ANNUAL REPORT – 2013

PORTUGUESE PROGRAMME FOR THE COLLECTION OF FISHERIES DATA

Lisbon, May 31, 2014
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I. GENERAL FRAMEWORK

This report gives the results of the Portuguese National Programme (NP) for the collection of fisheries data in 2013 under the *Commission Regulation (665/2008*) and *Commission Decision (2010/93/EC) adopting a multi annual Community programme pursuant to Council Regulation (EC) No 199/2008 establishing a Community framework for the collection, management and use of data in the fisheries sector and support for scientific advice regarding the Common Fisheries Policy*, hereafter referred to as "DCF".

The format of this report is structured following the most recent guidelines from the Commission[1]. The Annual Report (AR) structured in a number of modules. In the following chapters a description is given of the activities related to the DCF that have been carried out by Portugal.

Where relevant, reference has been made to the organisation responsible for the information.

In the results per area:

i) The mainland sub-area of the Portuguese EEZ corresponds to ICES Sub-area IX and, when referring to local fishing, to ICES Division IXa.
ii) The Azores sub-area of the Portuguese EEZ corresponds to ICES Sub-area X.
iii) The Madeira sub-area of the Portuguese EEZ corresponds to CECAF Division 34.1.2.

List of derogations

Short title of derogation	NP proposal section	Type of data-variables	Region	Derogation approved or rejected	Year of approval or rejection	Reason/ justification for derogation
Berix spp, Merlangius merlangius, Pleuronectes platessa, Pollachius pollachius , *Phycis blenoides* , *Salmo salar , Trachurus mediterraneus* stock-related variables[1]	III.E	Estimation of stock-related variables	ICES IX	approved	2011	Stocks for which TAC's and quotas have not been defined, which relevant quotas correspond to less than 10% of the Community share of the TAC or to less than 200 tonnes on average during the previous three years.
Pandalus borealis stock-related variables[1]	III.E	Estimation of stock-related variables	NAFO 3MN	approved	2011	Stocks for which TAC's and quotas have not been defined, which relevant quotas correspond to less than 10% of the Community share of the TAC or to less than 200 tonnes on average during the previous three years.

[1] *Guidelines for Submission of Annual Reports on the National Data Collection Programmes under Council Regulation (EC) 199/2008, Commission Regulation (EC) 665/2008 and Commission Decision 2010/93/EU*, version 2013.

Pandalus spp stock-related variables[1]	III.E	Estimation of stock-related variables	NAFO 3LM	approved	2011	Stocks for which TAC's and quotas have not been defined, which relevant quotas correspond to less than 10% of the Community share of the TAC or to less than 200 tonnes on average during the previous three years.

[1] State of derogation not relevant. According to the Commission decision 2010/93/UE, the Portuguese national programme could exclude the estimation of the stock-related variables for stocks for which TAC's and quota follow the stated exemption rules (Chapter II.B.B2.5), namely stocks for which TAC's and quotas have not been defined, which relevant quotas correspond to less than 10% of the Community share of the TAC or to less than 200 tonnes on average during the previous three years.

II. NATIONAL DATA COLLECTION ORGANISATION

II.A. National Correspondent and Participating Institutes

National Correspondent

The National correspondent representing Portugal is:

Emília Batista
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Participating Institutes

There are five organizations/institutes involved in the planning and implementation of the Portuguese Programme for the Collection of Fisheries Data:

Direcção-Geral dos Recursos Naturais, Segurança e Serviços Marítimos/Directorate General for Natural Resources, Safety and Maritime Services (DGRM)
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DGRM is responsible for gathering the data related with economic variables (fleet, aquaculture and processing industry) and transversal variables in Mainland.

Instituto Português do Mar e da Atmosfera / Portuguese Institute for Sea and Atmosphere (IPMA**)**
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IPMA is the Portuguese Institute responsible for on-shore and at-sea sampling for the Mainland fleet operating in the Iberian Fishing Ground and exploiting stocks assessed by ICCAT as well as on-board sampling (unsorted catches) for NAFO Areas and North Sea and Eastern Artic. IPMA is also responsible for conducting scientific surveys in the Iberian Fishing Ground and participates on the Flemish Cap Groundfish Survey.

Secretaria Regional do Ambiente e Mar/Gab.Subsecretário Regional das Pescas *(*RAA)
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RAA is responsible for gathering data related with Economic variables in the Autonomous Region of Azores.

Departamento de Oceanografia e Pescas da Universidade dos Açores (DOP/UAç)
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DOP is a department of the University of the Azores which is responsible for the collection of scientific data under the Data Collection Framework. DOP/UAç is also responsible for the provision of scientific advice for the fisheries sector of the Autonomous Region of the Azores.

Direcção Regional de Pescas da Região Autónoma da Madeira (DRPM/RAM)
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The collection of data from the fisheries sector of the Autonomous Region of Madeira, in the framework of this programme, is carried out by the Madeira Service Directorate of Fisheries Research (DSIP), which is a branch of the Regional Directorate of Fisheries of Madeira from the Environment and Natural Resources Secretary of the Regional Government of Madeira.

Web pages are dedicated to DCF on DGRM web site under the tab "Programa Nacional de Recolha de Dados". The menu allows selecting:

- Legal framework of the DCF;
- Information and organism involved;
- National Program and some meetings report;
- Online survey forms for aquaculture and catching sector.

The web site is in Portuguese only but it is foreseen to make it available in English.

In 2013, two national co-ordination meeting took place. The main subjects were:

- Data Collection 2013 (annual budget);
- DC _ MAP;
- Technical and Financial Report 2012;
- Monitoring of the implementation of DCF (Devstat)
- Meetings and Workshop.

II.B. Regional and International Coordination

II.B.1. Attendance of International Meetings

The international meetings planned for 2013 and eligible under DCF are listed in table II.B.1.With few exceptions, Portugal has ensured its participation in most of the planned and relevant international coordination meetings.
SGCal, WGFAST, WGNEACS and WGEEL were not attended as planned. Once defined the ToRs, the Portuguese attendance was considered of low relevance. Furthermore, some meetings did not have Portuguese participation due to conflicting dates with regards to other commitments. (RDB-SG, WKAMDEEP, WGISDAA, WGSAM, ICCAT Stock Assessment - Bigeye). In other cases, the Portuguese participation was conducted by correspondence (WGDEEP, WKMSGAD, AFWG)

There were meetings, not considered for eligibility under "Coordination Meeting_2013", which were attended by Portugal, namely the Working Group on Cephalopod Fisheries and Life History (WGCEPH), the ICCAT Working Group on Sharks, the ICCAT Sub-committee of Ecosystems Bycatch and the International Commission for the Conservation of Atlantic Tuna annual meeting.

DOP/UAç organized and co-chaired the Workshop of National Age Readings Coordinators at Horta, Azores (Portugal) from 13 to 17 May 2013.

II.B.2. Follow-up of Regional and International Recommendations

Portugal participates in the Regional Coordination Meetings for the North Sea and Eastern Arctic (RCM NS&EA), Long Distance Fisheries (RCM LDF) and North Atlantic (RCM NA).
General recommendations made by RCM NA, RCM NS&EA and RCM LDF from 2011 to 2013 and actions taken by Portugal are listed below.
The relevant regional and international recommendations are listed and dealt within the specific sections below. For follow-up of STECF recommendations, see section VII.

Source	Recommendation	Follow up actions
RCM NA 2011 DCF Requirements	*RCM NA recommends that the collection of otoliths of John Dory is continued but not proceed with age readings until an agreed standardized method is developed.* *Follow–up actions needed: All MS having catches of John Dory to collect otoliths*	Not applicable. Based on the Exemptions rules stated on chapter III.B2.5 from the Comission Decision 2010/93/UE, Portugal doesn't sample John Dory.
RCM NA 2011 Feedback from assessment working groups	*RCM NA recommends MS to describe in detail the methodology on the separation of the catches of the 2 Lophius species. This information should be available to the 2012 benchmark assessment.*	The two species of anglerfish (*Lophius piscatorius* and *Lophius budegassa*) are not usually landed separately, for the majority of the commercial categories, and they are recorded together in the ports' statistics. Therefore, estimates of each species in Spanish landings from Divisions VIIIc and IXa and Portuguese landings of Division IXa are derived from their relative proportions in market samples. The methodology is described on ICES. 2011. Report of the Working Group on the Assessment of Southern Shelf stocks of Hake, Monk and Megrim (WGHMM), 5 - 11 May

		2011, ICES Headquarters, Copenhagen. ICES CM 2011/ACOM:11,625 pp.
RCM NS&EA 2013 Quality assurance - Managed repository for RDB upload successes and data status reports	*RCM recommends that MS document their interpretation of trips, samples and sampling events and describe what the TripID and SampleID represent in there uploaded data.* *Follow–up actions needed: MS to provide a summary document of their interpretation of these key fields in the upload data formats.*	Portugal will follow the recommendation. As it has been done so far, alongside the RDB data upload, IPMA will report the major issues experienced during the upload and the interpretation on data formats. For this purpose a summary document will be provided.
RCM NS&EA 2013 Quality assurance – Member States QA before loading to the RDB	*MS to document Quality Control and Quality Approach procedures in summary for review at the next RCM.* *Follow–up actions needed: All RCM NA Member States to ensure quality checks are in place and are being carried out and documented.*	Portugal has implemented different quality control and quality approach checks in order to ensure the quality of the data. All the procedures are in place and carried out before any data call.
RCM NS&EA 2011 Quality issues: use of FishFrame as regional database	*The RCM NS&EA recommends that that all MS respond to the data call in 2012 from the chair of RCM NS&EA and load their data to FishFrame or make it available in the FishFrame format. This data call will include Commercial Landings(CL), Commercial Effort (CE) and Commercial Samples (CS) records for 2010 and 2011.* *Follow–up actions needed: MS to have responded to the data call. If issues persist then ICES to inform the chair of RCM NS&EA*	Portugal experienced several difficulties when uploading data to Fishframe (FF) in response to the data call for commercial fisheries landing and sample data for the 2012 and 2013. While some of the difficulties sparked from format differences and inefficient design of the National DB, most reflected insecurity, inadaptation and lack of flexibility in FF in what concerns data collected from the wide diversity of fisheries sampled in EU waters. IPMA tracked all the issues experienced during the data upload and offer some resolutions in 2 reports (one for each of the data calls) sent to the relevant RCMs, the Head of ICES Advisory Programme (Poul Degnbol), the Head of ICES Data Centre (Neil Holdsworth) and Henrik Degel (with whom we exchanged emails during the data upload process). In 2013 IPMA attended the Regional Database Training Workshop (Hands-on workshop) where some of the issues that required addressing before our data could be uploaded were raised. Since then some updates and new solutions were implemented in FF and, thus, improving MS capabilities to answer future data calls. DGRM tried to upload data into Fishframe but the

		constant changes of key values in the database (eg. Changes on the scientific name of the species) undermined our efforts to do so. It seems that every user could change these values and therefore not only preventing other users to upload the data but also to effectively changing the previously submitted data. This is a major flaw in the database design, one we hope it will be corrected in the future. Even datasets previously submitted return error messages due to these changes and were not accepted.
RCM NS&EA 2011 Quality issues: data raising methods	*RCM NS&EA recommends that each MS should send a representative to WKPICS to discuss data collection and the methods used to raise this data for assessment use and that WKPICS adds this to its ToR.* *Follow–up actions needed: MS participates in WKPICS.*	Portugal has participated in WKPICS.
RCM NS&EA 2011 Quality issues: data raising methods	*Sampling for ages and the construction of ALK should follow sound statistical sampling practices set out according to WKPRECISE. Greater emphasis should be placed on the collection of age samples for species subject to age based stock assessments as the collection of length frequency data not linked to age samples may be of limited benefit in improving bias and precision estimates for numbers at age.* *Databases structures should allow storage of linked age and length samples. Collection regulations should not encourage the collection of length only data at the expense of age sampling for species subject to age based assessments.* *Follow–up actions needed: MS to review their sampling for ages and construction of ALKs (if used).*	Portugal follows this recommendation.
RCM LDF 2011 Participation in the ICCAT working group meetings	*Considering that the quality of the work of the ICCAT working groups depends on the adequate participation of experts by all UE-MS, therefore the two groups strongly recommend the participation of experts in scientific meetings from all MS involved in fisheries of managed by ICCAT.*	Portugal is ensuring the participation of experts on the relevant scientific meetings.

III. MODULE OF EVALUATION OF THE FISHING SECTOR

III.A. General Description of the Fishing Sector

The national fishing fleet is extremely diverse, differing between zones. This is related to the activities carried out and the fishing technology used in each zone. It is dominated in numbers by small wooden vessels, most of which are open decked. This reflects the fundamentally artisanal nature of the activity, which is nevertheless extremely important for a significant part of the coastal communities.

In terms of national distribution, the fishing fleet is distributed between 45 Registration Ports. Of these, 27 are Port Authorities and 18 are Maritime Delegations. On Mainland are located 32 of the main ports,, 11 are in the Autonomous Region of the Azores and 2 are in the Autonomous Region of Madeira.

The national waters can be divided into three large fishing zones: the sub-area of the EEZ of the Mainland and those of the Autonomous Regions of the Azores and Madeira.

The sub-area of the EEZ of the Mainland has a narrow continental shelf and is located in a transitional area in terms of productivity, which in turn controls production. The sub-area is characterised by a great variety of species, none of which, however are abundant. On the Mainland, fishing activities are carried out on grounds close to the coast, and they exploit a small group of species (sardine, horse mackerel, mackerel, chub mackerel, hake, silver scabbard fish, octopus and clams).

The Autonomous Regions of the Azores and Madeira also have a narrow continental shelf. Given their oceanic nature, there are reduced shoals of fish and dispersed available area to fish which make up the fishing zone fairly irregular. In the Azores, the blackspot seabream is the most important demersal species, while in Madeira the black scabbard fish is the most important.

Mainland

Fisheries in ICES sub-areas I, II, XII, XIV, NAFO Div. 1F and Sub-area 3

In 2013 the Portuguese fleet operating in the traditional grounds of both Divisions I and II, was composed by 5 trawlers using a bottom trawl gear. The fishery in the international waters of Div. IIa was carried out by 3 trawler fishing with a pelagic trawl gear.
The Portuguese fleet operating in the Irminger Sea, Norway and Svalbard (5 ships were in operation in 2013) also operated in the NAFO area (10 ships in 2013). This fleet uses bottom trawling techniques

Fisheries in ICES Sub-areas I and II (Norway and Svalbard) and international waters (Div.IIa)

In 2013, the Portuguese nominal catches recorded 5,903 ton: 3,651 ton proceeding from the Division IIa and 2,252 ton proceeding from the Division IIb.
For the period from 1993 till 2012, cod (Gadus morhua) is the most important species in the catches, with the exception of 1993 in Division IIa. In the recent years, 60% of the fishing effort has been deployed in Norway zone (Division IIa), corresponding to a same percentage in catch allocation (not including the new fishery in the "Banana Hole" zone).

Fishery in the NAFO Area

In 2013, the Portuguese nominal catches proceeding from NAFO Regulatory Area have reached 17 858 ton, an increase of 1407 ton comparing to 2012.
Redfish continues to be by far the most important species in the Portuguese commercial catches from NAFO Area, representing in recent years more than 50% (9 346 ton in 2013) of the overall catch, followed by Codfish, with catches of 4 810 ton and Greenland Halibut, with catches of 2 124 ton.
In 2013 the fishing effort was 1 712 fishing days.

Fishery in the Mediterranean and Black Sea

In 2013, the Portuguese nominal catches totalized 133 tons, 78% of which was shrimp (*Dendrobranchiata*) and 19% small pelagic fishes. There were 16 vessels operating in this area, ranging 17 to 224 GT.
Most vessels operating in this area operates mainly in the Atlantic Ocean. Only 2 vessels operate mainly in the Mediterranean. These vessels are allocated to supra-region AREA27.
In 2013 the fishing effort was 483 fishing days.

Bottom Trawl Fishery in Div. IXa

The bottom trawl fishery comprises two fleet components e.g., the trawl fleet catching demersal fish (65-mm mesh size) and the bottom trawl fleet directed at crustaceans (>=55 mm mesh size for shrimps and above 70 mm for Norway lobster). In 2013 about 82 vessels operate in this fishery, 25 of which are licensed for crustaceans.
The catches of this trawl fishery represents 14 % of the total landed in Div. IXa (Portuguese coast).
The trawl fleet component targeting fish (hake, horse mackerel, axillary sea breams, pouting, octopus, squids, blue whiting) operates off the entire Portuguese coast mainly at depths between 100 and 250 m and during all the year.
The fleet targeting crustaceans (Norway lobster and rose shrimp) operates mainly in the Southwest and South in deeper waters, from 100 to 800 m. This fishery takes place throughout the year, with the highest landings usually being made in the spring and summer.

Artisanal Fishery in Div IXa

The artisanal fishery is composed of a large number (around 6400) of small boats, operating mainly inshore and using a variety of gears as gillnets and trammel nets (the majority), purse seine, beam trawls, longlines, traps, pots and dredges. Some of these boats are licensed for more than one type of gear (with permission to a maximum of five gears).
Often it is used several different gears in the same trip and depending of the species availability this fishery use also different gears by season. The main species landed are hake, pouting, sole, cuttlefish and anglerfish from gillnets and trammel nets, sardine, horse mackerel and mackerel from purse seine, hake, conger, skates and black scabardfish from longlines, octopus from traps and pots, bivalves from dredges and coastal shrimps from beam trawl.
The large number of small boats (< 12 m) involved in this fishery has a mean GT of 1,5 and an average of 18 KW engine power.
The artisanal fishery represents 18% and 30% in weight and value, respectively, of the total commercial species sold in auctions in 2013

Purse-seine fishery in Div IXa

The purse-seine fishery, the most important in landings volume, is composed of around 144 purse seines with a total catch of 67 670 t in 2013. This fleet targets mainly sardine, which constitutes 40% of their landings in 2013, using a mesh size of 16 mm. With the introduction, in 2012, of specific legislation restricting sardine catches, the importance of this species has been reducing, by comparison with 2011, where catches of sardine was responsible for 63% of total catches. Sardine catches were replaced by Chub Mackerel catches, specie

whose catches increased substantially in importance in 2012, from 28% to 48% of total catches. Other target species are horse mackerel and Spanish mackerel.

The black scabbardfish long-line fishery in Div. IXa

In 2013, 20 deep-water longline vessels were routinely targeting the Black scabbard fish (Aphanopus carbo) in a limited area (hard grounds along canyon slopes off Sesimbra, South of Lisbon). In 2013 landings of Black scabbard fish amounted to 2 110 ton. This fishery started in 1983 at Sesimbra port. Associated with the capture of Black scabbard fish other deep-water sharks important to the incomes generated by this fishing activity are also captured, namely Portuguese dogfish (Centroscymnus coelolepsis) and Leafscale Gulper shark (Centrophorus squamosus).

The Swordfish Fishery in Atlantic Ocean

There is a drifting longline fishery directed to the swordfish in Atlantic Ocean involving 24 vessels with a mean GT of 132, an average of 303 kW engine power and a mean overall length of 22 meters. The main landing ports for swordfish in mainland west coast are Sesimbra (about 27% of the total catch in 2013) and Peniche (about 73% of the total catch in 2013).

The Surface Longline Fishery in Indian Ocean

In 2013 the Portuguese longline fishery in Indian Ocean (East and West) comprised 11 vessels, ranging from 173 to 602 GT. Target species were Swordfish and Blue shark.
This fleet activity's outcome has a total catch of around 2 480 ton. From those, about 45% were Swordfish and 32% were Blue shark, approximately 1 112 ton and 786 ton, in that order.
Catches in the fishing area were landed in African ports, namely Mozambique, Namibia and South Africa.

Autonomous Region of the Azores (Div. X and CECAF 34.2.0)

The majority of Azorean fishing activity, data collection and sampling are concentrated in the ICES Sub-area X, where vessels are committed to demersal, pelagic, deep-water, tuna and other highly migratory fishes. The ecosystem is a seamount type with fishing operations occurring in all available areas (coastal and seamounts within the Azorean EEZ) usually until 1000 m depth, catching species from different assemblages, mostly on the 200-600 m strata (intermediate strata where the most commercially important species occur). However, some vessels may occasionally conduct some fishing operations within the portion of CECAF 34.2.0 that belongs to Azorean EEZ. No sampling scheme is programmed for those catches since they are usually of small amounts and are landed mixed with catches from ICES area X, which are sampled at landing.

Fishing activities in the Autonomous Region of the Azores can be divided into 4 main categories:

i) a fishery targeting blue jack and chub mackerel operating with small vessels, normally less than 12,5m in length, and uses purse seine nets;

ii) a pole-and-line fishery targets tuna, and is carried out between March/April and September/October, and operates with vessels that vary in length between 15 and 30m. Tuna catches are highly variable from year to year. The main tuna species are: bigeye tuna (*T. obesus*) skipjack tuna (*K. pelamis*) and albacore (*T. alalunga*);

iii) a fishery targeting demersal species, operating with vessels of less than 22m in length, and that uses bottom set long line and various hand-held instruments;

iv) a fishery targeting coastal species, using mainly gillnets. This fishery is carried out mainly between May and October, using vessels less than 12m in length.

These fisheries are all inter-related, since the same vessel can carry out two or more fishing gear. The demersal and tuna fisheries represent a high economic value for the Autonomous Region of the Azores. The deep-water fishery for demersal species in the Azores is a multispecies and multigear fishery, where several types of hooks and lines gears are used by the local fleet. The dynamic of the demersal fishery seems to be drive by the main target species, the blackspot seabream (*Pagellus bogaraveo*). However, other commercially important species are also landed and the target species seems to change seasonally according to abundance, species vulnerability, management policies, and market demands. The fishery is clearly a typical small scale one, predominating small vessels, <12m (90% of the total fleet) using mainly traditional bottom longline and several types of hand lines.

In 2013 statistical information on fish landings shows a slight increase (*c*. 1100 t) in catches from the Autonomous Region of the Azores compared to 2012. This tendency is mainly due to an increase in the tuna and small pelagic catches, which grew by almost 1300 tons and 153 tons, respectively.

Autonomous Region of Madeira (CECAF 34.1.2)

The bio-geographical conditions of the archipelago of Madeira, e.g. narrow insular shelf, oligotrophic waters and steep incline of the slope, have always imposed severe limitations on fishing, since the small biomass of the populations of the available fishing species, particularly in the neritic zone (to a depth of around 200m) forced the Madeira fishing fleet, operating inside the Madeira Economic Exclusive Zone (CECAF 34.1.2), to concentrate on exploiting deepwater and/or migratory resources.
The greater relative weight in this sector belongs to the mixed fishery of two sympatric species black scabbard fish Aphanopus carbo (Lowe, 1839) and the intermediate scabbard fish A. intermedius Parin, 1983. These benthopelagic species are captured with drifting long lines at meso and bathypelagic zones. Also important are the large migratory pelagic species (Tuna), captured by bait boats using pole and line. The dominant species in this group are: Thunnus obesus (Lowe, 1839), bigeye tuna, and Katsuwonus pelamis (Linnaeus, 1758), skipjack tuna, among others.
On a decreasing scale of commercial importance, we find the small coastal pelagic species (locally called "ruama"), notably: Trachurus picturatus (Bowdich, 1825) (horse mackerel) and Scomber colias (Gmelin, 1789) (chub or common mackerel), caught by purse seiners, out of a total of a hundred marine species commercially exploited in this region.
Despite their small commercial importance when compared to the species mentioned above, the demersal species even so have an important role in the socio-economic context of fishing in Madeira. These species, which have a high commercial value, are fished using multispecific techniques by a number of small boats mostly operating with bottom long lines, traps and hand lines.
There is also a small, in terms of unloadings, but fairly important fishery in terms of value and fishing effort, of gastropod molluscs (limpets) carried out by small boats trough scuba diving in the subtidal zone.
The Madeira fisheries sector does not comprise any Industrial fishery targeting species for the production of fish meal, fish oil, etc.

