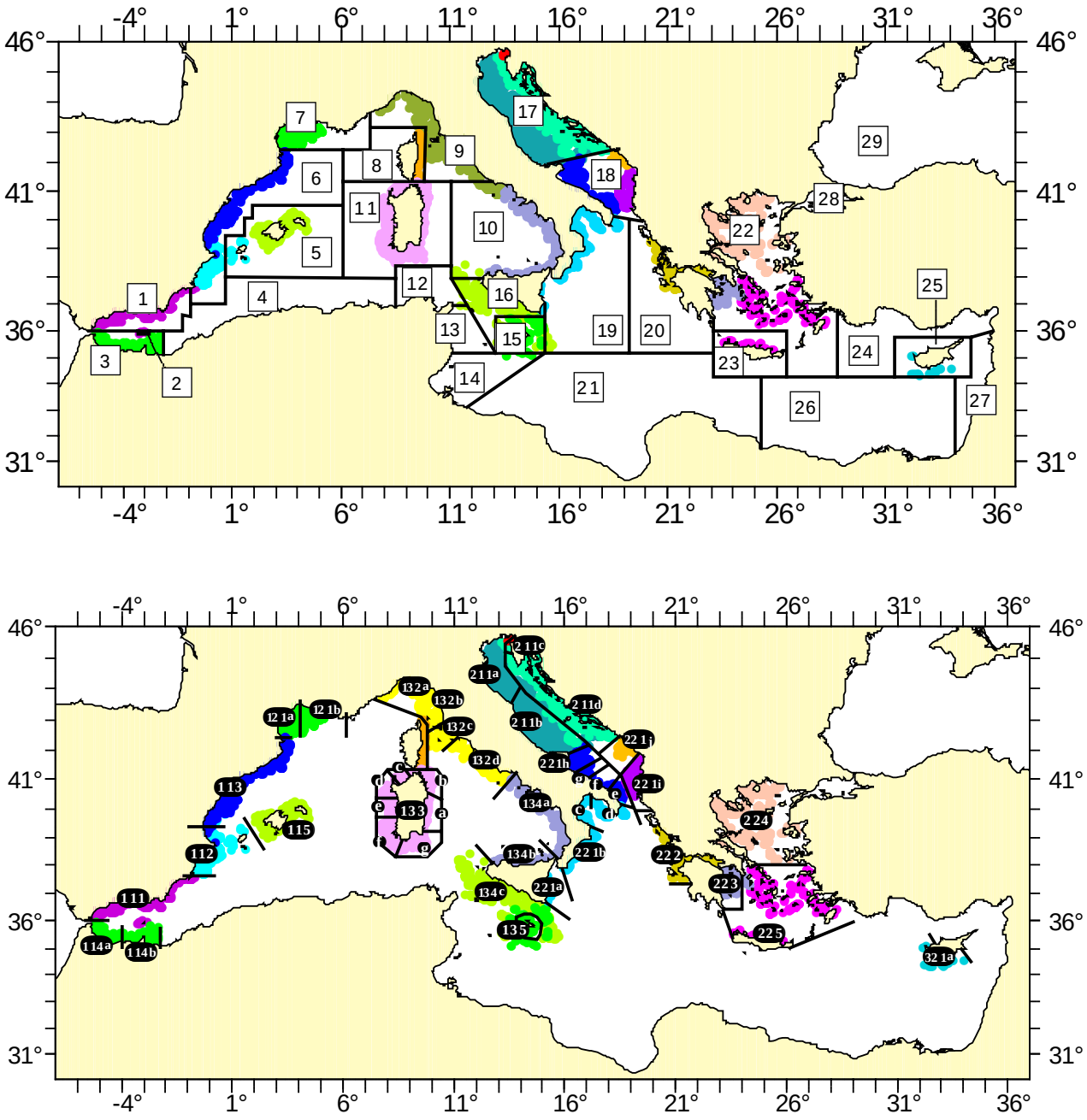


Fig. 1. General map of the area covered by the programme. Top: the GFCM GSAs, Down: the Medits strata. Coloured: areas covered by the Medits surveys.

The designations used and the presentation of cartographic data imply no line as for the juridical status of the various areas neither as for the border lines between countries.

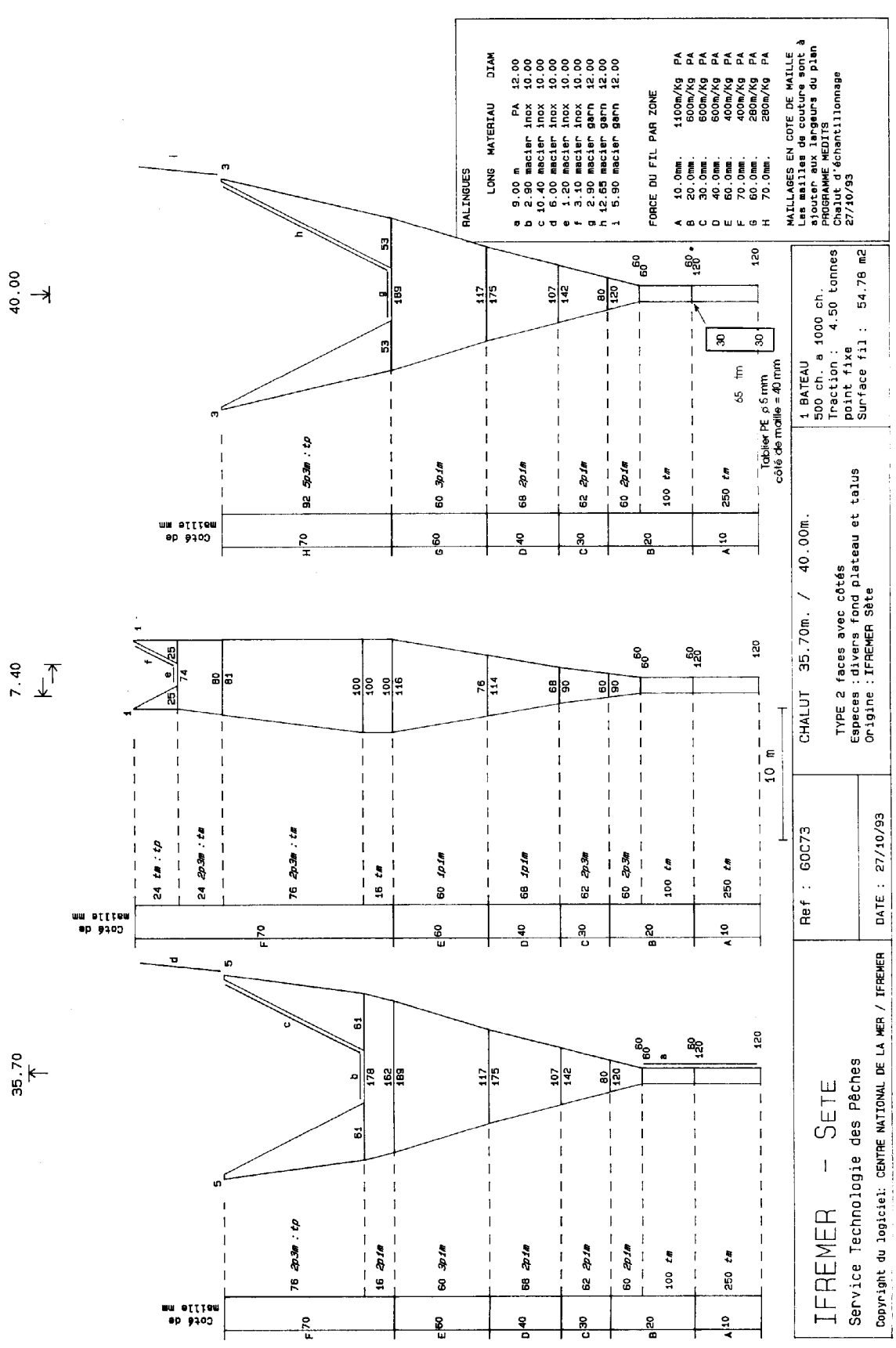


Fig. 2. Plan of the trawl GOC 73.

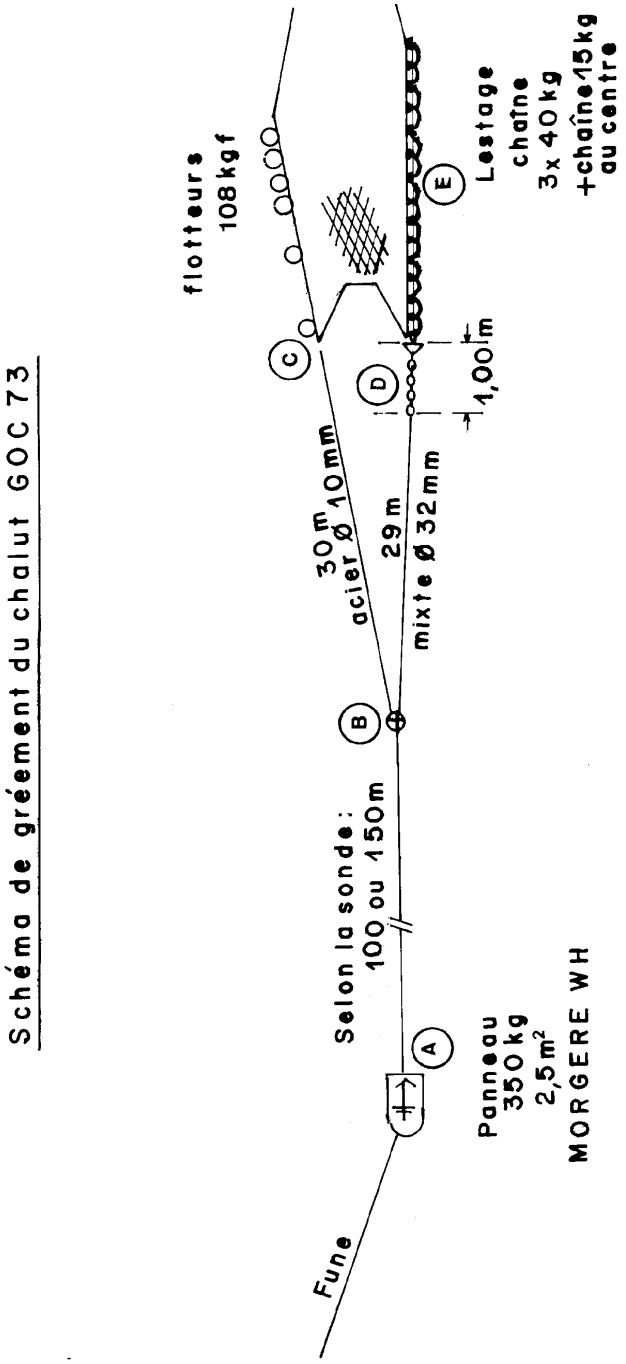


Fig. 3. Diagram of the rigging.

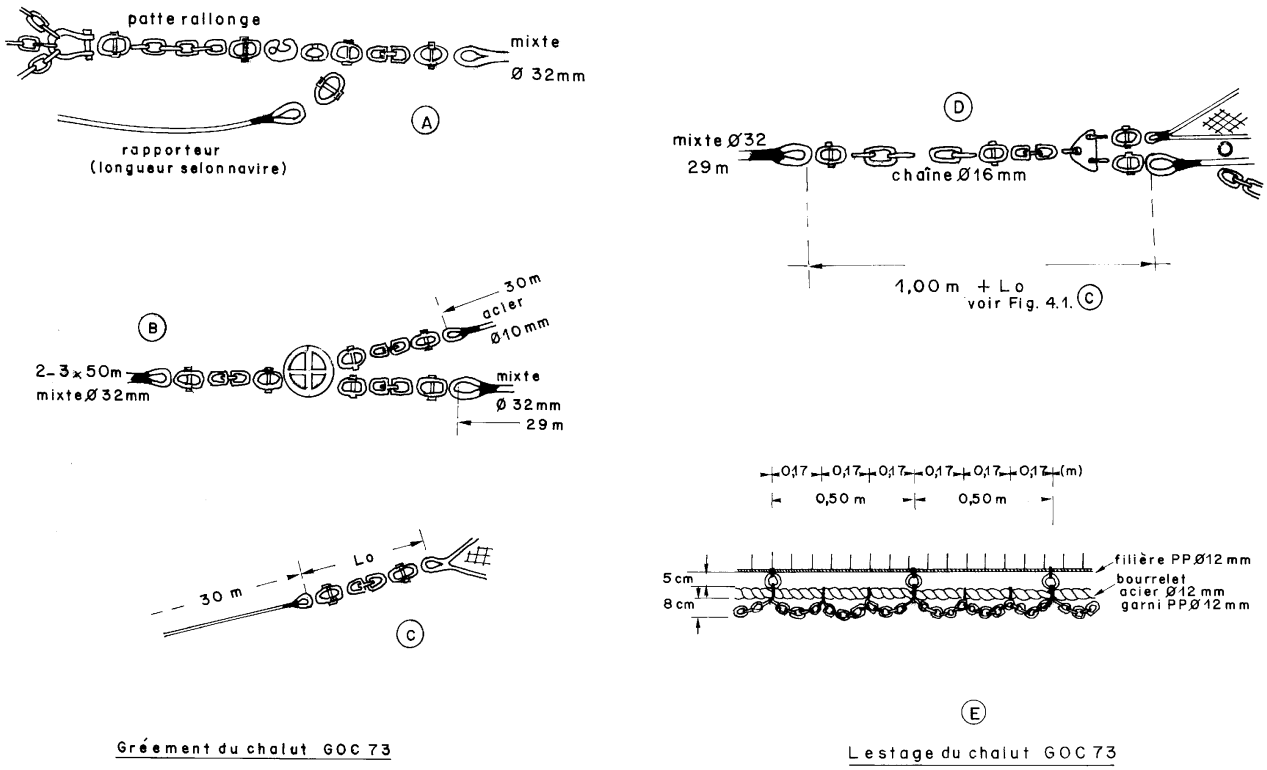


Fig. 4. Various details of the rigging.

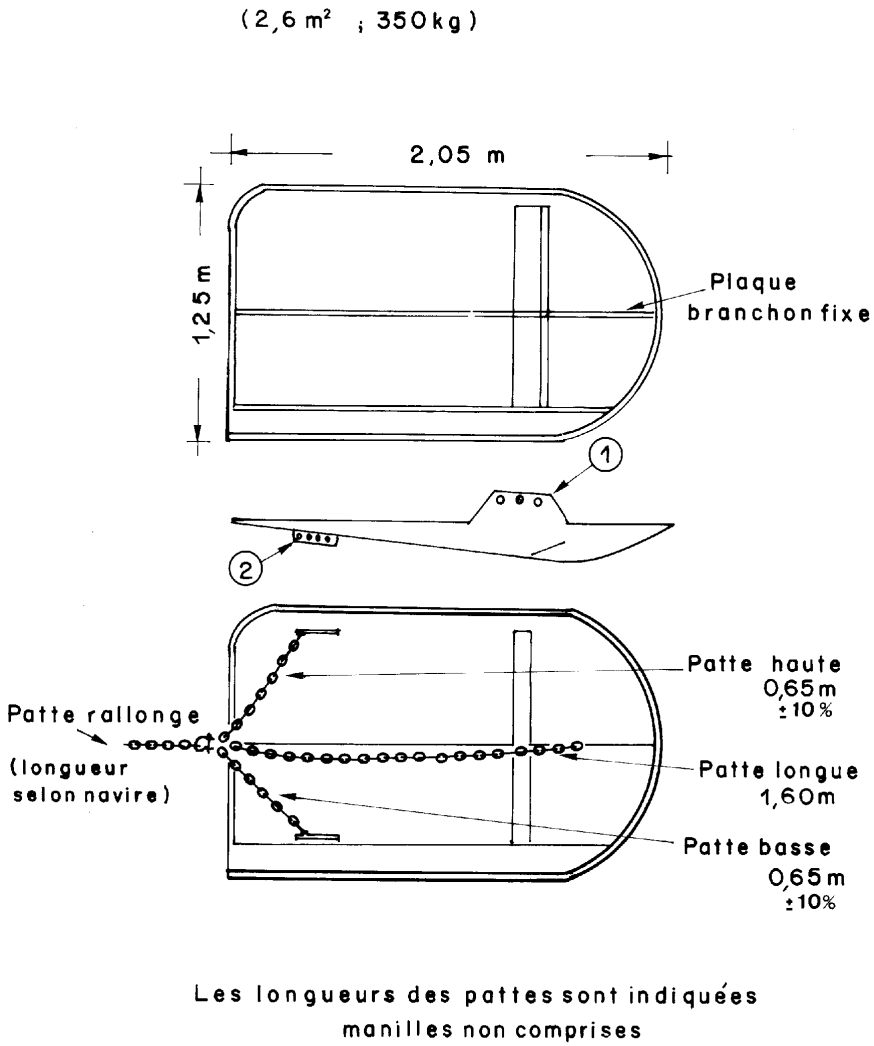
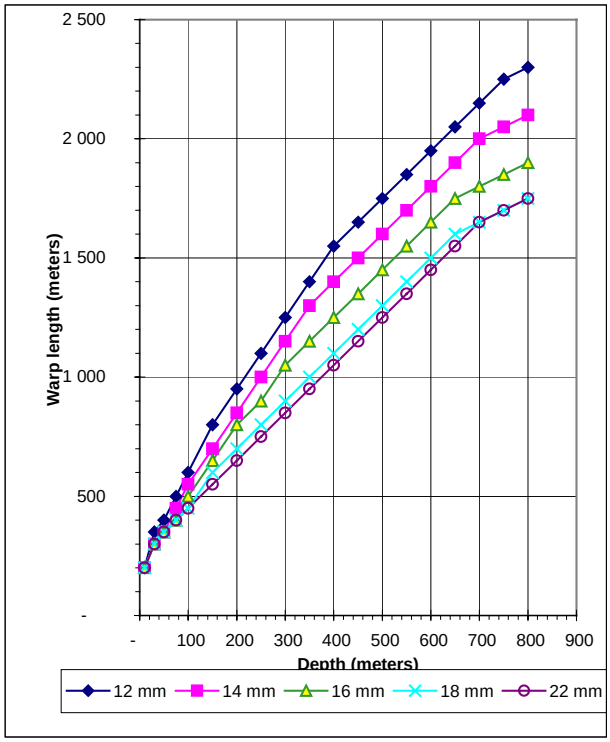


Fig. 5. Drawing of a door Morgère WHS (8).

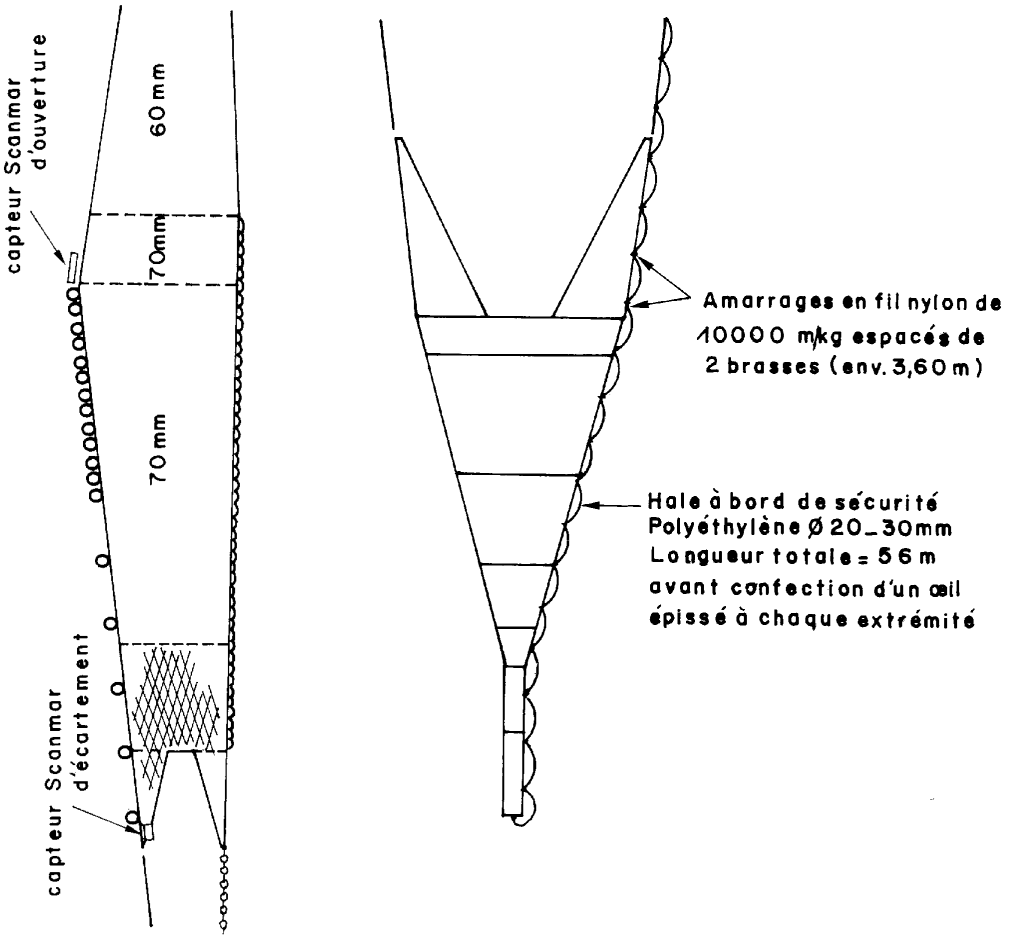


Relation ship between depth and warp length

Warp lentgh in meters

Depth (m)	12 mm	14 mm	16 mm	18 mm	22 mm
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	1 100	1 000	900	800	750
300	1 250	1 150	1 050	900	850
350	1 400	1 300	1 150	1 000	950
400	1 550	1 400	1 250	1 100	1 050
450	1 650	1 500	1 350	1 200	1 150
500	1 750	1 600	1 450	1 300	1 250
550	1 850	1 700	1 550	1 400	1 350
600	1 950	1 800	1 650	1 500	1 450
650	2 050	1 900	1 750	1 600	1 550
700	2 150	2 000	1 800	1 650	1 650
750	2 250	2 050	1 850	1 700	1 700
800	2 300	2 100	1 900	1 750	1 750

Fig. 6. Relationship between depth and warp length for the trawl GOC 73.



