Report of the 5th Meeting of the *Mediterranean Planning Group for Methodological Development*

(PGMed)

Data Collection Framework (DCF)
Council Regulation (EC) No 199/2008
Commission Decision 2010/93/EU

Vienna, 7th – 11th February 2011

Report

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Background

During the 2006 Regional Coordination Meeting for the Mediterranean area (Malta, 26th -28th April 2006, 3rd RCMMed) the creation of a Planning Group for the Mediterranean (Mediterranean Planning Group for Methodological Development - PGMed) was recommended, as a forum similar to the ICES Planning Group on Commercial Catch, Discards and Biological Sampling (PGCCDBS) for discussing methodological matters related to data collection referring particularly to the Mediterranean area.

During the 4th RCMMed (Cyprus, 2007) it was clarified that PGMed operates under the umbrella of the RCMMed, and it was recommended that the chairman of the PGMed participates to the RCMMed. The need for maintaining strong links with the General Commission for Fisheries in the Mediterranean (GFCM) and the PGCCDBS was strongly supported.

Following the proposal of the 2006 3rd Liaison Meeting, the first meeting of the PGMed was arranged to take place jointly with the 2007 PGCCDBS meeting in Malta (5th – 9th March 2007).

Although organized in an autonomous group, it was agreed among all scientists that the contact and cooperation between the Mediterranean area and the ICES area (PGCCBDS) should be promoted and maintained.

The link between the two planning groups (PGs) will be maintained through:
(i) the organization of parallel meetings;
(ii) the organization of joint plenary for generic issues;
(iii) the organization of joint workshops.

Introduction

The 5th Meeting of the Mediterranean Planning Group for Methodological Development (PGMed) was arranged in parallel with the ICES Planning Group of Commercial Catches, Discards and Biological Sampling (ICES PGCCDBS) in Vienna 7th-11th February 2011. The conduction of parallel meetings between the two groups ensured the link between them.

The 2011 PGMed was attended by 6 Mediterranean and Black Sea Member States (Spain, France, Italy, Malta, Greece, and Bulgaria). Unfortunately for this meeting 3 Mediterranean Member states including Cyprus, Slovenia, and Romania were not represented during the meeting. The list of participants is provided in Annex I.

The Group revised and approved the Terms of Reference (ToRs, Annex II) proposed during the 2010 RCM Mediterranean & Black Sea (Report of the RCMMed&BS 2010).

The agenda was planned in order to have a common plenary of both PGMed and PGCCDBS groups during the first day and part of the second, and separate sessions dealing with the specific Mediterranean ToRs in the remaining days. On Friday, a new common plenary of both PGMed and PGCCDBS was carried out. A summary of the issues addressed during the common session, also relevant to the Mediterranean, are reported in Annex III, as listed below:

- Workshop on Age Reading of Mackerel [WKARMAC]
- Eel otolith exchange
- Sardine otolith exchange
- Blue whiting otolith exchange
- European Age Readers Forum (EARF)
- Changes made to the PGCCDBS Guidelines for Otolith Exchanges and Workshops
- Outcomes from the Workshop on Sexual Maturity Staging of Cephalopods [WKMSCEPH]
- Incorporation of maturity data in stock assessment
- COST-FRESH Network
- Review of PGCCDBS Guidelines for Maturity Workshops during the 2011 PGCCDBS meeting
- NESPMAN project
- WebGR implementation
- Further development and wider use of the Common "Open Source" Tool (COST) for assessing the accuracy of the biological data and parameters estimates collected for stock assessment purposes

ToR 1) Review table for the collection of metier and stock related variables for large pelagics on the basis of 2009 (2010 if available) data

Following the recommendation made by the RCMMed&BS 2010, PGMed continued the exercise carried out during PGMed 2010 for computing the sampling figures for metier and stock related variables for large pelagics, based on the most recent available data (2009). Total numbers to be sampled at regional level well agreed by RCMMed&BS 2009 and calculated based on 2008 data.

Metier-related variables (length sampling)

The minimum number of fish to sample for length by Member State (MS) was updated and new tables were proposed. They were computed for bluefin tuna *Thunnus thynnus* (Table 1.1), swordfish *Xiphias gladius* (Table 1.2), albacore *Thunnus alalunga* (Table 1.3), dolphinfish *Coryphaena hippurus* (Table 1.4) and bonito *Sarda sarda* (Table 1.5).

Table 1.1. Production and minimum number of specimens (N) of bluefin tuna (*T. thynnus*) to be sampled for metier-related variables by MS following the regional sampling approach.

Bluefin tuna	**Purse Seine**		**Longline**		**Handline/traps**	
MS	**Production (t)**	**N to sample PGMed 2011**	**Production (t)**	**N to sample PGMed 2011**	**Production (t)**	**N to sample PGMed 2011**
France	25	21	170	146	0	0
Malta	1682	1443	209	179	0	0
Spain	3694	3166	590	506	4	0
Cyprus	0	0	2	0	0	0
Italy	97	83	850	730	58	50
Greece	615	527	109	93	66	60
Slovenia	0	0	0	0	0	0
Total	**6113**	**5240**	**1930**	**1654**	**128**	**110**

Table 1.2. Minimum number of specimens (N) proposed by PGMed 2010, N proposed in the National Programmes 2011-2013, total landings (2009) and their proportion and minimum number of specimens of swordfish (*X. gladius*) to be sampled for metier-related variables by MS following the regional sampling approach.

Swordfish	**N to sample PGMed 2010**	**N proposed in NP (2011-2013)**	**Landing 2009 (t)**	**Landings 2009 (%)**	**N to sample PGMed 2011**
Cyprus	13	180	38	0.4	0
Spain	398	1500	2001	23.6	359
France	3	0	10.0	0.1	0
Greece	188	0	1132	13.4	210
Italy	864	864	5016	59.3	898
Malta	49	49	266	3.1	48
Slovenia	0	0	0	0.0	0
Total	**1515**	**2593**	**8463**	**100**	**1515**

Table 1.3. Minimum number of specimens (N) proposed by PGMed 2010, N proposed in the National Programmes 2011-2013, total landings (2009) and their proportion and minimum number of specimens of albacore (*T. alalunga*) to be sampled for metier-related variables by MS following the regional sampling approach.

Albacore	N to sample PGMed 2010	N proposed in NP (2011-2013)	Landing 2009 (t)	Landings 2009 (%)	N to sample PGMed 2011
Cyprus	47	400	223	6.8	39
Spain	53	1000	205	6.3	37
France	0	0	0.0	0.0	
Greece	3	200	116	3.5	20
Italy	470	470	2724	83.3	478
Malta	1	0	1	0.0	0
Slovenia	0	0	0	0.0	0
Total	**574**	**2070**	**3269**	**100**	**574**

Table 1.4. Minimum number of specimens (N) proposed by PGMed 2010, N proposed in the National Programmes 2011-2013, total landings (2009) and their proportion and minimum number of specimens of dolphinfish (*C. hippurus*) to be sampled for metier-related variables by MS following the regional sampling approach.

Dolphinfish	N to sample PGMed 2010	N proposed in NP (2011-2013)	Landing 2009 (t)	Landings 2009 (%)	N to sample PGMed 2011
Cyprus	0	0	0	0.0	0
Spain	21	0	34	1.4	0
France	0	0	0.0	0.0	0
Greece	0	0	0	0.0	0
Italy	1336	1336	2025	82.5	1259
Malta	143	143	395	16.1	241
Slovenia	0	0	0	0.0	0
Total	**1500**	**1479**	**2454**	**100**	**1500**

Table 1.5. Minimum number of specimens (N) proposed by PGMed 2010, N proposed in the National Programmes 2011-2013, total landings (2009) and their proportion and minimum number of specimens of bonito (*S. sarda*) to be sampled for metier-related variables by MS following the regional sampling approach.

Bonito	N to sample PGMed 2010	N proposed in NP (2011-2013)	Landing 2009 (t)	Landings 2009 (%)	N to sample PGMed 2011
Cyprus	0	0	0	0.0	0
Spain	67	150	247	13.2	51
France	5	0	19.0	1.0	0
Greece	86	30	476	25.3	89
Italy	194	194	1131	60.2	213
Malta	1	0	5	0.3	0
Slovenia	0	0	0	0.0	0
Total	**353**	**374**	**1878**	**100**	**353**

Stock related variables

The minimum number of fish to sample for stock related variables (age, weight, sex and maturity) for large pelagic per MS for regional sampling was updated and new tables have been proposed. When the number of individuals to sample by MS was low, they were distributed among other countries in order to avoid useless sampling. Numbers were computed for for bluefin tuna *T. thynnus* (Table 1.6), swordfish *X. gladius* (Table 1.7), albacore *T. alalunga* (Table 1.8), dolphinfish *C. hippurus* (Table 1.9) and bonito *S. sarda* (Table 1.9).

Table 1.6. Production and minimum number of specimens (N) of bluefin tuna (*T. thynnus*) to be sampled for stock-related variables by MS following the regional sampling approach.

Bluefin tuna	**Purse Seine**		**Longline**		**Handline/traps**	
MS	**Production (t)**	**N to sample PGMed 2011**	**Production (t)**	**N to sample PGMed 2011**	**Production (t)**	**N to sample PGMed 2011**
France	25	0	170	22	0	0
Malta	1682	220	209	27	0	0
Spain	3694	485	590	77	4	0
Cyprus	0	0	2	0	0	0
Italy	97	13	850	112	58	8
Greece	615	80	109	14	66	9
Slovenia	0	0	0	0	0	0
Total	**6113**	**798**	**1930**	**252**	**128**	**17**

Table 1.7. Minimum number of specimens (N) proposed by PGMed 2010, N proposed in the National Programmes 2011-2013, total landings (2009) and their proportion and minimum number of specimens of swordfish (*X. gladius*) to be sampled for stock-related variables by MS following the regional sampling approach.

Swordfish	**N to sample PGMed 2010**	**N proposed in NP (2011-2013)**	**Landing 2009 (t)**	**Landings 2009 (%)**	**N to sample PGMed 2011**
Cyprus	0	0	38	0.4	0
Spain	262	300	2001	23.6	240
France	0	0	10.0	0.1	0
Greece	124	125	1132	13.4	135
Italy	569	569	5016	59.3	592
Malta	43	43	266	3.1	31
Slovenia	0	0	0	0.0	0
Total	**998**	**1037**	**8463**	**100**	**998**

Table 1.8. Minimum number of specimens (N) proposed by PGMed 2010, N proposed in the National Programmes 2011-2013, total landings (2009) and their proportion and minimum number of specimens of albacore (*T. alalunga*) to be sampled for stock-related variables by MS following the regional sampling approach.

Albacore	N to sample PGMed 2010	N proposed in NP (2011-2013)	Landing 2009 (t)	Landings 2009 (%)	N to sample PGMed 2011
Cyprus	29	29	223	6.8	25
Spain	30	50	205	6.3	29
France	0	0	0.0	0.0	
Greece	0	10	116	3.5	0
Italy	263	263	2724	83.3	268
Malta	0	0	1	0.0	
Slovenia	0	0	0	0.0	
Total	**322**	**352**	**3269**	**100**	**322**

Table 1.9. Minimum number of specimens (N) proposed by PGMed 2010, N proposed in the National Programmes 2011-2013, total landings (2009) and their proportion and minimum number of specimens of dolphinfish (*C. hippurus*) to be sampled for stock-related variables by MS following the regional sampling approach.

Dolphinfish	N to sample PGMed 2010	N proposed in NP (2011-2013)	Landing 2009 (t)	Landings 2009 (%)	N to sample PGMed 2011
Cyprus	0	0	0	0.0	0
Spain	0	0	34	1.4	0
France	0	0	0.0	0.0	0
Greece	0	0	0	0.0	0
Italy	1183	1183	2025	82.5	1115
Malta	146	146	395	16.1	214
Slovenia	0	0	0	0.0	
Total	**1329**	**1329**	**2454**	**100**	**1329**

Table 1.10. Minimum number of specimens (N) proposed by PGMed 2010, N proposed in the National Programmes 2011-2013, total landings (2009) and their proportion and minimum number of specimens of bonito (*S. sarda*) to be sampled for stock-related variables by MS following the regional sampling approach.