III.B. Economic Variables

III.B. Baltic Sea (ICES areas III b-d), North Sea (ICES areas IIIa, IV and VIId) and Eastern Arctic (ICES areas I and II), and North Atlantic (ICES areas V-XIV and NAFO areas)

III.B.1. Achievements: Results and Deviation from NP Proposal

As stated in our NP 2011- 2013 the collection of economic data defined in DCF was achieved through a survey, applied to a statistical sample, by means of random stratified sampling method.

The reference year was 2012 and the target population was composed of vessels with issued licenses to operate throughout the reference period (including vessels under 10 m), withdrawn from the national Vessel Register. These are the only vessels authorized to operate under Portuguese law. If in the survey a vessel owner states that the vessel didn't have any activity and the vessel has no landings or logbooks then it is considered inactive. Inactive vessels are not part of the annual survey.

The questionnaire was drafted and mailed directly to the owners of the selected vessels and/or to producer's organizations and associative.

The differences between stratums regarding NP are due to the activity of the vessels and to the changes in the fleet. NP numbers and stratums are estimates based on licensing. When we take in consideration the activity of the vessels, as stated in DCF regulation, some reallocations between fleet segments occur and with them the needs of possible clustering also changes.

Clustering was made for segments with less than 3 vessels, accordingly to the confidentiality rules. Segments can be clustered when they are similar to each other. The segments were considered similar to each other by an analysis on the landings from logbooks and sales notes. The analysis compared the average value of landings per vessel for each segment to be clustered. If the values are of the same order of magnitude (usually differences less than 150% from each other) then the segments were considered similar. The segments to be clustered have the same main gear and belong either to the same vessel length class or, if not possible, to an adjacent vessel length class.

The number of sample units per stratum and the coverage rate is reported in Table III.B.1.

The inquiry process for 2012 data was completely carried out.

The value of fixed assets and the capital costs are estimated processing data of the Vessel Register and according to the methodology suggested by the study on "evaluation of the capital value, investments and capital costs in the fisheries sector" (No FISH/2005/03).

According to the capital study, the estimation of the capital value (GCS) consisted of three steps:

1. Specification of the composition of the active fleet by age

The specification of the composition of the active fleet by age has been done by processing the fleet register.

2. Estimation of price per unit of capacity (e.g. per GT)

In order to apply the PIM (perpetual inventory method) and in absence of other possibilities, the price per unit of capacity is estimated having in mind the price for building new vessels (replacement values). Those prices for 2011were:

- Small scale fleet segment = 21 050,00euros/GT
- Polyvalents segment > 12 meters = 47 250,00euros/$GT^{0,7}$
- Trawl segment = 25 820,00 euros/$GT^{0,8}$
- Seiner segment = 15 170,00 euros/GT

3. Calculation of the values of each vintage of the fleet at current prices.

After (1) and (2) we are able to estimate the Gross capital stock, the depreciated replacement value, and all the others variables, using the spread sheet. Inactive vessels are considered in the evaluation of the capital value and capital costs.

The following procedure was used to calculate FTE:

From the survey information is collected about:

- Number of months of activity
- Number of days of activity
- Average number of working hours per day
- Number of workers per month/gender/type of employment(partial/full time)
- Number of unpaid workers

Administrative data:
- Number of days of activity, from logbooks and auctions

G – Gender (M/F)
T – Type of employment (Partial/Full)
DA – Days of activity
WH – Average working hours
NUL – Number of unpaid labourers

If a vessel answer the survey:

1. Calculate the monthly average or workers (per gender and type of employment), AVGw(G,T)
2. FTE national(G) = AVGw(G,Full time)+ AVGw(G,Partial time)x[min(8,WH)/8]
3. FTE harmonized(G) = FTE national(G)xDAxWH/2000

If a vessel don't answer the survey:
AVGFTE(G) – Average number of FTE of the fleet segment(per gender)
AVGWH – Average of working hours of the fleet segment
AVGNUL – Average of unpaid labourers of the fleet segment

1. FTE national(G) = AVGFTE(G)
2. FTE harmonized(G) = FTE(G)xAVGWHxDA
3. NUL = AVGNUL

To calculate imputed value of unpaid labour:

If the vessel answer the survey:
Number of unpaid labourers x Crew Wages/Total FTE

If the vessel didn't answer the survey:
Average number of unpaid labourers x Average Crew Wages per FTE of the fleet segment

Obs: If vessels answer the survey partially, the average of the fleet segment is used on the missing items

The value of fixed assets and the capital costs are estimated processing data of the Vessel Register and according to the methodology suggested by the study on "evaluation of the capital value, investments and capital costs in the fisheries sector" (No FISH/2005/03).

Autonomous Region of the Azores (Div.X)

In 2013, fleet economic data was collected in the Autonomous Region of the Azores following the methodologies described in the National Programme. Frame population was determined from the total

population based on the fleet register and licensing for the reference year (2012). The frame population of active vessels was stratified into segments based on size and island..

A random sample was formed from each segment and the national questionnaire mailed to the professional associations based in each island of the Azores.

A total of 102 inquires were conducted, 45 for the segment 0<7 m, 33 for the segment 7<10 m, 14 for the segment 10<12 m, 8 for the segment 12<18 m and 2 for the segment 24<40m. All primary data was stored in Si2P using the application developed by DGRM.

We used the database register fleet, for the fleet variables and questionnaires for the others variables, with exception for the variables belong to the Group of Variables: Capital Costs and Capital Value, which were estimated according to the proposed PIM methodology. In what concern this group of variables we should refer that the price per unit of capacity is the price per unit of capacity of a new vessel, e.g. replacement price.

III.B.2. Data quality: Results and Deviation from NP Proposal

Mainland

There is a special effort to get consistent results for some economic parameters like: financial position in what concern the small scale fisheries. The information to calculate those variables was collected, however due to non consistent responses the results are not trustable.

The sample size for each fleet segment is determined by statistical procedure and targeting the precision level required by DCF for the variable income of the previous year (usually CV < 5%).

The accuracy in some strata/indicators is bellow expectable. There are several reasons to this: low rate of response, non consistent responses to the survey and great variability in each strata. In order to overcome the great variability in each strata further segmentation is used, which allow for a better quality. One big reason for the great variability of data results from the regulation itself, which requires the MS to collect data for all vessels, as long as they have at least one day of activity. We notice that any vessels, although licensed, have only few days of activity, usually for recreational purposes (for example, vessel owner is retired and fish only for self consumption). The result of this is that fleet segments, as required by the data collection framework, are not homogeneous.

The differences in segment numbers and clustering came from the fact that when the NP was made there was no data regarding the activity of the fleet and the classification of vessels was made with their licenses. At the start of the 2010 reference year data collection a new classification was made based on the activity of the fleet (mainly logbook data). This resulted in some reallocation of vessels regarding NP segments, therefore segment numbers and clustering needs changed as well. When clustering was necessary (insufficient number of vessels in a segment) an analysis for homogeneity was made based on landings data from logbooks and auction sales notes.

III.B.3. Follow-up of Regional and International recommendations

RCM LDF 2011	
Recommendation	**Follow up actions**
Information about fishing activity of Portuguese fleet in the CECAF area must be completed.	It is not clear what the Recommendation means.

Follow–up actions needed: Description or full templates (used in 2010) to be prepared by Portugal.	
The RCM received information on fishing activities of Portuguese vessels in the CECAF area other than those in the waters around Madeira. The NP of Portugal makes no mention of these fisheries. *Follow–up actions needed: Portugal to clarify the information. If the information is correct, the Portuguese NP must be adjusted*	It is not clear what the Recommendations means.

III.B.4. Actions to avoid shortfalls

In order to increase the reliability of the answers we crosscheck the responses to the survey with recorded data from vessel activity, e.g., income with landings, employment with minimum vessel crew, fuel volume with administrative data.

Increase of accuracy was accomplished by disaggregating the population into more homogeneous strata at the time of collection phase.

New, automated procedures were developed in 2012, including the possibility of calculation of quality indicators in real time, now a capability built in the database application. These new procedures reduce the manual manipulation of data, hence reducing the possibility of human error. They also improve the timeliness of available data and allow for the recalculation of those same indicators if primary data is changed. Work continued in 2013 in order to comply with new requirements of the data calls.

Autonomous Region of the Azores (Div.X)

To ensure the consistency of the data collected, the responses to the questionnaires were crosschecked with administrative data from vessel activity, e.g., income with landings and fuel consumption.

III.B. Other Regions

III.B.1. Achievements: Results and Deviation from NP Proposal

Autonomous Region of Madeira (CECAF 34.1.2)

In 2013, data for this module was collected in the Madeira region following the methodologies described in the National Plan for this year. Population segments considered for the collection of economic data resulted from the Universe of the registered vessels and its distribution is included at a national level in Table III.B.1. The acquisition of economic data was made by census, and the percentage of coverage achieved is indicated in this Table for each of the population segments.

The form prepared for national use was adapted and used in active vessels both in the census survey. Source of the data required in the case of non-active vessels was the fleet register. Table III.B.3. show the strategy used for the collection of data in each of the variables.

The objectives set for 2012 were almost achieved concerning the acquisition of data. (Table III.B.1.). Response rate achieved in the case of the purse seiners was about 100% In the case of the segments of the

vessels using hooks about 82% of the planned sample was reached in the segment below 10m and 62% in the segment above it at a local level.

The value of fixed assets and the capital costs are estimated using the same methodology as the one referred for Mainland (e.g. "evaluation of the capital value, investments and capital costs in the fisheries sector" (No FISH/2005/03).

III.B.2. Data quality: Results and Deviation from NP Proposal

Autonomous Region of Madeira (CECAF 34.1.2)

Not applicable.

III.B.3. Follow-up of Regional and International recommendations

Not applicable.

III.B.4. Actions to avoid shortfalls

Autonomous Region of Madeira (CECAF 34.1.2)

Due to some doubts arousing from answers to the inquiries, especially in the case of small vessels (under 10 m), validation of data was made in the case of the variables where administrative data exists. This validation allows to increase the reliability of the answers through the crosschecking of the responses to the survey versus recorded data from vessel activity, e.g., income with landings and fuel volume.

III.C. Metier-related Variables

Tables III.C.3, III.C.4, III.C.5 and III.C.6 present the information collected during 2013.

IPMA is responsible to collect and analyse the biological data from ICES Division IXa, ICES Sub areas XII, XIV and I, II, NAFO area and the long-line fleet targeting swordfish (ICCAT and IOTC). DOP/UAç is responsible for the collection of this information in ICES Division X and in pole and line fishery which targets tuna (ICCAT). Madeira is responsible for collecting information of local vessels operating around the archipelago (CECAF 34.1.2) and also of tuna fishery data of that fishing area (ICCAT).

III.C. North Sea and Eastern Arctic (ICES areas I, II)

III.C.1. Achievements: Results and Deviation from NP Proposal

GENERAL REMARKS

The description below should be considered along the following sampling strategies:
Concurrent sampling at sea: Samples of a trip drawn by an observer on board of a fishing vessel.
Concurrent sampling at market: Samples of a trip drawn in the harbor.
Total: Sum of all trips.

Depending on the fishing behaviour of the fleet operating in ICES areas I and II and in NAFO Regulatory Area (NRA), several reasons imply deviations on the collection of metier-related variables:

(a) Sampling is carried out by observers who remain on board throughout the period of the fishing trip, which can last from 2 to 3 months, with likely short notice changes in the fishing behaviour and operation area. Since 1995 the crew male nurses were trained to collect samples during the fishing trip;
(b) Once an observer is on-board, the entire trip is being sampled (i.e. sampling does not stop after a few hauls or fishing days, but lasts until the end of that trip);
(c) For each sampled haul, representative samples of target or priority species (as those under moratorium) along with another from the most abundant by-catch are sorted. This task is performed by one person under a short time constraint and can not collide with fish processing;
(d) As length sampling is performed on board, the reason for over-sampling is often that all fish of a once randomly chosen sub-sample has to be measured. This oversampling doesn't incur in additional costs. However, minor additional costs occur in the home laboratory in form of additional staff time for sampling processing;
(e) The stock-based variables are obtained from sampling at sea in order to obtain data representative of the population. Sampling achievement is therefore totally dependent on the catches of the species;
(f) In 2013, one observer got retired and was replaced by another, less experienced. The formation of this new observer was conditioned by the end of a fishing trip and the vessel's return to Portugal.
(g) Two different sampling frames have been considered for sampling purposes, both including metiers from NAFO areas and in subareas I, II (Eastern Artic): trawlers targeting demersal fish (PT1) the midwater otter trawlers (PT2). The reason behind this is that the fleet operating in ICES areas I and II also operates in NAFO Regulatory Area (NRA). This fishing pattern and fleet management is established by the fishing companies according to the fishing opportunities in each year. Occasionally, in its under way to NRA, vessels operate in subareas I and II. In both regions, sampling is carried out by observers who remain on board throughout the period of the fishing trip, which can last from 2 to 3 months. The major difficulty of sampling this fleet is the lack of prior information on the fishing behaviour of each of the cooperative vessels. Thus, it is difficult to predict the region where the vessel will operate and the effort to be spent on each.The sampling frame PT1 comprises the metiers OTB_DEF_>=120_0_0 (Eastern Artic) and OTB_MDD_130-219_0_0 (NAFO areas), the sampling frame PT2 comprises the metiers OTM_DEF_100-119_0_0 (Eastern Artic) and OTM_DEF_100-129_0_0 (Iceland, Greenland and Irminger Sea.

Two fisheries were selected either by landings, effort or value.

OTB_DEF_>=120_0_0

Target species: *Gadus morhua*

Sampled metiers: OTB_DEF_>=130_0_0

Concurrent sampling at sea: 2/2 (100%)
Concurrent sampling at market: not planned
Total: 2/2 (100%)

OTM_DEF_100-119_0_0

Target species: *Sebastes mentella*

Sampled metiers: OTM_DEF_100-119_0_0

Concurrent sampling at sea: 0/1 (0%)
Concurrent sampling at market: not planned
Total: 0/1 (0%)
Reason for shortfall: during 2013, cod was the primary target of the Portuguese fleet operating in the North Sea and Eastern Arctic areas. The cooperative vessels didn't have fishing activity with this metier. On-board sampling was not carried.

LENGTH COMPOSITION:

Table III.C.5 shows sampling intensity for length compositions (all metiers combined). Table III.C.6 provide the achievements on length sampling of catches, retained catches and discards by metier and species. Obtained data refer to unsorted catches.

The fleet operating in ICES areas I and II also operates in NAFO Regulatory Area (NRA). This fishing pattern and fleet management is established by the fishing companies according to the fishing opportunities in each year. Occasionally, in its under way to NRA, vessels operate in subareas I and II. If it happens, the cross between different regions occurs never more than once in each trip. In both regions, sampling is carried out by observers who remain on board throughout the period of the fishing trip, which can last from 2 to 3 months. The major difficulty of sampling this fleet is the lack of prior information on the fishing behaviour of each of the cooperative vessels. Thus, it is difficult to predict the region where the ship will operate if the ship will operate in different regions and the effort to be spent on each. Number of trips is calculated based on logbooks. Metiers specifications are coded into the database. An automatic routine calculates the number of trips based on existing information.

Concurrent sampling at sea has not been applied in this region. The fisheries in the Eastern Arctic fishing grounds are composed by almost clean catches of target species (cod and redfish) with few by-catches, which are difficult to sort out and to sample under time constraints. On-board sampling conditions (explained on the remarks above) leave no room to collect samples of less abundant and/or non commercial fish. For this reason, table III.C.6 includes no other species than those planned in the NP were sampled during concurrent sampling at sea.

***Sebastes mentella*:** Deviation on sampling intensity for length compositions is due to the absence of fishing activity with the metier OTM_DEF_100-119_0_0.

III.C.2. Data Quality: Results and Deviation from NP Proposal

Quality control procedures are implemented on the data base. The checks assure the type of data and the range of values of the variables are correct. A random check of 10% of the data per year is executed by inspecting the sample forms and the registered data.

Portugal has for a number of years been waiting for the outcome of the COST project to get tools for estimation of quality indicators such as CVs. During 2009 and 2010, a trial of the COST package indicated that the analytical calculation of CVs was not feasible. No new routines facilitating the implementation of COST for the fulfilment of the DCF requirements were released. This means that the evaluation on if and how the COST tools could be used is an ongoing work and the analysis have not been finalised yet. Indeed, the RCMs 2013 proposed a pilot study on the exploration and development of new facilities in the RDB, including the assessment on methods and quality controls of external tools (i.e. COST) and its level of integration with the RDB.

In the absence of a validated routine like COST for CVs estimation, the precision was computed by created R routines according to the method described in Annex 1. The achieved precision on unsorted catches in the North Sea and Eastern Artic region is as expected.

The achieved CVs are reported in Table III.C.5. CVs are presented for biological samples where there were adequate samples sizes. The target precision was achieved for all the species sampled.

III.C.3. Follow-up of Regional and International Recommendations

Source	Recommendation	Follow up actions
RCM NS&EA 2011 Métier related variables: Routines for establishing bilateral agreements	*MS should make sure that their landings abroad are included in their FishFrame upload allowing the RCM to analyse the possible needs for bilateral agreements.* *The RCMs should perform an annual analysis on landings in foreign countries and conclude where bilateral agreements need to be made. MS should set up*	Given the issues experienced during the data upload (see follow up actions regarding RCM NS&EA 2011 recommendation on Quality issues: use of FishFrame as regional database), Portugal couldn't submit the data to FF.

	agreements, fixing the details of sampling, compilation and submission of data in each case when it is indicated by the RCM that a bilateral agreement is needed. Standard output algorithms to enable analysis of compiled data should be included in FishFrame. *MS should set up agreements, fixing the details of sampling, compilation and submission of data in each case it is concluded by the RCM that a bilateral agreement is needed.* *Follow–up actions needed: MS to make sure landings abroad data are included into FishFrame.*	
RCM NS&EA 2011 Metier and stock variables : Metier descriptions	*MS to fill update metier descriptions already compiled by RCM NS&EA 2010 and using the standard template complete descriptions for any new metiers identified. Updated and new files to be uploaded by Fishing Ground co-ordinators.*	The update of the metier description was not a priority for the RCMNS&EA 2012 (the time frame for this recommendation) as priority was given to the data call and to provide data to be uploaded to the RDB. Nevertheless, Portugal regularly updates these templates and data.

III.C.4. Actions to Avoid Shortfalls

No action possible to reduce uncertainty of fleet activity. To avoid shortfalls Portugal is always trying to reach a wide participation of vessels which have not been sampled by observers before. This will enhance sampling coverage on fishing behaviour and operation area. To ensure that the planned length sampling is covering, as much as possible, the full range of expected lengths for each species with a good ratio cost/benefit, IPMA is developing an approach to set a minimum sampling effort on board to the Portuguese NAFO and NEAFC main fisheries. This approach is under implementation and in the near future will be presented to the relevant working groups in order to be included on the new DC-MAP.

III.C. North Atlantic

III.C.1. Achievements: results and deviation from NP proposal

NAFO Areas, Iceland, Greenland and Irminger Sea

Two fisheries were selected either by landings, effort or value.

OTB_MDD_130-219_0_0

Target species: *Reinhardtius hippoglossoides*

Sampled metiers: OTB_MDD_130-219_0_0

Concurrent sampling at sea: 4/4 (100%)
Concurrent sampling at market: not planned
Total: 4/4 (100%)

OTM_DEF_100-129_0_0

Target species: *Gadus morhua*, *Melanogrammus aeglefinus* and *Sebastes mentella*

Sampled metiers: OTM_DEF_100-129_0_0

Concurrent sampling at sea: 0/1 (0%)
Concurrent sampling at market: not planned
Total: 0/1 (0%)
Reason shortfall: due to lack of quota there was no fishing activity in Iceland, Greenland and Irminger Sea area.

LENGTH COMPOSITION:

Table III.C.5 shows sampling intensity for length compositions (all metiers combined). Table III.C.6 provide the achievements on length sampling of catches, retained catches and discards by metier and species. Obtained data refer to unsorted catches.

Despite the conditions on-board, concurrent sampling at sea has been applied in NRA during 2013.

***Gadus morhua,* NAFO Areas:** the number of length measurements exceeded the planned and requested minimum number of fish to be measured. Cod was the main target species for the Portuguese fisheries activities in NRA. As length sampling is performed on board, the reason for over-sampling is often that all fish of a once randomly chosen sub-sample has to be measured. Another reason is that once an observer is on-board, the entire trip is being sampled (i.e. sampling does not stop after a few hauls or fishing days, but lasts until the end of that trip). This oversampling doesn't incur in additional costs.

***Macrouridae, Raja spp., Reinhardtius hippoglossoides, Sebastes spp.,* NAFO Areas:** number of length measurements target not achieved due to reduced catches;

***Sebastes mentella,* Iceland, Greenland and Irminger Sea area:** the planned sample size has not been achieved due to the lack of activity with the metier OTM_DEF_100-129_0_0.

Iberian Fishing Ground (ICES sub-area IXa)

GENERAL REMARKS

Most Portuguese non-pelagic fisheries in the Iberian fishing ground are typically mixed fisheries that catch a wide variety of species, reflecting the biological diversity of the areas they exploit. Portuguese multi-gear fleets use a diversity of gears that allow exploitation of ecological communities in different habitat types, depths, and substrata (Duarte et al., 2009).
The coastal mixed-species multi-gear Portuguese fleet comprises medium-sized (>12 m) vessels, using a diversity of passive gears (Duarte et al., 2009), often operated during the same fishing trip. On-board sampling procedures allow catch determination by haul and fishing gear. However, on market sampling of multi-gear fishing trips, landing disaggregation by metier is not feasible.

Table III.C.3 include the total number of trips during the sampling year and the achieved number of sampled trips by metier according to the expected. Thus, this table doesn't include multi-gear fishing trips, which are reported on table II.C.4, according to its sampling frame.

The status of a scientific observer on board of a Portuguese fishing vessel still is a guest status. Article 11(3) of Council Regulation 199/2008 stipulates that scientific observers shall be accepted onboard, which did however not improve this situation. The possibility for sampling depends on the hospitality of ship owners and companies. Based on the present situation, random sampling of the fleet is still difficult and might be not optimal in future (even if a new legal basis for onboard sampling is in place), since there will remain some excuses to refuse an observer (eg maximum safe manning). Thus, the Portuguese on-board sampling programme in the Iberian Fishing Ground is based on a quasi-random sampling of cooperative commercial vessels of a fleet segment between 12 and 40 meters.

A main overall reason for deviations from what was planned is that it sometimes can be difficult to predict fishing pattern (or changes in fishing pattern) by metier for the sampling year at the time of compilation of the National Programme.

The description below should be considered along the following sampling strategies:
Concurrent sampling at sea: Samples of a trip drawn by an observer on board of a fishing vessel.
Concurrent sampling at market: Samples of a trip drawn in the harbor.
Total: Sum of all trips.

FYC_CAT_0_0_0

Target species: *Anguilla anguilla*

Sampled metiers: FYC_CAT_0_0_0

Concurrent sampling at sea: not planned
Concurrent sampling at market: 18/44
Total: 18/44

Reason for shortfall: fishing trips performed with fyke nets are not landed directly in the auction, but directly sold to regular buyers. Sampling scheme depends on collaborative eel fishermen and on prior information to the fishing trip.

FPO_MOL_0_0_0

Target species: *Octopus vulgaris*

Sampled metiers: FPO_MOL_0_0_0

Concurrent sampling at sea: not planned
Concurrent sampling at market: 207/180
Total: 207/180

Reason for exceeding: Regarding concurrent sampling at market, the intensity was assured and exceeding is consequence of the inherent concurrent sampling characteristics. Likewise, once the observers are at the market, while waiting to sample targeted metiers, time is used to sample an accessory number of trips with no additional costs.

GNS_DEF_80-99_0_0, GNS_DEF_60-79_0_0 and GNS_DEF_>=100_0_0

Target species: *Merluccius merluccius* (all metiers), *Pagellus acarne and other Sparidae* (only GNS_DEF_80-99_0_0), *Trisopterus luscus* (only GNS_DEF_60-79_0_0);

Sampled metiers: GNS_DEF_80-99_0_0, GNS_DEF_60-79_0_0 and GNS_DEF_>=100_0_0.