The security lazy line is secured first at the fore part of the upper starboard wing and second behind the codend. Between this two points, this port is secured around every two fathoms, alongside the seam between the upper face and the lateral starboard face of the trawl.

Fig. 7. Position of the geometry sensors and drawing of the lazy line.

[6] 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

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

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XIV. Format of the type T files (List of hauls by stratum)

XV. FM list of species codes

I. Codes for countries, vessels and gear

Codes for countries

Code	Country
ALB	Albania
CYP	Cyprus
ESP	Spain
FRA	France
GRC	Greece
HRV	Croatia
ITA	Italy
MAL	Malta
MAR	Morocco
MON	Montenegro
SLO	Slovenia

Vessel codes and characteristics

Vessel code	Vessel Name	Type	Lenght (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
CHA	Charif Alidrissi	R	41	397	1986	steel	808	22	3000
COR	Cornide de Saavedra	R	66.7	1524	1970	steel	1651	29	2700
DAP			0	0	0		0	0	0
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			0	0	0		0	0	0
GIS			0	0	0		0	0	0
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			0	0	0		0	0	0
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
PAS			0	0	0		0	0	0
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	197.1	1981	steel	744	14	3100

Codes for the gear

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))

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	2979	Strait of Sicily
16	Italy	13412 c	50-100	5943	
16	Italy	13413 c	100-200	5565	
16	Italy	13414 c	200-500	6972	
16	Italy	13415 c	500-800	9927	
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	4918	South Aegean Sea (encl. GSA 23: Crete)
22	Greece	22502 a	50-100	4090	
22	Greece	22503 a	100-200	13269	
22	Greece	22504 a	200-500	18100	
22	Greece	22505 a	500-800	22224	
25	Cyprus	32101 a	10-50	796	Cyprus

GSA	Country	Stratum	Depth (m)	Surface (km²)	Area
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

Country	GSA	Strata	Surface (km²)	No Hauls	Area
Spain	1, 2	111	12753	46	Northern Alboran Sea
Morocco	3	114	13841	63	Southern Alboran Sea
Spain	5	115	12656	60	Balearic Islands
Spain	6	112-113	32506	92	Northern Spain
France	7, 8	121, 131	18422	95	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	98	Sardinia
Malta	15	135	10580	45	Malta
Italy	16	134c	31386	120	Strait of Sicily
Italy	17	211a-b	60350	121	Northern Adriatic Sea
Slovenia	17	211c	184	2	Northern Adriatic Sea
Croatia	17	211d	31727	60	Northern Adriatic Sea
Italy	18	221e-h	15273	58	Southern Adriatic Sea
Albania	18	221i	8735	40	Southern Adriatic Sea
Montenegro	18	221j	5000	20	Southern Adriatic Sea
Italy	19	221a-d	16347	70	North-Western Ionian Sea
Greece	20	222	16823	32	Eastern Ionian Sea
Greece	22	223	24916	21	Aegean Sea (Argosaronikos)
Greece	22	224	68157	65	Aegean Sea (North)
Greece	22	225	62601	61	Aegean Sea (South)
Cyprus	25	321	11106	26	Cyprus

IV. Codes of faunistic categories. Form to introduce new species codes

Codes of faunistic categories (Position 18 in the file 2)

MEDITS code	Nature	Comments
A	Fish	
B	Crustaceans	
C	Cephalopods	
D	Other commercial species	
E	Other animal species but not commercial	

Form to introduce new species codes

Date: ..... Laboratory:.....
Regional co-ordinator:.....

Proposed code		***Scientific name***	**Reference work code**	**Reference**	**Catfau**	**Petitioner**
Genus	**Species**					

Note. For further information on codes, see Annexe XII

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

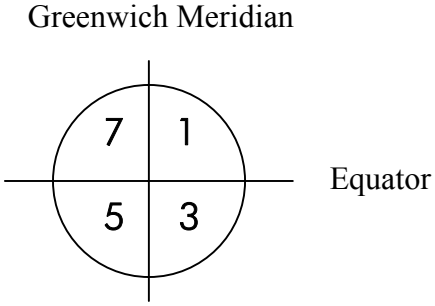
Codes of recorded species (Position 83 in the file 1)

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 109 in the file 1)

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 38 and 60 in the file 1)



VI. List of the reference species

Scientific name	**Date**[1]	**CODE**	**Common name**	
			Français	**English**
Aspitrigla cuculus	1998	ASPI CUC	Grondin rouge	Red gurnard
Boops boops	2006	BOOPBOO	Bogue	Bogue
Citharus linguatula	1994	CITH MAC	Feuille	Spotted flounder
Eutrigla gurnardus	1994	EUTR GUR	Grondin gris	Grey gurnard
Galeus melastomus	1998	GALU MEL	Chien espagnol	Blackmouth catshark
Helicolenus dactylopterus	1994	HELI DAC	Rascasse de fond	Rockfish
Lepidorhombus boscii	1994	LEPM BOS	Cardine à quatre taches	Four-spotted megrim
Lophius budegassa	1994	LOPH BUD	Baudroie rousse	Black-bellied angler
Lophius piscatorius	1994	LOPH PIS	Baudroie commune	Angler
Merluccius merluccius	1994	MERL MER	Merlu commun	European hake
Micromesistius poutassou	1994	MICM POU	Merlan bleu	Blue whiting
Mullus barbatus	1994	MULL BAR	Rouget-barbet de vase	Red mullet
Mullus surmuletus	1994	MULL SUR	Rouget-barbet de roche	Striped red mullet
Pagellus acarne	1994	PAGE ACA	Pageot acarné	Axillary seabream
Pagellus bogaraveo	1994	PAGE BOG	Dorade rose	Blackspot seabream
Pagellus erythrinus	1994	PAGE ERY	Pageot commun	Common pandora
Sparus pagrus	> 1996	SPAR PAG	Pagre commun	Common seabream
Phycis blennoides	1994	PHYI BLE	Phycis de fond	Greater forkbeard
Raja clavata	1994	RAJA CLA	Raie bouclée	Thornback ray
Scyliorhinus canicula	1998	SCYO CAN	Petite roussette	Smallspotted catshark
Solea vulgaris	1994	SOLE VUL	Sole commune	Common sole
Spicara flexuosa	1994	SPIC FLE	Gerle	Picarel
Spicara smaris	1998	SPIC SMA	Picarel	Picarel
Trachurus mediterraneus	1994	TRAC MED	Chinchard à queue jaune	Mediterranean horse mackerel
Trachurus trachurus	1994	TRAC TRA	Chinchard d'Europe	Atlantic horse mackerel
Trigla lucerna	2006	TRIGLUC	Grondin-perlon	Tub gurnard
Trigloporus lastoviza	1998	TRIP LAS	Grondin camard	Streaked gurnard
Trisopterus minutus capelanus	1994	TRIS CAP	Capelan	Poor-cod
Zeus faber	1994	ZEUS FAB	Saint-Pierre	John dory
Selacians[2]	2006			
Aristaeomorpha foliacea	1994	ARIS FOL	Gambon rouge	Giant red shrimp
Aristeus antennatus	1994	ARIT ANT	Crevette rouge	Blue and red shrimp
Nephrops norvegicus	1994	NEPR NOR	Langoustine	Norway lobster
Parapenaeus longirostris	1994	PAPE LON	Crevette rose du large	Deep-water pink shrimp
Eledone cirrhosa	1994	ELED CIR	Poulpe blanc	Horned octopus
Eledone moschata	1997	ELED MOS	Elédone musquée	Musky octopus
Illex coindetti	1994	ILLE COI	Encornet rouge	Broadtail squid
Loligo vulgaris	1994	LOLI VUL	Encornet	European squid
Octopus vulgaris	1994	OCTO VUL	Pieuvre	Common octopus
Sepia officinalis	1994	SEPI OFF	Seiche commune	Common cuttlefish

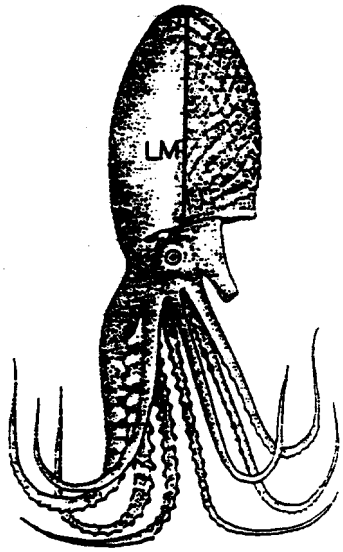
[1] Year in which the species was introduced in the list (or removed if the year is preceded by >)
[2] It is recommended to carry out the observations referring to this list to all the selacian species in the GSAs where it is technically possible. To allow coherent analyses of the results, it is highlighted that the decision to enlarge or not biological observations on selacians must be applied consistently during all the surveys.

Ref. Common names: Fischer W., M.L. Bauchot, M. Schneider (rédacteurs), 1987. Fiches FAO d'identification des espèces pour les besoins de la pêche. (Révision 1). Méditerranée et Mer Noire Zone de pêche 37. Rome, FAO, vol 1 et 2, 1530 p.

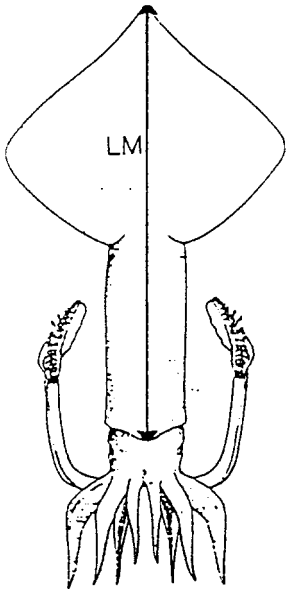
VII. Standard length for Crustaceans and Cephalopods

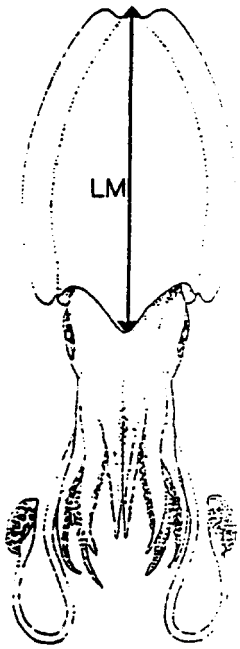
Crustaceans
Lct: cephalo-thoracic length

Cephalopods octopoda
LM: mantle length



Cephalopods decapoda
LM: mantle length





VIII. Code of sexual maturity for fish

bony fish

SEX	GONAD ASPECT	MATURATION STATE	STAGE	MEDITS
U	Sex not distinguished by naked eye. Gonads very small and translucid, almost trasparent. 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 1/2 of the 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 1/2 of the body cavity. Blood vessels visible. Eggs not visible by naked eye.	**RECOVERING ***	**2b**	
M	Whitish/pinkish testis, more or less simmetrical, long about 1/2 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 through the ovaric tunica, which is not yet translucent. Under light pressure, eggs are not expelled.	**MATURING**	**2c**	
M	Whitish 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.			

Adult specimens

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

Elasmobranchs (oviparous)

SEX	GONAD ASPECT	MATURATION STATE	STAGE	MEDITS
N	The specimens aren't sexed.	**NOT DETERMINED**	**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 posterioir 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.	**MATURING**	**2**	**2**
M	Claspers are larger, but skeleton still flexible. They extend to the posterioir 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**	**4**	**4**
M	Clasper longer than tips of posterior pelvic fin lobes, skeleton hardened with axial cartilages still hardened. Spermducts empty and flaccid.			

Adult specimens

IX Codes of sexual maturity for Crustaceans and Cephalopods

Crustaceans

SEX	REPRODUCTIVE APPARATUS ASPECT	COLOURING OF FRESH OVARY	MATURATION STATE	STAGE	MEDITS
U	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

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

Cephalopods

SEX	REPRODUCTIVE APPARATUS ASPECT	EGGS SIZE (mm)	SPERMATOPHORES DEVELOPMENT	MATURATION STATE	STAGE	MEDITS
U	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.					

Adult specimens

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

Code)	Name	Position	Type*	Range	Comments
TYPENR	Type of file	1 - 2	2A	TA	Fixed value
PAYS	Country	3 - 5	3A	See Annexe I	ISO code
BATEAU	Vessel	6 - 8	3A	See Annexe I	MEDITS code
ENGIN	Gear	9 - 13	5A	See Annexe I	MEDITS code
GREEMENT	Rigging	14 - 17	4A	See Annexe I	MEDITS code
PANNEAUX	Doors	18 - 21	4A	See Annexe I	MEDITS code
AN	Year	22 - 25	4N		Ex: 2000, 2001
MOIS	Month	26 - 27	2N	1 to 12	
JOUR	Day	28 - 29	2N	1 to 28/29/30/31	
NOTRAI	Haul number	30 - 32	3N	1 to 999	One series by vessel/year
FERCHA	Codend closing	33	1A	S, C	S: without: C: controlled
HDEB	Shooting time	34 - 37	4N	0 à 2400	In UT Ex: 7 h 25 min > 725.
QUADEB	Shooting quadrant	38	1N	1, 3, 5, 7	See Annexe X
LATDEB	Shooting latitude	39 - 45	7N	3400 to 4600	Ex: 36° 40,22' > 3640,22.
LGNDEB	Shooting longitude	46 - 52	7N	0 to 2900	Ex: 4° 19,84' > 419,84.
PRODEB	Shooting depth	53 - 55	3N	0, 10 to 800	At the trawl position, in meters; unknown: 0
HFIN	Hauling time	56 - 59	4N	0 to 2400	In UT Ex: 7 h 25 min > 725.
QUAFIN	Hauling Quadrant	60	1N	1, 3, 5, 7	See Annexe X
LATFIN	Hauling latitude	61 - 67	7N	3400 to 4600	Ex: 36° 40,22' > 3640,22.
LGNFIN	Hauling longitude	68 - 74	7N	0 to 2900	Ex: 4° 19,84' > 419,84.
PROFIN	Hauling depth	75 - 77	3N	0, 10 à 800	At the trawl position, in meters; unknown: 0
DUREE	Haul duration	78 - 79	2N	5 to 90	In minutes
VALID	Validity	80	1A	V, I	V: valid; I: invalid. (1)
PARCOU	Course	81 - 81	1A	R, N	R: rectilinear N: not rectilinear
ESPENR	Recorded species	82 - 83	2N	See Annex IV	MEDITS code
DIST	Distance	84 - 87	4N	1000 to 9999	Distance over ground in meters
OUVER	Vertical opening of the trawl	88 - 90	3N	10 to 99	In decimetres
ECAIL	Wing opening	91 - 93	3N	50 to 250	In decimetres
PRGÉO	Geometrical precision	94	1A	M, E	M: measured; E: estimated.
LONBRA	Bridles length	95 - 97	3N	100 to 200	In meters
LONFUN	Warp length	98 - 101	4N	100 to 2200	In meters
DIAFUN	Warp diameter	102 - 103	2N	10 to 30	In millimetres
STAHYDRO	Hydrological station	104 - 108	5A		National coding
Observ	Observations	109 - 109	1N	1 to 9	MEDITS code (Annex IV)

* All numerical fields (N) are right justified; all alphanumeric fields (A)fields are left justified

Note:

(1) For the invalid haulds (I), no information on species is needed.

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

Code	Name	Position	Type*	Range	Comments
TYPENR	Type of file	1 - 2	2A	TB	Fixed value
PAYS	Country	3 - 5	3A	See Annexe I	ISO code
BATEAU	Vessel	6 - 8	3A	See Annexe I	MEDITS code
AN	Year	9 - 12	4N		Ex: 2000, 2001
NOTRAI	Haul number	13 - 15	3N	1 to 999	One series by vessel/year.
FERCHA	Codend closing	16 - 16	1A	S, C	S: without; C: controlled
PARTIT	Part of the codend	17 - 17	1A	A, M, P, S	Mandatory if FERCHA = C. A: anterior; M: middle; P: posterior; S sum of the three parts
CATFAU	Faunistic category	18 - 18	1A	A to E See Annexe V	MEDITS code, filled in only if the 3 following fields are empty.
GENRE	Genus	19 - 22	4A	See Annex XV	Following the reference list
ESP	Species	23 - 25	3A	See Annex XV	Following the reference list
LIREF	Name of the reference list	26 - 27	2A	See Annex XV	NCC or MEDITS code
PTOT	Total weight in the haul	28 - 34	7N	0 to 9999999, space	For the given species, in grams
NBTOT	Total number in the haul	35 - 41	7N	0 à 9999999	For the given species. Should be equal to the sum of the 3 following fields
NBFEM	Nb of females in the haul	42 - 48	7N	0 to 9999999	
NBMAL	Nb of males	49 - 55	7N	0 to 9999999	
NbInd	Nb of undetermined	56 - 62	7N	0 to 9999999	Undetermined or not determined

* All numerical fields (N) are right justified; all alphanumeric fields (A) fields are left justified

XII. Format of type C files (biological parameters)

Code	Name	Position	Type*	Range	Comments
TYPENR	Type of file	1 - 2	2A	TC	Fixed value
PAYS	Country	3 - 5	3A	See Annex I	ISO code
BATEAU	Vessel	6 - 8	3A	See Annex I	MEDITS code
AN	Year	9 - 12	4N		Ex 2000, 2001
NOTRAI	Haul number	13 - 15	3N	1 to 999	One series by vessel/year
FERCHA	Codend closing	16 - 16	1A	S, C	S: without; C: controlled
PARTIT	Part of the codend	17 - 17	1A	A, M, P, S	Mandatory if FERCHA = C. A: anterior; M: middle; P: posterior; S sum of the three parts
GENRE	Genus	18 - 21	4A	See Annex XV	Following the reference list
ESP	Species	22 - 24	3A	See Annex XV	Following the reference list
CODLON	Length classes code	25 - 25	1A	m, 0, 1	Types of classes: m: 1 mm; 0: 0.5 cm; 1: 1cm
PFRAC	Weight of the fraction** in the whole haul	26 - 31	6N	0 to 999999	In grams
PECHAN	Weight of the sample really measured in this fraction	32 - 37	6N	0 à 999999	In grams
SEXE	Sex	38 - 38	1A	M, F, I,N	M: male; F: female; I: undetermined; N: not determined.
NBSEX	Nb of individual of the above se measured in the sample	39 - 44	6N	1 to 999999, space	Unknown: space
CLALON	Length class	45 - 48	4N	1 to 9999	Identifier: lower limit of the class in millimetres; ex: 30.5-31 cm = 305 (with CODLON = 0); 30-31 cm = 300 (with CODLON = 1) and 26-27 mm = 26 (with CODLON = m)
MATUR	Maturity	49 - 49	1N	0 to 4. See Annexes VIII & IX	0: not determined; 1: immature; 2: maturing; 3: mature or spawning; 4: post-spawning
MATSUB	Maturity sub-staging	50 - 50	1A	See Annexes VIII & IX	Sub-stages of maturity, from a to e (optional)
NBLON	No of individuals in the length class and the maturity stage	51 - 57	6N	1 to 999999	The length classes without any individual are excluded from the file. The sum of No of individuals par class and sex is the No of individuals in the sex and the sample.