Bonito	N to sample PGMed 2010	N proposed in NP (2011-2013)	Landing 2009 (t)	Landings 2009 (%)	N to sample PGMed 2011
Cyprus	0	0	0	0.0	0
Spain	25	50	247	13.2	18
France	0	0	19.0	1.0	0
Greece	29	30	476	25.3	30
Italy	66	66	1131	60.2	72
Malta	0	0	5	0.3	0
Slovenia	0	0	0	0.0	0
Total	**120**	**146**	**1878**	**100**	**120**

Although during PGMed 2010 it was agreed that sampling for stock-related variables for the sampling period 2011-2013 would be conducted in 2013 by all MS simultaneously, some MS expressed their concerns about their difficulties (both economic and of samplers availability) in reaching the planned number of individuals during one single year. For that reason, PGMed 2011 recommends each MS to organize the stock related variables sampling for large pelagics along the three years period, accordingly to their own suitability. The incoming RCMMed&BS (Slovenia, May 2011) should address this issue.

The proposed numbers of specimens to be sampled, both per metier and stock related variables, will be checked during the next RCMMed&BS. If appropriate, the national programmes could be adjusted to take into account the exchange of quotas between Member States.

Some MS wondered how much these changes should affect the National Programme Proposals and the Commission clarified that such changes would only mean an amendment to the Proposal, not a change. The Commission also reminded the convenience of using the most recent data and that the deadline for submitting the revised Proposals is October 31st.

ToR 2) Calculation of CV for large pelagic on the basis of 2008, 2009 data and revising the process carried out in 2010

During PGMed 2010, an exercise to calculate the CV of large pelagics for length at the regional level was carried out. The precision, in terms of Coefficient of Variation (CV) of the Length Frequency Distributions (LFDs) for large pelagics was estimated by metier and the methodology described by Vigneau and Mahevas (2004) was used. This method allows to estimate the CV for each length class and for the whole LFD at metier level. In PGMed 2010, the CV was calculated for bluefin tuna (*T. thynnus*) at regional level, for the drifting longlines metier (LLD) for the years 2006 and 2007 and for the purse seine (PS) metier for 2007, as well as a combination of both LLD and PS for 2007. CV was also estimated for swordfish (*X. gladius*), with data derived from the LLD (2007) and dolphinfish (*C. hippurus*), with data derived from lampara nets (LA) (Fishing Aggregating Devices) metier. MS were used as strata, since data at trip level was not available.

Following the recommendation made by RCMMed&BS 2010, PGMed 2011 continued with this exercise and the CV of large pelagics was once again calculated for length at the regional level. The most recent available data (2009) was used and this time, trips

were taken as strata. The precision, in terms of CV of the LFDs for large pelagics was estimated by metier and the methodology described by Vigneau and Mahevas (2004) was used again. CVs were calculated for:

- Swordfish (*X. gladius*) using 2009 data obtained from Malta, Cyprus, Italy and Spain
- Dolphinfish (*C. hippurus*) using 2009 data form Malta and Italy
- Bonito (*S. sarda*) using 2009 data from Italy and Spain
- Albacore (*T. alalunga*) using 2009 data from Cyprus, Italy and Spain
- Bluefin tuna (*T. thynnus*) using 2009 data (for PS and LLD metiers separately and also by combining all metiers) from Italy, Malta, Spain and Cyprus.

In Table 2.1 are summarized the species by year and metier for which the CV for length was estimated and the values of CVs obtained. The CVs obtained are considered to be very good for most of the species sampled, namely bluefin tuna, swordfish and bonito. High CVs were however obtained for dolphinfish and albacore. For dolphinfish the reasons may be that data was only available from Italy and Malta and the number of samples is lower than the NP proposals at regional level. Also MS were used as strata instead of trips since data was not available per trip and hence the number of strata was very low (i.e. 2). In the case of albacore, although the number of individuals measured was higher than the 2009-2010 NP proposals the CV was higher than the required. The number of measured individuals resulted always higher than those proposed in ToR during this meeting (Table 2.3), which was calculated during RCMMed&BS 2009, based on 2008 data. For all these reasons, the PGMed 2011 suggests to the RCMMed&BS 2011: (i) to estimate CVs using 2010 data for all the species and, based on the results obtained, (ii) to recalculate the minimum number of fish to sample by length and MS. PGMed recommends the corresponding stock assessment groups to indicate which length classes should be considered for each of the species, as since depending on the length classes used, different CVs are obtained.

Table 2.1. CV estimated, by species, year and metier for large pelagics. Length class used in the estimation, number (N) of individuals proposed in the National Programmes 2009-2010 –see Table 2.2. for numbers by MS- and number of length measurements available is also given.

Species	Year	Metier	Length class	N proposed (2009 – 2010)	N measured 2009	CV
X. gladius	2009	LLD	5 cm	14830	20727	6.41%
C. hippurus	2009	LA	1 cm	3100	1331	41.4%
S. sarda	2009	LLD+PS+FPN	5 cm	570	2647	1.1%
T. alalunga	2009	LLD	5 cm	3280	4791	30.1%
T. thynnus	2009	LLD+PS	5 cm	6980	13457	2.1%
		LLD			8089	4.6%
		PS			5368	15.4%

Table 2.2. Number of individuals proposed for metier-related variables sampling in the NP (2009-2010), by MS.

Species	***X. gladius***	***C. hippurus***	***S. sarda***	***T. alalunga***	***T. thynnus***
Cyprus	1180	0	0	400	30
Spain	8000	0	300	1000	2500
France	0	0	0	0	0
Greece	1400	1600	200	280	200
Italy	4000	1000	70	1600	4000
Malta	250	500	0	0	250
Slovenia	0	0	0	0	0
Total	**14830**	**3100**	**570**	**3280**	**6980**

Table 2.3. Comparison between number of individuals proposed to be sampled in the NP 2009-2010, number of individuals used for estimating CV (see Table 2.1.) and minimum number of individuals proposed for the period 2011-2013 as calculated in the ToR 1 of PGMed 2011.

Species	**N proposed 2009-2010**	**N measured 2009**	**Minimum N proposed ToR 1**
X. gladius	14830	20727	1515
C. hippurus	3100	1331	1500
S. sarda	570	2647	353
T. alalunga	3280	4791	575
T. thynnus	6980	13457	7004

ToR 3) Update the landing template

In accordance with 2007 RCM recommendation (4th RCMMed Report - Cyprus, 2007), MS provided landings data of the previous year (2009) of the species presented in Appendix VII of the Commission Decision 2010/93/EU. A common template was circulated before the PGMed meeting to collate all landings data per country as a reference for the selection of species to be included in the biological sampling. Results are presented in Table 3.1 (Average landing values in tons) and Table 3.2 (Percentage contribution of different species to the Mediterranean MS landing)

It must be noticed that Greece data referred to the period 2005-2007 (source National Report 2011-2013); France data referred to the period 2008; for all others MS the reference period of the landing data is 2009.

With respect to the landings table, it was clarified that its purpose is to collect for each species of Appendix VII of Commission Decision 2010/93/EU the real values and percentages of landings by MS, as a common reference to evaluate whether

derogations on sampling stock related variables would be justified in accordance with the DCF requirements[1].

The Group appreciated the improvement made by the different MS to report data on landing by species and not aggregated by genus or family. Reporting the landings on higher taxonomical levels has indeed an effect on data quality affecting the results when MS are calculating their shares of landings for each species.

Nevertheless, it was commented that in some cases (e.g. France) the landings data are still reported by mixed species (i.e. *Mullus* spp, *Trachurus* sp., *Lophius* spp., *Eledon*e spp.), creating problems in calculating the actual percentage of landings of each species by MS. MS are invited to provide the necessary supporting information to ensure the correct species identification (i.e. also trough a percentage contribution estimate).

PGMed after reviewing the results acknowledged the usefulness of the landings exchange data as a reference for the Mediterranean and agreed to continue this exercise.

Notes for tables 3.1. and 3.2.

[1] Greece data referred to the period 2005-2007 (source National Report 2011-2013)
[2] France data referred to the period 2008
[3] Only for Black Sea
[4] Greece has reported *Spicara smaris* as *Spicara* spp.
[5] France data referred to *Mullus* spp. All the landing has been assigned arbitrary to *Mullus barbatus*; for Malta 17 tons of *Mullus* spp. has been assigned arbitrary to *Mullus barbatus*
[6] France data referred to *Lophius* spp. All the landing has been assigned arbitrary to *Lophius budegassa*
[7] France data referred to *Eledone* spp. All the landing has been assigned arbitrary to *Eledone cirrhosa* landing of *Eledone cirrhosa* has been reported from Greece in the NP 2011-2013 has < 200 tons; for this species, just to have an indicative value, has been set as proxy 150 tons
[8] For Malta the 12 tons of *Trachurus* spp. has been assigned arbitrary to *Trachurus mediterraneus*.

[1] Exemption rules of Decision 2010/93/EU "*for stocks in the Mediterranean Sea, the landings by weight of a Mediterranean Member State for a species corresponding to less than 10 % of the total Community landings from the Mediterranean Sea, or to less than 200 tonnes, except for Bluefin tuna.*"

Table 3.1. Landing values (in tons) for each species from Appendix VII of Commission Decision 2010/93/EU and for each Mediterranean Member State.