Most Portuguese non-pelagic fisheries in the Iberian fishing ground are typically mixed fisheries that catch a wide variety of species, reflecting the biological diversity of the areas they exploit, and operating several metiers during the same fishing trip (considering metier defined at level 6). Portuguese multi-gear fleets use a diversity of gears, often operated during the same fishing trip, which allow exploitation of ecological communities in different habitat types, depths, and substrata. Despite being able to select trips to sample on-shore by metier level 6, it is not possible to predict if the selected trip to be sampled at sea will operate one or several metier level 6. As most of the vessels hold gillnet licenses have several mesh size categories (same for trammel nets) all the trips sampled at sea actually include several metiers as defined at level 6. This is the reason for merging the sampling achievements at sea in table III.C.3 in what concerns sampling frame PT5.
Concurrent sampling at sea: 3/12
Concurrent sampling at market: 746/180
Total: 749/192

Reason for exceeding, concurrent sampling at market: 98 out of 746 trips sampled at market were sampled under a "Pilot Study on the Métiers Where Skates are Caught in IXa" (Annex II). Considering the remain 151 trips sampled at market, sampling targets were met.
Reason for shortfall, concurrent sampling at sea: constraints to get on-board explained above, under the "General Remarks" are the main reason for shortfall. Main reason for exceeding is consequence of the inherent concurrent sampling characteristics. Likewise, once the observers are at the market, while waiting to sample targeted metiers, time is used to sample an accessory number of trips with no additional costs.

GTR_DEF_80-99_0_0 and GTR_DEF_>=100_0_0

Target species: *Sepia officinalis, Solea spp., Rajidae* and *Lophius spp* (only GTR_DEF_>=100_0_0)

Sampled metiers: GTR_DEF_80-99_0_0 and GTR_DEF_>=100_0_0.

Most Portuguese non-pelagic fisheries in the Iberian fishing ground are typically mixed fisheries that catch a wide variety of species, reflecting the biological diversity of the areas they exploit, and operating several metiers during the same fishing trip (considering metier defined at level 6). Portuguese multi-gear fleets use a diversity of gears, often operated during the same fishing trip, which allow exploitation of ecological communities in different habitat types, depths, and substrata. Despite being able to select trips to sample on-shore by metier level 6, it is not possible to predict if the selected trip to be sampled at sea will operate one or several metier level 6. As most of the vessels of gillnet fleet hold licenses to operate with different mesh size (same for trammel nets) and all the trips sampled at sea actually included several metiers as defined at level 6. This is the reason for merging the sampling achievements at se in table III.C.3 in what concerns sampling frame PT5.

Concurrent sampling at sea: 16/12
Concurrent sampling at market: 464/132
Total per metier: 480/144

Reason for exceeding, concurrent sampling at market: 313 out of 464 trips sampled at market were sampled under a "Pilot Study on the Métiers Where Skates are Caught in IXa" (Annex II). Considering the remain 151 trips sampled at market, sampling targets were met.

LLS_DEF_0_0_0

Target species: *Merluccius merluccius, Conger spp, Pagellus spp*.

Sampled metiers: LLS_DEF_0_0_0. Additionally to those metiers selected by the DCF ranking algorithm, the metier "longliners targeting demersal species" (LLS_DEF_0_0_0) was also selected to be sampled in Div. IXa. This metier targets largest individuals than the other metiers, which are particularly relevant in the case of hake, subject to a recovery plan. The sizes caught by this metier have a large contribution to the estimates of SSB and their absence from catch-at-age matrices can bias this parameter.

Concurrent sampling at sea: not planned
Concurrent sampling at market: 102/48
Total: 102/48

Reason for exceeding: 56 out of 102 trips sampled at market were sampled under a "Pilot Study on the Métiers Where Skates are Caught in IXa" (Annex II). Considering the remain 46 trips sampled at market, sampling targets were met.

LLS_DWS_0_0_0

Target species: *Aphanopus carbo, Centroscymnus coelolepsis, Centrophorus squamosus*.

Sampled metiers: LLS_DWS_0_0_0

Concurrent sampling at sea: 2/12
Concurrent sampling at market: 20/24
Total: 22/36

Reason for shortfall: Regarding on-board sampling, the number of vessels prepared to take observers on board is much reduced when compared with the whole fleet. Additionally, some vessel owner's are not willing to take observer by arguing lack of space on-board and other logistic reasons.

OTB_CRU>=55_0_0

Target species: *Nephrops norvegicus* (OTB_CRU>=70_0_0), *Parapenaeus longirostris, Aristeus antenntus* (OTB_CRU_55-59_0_0) and *Micromesistius poutassou.*

Sampled metiers: OTB_CRU>=70_0_0 and OTB_CRU_55-59_0_0. Crustacean trawlers are invariably licensed for two different mesh size, 55-59 mm targeting shrimps and >= 70 mm targeting Norway lobster.

Concurrent sampling at sea: 6/12
Concurrent sampling at market: 65/96
Total: 71/108

Reason for shortfall: A number of crustacean trawls do not sell directly at the market, but have contracts with buyers. Others land crustaceans in frozen blocks. Therefore, besides the permanence of the observer at the auction, the chances to perform crustaceans sampling at the auction is lowered. Regarding concurrent sampling at sea, the reason for shortfall are the constraints to get on-board explained above, under the "General Remarks".

OTB_DEF_>=55_0_0

Target species: *Merluccius merluccius, Trachurus spp, Lophius spp* and *Micromesistius poutassou.*

Sampled metiers: OTB_DEF_>=55_0_0.

Concurrent sampling at sea: 27/27
Concurrent sampling at market: 168/144
Total: 195/171

Reason for exceeding: Concurrent sampling at market: 38 out of 168 trips sampled at market were sampled under a "Pilot Study on the Métiers Where Skates are Caught in IXa" (Annex II).

PS_SPF_0_0_0

Target species: *Sardina pilchardus, Trachurus spp, Scomber colias*.

Sampled metiers: PS_SPF_>=16_0_0.

Concurrent sampling at sea: 24/24
Concurrent sampling at market: 152/84
Total: 176/108

Reason for exceeding: Once the observers are at the market, while waiting to sample targeted metiers, time is used to sample an accessory number of trips with no additional costs.

TBB_CRU_<55_0_0

Target species: *Palaemonidae*.

Sampled metiers: TBB_CRU_<55_0_0

Concurrent sampling at sea: 8/12
Concurrent sampling at market: 17/12
Total: 23/24

LENGTH COMPOSITION:

Overall for the Portuguese fisheries in the Iberian fishing ground, the sampling intensity (market and at sea combined) was 119% of the planned number. For the 26 planned species, the overall sampling intensity for length compositions was 241.058 individuals (table III.C.5).

Concurrent sampling requires the sampling of the length frequencies of all species landed or caught during the sampled trip, aiming at the characterisation of target species and/or assemblages and selection patterns of distinct species. Resulting from concurrent sampling implementation, 239 different species were sampled and the overall achieved length sampling of catches was 364.859 individuals (table III.C.4).

Sampling intensities are in line with the explanations given above regarding the sampled trips by metier and necessarily depend on the retained catches and/or landings and on the discards. Furthermore, length sampling follows a general rule of collecting a minimum number of 100 fish per length class and area. In several cases, this rule leads to exceeding the achieved number of fish measured at national level.

As sampling achievements are totally dependent on the catches and/or landings of the species, this may also lead to undersampling. That is the case of ***Argentina spp.***, ***Lepidorhombus boscii***, ***Micromesistius poutassou***, ***Nephrops norvegicus***, ***Scomber scombrus*** and ***Conger conger***.

Anguilla anguilla is not sold directly at the market, but directly through regular contacts with buyers. Sampling intensity depends on species availability but, especially, on collaborative fishermen. This is the reason implied on shortfalls met.

In 2013 ***Aphanopus carbo*** sampling began to be performed in a processing plant. The need for adjustment in terms of logistics and the workspace constraint, as well as the reduced number of fishing trips sampled on-bord, are the main reasons for shortfall.

***Micromesistius poutassou*:** due to changes on the market demand for fish, only a few directed blue whiting fishing trips were observed. Therefore, length measurements could only be derived from by-catches in other fisheries.

Autonomous Region of Azores (ICES area X)

In achieving the objectives planned in the National Proposal 2011-2013 some difficulties were experienced. The difficulties experienced in 2013 was mainly due to modifications occurred in the landings composition per métier compared to previous years and second by administrative and budget constraints. Moreover, the execution of the discard observer program was compromised since no funds were available. These reasons explain the shortfalls and the over samplings recorded in 2013.

The difficult economic situation of Portugal and the strict rules for public expenditures in the Portuguese administration have made very difficult the execution of the program. With few exceptions, the program activities have been severely restricted.

Concerning Tables III.C.3 and III.C.4: "Achieved number of trips landings on shore":

1. Métier GNS_FIF (gill nets for finfish) – the access to these landings still remain the main difficulty in achieving the number of trips planned for sampling. The irregular activity of some vessels that use gill nets in an opportunistic bases, the remote location of some landing sites and also the fact that some are located in islands without a resident sampler, make difficult to achieve the initial goal. Moreover in 2013 was detected a decreased of landings by this métier in harbors with resident samplers that difficult the execution of the sampling goal. All these facts resulted in 64% achieved number of trips for this métier.

2. Métier LHP_PB (pole lines targeting tuna) – oversampling occurred due to an increase in the number of trips and the easy access to the vessels at landing. The samplers dedicated a bigger effort on sampling this métier. The original planned number of trips to be sampled was calculated in reference to a year with low catches of tuna.

3. Métier LLS_DEF (set longline for demersal fish) – For most of the trips sampled in this métier there are failures in the application of the sampling scheme due to the great number of species present at landing and also the short time window for conducting the sampling. Thus, there is a need to perform further samples, which resulted in oversampling. The samplers dedicated a bigger effort on sampling this métier, also because other activities could not be executed (e.g. sampling GNS_FIF in smaller islands), due to financial constraints.

4. PS_SPF (purse seine nets targeting small pelagic fish) - oversampling occurred due to the increased number of landings in relation to the previous year which raised the easy access to the vessels at landing.

Since the implementation of the discards observer program was not conducted, due to the reason described above, no trips on sea, were covered in both métiers planned, i.e., LHM_FIF and LLS_DEF.

Concerning Tables III.C.5 and III.C.6:

The reasons for the occurrence of oversampling, and according to each species are:

1. *Phycis phycis*, *Trachurus picturatus* and Sparidae: An increase in the volume of landings of these species was reflected in the higher number of specimens sampled.

2. *Thunnus albacares, Thunnus alalunga, Thunnus obesus* and *Katsuwonus pelamis*: the high number of individuals measured resulted from the increase in the number of landings sampled of the métier responsible for its capture (LHP_FIF).

A remark should be made to the fact that 1778 *Aphanopus spp.* were measured considering all métiers combined (table III.C.5). However, those individuals were not contemplated in table III.C.6 due to a misclassification of the métier that targets this species. Until 2012 it was wrongly classified as LLS_DEF but, since it is a drifted set longline, it became reclassified as LLD_DWF, and this is a non-selected métier for sampling. Since it is an emergent fishery in the region, 86 trips were sampled with no additional costs for the DCF.

The reasons for the occurrence of shortfalls, and according to each species are:

1. *Aphanopus spp.*: the fishery that targets black scabbardfish is still considered as emergent in the region, constantly dependent on financial incentives from the local government to stimulate fisherman in exploiting this resource as well as market flow for it. That explains the inconsistency and low number of vessels dedicated to this activity which is naturally reflected in the number of samples available for sampling.

2. *Aspitrigla cuculus, Mullus surmuletus, Molva dypterygia, Phycis blennoides* and *Zeus faber*: all these species are landed in very low quantities with little availability for sampling.

3. *Centrophorus granulosus, Dalatias licha and Squaliformes*: Since the majority of these species have TAC zero in the region, the length compositions for these species in previous years have being accomplished with the discards program. The lack of the discards program during 2013 prevented the length composition of these species. Length information available for these species in the sampling year is from the demersal annual survey.

4. *Polyprion americanus, Conger conger and Helicolenus dactylopterus*: the number of fish to be measured concerning this species was clearly overestimated resulting in a low mean number of individuals per sample for length sampling. Another fact contributing to this shortfall is the presence of gutted fish on landings (which is common for the *P. americanus* and *C. conger*). This implies that the available fish for sampling are less. Moreover, the discard program was not executed which have consequence on these shortfalls.

5. *Pagellus bogaraveo*: Since this is the main target of both LLS_DEF and LHM_FIF and, moreover it consists on the most discarded species, the missing of the discard program during 2013 explains the shortfall for this species.

6. *Octopus vulgaris*: the métiers (FPO_MOL) targeting this species were not selected for sampling, this way the individuals sampled are a consequence of an opportunistic behavior from them regarding other fishing gears.

7. *Beryx spp.*: The shutdown of the fishery due to national quota achievement reduced the fishing season to 8 months, and it's reflected in the low number of specimens sampled. Again, the lack of at-sea sampling has implication on the numbers achieved, since it consists on the second most discarded species.

8. *Raja clavata*: most of the specimens landed are processed on board, only the wings are landed. The discarding at sea it's also a common practice for this species. The access to whole fish is irregular.

9. *Istiophoridae, Isurus oxyrinchus, Prionace glauca,* and *Xiphias gladius*: the métiers (LLD_LPF) targeting this species were not selected for sampling, this way the individuals sampled are a consequence of an opportunistic behavior from them regarding other fishing gears.

III.C.2. Data Quality: results and deviation from NP proposal

NAFO Areas, Iceland, Greenland and Irminger Sea

See section III.C.2 for Supra-region North Sea and Eastern Arctic (ICES areas I, II).

Iberian Fishing Ground (ICES sub-area IXa)

Different quality control analysis (quarterly and annual) are implemented on the data base. The checks assure the type of data and the range of the variables are correct.

For on-board sampling data, R scripts perform quarterly checks on all data logged by the observers into the database. Each observer checks his/her data and gets feedback on quality results. Checks are run sequentially and until observer data is free of major errors.

For both, on-board and market sampling data, a random check of 10% of the data per year is executed by inspecting the sample forms and the registered data. On this procedure observers check each other's field logs against database value. When systematic biases are found, all observer records are checked. Additionally R scripts perform annual checks on all data logged by the observers into the database.

Portugal has for a number of years been waiting for the outcome of the COST project to get tools for estimation of quality indicators such as CVs. During 2009 and 2010, a trial of the COST package indicated that the analytical calculation of CVs was not feasible. No new routines facilitating the implementation of COST for the fulfilment of the DCF requirements were released. This means that the evaluation on if and how the COST tools could be used is an ongoing work and the analysis have not been finalised yet. Indeed, the RCMs 2013 proposed a pilot study on the exploration and development of new facilities in the RDB, including the assessment on methods and quality controls of external tools (i.e. COST) and its level of integration with the RDB.

In the absence of a validated routine like COST for CVs estimation, the precision was computed by created R routines according to the method described in Annex 1. The achieved precision on unsorted catches in the North Sea and Eastern Artic region is as expected.

The achieved CVs are reported in Table III.C.5. CVs are presented for biological samples where there were adequate samples sizes and where the statistical models used were able to converge. The target precision was achieved for most of the species sampled. The few deviations were found on the precision achieved on discards However, achieving the discards target CVs would require a very large increase in observer coverage which is currently not feasible.

Autonomous Region of Azores (ICES area X)

Quality checks and validation procedures implemented are: (1) All samples are checked by a coordinator before the input of data; (2) All data introduced in the database is checked for syntax errors; (3) A random check of 10% of the data is executed by inspecting the registered data for logical errors, like for example, type of data and values range of the variables; (4) Length distributions are then connected with the market landings for future cross examinations.

CVs estimations were conducted by R routines granted by IPMA (according method described in Annex 1 – IPMA, 2012-2014). The precision achieved on landings was as expected and reported in Table III.C.5. The target precision was achieved for most of the species sampled, the exceptions were *Isurus oxyrinchus*, *Prionace glauca*, and *Xiphias gladius* since there have been few samples of these species (see shortfalls text).

III.C.3. Follow-up of Regional and International Recommendations

NAFO Areas, Iceland, Greenland and Irminger Sea

See section III.C.3 for supra-region North Sea and Eastern Arctic (ICES areas I, II).

Source	Recommendation	Follow up actions
RCM NA 2012 Métier variables: Metier Descriptions	*RCM NA 2012 recommends that the metier descriptions for fishing grounds under the remit of the RCM be updated by each MS in as much detail as possible. These descriptions to be used as a tool, in conjunction with outputs from the RDB, to identify metiers that could be combined for regionally coordinated sampling plans.* *Follow–up actions needed: MS to update Metier descriptions. Deadline June 2013.*	The update of the metier description was not a priority for the RCM NA 2013 (the time frame for this recommendation) as priority was given to the new DCF, to the FF data call and data use and management (see RCM NA 2013 report, when available). Nevertheless, Portugal regularly updates these templates.
RCM NA 2011 Metier variables : Increase sampling in deep-water fisheries	*RCM NA recommends MS to check in their NP proposal 2012 that sufficient* *coverage of deep-water fisheries on-board sampling is planned, in order to meet the EWG needs.* *Follow–up actions needed: MS to check and consider increasing the sampling coverage of deep-water fisheries in their amendment of 2012 NP proposal.*	Portuguese on-board and on-shore sampling programme currently includes a métier targeting deep-water species in the North Atlantic region (LLS_DWS_0_0_0). Portugal consistently ensures the participation on the relevant scientific meeting (WGDEEP), providing information on deep sea fisheries and participating in the assessments of deep sea species to meet the needs of the group. Portugal is currently evaluating and reviewing sampling coverage needs for several fisheries, including deep-water species. Possible amendments will be submitted in the near future.
RCM NA 2011 Metier variables : Metier descriptions	*MS to update metier descriptions already compiled by RCM NA 2010 and using the standard template complete descriptions for any new regionally ranked metiers identified.* *Follow–up actions needed: MS to complete metier descriptions.*	Portugal regularly updates these templates.
RCM NA 2011 Metier and stock variables : Concurrent sampling	*MS to fill in template on concurrent sampling and provide it to the chair of RCM NA for compilation and sending to the chair of STECF EWG 11-19 in advance of the December meeting.* *Follow–up actions needed: MS to fill the template Chair of RCM NA to compile all questionnaires and sent them to the chair of STECF EWG 11-19*	Done.

RCM NA 2011 Métier related variables: Routines for establishing bilateral agreements	*MS should make sure that their landings abroad are included in the Regional Database upload allowing the RCM to analyse the possible needs for bilateral agreements.* *The RCMs should perform an annual analysis on landings in foreign countries and conclude where bilateralagreements need to be made. MS should setup agreements, fixing the details of sampling, compilation and submission of data in each case when it is indicated by the RCM that a bilateral agreement is needed. Standard output algorithms to enable analysis of compiled data should be included in the RDB.* *Follow-up actions needed: MS to make sure landings abroad data are included into the RDB*	Portugal will take this recommendation into consideration. Portugal experienced several difficulties when uploading data to Fishframe (FF) in response to the data call for commercial fisheries landing and sample data for the 2012 and 2013. While some of the difficulties sparked from format differences and inefficient design of the National DB, most reflected insecurity, inadaptation and lack of flexibility in FF in what concerns data collected from the wide diversity of fisheries sampled in EU waters. IPMA tracked all the issues experienced during the data upload and offer some resolutions in 2 reports (one for each of the data calls) sent to the relevant RCMs, the Head of ICES Advisory Programme (Poul Degnbol), the Head of ICES Data Centre (Neil Holdsworth) and Henrik Degel (with whom we exchanged emails during the data upload process). In 2013 IPMA attended the Regional Database Training Workshop (Hands-on workshop) where some of the issues that required addressing before our data could be uploaded were raised. Since then some updates and new solutions were implemented in FF and, thus, improving MS capabilities to answer future data calls.
RCM NA 2011 Metier variables : Regional ranking / RDB	*RCM NA recommends that all MS investigate data loaded to RDB under metier 'No_logbook' and replace with the agreed code given in section 3.1 and request the RDB steering group to endorse these as the only permitted entries within the fields defined.* *Follow–up actions needed: Resubmit data into the regional database after correction*	Not applicable. Due to the issues experienced during the data upload (see follow up actions outlined for the RCM NA 2011 recommendation on Métier related variables: Routines for establishing bilateral agreements), Portugal didn't submit data into the RDB.
RCM NA 2011 Metier variables : Regional ranking / RDB	*RCM NA recommended the use of the standard code MIS_MIS_0_0_0 to replace 'No_Matrix' for fisheries not specified in Annex IV of the Commission Decision.*	Not applicable. Due to the issues experienced during the data upload (see follow up actions outlined for the RCM NA 2011 recommendation on Métier related

	Follow–up actions needed: Resubmit data into the regional database after correction	variables: Routines for establishing bilateral agreements), Portugal didn't submit data into the RDB.

III.C.4. Actions to avoid shortfalls

NAFO Areas, Iceland, Greenland and Irminger Sea

See section III.C.4 for supra-region North Sea and Eastern Arctic (ICES areas I, II).

Iberian Fishing Ground (ICES sub-area IXa)

Concerning on-board sampling, the strategy is conditioned by the good will of the skippers to cooperate with IPMA. Although Council Regulation 199/2008 states that vessel owners "shall take observers on board" this situation remains to be difficult for several metiers. Portugal is making an effort to increase the participation of vessels in the national sampling programme by disclosing information about the DCF on the sampling sites and fisheries organizations.
Influenced by current consequences of the fishery policy, fishermen often decline from assisting the DCF. Additionally, a large number of vessels are not prepared to take observers on board. Other deviations occurred because of short notice changes in the fishing behaviour.

As shown on the achievements results regarding concurrent sampling at market, there was a large number of trips corresponding to the use of more than one metier. An import parcel of the Portuguese mainland fleet is composed by vessels operating a variety of gears and often using several different gears in the same trip, making it impossible to separate retained catches by metier. Portugal is considering and evaluating several sampling schemes (increase on-board sampling, inquiries, self-sampling, etc) to overcome this issue.

One of the main reasons for deviations from the planned is that it is sometimes difficult to predict spatial and temporal fishing patterns for some metiers. The problem can be reduced by implementation of robust sampling frames where the metiers can be seen as domains instead of strata. This is something that Portugal is already working on, including the identification of proper sampling frames, probability based ways to select primary sampling units and documentation of non-responses.

Autonomous Region of Azores (ICES area X)

In order to improve the sampling program constant adjustments are made. Even though, some bias can occur, due to some obstacle raised by the fishing industry operators (e.g fish handling).

To achieve the number of trips on-shore to be sampled of GNS_FIF métier the main landing harbors and season will be identified by analyzing landings in 2013, so that samplers could be allocated in visiting those spots according to a sampling scheme.

The importance of on-board sampling was proved to be of extreme importance on obtaining precious information either catch determination in fishing trips with multi-gear or as a source for complementing length composition for most species (commercial or not) landed in Azores. For *C. granulosus*, *D. licha* and *Squaliformes*, the implementation of the discard observer program will fulfill this gap of information. Once the funding problem is overtaken the collection of discard data will continue.

As for sampling of species such as *Octopus vulgaris*, *Isurus oxyrinchus*, *Prionace glauca* and *Xiphias gladius*, the sampling strategy of the métier has to be re-evaluated during DC-MAP implementation.

III.C. Other Regions

III.C.1. Achievements: results and deviation from NP proposal

The description below should be considered along the following sampling strategies:
Concurrent sampling at sea: Samples of a trip drawn by an observer on board of a fishing vessel.
Other: Samples of a trip drawn in the harbor or by a fisherman at sea - self sampling (see attached self_sampling form - Annex VI).
Total: Sum of all trips.

ICCAT

LLD_LPF_0_0_0

Target species: *Xiphias gladius*, *Prionace glauca*

Sampled metiers: LLD_LPF_0_0_0

Concurrent sampling at sea: 6/6
Other: 60/36
Total: 66/42

Reason for exceeding: Conservative planning. The placement of additional staff in Peniche, the main landing port for longliners targeting large pelagic fish, increased sampling intensity at market for both, long and short duration trips.

FPN_LPF_0_0_0

Target species: *Thunnus thynnus*.