* 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 (PFRAC = 100; PECHAN = 100). The small ones will be sub –sampled with a ratio of 1/10 (PFRAC + 900; PECHAN = 90)

XIII. Format of type D files (Temperature data) and codes for the temperature measuring systems

Format of type 4 files (Temperature data)

Code	Name	Position	Type*	Range	Comments
TYPENR	Type of file	1 - 2	2A	TD	Fixed value
PAYS	Country	3 - 5	3A	See Annexe I	ISO code
BATEAU	Vessel	6 - 8	3A	See Annexe I	MEDITS code
AN	Year	9 - 12	4N		Ex: 2000, 2001
NOTRAI	Haul number	13 - 15	3N	1 to 999	One series by vessel/year
TODEB	Bottom temperature (beginning of the haul)	16 - 20	5N	0.00 to 30.00	in C° with two decimal positions
TOFIN	Bottom temperature (end of the haul)	21 - 25	5N	0.00 to 30.00	in C° with two decimal positions
METHOD	Measuring system	26 - 27	2A	See infra	MEDITS code

* All numerical fields (N) are right justified; all alphanumeric fields (A) fields are left justified

MEDITS Codes for the temperature measuring systems

Code	Systeme
VA	Vemco- Minilog TDR -5 to +35 C°
XA	XBT
SA	SCANMAR
CTD	CTD probe

XIV. Format of type T files (List of hauls by stratum)

Code)	Name	Position	Type*	Range	Comments
TYPENR	Type of file	1 - 2	2A	TR	Fixed value
AN	Year	3 - 6	4N		Ex: 2000, 2001
PAYS	Country	7 - 9	3A	See Annexe I	ISO code
BATEAU	Vessel	10 - 12	3A	See Annexe I	MEDITS code
NOTRAI	Haul number	13 - 15	3N	1 to 999	One series by vessel/year
N°STRATE	Number of the stratum	16 20	5N	See Annex II	

XV. FM list of species codes

FAUNISTIC LIST OF THE MEDITERRANEAN
To be used in the trawl surveys

Name of the list: FM

WARNING

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 FM list.

The initial list was made to be used during the surveys conducted by Ifremer in the western Mediterranean (French and Algerian coasts). Its use has been spread to the International survey MEDITS since 1994.

The first fish list has been established accordingly 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.

- 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. Vol. I. UNESCO, Paris, 510 p.
- Whitehead P.J.P., M.L. Bauchot, J.C. Hureau, J. Nielsen, E. Tortonese, 1986. Poissons de l'Atlantique du nord-est et de la Méditerranée. Vol. II et III. UNESCO, Paris, 511-1473.

For most of the Invertebrates, the species have been named accordingly 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. – 640pp.

The references to these works are mentioned as Z and R respectively in the column "Source".

The scientific names in the list are those of the last update of these various works. The words between parenthesis are the scientific names used in a former coding.

The source file of this list is located at the "Ecologie et modèles pour l'halieutique" department of Ifremer in Nantes. To allow to maintain the uniqueness of this file, the participating teams are invited to contact this department to include any new species (see the form below).

The species codes included in the data tables are based on the FM list. So, to maintain the consistency of the data series, they cannot be changed even if a species name is reviewed. In the last column of the following table, an updated valid name based on the Ifremer taxonomic reference table is given.

Medits Code	Scientific Name	Source	Reference	CATFAU	CODLON	Valid Name (Ifremer reference)
ABRAVER	Abralia veranyi	F	ENOP	C	0	Abralia veranyi (Rüppell, 1844)
ABRRALB	Abra alba	R	RIEDL	E	0	Abra alba (Wood W., 1802)
ACANEXI	Acantephyra eximia	Z	Z	B	m	Acanthephyra eximia S.I. Smith, 1884
ACANPEL	Acanthephyra pelagica	Z	Z	B	m	Acanthephyra pelagica (Risso, 1816)
ACATPAL	Acantholabrus palloni	C	145.2.1	A	0	Acantholabrus palloni (Risso, 1810)
AEQUOPE	Aequipecten opercularis	F	PECT Aeq 1	D	0	Aequipecten opercularis (Linnaeus, 1758)
ALCYPAL	Alcyonium palmatum			D	0	Alcyonium palmatum Pallas, 1766
ALEPROS	Alepocephalus rostratus	C	30.1.1	A	0	Alepocephalus rostratus Risso, 1820
ALLOMED	Alloteuthis media	F	LOLIG Allot 3	C	0	Alloteuthis media (Linnaeus, 1758)
ALLOSPP	Alloteuthis spp	F	LOLIG Allot	C	0	Alloteuthis Wülker, 1920
ALLOSUB	Alloteuthis subulata	F	LOLIG Allot 2	C	0	Alloteuthis subulata (Lamarck, 1798)
ALOPVUL	Alopias vulpinus	C	9.1.1	A	0	Alopias vulpinus (Bonnaterre, 1788)
ALOSFAL	Alosa fallax	C	33.6.3	A	0	Alosa fallax (Lacepède, 1803)
ALPHGLA	Alpheus glaber	F	ALPH Alph 5	B	m	Alpheus glaber (Olivi, 1792)
ALPHPLA	Alpheus platydactylus	Z	Z	B	m	Alpheus platydactylus Coutière, 1897
AMYGLUT	Amygdalum luteum		D'Onghia	E	0	Amygdalum politum (Verrill & Smith, 1880)
ANADDIL	Anadara diluvii	F	ARC Anad 3	D	0	Anadara demiri (Piani, 1981)
ANAMRIS	Anamathia rissoana	Z	Z	B	m	Anamathia rissoana (Roux, 1828)
ANAPBIC	Anapagurus bicorniger	Z	Z	B	m	Anapagurus bicorniger A. Milne-Edwards & Bouvier, 1892
ANAPLAE	Anapagurus laevis	Z	Z	B	m	Anapagurus laevis (Bell, 1845)
ANARGRA	Anarchias euryurus (grassii)	C	73.3.1	A	0	Anarchias euryurus (Lea, 1913)
ANCINIC	Ancistroteuthis lichtensteini	F	ONYCHO	C	0	Ancistroteuthis lichtensteinii (De Férussac & D'Orbigny, 1839)
ANGUANG	Anguilla anguilla	C	71.1.1	A	0	Anguilla anguilla (Linnaeus, 1758)
ANTHANT	Anthias anthias	C	124.2.1	A	0	Anthias anthias (Linnaeus, 1758)
ANTOMEG	Antonogadus megalokynodon	C	101.19.2	A	0	Gaidropsarus biscayensis (Collett, 1890)
ANTOSPP	Antonogadus spp.	C	101.19	A	0	Gaidropsarus Rafinesque, 1810
APHIMIN	Aphia minuta	C	162.2.1	A	0	Aphia minuta (Risso, 1810)
APOGIMB	Apogon imberbis	C	127.1.1	A	0	Apogon imberbis (Linnaeus, 1758)
APORPES	Aporrhais pespelecani	F	APOR Apor 1	E	0	Aporrhais pespelecani (Linnaeus, 1758)
APORSER	Aporrhais serresianus	F	APOR Apor 2	D	0	Aporrhais serresianus (Michaud, 1828)
APTECAE	Apterichthus caecus	C	86.2.1	A	0	Apterichtus caecus (Linnaeus, 1758)
ARGESPY	Argentina sphyraena	C	46.1.1	A	0	Argentina sphyraena Linnaeus, 1758
ARGOOLE	Argobuccinum olearium	F	CYM Argo 1	D	0	Ranella olearium (Linnaeus, 1758)
ARGRACU	Argyropelecus aculeatus	C	38.2.2	A	0	Argyropelecus aculeatus Valenciennes, 1850
ARGRHEM	Argyropelecus hemigymnus	C	38.2.1	A	0	Argyropelecus hemigymnus Cocco, 1829
ARGYREG	Argyrosomus regius	C	137.2.1	A	0	Argyrosomus regius (Asso, 1801)
ARIOBAL	Ariosoma balearicum	C	82.2.1	A	0	Ariosoma balearicum (Delaroche, 1809)
ARISFOL	Aristaeomorpha foliacea	F	ARIST Aris 1	B	m	Aristaeomorpha foliacea (Risso, 1827)
ARITANT	Aristeus antennatus	F	ARIST Arist 1	B	m	Aristeus antennatus (Risso, 1816)
ARMIMAC	Arminia maculata	F	NAT Natic 1	D	0	Armina maculata Rafinesque, 1814
ARMITIG	Armina tigrina	R	RIEDL	E	0	Armina tigrina Rafinesque, 1814
ARNOIMP	Arnoglossus imperialis	C	196.2.2	A	0	Arnoglossus imperialis (Rafinesque, 1810)
ARNOLAT	Arnoglossus laterna	C	196.2.1	A	0	Arnoglossus laterna (Walbaum, 1792)
ARNORUP	Arnoglossus rueppelli	C	196.2.4	A	0	Arnoglossus rueppelii (Cocco, 1844)
ARNOTHO	Arnoglossus thori	C	196.2.5	A	0	Arnoglossus thori Kyle, 1913
ASPICUC	Aspitrigla cuculus	C	185.2.1	A	0	Aspitrigla cuculus (Linnaeus, 1758)
ASPIOBS	Aspitrigla obscura	C	185.2.2	A	0	Chelidonichthys obscurus (Bloch & Schneider, 1801)
ASTRSPP	Astropecten spp.			E	0	Astropecten Gray, 1840

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ATELROT	Atelecyclus rotundatus	Z	Z	D	0	Atelecyclus rotundatus (Olivi, 1792)
ATRIFRA	Atrina fragilis (= Pinna pectinata)	F	PINN Atr 4	D	0	Atrina pectinata (Linnaeus, 1767)
AULOFIL	Aulopus filamentosus	C	50.1.1	A	0	Aulopus filamentosus (Bloch, 1792)
BALICAR	Balistes carolinensis	C	201.1.2	A	0	Balistes capriscus Gmelin, 1789
BASOPRO	Bathysolea profundicola	C	198.2.1	A	0	Bathysolea profundicola (Vaillant, 1888)
BATHDUB	Bathypterois dubius	F	CHLOR	A	0	Bathypterois dubius Vaillant, 1888
BATHMED	Bathypterois mediterraneus	C	53.1.2	A	0	Bathypterois dubius Vaillant, 1888
BATISPO	Bathypolypus sponsalis	F	OCT Bath 2	C	0	Bathypolypus sponsalis (Fischer & Fischer, 1892)
BATYMAR	Bathynectes maravigna	F	PORT	B	m	Bathynectes maravigna (Prestandrea, 1839)
BATYSUP	Bathynectes superbus	Z	Z	B	m	Bathynectes maravigna (Prestandrea, 1839)
BELLAPO	Bellotia apoda	C	172.3.1	A	0	Bellottia apoda Giglioli, 1883
BENSGLA	Benthosema glaciale	C	58.2.1	A	0	Benthosema glaciale (Reinhardt, 1837)
BENTROB	Benthocometes robustus	C	172.4.1	A	0	Benthocometes robustus (Goode & Bean, 1886)
BERYDEC	Beryx decadactylus	C	112.1.1	A	0	Beryx decadactylus Cuvier, 1829
BERYSPL	Beryx splendens	C	112.1.2	A	0	Beryx splendens Lowe, 1834
BLENBAS	Lipophrys (Blennius) basiliscus	C	164.1.3	A	0	Salaria basiliscus (Valenciennes, 1836)
BLENCRI	Scartella (Blennius) cristata (crinitus)	C	164.1.6	A	0	Scartella cristata (Linnaeus, 1758)
BLENGAT	Parablennius (Blennius) gattorugine	C	164.1.8	A	0	Parablennius gattorugine (Linnaeus, 1758)
BLENOCE	Blennius ocellaris	C	164.1.1	A	0	Blennius ocellaris Linnaeus, 1758
BLENPAV	Lipophrys (Blennius) pavo	C	164.1.12	A	0	Salaria pavo (Risso, 1810)
BLENSPP	Blenniidae	C	164.	A	0	Blenniidae
BLENSPY	Aidablennius (Blennius) sphynx	C	164.1.17	A	0	Aidablennius sphynx (Valenciennes, 1836)
BLENTEN	Parablennius (Blennius) tentaculari	C	164.1.18	A	0	Parablennius tentacularis (Brünnich, 1768)
BOOPBOO	Boops boops	C	139.2.1	A	0	Boops boops (Linnaeus, 1758)
BOROANT	Borostomias antarcticus			C	0	Borostomias antarcticus (Lönnberg, 1905)
BOTHPOD	Bothus podas	C	196.1.1	A	0	Bothus podas (Delaroche, 1809)
BRACRII	Brachioteuthis riisei	F	BRACHIO Bra. 2	C	0	Brachioteuthis riisei (Steenstrup, 1882)
BUCCCOR	Buccinulum corneum	F	BUCC Buc 1	D	0	Buccinulum corneum (Linnaeus, 1758)
BUCCHUN	Buccinum humphreysianum	F	BUCC	D	0	Buccinum humphreysianum Bennet, 1824
BUCCSPP	Buccinum spp.	F	BUCC	E	0	Buccinum Linnaeus, 1758
BUGLLUT	Buglossidium luteum	C	198.3.1	A	0	Buglossidium luteum (Risso, 1810)
CALAGRA	Calappa granulata	F	CAL Cal 2	B	m	Calappa granulata (Linnaeus, 1758)
CALCTUB	Calcinus tubularis	Z	Z	B	m	Calcinus tubularis (Linnaeus, 1767)
CALICHI	Calyptraea chinensis		D'Angelo	E	0	Calyptraea chinensis (Linnaeus, 1758)
CALLRIS	Callionymus risso	C	163a.1.7.	A	0	Callionymus risso Lesueur, 1814
CALLRUB	Callanthias ruber	C	124.3.1	A	0	Callanthias ruber (Rafinesque, 1810)
CALMLYR	Callionymus lyra	C	163a.1.1	A	0	Callionymus lyra Linnaeus, 1758
CALMMAC	Callionymus maculatus	C	163a.1.3	A	0	Callionymus maculatus Rafinesque, 1810
CALMPHA	Synchiropus (Callionymus) phaeton	C	163a.1.4	A	0	Synchiropus phaeton (Günther, 1861)
CALMRIS	Callionymus risso	C	163a.1.7	A	0	Callionymus risso Lesueur, 1814
CALMSPP	Callionymus			A	0	Callionymus Linnaeus, 1758
CALOCOR	Calocarides coronatus			B	m	Calocarides coronatus (Trybom, 1904)
CALOMAC	Calocaris macandreae	Z	Z	B	m	Calocaris macandreae Bell, 1846
CANCCAN	Cancellaria cancellata	F	GASTEROPOD A F14	E	0	Cancellaria cancellata (Linnaeus, 1767)
CANIGRA	Calliostoma granulatum	F	TROCH	D	0	Calliostoma granulatum (Von Born, 1778)
CAPOAPE	Capros aper	C	123.1.1	A	0	Capros aper (Linnaeus, 1758)

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CARAHIP	Caranx hippos	C	131.1.1	A	0	Caranx hippos (Linnaeus, 1766)
CARARHO	Caranx rhonchus	C	131.1.5	A	0	Caranx rhonchus Geoffroy Saint-Hilaire, 1817
CARCPLU	Carcharhinus plumbeus	C	13.1.7	A	0	Carcharhinus plumbeus (Nardo, 1827)
CARCSPP	Carcharhinus spp	C	13.1	A	0	Carcharhinus Blainville, 1816
CARDACU	Acanthocardia aculeata	F	CARD Acan 1	E	0	Acanthocardia aculeata (Linnaeus, 1758)
CARDECH	Acanthocardia (Cardium) echinata	F	CARD Acan 2	D	0	Acanthocardia echinata (Linnaeus, 1758)
CARDSPI	Acanthocardia spinosa		D'Angelo	E	0	Acanthocardia spinosa (Solander, 1786)
CARISPP	Cardiomya spp.	R	RIEDL	E	0	Cardiomya Adams A., 1864
CARISTE	Caridion steveni	F	HIPPOL	B	0	Caridion steveni Lebour, 1930
CARPACU	Carapus acus	C	175.1.1	A	0	Carapus acus (Brünnich, 1768)
CASSECH	Cassidaria echinophora	F	CASS Cass 1	D	0	Galeodea echinophora (Linnaeus, 1758)
CASSSAB	Phalium (Cassis) saburon	F	CAS Phal 2	D	0	Phalium saburon (Bruguière, 1792)
CASSTYR	Cassidaria tyrrhena	F	CASS Cass 2	D	0	Galeodea rugosa (Linnaeus, 1771)
CATAALL	Cataetyx alleni	C	172.6.1	A	0	Cataetyx alleni (Byrne, 1906)
CECACIR	Centracanthus cirrus	C	141.1.1	A	0	Centracanthus cirrus Rafinesque, 1810
CENONIG	Centrolophus niger	C	176.1.1	A	0	Centrolophus niger (Gmelin, 1789)
CENTGRA	Centrophorus granulosus	C	16.1.2	A	0	Centrophorus granulosus (Bloch & Schneider, 1801)
CENTUYA	Centrophorus uyato	C	16.2.4	A	0	Centrophorus uyato (Rafinesque, 1810)
CEPHVOL	Dactylopterus (Cephalacanthus) volitans	C	193.1.1	A	0	Dactylopterus volitans (Linnaeus, 1758)
CEPOMAC	Cepola rubescens (macrophthalma)	C	128.1.1	A	0	Cepola macrophthalma (Linnaeus, 1758)
CERAMAD	Cerastocopelus maderensis	C	58.4.1	A	0	Ceratoscopelus maderensis (Lowe, 1839)
CHAUSLO	Chauliodus sloani	C	40.1.1	A	0	Chauliodus sloani Bloch & Schneider, 1801
CHEOLAB	Chelon labrosus	C	181.2.1	A	0	Chelon labrosus (Risso, 1827)
CHIMMON	Chimaera monstrosa	C	26.1.1	A	0	Chimaera monstrosa Linnaeus, 1758
CHLAOPE	Chlamys opercularis	F	PECT Aeq 1	E	0	Aequipecten opercularis (Linnaeus, 1758)
CHLAVAR	Chlamys varia	F	PECT Chlam 1	E	0	Chlamys varia (Linnaeus, 1758)
CHLOGRA	Chlorotocus crassicornis (gracilipes)	Z	Z	B	m	Chlorotocus crassicornis (A. Costa, 1871)
CHROCHR	Chromis chromis	C	144.1.1	A	0	Chromis chromis (Linnaeus, 1758)
CIRCCAS	Circomphalus casinus	F	VEN	D	0	Venus casina Linnaeus, 1758
CIROBOR	Cirolana borealis			E	0	Cirolana borealis Lilljeborg, 1851
CITHMAC	Citharus linguatula (macrolepidotus)	C	194.1.1	A	0	Citharus linguatula (Linnaeus, 1758)
CLOPBIC	Chlopsis bicolor	C	77.1.1	A	0	Chlopsis bicolor Rafinesque, 1810
CLORAGA	Chlorophthalmus agassizi	C	55.1.1	A	0	Chlorophthalmus agassizi Bonaparte, 1840
COBLGAL	Coryphoblennius galerita	C	164.2.1	A	0	Coryphoblennius galerita (Linnaeus, 1758)
COELCOE	Coelorhynchus coelorhynchus	C	99.12.1	A	0	Caelorinchus caelorhincus caelorhincus (Risso, 1810)
COELOCC	Coelorhynchus occa (C. labiatus)	C	99.12.2	A	0	Caelorinchus occa (Goode & Bean, 1885)
CONGCON	Conger conger	C	82.1.1	A	0	Conger conger (Linnaeus, 1758)
CORIJUL	Coris julis	C	145.4.1	A	0	Coris julis (Linnaeus, 1758)
CORYGUN	Coryphaenoides guentheri	C	99.13.2	A	0	Coryphaenoides guentheri (Vaillant, 1888)
CRANSPP	Crangon sp	F	CRANG	B	m	Crangon J.C. Fabricius, 1798
CRASGIG	Crassostrea gigas	F	OSTR Crass 1	E	0	Crassostrea gigas (Thunberg, 1793)
CRASSPP	Crassostrea spp.	F	OSTR	E	0	Crassostrea Sacco, 1897
CUBIGRA	Cubiceps gracilis	C	177.2.1	A	0	Cubiceps gracilis (Lowe, 1843)
CUSPCUS	Cuspidaria cuspidata			E	0	Cuspidaria cuspidata (Olivi, 1792)
CYCLPIG	Cyclothone pygmaea	C	37.4.8	A	0	Cyclothone pygmaea Jespersen & Tåning, 1926
CYCLSPP	Cyclothone spp.	C	37.4	A	0	Cyclothone Goode & Bean, 1882