Species	Cyprus	Greece [1]	France [2]	Malta	Italy	Spain	Slovenia	Rumenia	Bulgaria	Total landing (t)
Alopias superciliosus	0	0	0	0	14	2	0	0	0	**16**
Alopias vulpinus	0	0	10	0	0	0	0	0	0	**11**
Anguilla anguilla	0	6	411	0	24	0	0	0	0	**441**
Aristeomorpha foliacea	0	0	0	42	2338	1	0	0	0	**2380**
Aristeus antennatus	0	0	0	0	505	978	0	0	0	**1483**
Boops boops	22	7964	195	16	1992	173	2	0	0	**10363**
Carcharhinus plumbeus	0	0	0	0	0	0	0	0	0	**0**
Carcharias taurus	0	0	0	0	0	4	0	0	0	**4**
Centrophorus granulosus	0	0	0	1	0	9	0	0	0	**10**
Cetorhinus maximus	0	0	0	0	0	0	0	0	0	**0**
Coryphaena hippurus	0	4	1	395	2025	34	0	0	0	**2459**
Coryphaena equiselis	0	0	0	0	0	0	0	0	0	**0**
Dalathias licha	0	0	0	0	0	1	0	0	0	**1**
Dicentrarchus labrax	0	145	508	0	157	63	7	0	0	**880**
Dipturus batis	0	0	0	0	0	0	0	0	0	**0**
Dipturus oxyrinchus	0	0	0	0	0	0	0	0	0	**0**
Eledone cirrhosa [7]	0	150	109	0	2576	265	0	0	0	**3100**
Eledone moschata [7]	0	486	0	0	4107	35	25	0	0	**4653**
Engraulis encrasicolus	0	20481	4173	8	54388	10212	210	21	42	**89535**
Etmopterus spinax	0	0	0	0	0	4	0	0	0	**4**
Eutrigla gurnardus	0	0	15	0	582	25	0	0	0	**621**
Galeorhinus galeus	0	0	0	0	0	13	0	0	0	**13**
Galeus melastomus	0	0	0	0	9	40	0	0	0	**49**
Gymnura altavela	0	0	0	0	0	0	0	0	0	**0**
Heptranchias perlo	0	0	0	2	12	0	0	0	0	**14**
Hexanchus griseus	0	0	25	0	1	2	0	0	0	**28**
Illex spp., Todarodes spp.	0	1752	294	3	0	308	0	0	0	**2357**
Istiophoridae	0	0	0	0	400	0	0	0	0	**400**
Isurus oxyrinchus	0	0	0	0	0	1	0	0	0	**1**
Lamna nasus	0	0	0	1	0	0	0	0	0	**1**
Leucoraja circularis	0	0	0	0	0	0	0	0	0	**0**
Leucoraja melitensis	0	0	0	0	0	0	0	0	0	**0**
Loligo vulgaris	14	1072	253	6	1339	242	10	0	0	**2936**
Lophius budegassa [6]	0	2578	264	4	139	431	0	0	0	**3416**
Lophius piscatorius [6]	0	0	0	0	1665	222	0	0	0	**1888**
Merluccius merluccius	11	12386	2988	11	12038	4861	2	0	0	**32298**
Micromesistius poutassou	0	400	2	8	791	2250	0	0	0	**3452**
Mugilidae	0	141	748	33	1717	156	22	14	23	**2854**
Mullus barbatus [5]	15	4048	227	17	6085	1102	3	2	48	**11547**
Mullus surmuletus [5]	27	2458	0	13	2357	275	0	0	24	**5154**
Mustelus asterias	0	0	0	0	0	0	0	0	0	**0**
Mustelus mustelus	0	0	1	0	4	5	0	0	0	**10**
Mustelus punctulatus	0	0	0	0	337	0	0	0	0	**337**
Myliobatis aquila	0	0	1	0	0	0	0	0	0	**1**
Nephrops norvegicus	0	1007	6	2	3576	513	0	0	0	**5103**
Octopus vulgaris	11	4853	1671	23	3321	1665	0	0	0	**11545**
Odantaspis ferox	0	0	0	0	0	0	0	0	0	**0**
Oxynotus centrina	0	0	0	0	0	0	0	0	0	**0**
Pagellus erythrinus	13	1487	245	11	960	435	5	0	0	**3155**
Parapenaeus longirostris	0	4206	0	18	9554	313	0	0	0	**14092**
Penaeus kerathurus	5	2832	2	0	790	100	0	0	0	**3729**
Prionace glauca	0	0	0	2	176	10	0	0	0	**188**
Pristis pectinata	0	0	0	0	0	0	0	0	0	**0**
Pristis pristis	0	0	0	0	0	0	0	0	0	**0**
Psetta maxima [3]	0	0	15	0	0	6	1	49	53	**123**
Pteroplatytrygon violacea	0	0	0	0	0	0	0	0	0	**0**
Raja asterias	0	0	0	13	0	57	0	0	0	**70**
Raja clavata	0	378	23	0	422	57	0	0	47	**927**
Raja miraletus	0	0	0	0	28	53	0	0	0	**81**
Raja undulata	0	0	0	0	0	0	0	0	0	**0**
Rhinobatos rhinobatos	0	0	0	0	0	0	0	0	0	**0**
Rhinobatos cemiculus	0	0	0	0	0	0	0	0	0	**0**
Rostroraja alba	0	0	0	0	0	0	0	0	0	**0**
Sarda sarda	0	1316	92	3	1131	247	2	0	5	**2797**
Sardina pilchardus	0	20388	6839	5	15637	12803	428	0	0	**56100**
Scomber spp.	0	4148	1121	224	1984	3521	8	0	0	**11005**
Scyliorhinus canicula	0	0	44	1	135	152	0	0	0	**332**
Scyliorhinus stellaris	0	0	0	1	0	0	0	0	0	**1**
Sepia officinalis	2	3553	77	19	9522	381	14	0	0	**13567**
Shark-like Selachii	0	636	2	0	0	0	0	0	0	**638**
Solea vulgaris	0	1460	409	0	2116	88	11	0	0	**4084**
Sparus aurata	0	101	807	1	282	482	3	0	0	**1675**
Sphyrna lewini	0	0	0	6	2	0	0	0	0	**8**
Sphyrna mokarran	0	0	0	0	0	0	0	0	0	**0**
Sphyrna tudes	0	0	0	0	0	0	0	0	0	**0**
Sphyrna zygaena	0	0	0	0	0	0	0	0	0	**0**
Spicara smaris [4]	122	4816	57	7	387	93	0	0	0	**5482**
Sprattus sprattus [3]	0	0	0	0	124	0	13	92	4551	**4780**
Squalus acanthias	0	0	4	0	69	0	0	4	9	**87**
Squalus blainvillei	0	0	0	0	0	0	0	0	0	**0**
Squatina aculeata	0	0	0	0	0	0	0	0	0	**0**
Squatina oculata	0	0	0	0	0	0	0	0	0	**0**
Squatina squatina	0	0	0	0	0	0	0	0	0	**0**
Squilla mantis	0	116	41	0	6464	581	4	0	0	**7206**
Thunnus alalunga	208	236	1	1	2724	204	0	0	0	**3375**
Thunnus thynnus	2	159	2386	263	2734	1762	0	0	0	**7305**
Torpedo marmorata	0	0	1	0	0	0	0	0	0	**1**
Trachurus mediterraneus [8]	0	0	0	12	361	1748	1	17	177	**2315**
Trachurus trachurus	0	7047	653	0	3834	4078	4	0	0	**15616**
Trigla lucerna	0	81	0	3	374	101	1	0	0	**560**
Veneridae	0	0	0	0	2242	13	3	0	0	**2258**
Xiphias gladius	26	1192	14	266	5016	2001	0	0	0	**8514**

Table 3.2. Percentage contribution (%) of landing for each species from Appendix VII of Commission Decision 2010/93/EU and for each Mediterranean Member State.

Species	Cyprus	Greece [1]	France [2]	Malta	Italy	Spain	Slovenia	Rumenia	Bulgaria
Alopias superciliosus	0.0	0.0	0.0	0.0	88.4	11.6	0.0	0.0	0.0
Alopias vulpinus	0.0	0.0	97.0	3.0	0.0	0.0	0.0	0.0	0.0
Anguilla anguilla	0.0	1.4	93.1	0.0	5.4	0.1	0.0	0.0	0.0
Aristeomorpha foliacea	0.0	0.0	0.0	1.7	98.2	0.0	0.0	0.0	0.0
Aristeus antennatus	0.0	0.0	0.0	0.0	34.1	65.9	0.0	0.0	0.0
Boops boops	0.2	76.8	1.9	0.1	19.2	1.7	0.0	0.0	0.0
Carcharhinus plumbeus	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Carcharias taurus	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0
Centrophorus granulosus	0.0	0.0	0.0	6.6	0.0	93.4	0.0	0.0	0.0
Cetorhinus maximus	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Coryphaena hippurus	0.0	0.2	0.0	16.1	82.4	1.4	0.0	0.0	0.0
Coryphaena equiselis	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dalathias licha	0.0	0.0	13.5	0.0	0.0	86.5	0.0	0.0	0.0
Dicentrarchus labrax	0.0	16.5	57.8	0.0	17.8	7.1	0.8	0.0	0.0
Dipturus batis	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dipturus oxyrinchus	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Eledone cirrhosa [7]	0.0	4.8	3.5	0.0	83.1	8.5	0.0	0.0	0.0
Eledone moschata [7]	0.0	10.4	0.0	0.0	88.3	0.7	0.5	0.0	0.0
Engraulis encrasicolus	0.0	22.9	4.7	0.0	60.7	11.4	0.2	0.0	0.0
Etmopterus spinax	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0
Eutrigla gurnardus	0.0	0.0	2.3	0.0	93.7	4.0	0.0	0.0	0.0
Galeorhinus galeus	0.0	0.0	0.0	1.7	0.0	98.3	0.0	0.0	0.0
Galeus melastomus	0.0	0.0	0.0	0.0	19.3	80.7	0.0	0.0	0.0
Gymnura altavela	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Heptranchias perlo	0.0	0.0	0.0	13.0	86.5	0.5	0.0	0.0	0.0
Hexanchus griseus	0.0	0.0	88.5	1.1	1.9	8.4	0.0	0.0	0.0
Illex spp., Todarodes spp.	0.0	74.3	12.5	0.1	0.0	13.1	0.0	0.0	0.0
Istiophoridae	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0
Isurus oxyrinchus	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0
Lamna nasus	0.0	0.0	0.0	61.5	3.2	35.3	0.0	0.0	0.0
Leucoraja circularis	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Leucoraja melitensis	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Loligo vulgaris	0.5	36.5	8.6	0.2	45.6	8.3	0.4	0.0	0.0
Lophius budegassa [6]	0.0	75.5	7.7	0.1	4.1	12.6	0.0	0.0	0.0
Lophius piscatorius [6]	0.0	0.0	0.0	0.0	88.2	11.8	0.0	0.0	0.0
Merluccius merluccius	0.0	38.3	9.3	0.0	37.3	15.1	0.0	0.0	0.0
Micromesistius poutassou	0.0	11.6	0.1	0.2	22.9	65.2	0.0	0.0	0.0
Mugilidae	0.0	4.9	26.2	1.1	60.2	5.5	0.8	0.5	0.8
Mullus barbatus [5]	0.1	35.1	2.0	0.1	52.7	9.5	0.0	0.0	0.4
Mullus surmuletus [5]	0.5	47.7	0.0	0.3	45.7	5.3	0.0	0.0	0.5
Mustelus asterias	0	0	0	0	0	0	0	0	0
Mustelus mustelus	0.0	0.0	10.2	0.0	39.9	49.9	0.0	0.0	0.0
Mustelus punctulatus	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0
Myliobatis aquila	0.0	0.0	64.3	0.0	0.0	35.7	0.0	0.0	0.0
Nephrops norvegicus	0.0	19.7	0.1	0.0	70.1	10.0	0.0	0.0	0.0
Octopus vulgaris	0.1	42.0	14.5	0.2	28.8	14.4	0.0	0.0	0.0
Odantaspis ferox	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Oxynotus centrina	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pagellus erythrinus	0.4	47.1	7.8	0.3	30.4	13.8	0.2	0.0	0.0
Parapenaeus longirostris	0.0	29.8	0.0	0.1	67.8	2.2	0.0	0.0	0.0
Penaeus kerathurus	0.1	75.9	0.1	0.0	21.2	2.7	0.0	0.0	0.0
Prionace glauca	0.0	0.0	0.0	0.9	93.5	5.6	0.0	0.0	0.0
Pristis pectinata	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0
Pristis pristis	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0
Psetta maxima [3]	0.0	0.0	12.5	0.0	0.0	4.7	0.6	39.5	42.7
Pteroplatytrygon violacea	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Raja asterias	0.0	0.0	0.0	17.9	0.0	82.1	0.0	0.0	0.0
Raja clavata	0.0	40.8	2.5	0.0	45.5	6.2	0.0	0.0	5.1
Raja miraletus	0.0	0.0	0.0	0.0	34.9	65.1	0.0	0.0	0.0
Raja undulata	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rhinobatos rhinobatos	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rhinobatos cemiculus	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rostroraja alba	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sarda sarda	0.0	47.1	3.3	0.1	40.4	8.8	0.1	0.0	0.2
Sardina pilchardus	0.0	36.3	12.2	0.0	27.9	22.8	0.8	0.0	0.0
Scomber spp.	0.0	37.7	10.2	2.0	18.0	32.0	0.1	0.0	0.0
Scyliorhinus canicula	0.0	0.0	13.2	0.2	40.7	46.0	0.0	0.0	0.0
Scyliorhinus stellaris	0.0	0.0	30.8	61.6	7.6	0.0	0.0	0.0	0.0
Sepia officinalis	0.0	26.2	0.6	0.1	70.2	2.8	0.1	0.0	0.0
Shark-like Selachii	0.0	99.7	0.3	0.0	0.0	0.0	0.0	0.0	0.0
Solea vulgaris	0.0	35.7	10.0	0.0	51.8	2.2	0.3	0.0	0.0
Sparus aurata	0.0	6.0	48.2	0.0	16.8	28.8	0.2	0.0	0.0
Sphyrna lewini	0.0	0.0	0.0	77.3	22.7	0.0	0.0	0.0	0.0
Sphyrna mokarran	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sphyrna tudes	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sphyrna zygaena	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Spicara smaris [4]	2.2	87.9	1.0	0.1	7.1	1.7	0.0	0.0	0.0
Sprattus sprattus [3]	0.0	0.0	0.0	0.0	2.6	0.0	0.3	1.9	95.2
Squalus acanthias	0.0	0.0	4.3	0.0	79.6	0.3	0.0	5.0	10.9
Squalus blainvillei	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0
Squatina aculeata	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Squatina oculata	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Squatina squatina	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0
Squilla mantis	0.0	1.6	0.6	0.0	89.7	8.1	0.1	0.0	0.0
Thunnus alalunga	6.2	7.0	0.0	0.0	80.7	6.1	0.0	0.0	0.0
Thunnus thynnus	0.0	2.2	32.7	3.6	37.4	24.1	0.0	0.0	0.0
Torpedo marmorata	0.0	0.0	63.8	0.0	0.0	36.2	0.0	0.0	0.0
Trachurus mediterraneus	0.0	0.0	0.0	0.5	15.6	75.5	0.0	0.7	7.6
Trachurus trachurus	0.0	45.1	4.2	0.0	24.6	26.1	0.0	0.0	0.0
Trigla lucerna	0.0	14.5	0.0	0.6	66.8	18.0	0.2	0.0	0.0
Veneridae	0.0	0.0	0.0	0.0	99.3	0.6	0.1	0.0	0.0
Xiphias gladius	0.3	14.0	0.2	3.1	58.9	23.5	0.0	0.0	0.0

ToR 4) Calculation of CV for shared stock (GSA 7, GSA 15, and GSA 17) and on the basis of the results obtained modification in the sampling approach

ToR 4 issue was to analyse the benefit brought by merging all information available at GSA level to calculate precision level achieved for shared stocks. The precision, in terms of Coefficient of Variation (CV) of the Length Frequency Distributions (LFDs) was assessed using the methodology described by Vigneau and Mahevas (2004). This method allows to estimate the precision, in terms of coefficient of variation (CV) for each length class and for the whole LFD at stock level.