Sampled metiers: FPN_LPF_0_0_0

Concurrent sampling at sea: not planned
Other: 35/24
Total: 35/24

Reason for exceeding: according to fish availability, the trap activity varies considerably among seasons. Under national regulations, each tuna harvesting must be monitored by a scientific observer. Taking advantage of this obligation, sampling is, in fact, a census.

LENGTH COMPOSITION:

Table III.C.5 shows sampling intensity for length compositions (all metiers combined). Table III.C.6 provide the achievements on length sampling of catches, retained catches and discards by metier and species. Obtained data refer to unsorted catches, retained catches and/or landings and discards.

Length sampling intensities is conditional to the concurrent sampling characteristics and depends on the landings and catch composition. As most of the measurements are taken on observer trips, once an observer is onboard, the entire trip is being sampled (i.e. sampling does not stop after a few hauls or fishing days, but lasts until the end of that trip). That is the case of ***Thunnus albacares***, ***Thunnus obesus*** and ***Isurus oxyrinchus***, whereas for the latter the planned number of 50 individuals was set conservatively.

Regarding ***Thunnus thynnus*** reason for exceeding is mainly the census enforced by legal provisions. Taking advantage on scientific observer's presence during each tuna harvesting, all individuals were measured. This effort has no costs to IPMA.

Istiophoridae: Reduced catches and quota restrictions are the reasons for shortfall.

Lamna nasus: planned number of samples not possible to achieve. The catch of this species is banned in European fisheries.

IOTC

LLD_LPF_0_0_0

Target species: *Xiphias gladius, Prionace glauca*

Sampled metiers: LLD_LPF_0_0_0

Concurrent sampling at sea: 2/2
Other: 0/4
Total: 2/6

Reason for shortfall: The fleet actually operating in IOTC is much reduced. Self-sampling has not been achieved due to the lack of cooperating vessels.

LENGTH COMPOSITION:

Table III.C.5 shows sampling intensity for length compositions (all metiers combined). Table III.C.6 provide the achievements on length sampling of catches, retained catches and discards by metier and species. Obtained data refer to unsorted catches, retained catches and/or landings and discards.

Length sampling intensities is conditional to the concurrent sampling characteristics and depends on the catch composition. This is the main reason for the shortfalls met on sampling intensities for ***Prionace glauca***, ***Thunnus alalunga*** and ***Tunnus albacares***.

Autonomous Region of the Azores(ICCAT)

Concerning Tables III.C.3 and III.C.4 "Achieved number of trips landings on shore":

1. Métier LHP_FIF (pole lines for tuna) – since the Azorean archipelago experienced a good tuna fishing season in 2013, it resulted in oversampling this métier. In addition to tuna, there were also many landings from smaller vessels of other pelagic fishes captured with pole and line.

Concerning Tables III.C.5 and III.C.6:

The reasons for the occurrence of oversampling, and according to each species are:

1. *Thunnus obesus, Thunnus alalunga, Thunnus albacares, and Katsuwonus pelamis*: The important volume of landings for the tuna species was reflected in the higher number of specimens sampled. Since tuna are migratory species and the occurrence varies enormously every year, the planed minimum number of fish to be measured is difficult to forecast.

The reasons for the occurrence of shortfalls, and according to each species are:

1. *Isurus oxyrhinchus, Prionace glauca* and *Xiphias gladius*: the métier (LLD_LPF) targeting these species was not selected for sampling this way, the individuals sampled were a consequence of an opportunistic catch behavior from other métiers, resulting in low quantities landed. This fact turns out in a low availability for sampling.

Autonomous Region of Madeira (CECAF area 34.1.2)

Procedures to assign each individual fishing trip to a specific metier were conducted using the methodology described in the NP 2011_2013. The selection of the metiers was achieved using effort (fishing days), landings and the value of the landings from the reference years (2008-2009). Results from this selection are presented in Table III.C.1. Results of the implementation of the sampling of metiers are presented in Table III.C.3 and the metier sampling strategy employed is in Table III.C.4.. These tables present the expected samples by metier (in accordance with the NP) and its achievement during 2013.

Tables III.C.5. show the total number of individual measured (all metiers combined) and Table III.C.6. the length sampling of catches, landings and discards by metier and species. In Table III.C.5 it is also provided the precision level (CV) obtained.

III.C.2. Data Quality: results and deviation from NP proposal

ICCAT

High CVs are expected for the highly migratory pelagic species, due to the wide size range of the catch. On the other hand, it is difficult to increase sampling, as most fishing trips last for months (up to 4/5 months). Another reason for such high CVs is the change on the size classes used for the calculations. In the past 5cm size classes were used, but currently these were changed to 2cm, as requested by the relevant RFMOs. However, it must be acknowledge that these data are a minor part of the data set used for the stock assessment, which combines data reported by all major countries fishing for these species in the Atlantic (e.g. Spain, Japan, Brazil, Taiwan, etc.). Moreover, RCM Med&BS 2012 considers that the calculation of CV is a poor indicator for quality.

The fishing activities targeting highly migratory pelagic species, namely pole lines and longlines, originate catches with distinct length compositions. This difference in length structure is the reason for computing CV separately.

Regarding data collected by the Autonomous Region of the Azores, quality checks and validation procedures implemented are: (1) All samples are checked by a coordinator before the input of data; (2) All data introduced in the database is checked for syntax errors; (3) A random check of 10% of the data is executed by inspecting the registered data for logical errors, like for example, type of data and values range of the variables; (4) Length distributions are then connected with the market landings for future cross examinations.

IOTC

See section III.C.2 above for supra region Other Regions (ICCAT)

Autonomous Region of Madeira (CECAF area 34.1.2)

Analysis of the fulfilment of the sampling objectives set for 2013 in the above mentioned tables show that the overall coverage was in accordance with these objectives. However, like in the previous years, a different situation result for the trips sampled on shore in comparison with the trips sampled on board (see Table III.C.4.). There was a good coverage of trip landings on shore, in general over passing the initial number of trips planned (largely exceeding 100% in most metiers). The oversampling achieved in the coverage of trip landings on shore was intended to overcome the impossibility, in 2013, of implementing the plan of observers onboard due to administrative and budgetary constraints.

III.C.3. Follow-up of Regional and International Recommendations

ICCAT

Source	Recommendation	Follow up actions
RCM Med&BS 2012 Recommendation	*Concerning the east bluefin tuna stock (Eastern Atlantic and Mediterranean sea), the RCM Med&BS appreciates*	Data has been provided according to the required data formats

Métier related variables: East Atlantic Bluefin tuna	*the progress achieved with the provision of metier related data (length) from MS participating in RCM LDF (Portugal, France, Spain) to the PGMed chair. However, the Group recommends that the data are provided according to the required data format, in order to be actually utilized for a complete estimation of the relevant CV of the bluefin tuna.*	
RCM LDF 2011 Métier identification: description and naming convention.	*Information about fishing activity of Portuguese fleet in the CECAF area must be completed.* *Follow–up actions needed: description or full templates (used in 2010) to be prepared by Portugal.*	A description of the Azorean fishing in the CECAF area is already presented in the AR2013.
RCM LDF 2011 Métier identification: description and naming convention.	*The RCM received information on fishing activities of Portuguese vessels in the CECAF area other than those in the waters around Madeira. The NP of Portugal makes no mention of these fisheries.* *Follow–up actions needed: Portugal to clarify the information. If the information is correct, the Portuguese NP must be adjusted*	A description of the Azorean fishing in the CECAF area is already presented in the AR2013.
RCM LDF 2011 Metier identification, Codification and naming convention	*For future DCF, the naming and coding métiers should approximate the coding system of RFMOs involved in this RCM.*	Portugal is following the preparation of the forthcoming DCF.
RCM LDF 2011 Metier identification, Codification and naming convention	*Considering that the current DCF does not allow any changes on the codification of métiers, the two groups recommend all MS involved in tuna and tuna-like fisheries to strictly follow the SGRN guidelines in terms of coding and naming conventions and also the reference list of métiers agreed by both groups at levels 6 and 7. For the transmission of data to the relevant RFMO (i.e. ICCAT), the conversion tables adopted by the two groups should be used.* *Follow–up actions needed: Updating of NP technical tables accordingly*	Data has been provided according to the required data format and coding.

IOTC

See section III.C.3 above for supra region Other Regions (ICCAT).

III.C.4. Actions to avoid shortfalls

ICCAT

IPMA is always enhancing communication with stakeholders in order to minimize difficulties raised by the fishing industry operators and trying to reach its wide participation, including self-sampling cooperation.

Regarding the Autonomous Region of the Azores sampling scheme, constant adjustments are made to the sampling programme to avoid problems but bias might occur due to difficulties raised by the fishing industry operators concerning the fish handling. The resulting is an opportunistic sampling strategy, which always tries to counteract to the benefit of a random sampling.

IOTC

See section III.C.4 above for supra region Other Regions (ICCAT).

Autonomous Region of Madeira (CECAF area 34.1.2)

As it was done in previous years, to overcome the difficulty of collecting information of the fisheries onboard we made a considerable effort, using the technical resources from the institution, in the collection of information and concurrent sampling made in the fishing pierduring the unloading of fish (this implied an increased utilization of our own personnel due to the fact that most of the unloading of fish, namely the demersal species from the metier LLS_FIF_0_0_0 occur during the night) and also the cross references with logbooks.

The implementation of the annual plan of observers will be resumed as soon as the Region overcome the budgetary constraints.

III.D. Recreational fisheries

III.D.North Atlantic (ICES areas V-XIV and NAFO areas)

III.D.1. Achievements: results and deviation from NP proposal

Recreational fisheries in Portugal are limited to areas IX.a and X.

The national law applicable to recreational fishing was changed in 2014, regulating the accidental catch of salmon, European Eel and Sharks (*Carcharodon carcharias, Cetorhinus maximus, Lamna nasus, Helexanchus griseus, Carcharinus falciformis, Carcharinus longimanus, Alopias superciliosus*), which if caught, must be released outright. This means the ban on fishing for salmon by recreational fishermen is kept and reinforced.

With regard to fishing for sea bass by recreational fishermen, as mentioned before, based on scientific study conducted in 2011, is not to expect a significant impact of fishery carried aboard maritime tourist boats. However, concerning onshore fishing, it is possible that this impact is greater and for this reason it is planned to conduct surveys to licensees of recreational fishing in 2014/2015.

III.D.2. Data quality: results and deviation from NP proposal

No data collection took place in 2013 due to the low impact on the stocks. New surveys planned for 2014/15.

III.D.3 Follow-up of Regional and international recommendations

No relevant recommendations applicable.

III.D.4. Actions to avoid shortfalls

In early 2014, in order to make it possible to carry out surveys in a comprehensive manner, was published national law which requires the introduction of a contact telephone number at the time the license is issued. Is also being developed an internet application that allowed DGRM to collect and process information concerning the activity performed by recreational fishermen, based on voluntary participation and surveys, which will assess the impact of fishing on the various fish populations.

The referred national law also seek to simplify the licensing process and to create a channel of communication through SMS between the administration and fishermen that allows sending notices, swiftly and automatically, concerning closed seasons, fishing seasons, management measures applicable to certain species or other relevant information.

III.D. Other Regions (CECAF, ICCAT, IOTC)

III.D.1. Achievements: results and deviation from NP proposal

In 2013 there were no recreational fisheries in CECAF, ICCAT and IOTC areas directed to the species mentioned in appendix 4, table 3.

III.D.2. Data quality: results and deviation from NP proposal

There are no deviations from the NP proposal.

III.D.3 Follow-up of Regional and international recommendations

Recreational fisheries: Best practice.	
RCM NA 2010 Recommendation	RCM NA recommends MS not to wait for the outcomes of the PGRFS to revise current (when relevant) and prepare future NP Proposal on recreational fisheries, but base their planning on the DCF requirements and their own knowledge of the fisheries. RCM NA also recommends to consider the recommendations of WKSMRF, WGEEL, and the future recommendations of PGRFS.
Follow-up actions needed	Revising MS NP proposals 2011-2013 and drafting new NP's.
Responsible persons for follow-up actions	All MS.

Recommendations were followed, with the constraints explained in section III.D.2.

III.D.4. Actions to avoid shortfalls

In early 2014, in order to make it possible to carry out surveys in a comprehensive manner, was published national law which requires the introduction of a contact telephone number at the time the license is issued. Is also being developed an internet application that allowed DGRM to collect and process information concerning the activity performed by recreational fishermen, based on voluntary participation and surveys, which will assess the impact of fishing on the various fish populations.

The referred national law also seek to simplify the licensing process and to create a channel of communication through SMS between the administration and fishermen that allows sending notices, swiftly and automatically, concerning closed seasons, fishing seasons, management measures applicable to certain species or other relevant information.

III.E. Stock-related variables

III.E. North Sea and Eastern Arctic (ICES areas I, II)

III.E.1. Achievements: results and deviation from NP proposal

GENERAL REMAKS

Stock-related data is collected in connection with sampling of commercial sources (observer trips). All stocks sampled during 2013 for biological variables, age, length, weight and sex are gathered in table III.E.3, which provides an overview over the species by region/fishing ground/area/stock.

The necessity to sample on board of freezer trawlers and trawlers with processing units and the necessity to sample landings of demersal species which are landed as partly or processed products, imply that the collection of metier-related variables (section III.C), as well as the collection of stock-related variables (section III.E), should be handled only at-sea. This provides the possibility to sample unsorted catches and to take otoliths and samples for length, weight and sex. Beyond the "General Remarks" described under the section "III.C.1. North Sea and Eastern Arctic (ICES areas I, II)", several other reasons imply deviations from the NP on the collection of stock-related variables:

(a) The majority of stock-based variables are obtained from sampling at sea in order to obtain data representative of the population. Sampling achievement is therefore totally dependent on the catches of the species;
(b) There is general rule for observers to collect stock-based variables of 10 fish per length class and area. If only very few length classes occur during a fishing trip, this rule can lead to a deviation from the planned;
(c) Otoliths were only taken but not read. Effort is in place to increase age reading through the training of a technician. However, taking into account primarily the age data needs for analytical assessment, the target are the NAFO stocks on Sub Area 3, with special focus on Flemish Cap cod. The Portuguese catch of Artic cod in ICES areas I, II is below 1% of the overall annual catch. Commercial age length keys (ALK) are built with age reads from the bulk of the catch, taken by the major fleets in this fishery (Norway and Russia). Portugal does not provide an ALK;
(d) Since one fishing trip lasts, on average, four months it is practically impossible to collect and store gonads on board. The toxicity and volatility of storage organic compounds is not compatible with hygiene and food safety requirements for the fisheries sector. Thus, maturity data is not collected;
(e) The indications of the planned minimum numbers of individuals to be measured for the different variables are based on experiences with the Portuguese sampling scheme until 2008. Even with the possibilities to adjust the numbers within the updates for the programme it is not always possible to predict accurately if these planned numbers are reachable and realistic.

Gadus morhua was the primary target of the Portuguese fleet operating in the North Sea and Eastern Arctic areas and the cooperative vessels didn't have fishing activity with the metier OTM_DEF_100-119_0_0. This is the reason why no stock-related variables were collected for ***Sebastes mentella***.
A new on-board observer was recruited in 2013. The lack of experience and the need for a training period on duty led to the prioritization of length composition's sampling. This is the reason for ***Gadus morhua*** weight at length undersampling

III.E.2. Data Quality: Results and deviation from NP proposal

Quality control procedures are implemented on the data base. The checks assure the type of data and the range of values of the variables are correct. A random check of 10% of the data per year is executed by inspecting the sample forms and the registered data.

Portugal has for a number of years been waiting for the outcome of the COST project to get tools for estimation of quality indicators such as CVs. During 2009 and 2010, a trial of the COST package indicated that the analytical calculation of CVs was not feasible. No new routines facilitating the implementation of COST for the fulfilment of the DCF requirements were released. This means that the evaluation on if and how the COST tools could be used is an ongoing work and the analysis have not been finalised yet. Indeed, the RCMs 2013 proposed a pilot study on the exploration and development of new facilities in the RDB, including the assessment on methods and quality controls of external tools (i.e. COST) and its level of integration with the RDB.

In the absence of a validated routine like COST for CVs estimation, the precision were computed by created R routines according to the method described in Annex 1.

The achieved CVs are reported in Table III.E.3. CVs are presented for biological samples where there were adequate samples sizes. CV values for cod are reflecting age reading lagging and low sampling intensity for the variable weight at length.

The Portuguese catch of artic cod in ICES Div. II is 0,5% or less of the overall annual catch from this stock. Commercial age length keys are built with otoliths from the bulk of the catch, taken by the major fleets in this fishery (Norway and Russia). Portugal does not provide an ALK. However, even if collected and read, artic cod otoliths from Portuguese catches will have little chance to impact either of these ALK, that each year disaggregate the marginal catches at length into catches at age (depending on the division they are taken from). MS plans to ask for derogation.

III.E.3. Follow-up of Regional and international recommendations

Source	Recommendation	Follow up actions
RCM NS&EA 2012 Stock related variables: Potential bilateral agreements on sampling of landings abroad	*Where it was identified that bilateral agreement is required, according to the rules agreed upon at the RCM NS&EA 2011 and endorsed by the LM8 and STECF 11-19, MS are requested to establish or update a bilateral agreement on sampling of landings abroad.* *Follow–up actions needed: MS to evaluate the need for such an agreement based on the overview provided by the RCM NS&EA.*	Not applicable. Portugal NP doesn't include landing sampling in the North sea & Eastern Artic region. Only sampling at sea is performed. Portugal has no notice from landings of Community vessels operating in the North sea & Eastern Artic region.
RCM NS&EA 2011 Metier and stock variables : Metier	*MS to fill update metier descriptions already compiled by RCM NS&EA 2010 and using the standard template complete*	The update of the metier description was not a priority for the RCMNS&EA 2012 (the time frame for

descriptions	*descriptions for any new metiers identified. Updated and new files to be uploaded by Fishing Ground co-ordinators.*	this recommendation) as priority was given to the data call and to provide data to be uploaded to the RDB. Nevertheless, Portugal regularly updates these templates and data.

III.E.4. Actions to avoid shortfalls

Portugal is trying to solve the inability to read otoliths through the training of specialized resources and seeking to establish international agreements. However it is arguable that these shortcomings can directly be translated into a low cost-benefit status, taking into account that, at least as regards catch at age data, otoliths have continue to be collected for the most important commercial fish species, following the sampling protocols. These otoliths collections are properly stored and available to the EU fisheries research network, in order to provide age length keys for various commercial catches on an annual basis.

As mentioned before, the fleet operating in ICES areas I and II also operates in NAFO area. In both regions sampling is carried out by samplers who remain on board throughout the period of the fishing trip, which can last from 2 to 3 months with likely short notice changes in the fishing behaviour and operation area. To avoid shortfalls Portugal is always trying to reach a wide participation of vessels which have not been sampled by observers before.

III.E. North Atlantic

NAFO Areas and Iceland, Greenland and Irminger Sea

In the NAFO Regulatory Area, species such as ***Hippoglossoides platessoides*** and ***Glyptocephalus cynoglossus*** and ***Gadus morhua*** (except for division 3M) have TAC 0. Therefore, the planned minimum number of individuals to be measured at a national level can not be planned in advance.

Gadus morhua (NAFO 3M), ***Raja spp.*** (SA 3), ***Reinhardtius hippoglossoides*** (NAFO 3KLMNO) ***Sebastes spp.*** (NAFO areas): Reasons for deviatons are explained in the beginning of chapter "III.E. North Sea and Eastern Arctic (ICES areas I, II)" under the "General remarks".

Sebastes mentella, Iceland, Greenland and Irminger Sea area: due to lack of quota there was no fishing activity in Iceland, Greenland and Irminger Sea area.

Iberian Fishing Ground (ICES sub-area IXa)

Stock-related data is collected in connection with sampling of commercial sources (observer trips and harbour sampling) and on surveys. All stocks sampled during 2013 for biological variables, age, length, weight, sex, sexual maturity and fecundity are gathered in table III.E.3, which provides an overview over the species by region/fishing ground/area/stock that were sampled during.

The indications of the planned minimum numbers of individuals to be measured for the different variables are based on experiences with the Portuguese sampling scheme and survey catches until 2008. Even with the possibilities to adjust the numbers within the updates for the programme it is not always possible to predict accurately if these planned numbers are reachable and realistic.

Aphanopus carbo is usually landed gutted. For many years, the solution has been the purchase of fish directly to a fisheries organization with which IPMA's agreed the purchase of fish without gutting. Due to the bureaucratization of the hiring processes to supply the public administration with goods and

services, was not possible to ensure this purchase during 2013. This is the reason for the shortfalls met on the collection of all the variables. IPMA is making every effort to overcome this issue to ensure regular purchase of fish.

Lepidorhombus boscii: for the variable weight@length the number of individuals achieved is below the planned. Due to vessel's balance the weight variable is difficult to collect accurately on board. Thus, individuals on the surveys are not weighed. For the remain variables the achieved number of individuals well exceeded the planned and requested minimum number of measurements. Reason for oversampling lies in the number of individuals sampled during the surveys at sea where all the variables, except the weight, were widely collected. Excess sampling does not incur in additional expenditure.

Lepidorombus whiffiagonis (all variables): although the share of this species in EU TAC is barely 3% and current retained catches are reduced to a few tons, it was not asked for derogation. The concernment on supporting a sampling scheme for the species is due to the use of its length composition in stock assessment. The species stock-based variables are mainly obtained from sampling at sea and at the market. Sampling achievement are therefore totally dependent on the catches of the species.

Lophius budegassa and ***Lophius piscatorius***: as the fish reaches the market gutted, weight sampling and gonads collection only occur during surveys at sea, or purchased (very expensive) before processed. This results in reducing the possibility of sampling weight@length, sex-ratio@length and maturity@length, becoming dependent on the amount of fish sampled during the research surveys at sea. For both species, ilicia were only taken but not read.

Merluccius merluccius, ***Micromesistius poutassou***, ***Scomber colias*** and ***Trachurus trachurus*** (all variables): the reason for exceeding is the sampling scheme based on the number of samples and not individuals, with a minimum of 10 specimens per sample to ensure its quality. All species are sampled on board, at market and during surveys at sea. Hake otoliths were only taken but not read due to lacking consensus on age reading methodology and validity. Excess sampling does not incur in additional expenditure.

Nephrops norvegicus and ***Parapenaeus longirostris***: due to the high cost of samples, most individual sex-ratio and maturity variables are sampled during concurrent sampling at market. Maturity is only ascertained if females and individual weight is mainly collected during surveys at sea. Thus, weight@length and sex-ratio@length are below the planned minimum number of individuals to be measured, maturity@length is above the planned.

Raja brachyura, ***Raja clavata***, ***Raja montagui***, ***Leucoraja naevus*** (all variables): Since 2011, under the scope of a pilot study, Portugal collects biological data, size, reproduction and growth from skates (see Annex I). Length frequency distribution and sex ratio analyses, as well as estimates of reproductive parameters (size at maturity, reproductive season and fecundity), were performed for several species. Skate's data collection is primarily supported through the purchase of fish. The deviations found are due to the market availability of the species. Age readings not performed due to the lack of standardized methodologies. Age readings are not used in stock assessment.

Sepia Officinalis (all variables): the collection of stock-based variables is primarily supported through the purchase of fish. The deviations found are due to the market availability of the species.

Solea solea (all variables) sample acquisition was suspended until results from the ongoing analysis of collected data are available to identify gaps on stock related variables.

Note that for some specie, age reading was not performed due to lacking consensus on its methodology and validity (hake, anglers, black scabbardfish). For some other species Portugal is trying to solve the inability to read otoliths through the training of specialized resources (eg. pout) and seeking to establish international agreements (eg. *Lepidorombus spp.).* This absence of age readings for several species gave rise to a lack of CVs for length at age variable. However, as planned, otoliths, ilicia and spines were collected and stored following the practices recommended by the expert groups, prepared for reading and subsequent calculation of precision levels.