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CYMACOR	Cymatium corrogatum	F	CYM Cym 1	D	0	Cymatium corrugatum (Lamarck, 1816)
CYMBOLL	Cymbium olla			E	0	Cymbium olla (Linnaeus, 1758)
CYNPFER	Cynoponticus ferox	C	79.1.1	A	0	Cynoponticus ferox Costa, 1846
DALOIMB	Dalophis imberbis	C	86.3.1	A	0	Dalophis imberbis (Delaroche, 1809)
DARDARR	Dardanus arrosor	Z	Z	B	m	Dardanus arrosor (Herbst, 1796)
DARDCAL	Dardanus calidus	Z	Z	B	m	Dardanus calidus (Risso, 1827)
DASICEN	Dasyatis centroura	C	22.1.2	A	0	Dasyatis centroura (Mitchill, 1815)
DASIPAS	Dasyatis pastinaca	C	22.1.1	A	0	Dasyatis pastinaca (Linnaeus, 1758)
DASITOR	Dasyatis tortonesi	C	22.1.4	A	0	Dasyatis pastinaca (Linnaeus, 1758)
DASIVIO	Dasyatis violacea	C	22.1.3	A	0	Pteroplatytrygon violacea (Bonaparte, 1832)
DENTDEN	Dentex dentex	C	139.3.1	A	0	Dentex dentex (Linnaeus, 1758)
DENTGIB	Dentex gibbosus	C	139.3.3	A	0	Dentex gibbosus (Rafinesque, 1810)
DENTMAC	Dentex macrophthalmus	C	139.3.4	A	0	Dentex macrophthalmus (Bloch, 1791)
DENTMAR	Dentex maroccanus	C	139.3.5	A	0	Dentex maroccanus Valenciennes, 1830
DENTSPP	Dentalium spp			E	0	Dentalium Linnaeus, 1758
DIAPHOL	Diaphus holti	C	58.6.5.	A	0	Diaphus holti Tåning, 1918
DIAPMET	Diaphus metopoclampus	C	58.6.7	A	0	Diaphus metopoclampus (Cocco, 1829)
DIAPRAF	Diaphus rafinesquei	C	58.6.9	A	0	Diaphus rafinesquii (Cocco, 1838)
DIAPSPP	Diaphus spp.	C	58.6.	A	0	Diaphus Eigenmann & Eigenmann, 1890
DICAMAY	Dicranodromia mayheuxi	Z	Z	B	m	Dicranodromia mayheuxii A. Milne-Edwards, 1883
DICELAB	Dicentrarchus labrax	C	124.4.1	A	0	Dicentrarchus labrax (Linnaeus, 1758)
DICEPUN	Dicentrarchus punctatus	C	124.4.2	A	0	Dicentrarchus punctatus (Bloch, 1792)
DICOCUN	Dicologoglossa cuneata	C	198.4.2	A	0	Dicologlossa cuneata (Moreau, 1881)
DIODITA	Diodora italica			E	0	Diodora italica (Defrance, 1820)
DIPGBIM	Diplacogaster bimaculata	C	208.2.1	A	0	Diplecogaster bimaculata bimaculata (Bonnaterre, 1788)
DIPLANN	Diplodus annularis	C	139.4.1	A	0	Diplodus annularis (Linnaeus, 1758)
DIPLCER	Diplodus cervinus cervinus	C	139.4.2.	A	0	Diplodus cervinus cervinus (Lowe, 1838)
DIPLPUN	Diplodus puntazo	C	139.8.1	A	0	Diplodus puntazzo (Cetti, 1777)
DIPLSAR	Diplodus sargus	C	139.4.3	A	0	Diplodus sargus sargus (Linnaeus, 1758)
DIPLVUL	Diplodus vulgaris	C	139.4.4	A	0	Diplodus vulgaris (Geoffroy Saint-Hilaire, 1817)
DORHTHO	Dorhynchus thomsoni	Z	Z	B	m	Dorhynchus thomsoni Wyville & Thomson, 1873
DORILAN	Dorippe lanata	Z	Z	B	m	Medorippe lanata (Linnaeus, 1767)
DORITHO	Dorhynchus thomsoni	Z	Z	C	m	Dorhynchus thomsoni Wyville & Thomson, 1873
DORSVER	Doris verrucosa	R	RIEDL	E	0	Doris verrucosa Linnaeus, 1758
DOSISPP	Dosinia spp			D	0	Dosinia Scopoli, 1777
DROMPER	Dromia personata	F	DROM Drom 1	B	m	Dromia personata (Linnaeus, 1758)
DUSSELO	Dussumieria elopsoides	X	X	A		Dussumieria elopsoides Bleeker, 1849
EBALCRA	Ebalia cranchi	Z	Z	B	0	Ebalia cranchi Leach, 1817
EBALNUX	Ebalia nux	Z	Z	B	m	Ebalia nux A. Milne-Edwards, 1883
ECHEMIR	Echelus myrus	C	84.1.1	A	0	Echelus myrus (Linnaeus, 1758)
ECHIDEN	Echiodon dentatus	C	175.2.2	A	0	Echiodon dentatus (Cuvier, 1829)
ELECRIS	Electrona rissoi	C	58.8.1	A	0	Electrona risso (Cocco, 1829)
ELEDCIR	Eledone cirrhosa	F	OCT Eled 1	C	0	Eledone cirrhosa (Lamarck, 1798)
ELEDMOS	Eledone moschata	F	OCT Eled 2	C	0	Eledone moschata (Lamarck, 1798)
ELEDSPP	Eledone spp	F	OCT	C	0	Eledone Leach, 1817
ENGRENC	Engraulis encrasicolus	C	35.1.1	A	0	Engraulis encrasicolus (Linnaeus, 1758)
EPHIGUT	Ephippion guttiferum	C	204.1.1	A	0	Ephippion guttifer (Bennett, 1831)
EPIGCON	Epigonus constanciae	C	127.2.3	A	0	Epigonus constanciae (Giglioli, 1880)
EPIGDEN	Epigonus denticulatus	C	127.2.2	A	0	Epigonus denticulatus Dieuzeide, 1950
EPIGTEL	Epigonus telescopus	C	127.2.1	A	0	Epigonus telescopus (Risso, 1810)

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EPINAEN	Epinephelus aeneus	C	124.5.1	A	0	Epinephelus aeneus (Geoffroy Saint-Hilaire, 1817)
EPINALE	Epinephelus alexandrinus	C	124.5.2	A	0	Epinephelus costae (Steindachner, 1878)
EPINCAN	Epinephelus caninus	C	124.5.3	A	0	Epinephelus caninus (Valenciennes, 1843)
EPINGUA	Epinephelus guaza	C	124.5.4	A	0	Epinephelus marginatus (Lowe, 1834)
EPINSPP	Epinephelus spp	C	124.5	A	0	Epinephelus Bloch, 1793
ERETKLE	Eretmophorus kleinenbergi	C	103.1.1	A	0	Eretmophorus kleinenbergi Giglioli, 1889
ERGACLO	Ergasticus clouei	Z	Z	B	m	Ergasticus clouei A. Milne-Edwards, 1882
ETHUMAS	Ethusa mascarone	Z	Z	B	m	Ethusa mascarone (Herbst, 1785)
ETMOSPI	Etmopterus spinax	C	16.6.1	A	0	Etmopterus spinax (Linnaeus, 1758)
EUCHLIG	Euchirograpsus liguricus	Z	Z	B	m	Euchirograpsus liguricus H. Milne-Edwards, 1853
EUPHSPP	Euphausiidae			B	m	Euphausiidae
EURYASP	Eurynome aspera	Z	Z	B	m	Eurynome aspera (Pennant, 1777)
EUTRGUR	Eutrigla gurnardus	C	185.3.1	A	0	Eutrigla gurnardus (Linnaeus, 1758)
EVERBAL	Evermannella balboi (= balbo)	C	60.1.1	A	0	Evermannella balbo (Risso, 1820)
FLEXFLE	Flexopecten flexuosus	F	PETC Flex	E	0	Chlamys flexuosa (Poli, 1795)
FUNCWOO	Funchalia woodwardi	F	PEN	B	m	Funchalia woodwardi Johnson, 1867
FUSIROS	Fusinus rostratus	F	FASC Fus 1	E	0	Fusinus rostratus (Olivi, 1792)
FUSTUND	Fusituris undatiruga			E	0	Fusiturris undatiruga (Bivona, 1832)
GADAMAR	Gadella maraldi	C	103.3.1	A	0	Gadella maraldi (Risso, 1810)
GADIARG	Gadiculus argenteus	C	101.5.1	A	0	Gadiculus argenteus argenteus Guichenot, 1850
GADUMER	Merlangius merlangus	C	101.7.1	A	0	Merlangius merlangus (Linnaeus, 1758)
GAIDMED	Gaidropsarus mediterraneus	C	101.20.1	A	0	Gaidropsarus mediterraneus (Linnaeus, 1758)
GAIDVUL	Gaidropsarus vulgaris	C	101.20.4	A	0	Gaidropsarus vulgaris (Cloquet, 1824)
GALADIS	Galathea dispersa	Z	Z	B	m	Galathea dispersa Bate, 1859
GALAINT	Galathea intermedia	Z	Z	B	m	Galathea intermedia Liljeborg, 1851
GALANEX	Galathea nexa	Z	Z	B	m	Galathea nexa Embleton, 1834
GALEGAL	Galeorhinus galeus	C	13.3.1	A	0	Galeorhinus galeus (Linnaeus, 1758)
GALIDEC	Galeoides decadactylus	C	182.1.1	A	0	Galeoides decadactylus (Bloch, 1795)
GALUATL	Galeus atlanticus	F	SCYL Gal 11	A	0	Galeus atlanticus (Vaillant, 1888)
GALUMEL	Galeus melastomus	C	11.3.1	A	0	Galeus melastomus Rafinesque, 1810
GENNELE	Gennadas elegans	F	ARIST	B	m	Gennadas elegans S.I. Smith, 1882
GEPYDAR	Gephyroberyx darwini	C	115.1.1	A	0	Gephyroberyx darwinii (Johnson, 1866)
GERYLON	Geryon longipes	F	GER Ger 2	B	m	Geryon longipes A. Milne-Edwards, 1882
GIBBSPP	Gibbula sp		D'Angelo		0	Gibbula Risso, 1826
GLOSLEI	Glossanodon leioglossus	C	46.2.1	A	0	Glossanodon leioglossus (Valenciennes, 1848)
GLOSVAL	Glossodoris valenciennesi	R	RIEDL	E	0	Hypselodoris picta (Schultz)
GLOUHUM	Glossus humanus	F	GLOSS Gloss 1	E	0	Glossus humanus (Linnaeus, 1758)
GNATMYS	Gnathophis mystax	C	82.3.1	A	0	Gnathophis mystax (Delaroche, 1809)
GOBICOL	Deltentosteus (Gobius) colonialus	C	162.10.2	A	0	Deltentosteus collonianus (Risso, 1820)
GOBIFRI	Leusueurigobius (Gobius) friesii	C	162.16.2	A	0	Lesueurigobius friesii (Malm, 1874)
GOBIGEN	Gobius geniporus	C	162.1.8	A	0	Gobius geniporus Valenciennes, 1837
GOBILIN	Crystallogobius (Gobius) linearis	C	162.9.1	A	0	Crystallogobius linearis (Düben, 1845)
GOBINIG	Gobius niger	C	162.1.1	A	0	Gobius niger Linnaeus, 1758
GOBIQUA	Deltentosteus (Gobius) quadrimaculatus	C	162.10.1	A	0	Deltentosteus quadrimaculatus (Valenciennes, 1837)
GOBISAN	Lesueurigobius (Gobius) sanzoi	C	162.16.4	A	0	Lesueurigobius sanzoi (De Buen, 1918)
GOBISPP	Gobius spp	C	162	A	0	Gobius Linnaeus, 1758
GOBISUE	Lesueurigobius suerii	C	162.16.1	A	0	Lesueurigobius suerii (Risso, 1810)
GONERHO	Goneplax rhomboides (= angulata)	Z	Z	B	m	Goneplax rhomboides (Linnaeus, 1758)

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GONICOC	Gonichthys coccoi	C	58.9.1	A	0	Gonichthys cocco (Cocco, 1829)
GONODEN	Gonostoma denudatum	C	37.1.1	A	0	Gonostoma denudatum Rafinesque, 1810
GYMACIC	Gymnammodytes cicerellus	C	147.2.1	A	0	Gymnammodytes cicerelus (Rafinesque, 1810)
GYMNALT	Gymnura altavela	C	22.2.1	A	0	Gymnura altavela (Linnaeus, 1758)
HADRCRA	Hadriana craticuloides	F	MUR	D	0	Hadriania craticuloides (Vokes, 1964)
HELIDAC	Helicolenus dactylopterus	C	184.2.1	A	0	Helicolenus dactylopterus dactylopterus (Delaroche, 1809)
HEPTPER	Heptranchias perlo	C	3.2.1	A	0	Heptranchias perlo (Bonnaterre, 1788)
HETEDIS	Heteroteuthis dispar	F	SEPIOL	C	0	Heteroteuthis dispar (Rüppell, 1845)
HEXAGRI	Hexanchus griseus	C	3.1.1	A	0	Hexanchus griseus (Bonnaterre, 1788)
HEXAVIT	Hexanchus nakamurai (vitulus)	C	3.1.2	A	0	Hexanchus nakamurai Teng, 1962
HINIINC	Hinia incrassata	F	NASS Hin	E	0	Nassarius incrassatus (Ström, 1768)
HINIRET	Hinia reticulata	F	NASS Hin 1	E	0	Nassarius reticulatus (Linnaeus, 1758)
HIPPHIC	Hippocampus hippocampus	C	97.4.1	A	0	Hippocampus hippocampus (Linnaeus, 1758)
HISTBON	Histioteuthis bonnellii	F	HISTIO	C	0	Histioteuthis bonnellii (De Férussac, 1835)
HISTREV	Histioteuthis reversa	F	HISTIO	C	0	Histioteuthis reversus (Verrill, 1880)
HISTSPP	Histioteuthis spp	F	HISTIO	C	0	Histioteuthis D'Orbigny, 1848
HOMAVUL	Homarus vulgaris	F	NEPH Hom 1	B	m	Homarus gammarus (Linnaeus, 1758)
HOMOBAR	Homola barbata	Z	Z	B	m	Homola barbata (J.C. Fabricius, 1793)
HOPLATL	Hoplostethus atlanticus	C	115.2.2	A	0	Hoplostethus atlanticus Collett, 1889
HOPLMED	Hoplostethus mediterraneus	C	115.2.1	A	0	Hoplostethus mediterraneus mediterraneus Cuvier, 1829
HYGOBEN	Hygophum benoiti	C	58.10.2	A	0	Hygophum benoiti (Cocco, 1838)
HYGOHIG	Hygophum hygomii	C	58.10.1	A	0	Hygophum hygomii (Lütken, 1892)
HYMEITA	Hymenocephalus italicus	C	99.5.1	A	0	Hymenocephalus italicus Giglioli, 1884
HYMPSPP	Hymenopenaeus sp	Z	Z	B	m	Hymenopenaeus Smith, 1882
HYPESPP	Hyperiidae			E	0	Hyperiidae
HYPOPIC	Hyporhamphus picarti	C	93.2.1	A	0	Hyporhamphus picarti (Valenciennes, 1847)
ICHTOVA	Ichthyococcus ovatus	C	37.6.1	A	0	Ichthyococcus ovatus (Cocco, 1838)
ILLECOI	Illex coindetii	F	OMMAS Ill 1	C	0	Illex coindetii (Verany, 1839)
ILLESPP	Illex	F		C	0	Illex Steenstrup, 1880
INACCOM	Inachus communissimus	Z	Z	B	m	Inachus communissimus Rizza, 1839
INACDOR	Inachus dorsettensis	Z	Z	B	m	Inachus dorsettensis (Pennant, 1777)
INACTHO	Inachus thoracicus	Z	Z	B	m	Inachus thoracicus P. Roux, 1830
JAXENOC	Jaxea nocturna			B	m	Jaxea nocturna Nardo, 1847
LABRVIR	Labrus viridis	C	145.1.4	A	0	Labrus viridis Linnaeus, 1758
LABSBIM	Labrus bimaculatus	C	145.1.1	A	0	Labrus mixtus Linnaeus, 1758
LAEVCAR	Laevicardium oblongum	F	CARD Laev 1	E	0	Laevicardium oblongum (Gmelin, 1791)
LAGOLAG	Lagocephalus lagocephalus	C	204.2.1	A	0	Lagocephalus lagocephalus lagocephalus (Linnaeus, 1758)
LAMACRO	Lampanyctus crocodilus	C	58.12.1	A	0	Lampanyctus crocodilus (Risso, 1810)
LAMAPUS	Lampanyctus pusillus	C	58.12.10	A	0	Lampanyctus pusillus (Johnson, 1890)
LAMASPP	Lampanyctus spp	C	58.12	A	0	Lampanyctus Bonaparte, 1840
LAMPGUT	Lampris guttatus	C	105.1.1	A	0	Lampris guttatus (Brünnich, 1788)
LAPPFAS	Lappanella fasciata	C	145.7.1	A	0	Lappanella fasciata (Cocco, 1833)
LATRSPP						Latreillia P. Roux, 1830
LEPALEP	Lepadogaster lepadogaster	C	208.4.1	A	0	Lepadogaster lepadogaster lepadogaster (Bonnaterre, 1788)
LEPICAU	Lepidopus caudatus	C	155.4.1	A	0	Lepidopus caudatus (Euphrasen, 1788)
LEPMBOS	Lepidorhombus boscii	C	195.2.2	A	0	Lepidorhombus boscii (Risso, 1810)
LEPMWHS	Lepidorhombus whiffiagonis	C	195.2.1	A	0	Lepidorhombus whiffiagonis (Walbaum, 1792)
LEPOLEP	Lepidion lepidion	C	103.6.1	A	0	Lepidion lepidion (Risso, 1810)

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LEPTCAV	Lepidotrigla cavillone	C	185.4.1	A	0	Lepidotrigla cavillone (Lacepède, 1801)
LEPTDIE	Lepidotrigla dieuzeidei	C	185.4.2	A	0	Lepidotrigla dieuzeidei Blanc & Hureau, 1973
LESTSPD	Lestidiops sphyrenoides	C	63.2.1	A	0	Lestidiops sphyrenoides (Risso, 1820)
LESTSPP	Lestidiops spp.	C	63.2	A	0	Lestidiops Hubbs, 1916
LICHAMI	Lichia amia	C	131.5.1	A	0	Lichia amia (Linnaeus, 1758)
LIGUENS	Ligur ensiferus	Z	Z	B	m	Ligur ensiferus (Risso, 1816)
LISSCHI	Lissa chinagra	Z	Z	B	m	Lissa chiragra (J.C. Fabricius, 1775)
LITHMOR	Lithognathus mormyrus	C	139.5.1	A	0	Lithognathus mormyrus (Linnaeus, 1758)
LIZAAUR	Liza aurata	C	181.3.2	A	0	Liza aurata (Risso, 1810)
LIZARAM	Liza ramada	C	181.3.1	A	0	Liza ramado (Risso, 1810)
LIZASAL	Liza saliens	C	181.3.4	A	0	Liza saliens (Risso, 1810)
LOBIDOF	Lobianchia dofleini	C	58.14.12	A	0	Lobianchia dofleini (Zugmayer, 1911)
LOBIGEM	Lobianchia gemellarii	C	58.14.1	A	0	Lobianchia gemellarii (Cocco, 1838)
LOLIFOR	Loligo forbesi	F	LOLIG Lolig 2	C	0	Loligo forbesi Steenstrup, 1856
LOLISPP	Loligo	F		C	0	Loligo Lamarck, 1798
LOLIVUL	Loligo vulgaris	F	LOLIG Loli 1	C	0	Loligo vulgaris Lamarck, 1798
LOPHBUD	Lophius budegassa	C	210.1.2	A	0	Lophius budegassa Spinola, 1807
LOPHPIS	Lophius piscatorius	C	210.1.1	A	0	Lophius piscatorius Linnaeus, 1758
LOPHSPP	Lophius	C		A	0	Lophius Linnaeus, 1758
LOPOTYP	Lophogaster typicus			E	0	Lophogaster typicus
LUNACAT	Lunatia catena	F	NAT	D	0	Euspira catena (da Costa, 1778)
LUNAFUS	Lunatia fusca		D'Onghia	E	0	Euspira fusca (De Blainville, 1825)
LUTRSPP	Lutraria spp.	R	RIEDL	E	0	Lutraria Lamarck, 1799
MACOSCO	Macrorhamphosus scolopax	C	96.1.1	A	0	Macroramphosus scolopax (Linnaeus, 1758)
MACRLIN	Macropodia linaresi	Z	Z	B	m	Macropodia linaresi Forest & Zariquiey-Alvarez, 1964
MACRLON	Macropodia longipes	Z	Z	B	m	Macropodia tenuirostris (Leach, 1814)
MACRROS	Macropodia rostrata	F	MAJI	B	m	Macropodia rostrata (Linnaeus, 1761)
MAJACRI	Maja crispata	F	MAJI Maja	B	m	Maja crispata Risso, 1827
MAJASQU	Maja squinado	F	MAJI Maja 1	B	m	Maja squinado (Herbst, 1788)
MAURMUE	Maurolicus muelleri	C	37.8.1	A	0	Maurolicus muelleri (Gmelin, 1789)
MCPIARC	Liocarcinus arcuatus	F	PORT Lioc 3	B	m	Liocarcinus navigator (Hebst, 1794)
MCPICOR	Liocarcinus corrugatus		Zariquiey	B	m	Liocarcinus corrugatus (Pennant, 1777)
MCPIDEP	Liocarcinus (Macropipus) depurator	F	PORT Lioc 4	B	m	Liocarcinus depurator (Linnaeus, 1758)
MCPIMAC	Liocarcinus maculatus	F	PORT Lioc	B	m	Liocarcinus maculatus (Risso, 1827)
MCPIPUB	Necora (Macropipus) puber	F	PORT Neco 1	B	m	Necora puber (Linnaeus, 1767)
MCPITUB	Macropipus tuberculatus	F	PORT Macro 1	B	m	Macropipus tuberculatus (P. Roux, 1830)
MEGANOR	Meganyctiphanes norvegica			B	m	Meganyctiphanes norvegica
MELAATL	Melanostigma atlanticum	C	170.6.1	A	0	Melanostigma atlanticum Koefoed, 1952
MERLMER	Merluccius merluccius	C	100.1.1	A	0	Merluccius merluccius (Linnaeus, 1758)
MICMPOU	Micromesistius poutassou	C	101.8.1	A	0	Micromesistius poutassou (Risso, 1827)
MICOSAB	Microcosmus sabatieri	F	PYUR Micr 2	D	0	Microcosmus sabatieri Roule, 1885
MICRMCS	Microstoma microstoma	C	46.1.3	A	0	Microstoma microstoma (Risso, 1810)
MICUAZE	Microchirus azevia	C	198.5.2	A	0	Microchirus theophila (Risso, 1810)
MICUBOS	Microchirus boscanion			A	0	Microchirus boscanion (Chabanaud, 1926)
MICUOCE	Microchirus ocellatus	C	198.5.3	A	0	Microchirus ocellatus (Linnaeus, 1758)
MICUVAR	Microchirus variegatus	C	198.5.1	A	0	Microchirus variegatus (Donovan, 1808)
MOLAMOL	Mola mola	C	207.1.1	A	0	Mola mola (Linnaeus, 1758)
MOLVDYP	Molva dipterygia	C	101.14.2	A	0	Molva dypterygia (Pennant, 1784)
MOLVMOL	Molva molva	C	101.14.1	A	0	Molva molva (Linnaeus, 1758)
MONOHIS	Monochirus hispidus	C	198.6.1	A	0	Monochirus hispidus Rafinesque, 1814