Data requested were length distributions (in number of individuals measured by length class) by trip and metier for year 2009. Shared stocks provided should be coherent to those listed in table III_C_5 of the MS technical report 2009. For example, in GSA 7, both Spain and France participate in the sampling of *Merluccius merluccius*, so both MS should provide this information. Case studies were expected to be carried out for GSAs 7 (Gulf of Lions), 15-16 (Malta Island-South of Sicily) and 17 (Northern Adriatic).

The group examined the data available during the meeting and decided to calculated the Coefficient of Variation (CV) for the following shared stocks:

- GSA 7: *M. merluccius* (French and Spanish data).
- GSAs 15-16: *M. merluccius*, *Mullus barbatus* and *Mullus surmuletu*s (Italian and Maltese data).
- GSA 17: Neither Slovenia nor Italy not provide data to build the dataset at regional data. No assessment was conducted.

Results are summarized Table 4.1. The CVs were calculated for 90% of the number of individuals (by removing the tails – 5% on each side) according to the Commission Decision 2010/93/EU.

Table 4.1. Estimated CV (%) for metier-related variables (length) estimated for 2009 LFD by stock and metier.

Species	GSA	Metiers	Length class	Length range (cm)	N measured 2009	CV (%)
M. merluccius	7	OTB_DEF	1 cm	5-88	2640	28.7
		OTB_DEF+DWS	1 cm	5-88	2865	31.7
		All métiers	1 cm	3-88	21104	11.0
M. merluccius	15-16	All métiers	2 cm	6-90	23543	23.8
M. barbatus		OTB	1 cm	10-25	9574	54.8
M. surmuletus		GTR-OTB	1 cm	15-32	8223	33.9

GSA 07 – *M. merluccius*

Data avalaible for the meeting concerned the following metiers :

- for France, data collected at sea for demersal trawling (OTB_DEF) and pelagic trawling (OTM_DEF and OTM_SPF).
- for Spain, data collected at sea for demersal trawling (OTB_DEF and OTB_DWS) and data collectted on shore for longlining (LLS_DEF).

Data were not strictly provided under a homogeneous format:

- French samples are collected by fishing operation (by haul) and are related to the landed or to the discarded part of the catch of the observed haul. When existing, the two samples of a given haul were added without any raising method taking in account the importance of each parts of the catch.
- Spanish samples can be considered as representative of the whole catch composition of the trips (sum of all fishing operations).

Three analyses were performed with the dataset:

- OTB_DEF FRA+SPA,
- demersal trawling (FRA-OTB_DEF and ESP-OTB_DEF+DWS). Spanish OTB_DWS was included because trips are often mixed and composed of fishing operations targeting demersal species and of others targeting really deep water species (strictly defined in Mediterranean Sea by deep water shrimps as main targets). OTB_DWS trips provided catch of hake with big individuals interesting to consider in the analysis carried out.
- Estimate of CV for hake considering all metiers together and so by processing all data provided by MS to PGMed.

Final results (*M. merluccius* CV covering 90% of the length distribution) were the following:

- OTB_DEF : CV is 28%. Heterogeneity between FRA and ESP samples and the few number of samples can explained that it does not achieved the precision level target defined by EU Decision.
- Demersal trawling (OTB): the CV is 31%. The main part of the information is given by Spanish data (37 trips vs only 9 French fishing operations) and is characterised by a wide distribution of the Spanish samples in length (due to more offshore and deeper trips). French samples are also not homogeneous in terms of lengh composition (coastal and offshore hauls).
- All metiers together: the CV is 11%. The precision level target defined by the DCF regulation (CV ≤ 12.5%) seems to be achieved at the GSA level. But the maximum of the information is provided in this case by the 255 fishing

operations concerning French pelagic trawling (OTM_DEF and OTM_SPF). The analysis could be biased by the overestimated importance of these metiers.

Theses first results must be considered with caution because the dataset provided did not integrate all the data collected by MS. For example it was not possible to use data collected on shore at the markets for French trawlers (OTB_DEF) and gillnetters (GNS-GTR_DEF) because raw samples in length are composed of data by metier but also by commercial categories which must be raised to the corresponding volumes of landings to get data by trips. Same context exists also for data collected at sea by fishing operations and by fractions of the catch (part landed and discards). These types of data by trip are not homogeneous with raw samples collected by Spain.

Performing analysis at GSA level for shared stocks must therefore be preceded by the definition of the exact format of the data to provide, allowing to merge information coming from different sources, such as concurrent sampling on shore or at sea, or covering different types of metiers. This format could be currently the COST one.

GSAs 15-16: *M. merluccius*, *M. barbatus* and *M. surmuletus*

Data available were provided by Italy and Malta. In the case of Italy, data was not available by trips and each of the following metiers were considered as strata for the analysis:

- for Italy, demersal trawling (OTB_DEF, OTB_DWS just for hake, OTB_MDD) and gillnetting (GTR_DEF).
- for Malta, OTB_MDD.

Annual length frequency distributions by metier were used. As the length class provided by each MS was different, data was finally aggregated by 2 cm for M. merluccius and 1 cm for *M. barbatus* and *M. surmuletus*.

For *M. merluccius*, CV was calculated for the combination of all the five metiers documented. The CV estimate for the stock was 23%, explained mainly by the few number of strata. The analysis showed also the very high weight of the Italian data regarding Maltese ones. No CV decrease with the international dataset used could be expected without to get more detailed data, for example by quarter or trip, or with length distribution by centimetre.

For *M. barbatus* and *M. surmuletus*, CVs are respectively 54% and 33%. The high values of the CVs were possibly due to the aggregation of the sampling to metier level. The quality indicator might improve using the data by trip.

ToR 5) Review the list of metiers selected by the Ranking system, finalise the template circulated before and during the RCMMed&BS 2010 (discussion/agreement on shared stocks)

During PGMed 2010, a ranking system for the Mediterranean Sea was conducted in view of the regional approach in sampling. MS had to provide catch, effort and value data by metier. The data was used to undertake ranking of metier at level 6 and 2007 data was used. During 2010, the RCMMed&BS carried out the same exercise with an updated set of data. Taking into account both the exercises, the RCMMed&BS 2010 recommended to PGMed 2011 to re-perform this exercise using 2008 and 2009 data for both the Mediterranean and Black Sea region.

PGMed 2011 re-performed this exercise and came up with a regional ranking system for the Mediterranean Sea and Black Sea separately. The ranking system described in the DCF (2010/93/EU) was applied. The data on landings, effort and value for the different countries were collated in order to identify the major metiers present in the Mediterranean and Black Sea Regions.

For the Mediterranean, data was available from Italy, Spain, Malta and Slovenia for 2008 and 2009, while for Greece and France the data used was from 2008 while that for Cyprus was from 2009. The ranking system was performed at the regional level using as reference either the average values of the years 2008 and 2009, in the cases when data for both years were available, or values of one year (2008 or 2009) when data was not available for both years. The metier cells were first ranked according to their share in the total commercial landings (tons) (Table 5.1).

Thereafter the shares were cumulated, starting with the largest, until a cut-off level of 90% was reached. Then, the metier cells were ranked according to their share in the total effort (days at sea) (Table 5.2), and the shares were once more cumulated, starting with the largest, until a cut-off level of 90% was reached.

No rankings were performed for values since data were missing from certain countries. Metiers which did not belong to the top 90% in terms of total effort, or landing were removed from the final table.

The results of the ranking system show that on a Regional (Mediterranean) level, 10 metiers were selected (Table 5.3). Trammel net, set gillnet, set longlines, bottom otter trawl for demersal and mixed demersal and deep water species, purse seine and boat dredge were selected by the two ranking procedures i.e. landings and effort, making these metiers the most important for the Mediterranean region.

Table 5.1. Results of the ranking system at a cut-off level of 90%, based on total landings (L, t) in 2008-2009 for the Mediterranean region and segmented according to Appendix VII of 2010/93/EU.

Level 4	Level 5	Level 6	Total landings (t)	Landings contribution (%)
Bottom otter trawl [OTB]	Demersal species	>=40	125065	27.2
Purse seine [PS]	Small pelagic fish	>=14	106897	23.2
Trammel net [GTR]	Demersal species	>=16	53692	11.7
Pelagic pair trawl [PTM]	Small pelagic fish	>=20	40226	8.7
Boat dredge [DRB]	Molluscs		25107	5.5
Set gillnet [GNS]	Demersal species	>=16	24290	5.3
Set longlines [LLS]	Demersal fish	(a)	15783	3.4
Bottom otter trawl [OTB]	Mixed demersal species and deep water species	>=40	12359	2.7
Drifting longlines [LLD]	Large pelagic fish	(a)	11933	2.6

Table 5.2. Results of the ranking system at a cut-off level of 90%, based on Effort (days at sea) 2007 for the Mediterranean region and segmented according to Appendix VII of 2010/93/EU.

Level 4	Level 5	Level 6	Total effort (days at sea)	Effort contribution (%)
Trammel net [GTR]	Demersal species	>=16	2025171	42.8
Set gillnet [GNS]	Demersal species	>=16	878805	18.6
Set longlines [LLS]	Demersal fish	(a)	524974	11.1
Bottom otter trawl [OTB]	Demersal species	>=40	490515	10.4
Pots and traps [FPO]	Demersal species	(a)	144574	3.1
Purse seine [PS]	Small pelagic fish	>=14	98582	2.1
Boat dredge [DRB]	Molluscs		77472	1.1
Bottom otter trawl [OTB]	Mixed demersal species and deep water species	>=40	69747	1.5

The results obtained were also compared with the ranking system conducted during RCMMed&BS 2010 where 2007 – 2008 data was used (Table 5.3).

Table 5.3. Summary showing mètiers selected by the ranking systems based on landings and effort in 2008-9 for the Mediterranean region and segmented according to Appendix VII of EC 2010/93/EU and comparison with the 2007 – 2008 ranking results. E: Total effort as days at sea; L: landings (tons). "X": if the metier has been selected by the ranking system.

Level 4	Level 5	Level 6	E 2007-2008	E 2008-2009	L 2007-2008	L 2008-2009
Trammel net [GTR]	Demersal species	>=16	X	X	X	X
Set gillnet [GNS]	Demersal species	>=16	X	X	X	X
Set longlines [LLS]	Demersal fish	(a)	X	X		X
Bottom otter trawl [OTB]	Demersal species	>=40	X	X	X	X
Pots and traps [FPO]	Demersal species	(a)	X	X		
Purse seine [PS]	Small pelagic fish	>=14	X	X	X	X
Boat dredge [DRB]	Molluscs		X	X	X	X
Bottom otter trawl [OTB]	Mixed demersal species and deep water species	>=40	X	X	X	X
Pelagic pair trawl [PTM]	Small pelagic fish	>=20			X	X
Drifting longlines [LLD]	Large pelagic fish	(a)	X		X	X
Bottom otter trawl [OTB]	Deep water species	>=40	X			
MISC	Demersal fish		X			
Midwater otter trawl [OTM]	Mixed demersal and pelagic species	>=20			X	

When comparing the present results with those of the RCMMed&BS 2010, rankings of effort and particularly of landings were similar in the majority of the cases for both 2007-2008 and 2008-2009 data.

For the Black Sea, data from Bulgaria and Romania were analysed. The ranking system was performed at the regional level using as reference the average values of the years 2008 and 2009. The metier cells were ranked according to their share in the total commercial landings (tons), effort in days at sea and value in Euro (Tables 5.4, 5.5, 5.6). Thereafter the shares were cumulated, starting with the largest, until a cut-off level of 90% was reached. Metiers which did not belong to the top 90% in terms of total effort, landings, or values were removed from the final table.

Table 5.4. Results of the ranking system at a cut-off level of 90%, based on total landings (L, in tons) in 2008-2009 for the Black Sea region and segmented according to Appendix VII of 2010/93/EU.

Level 4	Level 5	Level 6	Total landings (t)	Landings contribution (%)
Midwater otter trawl (OTM)	Mixed demersal and pelagic sp.	13-20**	4557	91.3

Table 5.5. Results of the ranking system at a cut-off level of 90%, based on effort (days at sea) 2007 for the Black Sea region and segmented according to Appendix VII of 2010/93/EU.