Autonomous Region of Azores (ICES area X)

The difficult economic situation of Portugal in 2013 coupled with strict rules for public expenditures have made very difficult the execution of the program. With few exceptions, the program activities that depended on acquisitions of goods (such as purchasing of fish), and other activities have been severely restricted or deactivated (e.g. discards programme). Besides that, the value per kg of some species (e.g. *Pagellus bogaraveo*, *Polyprion americanus*), was extremely high preventing from buying the amount of fish necessary as well as the scarce abundance at landings regarding other species (e.g. *Aspitrigla cuculus*, *Zeus faber*, *Mullus surmuletus*). For these reasons the number of fish sampled for stock based variables where not achieved for most off stocks.

Regarding *Aphanopus carbo*, in 2013 a contractual problem brought difficulties on accessing the fish for acquisition since the individuals were sold directly to the stakeholder that was buying them without passing through the auction house.

Phycis blennoides and *Trachurus picturatus* were the exception to the stated above, making the acquisition of samples for stock related variables more achievable.

Oversampling of *Squaliformes* is due to the fact that these samples are from the annual demersal survey.

Otoliths are collected under the specific guidelines determined by experts working groups but, no readings from the otoliths collected during 2013 have yet taken place.

III.E.2. Data Quality: Results and deviation from NP proposal

NAFO Areas and Iceland, Greenland and Irminger Sea

See section III.E.2 for Supra-region North Sea and Eastern Arctic (ICES areas I, II).

Iberian Fishing Ground (ICES sub-area IXa)

Different quality control analysis (quarterly and annual) are implemented on the data base. The checks assure the type of data and the range of the variables are correct.

For on-board sampling data, R scripts perform quarterly checks on all data logged by the observers into the database. Each observer checks his/her data and gets feedback on quality results. Checks are run sequentially and until observer data is free of major errors.

For both, on-board and market sampling data, a random check of 10% of the data per year is executed by inspecting the sample forms and the registered data. On this procedure observers check each other's field logs against database value. When systematic biases are found, all observer records are checked. Additionally R scripts perform annual checks on all data logged by the observers into the database.

Portugal has for a number of years been waiting for the outcome of the COST project to get tools for estimation of quality indicators such as CVs. During 2009 and 2010, a trial of the COST package indicated that the analytical calculation of CVs was not feasible. No new routines facilitating the implementation of COST for the fulfilment of the DCF requirements were released. This means that the evaluation on if and how the COST tools could be used is an ongoing work and the analysis have not been finalised yet. Indeed, the RCMs 2013 proposed a pilot study on the exploration and development of new facilities in the RDB, including the assessment on methods and quality controls of external tools (i.e. COST) and its level of integration with the RDB.

In the absence of a validated routine like COST for CV estimation, the precision was computed by created R routines according to the method described in Annex 1.

The achieved CVs are reported in Table III.E.3. CVs are presented for biological samples where there were adequate samples sizes. CV targets were met for 56% of the stocks. The major problems are found to cover the entire range sizes in order to obtain the required accuracy levels. This, in most cases, is due to the impossibility of access to some places for fishing purposes.

Autonomous Region of Azores (ICES area X)

Quality checks and validation procedures implemented are: (1) All samples are checked by a coordinator before the input of data; (2) All data introduced in the database is checked for syntax errors; (3) A random check of 10% of the data is executed by inspecting the registered data for logical errors, like for example, type of data and values range of the variables.

CVs estimations were conducted by R routines granted by IPMA (according method described in Annex 1 – IPMA, 2012-2014). The precision achieved are reported in Table III.E.3. As expected, due to the reasons previously explained the required target precisions were not mostly achieved.

III.E.3.Follow-up of Regional and international recommendations

NAFO Areas and Iceland, Greenland and Irminger Sea

See section III.E.3 for Supra-region North Sea and Eastern Arctic (ICES areas I, II).

Iberian Fishing Ground (ICES sub-area IXa)

Source	Recommendation	Follow up actions
RCM NA 2012 Stock related variables: Setting up of Bilateral agreements	*RCM NA recommends MS put in place bilateral agreements for sampling of landings abroad where applicable.* *Follow–up actions needed: Include bilaterals in the revised NP proposals.*	Portugal regularly monitors the need for bilateral agreements and acts accordingly. Portugal will re-evaluate the need for bilateral agreements in the North Atlantic region before the RCM NA 2014.
RCM NA 2012 Stock related variables: Setting up of Pilot programmes for sampling of Boar fish (*Capros aper*)	*RCM NA recommends MS involved and that have obligations in the Boar fish fishery to set up a pilot program for sampling.* *Follow–up actions needed: Include pilot study in the revised NP proposals.*	Not applicable. Portugal has no boar fish fishery.
RCM NA 2011 Metier and stock variables : Concurrent sampling	*MS to fill in template on concurrent sampling and provide it to the chair of RCM NA for compilation and sending to the chair of STECF EWG 11-19 in advance of the December meeting.* *Follow–up actions needed: MS to fill the template Chair of RCM NA to compile all questionnaires and sent them to the chair of STECF EWG 11-19*	Done.

RCM NA 2011 Stock variables : Regional collection	*RCM NA recommends all MS to have a careful look at the tables in annex VII, in order to identify stocks for which a bilateral agreement would improve the sampling scheme.* *Follow–up actions needed: MS to identify bilateral agreement, contact NC and propose such agreement in their NP proposal for 2012*	Portugal regularly monitors the need for bilateral agreements and acts accordingly. Portugal will re-evaluate the need for bilateral agreements in the North Atlantic region before the RCM NA 2014.
RCM NA 2011 Stock variables : Quality issues	*RCM NA recommends MS to complete properly the tables III.E.1 and III.E.2.* *Follow–up actions needed: MS to review their tables of the NP Proposal 2011-2013.*	Portugal has followed this recommendation in the submitted NP 2012.
RCM NA 2011 Stock variables : Regional collection	*RCM NA recommends all MS to have a careful look at the tables in annex VII, in order to identify stocks for which a bilateral agreement would improve the sampling scheme.* *Follow–up actions needed: MS to identify bilateral agreement, contact NC and propose such agreement in their NP proposal for 2012*	Portugal regularly monitors the need for bilateral agreements and acts accordingly. Portugal will re-evaluate the need for bilateral agreements in the North Atlantic region before the RCM NA 2014.

III.E.4. Actions to avoid shortfalls

NAFO areas, Iceland, Greenland and Irminger Sea

See section III.E.4 North Sea and Eastern Arctic (ICES areas I, II).

Iberian Fishing Ground (ICES sub-area IXa)

Regarding crustacean species, sampling directly at the auction by the staff has in general been very successful and cost effective. Portugal will continue with this sampling setup.

Regarding the other stocks, Portugal plans to keep following the fishing activity improving sampling when acquisition is subject of market availability.

Portugal remains focused on providing high-quality data to stock assessment working groups. Other stocks or parameters that are not directly relevant will have a lower priority.

Autonomous Region of Azores (ICES area X)

Shortfalls in sampling species for stock related variables detected in the respective sampling year are easily overcome once the funding problem for the regional data collection is overtaken.

III.E. Other Regions

III.E.1. Achievements: results and deviation from NP proposal

ICCAT

Stock-related data is collected in connection with sampling of commercial sources (observer trips and harbour sampling). All stocks sampled during 2013 for biological variables length and sex are gathered in table III.E.3, which provides an overview over the species by region/fishing ground/area/stock that were sampled during 2013. For several species, as indicated in table III.E.3, it is difficult to plan in advance the number of individuals to be weighted on board since the use of weighing scales on board depend on vessels facilities and weather conditions.

The majority of stock-based variables are obtained from sampling at sea in order to obtain data representative of the population. Sampling achievement is therefore totally dependent on the catches of the species. This is the main reason for the deviatons.

In 2013, the weight variable was not collected due to unsuitable vessel's conditions. As fish (especially sharks) is landed in heavy blocks, weight's sampling at the market is also unfeasible. Sworfish sex determination is only possible to collect on-board of freezer vessels. The remaining longliner fleet does not operate fish processing on board.

In Azores, the metier concerning the swordfish fishing is not a selected metier for sampling, and is not considered as a top priority on the local sampling program. Besides, and with exception of tuna like species, the landings of large pelagic (*Xiphias gladius*, *Prionace glauca* and *Isurus oxyrhinchus*) in Azores are either very scarce (local fleet), landed directly into containers not going through the fish auction house (foreigner fleets), and/or the fish had suffered some on board transformation that does not allow the best biological sampling procedures (gutted, headless and tailless, frozen). When the landed species are in conditions to be sampled, opportunistic sampling is conducted, which was not the case in 2013. Concerning tunas, there are some difficulties in obtaining biological stock-related variables: 1) skipjack tuna is landed directly to the canning industry; 2) bigeye tuna is mostly transhipped directly to freezing vessels and the large dimensions of the fish make it too expensive to buy these individuals. The biological sampling for sex, maturity and age is not mandatory by ICCAT in a regular basis.

IOTC

Stock-related data is collected in connection with sampling of commercial sources (observer trips). All stocks sampled during 2013 for biological variables length, weight and sex are gathered in table III.E.3, which provides an overview over the species by region/fishing ground/area/stock that were sampled during 2013. For several species, as indicated in table III.E.3, it is difficult to plan in advance the number of individuals to be weighted on board since the use of weighing scales on board depend on vessels facilities and weather conditions.

The majority of stock-based variables are obtained from sampling at sea. Sampling achievement is therefore totally dependent on the catches of the species. Sampling is carried out by observers who remain on board throughout the period of the fishing trip, which can last from 2 to 3 months, with likely short notice changes in the fishing behavior. Once an observer is on-board, the entire trip is being sampled (i.e. sampling does not stop after a few hauls or fishing days, but lasts until the end of that trip). This is the main reason for the deviations.

Autonomous Region of Madeira (CECAF area 34.1.2)

Tables III.E.1 and III.E.2 summarises the landings in 2013 and the long term sampling of required stocks. Table III.E.3 summarises the sampling intensity for stock-based variables. The coverage achieved in the

species considered was below than it was planned previously and this was due to a lack of fish for biological samplings.

III.E.2. Data Quality: Results and deviation from NP proposal

ICCAT

Portugal has for a number of years been waiting for the outcome of the COST project to get tools for estimation of quality indicators such as CVs. During 2009 and 2010, a trial of the COST package indicated that the analytical calculation of CVs was not feasible. No new routines facilitating the implementation of COST for the fulfilment of the DCF requirements were released. This means that the evaluation on if and how the COST tools could be used is an ongoing work and the analysis have not been finalised yet. Therefore, the precision were computed by created R routines according to the method described in Annex 1.

High CVs are expected for the highly migratory pelagic species, due to the wide size range of the catch. On the other hand, it is difficult to increase sampling, as the fishing trips last for months (up to 2/3 months). Another reason for such high CVs is the change on the size classes used for the calculations. In the past 5cm size classes were used, but currently these were changed to 2cm, as requested by the relevant RFMOs.

IOTC

See section III.E.2 above for supra region Other Regions (ICCAT).

Autonomous region of Madeira (CECAF area 34.1.2)

Determination of variables including age estimates from otolith readings are still in progress due to a delay in otolith readings.

It was not possible to accomplish the biological sampling of *Thunnus obesus* due to the impossibility of accessing to the specimens processed in the industry and the very high cost of this species does not allow the acquision of specimens for laboratorial biological sampling. Similar situation was observed concerning the biological sampling of *Sardina pilchardus*, *Centrophorus squamosus* and *Katsuwonus pelamis*, mainly due to the lack of fish for bio sampling purpose.

III.E.3.Follow-up of Regional and international recommendations

ICCAT

Not applicable. There are no relevant recommendations to be followed by MS.

IOTC

Not applicable. There are no relevant recommendations to be followed by MS.

III.E.4. Actions to avoid shortfalls

ICCAT

Shortfalls are due to problems inherent in large pelagic fisheries: long fishing trips, vessel's conditions and sampling intensities depend on fishing pattern. No additional measures to be proposed.

See section III.E.4 above for supra region Other Regions (ICCAT).

III.F. Transversal variables

III.F.1. Capacity

III.F.1.1. Achievements: Results and deviation from NP proposal

As stated in our NP the collection of capacity data defined in DCF was achieved through Fleet register database and covers 100% of population.

III.F.1.2. Data quality: Results and deviation from NP proposal

Results reflect the actual state of the fleet. There are no deviations from the NP proposal. Some numbers might not match the fleet register data. This is due to the recommendation to include any active vessel in 2013 and as a consequence DCF capacity includes some vessels that became active after January, 1st .

III.F.1.3. Actions to avoid shortfall

Not applicable.

III.F.2. Effort

III.F.2.1. Achievements: Results and deviation from NP proposal

Mainland

As stated in our NP the collection of effort data defined in DCF was achieved through logbooks for vessels > 10m and through sales notes for vessels < 10m.

During 2013 all logbooks covering the vessels with a pattern of activity with more than one day, were computerised. This information covers all the activity in foreign grounds, landings in foreign ports and also information of larger vessels operating in national waters. Most vessels have now the electronic logbook, which provides a more updated information but with a different approach. This results in some different ways to account for the fishing days and days at sea. As a consequence time series may change after 2011.

For the remaining vessels, with one day trip and landings of fresh fish on mainland ports, the source of information for effort estimation are the sales notes. For the purpose of effort estimation it is considered each auction sale as an effort day.

Therefore, for the mainland fleet all information to support effort estimation is collected, enabling to comply with rules laid down on the regulation.

For vessels > 10m data is already aggregated by metier. For vessels < 10 m, as stated in our NP, work was undertaken toward the metier approach and some of the metiers are already identified. This work continued through 2009 but stopped in 2010 due to several budget restrictions that prevented acquisitions of services. It was not yet possible to resume this work in 2013.

III.F.2.2. Data quality: Results and deviation from NP proposal

Mainland

The deviations from the NP proposal are related with metiers for vessels < 10 m, due to the impossibility of subcontract of services in 2013, as stated in the previous section.

III.F.2.3. Follow-up of Regional and international recommendations

STECF EWG 11-04	
Recommendation	**Follow up actions**
EWG 11-04 considers that duplication of Control Regulation (CR) data collection commitments in the DCF should be limited to the cases where the data collected under the CR is unlikely to fulfill the data quality requirements of the DCF. *The Expert Group 11-04 recommends including in the DCF commitments for Member States to set up at national or regional level a formal system for cooperation between control authorities and the National programmes of the DCF. The cooperation system should address all issues of relevance for the collection and processing of data to be collected under the CR and the DCF.*	The use of Control Regulation data is enough to fill all the needs regarding effort data for vessels >= 10m.

III.F.2.4. Actions to avoid shortfalls

Mainland

The work will resume when a future subcontract is made.

III.F.3. Landings

III.F.3.1. Achievements: Results and deviation from NP proposal

Mainland

The information resulting from sale at wholesale fish markets, in the case of landings of fresh or refrigerated fish, complemented by the logbook landing declaration for all landings of frozen fish at Portuguese ports and all landings at foreign ports, makes it possible to achieve the aims of this parameter.

The geographical origin of landings was disaggregated in accordance with level 3 of Appendix I. This parameter was collected, in the case of logbooks, from the information stated in the landings declaration and, by other hand, in the case of 1st sales, was disaggregated by fishery at mainland Portugal, the Azores and Madeira Autonomous Regions, Spain and Mauritania (ICES statistical divisions VIII, IXa and X and CECAF 34.1.2 and 34.1.3).

Only the information collected from the 1st sale by auction meets the required specifications in terms of the assessment of the value of commercial landings with disaggregation and in compliance with the criteria set

forth in the Regulation. Information is therefore available for all species landed at the wholesale markets in mainland Portugal and the autonomous regions.

The collection of data makes it possible to assess annual commercial landings of all stocks in accordance with the level 3 for geographical disaggregation indicated in Appendix I.

III.F.3.2. Data quality: Results and deviation from NP proposal

There are no deviations from the NP proposal.

III.F.3.3. Follow-up of Regional and international recommendations

Not applicable.

III.F.3.4. Actions to avoid shortfalls

Not applicable.

III.G. Research surveys at sea

In 2013, Portugal conducted 6 surveys supported within the DCF and participated in the Flemish Cap Groundfish Survey conducted by Spain.

Due to constraints on vessel availability there was a reduction in the achieved days at sea for the International Mackerel and Horse Mackerel Egg survey. Having prior knowledge of this restriction, some changes were made in survey design. There were no changes in strategy or design of the remain surveys at sea. Of course, the number of hauls and length of hydroacoustic tracks depended on weather conditions as well as on the performance of the equipment and/or of the vessel, but were for all surveys within the range of records for the former survey years.

As indicated in the Table III.G.1, all the programmed surveys were performed. For the number of hauls and sampling activities, also refer to Table III.G.1.

The following text provides a short description of all surveys carried out in 2013, with a map of the achieved sampling activities.

III.G.1. Achievement: Results and Deviation from NP proposal

International Mackerel and Horse Mackerel Egg survey -MEGS (triennial)

The survey was conducted from 09/02/2013 to 22/02/2013 on NRP D. Carlos. Data coming from the International Mackerel and Horse Mackerel Egg survey is stored in a national database. The data was sent to the ICES WGWIDE and WGMEGS . Refer to Fig. III.G.1 (A) for the achieved CalVET + CTDF sampling stations and Fig. III.G.1 (B) for the fishing station grid.

Due to constraints in the availability of a research vessel to carry out plankton and fishing hauls, the planned 2013 Portuguese horse-mackerel DEPM survey (for the southern horse-mackerel stock and also for south mackerel-AEPM) was undertaken with restrictions. Plankton sampling (CalVET tows) and CTD profiling were carried out by the navy vessel NRP D. Carlos I, during a period limited to 14 days while the adult fish samples were obtained from the commercial fishing fleet.

Deviations from planned days at sea are above 50% and there are shortfalls for sampling target. The plankton sampling grid, for egg abundance and spawning area estimation, was reduced in density and geographical coverage. The distance between transects was maintained while the space between sampling points along the transects was increased. In total 222 plankton hauls (ca. half of the initial plan) were conducted in the area

between the southern Portuguese-Spanish border and Cape Finisterre. Fish samples for estimation of adults parameters, mean female weight, sex ratio, relative fecundity and spawning fraction, were also reduced, in number and area coverage, in comparison to previous surveys.

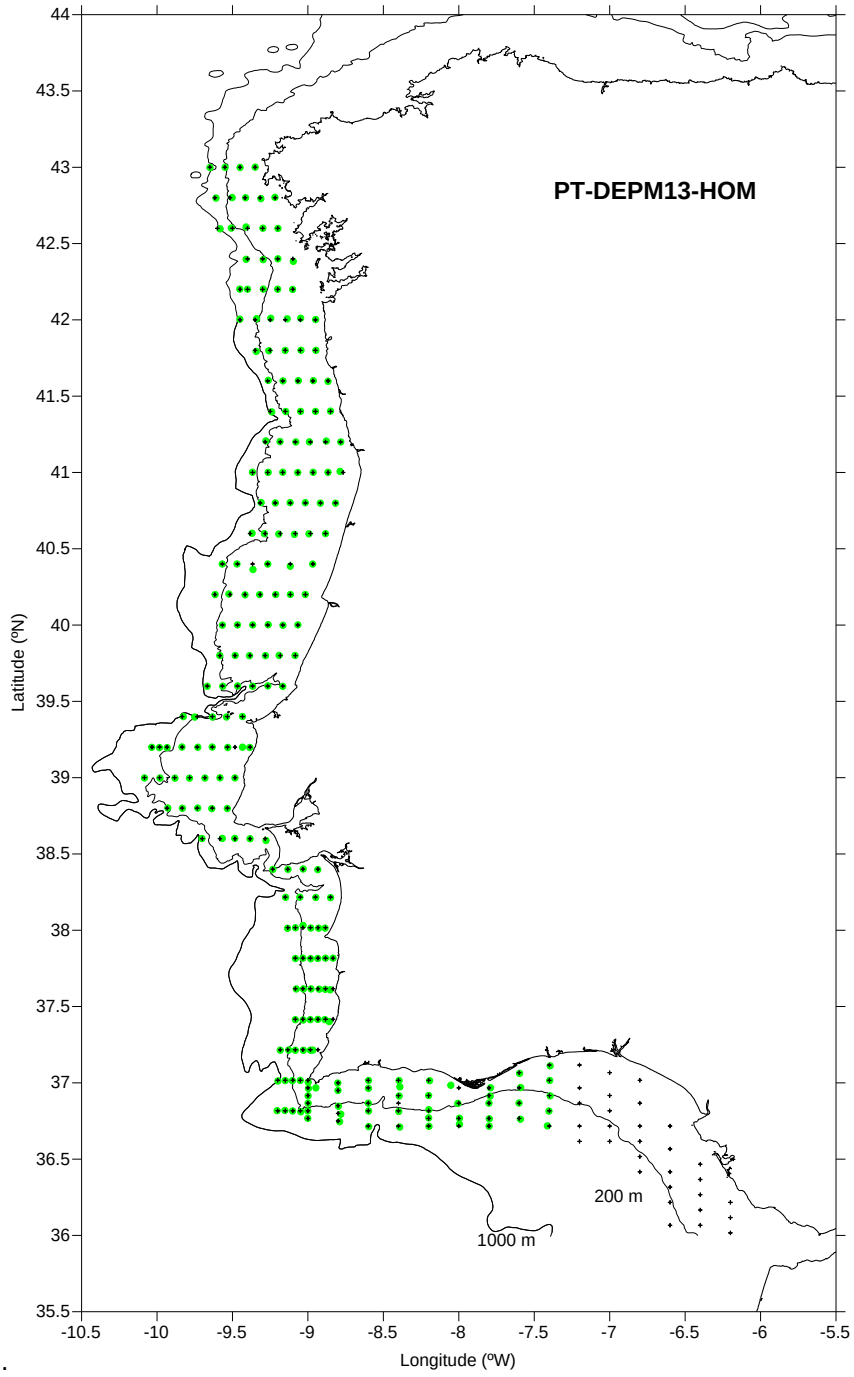

Figure III.G.1 (A): International Mackerel and Horse Mackerel Egg Survey, MEGS. Achieved CalVET + CTDF sampling stations.

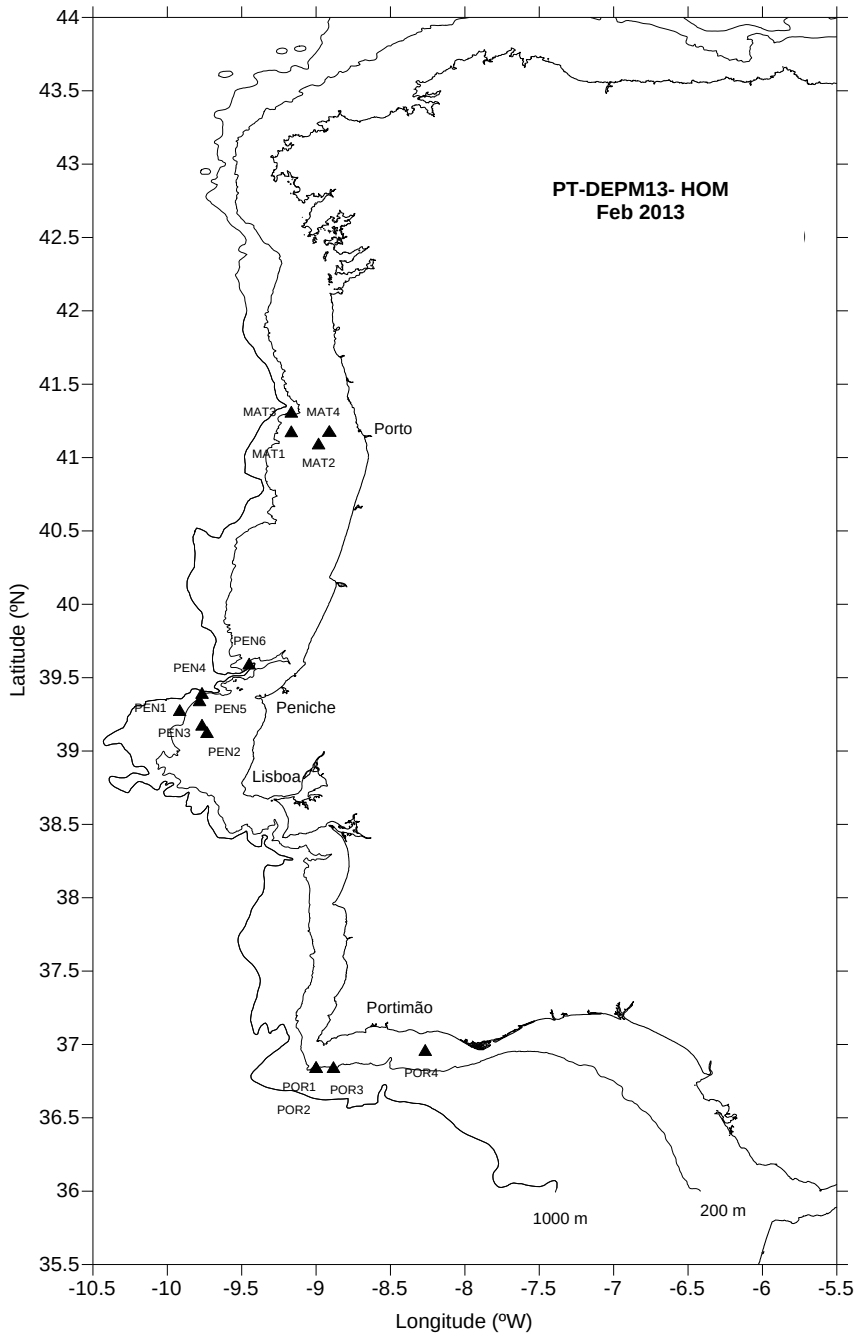

Figure III.G.1 (B): International Mackerel and Horse Mackerel Egg Survey, MEGS. Fishing stations grid.