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MORAMOR	Mora moro	C	103.7.1	A	0	Mora moro (Risso, 1810)
MORIRUG	Morio rugosa			E	0	Galeodea rugosa (Linnaeus, 1771)
MUGICEP	Mugil cephalus	C	181.1.1	A	0	Mugil cephalus Linnaeus, 1758
MUGISPP	Mugilidae	C	181.	A	0	Mugilidae
MULLBAR	Mullus barbatus	C	138.1.1	A	0	Mullus barbatus Linnaeus, 1758
MULLSUR	Mullus surmuletus	C	138.1.2	A	0	Mullus surmuletus Linnaeus, 1758
MUNICUR	Munida curvimana	Z	Z	B	m	Munida curvimana A. Milne-Edwards & Bouvier, 1894
MUNIINT	Munida intermedia	Z	Z	B	m	Munida intermedia A. Milne-Edwards et Bouvier, 1899
MUNIIRI	Munida iris	Z	Z	B	m	Munida rutllanti Zariquiey-Alvarez, 1952
MUNIPER	Munida perarmata (= tenuimana)	Z	Z	B	m	Munida perarmata A. Milne-Edwards & Bouvier, 1894
MUNIRUG	Munida rugosa	Z	Z	B	m	Munida rugosa (J.C. Fabricius, 1775)
MUNISPP	Munida	Z	Z	B	m	Munida Leach, 1820
MUNITEN	Munida tenuimana	Z	Z	B	m	Munida perarmata A. Milne-Edwards & Bouvier, 1894
MURAHEL	Muraena helena	C	73.1.1	A	0	Muraena helena Linnaeus, 1758
MUREBRA	Bolinus (Murex) brandaris	F	MUR Bol 1	D	0	Bolinus brandaris (Linnaeus, 1758)
MURETRU	Murex trunculus	R	RIEDL	D	0	Hexaplex trunculus (Linnaeus, 1758)
MUSTAST	Mustelus asterias	C	13c.5.2	A	0	Mustelus asterias Cloquet, 1821
MUSTMED	Mustelus mediterraneus	C	13c.5.3	A	0	Mustelus punctulatus Risso, 1827
MUSTMUS	Mustelus mustelus	C	13c.5.1	A	0	Mustelus mustelus (Linnaeus, 1758)
MYCOPUN	Myctophum punctatum	C	58.1.1	A	0	Myctophum punctatum Rafinesque, 1810
MYCOSPP	Myctophidae	C	58	A	0	Myctophidae
MYCTRUB	Mycteroperca rubra	C	124.6.1	A	0	Mycteroperca rubra (Bloch, 1793)
MYLIAQU	Myliobatis aquila	C	23.1.1	A	0	Myliobatis aquila (Linnaeus, 1758)
MYTIGAL	Mytilus galloprovincialis	F	MYTIL Mytil 1	D	0	Mytilus galloprovincialis Lamarck, 1819
MYTISPP	Mytilidae spp.	F	MYTIL	D	0	Mytilidae Rafinesque, 1815
NANSOBI	Nansenia oblita	C	46.4.2.	A	0	Nansenia oblita (Facciolà, 1887)
NASSSPP	Nassariidae			D	0	Nassariidae Iredale, 1916
NATIMIL	Naticarius millepunctatus		D'Angelo	E	0	Natica stercusmuscarum (Gmelin, 1791)
NATISPP	Naticidae	F	NAT	D	0	Naticidae Guilding, 1834
NAUCDUC	Naucrates ductor	C	131.6.1	A	0	Naucrates ductor (Linnaeus, 1758)
NEMISCO	Nemichthys scolopaceus	C	76.1.1	A	0	Nemichthys scolopaceus Richardson, 1848
NEORCAR	Neorossia caroli	F	SEPIOL	C	0	Neorossia caroli (Joubin, 1902)
NEPRNOR	Nephrops norvegicus	F	NEPH Neph 1	B	m	Nephrops norvegicus (Linnaeus, 1758)
NEROMAC	Nerophis maculatus	C	97.2.1	A	0	Nerophis maculatus Rafinesque, 1810
NEROOPH	Nerophis ophidion	C	97.2.2	A	0	Nerophis ophidion (Linnaeus, 1758)
NETOBRE	Dysomma (Nettodarus) brevirostris	C	81.1.1	A	0	Dysomma brevirostre (Facciolà, 1887)
NETTMEL	Nettastoma melanurum	C	80.1.1	A	0	Nettastoma melanurum Rafinesque, 1810
NEZUAEQ	Nezumia aequalis	C	99.9.1	A	0	Nezumia aequalis (Günther, 1878)
NEZUSCL	Nezumia sclerorhynchus	C	99.9.2	A	0	Nezumia sclerorhynchus (Valenciennes, 1838)
NOTABON	Notacanthus bonapartei	C	89.1.2	A	0	Notacanthus bonaparte Risso, 1840
NOTORIS	Notolepis rissoi	C	63.4.1	A	0	Arctozenus risso (Bonaparte, 1840)
NOTSBOL	Notoscopelus bolini	C	58.17.5	A	0	Notoscopelus bolini Nafpaktitis, 1975
NOTSELO	Notoscopelus elongatus	C	58.17.3	A	0	Notoscopelus elongatus (Costa, 1844)
NOTSKRO	Notoscopelus kroyerii	C	58.17.4	A	0	Notoscopelus kroyeri (Malm, 1861)
OBLAMEL	Oblada melanura	C	139.6.1	A	0	Oblada melanura (Linnaeus, 1758)
OCENERI	Ocenebra erinacea	R	RIEDL	E	0	Ocenebra erinaceus (Linnaeus, 1758)
OCTODEP	Octopus defilippi	F	OCT Oct 10	C	0	Octopus defilippi Verany, 1851
OCTOMAC	Octopus macropus	F	OCT Oct 2	C	0	Octopus macropus Risso, 1826

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OCTOSAL	Octopus salutii	F	OCT Oct 23	C	0	Octopus salutii Verany, 1836
OCTOSPP	Octopus spp	F	OCT Oct	C	0	Octopus Cuvier, 1797
OCTOTET	Pteroctopus tetracirrhus	F	OCT Pter 1	C	0	Pteroctopus tetracirrhus (Delle Chiaje, 1830)
OCTOVUL	Octopus vulgaris	F	OCT Oct 1	C	0	Octopus vulgaris Cuvier, 1797
OCYTTUB	Ocythoe tuberculata	F	OCY ocy 1	C	0	Ocythoe tuberculata Rafinesque, 1814
ODONFER	Odontaspis ferox	C	5.1.1	A	0	Odontaspis ferox (Risso, 1810)
ODONTAU	Eugonphodus (Odontaspis) taurus	C	5.1.3	A	0	Carcharias taurus Rafinesque, 1810
OEDALAB	Oedalechilus labeo	C	181.4.1	A	0	Oedalechilus labeo (Cuvier, 1829)
OLIGATE	Oligopus ater	C	172.1.1	A	0	Grammonus ater (Risso, 1810)
ONYCBAN	Onychoteuthis banksi	F	ONYCHO	C	0	Onychoteuthis banksii (Leach, 1817)
ONYCSPP	Onychoteuthis spp	F	ONYCHO	C	0	Onychoteuthis Lichtenstein, 1818
OPDIBAR	Ophidion barbatum	C	173.1.1	A	0	Ophidion barbatum Linnaeus, 1758
OPDIROC	Ophidion rochei	C	173.1.2+3	A	0	Ophidion rochei Müller, 1845
OPHCRUF	Ophichthus rufus	C	86.1.2	A	0	Ophichthus rufus (Rafinesque, 1810)
OPHISER	Ophisurus serpens	C	86.4.1	A	0	Ophisurus serpens (Linnaeus, 1758)
OPHOFRA	Ophiothrix fragilis	R	RIEDL	E	0	Ophiothrix fragilis (Abildgaard)
OPISSPP	Opisthobranchia spp			E	0	Opisthobranchia Milne-Edwards, 1848
OPLOSPP	Oplophoridae	Z	Z	B	m	Oplophoridae Dana, 1852
OPTOAGA	Opistoteuthis agassizii		FAUNA IBER	C	m	Opisthoteuthis agassizii Verrill, 1883
OSTREDU	Ostrea edulis	F	OSTR Ostr 1	D	0	Ostrea edulis Linnaeus, 1758
OSTRSPP	Ostrea spp.	R	RIEDL	E	0	Ostrea Linnaeus, 1758
OXYNCEN	Oxynotus centrina	C	15.1.1	A	0	Oxynotus centrina (Linnaeus, 1758)
PAGEACA	Pagellus acarne	C	139.7.2	A	0	Pagellus acarne (Risso, 1827)
PAGEBOG	Pagellus bogaraveo	C	139.7.3	A	0	Pagellus bogaraveo (Brünnich, 1768)
PAGEERY	Pagellus erythrinus	C	139.7.1	A	0	Pagellus erythrinus (Linnaeus, 1758)
PAGIERE	Paguristes eremita			B	m	Paguristes eremita (Linnaeus, 1767)
PAGUALA	Pagurus alatus	Z	Z	B	m	Pagurus alatus (J.C. Fabricius, 1775)
PAGUCUA	Pagurus cuanensis			B	m	Pagurus cuanensis Bell, 1845
PAGUEXC	Pagurus excavatus	Z	Z	B	m	Pagurus excavatus (Herbst, 1791)
PAGUFOR	Pagurus forbesii	Z	Z	B	m	Pagurus forbesii Bell, 1845
PAGUPRI	Pagurus prideauxi	Z	Z	B	m	Pagurus prideaux Leach, 1815
PALIELE	Palinurus elephas	F	PALIN Palin 1	B	m	Palinurus elephas (J.C. Fabricius, 1787)
PALIMAU	Palinurus mauritanicus	F	PALIN Palin 3	B	m	Palinurus mauritanicus Gruvel, 1911
PALISPP	Palinurus	F	PALIN	B	m	Palinurus Weber, 1795
PANDPRO	Pandalina profonda	F	PANDL	B	m	Pandalina profunda Holthuis, 1946
PAPANAR	Parapandalus narval	F	PANDL Parapnd	B	m	Plesionika narval (J.C. Fabricius, 1787)
PAPELON	Parapenaeus longirostris	F	PEN Parap 1	B	m	Parapenaeus longirostris (Lucas, 1846)
PAPOHUM	Parapristipoma humile	C	136.3.1	A	0	Parapristipoma humile (Bowdich, 1825)
PAPOOCT	Parapristipoma octolineatum	C	136.3.2	A	0	Parapristipoma octolineatum (Valenciennes, 1833)
PARALEP	Paraliparis leptochirus	C	192.3.3	A	0	Paraliparis leptochirus (Tortonese, 1959)
PARLCOR	Paralepis coregonoides	C	63.1	A	0	Paralepis coregonoides Risso, 1820
PARLSPE	Paralepis speciosa	F	PARALEP	A	0	Paralepis speciosa Bellotti, 1878
PAROCUV	Paromola cuvieri	F	HOM Par 1	B	m	Paromola cuvieri (Risso, 1816)
PARTANG	Partenope angulifrons	Z	Z	B	m	Parthenope angulifrons Latreille, 1825
PARTMAC	Parthenope macrochelos	Z	Z	B	m	Parthenope macrochelos (Herbst, 1790)
PARTMAS	Parthenope massena	Z	Z	B	m	Parthenope massena (P. Roux, 1830)
PASIMUL	Pasiphaea multidentata	F	PASI Pasi 1	B	m	Pasiphaea multidentata Esmark, 1866
PASISIV	Pasiphaea sivado	F	PASI Pasi 2	B	m	Pasiphaea sivado (Risso, 1816)
PECTJAC	Pecten jacobaeus	F	PECT Pect 1	D	0	Pecten jacobeus (Linnaeus, 1758)
PECTMAX	Pecten maximus	F	PECT	D	0	Pecten maximus (Linnaeus, 1758)

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PECTSPP	Pecten	F	PECT	D	0	Pecten Müller O.F., 1776
PELTATR	Peltodoris atromaculata	R	RIEDL	E	0	Discodoris atromaculata (Bergh, 1880)
PENAKER	Penaeus kerathurus	F	PEN Pen 1	B	m	Penaeus kerathurus (Forskål, 1775)
PENNPHO	Pennatula phosphorea			D	0	Pennatula phosphorea Linnaeus, 1758
PERCGRA	Periclimenes granulatus	Z	Z	B	m	Periclimenes granulatus Holthuis, 1950
PERICAT	Peristedion cataphractum	C	186.1.1	A	0	Peristedion cataphractum (Linnaeus, 1758)
PHALGRA	Phallium granulatum	F	CASS Phal 1	D	0	Phalium granulatum (Von Born, 1778)
PHILECH	Philoceras echinulatus	F	CRANG	B	m	Philocheras echinulatus (M. Sars, 1861)
PHRYREG	Phrynorhombus regius	C	195.3.1	A	0	Phrynorhombus regius (Bonnaterre, 1788)
PHRYSPP	Phrynorhombus	C	195.3.1	A	0	Phrynorhombus Günther, 1862
PHYIBLE	Phycis blennoides	C	101.15.2	A	0	Phycis blennoides (Brünnich, 1768)
PHYIPHY	Phycis phycis	C	101.15.1	A	0	Phycis phycis (Linnaeus, 1766)
PHYLTRU	Phylonotus (Murex)(=Trunculariopsis)	F	MUR Phyl 1	D	0	Hexaplex trunculus (Linnaeus, 1758)
PHYSDAL	Physiculus dalwigki	C	103.8.1	A	0	Physiculus dalwigki Kaup, 1858
PILUSPI	Pilumnus spinifer	Z	Z	B	m	Pilumnus hirtellus forma spinifer H. Milne-Edwards, 1834
PILUVIL	Pilumnus villosissimus	Z	Z	B	m	Pilumnus villosissimus (Rafinesque, 1814)
PINNNOB	Pinna nobilis	F	PINN Pinn 1	D	0	Pinna nobilis Linnaeus, 1758
PINNPEC	Pinna pectinata	R	RIEDL	E	0	Atrina pectinata (Linnaeus, 1767)
PINOPIN	Pinnotheres pinnotheres	Z	Z	B	m	Nepinnotheres pinnotheres (Linnaeus, 1758)
PISAARN	Pisa armata	Z	Z	B	m	Pisa armata (Latreille, 1803)
PISANOD	Pisa nodipes	Z	Z	B	m	Pisa nodipes (Leach, 1815)
PISILON	Pisidia longicornis	Z	Z	B	m	Pisidia longicornis (Linnaeus, 1767)
PLATFLE	Platichys flesus	C	197.8.1	A	0	Platichthys flesus (Linnaeus, 1758)
PLEOMED	Plectorhinchus mediterraneus	C	136.4.1	A	0	Plectorhinchus mediterraneus (Guichenot, 1850)
PLERMEC	Pleurobranchea meckely	R	RIEDL	E	0	Pleurobranchaea meckelii Meckel, 1813
PLESACA	Plesionika acanthonotus	Z	Z	B	m	Plesionika acanthonotus (S.I. Smith, 1882)
PLESANT	Plesionika antigai	Z	Z	B	m	Plesionika antigai Zariquiey-Alvarez, 1955
PLESEDW	Plesionika edwardsii	F	PANDL Plesio 2	B	m	Plesionika narval (J.C. Fabricius, 1787)
PLESGIG	Plesionika gigliolii	Z	Z	B	m	Plesionika gigliolii (Senna, 1902)
PLESHET	Plesionika heterocarpus	F	PANDL Plesio 8	B	m	Plesionika heterocarpus (A. Costa, 1871)
PLESMAR	Plesionika martia	F	PANDL Plesio 1	B	m	Plesionika martia martia (A. Milne-Edwards, 1883)
PLEUPIL	Pleurobrachia pileus			E	0	Pleurobrachia pileus
POLARIS	Polyacanthonotus rissoanus	C	89.2.1	A	0	Polyacanthonotus rissoanus (De Filippi & Verany, 1857)
POLBHEN	Polybius henslowi	F	PORT	B	m	Polybius henslowii Leach, 1820
POLCTYP	Polycheles typhlops	Z	Z	B	m	Polycheles typhlops Typhlops Heller, 1862
POLYAME	Polyprion americanum	C	124.7.1	A	0	Polyprion americanus (Bloch & Schneider, 1801)
POMABEN	Pomadasys incisus (bennetti)	C	136.1.1	A	0	Pomadasys incisus (Bowdich, 1825)
POMSMAR	Pomatoschistus marmoratus	C	162.21.4	A	0	Pomatoschistus marmoratus (Risso, 1810)
POMSMIC	Pomatoschistus microps	C	162.21.5	A	0	Pomatoschistus microps (Krøyer, 1838)
POMSMIN	Pomatoschistus minutus	C	162.21.1	A	0	Pomatoschistus minutus (Pallas, 1770)
POMTSAL	Pomatomus saltator	C	129.1.1	A	0	Pomatomus saltatrix (Linnaeus, 1766)
PONIKUH	Pontinus kuhlii	C	184.3.1	A	0	Pontinus kuhlii (Bowdich, 1825)
PONPNOR	Pontophilus norvegicus	Z	Z	B	m	Pontophilus norvegicus (M. Sars, 1861)
PONPSPI	Pontophilus spinosus	F	CRANG Pontop 1	B	m	Pontophilus spinosus (Leach, 1815)
PONTCAT	Pontocaris cataphractus	Z	Z	B	m	Aegaeon cataphractus (Olivi, 1792)
PONTLAC	Pontocaris lacazei	F	CRANG Pont 1	B	m	Aegaeon lacazei (Gourret, 1887)
PRIOGLA	Prionace glauca	C	13.8.1	A	0	Prionace glauca (Linnaeus, 1758)
PROCEDU	Processa edulis	F	PROC Proc 2	B	m	Processa edulis crassipes Nouvel & Holthuis,