Level 4	Level 5	Level 6	Total effort (days at sea)	Effort contribution (%)
Midwater otter trawl (OTM)	Mixed demersal and pelagic species	13-20**	2313.5	47.3
Stationary uncovered pound nets (FPN)	Large pelagic fish	(a)	797.5	16.3
Set gillnet (GNS)	Demersal species	360-400**	657.5	13.5
Set longlines (LLS)	Demersal fish	(a)	302	6.2
Set gillnet (GNS)	Small and large pelagic fish	>=16	299	6.1
Pots and traps (FPO)	Demersal species	(a)	215.5	4.4

Table 5.6. Results of the ranking system at a cut-off level of 90%, based on Value (€) in 2008-2009 for the Black Sea region and segmented according to Appendix VII of 2010/93/EU.

Level 4	Level 5	Level 6	Total value (€)	Value contribution (%)
Midwater otter trawl (OTM)	Mixed demersal and pelagic species	13-20**	1843427	56.4
Set gillnet (GNS)	Demersal species	360-400**	768963	23.5
Pots and traps (FPO)	Demersal species	(a)	202108	6.2
Set gillnet (GNS)	Small and large pelagic fish	>=16	197940	6.1

The results of the ranking system show that on a Regional (Black Sea) level, 6 metiers were selected (Table 5.7). Specifically, in terms of ranking effort data, the six metiers were: the midwater otter trawl, the stationary uncovered pound nets, the set gillnet for demersal fish, as well as the set gillnet for small and large pelagic species, the set longlines, and the pots and traps. On the other hand, when ranking landings, midwater otter trawl contributed over 91% to the total landings. As for ranking values, midwater otter trawl, the set gillnet for both demersal and small and large pelagic species, and the pots and traps were the most important.

The results obtained were also compared with the ranking system conducted during RCMMed&BS 2010 where 2007 – 2008 data was used (Table 5.7).

Table 5.7. Mètiers selected by the ranking systems based on landings and effort in 2008-2009 for the Black Sea Mediterranean region and segmented according to Appendix VII of 2010/93/EU. E: Total effort (days at sea); V: value (€); L: landings (tons). "X": if the metier has been selected by the ranking system.

Level 4_Gear type	Level 5_Target assemblage	Level 6	E 2007-2008	E 2008-2009	V 2007-2008	V 2008-2009	L 2007-2008	L 2008-2009
Midwater otter trawl (OTM)	Mixed demersal and pelagic species	13-20**	X	X	X	X	X	X
Stationary uncovered pound nets (FPN)	Large pelagic fish	(a)		X				
Set gillnet (GNS)	Demersal species	360-400**		X	X	X		
Set longlines (LLS)	Demersal fish	(a)		X				
Set gillnet (GNS)	Small and large pelagic fish	>=16		X		X		
Pots and traps (FPO)	Demersal species	(a)		X		X		
Hand and Pole lines [LHP][LHM]	Finfish	(a)	X					
Misc			X		X			

When comparing the present results with those of the RCMMed&BS 2010, rankings of landings were the same, suggesting that midwater otter trawl was and still is the most important metier. As for effort and value, certain discrepancies appeared since for example the hand and pole lines and the misc metiers were among the most important ones in relation to effort in 2007-2008, whereas lower values were present for the 2008-2009 data.

The Group reviewed the table created during RCMMed&BS 2010 concerning those metiers exploiting a shared stock and selected by the ranking system, in which the number of sampling trips by metier at the GSA level was included (Table 5.8). The Group remarked the importance of taking into account this table for the NP proposals.

Table 5.8. Share of effort and allocation of sampling trips by MS for sharing stocks at GSA level, from RCMMed&BS 2010.

Fishing ground	Metier LVL6	MS	Selected by GSA ranking system	Selected by Regional ranking system RCM 2010	Effort Days	Total Landings (tonnes)	Total Value (euros)	Expected total no. trips to be sampled by MS 2011-2013	Proportion Days (from Effort) RCM 2010	No. Trips by proportions RCM 2010
GSA07	LLS_DEF_0_0_0	ESP	Y	Y	1259	285	2464197	48	0.163	9
		FRA	Y	Y	6484			6	0.837	45
	OTB_DEF_>=40_0_0	ESP	Y	Y	2716	1653	6273655	24	0.144	10
		FRA	Y	Y	16209	14318		44	0.856	58
GSA17	OTB_DEF_>=40_0_0	ITA	Y	Y	76526	24343	166994490	78	0.884	76
		SVN	Y	Y	10024	212	1037716	8	0.116	10
	PS_SPF_>=14_0_0	ITA	Y	Y	3401	5142	16330947	12	0.586	19
		SVN	Y	Y	2400	417	1745923	20	0.414	13
	PTM_SPF_>=20_0_0	ITA	Y	Y	13696	33643	58260912	14	0.914	31
		SVN	Y	Y	1283	652	848210	20	0.086	3
GSA29	GNS_DEF_400_0_0	BUL	Y	Y	1603	78	174287	32	0.879	56
		ROU	Y	Y	221	38	380000	32	0.121	8
	LLS_DEF_0_0_0	BUL	Y	N	191	17	30476	24	0.285	14
		ROU	Y	N	480	2	2250	24	0.715	34
	Misc._FPN_MPD	BUL	Y	Y	1098	204	165937	24	0.354	17
		ROU	Y	Y	2000	364	546000	24	0.646	31
	OTM_MPD_13-20_0_0	BUL	Y	Y	2089	4286	1691823	30	0.775	60
		ROU	Y	Y	605	749	1123500	48	0.225	18
GSA15-GSA16	GTR_DEF_>=16_0_0	MLT	Y	Y	284	64	220838	12	0.009	1
		ITA	Y	Y	31566	1528	18755419	46	0.991	57
	LLS_DEF_0_0_0	MLT	Y	Y	1890	111	624948	12	0.127	4
		ITA	Y	Y	12979	580	7747760	19	0.873	27
	OTB_MDD_>=40_0_0	MLT	Y	Y	870	147	850002	12	0.019	1
		ITA	Y	Y	45433	11444	108778684	35	0.981	46

ToR 6) Review the output of the biological sampling in the Black sea, calculation of CV

No data available.

ToR 7) Calculate the CV for shared stocks in the Black Sea area and on the basis of the results obtained modification in the sampling approach

The methodology for estimating the Coefficient of Variation (CV), described by Vigneau and Mahevas (2004) was applied on data for Length Frequency Distributions (LFDs) for shared stocks in Black Sea (GSA 29). Data have been obtained during the surveys under DCF in front of Bulgarian and Romanian coasts for stock assessment purposes by means of pelagic and demersal fishing gears.

The CVs was estimated according to the recommendation of RCMMed&BS 2010.

The PGMed 2011 examined the data available during the meeting and decided to calculate the Coefficient of Variation (CV) for sprat (*Sprattus sprattus*) and turbot (*Psetta maxima*) at regional level using survey data. Only the Bulgarian survey data for the years 2008 and 2009 was used for calculation of CV for both species. Before and during the meeting Romanian survey data was not received in appropriate formats (disaggregated by number of fishes measured per haul for every trip during the survey) and the PGMed was not able to use them.

Estimation of CV for data obtained from sampling of catches, landings and discards by métier and species was not conducted at regional level for Black Sea, because Bulgaria did not provide any data due to lack of trips carried out under Bulgarian NPs for 2008 and 2009. Data for Romania has been not presented in the correct formats by size groups per trip per metier and it was not able to be used for CV calculation.

For the aims of analysis, Bulgarian survey data was disaggregated at trip (day) level. For Turbot, 3 cm length classes were used, while for sprat 0.5 cm length classes were applied. The CVs was calculated for 90% of the number of individuals according to the 2010/93/EU. The results of the analysis are presented in Table 7.1.

The results show that, the CVs of survey data were considered high for both species, although the high number of measurements of sprat was made. It is expected that after adding of Romanian data lower values of CVs will be achieved.

Table 7.1. Species by year, country and survey for which the CV for length was estimated.

MS	Species	Year	Survey	Length class	N	CV (%)
Bulgaria	*P. maxima*	2008	BT	3 cm	391	23.80
Bulgaria	*P. maxima*	2009	BT	3 cm	386	19.86
Bulgaria	*S. sprattus*	2008	PT	0.5 cm	10821	37.55
Bulgaria	*S. sprattus*	2009	PT	0.5 cm	10577	25.34

The effect of different size class on sprat CV for 2008 and 2009 have been explored by applying 1 cm size class, but 1-2 % lower CVs were obtained. The exercise should be repeated after merging of both countries data. No modification in the sampling approach could be done, because the results are based on survey data. During the next PGMed, CVs at Regional level for shared stocks (survey data) in Black Sea for 2008 – 2009 could be calculated, if necessary data will be provided in correct formats.

Bulgaria should start to collect the biological data for the shared stocks, required under DCF. In the future Bulgaria and Romania should participate in the PGMed and have to provide data in appropriate formats in order to calculate the CVs at Regional level for the Shared stocks in Black Sea.

ToR 8) Propose workshop and studies to be evaluated by the RCMMed&BS 2011

The following workshops and exchanges were proposed by PGMed and approved in plenary with PGCCDBS, to be evaluated by the RCMMed&BS 2011:

A new **Workshop on sexual maturity staging of elasmobranches [WKMSEL-2]** (Chair: Fabrizio Serena and [to be announced]) will be established and take place in [to be announced] in 2012 to:

a) Collect information on more species especially those which attain relatively large sizes, such as pelagic elasmobranches;
b) Collect more information on all the different viviparous modes of reproduction (e.g. yolk-sac viviparity, limited histotrophyic, etc.);
c) Increase the geographical distribution of the data examined especially from Atlantic, North Sea, Baltic and the Eastern and Southern Mediterranean countries. Information from long distance fisheries (e.g. Pacific, Arctic etc.) exploited by European fleets would also be welcome;
d) Collect information on the 4a.Regressing and 4b.Regenerating stages of females and males both at the macro and micro scales and propose better descriptions to differentiate between those and the 2.Developing stages;

e) Perform histological analyses from different structures such as the uterus, ovaries and oviducal (nidamental) glands from females and sperm ducts and seminal vesicles for males;
f) More data should be collected on atretic follicles and post ovulatory follicles (POF) both at the macro and micro scale;
g) Collect information and photos on egg cases;
h) Compare colour of fresh and stored specimens.

WKMSEL will report for the attention of RCM, PGMed and PGCCDBS by 2012.

The **Workshop on Age Reading horse mackerel (*Trachurus trachurus*), Mediterranean horse mackerel (*Trachurus mediterraneus*) and blue jack mackerel (*Trachurus picturatus*)** (Chair: [to be announced]) will exchange information by correspondence in 2011 and meet in [to be announced] in 2012 to:

a) Review information on age determination, and validation on these species;
b) Compare different otolith-based age determination methods;
c) Identify sources of age determination error in terms of bias and precision: i.e. analyse different validation techniques and describe the corresponding in-terpretational differences between readers and laboratories, and agree on a common ageing criteria;
d) Analyse growth increment patterns and provide specific guidelines for the interpretation of growth structures in otoliths;
e) Create a reference collection of otoliths and start the development of a data base of otolith images.

The **Workshop on transversal data collection and statistical methodologies to estimate/re-evaluate them, with a special focus on the small scale fisheries** (Chair: Sébastien Demanèche, IFREMER and [to be announced]) will be held in France (Brest or Nantes), [date to be confirmed, 4 days] to:

a) Make a review on the data collection, data sources and sampling and raising strategies used by Member States to produce the transversal variables in response to the DCF requirements (Appendix VIII of Decisions 2010/93/EU and 2008/949/EC), with a special focus on the small scale fisheries, and assess their consistency regarding the EU fishing fleet register;
b) Compare the advantages and disadvantages of the different methods, and identify gaps and difficulties in collecting transversal variables. In case of use of sampling procedure, identify difficulties in raising and addressing the precision requirements. For crosschecking methods, identify parameters and other data sources allowing to calculate/crossvalidate the estimates and to increase quality of final data;
c) Agree on methodological approaches and common references for addressing the issues raised in ToR b;

d) Propose common understanding and interpretation of the DCF Decision 2010/93/EU and suggest modifications, if needed, in view of a future rewriting of the Decision.

The **Workshop on Age reading red mullet (*Mullus barbatus*) and striped red mullet (*Mullus surmuletus*) [WKACM]** (Chair: Kelig Mahé, France) will exchange information by correspondence in 2011 and meet in [to be announced] in 2012 to:

a) Review the results of the new exchanges and compare with those of the previous workshop

b) Clarify the interpretation of annual rings and use various validation methods

c) Improve the protocol of the guidelines

d) Create a reference collection of well defined otoliths

e) Improve the recommendations

WKACM will report by 2010 for the exchange and by 2011 for the workshop to the attention of the PGCCDBS and ACOM.