Sardine, Anchovy, Horse Mackerel Acoustic Survey

The survey was conducted from 05/04/2013 to 15/05/2013 on RV Noruega. Data coming from Sardine, Anchovy and Horse Mackerel Acoustic survey is stored in a national database. Data was sent to the ICES WGHANSA and used on the assessment of sardine and anchovy. Refer to Fig. III.G.1 (C) for sampling radials and Fig. III.G.2 (D) for fishing stations.

The 2013 spring acoustics survey took place one month later than planned and lasted longer than usual due to bad weather during the north area coverage. Although the acoustic coverage was interrupted several times, the survey itself was done in good conditions and we considered that abundance and biomass estimates are comparable with previous surveys. Deviations from planned days at sea are in the margin of 10%. There are no shortfalls for the sampling target activities.

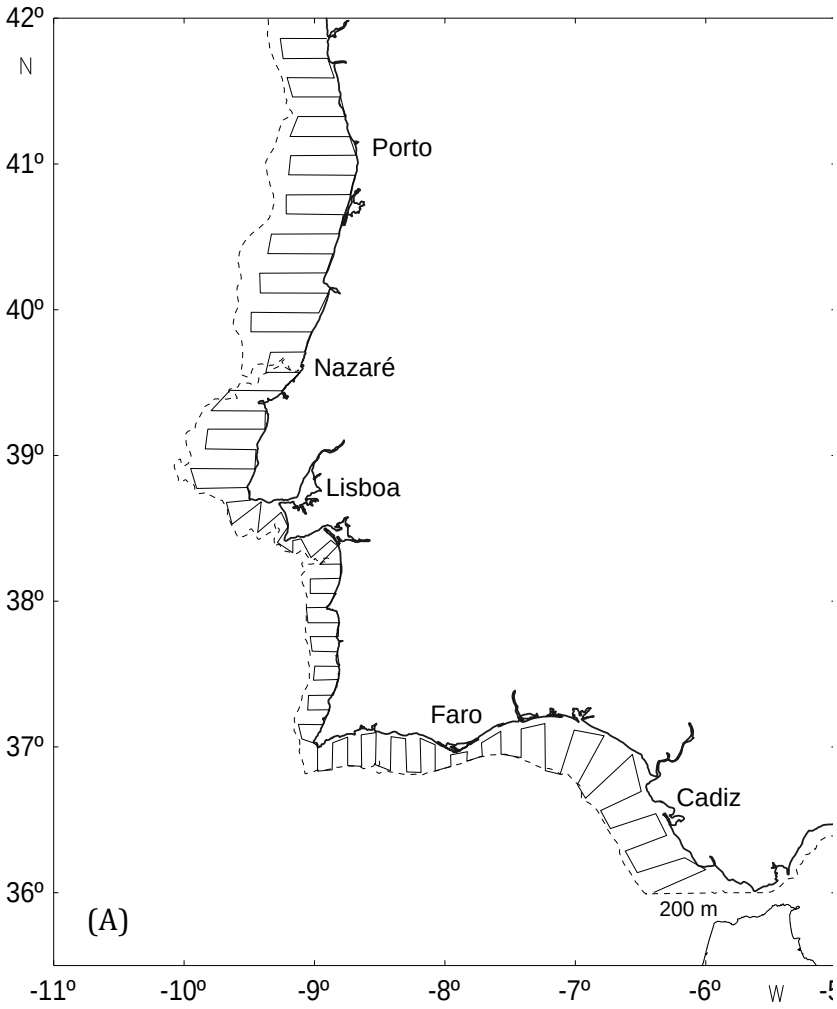

Figure III.G.1 (C): Sardine, Anchovy and Horse Mackerel Acoustic Survey. Sampling radials.

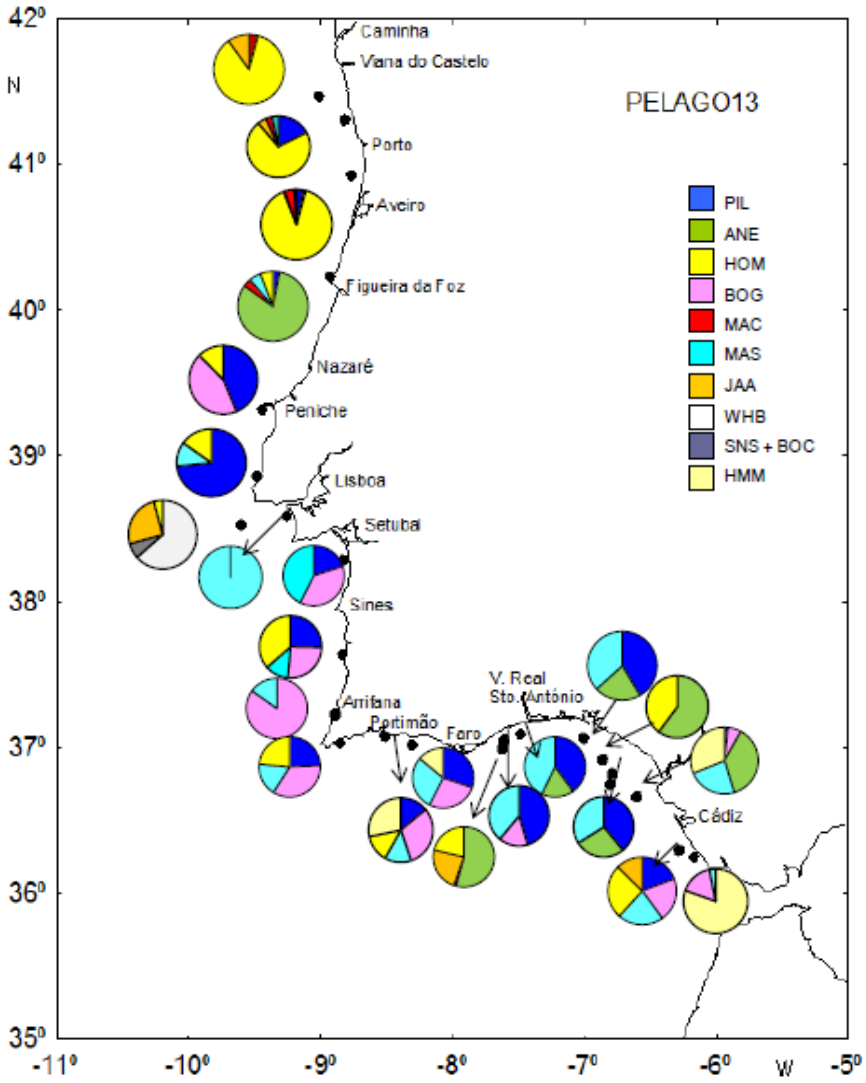

Figure III.G.1 (D): Sardine, Anchovy and Horse Mackerel Acoustic Survey. Species composition by fishing station.

Nephrops Bottom trawl survey/TV Survey Offshore Portugal

The survey was conducted from 14/06/2013 to 05/07/2013 on RV Noruega. Data from Nephrops bottom trawl survey/TV Survey Offshore Portugal, UWTV (FU 28-29) survey is stored in the CRUZDEM national database. The abundance/biomass indices from the bottom trawl sampling stations were sent to the ICES WGHMM and used on the assessment of *Nephrops*. Refer to Fig. III.G.1 (E) for sampling grid and Fig. III.G.2 (F) for fishing stations.

The main objectives of the survey is to estimate the abundance and to study the distribution and the biological characteristics of the main crustacean species, namely *Nephrops norvegicus* (Norway lobster), *Parapenaeus longirostris* (rose shrimp) and *Aristeus antennatus* (red shrimp). The sampling design was adapted from the bottom trawl surveys (stratified random sampling) and formed the basis for data collection for the crustacean surveys since 1997.

Complementarily to the use of bottom trawl, ACFM has recommended the use of Underwater TV (UWTV) survey for *Nephrops* abundance estimation. In 2005 and 2007, some experiments to collect UWTV images from the *Nephrops* fishing grounds were made with a camera hanged from the trawl headline.

Portugal emphasizes that FU 28+29 *Nephrops* stocks are deeper than the further northern stocks where this technique has been used. In these stocks, the burrows counting is done in real time with a camera mounted in a

sledge and connected to the vessel with an umbilical cord. For the Portuguese stocks, a combined trawl and UWTV survey was carried out from 2007 to 2009. These depths were planned to be covered with a stand-alone UWTV camera and recorder placed in the trawl head rope allowing a subsequent *Nephrops* burrows count. However, as the Portuguese bottoms are very deep, the trawl survey is crucial to estimate abundance indices for the main crustacean species.

In 2008, the images collected from 9 stations in FU 28 with this procedure looked very promising. In 2009 survey, a two-beam laser pointer was attached to the camera and UWTV images were recorded from 58 of the 65 stations. The trawling speed and the turbidity were the main problems affecting the clarity of the image and the high variation of the height of the camera to the ground resulted in a variable field of view. Analysis of this method applied to FU 28+29, discussed in SGNEPS 2012 (Study Group of Nephrops Surveys) further demonstrated the importance of continuing the bottom trawl survey and the unsuitability of UWTV coupled with trawl to estimate Nephrops abundance. Therefore, Portugal recommends the re-adoption of the former name for this survey: *Nephrops* Bottom Trawl survey – NepBTS (FU 28-29). This survey is internationally coordinated within WGNEPS.

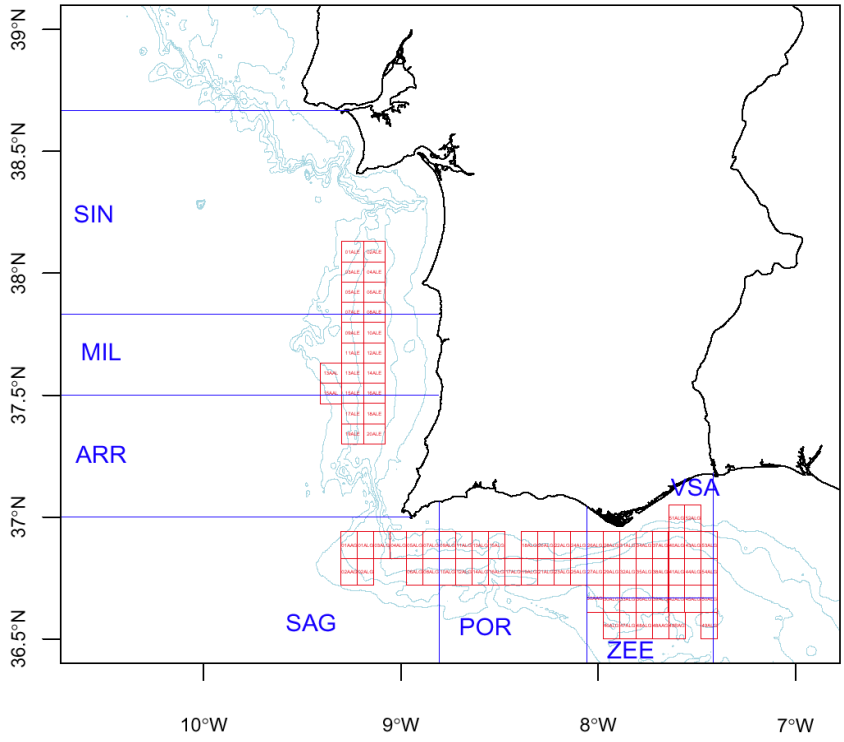

Figure III.G.1 (E) Nephrops Bottom trawl survey/TV Survey Offshore Portugal. Sampling grid.

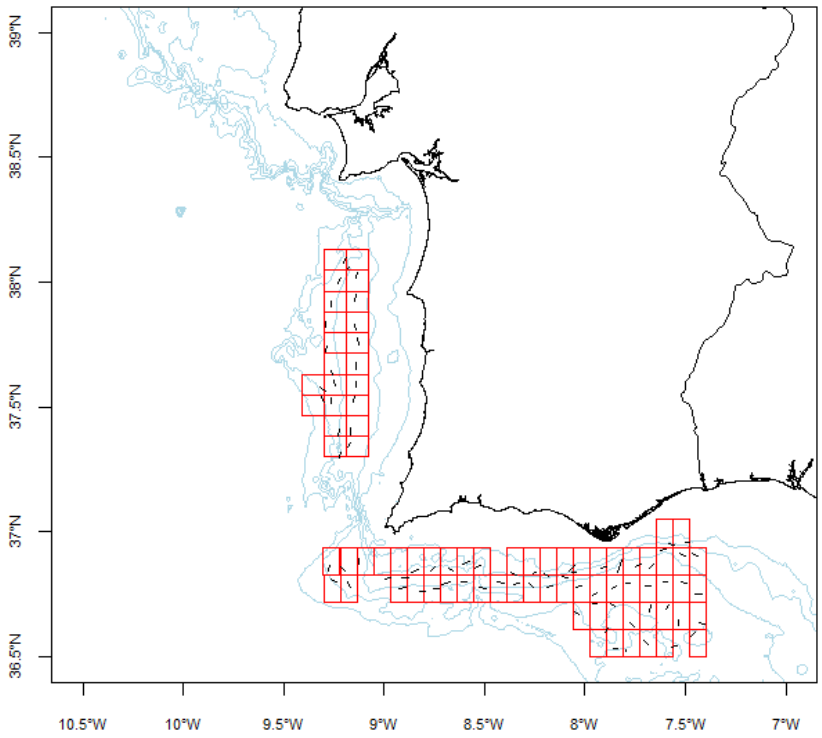

Figure III.G.1 (F) Nephrops Bottom trawl survey/TV Survey Offshore Portugal. Fishing stations.

Flemish Cap Groundfish Survey

This survey was carried out by Spain with the RV Vizconde d'Eza between 23/06/2013 and 26/07/2013. Portugal has taken part by means of a team of two technicians. The survey ran within normality, were performed in total 183 hauls, of which 181 valid. The 32 planned strata were sampled (Figure III.G.1 (G)). The data from the Flemish Cap Groundfish Survey, FCGS, is stored in the IEO data base.

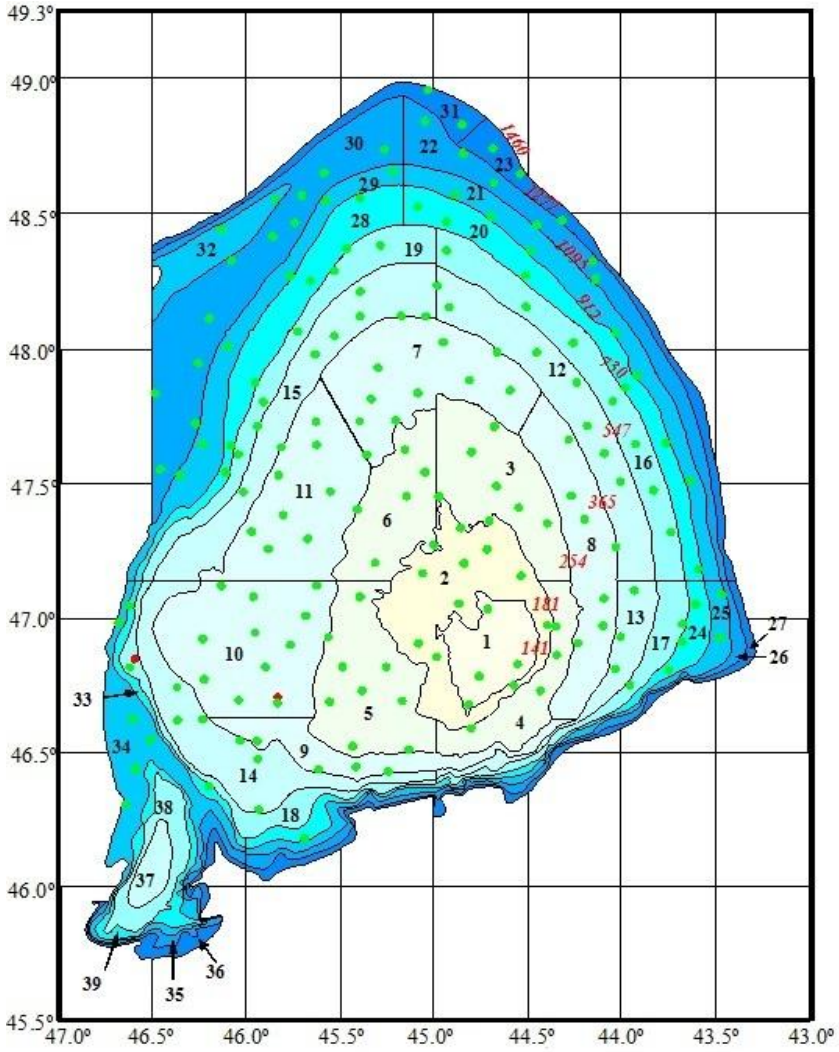

Figure III.G.1 (G): Flemish Cap Groundfish Survey, FCGS (RV Vizconde d'Eza). Sampling grid.

Western IBTS 4th quarter

The survey was conducted from 25/09/2013 to 22/10/2013 and on RV Noruega. Refer to Figure III.G.1. (H) for sampling grid. Data coming from the IBTS survey is stored in DATRAS (http://datras.ices.dk/Home/Descriptions.aspx, with survey data and protocols) and also in the CRUZDEM national database. This data was sent to the ICES WGHMM and used on the assessment of demersal species.

Deviations from planned days at sea and target sampling are in the margin of 10%.

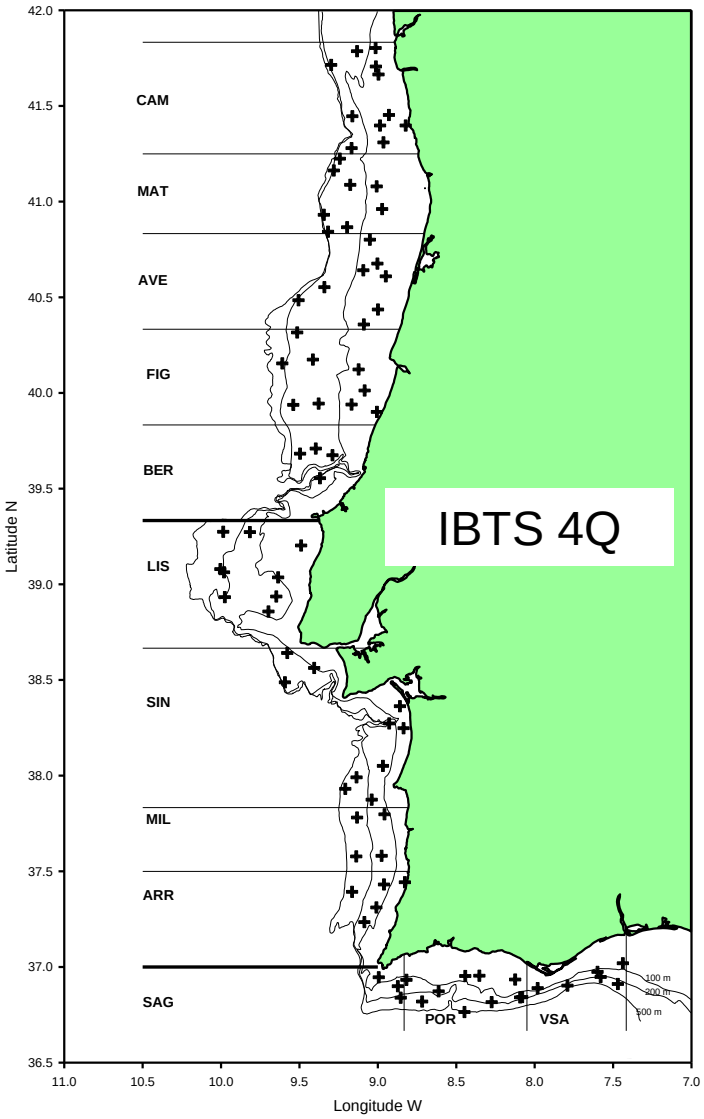

Figure III.G.1(H): Western IBTS 4th quarter – IBTS Q4. Sampling grid.

III.G.2. Data Quality: Results and deviation from NP proposal

Generally, the surveys are following the international manuals set up for the different surveys. These manuals therefore establish the data quality. No serious data quality problems or deviations from the NP occurred in 2013 except for the International Mackerel and Horse Mackerel Egg survey wherein only a minimum of objectives were completed. Due to the brake down of Noruega RV and due to constraints of another research vessel's availability, it was not possible to perform a full plankton grid or to provide an equivalent to the previous achievements, in 2010. Also, the number of adult fish samples collected was lower than that obtained in the previous horse mackerel egg survey. The bias on the estimates were presented to the relevant working groups.

Since IPMA's creation in 2012, a strong commitment by its management board has been taken to improve the performance and reliability of existing vessel (NI Noruega). The overall performance has improved greatly since. Average technical execution of DCF cruises has increased from 84% (2011) to 99% (2013). Until August 2014, the program has been completed 100% and is expected to keep that execution rate until the end of the year.

Other details and reasons for occurring shortfalls are explained in the section above.

III.G.3. Follow up of Regional and International recommendations

No relevant RCM recommendations. Recommendations and requests set up in the different survey working groups have been taken care of by the Portuguese participants taken part in the survey planning groups.

III.G.4. Actions to avoid shortfalls

A technical failure on Noruega RV engine motives the deviations reported above. Portugal notes that these technical and operational problems are related to the age of the vessel, but the main issues have been temporarily solved. At the time of this report, the technical implementation of research surveys at sea takes place within the planned and Noruega RV is scheduled to conduct all the planned surveys. Measures to replace RV Noruega by a new vessel are being taken.

No action is possible for shortfalls caused by bad weather conditions. Vessels and equipment are always kept in best possible conditions; however, sudden and serious technical problems cannot be prevented.

IV. MODULE OF THE EVALUATION OF THE ECONOMIC SITUATION OF THE AQUACULTURE AND PROCESSING

IV.A. Collection of data concerning the aquaculture

IV.A.1. Achievements: results and deviation from NP proposal

In 2013 the surveys used to collect data for EUROSTAT were also used to collect economic data for DCF. Economic data for 2012 was collected and estimates were made. Although a census was applied, the response rate was below 70%. The response rate has been decreasing over the years, albeit the efforts of the administration for collecting data. On Bottom units constitutes the majority of the aquaculture structure (over 1358 units on 2012) and is, traditionally, the segment with the lowest response rate (46% in 2012). A change to the type of data collection was considered but rejected as it would suffer from the same problem of high non response. Another reason for the census is the existence of national regulation requiring collection of data from all the aquaculture and the requirement of answer by the sector. Off bottom units usually have high response rates, but in the last two years the response rate decreased considerably from more than 90% to 61% and estimates were made in order to compensate for the low response.