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						1957
PROCMED	Processa canaliculata (mediterranea)	F	PROC Proc 1	B	m	Processa canaliculata Leach, 1815
PROCNOU	Processa nouveli	F	PROC	B	m	Processa nouveli holthuisi Al-Adhub & Williamson, 1975
PROSSPP	Prosobranchia spp			E	0	Prosobranchia Milne Edwards, 1848
PSAMMIC	Psamechinus microtuberculatus	R	RIEDL	E	0	Psammechinus microtuberculatus
PSENPEL	Psenes pellucidus	C	177.3.2	A	0	Psenes pellucidus Lütken, 1880
PSETMAX	Psetta maxima	C	195.4.1	A	0	Psetta maxima (Linnaeus, 1758)
PSEVCAR	Pseudosimnia carnea		D'Angelo	E	m	Pseudosimnia carnea (Poiret, 1789)
PTEAPEL	Pteragogus pelycus	X	X	A?		Pteragogus pelycus Randall, 1981
PTEOBOV	Pteromylaeus bovinus	C	23.2.1	A	0	Pteromylaeus bovinus (Geoffroy Saint-Hilaire, 1817)
PTERHIR	Pteria hirundo	F	PTER	D	0	Pteria hirundo (Linnaeus, 1758)
PUNTPUN	Diplodus (Puntazzo) puntazzo	C	137.8.1	A	0	Diplodus puntazzo (Cetti, 1777)
RAJAALB	Raja alba	C	21.1.18	A	0	Rostroraja alba (Lacepède, 1803)
RAJAAST	Raja asterias	C	21.1.2	A	0	Raja asterias Delaroche, 1809
RAJABAT	Raja batis	C	21.1.10	A	0	Dipturus batis (Linnaeus, 1758)
RAJABRA	Raja brachyura	C	21.1.3	A	0	Raja brachyura Lafont, 1873
RAJACIR	Raja circularis	C	21.1.14	A	0	Leucoraja circularis (Couch, 1838)
RAJACLA	Raja clavata	C	21.1.4	A	0	Raja clavata Linnaeus, 1758
RAJAFUL	Raja fullonica	C	21.1.13	A	0	Leucoraja fullonica (Linnaeus, 1758)
RAJAMEL	Raja melitensis	C	21.1.21	A	0	Leucoraja melitensis (Clark, 1926)
RAJAMIR	Raja miraletus	C	21.1.1	A	0	Raja miraletus Linnaeus, 1758
RAJAMON	Raja montagui	C	21.1.7	A	0	Raja montagui Fowler, 1910
RAJANAE	Raja naevus	C	21.1.15	A	0	Leucoraja naevus (Müller & Henle, 1841)
RAJAOXY	Raja oxyrinchus	C	21.1.12	A	0	Dipturus oxyrinchus (Linnaeus, 1758)
RAJAPOL	Raja polystigma	C	21.1.22	A	0	Raja polystigma Regan, 1923
RAJARDA	Raja radula	C	21.1.23	A	0	Raja radula Delaroche, 1809
RAJASPP	Raja	C	21.1.12	A	0	Raja Linnaeus, 1758
RAJAUND	Raja undulata	C	21.1.25	A	0	Raja undulata Lacepède, 1802
REGAGLE	Regalecus glesne	C	106.1.1.	A	0	Regalecus glesne Ascanius, 1772
RHINCEM	Rhinobatos cemiculus	C	19.1.2	A	0	Rhinobatos cemiculus Geoffroy Saint-Hilaire, 1817
RHINRHI	Rhinobatos rhinobatos	C	19.1.1	A	0	Rhinobatos rhinobatos (Linnaeus, 1758)
RHIPMAR	Rhinoptera marginata	C	24.1.1	A	0	Rhinoptera marginata (Geoffroy Saint-Hilaire, 1817)
RHYNHEP	Rhynchogadus hepaticus	C	103.9.1	A	0	Rhynchogadus hepaticus (Facciolà, 1884)
RICHFRE	Richardina fredericii	Z	Z	A	0	Richardina fredericii Lo Bianco, 1903
RISSDES	Rissoides desmaresti	F	SQUIL	D	0	Rissoides desmaresti (Risso, 1816)
RISSPAL	Rissoides pallidus	F	SQUIL	B	m	Rissoides pallidus (Giesbrecht, 1910)
ROCHCAR	Rochinia carpenteri	Z	Z	B	m	Rochinia carpenteri (Wyville & Thomson, 1873)
RONDMIN	Rondeletiola minor	F	SEPIOL	C	0	Rondeletiola minor (Naef, 1912)
ROSSMAC	Rossia macrosoma	F	SEPIOL Ross 1	C	0	Rossia macrosoma (Delle Chiaje, 1828)
SADASAR	Sarda sarda	C	158.4.1	A	0	Sarda sarda (Bloch, 1793)
SALOTRU	Salmo trutta trutta	C	45.1.2	A	0	Salmo trutta trutta Linnaeus, 1758
SARDPIL	Sardina pilchardus	C	33.3.1	A	0	Sardina pilchardus (Walbaum, 1792)
SARIAUR	Sardinella aurita	C	33.4.1	A	0	Sardinella aurita Valenciennes, 1847
SARIMAD	Sardinella maderensis	C	33.4.2	A	0	Sardinella maderensis (Lowe, 1838)
SARPSAL	Sarpa salpa	C	139.9.1	A	0	Sarpa salpa (Linnaeus, 1758)
SCAEUNI	Scaeurgus unicirrhus	F	OCT Scae 1	C	0	Scaeurgus unicirrhus (Delle Chiaje, 1838)
SCALSCA	Scalpelum scalpelum	R	Riedl	B	m	Scalpellum scalpellum (Linnaeus, 1758)
SCAPNIG	Scaphander lignarius			D	0	Scaphander lignarius (Linnaeus, 1758)

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SCHEOVA	Schedophilus ovalis	C	176.3.2	A	0	Schedophilus ovalis (Cuvier, 1833)
SCIAUMB	Sciaena umbra	C	137.1.1	A	0	Sciaena umbra Linnaeus, 1758
SCOBSAU	Scomberesox saurus	C	91.1.1	A	0	Scomberesox saurus saurus (Walbaum, 1792)
SCOHRHO	Scophthalmus rhombus	C	195.1.1	A	0	Scophthalmus rhombus (Linnaeus, 1758)
SCOMPNE	Scomber (Pneumatophorus) japonicus	C	156.1.2	A	0	Scomber japonicus Houttuyn, 1782
SCOMSCO	Scomber scombrus	C	156.1.1	A	0	Scomber scombrus Linnaeus, 1758
SCORELO	Scorpaena elongata	C	184.1.3	A	0	Scorpaena elongata Cadenat, 1943
SCORLOP	Scorpaena loppei	C	184.1.5	A	0	Scorpaena loppei Cadenat, 1943
SCORMAD	Scorpaena maderensis	C	184.1.6	A	0	Scorpaena madurensis Valenciennes, 1833
SCORNOT	Scorpaena notata	C	184.1.7	A	0	Scorpaena notata Rafinesque, 1810
SCORPOR	Scorpaena porcus	C	184.1.1	A	0	Scorpaena porcus Linnaeus, 1758
SCORSCO	Scorpaena scrofa	C	184.1.8	A	0	Scorpaena scrofa Linnaeus, 1758
SCYLARC	Scyllarus arctus	F	SCYL Scylr 1	B	m	Scyllarus arctus (Linnaeus, 1758)
SCYLLAT	Scyllarides latus	F	SCYL Scyld 1	B	m	Scyllarides latus (Latreille, 1803)
SCYLPYG	Scyllarus pygmaeus	F	SCYL Scylr 2	B	m	Scyllarus pygmaeus (Bate, 1888)
SCYMLIC	Dalatias (Scymnorhinus) licha	C	16.4.3	A	0	Dalatias licha (Bonnaterre, 1788)
SCYOCAN	Scyliorhinus canicula	C	11.1.1	A	0	Scyliorhinus canicula (Linnaeus, 1758)
SCYOSTE	Scyliorhinus stellaris	C	11.1.2	A	0	Scyliorhinus stellaris (Linnaeus, 1758)
SEPENEG	Sepietta neglecta	F	SEPIOL	C	0	Sepietta neglecta Naef, 1916
SEPEOBS	Sepietta obscura	F	SEPIOL	C	0	Sepietta obscura Naef, 1916
SEPEOWE	Sepietta oweniana	F	SEPIOL	C	0	Sepietta oweniana (D'Orbigny, 1839)
SEPESPP	Sepietta spp.	F	SEPIOL	C	0	Sepietta Naef, 1912
SEPIELE	Sepia elegans	F	SEP Sep 3	C	0	Sepia elegans De Blainville, 1827
SEPIOFF	Sepia officinalis	F	SEP Sep 1	C	0	Sepia officinalis Linnaeus, 1758
SEPIORB	Sepia orbignyana	F	SEP Sep 4	C	0	Sepia orbignyana De Férussac, 1826
SEPISPP	Sepia	F	SEP Sep 1	C	0	Sepia Linnaeus, 1758
SEPOAFF	Sepiola affinis	F	SEPIOL	C	0	Sepiola affinis Naef, 1912
SEPOINT	Sepiola intermedia	F	SEPIOL	C	0	Sepiola intermedia Naef, 1912
SEPOLIG	Sepiola ligulata	F	SEPIOL	C	0	Sepiola ligulata Naef, 1912
SEPOROB	Sepiola robusta	F	SEPIOL	C	0	Sepiola robusta Naef, 1912
SEPORON	Sepiola rondeleti	F	SEPIOL	C	0	Sepiola rondeleti Leach, 1817
SEPOSPP	Sepiola spp	F	SEP	C	0	Sepiola Leach, 1817
SERAATR	Serranus atricauda	C	124.1.2	A	0	Serranus atricauda Günther, 1874
SERACAB	Serranus cabrilla	C	124.1.1	A	0	Serranus cabrilla (Linnaeus, 1758)
SERAHEP	Serranus hepatus	C	124.1.3	A	0	Serranus hepatus (Linnaeus, 1758)
SERASCR	Serranus scriba	C	124.1.4	A	0	Serranus scriba (Linnaeus, 1758)
SERGARC	Sergestes arcticus	Z	Z	B	m	Sergestes arcticus Krøyer, 1855
SERGROB	Sergestes robustus	Z	Z	B	m	Sergestes robustus (S.J. Smith, 1882)
SERGSAR	Sergestes sargassi (= henseni)	Z	Z	B	m	Sergestes sargassi Ortmann, 1893
SERIDUM	Seriola dumerili	C	131.9.1	A	0	Seriola dumerili (Risso, 1810)
SOLEIMP	Solea impar	C	198.1.2	A	0	Solea impar Bennett, 1831
SOLEKLE	Solea kleini	C	198.1.3	A	0	Synaptura kleinii (Risso, 1827)
SOLELAS	Solea lascaris	C	198.1.4	A	0	Solea lascaris (Risso, 1810)
SOLESEN	Solea senegalensis	C	198.1.6	A	0	Solea senegalensis Kaup, 1858
SOLEVUL	Solea vulgaris	C	198.1.1	A	0	Solea solea (Linnaeus, 1758)
SOLOMEM	Solenocera membranacea	F	SOLENO Soleno	B	m	Solenocera membranacea (Risso, 1816)
SPARAUR	Sparus aurata	C	139.1.1	A	0	Sparus auratus Linnaeus, 1758
SPARCAE	Pagrus (Sparus) coeruleostictus	C	139.11.2	A	0	Pagrus caeruleostictus (Valenciennes, 1830)
SPARPAG	Pagrus (Sparus) pagrus	C	139.11.3	A	0	Pagrus pagrus (Linnaeus, 1758)
SPHOCUT	Sphoeroides cutaneus	C	204.3.2	A	0	Sphoeroides pachygaster (Müller & Troschel, 1848)

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SPHYSPY	Sphyraena sphyraena	C	180.1.1	A	0	Sphyraena sphyraena (Linnaeus, 1758)
SPICFLE	Spicara flexuosa	C	141.2.2	A	0	Spicara maena (Linnaeus, 1758)
SPICMAE	Spicara maena	C	141.2.1	A	0	Spicara maena (Linnaeus, 1758)
SPICSMA	Spicara smaris	C	141.2.3	A	0	Spicara smaris (Linnaeus, 1758)
SPICSPP	Spicara	C	141.2.3	A	0	Spicara Rafinesque, 1810
SPISSPP	Spisula spp	F	MACTR	E	0	Spisula Gray, 1837
SPISSUB	Spisula subtrucata	F	MACTR	E	0	Spisula subtruncata (Da Costa, 1778)
SPODCAN	Spondyliosoma cantharus	C	139.10.1	A	0	Spondyliosoma cantharus (Linnaeus, 1758)
SPRASPR	Sprattus sprattus	C	33.5.1	A	0	Sprattus sprattus sprattus (Linnaeus, 1758)
SQUAACA	Squalus acanthias	C	16.1.1	A	0	Squalus acanthias Linnaeus, 1758
SQUABLA	Squalus blainvillei	C	16.1.2	A	0	Squalus blainville (Risso, 1827)
SQUIMAN	Squilla mantis	F	SQUIL Squil 5	B	m	Squilla mantis (Linnaeus, 1758)
SQUTACU	Squatina aculeata	C	17.1.2	A	0	Squatina aculeata Cuvier, 1829
SQUTOCL	Squatina oculata	C	17.1.3	A	0	Squatina oculata Bonaparte, 1840
SQUTSPP	Squatina spp	C	17.1	A	0	Squatina Duméril, 1806
SQUTSQU	Squatina squatina	C	17.1.1	A	0	Squatina squatina (Linnaeus, 1758)
STEPDIA	Stephanolepis diaspros	C	202.1.2	A	0	Stephanolepis diaspros Fraser-Brunner, 1940
STICREG	Stichopus regalis	F	STICH Stich 1	D	0	Eotichopus regalis
STOLLEU	Stoloteuthis leucoptera	F	SEPIOL	C	0	Stoloteuthis leucopterus (Verrill, 1878)
STOMBOA	Stomias boa	C	41.1.1	A	0	Stomias boa boa (Risso, 1810)
STROFIA	Stromateus fiatola	C	179.1.1	A	0	Stromateus fiatola Linnaeus, 1758
SUBECAR	Suberites carnosus			D	0	Suberites carnosus (Johnston, 1842)
SUBEDOM	Suberites domuncula			D	0	Suberites domuncula (Olivi, 1792)
SUBESPP	Suberites spp.			D	0	Suberites Nardo, 1833
SYMBVER	Symbolophorus veranyi	C	58.19.1	A	0	Symbolophorus veranyi (Moreau, 1888)
SYMDCIN	Symphodus cinereus	C	145.9.3	A	0	Symphodus cinereus (Bonnaterre, 1788)
SYMDMED	Symphodus mediterraneus	C	145.9.6	A	0	Symphodus mediterraneus (Linnaeus, 1758)
SYMDOCE	Symphodus ocellatus	C	145.9.9	A	0	Symphodus ocellatus (Forsskål, 1775)
SYMDROS	Symphodus rostratus	C	145.9.1	A	0	Symphodus rostratus (Bloch, 1791)
SYMDTIN	Symphodus tinca	C	145.9.12	A	0	Symphodus tinca (Linnaeus, 1758)
SYMPLIG	Symphurus ligulatus	C	199.2.2	A	0	Symphurus ligulatus (Cocco, 1844)
SYMPNIG	Symphurus nigrescens	C	199.2.1	A	0	Symphurus nigrescens Rafinesque, 1810
SYNDSAU	Synodus saurus	C	51.1.2	A	0	Synodus saurus (Linnaeus, 1758)
SYNGACU	Syngnathus acus	C	97.1.1	A	0	Syngnathus acus Linnaeus, 1758
SYNGPHL	Syngnathus phlegon	C	97.1.3.	A	0	Syngnathus phlegon Risso, 1827
SYNGTAE	Syngnathus taenionotus	C	97.1.6	A	0	Syngnathus taenionotus Canestrini, 1871
SYNGTYP	Syngnathus typhle	C	97.1.8	A	0	Syngnathus typhle Linnaeus, 1758
TAENGRA	Taeniura grabata	C	22.4.1	A	0	Taeniura grabata (Geoffroy Saint-Hilaire, 1817)
TELLSPP	Tellina spp	F	TELL	E	0	Tellina Linnaeus, 1758
TETHFIM	Tethys fimbria			C	0	Tethys fimbria Linnaeus, 1767
THAMPOI	Thalamita poissonii	Y	Y	B		Thalamita poissonii (Audouin, 1826)
TODASAG	Todarodes sagittatus	F	OMMAS Todarod	C	0	Todarodes sagittatus (Lamarck, 1798)
TODIEBL	Todaropsis eblanae	F	OMMAS Todarod	C	0	Todaropsis eblanae (Ball, 1841)
TORPMAR	Torpedo marmorata	C	20.1.2	A	0	Torpedo marmorata Risso, 1810
TORPNOB	Torpedo nobiliana	C	20.1.3	A	0	Torpedo nobiliana Bonaparte, 1835
TORPSPP	Torpedo	C	20.1.1	A	0	Torpedo Houttuyn, 1764
TORPTOR	Torpedo torpedo	C	20.1.1	A	0	Torpedo torpedo (Linnaeus, 1758)
TRACMED	Trachurus mediterraneus	C	131.10.3	A	0	Trachurus mediterraneus (Steindachner, 1868)
TRACPIC	Trachurus picturatus	C	131.10.4	A	0	Trachurus picturatus (Bowdich, 1825)
TRACTRA	Trachurus trachurus	C	131.10.1	A	0	Trachurus trachurus (Linnaeus, 1758)

Medits Code	Scientific Name	Source	Reference	CATFAU	CODLON	Valid Name (Ifremer reference)
TRAHARA	Trachinus araneus	C	148.1.2	A	0	Trachinus araneus Cuvier, 1829
TRAHDRA	Trachinus draco	C	148.1.1	A	0	Trachinus draco Linnaeus, 1758
TRAHRAD	Trachinus radiatus	C	148.1.3	A	0	Trachinus radiatus Cuvier, 1829
TRARTRA	Trachyrhynchus trachyrhynchus	C	99.1.1	A	0	Trachyrincus scabrus (Rafinesque, 1810)
TRAYCRI	Trachyscorpia cristulata	C	184.7.1	A	0	Trachyscorpia cristulata echinata (Koehler, 1896)
TRIGLUC	Trigla lucerna	C	185.1.2	A	0	Chelidonichthys lucernus (Linnaeus, 1758)
TRIGLYR	Trigla lyra	C	185.1.1	A	0	Trigla lyra Linnaeus, 1758
TRIILEP	Trichiurus lepturus	C	155.1.1	A	0	Trichiurus lepturus Linnaeus, 1758
TRIPLAS	Trigloporus lastoviza	C	185.5.1	A	0	Chelidonichthys lastoviza (Bonnaterre, 1788)
TRISCAP	Trisopterus minutus capelanus	C	101.11.1	A	0	Trisopterus minutus (Linnaeus, 1758)
TRISLUS	Trisopterus luscus	C	101.11.3	A	0	Trisopterus luscus (Linnaeus, 1758)
TRITNOD	Charonia (Triton) rubicunda (nodifer)	F	CYM Char 1	D	0	Charonia lampas (Linnaeus, 1758)
TURRCOM	Turritella comunnis	F	D12	E	0	Turritella communis Risso, 1826
TURRSIM	Turris similis		D'Angelo	E	0	Fusiturris similis (Bivona And., 1838)
TURRSPP	Turritella spp	F	TURR	D	0	Turritella Lamarck, 1799
UMBAMED	Umbraculum mediterraneum			E	0	Umbraculum umbraculum (Röding, 1798)
UMBRCAN	Umbrina canariensis	C	137.4.2	A	0	Umbrina canariensis Valenciennes, 1843
UMBRCIR	Umbrina cirrosa	C	137.4.1	A	0	Umbrina cirrosa (Linnaeus, 1758)
UMBRRON	Umbrina ronchus	C	137.4.3	A	0	Umbrina ronchus Valenciennes, 1843
UPENMOL	Upeneus moluccensis	X	X	A		Upeneus moluccensis (Bleeker, 1855)
URANSCA	Uranoscopus scaber	C	149.1.1	A	0	Uranoscopus scaber Linnaeus, 1758
VENUSPP	Venus spp.	F	VEN	D	0	Venus Linnaeus, 1758
VENUVER	Venus verrucosa	F	VEN Ven 1	D	0	Venus verrucosa Linnaeus, 1758
VINCATT	Vinciguerria attenuata	C	37.12.1	A	0	Vinciguerria attenuata (Cocco, 1838)
VINCPOW	Vinciguerria poweriae	C	37.12.3	A	0	Vinciguerria poweriae (Cocco, 1838)
XANTCOU	Medaeus (Xantho) couchi	Z	Z	B	m	Monodaeus couchi (Couch, 1851)
XENOCRI	Xenophora crispa	F	XENOPH	E	m	Xenophora crispa (Koenig, 1825)
XENOSPP	Xenophora spp	F	XENOPH	E	m	Xenophora Fischer Von Waldheim, 1807
XIPHGLA	Xiphias gladius	C	161.1.1	A	0	Xiphias gladius Linnaeus, 1758
ZEUSFAB	Zeus faber	C	120.1.1	A	0	Zeus faber Linnaeus, 1758
ZOSTOPH	Zostoricessor ophiocephalus	C	162.26.1	A	O	Zosterisessor ophiocephalus (Pallas, 1814)

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APPENDIX II

Table I – Rapido trawl survey in the Adriatic Sea.

Parameter	**Current situation**
Sampling frequency	2005-2006 twice each year (spring and fall); 2007-2008 annual (fall)
Sampling season	Spring; Fall-Winter
Gear details ➢ Vertical opening ➢ Horizontal opening ➢ Codend mesh size	 0.25 m 3.59 m 40 mm (stretched)
Sampling design	2005 Systematic surveys (transects) 2006-2008 Stratified by depth, random allocation of the stations proportionally to target species densities
Haul duration	5 to 40 min depending on seabed nature
Towing speed	5.5 knots
Method of storage data	Standard data sheet onboard and specific database (ATrIS) in the institute
Data verification	Specific software and manual checking
Sampling intensity	42-68 stations (124-134 hauls)

Table II – overview of the survey.