A **Workshop to develop guidelines to convert DCF biological, economic and transversal data to GFCM Task 1** [WKMed&BSConvert - WKMBSC] (Co-Chairs Joël Vigneau (France) and Italy to confirm) will be held in Corsica (France), [date to be confirmed, 3 days], to:

a) Review DCF and GFCM Task 1 segmentations and comment on their relevance for management purposes in the Mediterranean and Black Sea supra-region;

b) Review the completeness of reference tables describing biological, transversal and economic data relevant to achieved ad'hoc management objectives defined by both EC and GFCM;

c) Identify gaps or inconsistencies between the two approaches and consequently datasets required by these two international bodies;

d) Propose common understandings and interpretations of the DCF Decision 2010/93/EU and of the resolution GFCM/31/2007/1 to better describe and quantify fishing activities in terms of inputs and outputs for both bio-economic and ecosystem approaches in the Med&BS supraregion;

e) Develop guidelines to convert DCF biological, economic and transversal data to GFCM Task 1 variables, that EU Member states could adopt for creating homogeneous datasets in response to GFCM Task 1 requirements.

WKMed&BSConvert (WKMBDC) will report for the attention of RCMMed&BS, PGMed and GFCM/SAC.

ToR 9) Address issues raised by the Liaison Meeting 2010

About the regional database (RDB), the following recommendation made by the RCMMed&BS 2010 was endorsed by the Liaison Meeting 2010: "The group considers that for the time being the RDB in the Mediterranean would be limited to surveys and large pelagic data. In the next future it should deal with data required for the ecosystem indicators. Moreover, the group proposes that the information being stored by JRC in the context of the SGMED data calls should be accessible to all MS and play the role of a provisional storage where necessary."

ToR 10) AOB

Group 3 species

The Group re-examined the list of the Group 3 species (as reported in the Commission Decision 2010/93/EU, the correct definition is: "*All other by-catch, fish and shellfish, species. The list of Group 3 species shall be established at the regional level by the relevant regional co-ordination meeting and agreed by STECF*") established at the regional level by the Regional Co-ordination Meeting (RCMMed&BS).

The Group recalled that for the Mediterranean and Black Sea Region, this list was based on reference species of the "MEDITS" survey. Following this reference, the G3 list has been updated with species that have not been already included in Groups 1 and 2 of the Appendix VII of the EU Commission Decision 2010/93/EU *(Aspitrigla cuculus, Citharus linguatula, Helicolenus dactylopterus, Lepidorhombus boscii, Pagellus bogaraveo, Pagellus acarne, Phycis blennoides, Spicara flexuosa, Trigloporus, lastoviza, Trisopterus minutus capelanus and Zeus faber*) completed with species of local/national interest both for Cyprus (*Siganus sp.*, *Pagrus pagrus*, *Diplodus sargus*, *Diplodus vulgaris*, *Sparisoma cretense*, *Spicara maena*) and France (*Palinurus elephas*).

PGMed propose to the incoming RCMMed&BS (Slovenia, May 2011) the possibility to include under the Group 3 species also a group of species already present in the Mediterranean Regulation (1967/2006) and subject to the minimum size rules but missing in the Appendix VII of the EU Commission Decision 2010/93/EU. The proposed species are: *Diplodus annularis*, *D. puntazzo*, *Lithognathus mormyrus*, *Polyprion americanus*, *Homarus gammarus* and *Pecten jacobeus*.

The Group recalled that Group 3 species shall be subject to concurrent sampling. This means that following a sampling scheme, as reported in the EU Decision 2010/93/EU, only length data must be collected. For all the Group 3 species is not planned the

collection of other biological parameters (i.e. age, maturity and sex). The Group ask to RCMMed&BS to clearly address this issue.

Moreover, in view of the past (SGMED December 2010) and future data calls (SGMED 2011) and to evaluate quality gaps and adequacy for stock assessment of data collected under the DCF, PGMed would propose also to the attention of the incoming MEDITS Coordination Meeting (France, March 2011) the possibility to include under the MEDITS reference list, all the proposed Group 3 species. In this case, stock related variables (sex, age, weight and maturity) should be collected during the survey period.

The Group would suggest also to the incoming RCMMed&BS the possibility to evaluate the inclusion of a landing table (Table 10.1) also for the Group 3 species. This table should be used as a common Regional reference like the one already used for the species of Appendix VII (Commission Decision 2010/93/EU). This point should be eventually tackled and developed (i.e. data availability, time period, deadline…) by RCMMed&BS.

Moreover, RCMMed&BS remind that whenever the ranking system is selecting metiers targeting neither Group 1, Group 2 or Group 3 species, these targets species of national importance should be included in the regional Group 3 species list and sorted metiers should be sampled under the DCF.

PGMed would also suggest to the MEDITS Coordination Meeting the possibility to split the MEDITS reference list of 39 species (MEDITS Handbook 2007 rev. 5) in a way similar to the DCF system:

- a list of target species for which all parameters should be collected (sex, maturity, weight and age; stock-related variables in the DCF)
- a second list of species for which only length should be collected (metier-related variables in the DCF).

The Chair of the MEDTIS WG should then refer to the RCMMed&BS.

Table 10.1. Landing template proposal for Group 3 species.

Group 3 species (proposal list)	Cyprus	Greece	France	Malta	Italy	Spain	Slovenia	Rumenia	Bulgaria
Species from the Medits list									
Aspitrigla cuculus									
Citharus linguatula									
Diplodus sargus									
Helicolenus dactylopterus									
Lepidorhombus boscii									
Pagellus acarne									
Pagellus bogaraveo									
Phycis blennoides									
Spicara flexuosa									
Trigloporus lastoviza									
Trisopterus minutus capelanus									
Zeus faber									
Species of local interest (Cyprus and France)									
Diplodus vulgaris									
Pagrus pagrus									
Siganus sp.									
Sparisoma cretense									
Spicara maena									
Palinurus elephas									
Species not included in the data collection and subject to the minimum sizes rules (Reg. 1967/2006)									
Diplodus puntazzo									
Diplodus annularis									
Epinephelus spp.									
Lithognathus mormyrus									
Polyprion americanus									
Homarus gammarus									
Pecten jacobeus									

Large pelagic: harmonization of data collected under the DCF and the ICCAT requests

The regional coordination for sampling large pelagic catches is considered by the Group a very important issue for task-sharing in the Mediterranean. During last years the PGMed carried on its work to propose a regional sampling plan for these species to include in the NP: estimation of CV at regional level for all large pelagic species; review the sampling figures (i.e. number of individuals to be sampled by each MS for metier related variables and stock related variables) and sampling strategy.

To better harmonize the data collected under the DCF (especially the landing figures) and the data sent and available on the ICCAT database, the Group revised the structure of the tables on the Common landing templates for all the large pelagic species (*T. thynnus, X. gladius, T. allalunga, S. sarda and C. hyppurus*). These templates will be circulated before the annual PGMed meeting and should be filled by the different MS.

In the new format, that reports all the landing data for large pelagic species, the structure of the Task 1 of ICCAT (see Table 10.2) has been followed. In addition, only for bluefin tuna another table (Table 10.3) has been added. In this table, MS should report the detailed information on purse seine production (i.e. both quantitative landing and/or caging and in which countries).

Table 10.2. Proposed new format for landing data for large pelagic species.

			Cyprus	France	Greece	Italy	Malta	Slovenia	Spain	Total
Year	**id Gear**	**Gear**	*Tons*							
	LL	Longline								
	PS	Purse seine *								
	SPOR	Sport: Recreational fisheries (mostly rod and reel)								
	TRAP	Trap								
	HARP	Harpoon								
	UNCL	Unclassified gears								
	TROL	Troll								
	SURF	Surface fisheries unclassified								
		Handline								
		Total								

**Purse seine = total tons landing in the country or in others countries + total tons caged in the same country or in others countries*
MS should fill the this table with the detailed information on purse seine production (i.e. both quantitative landing and/or caging and in which countries)

Table 10.3. Proposed new format for additional table for landing data for bluefin tuna.

			Cyprus	France	Greece	Italy	Malta	Slovenia	Spain
Species	Year								
BFT		Landing in the country							
BFT		Landing in other countries							
BFT		Caged in France							
BFT		Caged in Cyprus							
BFT		Caged in Greece							
BFT		Caged in Italy							
BFT		Caged in Malta							
BFT		Caged in Slovenia							
BFT		Caged in Spain							
BFT		Caged in non EU countries							
		Total							

The total production of the purse seine will be given by the sum of the total tons landed in the same country or in others countries plus the total tons caged in the same country or in others countries.

The Group recalled the ICCAT Rec. 08-05 that clearly establishes the responsibility for the data collection (length frequency) of caged individuals for farming or fattening activity during harvesting. PGMed supports the opinion that MS where cages are located shall ensure the data collection at the harvesting and that bilateral agreements have to be established with the flag country of the fishing vessels concerned.

Moreover, PGMed started preparing a conversion table that incorporates the gears definition present in the ICCAT database and the metier definition used under the DCF (EC No 199/2008). However, this table was not ready at the end of the meeting so it will be discussed during next RCMMed&BS to be ensured. This conversion table will help the MS in providing the data to the PGMed and RCM groups following the metier approach.

Maturity Workshops

The Group after re-examined the outputs of the Workshops on sexual maturity held under the DCF umbrella until now (see the list below) suggests to the incoming MEDITS Coordination Meeting (France, March 2011) to take into account the maturity scales proposed by maturity workshops and prepare if necessary the relevant conversion tables between the proposed maturity scales and the ones used by the two groups (see also the recommendation by RCMMed&BS 2009). This issue should overcome the problem in using different maturity scales (i.e. output of the WSs or MEDITS/MEDIAS scales). The Group recognised that even if this topic has been already raised during last years has been not clearly addressed by the surveys meeting. In relation to the MEDIAS survey, during the MEDIAS Steering Committee in 2010, they already agreed to follow the protocols for maturity of small pelagic agreed in the WKSMAT (Mazara del Vallo, 10-14 November 2008) as explained in the RCMMed&BS 2010.

List of WS of Regional interest:

- Workshop on Sexual Maturity Staging of Elasmobranches (WKMSEL)
- Workshop on Sexual Maturity Staging of Cephalopods (WKMSCEPH)
- Workshop on crustaceans *(Aristeus antennatus, Aristaeomorpha foliacea, Parapenaeus longirostris, Nephrops norvegicus)* maturity stages (WKMSC)
- Workshop on Small Pelagics (*Sardina pilchardus, Engraulis encrasicolus*) maturity stages (WKSPMAT)
- Workshop on Sexual Maturity Staging of Hake and Monk (WKMSHM)

PGMed reminds to MS to be able to adapt/convert the maturity scales, used in the different countries, to the MEDITS and MEDIAS ones. In the case specific workshops have been conducted for certain species, MS should consider and follow the output of these workshops.

References

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Annex I. List of participants

Name	Country	E-mail address
Paolo Carpentieri	Italy	paolo.carpentieri@uniroma1.it
Antonio Cervantes	European Commission	Antonio.Cervantes@ec.europa.eu
Marco Dell'Aquila	Italy	m.dellaquila@unimar.it
Christian Dintheer	France	Christian.Dintheer@ifremer.fr
Martina Georgieva	Bulgaria	martina.georgieva@iara.government.bg
Francesca Gravino	Malta	francesca.gravino@gov.mt
Beatriz Guijarro (chair)	Spain	beatriz@ba.ieo.es
Eric Muscat	Malta	eric.muscat@gov.mt
Marina Panayotova	Bulgaria	mpanayotova@io-bas.bg
José Luis Pérez Gil	Spain	joseluis.perez@ma.ieo.es
Pedro Torres	Spain	pedro.torres@ma.ieo.es
Vassiliki Vassilopoulou	Greece	celia@ath.hcmr.gr

Annex II. Terms of Reference PGMed 2011

1) Review table for the collection of metier and stock related variables for Large pelagics on the basis of 2009 (2010 if available) data.

2) Calculation of CV for large pelagic on the basis of 2008, 2009 data and revising the process carried out in 2010.

3) Update the landing template.

4) Calculation of CV for shared stock (GSA 7, GSA 15, and GSA 17) and on the basis of the results obtained modification in the sampling approach.

5) Review the list of metiers selected by the Ranking system, finalise the template circulated before and during the RCMMed&BS 2010 (discussion/agreement on shared stocks).

6) Review the output of the biological sampling in the Black sea, calculation of CV.

7) Calculate the CV for shared stocks in the black sea area and on the basis of the results obtained modification in the sampling approach.

8) Propose workshop and studies to be evaluated by the RCMMed&BS 2011.

9) Address issues raised by the LM meeting 2010.