IV.A.2. Data quality: results and deviation from NP proposal

Due to the low response rate, estimates were made and quality indicators calculated. The quality indicators are expressed in table IV.A.3. The low response rate achieved for some variables is due to the nature of the aquaculture structure. On bottom units represent 94% of total aquaculture units. This units consist mainly of a small piece of land, usually less than 1 ha, with low level investment and simplified cost structure. A simplified questionnaire and the production is estimated according to a methodology defined in cooperation with the National Statistics Institute. Capital variables have a higher variation as they are more difficult to answer (and have usually lower response rate, even when a questionnaire is answered).

IV.A.3. Follow-up of Regional and international recommendations

Not applicable.

IV.A.4. Action to avoid shortfalls

To forfeit the decreasing response rate, an extra effort has been made, with some positive results. Due to national regulation mandating the answering of the survey, it's possible for the administration to enforce some legal measures, as fines and the cancelling of the license. Letters to the establishment owners were sent explaining the consequences of non-answering the questionnaire, increased phone calls, reinforcement by the administration staff when on-site inspections, requirements of the questionnaire in order to access public funding for new projects.

IV.B. Collection of data concerning the processing industry

IV.B.1. Achievements: Results and deviation from NP proposal

NP states that processing industry data were to be collected by NSI (National Statistic Institute). We received the 2012 data from NSI. The sources of information are: Structural Business Statistics (SBS) and SUT- Supply and Use Tables (Intermediate consumption by product and by industry).

Under SBS it is not possible to collect data on Depreciation of Capital. SBS also does not collect unpaid labour or FTE by gender. However there is sufficient information available in order to make estimates for these variables.

FTE by gender will be calculated using the following formula:
FTE(by gender) = TOTAL_FTE × gender_employed/total_nb_employed
Where:
TOTAL_FTE = Total FTE in the reference year
Gender = Male/Female

Gender_employed = Number of males/females employed in the reference year
Total_nb_employed = Total number of person employed in the reference year

IMPUTED VALUE OF UNPAID LABOUR = UNPAID_LABOUR × AVG_WAGE
Where:
UNPAID LABOUR = Number of unpaid persons employed (SBS: S16120)
AVG_WAGE = Total_wages/Total_employees

IV.B.2. Data quality: Results and deviation from NP proposal

Quality under SBS and SUT is assured by National standards, guaranteed by NSI and in compliance with Eurostat rules of quality.

However it is not possible to provide quality indicator such as coverage rate or CV as they are not defined for these statistical procedures (e.g., no sample is defined as administrative data from fiscal declarations is used by NSI)

IV.B.3. – Follow-up of Regional and international recommendations

Not applicable.

IV.B.4. Actions to avoid shortfall

Procedures were developed during 2013 in order to obtain some of the missing variables from SBS (Imputed value of unpaid labour, FTE by gender).
The National Statistics Institute doesn't collect enough data in order to obtain the variable "Depreciation of Capital" or to create a methodology for its estimation. It should be noticed that this data is collected by the NSI for all the national industry in a big statistical operation. A dialogue with the NSI to explore the possibility of including the missing variable concludes that the small dimension of the processing industry is not sufficient to change the global methodology.

V. MODULE OF EVALUATION OF THE EFFECTS OF THE FISHING SECTOR ON THE MARINE ECOSYSTEM

V.1. Achievement: Results and deviation from NP proposal

The data required for the calculation of indicators 1, 2, 3, 4 and 8 as defined in Commission Decision 2010/93/EU is collected through the research surveys. These data has been collected through the annual surveys carried out by IPMA. The surveys are described in section III.G.1. Data on species, length frequencies and abundance was collected from all hauls including individual parameters such as age, length, sex and maturity from the target species of the survey following the sampling levels established in the manuals for the respective survey. The spatial and temporal coverage of data collection for the evaluation of effects of the fishing sector will consist of sub-area IXa. No deviations occurred in 2013. Moreover, data from the DCF research surveys time series was used to compute MSFD descriptors, namely D1 – Biodiversity; D3 – Commercial species and D4 – Food webs and contributed to D10 – marine litter, as reported in the Portuguese MSFD national report for mainland.

Relatively to DCF indicators 5 (Distribution of fishing activities),6 (aggregation of fishing activities) and 7 (areas not impacted by mobile bottom gears) preliminary analysis were made in 2011 using 2005 VMS data for bottom trawl gears in Div IXa. However it must be stressed that the methodologies for calculation of these 3 indicators are still being discussed and proposed to be addressed in a ICES Workshop on DCF Indicators to be held in October 2013. Moreover, EU has recently requested ICES a scientific advice on data collection issues which includes the review of the existing environmental indicators to measure the impact of fisheries on the seabed and take proposals in time for the new DC-MAP 2014-2020. Therefore, the basis for ecosystem indicators definitions and its methodologies should outcome from these discussions and recommendations.

The data required for the calculation of indicators 8 is collected on-board of the commercial vessels monitored by IPMA since 2004. No deviations occurred in 2013.

In what concern indicator 9, the fuel consumption (both quantity and value) was estimated with data from economic survey and crosschecked with administrative data. Values of landings, total and per commercial species were obtained from sales notes. Fuel consumption was obtained per fleet segment and year. Fuel consumption by quarter and metier was obtained as a proportion of the total effort days spent by metier and quarter in relation to the total fleet segment and year.

This was made only for vessels with overall length > 10 metres. For vessels < 10 m we couldn't calculate metiers due to the budget restrictions already stated in III.F.2.1.
There is derogation currently in place for the calculation of financial position for small scales fisheries. The data was collected but didn't have enough quality to do the estimations.

V.2. Actions to avoid shortfalls

Indicator 9

As soon as the budgetary constrains will overcome we will advance with the subcontract for the small scale vessels. Only after that can we calculate the métiers.

VI. MODULE FOR MANAGEMENT AN USE OF THE DATA

VI.1. Achievements: results and deviation from NP proposal

As stated in the NP 2011-2013, primary fisheries data, whether transversal, economic or biological, is scattered among the different databases standing in the five Institutions engaged in National Programme.

Mechanisms for quality control assessment and validation procedures are executed in each one of the Institutions.

The developments achieved in 2013 regarding economic and transversal variables are the following:

1. Fishing Fleet Database

- A new software module and data model to collect vessel information has been finished and deployed into production. This new software module allows expedite analysis and maintenance of historical information for individual fishing vessels, thus improving the accuracy of historical information of the fishing fleet.

- Implementation of a flexible rules based validation mechanism for fishing vessels information. That makes easy to introduce new rules or fine tune existing ones, thus ensuring better data quality.

- Implementation of additional validations in order to improvements data quality.

- An new implementation FIDES/Fleet data extraction software. Thus new software provides much more accurate data report to FIDES.

2. Aquiculture Database

- Started the development of a software module and data model to maintain historical information on aquaculture establishments.

- Implementation of additional improvements in surveys to collect data for the aquaculture establishments' production.

3. Auction's sales

- Beginning of module's adaptation to collect data on daily auction sales for the integration of the ports of the autonomous regions (Açores and Madeira).

VI. 2 Actions to avoid shortfalls

Due to budgetary constrain we are not able to carry out with the work related with a Central Data Base for Data Collection.

In what concern the biological data collected by IPMA, the entry into force of the sampling scheme based on metiers and concurrent sampling, forced a number of changes in databases. Due to the large volume of information stored in the national databases, its complexity and variability of the fleet behaviour of the fleet it is necessary a continuous adaptation and improvement, allowing an effective data management, appropriated to the latest international recommendations. The application of sound data management practices, alongside a continuing effort for upgrade and consolidation of databases and exploration tools, has helped to avoid many shortfalls with the Portuguese DCF data.

Portugal has already chosen the technical approach for the central database, and major steps have already been done. However due the problems encountered by the National Research Institute, at the moment, we are not able to work on central database for the biological data, only for the economic and transversal variables.

Nevertheless we should point it out that, several data calls had to be answered in 2013, which was done within the respective deadlines and with complete and quality-checked data. Data were transmitted to regular data users, such as ICES, JRC, and assessment working groups (see Table VI.1). No deviations occurred.

Regarding biological data, IPMA (former IPIMAR) main lines of action considers implementing a new database in an open source database management system in order to build a system ensuring the compilation of all existing databases in a common system. The project is already running, the diagnosis and data model design phase are finished and the development of the new application phase has started.

Use of the data

All the sets of data used to support scientific analysis in ICES, NAFO, ICCAT, IOTC, STECF and DG MARE were organised, analysed and transmitted.

VII. FOLLOW-UP STECF RECOMMENDATIONS

Source	Recommendation	Follow up actions
STECF PLEN 12-01 (based on STECF EWG 12-01 on the Review of proposed DCF 2014-2020 part 1)	*STECF recommends that the roles of the institutions involved in the collection and analysis of transversal data should be discussed and clearly defined in a dialogue between all relevant parties, i.e. research institutes, control & enforcement agencies and fishing industry representatives*.	Done.
STECF EWG 12-02 (Evaluation of NP 2012)	***On Concurrent Sampling:*** *EWG 11-19 recommends that for on-shore sampling, MS should continue to sample the metiers and make sure to cover all the species/stocks where a demand is formulated by an end-user (or listed in Appendix VII of the Comm. Dec.), but the methodology used to achieve the goals remains at the discretion of the MS, provided that it is fully documented and approved within their NP proposal.*	Done.
STECF EWG 11-08 (Evaluation of AR 2010)	*EWG 11-08 recommends that information and descriptions of the method/software used for calculation of CV's should be included (or referred to) in the AR if not provided in NP*	Methodology of CV calculations is included in both, the 2012 and 2013 Annual Report (see section III.C.2 and Annex 1 of the AR 2013).
STECF EWG 11-08 (Evaluation of AR 2010)	*EWG 11-08 recommends for the AR tables, Table II.B.1 (list of eligible meetings) that is provided by the Commission should be used and all*	Done.

	meetings and not only the meetings attended should be provided.	
STECF EWG 11-08 (Evaluation of AR 2010)	*EWG 11-08 recommends that Table III.C.1, III.C.2 and III E 1 should not to be deleted from the AR. Maintaining the tables is what is expected. This should be included in the revision of the AR guidelines.*	Done.
STECF EWG 11-08 (Evaluation of AR 2010)	*EWG 11-08 recommends that files with filters, hidden cells, track changes, coloured cells etc should not be submitted in AR.*	Done.
STECF EWG 11-08 (Evaluation of AR 2010)	*EWG 11-08 recommends that non conformities in the tables of the AR needs to be explained in the text.*	Done.

VIII. LIST OF ACRONYMS AND ABREVIATIONS

CECAF	Committee for the Eastern Central Atlantic Fisheries
CV	Coefficient of Variance
DGRM	Direcção Geral de Recursos Naturais, Segurança e Serviços Marítimos/Directorate General for Natural Resources, Safety and Maritime Services
DOP	Departamento de Oceanografia e Pescas da Universidade dos Açores/Oceanographic and Fisheries Department of the University of Azores
DRPM	Direcção Regional das Pescas da Madeira/Regional Directorate of Fisheries of Madeira
GES	Good Environmental Status
IBTSWG	International Bottom Trawl Survey Working Group
ICCAT	International Commission for the Conservation of Atlantic Tunas
ICES	International Council for the Exploration of the Sea
IPMA	Instituto Português do Mar e da Atmosfera/Portuguese Institute for Sea and Atmosphere
IOTC	Indian Ocean Tuna Commission
MSFD	Marine Strategy Framework Directive
NAFO	Northwest Atlantic Fisheries Organization
NP	National Programme
PGCCDBS	Planning Group on Commercial Catch, Discards and Biological Sampling
PNAB	Programa Nacional de Amostragem Biológica
RAA	Região Autónoma dos Açores/Autonomous Region of Azores
RAM	Região Autónoma da Madeira/Autonomous Region of Madeira
SGCal	Study Group on Calibration of Acoustic Instruments in Fisheries Science
SGPIDS	Study Group on Practical Implementation of Discard Sampling Plans
SGNEPS	ICES Study Group on Nephrops Surveys
SGSIPS	Study Group on Standards in Ichthyoplankton Surveys
UAç	Universidade dos Açores/University of Azores
WGACEGG	Working Group on Acoustic and Egg Surveys for Sardine and Anchovy in ICES areas VIII and IX
WGDEEP	Working Group on the Biology and Assessment of Deep-Sea Fisheries Resources
WGECO	Working Group on the Ecosystem Effects of Fishing Activities
WGFAST	Working Group on Fisheries Acoustics, Science and Technology
WGEEL	Working Group on Eels
WGEF	Working Group on Elasmobranch Fishes
WGHANSA	Working Group on Southern Horse Mackerel, Anchovy and Sardine
WGHMM	Working Group on the Assessment of Bay of Hake Monk and Megrim
WGIPS	Working Group of International Pelagic Surveys
WGISDAA	Working Group on Improving use of Survey Data for Assessment and Advice

WGISUR	The Working Group on Integrating Surveys for the Ecosystem Approach
WGMEGS	Working Group on Mackerel and Horse Mackerel Egg Survey
WGNEACS	Working Group on North-east Atlantic continental slope surveys
WGNEW	Working Group on Assessment of New MoU Species
WGWIDE	Working Group on Widely Distributed Stocks
WPEB	Working Party on Ecosystems and Bycatch (IOTC)
WPTT	Working Party on Tropical Tuna (IOTC)
WKAMDEEP	Workshop on Age Estimation Methods of Deep Water Species
WKARHOM	Workshop on Age Reading of horse mackerel, Mediterranean horse mackerel and blue jack mackerel
WKFATHOM	Workshop on Egg staging, Fecundity and Atresia in Horse mackerel and Mackerel
WKLIFE	Development of assessments based on LIFE history traits and exploitation characteristics
WKMATCH	Workshop for maturity staging chairs
WKMSEL	Workshop on sexual maturit y staging on elasmobranches
WKMSGAD	Workshop on sexual maturity staging of cod, whiting, haddock, saithe and hake
WKMSPA	Workshop on Survey Design and Mackerel and Horse Mackerel Spawning Strategy
WKMSSPDF	Workshop on sexual maturity staging of sole, dab and flounder
WKPELA	Benchmark Workshop on Pelagic Stocks
WKPICS	Workshop on practical implementation of statistical sound catch sampling programmes
WKNEW	Benchmark Workshop on New Species
WKRED	Benchmark Workshop on Redfish
WKTSBLUES	Workshop on implementing a new TS relationship for blue whiting abundance estimates

IX. COMMENTS, SUGGESTIONS AND REFLECTIONS

Between 6 and 8 February 2013 took place in Portugal a field work for the monitoring of the implementation of national programme for the collection, management and use of data in the fisheries sector[2].

Some of the comments made by the team were:

"In general, the mission has met with a group of highly skilled and motivated staff who are looking for a continuous improvement of an already well-established data collection system. At the same time it became apparent that the budgetary constraints have led to a reduction of the number of personnel involved in DCF and consequently, some tasks depend on only 1-2 persons. Well organized transfer of knowledge is therefore essential to assure continuation in case of personal problems. "

"In general the team concluded that the data collection system works well and no major shortcomings have been identified. The staff members are aware of the possible (or necessary) improvements. Cooperation between the Mainland, Azores and Madeira could be intensified, as the small groups in each of these areas would benefit from common development of various methods."

[2] Country report of this field work mission to Portugal is available on

http://ec.europa.eu/fisheries/documentation/studies/data/documents/portugal-report_en.pdf

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XI. ANNEXES

- **ANNEX I. Methods used to calculate CVs**
- **ANNEX II. Pilot Study on the Métiers Where Skates are Caught in IXA: Final Report (2011-2013)**
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ANNEX I

Methods used to calculate CVs

I. Calculate analytical CV values of length compositions (all metiers combined) by species

$$\overline{TL} = \frac{\overline{TL}_i * n_i}{N}$$

$\overline{TL}$, mean length
i, indexes the number of samples collected
n_i, number of observed individuals per sample i
N, total number of observed individuals

$$Var(\overline{TL_i}) = \frac{\sum_{k=1}^{n_i}\left(TL_{ik} - \overline{TL_i}\right)^2}{n_i - 1}$$

k, indexes any observation of the sample i

$$Var(\overline{TL}) = \sum_{i=1}^{Na} Var(\overline{TL_i})\left(\frac{n_i}{N_a}\right)^2$$

N_a, total number of samples

$$CV = \frac{\sqrt{\text{var}(\overline{TL})}}{\overline{TL}}$$

II. Calculate analytical CV values for length@age by species

$$\bar{l}_i = \frac{\sum_j n_j \cdot p_{ij} \cdot l_j}{\sum_j n_j \cdot p_{ij}}$$

n_j, number of observed individuals by length class j
l_j, length class range
p_{ij}, proportion of individuals aged i in length class j

$$\bar{l}_i^2 = \frac{\sum_j n_j \cdot p_{ij} \cdot l_j^2}{\sum_j n_j \cdot p_{ij}}$$

$$var(l_i) = \bar{l_i^2} - (\bar{l_i})^2$$

$$CV(l_i) = 100 \times \frac{\sqrt{var(l_i)}}{\bar{l_i}}$$

III. Calculate analytical CV values for weight@length by species

$$TW = aTL^b$$

$$\sigma_u^{\,2} = \frac{RSS}{n-2}$$

RSS , residuals sum of squares

$$Var\left(\hat{W}\right) = \sigma_u^{\,2}\left(1 + \frac{1}{n}\right)$$

$\hat{W}$, predicted weight

$$CV = \frac{\sqrt{Var(\hat{W})}}{\hat{W}}$$

IV. Calculate analytical CV values for sex-ratio@length by species

$$p = \frac{p_i * n_i}{N}$$

p , female proportion
i , indexes the number of samples collected
n_i , number of observed individuals per sample i
N , total number of observed individuals

$$q = 1 - p$$

q , male proportion

$$Var(p_i) = \frac{p_i q_i}{n_i}$$

$$Var(p) = \sum_{i=1}^{Na} Var(\overline{p_i})\left(\frac{n_i}{N_a}\right)^2$$

N_a , total number of samples

$$CV = \frac{\sqrt{Var(p)}}{p}$$

V. Calculate analytical CV values for maturity@length by species

$$p = \frac{p_i * n_i}{N}$$

p, mature proportion
i, indexes the number of samples collected
n_i, number of observed individuals per sample i
N, total number of observed individuals

$$q = 1 - p$$

q, imature proportion

$$Var(p_i) = \frac{p_i q_i}{n_i}$$

$$Var(p) = \sum_{i=1}^{Na} Var(\overline{p_i}) \left(\frac{n_i}{N_a} \right)^2$$

N_a, total number of samples

$$CV = \frac{\sqrt{Var(p)}}{p}$$

ANNEX II

FINAL REPORT 2011-2013

PILOT STUDY ON THE MÉTIERS WHERE SKATES ARE CAUGHT IN IXa

1. INTRODUCTION

The main objective of the Pilot Study was to improve the knowledge on the fishing métiers in which skates are caught, filling the gaps on existing fishery data, e.g. fishing effort, economic aspects and biology of Rajidae species.

The Pilot Study started in 2011 and ended in 2013. In the first year the focus of the study was in Peniche landing port, center Portugal. Based on the results obtained, in the second and third years the study was extended to other landing ports of Portugal mainland, located in the north (Matosinhos, Póvoa do Varzim, Aveiro, Figueira da Foz), centre (Sesimbra and Sesimbra) and southwest regions (Sines).

This Pilot Study was developed for Portugal mainland but its conception, goal and data analysis was done with a close collaboration with Spain (Basque country), that developed a similar program for Atlantic waters in ICES Divisions VIIIb and VIIIc. This joint approach pretended to contribute to collect information and make an inventory data requirements necessary for the future stock assessment of skates at Bay of Biscay and Iberian Eco-region.

The terms of the study were subdivided in two categories:

1. Fishery:
   - Characterization of the fleet landing skates;
   - Revisions and update of historical landings data (i.e. landed weight and value), according to the specific composition of rays by métier and geographical distribution;
   - Standardised effort and LPUE by month by species;
   - Preparation of a Guide of skate species occuring in Iberian waters, in cooperation with Spain (Spanish, Portuguese and English versions);
2. Biological:
   - Length frequencies, sex proportion and maturity determination for all Rajidae species.
   - Age/growth and reproduction studies for the species *Raja brachyura*, *Raja undulata* and *Rostroraja alba* (a rare species in Portuguese landings).
   - Description of condition of landings by port and métier.
   - Estimation of conversion factors (wing/total weight ratios by species).

2. ACHIEVEMENTS: RESULTS AND DEVIATIONS FROM THE PROPOSAL

SCOPE	RESULTS
Development and application of a sampling program to collect data on polyvalent fishery, particularly for the case of vessels with total length less than 10 m for which no logbook data are available.	To characterize the fisheries catching skates a total of 1301 inquiries to fishermen were performed in the Portuguese fishing ports of Matosinhos, Póvoa de Varzim, Aveiro, Figueira da Foz, Peniche, Sesimbra, Sesimbra and Sines. The information collected in each trip includes the gear(s) used, fishing effort (number of nets or hooks and fishing duration) and geographic localization of the fishing hauls. At the subsequent sampling of the inquired trips, information on species composition, length and sex per skate species was obtained from landings. The sampling program adopted was evaluated and at the final of the project the sampling effort data requirements were determined.
Identification of the main métiers in which skates are fished and evaluation on their seasonal dynamics. Standardised effort, LPUE and landings estimation by species.	Using different data sources, a statistical routine was developed and implemented in R software that allows to characterize skates landings derived from the polyvalent fleet. The routine was applied to data collected at the landing ports of Peniche, Matosinhos, Póvoa do Varzim, Setúbal and Sesimbra. The main outputs are the estimates of the landed weight and fishing effort by species.
Geographical distribution and skate species composition.	Information collected onboard fishing vessels and on fishing ports inquiries was used to identify Essential Fish Habitats (EFH), e.g. egg-laying and nursery grounds, of the most abundant skate species inhabiting Portuguese continental waters.
Preparation of a Guide of Rays in Iberian waters, in cooperation with Spain (Spanish, Portuguese and English versions).	Field identification guides for the most important skate species inhabiting continental Portuguese waters were developed. These guides constitute practical tools for the identification of species, particularly by non-specialist persons. Two versions were developed: 1) a detailed version to be used by IPMA technicians during fishing ports sampling procedures and b) a short

	version to be used by the fishermen and other stakeholders. The latter is available at the IPMA site (https://www.ipma.pt).
Obtaining of length frequencies, sex proportion and maturity determination for all Rajidae species.	Biological data, size, reproduction and growth, were collected from 884 individuals from several species inhabiting Portuguese waters: 87 *Raja undulata*, 218 *Raja montagui*, 30 *Raja microocellata*, 189 *Raja clavata*, 194 *Raja brachyura*, 135 *Leucoraja naevus, 14 Raja miraletus*, 5 *Dipturus oxyrinchus,* 6 *Leucoraja circularis* and 6 *Neoraja iberica*. Length frequency distribution and sex ratio analyses, as well as estimates of reproductive parameters (size at maturity, reproductive season and fecundity), were performed for several species.
Description of condition of landings by port and métier. Estimation of conversion factors (wing/total weight ratios by specie).	The condition of the skates landed at the main Portuguese landing ports was evaluated. Most of specimens are landed with no processing and in good conditions. Conversion factors, e.g. wing weight /total length and wing weight/total weight ratios, were determined for the most abundant skate species.

3. CONCLUSIONS

The development of the Pilot Study on the métiers where skates are caught in ICES Division IXa allowed to improve significantly the knowledge of the fisheries catching skates in Portuguese waters, particularly in what concerns the estimation of landing by species, which still a major problem on the official landings data. During the project it was possible to establish a closer communication with fishermen involved in fisheries catching skates and rays and thus to promote the collaboration with the fishing sector.

The data collected during the project was crucial for the elaboration of data regarding the estimation of landings and fishing effort by skate species presented at the ICES Working Group on Elasmobranch Fishes (WGEF).