Survey title	Assessment of *Solea solea* in the central and northern Adriatic Sea (GSA17)		
Survey code	SoleMon	**Type of survey (bottom trawl, echosurvey, etc.)**	Rapido trawl survey
Country	Italy, Croatia, Slovenia	**Institute in charge**	CNR-ISMAR Ancona, Italy ISPRA Chioggia, Italy IOF Split, Croatia FRIS Ljubljana, Slovenia
Area	GSA17	**Period:** 2005-2008	**Season of the survey:** spring; fall-winter
Details of the survey. Link to:			

Table III – overview of the series

Period	**Vessels**	**Type of vessel (R/V or C/V)**	**Gear**	**N° Stations planned**	**N° Stations sampled**	**Comment**
23th May – 2nd June 2005	- Midway - E. Tanfa	C/V	Rapido	68	67	1 cancelled Pre-survey
26th October - 14th November 2005	- Midway - E. Tanfa	C/V	Rapido	62	62	Pre-survey
14th June – 24th June 2006	- Joacchì - A. Tanfa	C/V	Rapido	42	42	
26th October - 10th November 2006	- Joacchì - A. Tanfa	C/V	Rapido	67	67	
27th November 2007 – 22th February 2008	- Dalla Porta	R/V	Rapido	67	62	5 cancelled
20th October – 7th November 2008	- Dalla Porta	R/V	Rapido	67	67	

Detailed information

Main objective (general objectives of the survey. Types of information collected during the survey):

Monitoring of several benthic species (flatfish, pectinids, cuttlefish, etc.) in the central and northern Adriatic Sea (GSA17) which cannot be assed properly by the otter trawl surveys (Medits surveys). Abundance indeces, demographic structure and spatial distribution of these species. Stock assessment of *Solea solea* and other benthic species.

Complementary objective (if any):

Assessment of the nursery and spawning areas of *Solea solea*.

Biological parameters of *Solea solea*.

Gear details (describe the gear. If possible, add a plan of the sampling gear and its rigging):

The picture and the plan of the sampling gear are reported in Annexes I and II.

Two rapido trawls were towed simultaneously at each haul. The technical features of each rapido trawl used in this survey were:

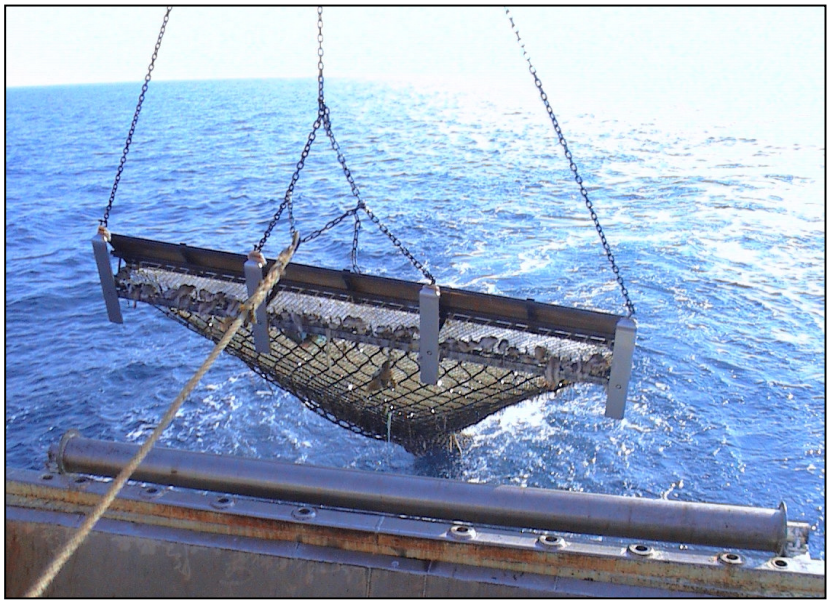
Horizontal opening = 3.59 m

Vertical opening = 0.25 m

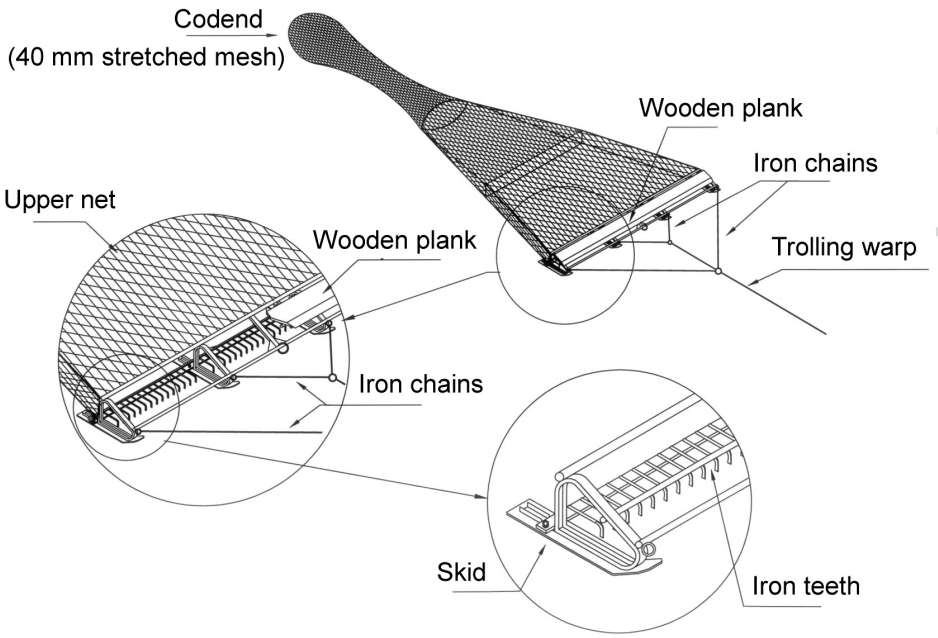
Codend mesh size (stretched) = 40 mm

Weight = 190 kg

Number of skids = 4



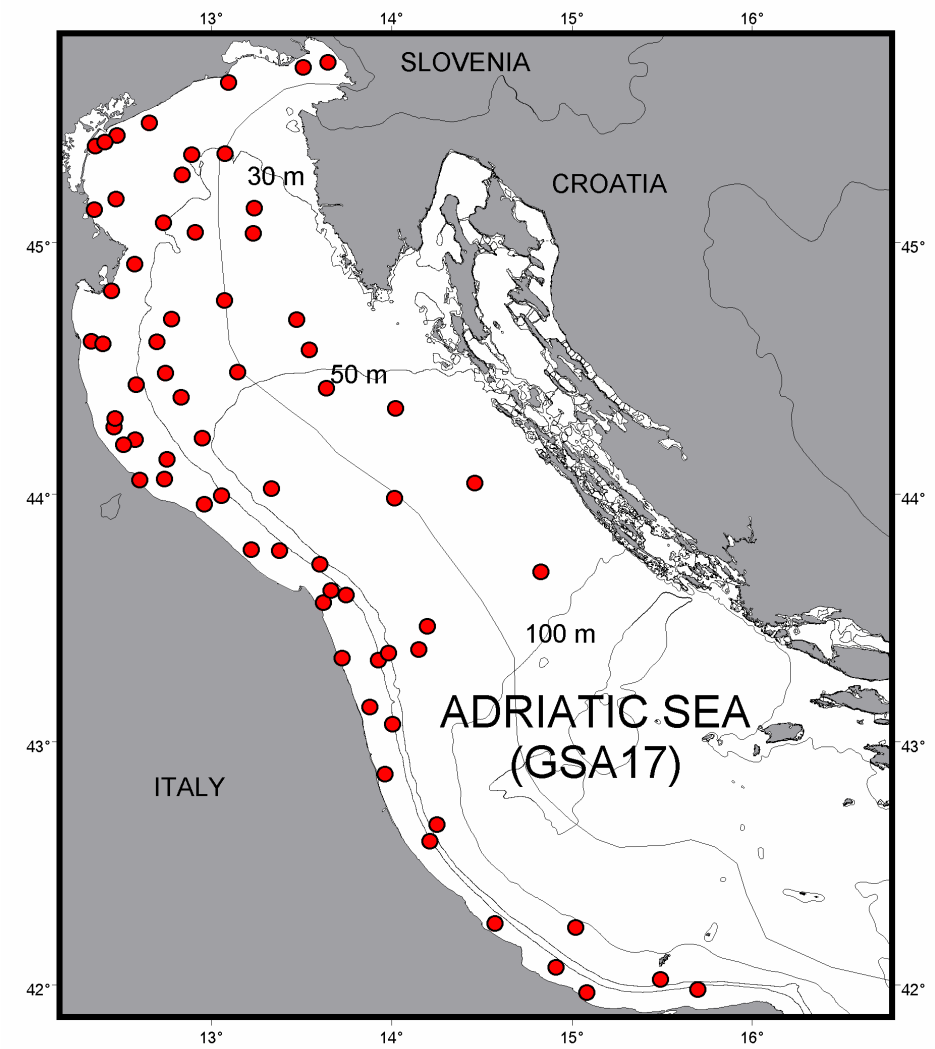
Annex I – Picture of the rapido trawl used in SoleMon survey.



Annex II – Plan of the rapido trawl used in SoleMon survey.

Area:

The area is the central and northern Adriatic Sea (GSA17) from the shoreline to the bathimetry of 100 m (42,388 km^2). The fall survey of 2005 and the two surveys of 2006 included also the Croatian waters and extended to the channels inside the Croatian islands (about 6,000 km^2), while in the two subsequent years the surveys were carried out up to the limit of the Croatian national waters (Annex III).



Annex III - Map of the stations sampled during SoleMon survey carried out in 2008.

Sampling design (Describe the number of hauls and method used to select the sampling location):

In 2005 a total of 68 and 62 stations were sampled during the spring and fall pre-surveys respectively. As no detailed information on sole distribution was available before the starting of SoleMon survey, stations were distributed along 11 transects extending from the Italian shoreline to the Croatian one. Data gathered during the pre-surveys clearly showed that the abundance of sole and other valuable benthic species decreased with the increasing of depth. On this basis, in the following surveys a random stratified samplig strategy was adopted.

Three depth strata were identified:

- stratum 0-30 m depth (11,512 km^2);
- stratum 30-50 m depth (8,410 km^2);
- stratum >50 m depth (22,466 km^2).

The stations are randomly located inside each stratum. The number of stations in each stratum was calculated on the basis of the variability (Coefficient of Variation) of the abundance indeces of *Solea solea* and other commercially important target species (*Sepia officinalis*, *Melicerthus kerathurus*, etc.) calculated on the basis of the results obtained during the pre-survey carried out in 2005. The final number of stations forecasted in the sampling protocol is 67 (39 in stratum 0-30 m; 17 in stratum 30-50 m; 11 in stratum >50 m) for a total of 134 hauls (two in each station).

Sampling is carried out only during daylight from dawn to dusk.

The towing speed is 5.5 knots.

The haul duration ranges from 5 to 40 m on the basis of the type of seabed (e.g. maerl) and/or the macrozoobenthic communities living in the sampling area (e.g. the massive occurrence of macrozoobenthic organisms strongly reduce the haul duration).

As recruitment and spawning of sole occur in fall-winter, spring survey was cancelled and only fall-winter survey was carried out since 2007.

Species recorded (Indicate the number and main groups of species recorded, e.g. all fish, crustaceans, etc.):

All species in catches (Chondroichthyes, Osteichthyes, Mollusca, Crustacea, Annelida, Ascidiacea, Bryozoa, Cnidaria, Echinodermata, Porifera, Sipuncula) were recorded. Also the debris was analysed (shells of gastropods and bivalves, wood, anthropic matter, eggs, glass, etc.). In 2005 and 2006 a total of 436 taxa was observed and the majority of taxa included non-commercial species. Analysis of discard samples collected in 2007 and 2008 are still in progress.

Individual total length (1/2 cm) and total weight was recorded on each commercial species. Analysis of sex and maturity stage of gonads (5 stages; Holden and Raitt, 1974) were carried out on each specimen of *S. solea*.

Survey data management system (Describe the data storage and compilation method):

Data collected onboard are stored in the dedicated databased ATrIS (Adriamed Trawl Information System), which allows to calculate abundance and biomass indexes standardised to the square kilometer and of each species. ATrIS also includes a linkage with a GIS software (ESRI Arcview 3.2) allowing the drawing of distribution maps for each species.

Quality control (Indicate the type of quality control applied to the survey, on protocol application, gear design, data, etc.):

Data are printed and controlled following the protocol of the project. Hauls are validated only once the control is finished. In addition, ATrIS includes a "consistency control" tool.

The swept area is easy to calculate, thanks to the fixed opening of the rapido trawl (3.59 m), the constant towing speed (5.5 knots) and the effective haul time registered by a Data Storage Tag applied to the iron frame of the gear, that records time and depth at 1 minute intervals.

Estimates (Give indicators estimates and possible trends):

Solea solea: density and biomass indexes of total catch, recruits and spawning females; maps of distribution, abundance and biomass of of total catch, recruits and spawning females. Size frequency distributions.

Other relevant commercial species: density and biomass indexes. Maps of distribution, abundance and biomass. Size frequency distributions.

Assessment of stocks (Give assessment of stocks, if any, by using surveys data):
Stock assessment of sole has been presented at the GFCM-SAC Demersal Working Group and updated every year, using commercial data tuned with survey data.

References:

Holden M.J. and Raitt D.F.S. 1974. Manual of Fisheries Sciences. FAO Fish. Tech. Pap. 115, Rev. 1: 214 pp.

APPENDIX 3

Adoption of a common protocol for MEDiterranean Acoustic Surveys (MEDIAS)

in the framework of European Data Collection Regulation

Athens 25–26 February 2008

Steering Committee Report

The current workshop took place in Athens between 25 and 26 /2/2008 following the establishment of a MEDIAS Steering Committee in the Regional Coordination Meeting (RCM) for the Mediterranean held in Cyprus in May 2007. The aim of the workshop was to adopt a common Protocol for a Pan-Mediterranean Pelagic survey (MEDIAS) within the framework of the DCR, according to the recommendation of the RCM and the decision of the Liaison Meeting.

Participants in the meeting were representatives from all European Union countries involved in acoustic surveys in the Mediterranean (i.e. Greece, Italy, Slovenia, Malta, France and Spain) and the facilitator for the Working Group on Small Pelagic Species (Sub-Committee for Stock Assessment) of the GFCM (See list of participants ANNEX I).

During the first day of the meeting, after the welcome to participants by the Director of the Institute of Marine Biological Resources of the Hellenic Centre for Marine Research, Dr. C. Papaconstantinou, the participants adopted the agenda of the Workshop. (See agenda of the meeting ANNEX II)

Dr. Antonio Cervantes from the Directorate General for Fisheries and Maritime Affairs presented the background and the status of the Pan-Mediterranean Pelagic Survey concerning the recommendations of the two Regional Coordination Meetings for the Mediterranean (held in Malta and Cyprus), the decisions of the Liaison Meeting and the suggestions of the SGRN of STECF regarding the incorporation of the Pan-Mediterranean Pelagic Survey in the new Data Collection Regulation.

At the beginning of the discussion, the description of the methodology followed in each area up to now was presented and the different protocols were discussed in a comparative way, in order to highlight the similarities and differences among them. During this session, a first discussion on the harmonization of the different protocols has been done. The methodology and protocols for each survey is presented in the following Table 1.

Table 1. Acoustic parameters used by the Institutions in the surveys in the Mediterranean.

Parameter	Gulf of Lions (IFREMER)	Aegean Sea (HCMR)	Adriatic Sea (ISMAR – FRIS)	Sicilian channel (IAMC-MCFS)	Iberian coast (IEO)
Survey Identity					
Country	France	Greece	Italy & Slovenia	Italy & Malta	Spain
Geographic area	Gulf of Lions	northern Aegean Sea	Western part of the Adriatic Sea and Slovenia waters (in 2001 and 2007)	G.S.A. 16 (1998-2007) G.S.A 15 (2004-2007)	Spanish Mediterranean Sea (continental shelf). GSA 01 and GSA 06
Area covered	3 300 NM^2	9 000 NM^2	Italy: 15 000	2 700 NM^2	8 829 NM^2

Parameter	Gulf of Lions (IFREMER)	Aegean Sea (HCMR)	Adriatic Sea (ISMAR – FRIS)	Sicilian channel (IAMC-MCFS)	Iberian coast (IEO)
			NM^2 Slovenia: 117 NM^2		
Days at sea	20	40	40 + 1	10	31
Indicative - available time series of acoustic surveys	Since 1995	Since 1995 with gaps	Since 1976	Since 1998	Since 1990
Vessel	RV "L'EUROPE	RV "PHILIA"	RV "Dallaporta"	RV "Dallaporta"	RV "CORNIDE DE SAAVEDRA"
Survey design					
Month/Period of the year that the survey take place	July	June	June to September	June to September	November and December, anchovy recruitment period in the area
Transects design	perpendicular to bathymetry	perpendicular to bathymetry Zig-zag inside the gulfs	Zig-zag transects alternately parallel	perpendicular to bathymetry	perpendicular to the coast
Inter-transect distance (NM)	12	10	10	4-8	8 in wide continental shelf; 4 in narrow shelf
Time of day in which acoustic data are collected	Daytime	Daytime	Fulltime	Full time	Daytime.
EDSU (nm)	1	1	1	1	1
Bottom depth (min, m)	15	10	10	10	30
Echo sounding depth (min, m)	5	5	7	7	5
Echo sounding depth (max, m)	400	230	250	300	200-220
Fishing gear	Pelagic trawl	Pelagic trawl	Pelagic trawl	Pelagic trawl	Pelagic trawl
Target species	Anchovy and Sardine	Anchovy and Sardine	Anchovy, sardine and sprat	Anchovy and Sardine	Anchovy and Sardine
Other species	All pelagics	Horse mackerel, mackerel, gilt sardine	Horse mackerel, chub mackerel, gilt sardine, etc.	Mackerel, Sardinella Horse mackerel	Horse mackerel, Mediterranean horse mackerel, blue jack mackerel, gilt

Parameter	Gulf of Lions (IFREMER)	Aegean Sea (HCMR)	Adriatic Sea (ISMAR – FRIS)	Sicilian channel (IAMC-MCFS)	Iberian coast (IEO)
					sardine, bogue. Atlantic mackerel
Echo sounder parameters					
Echo sounder	EK500 puis ER 60	Biosonic DTX	Simrad EK500	Simrad EK-60	Simrad EK60 since 2006. Previous years Simrad EK500
Frequency for assessment (kHz)	38	38	38	38	38
Complementary frequencies (kHz)	120,	120	120, 200	120, 200	18,70,120,200 (since 2006)
Pulse duration (ms)	1.0	0.5	1, 1, 0.6	1	1
Threshold for acquisition (db)	-80	-80	-70	No limit with the raw data	No limit with the raw data
Threshold for assessment (db)	-60	-70	-70	-60	-60
Calibration (No per survey)	1 per survey	1 or 2 per survey	1 per survey	1 per survey	1 per survey
Applied TS (db) [20Log L(cm)]					
Sardine	-71.0	-72.6	-72.5	-70.51	-72.6
Anchovy 20Log L(cm)	-71.2	-71.2	-74.6	-75.3	-72.6
Horse mackerel	-68.7			-71.2	-68.7
Mackerel	-70			-71.2	-84.9
Sprat	-71.2		-71.7	-	
Spanish Mackerel	-70				
Blue whiting				-	
Mackerel (*S. japonicus*)					-68.7
Bogue					- 67
Sardinella	-71.2			-71.2	-72.6
Abundance estimates					
Software for analysis	Movies	SonarData Echoview	SonarData Echoview, GFRDBS (CNR – ISMAR software)	SonarData Echoview	SonarData Echoview
File format	*.hac	*.ev, *.hac	*.hac, *.ev,	*.hac, *.raw,	*.ev, *.hac,

Parameter	Gulf of Lions (IFREMER)	Aegean Sea (HCMR)	Adriatic Sea (ISMAR – FRIS)	Sicilian channel (IAMC-MCFS)	Iberian coast (IEO)
			*.xls, *.txt, *.ek5	*.bot, *.idx	*.raw
Inter - transect	Acoustic energy in the inter-transect track not taken into account	Acoustic energy in the inter-transect track not taken into account	Acoustic energy in the inter-transect track not taken into account	Acoustic energy in the inter-transect track not taken into account	Acoustic energy in the inter-transect track not taken into account
Echo partitioning into species	Echo trace classification based on echogram visual srcutinisation (Direct allocation by type of structure and allocation on account of representative fishing station)	Echo trace classification based on echogram visual srcutinisation (Direct allocation and allocation on account of representative fishing station)	Frequencies comparison, pelagic trawl, TS analysis when needed	Visual analysis of echogram and from results of control trawl	Allocation on account of representative fishing station (sometimes direct allocation)
Abundance indices estimated	Total and by zone pelagic biomass and biomass per species, Total and by zone pelagic number and number per species, Pelagic biomass and biomass per species,Biomass per mile, Numbers per species per mile	NASC per EDSU: Total & per species Total biomass Biomass per mile Biomass per species Number per species Numbers/species/age Biomass/species/age	Total pelagic biomass and biomass per species (possible NASC per EDSU, total pelagic biomass per mile)	NASC per ESDU, Total Biomass, Biomass per age	NASC per EDSU, Biomass (tons) Abundance (No individuals) by species and by length.
Fish sampling					
Codend	12 mm	8 mm	9 mm of mesh side; 18 mm of mesh size	9 mm of mesh side; 18mm of mesh size	20mm
Vessel speed during fishing	3.5-4.5 kn	3.5-4 kn	3.5-4 kn	3.5-4 kn	3.5-4 kn
Time of day	Daytime	Daytime / night time	Daytime/night time	Daytime / night time	Daytime for echo traces identification / night time for evaluation (when the species are dispersed

Parameter	Gulf of Lions (IFREMER)	Aegean Sea (HCMR)	Adriatic Sea (ISMAR – FRIS)	Sicilian channel (IAMC-MCFS)	Iberian coast (IEO)
					near the surface).
No of hauls (min-max)	17-37	20-37	40-50	20-25	50-70
Sampling intensity	as many as possible, when echo traces are visible, to • ensure identification of echo traces • obtain length structure of the population • obtain species composition • get biological samples	as many as possible, when echo traces are visible, to • ensure identification of echo traces • obtain length structure of the population • obtain species composition • get biological samples	as many as possible, when echo traces are visible, to • ensure identification of echo traces • obtain length structure of the population • obtain species composition • check length-weight equation	Depending on bottom type and time of day, as many as possible (generally 4 per day), targeting an uniform distribution	as many as possible, when echo traces are visible, to • ensure identification of echo traces • obtain length structure of the population • obtain species composition • check length-weight equation
Biological and environmental parameters					
Fish measurements	Total length or Fork length for Scomber spp Total weight by length classes Age in recent years for anchovy and sardine	Total length Total weight Eviscerated weight Gonad weight Stage of maturity Age	Total length Total weight Sex Stage of maturity Age	Basic: individual Total Length, Total Weight by length classes Other: Eviscerated weight, Gonad weight, Stage of maturity, Age	Total length Total weight Sex Stage of maturity Age
Oceanographic Parameters taken in stations: CTDs	CTD:T, S,	CTD: T, S, Fluor., par, plankton	CTD: T, S, Fluor., turbidity, oxygen	CTD: T, S, Fluor., par, plankton	
Oceanographic. Parameters taken continuously	T, S, (birds and mammals opportunistic)	mammals			T, S, CUFES, Birds

According to the SGRN recommendation ('Direct surveys' meeting, 12-16/2 2007, Brussels), each one of the surveys included in the Pan-Mediterranean survey should give information for management decisions, providing input to assessment of stocks which are managed internationally. Each survey should provide:

i. Information on important age groups
ii. Information on biological parameters
iii. Information on trends

In a next step the working group agreed on the issues to discuss in the framework of the protocol of the Pan-Mediterranean acoustic survey concerning the acoustic methodology, the biological parameters collected in each survey and the reporting of the data.