10) AOB

Annex II. Issues addressed during the common session PGMed-PGCCDBS

- **Workshop on Age Reading of Mackerel [WKARMAC]**

The overall result of the mackerel exchange and workshop exercise is that there are significant variations in age estimates between readers. Low precision and large relative bias between readers were found, and the older ages (from age 6) were particularly difficult to reach agreement upon.

The workshop, held 1-5 November 2011 in Lowestoft, UK-England, achieved quite a lot in terms of ironing out, through discussion and calibration, some of the major problems in ageing otoliths of mackerel. The group reached agreement on the definition of a set of ageing guidelines, which was tested during a post-workshop exchange. The criteria that provided the desired increase in agreement between readers were easy to follow. Out of 248 otoliths, 85 otoliths had complete agreement (34%). Of the nine readers who read all samples, **the agreement with the modal age ranged from 71.7% to 85.1%.**

A collection of agreed-age otoliths was started at the workshop, using the few agreed otoliths from the exchange. The reference collection was expanded considerably through an exchange of otolith images performed immediately after WKARMAC. Additionally, the collection of agreed-age otoliths should not stand alone, but be a part of a larger compilation of data on 'typical' otoliths for the species and area, in which typical distances between age structures, edge development over season and general growth curves for mackerel are represented across its area of existence.

The existence of otoliths from the Norwegian mark-recapture experiments is potentially the "golden stones" and could iron out many subjective assumptions relating to the age estimation of mackerel from this area (and potentially other areas). It is of utmost importance that the dimensions and availability of such material is clarified and that efforts are made to reach agreement on potential availability for coordinated validation studies.

WKARMAC recommends that efforts are put into an analysis of acceptable variance around the estimated proportions at age for mackerel. The overall agreement in all previous workshops and WKARMAC was never more than around 70% and it is doubtful whether it is possible to reach higher levels of agreement for the older part of the mackerel population. WKARMAC has reconfirmed the validity of the age estimations up to age 4 using the existing methodology. The validated range of ages would without doubt be increased dramatically if the recommendations concerning

studies of the otolith morphology (particular the otolith edge and the known-age otoliths held by Norway) are followed.

Level of agreement by mackerel age-groupings in part I and II. Note that there were no otoliths of 5 and 6 winter rings. Agreement was calculated as a weighted mean, with the weight of 1/n, where n was the number of otoliths of the given age. This was to give each age equal weight.

Age (winter rings)	Part I	Part II	Part II (readers from I)
2-4	79 %	72 %	79 %
7	32 %	26 %	36 %
8-9	22 %	18 %	24 %
10-11	23 %	12 %	19 %
12+	5 %	4 %	9 %

- **Eel otolith exchange**

An eel otolith exchange was conducted as preparation of WKAREA2. The exchange consisted of 100 pictures of *Anguilla anguilla* otoliths and 50 pictures of *A. rostrata* otoliths. The age estimation protocol to be used was established at a previous meeting. The pictures are on a website to which each reader can connect and that stores the readings in a connected database. **So far, there are no results yet**, as the deadline for readings was set to the end of Feb. 2011. The workshop will take place in the Cemagref institute (France), 22-24 March 2011.

- **Sardine otolith exchange**

A sardine otolith exchange took place between September and December 2010 with the participation of seven readers from four laboratories (IPIMAR, Portugal; IEO, Spain; AZTI, Spain; IFREMER, France). This exchange was coordinated by Eduardo Soares, Isabel Riveiro and Alexandra Silva. A total of 300 otoliths from the 1st and 4th quarters 2008 from five areas (sets), North Bay of Biscay, South Bay of Biscay, Cantabrian Sea, western Portugal and Gulf of Cadiz, were analysed. Readability was good in 63-70% of the otoliths, medium in 27-35% and low in 0-5%, except in the set from western Portugal which showed a lower proportion of good otoliths (47%) and higher proportions of medium (43%) and difficult (10%) otoliths. Surprisingly, otoliths from the Gulf of Cadiz were as clear as those from the northern areas. The average agreement of all readers with the modal age ranged between 73.1% (western Portugal) and 79.2% (Cantabrian Sea). Signs of bias with the modal age were observed in all sets usually for readers with no experience in the area but do not raise serious concern (Figure 4.2.2.4). CVs ranged from 10.9% (southern Bay of Biscay) to 18.1% (western

Portugal) and were substantially higher in the Gulf of Cadiz (63.5%). It must be noted that average CVs are unduly influenced by CVs for age 0 otoliths; these were present in all samples and particularly abundant in the Cadiz sample. Inter-reader agreement showed high variability between sets and between readers being always slightly lower than agreement with the modal age. Cases of <50% agreement occurred in all samples but more often in the Gulf of Cadiz, raising some concern about age readings from this area.

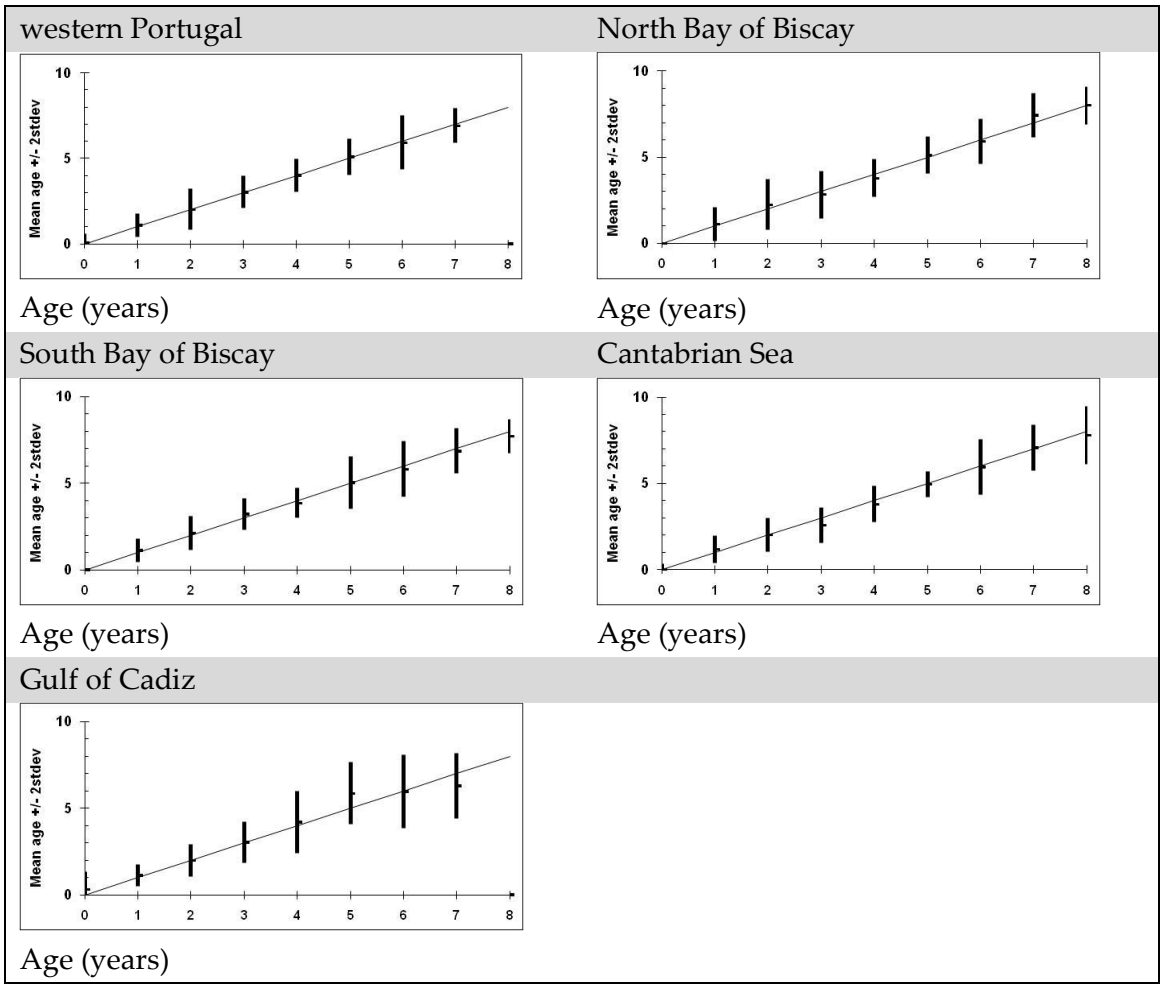

Figure 4.2.2.4: Age bias plots for each sardine otolith set and all readers combined.

- **Blue whiting otolith exchange**

The last blue whiting otolith exchange took place in 2004. A new exchange of otoliths took place in 2009-2010 with the participation of 11 countries (Faroe Islands, Ireland, Russia, Portugal, UK, Greece, The Netherlands, Germany, Iceland, Spain, Denmark and Norway). This exchange was coordinated by Sigbjørn Mehl, Åge Høines and Elna

Sælen (IMR, Norway). All readings were received by the co-ordinators to date, except for data from Spain and Denmark.

- **European Age Readers Forum (EARF)**

PGCCDBS established the European Age Readers Forum (EARF) in response to feedback received from those engaged in age reading across Europe. The objective was to establish a "one-stop shop" for all those involved in age reading. It was thought that the forum would provide an important resource for training of new age readers, as well as providing opportunities for sharing and discussing existing age reading manuals, establishing standard operating procedures and standardising preparation and interpretation methods. The forum was initially established as a Google Group, but was subsequently migrated to a more secure Sharepoint site. At the moment, the forum includes the following information:

- The contact details and a mailing list of age reading coordinators as well as those engaged in age reading of fish species in the various European laboratories.
- A calendar of upcoming workshops and also the PGCCDBS meeting details.
- A link to the PGCCDBS documents repository.
- The EFAN Reports
- PGCCDBS guidelines for otolith exchanges and workshops.

The Sharepoint has been established for two years now but has not been used by age readers, which makes evaluating its usefulness impossible at this stage. It would appear that most people have forgotten their user name and passwords and this is one of the reasons age readers have not logged on in some time. It was concluded that it is important at this stage to encourage participation from age readers and more importantly from age-reading coordinators in order to ensure a future for the EARF.

To do this, it has been agreed to run the brill and turbot otolith exchange through the EARF, as a way of encouraging age readers to log in to the forum, for information they cannot access elsewhere. In the mean time, the subgroup dealing with ToRs b and c within PGCCDBS will start some threads of discussion on topics of particular interest at the moment to the wider age reading community. The philosophy is that once age readers log in and see what else the forum has to offer, they will be more likely to continue to visit the forum and eventually contribute to the creation of an online age readers forum.

Actions for 2011:

- Annemie Zenner (Belgium) has agreed to conduct the turbot and brill otolith exchange via the EARF. This is due to commence in February/March 2011 with the issuing of invitations to participate.
- Progress on establishing the utility of the EARF will be tracked, and this will be reported to the WKNARC meeting in September 2011, by Gráinne Ní Chonchúir (Ireland).
- Request the ICES Secretariat to re-issue login details during February 2011 to all those identified on the PGCCDBS age reader contacts list 2011.
- The EARF will also include a link to the WebGR software on the site to help enhance the utility of both. Images can be exchanged and discussed in WebGR and the age reading criteria, manuals, information on image grabbing, advances in technology etc. can be can be discussed and exchanged on the forum.
- It was also suggested to include a literature section with titles for relevant books on age reading topics, as well as references to historic methodological reports which would also be of interest. A good example of this is a recent e-mail discussion regarding ageing of whiting, where one person involved in the discussion highlighted that the information required already exists and the "new" method had already been tested 20 years ago. In this way, the EARF will help preserving the "institutional memory" of the age reading community and ensure that this information is not lost when an individual leaves a lab.
- Ensure all members of the EARF SharePoint are aware that they can be alerted to updates on the site by activating the e-mail notification system. Alerts should also be specific by topics, i.e. ageing of cod, so people can receive alerts when new information in uploaded on the forum on specific topics of interest to them.
- Details of the location and ownership of otolith reference collections of both annotated agreed age images and calcified structures should be housed on the forum.
- The forum should be monitored for frequently asked questions (FAQs) and should respond to demand for different kinds of information.

- **Changes made to the PGCCDBS Guidelines for Otolith Exchanges and Workshops**

Some updates have been made to the PGCCDBS Guidelines on exchanges and workshops to incorporate additional direction to coordinators (see Annexes 9 and 10). These updated exchange and workshop guidelines will be uploaded onto the European Age Readers Forum (EARF, see section 4.2.4). Also a checklist for coordinators of exchanges and age calibration workshops has been developed and included to aid coordinators in the task of ensuring that both the exchanges and workshops are run according to best practice guidelines as agreed by PGCCDBS.