4. RECOMMENDATIONS

Due to the fact that skates species are mainly by-catch from fisheries targeting other species it is strongly recommended that the collection of data will continue taking into consideration the results obtained by the Pilot Study and with a sampling intensity that guarantees good levels of precision on the estimates of landing and fishing effort by species. More information should be collected particularly at the south of Portugal in order to increase the knowledge on fleet spatio-temporal

dynamics, to identify fishing tactics and to characterize the fisheries in that region. It is also recommended to increase the participation of fishermen in the scientific research, particularly in providing fishing data that will improve available information necessary to support the assessment of the stocks.

5. OUTPUTS: SCIENTIFIC CONTRIBUTIONS

The different activities developed under the Pilot Study contributed for: i) increase of biological and fisheries related data available; ii) establishment of collaborative protocols with the sector (fisheries associations); iii) fishery advice regarding skate fisheries management measures and; iv) stock evaluation and assessment of skates at Iberian Ecoregion (WGEF's).

SCIENTIFIC ADVICES

Based on the data collected during the project several scientific advices were prepared for National authorities:

i. Closure of skate fisheries during the month of May;
ii. Establishment of a minimum landing size for skates;
iii. Closure extension of skate fisheries to the month of June;
iv. Biological and fisheries information on the species *Raja undulata*.

MEETINGS AND COOPERATION PROTOCOLS WITH THE INDUSTRY

Under the scope of the Pilot Study, several meetings with Portuguese fishermen associations took place. The main goals of these meetings were the promotion of direct collaboration with the sector in order to collect more detailed information on skate's fisheries. The Portuguese fishermen associations addressed include:

- Direcção Regional de Agricultura e Pescas do Algarve (DRAPAlgarve)
- Associação de Armadores de Pesca de Sagres
- Associação de Moradores da Ilha da Culatra
- APTAV, Associação de Pescadores de Tavira (aptav@sapo.pt)
- APPA, Associação dos Profissionais de Pesca de Albufeira (albufeira.appa@gmail.com)
- QUARPESCA,Associação de Armadores e Pescadores de Quarteira (quarpesca@clix.pt)
- Armalgarve Polvo , Associação dos Armadores de Pesca de Polvo do Algarve
- Associação de Pescadores e Armadores de Alvor
- ADAPSA, Associação de Armadores de Pesca do Sotavento Algarvio (adapsa@sapo.pt)
- OlhãoPesca, Organização de Produtores de Pescado do Algarve (olhaopesca@net.novis.pt)

- Sindicato dos Trabalhadores da Pesca do Sul
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ANNEX III

INTERIM REPORT 2013

PILOT STUDY FOR GLASS EEL (*Anguilla anguilla*)

6. INTRODUCTION

Recruitment of glass eel is at a historically low level and continues to decline with no signs of recovery across Europe. All glass eel recruitment series available from NW Europe demonstrate a clear decline since the early 1980s.

Although Portugal is considered one of the most important countries with respect to recruitment of glass eel, just after France and Spain, there are no reliable historical data on glass eel relative abundance.

With the implementation of the National Eel Management Plans according to the EU Regulation (CE) 1100/2007, eel recruitment monitoring is a key element for the evaluation of the measures adopted for the recovery of the stock of European eel. Although several European countries have already established recruitment monitoring programmes, in Portugal currently does not exist such monitoring.

The proposal of this pilot study aims to establish the basis for a future sampling plan that monitors eel recruitment in Portugal and therefore permits the evaluation of the efficiency of the stock recovery measures currently being set in place. The objective is to initiate a monitoring plan to evaluate seasonal variation and interannual trends of glass eel recruitment based on CPUEs in two distinct riverine systems of Portugal for which some historical information is available for comparative purposes (rivers Minho and Lis).

7. ACHIEVEMENTS: RESULTS AND DEVIATIONS FROM THE PROPOSAL

SCOPE	RESULTS
Minho River: introduction of a voluntary logbook to be filled-in by fishermen.	6 fishermen with logbooks.
Minho River: monthly purchase of glass eel samples to determine biological characteristics: length, weight, pigmentation stage.	Glass eels were sampled in January, March, November and December.
Lis River: preliminary visits to establish relations and contract fishermen.	Concluded at end of 2012.
Lis River: four-monthly fishing (October-May) to evaluate abundance in terms of CPUE and seasonal trends of recruitment.	Experimental fishing in March-June and October-December.
Lis River: laboratory determination of length, weight and pigmentation stage.	Glass eels were sampled in March-June and October-December.

Note: In Minho River actions are developed with the collaboration of CIIMAR/Aquamuseu Vila Nova Cerveira (focal person: Carlos Antunes) who has been studying and monitoring diadromous fish (including glass eel and its fishery) for a long period

In Minho River, the 2012-2013 season ended on the 18th March (forbidden in February New Moon – 3rd to 17th) and 2013-2014 season started on the 26th October.

As stated in last reports, the reduction in time of official commercial season might introduce bias in conclusions about recruitment based in data from this period because main recruitment season continues beyond fishery closure and recruitment is dependent of seasonal environmental conditions with variable peaks.

The participation of fishermen in voluntarily filling log-books is poor. In season 2012-2013 were licenced 126 fishermen.

We are going to try access official data reported by fishermen in obligatory log-books introduced by Capitania once they have a daily basis.

In Lis River at the end of 2012, after a hard process, we finally convinced two fishermen that had already collaborate in a similar process of data collection in late 1990s, when activity was legal, to perform experimental fishing.

Authorization to perform experimental fishing in the presence of IPMA observers was dependent of a special permission, which only became available at the end of January 2013, leading to an onset of monitoring activities in March 2013

Based on the patterns observed in the 1990s data from Lis and due to the fact that in Minho River glass eel fishery activity concentrates around new moon (8-10 days) we decided to perform experimental fishing between last and first moon quarters. Experimental fishing was divided in two actions for two consecutive days, one week apart. The fishing operations took place at the beach, south of the river mouth, or inside the river, approximately 500m above the mouth of the river (depending on local sea state conditions at the sampling time), during night and with the gear known as sarrico.

Four fishing operations were performed in March, just with one fisherman. Only in April was possible to contract another fisherman to substitute the fisherman that opted out. In April only two operations were undertaken due to logistic limitations. These facts made us decide to extend the experimental period to June which was authorized. In May and June the four planned fishing actions were performed.

The preliminary results from the period March-June confirmed the possibility of replicate the fishing activity of the 1990s (same gear and method of operation) allowing us to make comparisons based on CPUEs (biomass of glass eel by hour spent fishing by each fisherman in each sampling day). Supported by this, one “all season” experimental fisheries were planned from October 2013 to June

2014, which is currently being executed. Those data will be the reference point for actual relative state in order to comparison with 1990s data and future assessments of stock recruitment evolution.

One sample of glass eel is transferred to the laboratory for determination of biological characteristics for each two days actions (the remainder being released back to the sea).

ANNEX IV

INTERIM REPORT 2013

PILOT STUDY ON THE PORTUGUESE TRAMMEL NETS FISHERY IN ICES DIV. IXA

1. INTRODUCTION

The fishery targeting anglerfish (*Lophius budegassa* and *Lophius piscatorius*) is one of the most important artisanal mixed fisheries in Portugal mainland. This group of species is mainly caught by trammel nets but high catches are also recorded from gillnet fisheries, and exploitation depths have historically been up to 600 m deep until the implementation of the Annex III to Regulation (EC) No 43/2009. According this rule, European Community vessels were prohibited to deploy gillnets, entangling nets and trammel nets at any position where the charted depth is greater than 200 m in the ICES zones IIIa, IVa, Vb, Via, VIb, VIIbcjk, VIII, IX, X and XII. However, point 9.4 clearly stipulated the derogations for the use of gillnets and entangling nets down to 600 meters, targeting hake and anglerfish respectively, and these could be applied to certain fisheries in ICES Zones VIII, IX and X, if "information provided by Member States shows that those fisheries result in a very low level of shark by-catches and of discards".

To accomplish such requirement and increase the knowledge on the fishery, a pilot study on the Portuguese trammel nets fishery targeting anglerfish in ICES Division IXa started in May 2012 under the PNAB/DCF. Despite the derogation established in the EU regulation N. o 227/2013, point 34b from 20th March 2013, which allows fishing operations with trammel nets at that depth range, the monitoring of this fishery must proceed.

The pilot study was designed for three years and has four main objectives:

1 - Characterization of the fisheries and of the fleets that use trammel nets between the 200m and 600m isobaths: number and characterization of the vessels, seasonal and spatial distribution of the fisheries.
2 - Characterization of the catches by species: variation in space and time.
3 - Estimation of fishing effort and its distribution in space and time.
4 - Estimation of the impact of these fisheries on sharks: definition of estimators and estimation of the catches of each shark species by these fleets.

Those are subdivided in three tasks:

1 - Analysis of fishing regime of vessels with trammel net licenses in Portugal mainland. The data used will be derived from the data base available at the General Portuguese Directorate. Possible data sources are logbook, daily landings by boat and VMS data.

2 - Development of an onboard sampling programme to estimate the level of by-catch, including deep-water sharks. The data analysis and results from 1) will be basis to select the vessels for which on board sampling will be performed. The sampling programme will be updated by cross-checking information from the on-board sampling and the other data sources referred in 1). The fishing trips with on board observers are authorized by the national entities to operate between 200 and 600 m deep.

3 – Analysis of the sampling data.

During 2013 all the four objectives were addressed. Data was also collected on board of commercial fishing vessels.

ACHIEVEMENTS: RESULTS AND DEVIATIONS FROM THE PROPOSAL

SCOPE	RESULTS
Characterization of the fisheries and of the fleets that used trammel nets between the 200m and 600m isobaths	1. Use of logbook data (2007-2011) to characterize trammel net fisheries targeting anglerfish: characterization of the catches, gears used, geographical areas, and seasonality (continuation of the work developed in 2012). A cluster analysis was run to identify groups of vessels with similar fishing patterns.
Characterization of the catches by species: variation in space and time	1. Characterization of anglerfish and other important species catches, seasonality and potentially important fishing grounds by group of vessels as defined in point 1 from the previous section.
Estimation of fishing effort and its distribution in space and time	1. Effort and catch per unit of effort (CPUE) were estimated for the anglerfish trammel net fishery using fishing vessels selected in point 1 from the first section and catch information presented in logbooks. 2. Generalized additive models were used to standardize CPUE, considering the factors year, month, haul duration, area, and vessel size. 3. Comparison of results obtained was performed by geographical area and for all the areas combined using different units of effort and dataset constrains.
Estimation of the impact of these fisheries on sharks	1. Analysis of the data collected onboard in 2012 and 2013. Eight deepwater shark species (33 individuals) were caught. From these, six species (30 individuals) are included in the list of prohibited deepwater sharks. Most (~82%) were captured deeper than 590 m. In 2013 the catch of deepwater sharks represented ~2% of the anglerfish catches. 2. Compilation of data by species to use in a productivity-susceptibility analysis. This analysis will assess the impact of the trammel net fishery in the deepwater shark populations from Portugal mainland.
On board data collection	1. A total of 34 hauls targeting anglerfish were

	sampled at three different geographical areas in 2013. 2. Data collected included: identification of the catches at a species level, total length of the main species, depth and geographical position of the catch, and effort data.
Analysis of the sampling data	1. Interim analysis of the data has been developed in order to produce scientific outputs for ICES Working Group on Elasmobranch Fishes (WGEF) and for data quality control, particularly about the impact of the fishery in deep-water shark populations.
Port sampling and interviews	1. To better characterize the fisheries and to complement onboard sampling, dedicated sampling to trammel net fishing trips with anglerfish was carried out (length sampling and interviews, when possible), in coordination with other sampling programs under the DCF currently in place.

2. ACTIONS TO AVOID SHORTFALLS

1. Identification of fishing hauls at 200-600 m deep.

   The data available was not adequate to extract depth information, precluding the execution of the initial objective of characterizing fisheries and catches at this depth interval (official landing data does not include such information and in logbooks the field for depth information is not mandatory being seldom reported). However, due to the close of the fishery in 2009 (from 200 to 600m deep), the data analysis from recent years would not be helpful to fulfill this objective. As a consequence, analyses were carried out without depth constrains. Future analysis will use vessel monitoring systems data which will allow identifying those fishing hauls and crossing information between databases.

2. On board sampling

   The number of fishing trips sampled was lower than the expected due to:

   - Meteorological conditions
   - Change of the fishermen strategy (other target species, gears and/or fishing grounds) maybe because of the anglerfish availability.
   - Administrative constraints (must be treated one by one, depending on its nature)

3. OTHER REMARKS

The working document presented to the ICES Working Group on Elasmobranch Fishes (June 2013) is in annex.

Working Document for the ICES Working Group on Elasmobranch Fishes
Lisbon, 17-21 June 2013

Pilot Study on the Portuguese trammel nets fishery in ICES Div. IXa

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1. Introduction

The fishery targeting anglerfish (*Lophius piscatorius* and *Lophius budegassa*) is one of the most important artisanal mixed fisheries in Portugal mainland (Duarte *et al.,* 2007). Anglerfish are mainly caught by trammel nets but high catches are also recorded from gillnet fisheries. Exploitation depths have historically been down to 600 m deep until the implementation of the Annex III to Regulation (EC) No 43/2009 which states that Community vessels shall not deploy gillnets, entangling nets and trammel nets at any position where the charted depth is greater than 200 m in the above mentioned areas in ICES zones IIIa, IVa, Vb, Via, VIb, VIIbcjk, VIII, IX, X, XII.

According to this regulation there are possible derogations for the use of gillnets and entangling nets down to 600 meters, targeting hake and anglerfish respectively. Moreover, point 9.12 of the same annex stipulates that the Commission may decide, after consulting the STECF, to exclude certain fisheries, in ICES Zones VIII, IX, X, from application of points 9.1 to 9.11, 'where information provided by Member States shows that those fisheries result in a very low level of shark by-catches and of discards'.

To evaluate the level of by-catch and discards of sharks and to increase the knowledge on the fishery, a pilot study on the Portuguese trammel nets fishery targeting anglerfish in ICES Div. IXa started in May 2012 under the PNAB/DCF. In addition to data compilation and analysis (e.g. landing data, logbooks, and

vessel monitoring systems), this study relies on onboard observations made in trips especially authorized by the national entities to operate between 200 and 600 m deep. The main outputs from this project are the characterization of the trammel net fishery and fleet in terms of number of vessels, seasonal, spatial distribution of the fishery, variation in space and time of the catches and effort, and also the evaluation of its impact in deep-water shark populations. This working document presents information about the latter, based on fishery dependent data and on board information collected in the first 8 months of the project.

2. Characterization of the fishery

First results about the characterization of the trammel net fishery targeting anglerfish (not depth constrained) show that catches of anglerfish with trammel nets represented between 74 to 89% of the polyvalent catches in 2007-2011 (Table 1). The vessels targeting anglerfish present a seasonal fishing pattern to this species, with higher landings between March and May. The trips can combine a set of different gears, particularly traps and gillnets, to capture other species like hake (*Merluccius merluccius*) and octopus (Octopodidae), or also use trammel nets to capture other target species as, for e.g., John Dory (*Zeus faber*) and soles (*Solea* spp. and *Pegusa lascaris*). The importance and frequency of deployment of each gear can thus vary between vessels.

Table 1. Proportion of anglerfish (*L. piscatorius*, *L. budegassa* and *Lophius* spp.) in weight by gear and by year, from the total of the catches reported for the polyvalent gears. Information reported in logbooks.

Year	Trammel nets	Gillnets	Longlines	Traps
2007	0.77	0.20	0.02	0.01
2008	0.89	0.10	0.00	0.01
2009	0.79	0.20	0.00	0.01
2010	0.85	0.15	0.00	0.00
2011	0.74	0.25	0.00	0.01

3. On board data

An onboard sampling programme was established to estimate the level of catch of anglerfish and deep-water sharks in depths ranging from 200 to 600 m using trammel nets in hauls targeting anglerfish. The information collected onboard consisted in total length of all individuals caught (identified at a species level), categorization into discarded or retained individuals, geographical coordinates and depth of the fishing haul and effort data (number and size of nets, number of fishing hours).

16 hauls were conducted from June to December 2012 onboard of 3 vessels operating at 3 different geographical areas of the Portuguese continental coast (Figure 1). All sharks were discarded (some returned alive to the sea) or brought to laboratory.

Figure 1. Location of the sampled fishing hauls.

The number and estimated weight of sharks and the two species of anglerfish caught (based on TL-TW relationships) is presented in Table 2. A total of 62 individuals from 8 species of sharks were caught in 13 out of 16 hauls. From the 62 individuals, 46 were identified as S*cyliorhinus canicula*. Four of the captured species (12 individuals caught in 7 hauls) are included in the list of deep-water sharks under the TAC established by the European Commission. From these latter, only *Galeus melastomus* was captured shallower than 400 m deep. In fact, this species has been recently assumed by WGEF as a demersal elasmobranch (ICES, 2012), due to its life characteristics. All the other deep-water sharks were caught deeper than 500 m, particularly between 520 and 630 m deep. One specimen of each of the following shark species was caught between 600 and 630 m deep: *Chlamydoselachus anguineus*, *Dalatias licha*, *Galeus melastomus* and *Centroselachus crepidater*. Although estimates of abundance by depth strata need more sampling information (by geographical area, depth and season), it should be remarked that anglerfish catch rates (average nº/haul) were higher between 200 and 300 m deep.

Table 2. Number and catch weight of anglerfish (*Lophius* spp.) and sharks by 100m depth strata. *Lophius* spp. combines *Lophius piscatorius* and *Lophius budegassa*.n, number of sampled specimens; W_{est}, estimated weight (based on length-weight relationships)

			Depth strata				
	Total	**Total**	100-200	200-300	300-400	400-500	>500
Species	**n**	**W_{est} (kg)**	n	n	n	n	n
Chlamydoselachus anguineus	1	0.5					1
*Etmopterus pusillus**	1	0.2					1
Dalatias licha	2	10.8					2
Galeus melastomus	7	4.8	1	1	1		4
Centroselachus crepidater	2	4.7					2
*Mitsukurina owstoni**	2	15.1			2		
Mustelus sp.*	1	NA					1
*Scyliorhinus canicula**	46	22,9	6	33	6		1
Lophius spp.	775	2302.1	76	550	93	0	56
Nº hauls	16		3	6	3	0	4

* sharks not included in the deep-water shark TAC list for the NE Atlantic

4. References

Duarte R., Azevedo M., Afonso-Dias M. 2007. Segmentation and fishery characteristics of the mixed-species multi-gear Portuguese fleet. *ICES Journal of Marine Science* 66: 594-606

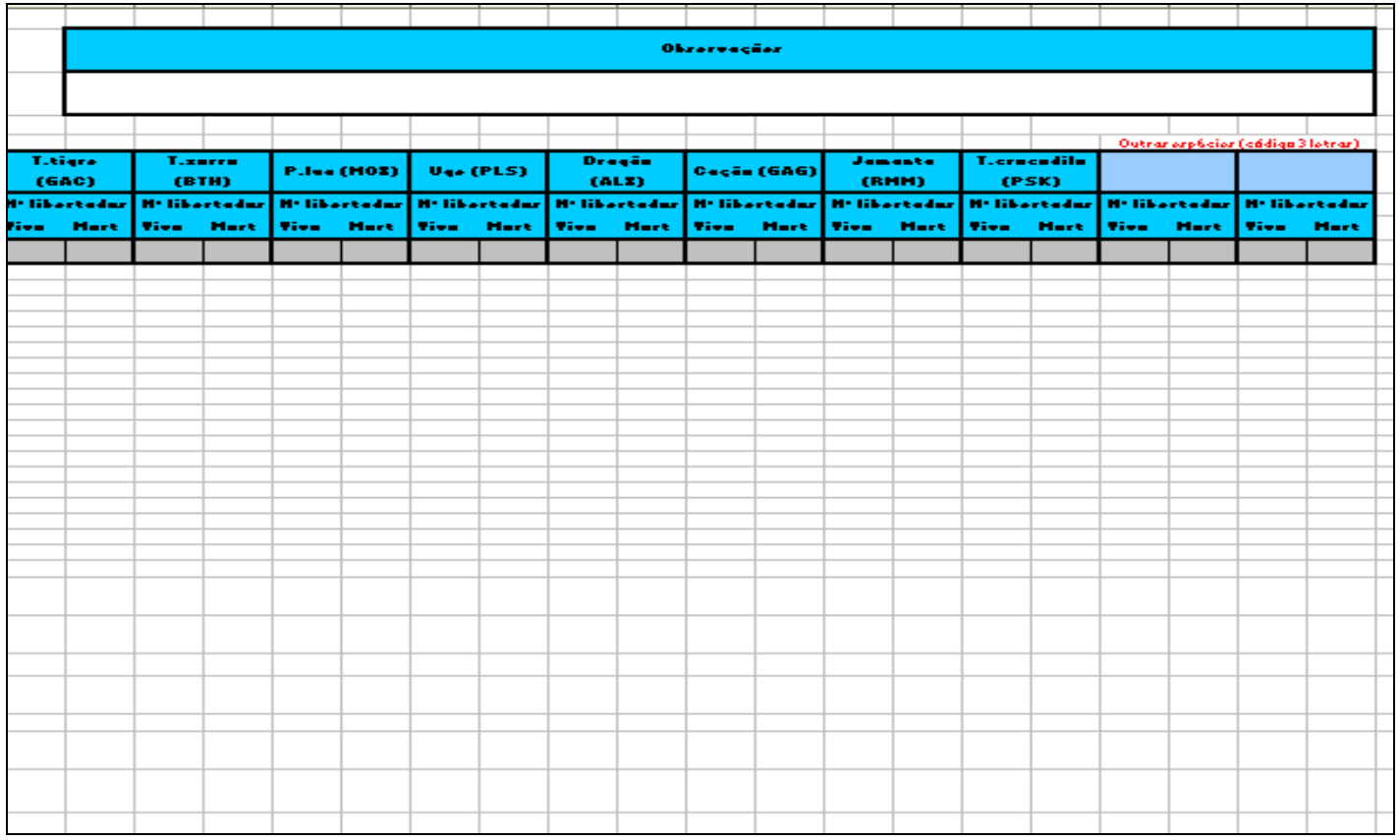
ICES. 2012. Report of the Working Group on Elasmobranch Fishes (WGEF), 19–26 June 2012, Lisbon, Portugal. ICES CM 2012/ACOM: 19. 547 pp.

ANNEX V

OTHER REGIONS SELF-SAMPLING FORM

Dados do lance	Data	Nº lance	Posição inicial	Latitude (º' S/N)	Longitude (º' S/N	Rumo	Profundidade pesca	Nº anzóis	Nº bóias	Tipo estralho	Vento	Mar	Temperatura (ºC	Nº Tartarugas libertadas	Nº Tartarugas mortas	Nº Aves capturadas	Cetáceos
		1	Posição final														

Espécie	Espadarte (SWO)	Tintureira (BSH)	Anequim (SMA)	Atum-patudo (BET)	Atum-albacora (TFT)	Atum-voador (ALB)	Espadim-azul (BUM)	Espadim-branco (WHM)	Veleiro (SAI)	Ercular (LEC)	Dourado (DOL)	T.luzidio (FAL)	T.pt.branco	T.martelo (SPN)	Barracuda (BAZ)	Lírio (AMB)
Capturar lance para-vivo	Quilos	Quilos	Quilos	Quilos	Quilos	Quilos	Quilos	Quilos	Quilos	Quilos	Quilos	Quilos	Quilos	Quilos	Quilos	Quilos
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Barbatanar		0	0									0	0	0		
Comprimentos dos peixes capturados (incluindo os de pequena dimensão)																
Nº peixes não medidos																
Lançar/devolver (para vivo)	Quilos	Quilos	Quilos	Quilos	Quilos	Quilos	Quilos	Quilos	Quilos	Quilos	Quilos	Quilos	Quilos	Quilos	Quilos	Quilos
Total para barbatanar		0	0									0	0	0		
Total para vivo	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total para limpo	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0


Observações
Outras espécies (código 3 letras)
T.tigre (GAC)
T.zarro (BTH)
P.leo (MOZ)
Veado (PLS)
Doação (ALZ)
Caçada (GAG)
Jamanta (RMM)
T.crocodilo (PSK)
Nº libertados
Vivos
Mort