The working group discussed issue by issue and agreed on the common protocol that will be followed in the MEDIAS survey. During the discussion the participants from IFREMER presented conclusions adopted by the coordinated survey for anchovy in the Atlantic (Bay of Biscay). So, the protocol of the respective survey in the Bay of Biscay, was taken into consideration in order to facilitate future collaboration between the two surveys.

The participants concluded that in this first approach for the harmonization of the acoustic surveys, in order to form and adopt a common protocol, the WG had to consider that:
a) each survey covers geographical areas with different sizes (see Table 2),
b) each country uses different research vessels and equipments and
c) the surveys are highly dependant on research vessel availability.
All these can cause differsification in certain aspects of the methodology among areas which are not expected to affect the requirements of the survey and the comparability of the results.

The workshop participants agreed the following:

1) Survey Identity. The geographical areas that will be covered by MEDIAS and the days at sea are presented in Table 2.

Table 2. The size of the geographical area that will covered by each Institute.

Country	Institute	Geographical area	Size of area	Duration of survey (days)
Greece	HCMR	Aegean Sea	9 000 NM^2	40
France	IFREMER	Gulf of Lions	3 300 NM^2	20
Slovenia	FRIS	Adriatic Sea (Slovenia)	117 NM^2	1
Italy	CNR-ISMAR	Adriatic Sea (Italy)	15 000 NM^2	40
Italy - Malta	CNR- IAMC	Sicily channel	2 700 NM^2	12
Spain	IEO	Iberian coast	8 829 NM^2	31

In the report to the DCR, the geographical area, the size of the area and the days at sea, as well as the vessel characteristics should be reported by each country.

Survey timing was defined after a detailed discussion taking into account:

1) The geographical boundaries of different stocks. It is known that three genetically different, major anchovy stocks exist in the Mediterranean: the north-western Mediterranean stock (mainly shared between Spain and France), the Adriatic Sea stock (mainly shared between Italy, Slovenia and Croatia) and the Aegean Sea stock;
2) The existing time series of data in each area. The historical time series are of great importance because the temporal (interannual) trend in biomass estimates is useful in assessment and the setting of reference points. Any revision on the methodology and the estimation procedures should go back and revise the past estimates.
3) The target of the survey according to the priorities that have been set by each country. Surveys that are being held during the 2nd -3rd quarter of the year are targeting the spawning stock of anchovy and surveys that are being held during the 4th quarter are targeting the anchovy recruitment.
Based on these it has been agreed that:
A) The MEDIAS will cover the major anchovy stocks during the spawning period (June to September, 2nd -3rd quarter).
B) The spawning stock of the shared anchovy stock in the north western Mediterranean will be fully covered by a southern extension of the Gulf of Lions survey in summer.
C) The valuable time series of the Spanish recruitment survey should be continued.

2) Echo sounder parameters.

In all areas a split beam echo–sounder will be used for the echo–sampling. The angle beam of the echo–sounder will be reported. The frequency that will be used for assessment was agreed to be the 38 kHz, while complementary frequencies will be the 120 and/or 200 kHz, depending on the research vessel used. The pulse duration will be 1 ms, the threshold for data acquisition will be at -80 dB and the ping rate will be set as fast as possible depending on depth, in order to assure good echo discrimination.

A detailed discussion took place, regarding the number of calibrations per survey, based also on the experience from the survey in the Bay of Biscay. It was agreed that one calibration of echo-sounder will be held per survey based on the procedure described in the manual of each echosounder and by Foote *et al.* (1987). The workshop discussed and concluded on a number of calibration parameters and results that should be included as a minimum in the survey report. These are tabulated in Annex III.

3) Survey Design.

The working group discussed in detail the sampling design followed in each region taking into account the peculiarities in the topography of each area. It was agreed that two aspects should be considered in choosing the direction and the type of transects (i.e. parallel or zig zag). Transects preferably run perpendicular to the greatest gradients in fish density, which is often related to gradients in bottom topography, meaning that transects will normally run perpendicular to the coastline/bathymetry. In cases that topography is complex like in the case of semi-closed gulfs transect design could be decided otherwise. The survey design in each area should be reported. The inter-transect distance should not exceed 12 NM based on preliminary studies of the spatial structure characteristics of small pelagics in the Mediterranean Sea.

Vessel speed during acoustic sampling should be adjusted depending on vessel noise as set by the ICES-WGFAST (WGFAST 2006). The working group agreed that vessel speed

of 8-10 knots in adequate for a split beam echo sounder of 38kHz. At higher speeds, problems might encounter with engine noise or propeller cavitations. The noise of the vessel in different speeds should be reported.

It was strongly recommended that if species identification depends on recognition of schools on the echogram the survey will have to take place only during day-time, being interrupted during periods in the 24-hour cycle when the schools disperse. Otherwise, if available survey time does not permit this, echo sampling might be extended. In this case, echo allocation into species will not be based on school shape identification and justification should be given in the report that this does not affect the accuracy of the estimations

The working group agreed that transects should be extended as close to the coast as possible in order to obtain the best estimation for sardine. Because each survey uses research vessel of different size that sets a limit to the minimum distance from shore, it was suggested that acoustic sampling should be held at least from 20 m bottom depth, or less if possible. In each case the minimum bottom depth of each survey should be reported. The maximum echo-sounding depth should be 200 m and the minimum echo-sounding depth should be reported as it depends on the draught of the research vessel.

The working group decided that a workshop should be held in the framework of MEDIAS focusing on:

- The optimization of survey design. In this workshop, existing survey designs will be reviewed, area peculiarities (e.g. size of the area, topography, survey duration) will be taken into account and results from a geostatistical analysis applied to historic acoustic data from different areas in the Mediterranean Sea will be evaluated for survey design optimization, taking into account the spatial characteristics of small pelagic fish aggregations.

4) Acoustic methodology

The Elementary Distance Sampling Unit (EDSU) for echo integration will be 1 NM.

The acoustic energy in the inter-transect tracks will not be taken into account.

The working group agreed that for compatibility reasons all the data will be saved with a threshold for acquisition at -80 dB.

As the main objective is the optimum discrimination between fish and plankton, the threshold for assessment was set at -70 to -60 dB, depending
a) on noise level (-60 dB in case of high noise)
b) the peculiarities of each area regarding school morphology and plankton density (-60 when plankton is dense, but -70 dB when small schools dominate the area)
c) echo-sounder features
d) whether echo integration is based on school echo integration (-70 dB) or stratum integration (-60 dB) and
e) time of day that echo acquisition is carried out.

The working group concluded that the target species of the survey will be anchovy (*Engraulis encrasicolus*) and sardine (*Sardina pilchardus*).

The echo partitioning into species will be based on echogram visual scrutinisation. This will be done either by direct allocation based on the identification of individual schools and/or allocation on account of representative fishing stations.

Regarding the Target Strength (TS) equation that should be applied in each species, a detailed discussion took place among the working group participants. The possibility to apply in MEDIAS the target strength used for anchovy and sardine in the Bay of Biscay for compatibility reasons has been discussed. Dr. J. Masse informed the participants that the target strength used in the Bay of Biscay is currently under revision and no common target strength equation is applied. Furthermore, according to the biological background of target strength and other recent scientific findings, the target strength is likely to vary among stocks, areas and seasons. In the Mediterranean school characteristics vary largely among areas and the working group concluded to maintain, for the time being, the historical Target Strength equations used in each area for the target species. In each case, the TS equation applied should be reported. The application of new TS equations in the Mediterranean, common for all areas, would require the revision of the past estimates of the existing time series which would require time and effort. Such common TS equations must derive from *in situ* estimations of TS, preferably based on acoustic data from the Mediterranean Sea.

For this purpose the working group decided that a workshop should be held in the framework of DCR and MEDIAS coordination meetings on:

"Harmonisation and optimisation of acoustic methodology". In such a workshop issues regarding the estimations of common TS equations for each target species would be decided taken into consideration a) literature information and b) the application of different TS equations to existing raw acoustic data and the subsequent comparison of the results. Furthermore, all participants agreed to collect additional appropriate data during the 2008 survey for in situ TS estimations in each area.

Regarding acoustic data processing for the assessment of the target species, the use of Movies and / or Echoview software for the analysis and estimation of abundance has been agreed. For compatibility reasons, all data should be available into a common *.hac file format. Raw data will be stored within the responsibility of each country. The common *hac format will be also available for the requirements of the Data Collection Regulation (DCR).

5) Abundance indices.

Regarding stock assessment and the abundance indices that will be estimated and reported in the DCR within the framework of MEDIAS, the following have been agreed:

The target species of MEDIAS for assessment purposes will be anchovy (*Engraulis encrasicolus*) and sardine (*Sardina pilchardus*). For these two species, abundance estimates should be provided in the report. In addition, abundance indices could be given

for all pelagic species in the community which are important in each area. Regarding these non–target species, Length– Weight relationships and Length frequency distributions will be provided.

The abundance indices that will be estimated by all MEDIAS participants and will be provided in the DCR report should include both NASC (independent from TS equations) and Biomass estimations and are listed below :

1. Total fish NASC per EDSU
2. Target Species NASC per EDSU
3. Biomass per EDSU per target species
4. Numbers per EDSU per target species
5. Number/age/Target species
6. Biomass/age/Target species

In addition it has been agreed that in the report for the DCR the following items will also be provided:

1. Point maps of total fish NASC
2. Point maps of target species in NASC/mile; biomass/mile.
3. Catch compositions of the hauls: pie-charts indicating biomass per species

Furthermore, the need for a common database has been discussed. The fields of a common acoustic database will be established by the MEDIAS participants in future meetings. The need for collaboration with respective surveys in the Atlantic (bay of Biscay) has also been discussed and agreed. In the framework of this collaboration, information and experience will be exchanged.

According to the standard methodology followed in acoustics, species allocation of the acoustic records is impossible if no trawl information is available. Fish sampling is required to collect representative samples of the fish population in order to identify echoes. The main objectives of trawling in an acoustic survey are a) to obtain a sample from the school or the layer that appears as an echo trace on the sounder for echo trace identification and allocation into species and b) to get biological information and evaluation of the size distribution of each species. Therefore, the trawling gear used is of no importance as long as it is suitable to catch a representative sample of the target-school or layer.

In addition, the sampling intensity can not be pre-determined because of the objectives of the acoustic survey *per se*. The sampling intensity in an acoustic survey depends on the size of the area covered, the frequency of occurrence of different echo traces in the sounder and the spatial characteristics of fish aggregations. In addition, the geographical coordinates or the sampling depth of the hauls can not be pre-determined because pelagic species execute extended horizontal and vertical movements. Characteristics of schools might change depending on the area, the time period or even the fishing pressure. Therefore, the sampling strategy has to be adaptive depending on the school characteristics per area, time period and year.

Taking into account, in the framework of a common protocol, the different research vessels used and the peculiarities of each area the following points have been agreed:

- A pelagic trawl will be used in all areas for sampling,
- Maximum codend mesh size should be equal to 24 mm (side of mesh equal to 12 mm). The codend and trawl characteristics used in each area will be reported.

- The duration of hauls should be no less than 30 min for unknown echoes and when multi-species, scattered echoes are being fished.
- Vessel speed during fishing should be 3.5–4.5 knots
- The total number of hauls must be adequate in order to a) ensure identification of echo traces; b) obtain a representative length structure of the population for each target species; c) obtain species composition and biological samples.

It was agreed that the following biological and oceanographic parameters will be collected:

1) Since the environmental parameters are very important for small pelagic fish, a minimum of 3 CTD stations should be held per transect or over a grid of stations with density adequate to describe the oceanography of the surveyed area. The minimum set of parameters that should be measured in the water column will be temperature and salinity.
2) Regarding the biological parameters, the composition of the pelagic community should be reported as Biomass per species and Number per species for each haul.

In addition, the Length frequency distribution (0.5 cm) should be estimated from a representative sample for each species per haul. Total length will be measured for all species. The size of each sample should be at minimum that described in the respective protocol of the Data Collection Regulation (DCR). It was also agreed that the Length–Weight relationship for all species will be estimated and reported.

Furthermore, a representative Age Length Key (ALK) that will be used for the conversion of abundance indices to abundance-at-age should be obtained for the target species, anchovy and sardine. The mean length-at-age will also be estimated and reported.

Table 3. Summary of the common protocol for the Pan-MEditerranean Acoustic Survey (MEDIAS).

Survey Identity	
Geographic area	Should be reported
Size of Area covered	Should be reported
Days at sea	Should be reported
Vessel	Should be reported
Period of survey	A) The survey will cover the major anchovy stocks during the spawning period (summer) B) The spawning stock of the shared anchovy stock in the north western Mediterranean will be fully covered by a southern extension of the Gulf of Lions survey in summer. C) The valuable time series of the Spanish anchovy recruitment survey should be continued.
Echo sounder parameters	
Echo sounder	Split beam
Frequency for assessment (kHz)	38
Complementary frequencies (kHz)	120, 200 depending on availability.
Pulse duration (ms)	1 ms
Beam Angle	Should be reported
Ping rate	Maximum depending on depth
Calibration (No per survey)	A calibration report should be given (Annex III)

	One calibration per survey
Threshold for acquisition (dB)	-80
Threshold for assessment (dB)	-70 to -60 (reported)
Survey design	
Transects design	Perpendicular to the coastline/bathymetry, otherwise depending on topography The survey design should be reported.
Inter-transect distance (NM)	Max <=12 NM.
Time of day for acoustic sampling	Day time. Otherwise, in cases of time limitation and if echo allocation into species does not depend on school shape identification (in this case justification of the accuracy of results will be presented)
EDSU (nm)	1 NM
Distance from the coast according to the Bottom depth (min, m)	At least 20 m bottom depth, minimum 10 m of echo-sampling.
Echo sounding depth (min, m)	Depending on the draught of RV. Should be reported
Echo sounding depth (max, m) recording.	200 m
Vessel speed	8-10 knots
Software for analysis	Movies and/or Echoview
File format	*.hac
Inter - transect	Acoustic energy in the inter-transect track will not be taken into account
Applied TS (dB)	Keep historical TS equations.
Echo partitioning into species	Echo trace classification based on echogram visual scrutinisation • Direct allocation and • allocation on account of representative fishing station
Abundance estimates	
Abundance indices estimated	• Total fish NASC per EDSU • Target Species NASC per EDSU • Biomass per EDSU per target species • Numbers per EDSU per target species • Number/age/Target species • Biomass/age/Target species
Maps and charts	• Point maps of total fish NASC • Point maps of target species in NASC/mile; biomass / mile. • Catch compositions of the hauls, pie-charts indicating biomass per species
Common database	Issues of common database will be established by the participants Discussed the possibility to collaborate with the Atlantic survey
Fish sampling	
Target species	Anchovy, Sardine
Other species	Biological data for all species in the pelagic community: Length-Weight relationships; Length distribution.
Fishing gear	Pelagic trawl, Codend and trawl characteristics should be reported. Max Codend mesh size = 24 mm (side of mesh = 12 mm).
Duration of haul	Minimum 30 min for unknown echoes
Vessel speed during fishing	3.5 – 4.5 knots
Sampling intensity, no of hauls	The total number of hauls has to be adequate to • ensure identification of echo traces

	• obtain length structure of the population • obtain species composition • get biological samples
Biological and oceanographic parameters	
Length	All species: Total length (TL), Length frequency distribution (0.5 cm)
Age readings, ALK	Sardine, Anchovy: Mean TL at age Sample sizes according to the new DCR.
Length - Weight	All pelagic species
Oceanographic. Parameter (CTD)	Minimum 3 CTD per transect or grid of stations with density adequate to describe the oceanography of the area. Minimum variables: T, S

ANNEX I

List of participants

Name	e-mail	Country	
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ANNEX II

Agenda of the MEDIAS meeting
Adoption of a common protocol for Mediterranean Acoustic Surveys
in the framework of European Data Collection Regulation
Athens 25–26 February 2008

Monday 25/2/2008
9:00 - 9:20: Welcome of the participants. Definition of the agenda.
9:20 – 10:50: Presentation by Dr. Antonio Cervantes of the background and status of the Pan-Mediterranean Research Survey.
9:50 – 10:00: Questions - discussion
10:00 - 10:20: Presentation of the protocols followed by each survey up to now (Table I).
10:20 – 11:00: Presentation of the protocols followed by each survey up to now (Table I). Definition of the list of issues that should be discussed and included in the common protocol.
11:00 – 11:20: Coffee break
11:20 – 13:00: Definition of the list of issues that should be discussed and included in the common protocol. (Continued from previous)
13:00 – 15:00: Lunch break
15:00 – 16:30: Discussion on the common protocol
16:30-16:50: Coffee break
16:50 – 19:00: Discussion on the common protocol (Continued from previous)
Tuesday 26/2/2008
9:00 – 11:00: Discussion and conclusion on the common protocol(Continued from previous)
11:00 – 11:30: Coffee break
11:30 – 13:00: Discussion and conclusion on the common protocol
13:00 – 15:00: Lunch break
15:00 – 16:30: Adoption of the report
16:30-16:50: Coffee break
16:50 - 18:00 Adoption of the report
18:00 End of meeting

ANNEX III

Calibration report

Calibration report	
Frequency (kHz)	
Echosounder type	
Transducer serial no.	
Vessel	
Date	
Place	
Latitude	
Longitude	
Bottom depth (m)	
Temperature (^{o}C) at sphere depth	
Salinity (psu) at sphere depth	
Speed of sound (ms^{-1})	
TS of sphere (dB)	
Pulse duration (s)	
Equivalent 2-way beam angle (dB)	
Receiver delay (s)	
Default Sv transducer gain	
Iteration no.	
Time	
Range to half peak amplitude (m)	
Range to sphere (m)	
~~Theoretical NASC (m^2 nm^{-2})~~	
~~Measured NASC (m^2 nm^{-2})~~	
Calibrated Sv transducer gain	
Delta G=New gain-Old gain	
Correction factor for pre-calibration NASCs on EK	
Correction factor for pre-calibration Sv's	
Default TS transducer gain	
Time	
Measured TS	
Calibrated TS gain	