- **Outcomes from the Workshop on Sexual Maturity Staging of Cephalopods [WKMSCEPH]**

The Workshop on Sexual Maturity Staging of Cephalopods was held in Livorno, Italy, 8-11 November 2010.

The main goal of the WKMSCEPH was to review the maturity scales currently in use and to agree on the adoption of common scales, which should provide a biological background consistent with the objectives of DCF. Actually, different scales are frequently adopted for the same species and, even when the same scale is adopted, discrepancies among different laboratories and even within scientists of the same laboratory may occur. The workshop was carried out in three sessions: *Octopoda* (*Octopus vulgaris, Eledone cirrhosa, Eledone moschata*), *Teuthida* (*Loligo vulgaris*, *Loligo forbesii, Illex coindetii, Todaropsis eblanae*) and *Sepiida* (*Sepia officinalis*). In each working session, specimens of the species under consideration were used to perform a calibration exercise in order to point out possible discrepancies in the definition of maturity stages and to reach a common agreement on the new scales proposed.

The identification and macroscopic classification of maturity stages can play a key-role in the assessment of fish resources, and therefore, the urgent need of improving the quality of these estimates by means of reliable information on the maturity parameters has been universally recognized. The workshop on maturity staging had the aim to agree on the adoption of common scales based on the standardization of maturity defining criteria; as a general conclusion, it is possible to affirm that this goal and all the expectations of the TOR's were fulfilled.

Through the analysis of the MEDITS maturity scales and of those in use in the different laboratories, the direct observation of the samples' gonads and of the macroscopic and microscopic pictures, a thorough discussion arose, and brought to the definition of the new scales. The calibration exercise was very useful for identifying sources of discrepancies and as a test for the agreed scales. The collection of pictures at macroscopic and microscopic levels was instrumental in solving interpretation's problems and could be used afterwards in every laboratory for ease of reference. Histology proved to be an essential key to support the macroscopic identification and the gonad-somatic and Hayashi indices were recognized to be important tools to clarify doubts.

After a plenary discussion based on the working documents presented, on the macroscopic and microscopic descriptions of the gonads and on the calibration exercises, all the participants agreed to split the MEDITS maturity scale, currently in

use into three scales, one for each taxonomic group under consideration. The decision was mainly based on the fact that a maturity scale should accurately describe the stages precisely, avoiding any ambiguity, and this goal is difficult to achieve if the three orders (*Octopoda*, *Teuthida* and *Sepiida*) are kept together. However, it was also taken into consideration the recommendation of maintaining the new scales as similar as possible to the existing ones, in order to avoid the impact on maturity historical series. Therefore, the new maturity scales proposed maintain the same number of stages of the MEDITS scales currently in use (1, 2a, 2b, 3a, 3b), but consider males and females separately, thus allowing a more extensive and thorough description of the characteristics of each stage at a macroscopic level. The MEDITS maturity scale has been split into three scales, one for each order. Moreover, all the WKMSCEPH participants agreed that the main aim of using the macroscopic assignments is mainly to estimate the maturity ogives and the timing of the spawning season.

A collection of pictures at macroscopic and microscopic levels was organized before the WKMSCEPH; its use, instrumental in solving interpretation's problems, is highly recommended for ease of reference. Histology proved to be an essential key to support the macroscopic identification and its use should be extended. Conversion tables between the scales currently in use in the different laboratories and the proposed WKMSCEPH maturity scales were established, providing a common tool for exchanging data and scientific information. In order to verify the suitability of the new scales and to discuss the potential problems that might arise, it is highly desirable that workshops of this kind be periodically organized. Furthermore, the maturity ogive estimation is a point that still requires a discussion and a thorough investigation of an appropriate strategy and implementation methods. It is envisaged that this issue will be addressed in a workshop that is proposed for 2012 (WKMATCH, see Annex 11).

The WKMSCEPH makes the following **recommendations**:

a) The application of the proposed scales (both on fresh and frozen specimens) by all laboratories is highly advised, in order to check their suitability.
b) It is also recommended that potential discrepancies in maturity staging between scientists of the same laboratory and within laboratories be investigated. Therefore, calibration exercises with fresh and/or frozen specimens should be carried out regularly.
c) The collection of both macroscopic and microscopic photos should be increased and directed to a higher number of species of concern. There should be an exchange of them between institutes in order to calibrate the maturity identifications.

d) More histology studies should be done to validate the macroscopic maturity key, as histology is an important tool to achieve a consensus on maturity stage description/classification.
e) Histological analyses from different structures, such as oviductal and nidamental glands, are also desirable.
f) Histology should be carried out only on fresh specimens.

A general agreement on the cephalopod size measure is mandatory. Generally, the dorsal mantle length represents the standard measure. Actually, some institutes collect the dorsal mantle length data, others the ventral mantle length data, probably due to a misleading figure in the MEDITS Instructions Manual. A discussion on this point in the next MEDITS meeting is highly recommended.

- **Incorporation of maturity data in stock assessment**

Following the meeting of WGCHAIRS 2011, PGCCDBS were asked to give advice on the best way to incorporate newly collected maturity data into assessment. It was recognized that Assessment Working Groups may not have the relevant experience to make decisions on the use of recently collected maturity data, particularly when fluctuation on maturity ogives may vary over a short period. It was agreed that this matter could be addressed by a workshop (as recommended by FRESH) that is proposed for 2012 (WKMATCH) where the attendees will include the previous chairs of maturity workshops, supported by invited experts. A suitable Term of Reference to address this issue will be incorporated into the workshop proposal.

- **COST-FRESH Network**

The COST Action on Fish Reproduction and Fisheries (FRESH, http:// www.fresh-cost.org) is currently working on the production of the *Handbook of applied fisheries reproductive biology for stock assessment and management*. The main objective of the Handbook is to provide practical knowledge for studying fish reproductive biology with the aim of implementation in stock assessment and management. The handbook will be structured in seven chapters that compile fundamental aspects to be considered on fish reproductive biology studies that can be implemented in stock assessments and management:

general overview of fish reproductive biology,
data collection and statistics for reproductive biology,
maturity,

egg production,
sperm production;
elasmobranches reproductive potential and
Reproductive terminology.

FRESH foresee that the chapter dealing with fish maturation is of interest of PGCCDBS as it will describe methods and protocols to estimate maturity ogive to be used in stock assessment with the aim of standardizing maturity staging criteria in a range of species covering different reproductive strategies. The handbook is scheduled to be finished by the end of 2012.

FRESH is currently evaluating the impact of sex-separated maturity ogives for stocks, where ogives are available: Baltic cod, North Sea plaice, Northeast Arctic cod, Northern hake. Results for these studies will be presented at the next FRESH conference in May 2011 and later reported to PGCCDBS.

FRESH has agreed on its March 2010 meeting to report to PGCCDBS about the status of maturity information for the different stocks in ICES waters, providing recommendations on which maturity workshops will be necessary in the future for all types of fish species, i.e. not only viviparous or hermaphrodites. All regulated stocks, hermaphrodite species and commercial unregulated stocks, have been revised. FRESH concluded there is not enough data on these species/stocks to conduct specific Workshops.

However, it is strongly recommend that the routine data collection on maturity follows the current ICES (PGCCDBS and WKMOG) guidelines and future FRESH guidelines. These ought to be followed also during in-house workshops, in order to assess quality of data being collected.

Finally, FRESH recommends the organization of a Workshop of chairs of previous maturity workshops in order to discuss experience, enhance consistency in the developed methods and develop protocols for quality control and tools to analyze error and bias. This recommendation has been taken up by PGCCDBS by proposing WKMATCH.

- **Review of PGCCDBS Guidelines for Maturity Workshops during the 2011 PGCCDBS meeting**

The group carried out a brief review of the Guidelines for Maturity Workshops and ascertained that no further clarification or additions were required at present. However, with a proposal to hold a workshop (WKMATCH) where previous chairs of maturity workshops (and invited experts) would meet, it was agreed that this was an opportune time to carry out a more meaningful review. This matter will be included as a ToR in the proposal for the Workshop.

- **NESPMAN project**

The project "NESPMAN - Improving the knowledge of the biology and the fisheries of the new species for management" (contract MARE/2008/10) ended mid-2010.

The NESPMAN (New Species for Management) project is meant to improve the knowledge of the biology and the fisheries of the new species for management. Apart from highly priced turbot, brill, striped red mullet and sea bass, these 12 species comprise also 3 gurnard species and 4 flatfishes. The report presents information for these 12 species that are becoming increasingly important for fisheries in NW Europe, partly due to the generally poor state of some of the main commercial fish species.

The information presented in the report is based on analyses of data from research vessel surveys, landings statistics, data from on board observers, market sampling programmes and from biological sampling. Some economical analyses have been carried out as well. Through this project a better insight is gained in aspects such as distribution of the species, length and sometimes age composition of the catches, growth and maturity, ageing, stock ID etc.

The results of the NESPMAN project was presented at, and used by, the ICES Working Group on the Assessment of New Species (WGNEW) at its 2010 meeting. During this meeting, the basis was laid to formulate ICES advice on fisheries for the NEW species to the European Commission.

The final NESPMAN project report can be downloaded here:
http://ec.europa.eu/fisheries/documentation/studies/nespman/index_en.htm

- **WebGR implementation**

During 2010 and early 2011, several workshops and exchanges have used WebGR (http://webgr.azti.es), with varying success, depending on the training that members of these expert groups and lab staff had in using this software and its tools. It is envisaged that a workplan for 2012 will be drafted during 2011 (see section 7.4.5) to further develop WebGR and train more users in order to fully implement this software.

- **Further development and wider use of the Common "Open Source" Tool (COST) for assessing the accuracy of the biological data and parameters estimates collected for stock assessment purposes**

The initial objectives of the COST project (July 2007 – July 2009) were to

1. Develop validated methods to investigate and estimate parameters for
   a) discards volume,
   b) length and age structure of catches and landings,
   c) biological parameters such as growth, maturity and sex-ratio.
2. Where appropriate, the estimates were calculated according to one out of a fixed number of agreed raising procedures, based on the methods already developed by some institutes.
3. Develop simulation analysis to validate the methods implemented and investigate optimal sampling intensity to achieve a target precision.

These objectives were globally met during the project, if only the availability of robust methods for investigation and estimation of the parameters as stipulated in point 1 above, is regarded. Given the fact that this was the first project of this kind, the fixed number of agreed procedures (point 2) used were those described in the ICES precision workshops held in 2004 and 2005, and the development of the simulation package (point 3) ended the work within the project, without having the time to use this package for validating the methods.

In April 2010, a training workshop (ICES WKCOST; ICES 2010c) was held in Nantes for the international community. The workshop gathered a significant number of experts from almost all EU countries, and allowed to have a first feedback on the use of the tool and compiled some suggestions for further development. A number of suggestions, not controversial and easy to implement, were taken into account and the COST libraries were updated some weeks after the workshop. These changes are (i) the inclusion of all the precision calculation within the raising methods, (ii) the possibility to use the multinomial model to fill the gaps in the Age Length-Keys, and (iii) the addition of options in the delta method for data exploration.

Among the participants, it was a consensus that **the help files and user manual needed to be improved and that error messages should be more explicit**, if COST was to be more widely use. It was reported that only a new project could deeply review these documents and packages. For improving the tool, it was also recommended to continue the development related to the

- Extension of the Bayesian package to other sampling strategies;
- Estimation of mean length at age and precision:
- Maintenance of the mailing list;
- Making the tool more user friendly;
- Creation of a FAQ section;
- Thorough validation of the proposed precision methods;
- Inclusion of survey data and calculation of abundance indexes.

A new project should also be the occasion to

- evaluate the recommendations of the recent ICES WKPRECISE and WKMERGE workshops, as regards the use of sampling frames, probability sampling estimates and methods for merging strata;
- take into account more agreed sampling strategies;
- develop mapping possibilities for all regions of the world (today only ICES and GFCM area are available);
- extend the scope of the tool to other modules of the DCF (surveys, economic data, …);

The idea of a database linked to COST is often the object of discussion, as more and more experts/institutes are making use of the data exchange format developed jointly with the Fishframe experts. This idea is fully relevant, and will impose itself in the short future when developing Regional DataBases, but **developing COST** further **and developing a database using the COST tools should be done in two independent projects**.

The question whether developing COST further should be done through a project or through another means is also relevant, knowing that such a tool needs long term development, maintenance and an active help desk in order to fully address the needs of a broad use all over Europe. See also section 7.4.4 on proposed steps for further development of COST.