EU DATA COLLECTION FRAMEWORK (DCF), REG. 199/2008, 665/2008 AND DECISION 2010/93/EU

Final report of the Regional Co-ordination Meeting for the North Atlantic (RCM NA) 2011

La Rochelle, France

12 – 15 September 2011

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1 Introduction

RCM NA 2011 was held in the premises of the IFREMER Institute in La Rochelle (France) from 12 to 15 September for a duration of 3 days. The group addressed all terms of references listed in Annex I, at the exception of the issues related to transversal variables in absence of economists. Two elements were detrimental to the efficiency of the RCM addressing its terms of references (i) the duration of 3 days, and (ii) the unavailability of the agreed NP proposals to the group. These two points will be further addressed in the report.

One of the objectives of the RCM is to agree on common references and naming convention. The group continues to recommend the setting of a RCM web page for positioning such references (see section 3.2.4), and with this view gathered and updated all agreements made previously, so that this report can act as a unique reference document. In terms of internal organisation, RCM NA was of the opinion that no data manipulation should be done during the meeting. In this view, the regional database is seen as a major step toward a real coordination of the sampling programmes (section 4.2), and should be accompanied by a database containing the meta information on data (section 4.1).

RCM NA was very pleased with the facilities offered by IFREMER institute, and the availability of a sharepoint offered by ICES proved to be very efficient in organising the work before, during and after the meeting.

1.1 Background

The EU Data Collection Framework (DCF; EC 2008a, 2008b, 2008c, 2010) establishes a framework for the collection of economic, biological and transversal data by Member States (MS). It was intended that this programme would provide the basic data needed to evaluate the state of fishery resources and the fisheries sector.

The RCM-NA proceeds from the new Data Collection Regulation (Council EU Council Regulation 199/2008) establishing a community framework for the collection, management and use of data in fisheries sector for scientific advice regarding the CFP. According to this regulation and without prejudice to their current data collection obligations under Community law, Member States (MS) shall collect primary biological, technical, environmental and socio economic data within the framework of a multi-annual national programme drawn up in accordance with the Community programme. According to EC Regulation 665/2008, laying down detailed rules for the application of Council Regulation (EC) 199/2008, and its technical Decision 2010/93/UE specifying practical aspects for data collection, actions planned by MS in their national programme shall be presented according to the predefined regions. The scope of these regions were slightly modified by the RCMs 2008 and the following Liaison Meeting as follows

- the Baltic Sea (ICES areas III b-d),
- the North Sea (ICES areas IIIa, IV and VIId), the Eastern Arctic (ICES areas I and II), the ICES divisions Va, XII & XIV and the NAFO areas.
- the North Atlantic (ICES areas V-X, excluding Va and VIId),
- the Mediterranean Sea and the Black Sea,
- long distance fisheries : regions where fisheries are operated by Community vessels and managed by Regional Fisheries Management Organisation's (RFMO) to which the Community is contracting party or observer.

Regional coordination is recommended at this regional level and specific meetings (RCMs) are in charge of facilitating it and aim to identify areas for standardisation, collaboration and task sharing between MS. RCMs are held annually and involve National Correspondents and both biologists and economists from each MS involved in the DCF programme

As a consequence of the new regions definition, the RCM-NA was established in 2008 and arose from the merging of former RCM for the Atlantic North-East (RCM-NEA) and RCM for the Atlantic North-West (NAFO areas) (RCM-NAFO).

1.2 Participants

Surname	First name	Country	Institution	email
Birch Håkansson	Kirsten	Denmark	DTU AQUA	kih@aqua.dtu.dk
De la Figuera	Ramón	Spain	MAPA	rdelafiguera@mapa.es
Dehaudt	Valerie	France	DPMA	Valerie.Dehaudt@agriculture.gouv.fr
Dias	Marina	Portugal	IPIMAR	mdias@ipimar.pt
Dintheer	Christian	France	IFREMER	Christian.Dintheer@ifremer.fr
Elson	Jon	UK	CEFAS	jon.elson@cefas.co.uk
Hernandez	Carmen	Spain	IEO	carmen.hernandez@st.ieo.es
Knapp	Amelie		EC	Amelie.KNAPP@ec.europa.eu
McCormick	Helen	Ireland	MI	helen.mccormick@marine.ie
Moreau	Kelle	Belgium	ILVO	kelle.moreau@ilvo.vlaanderen.be
Mugerza	Estanis	Spain	AZTI	emugerza@azti.es
Pout	Alastair	UK	MARLAB	a.pout@marlab.ac.uk
Rodriguez	Jose	Spain	IEO	jose.rodriguez@st.ieo.es
Sparholt	Henrik		ICES	henriks@ices.dk
Torreele	Els	Belgium	ILVO	Els.Torreele@ilvo.vlaanderen.be
Ulleweit	Jens	Germany	VTI-SF	Jens.Ulleweit@vti.bund.de
vanBeek	Frans	Netherlands	WUR	frans.vanbeek@wur.nl
Vigneau	Joël	France	IFREMER	joel.vigneau@ifremer.fr
Warnes	Steve	UK	CEFAS	steve.warnes@cefas.co.uk
Zenner	Annemie	Belgium	ILVO	annemie.zenner@ilvo.vlaanderen.be

Joël Vigneau (France) chaired the meeting in replacement of the nominated chair Sieto Verver, (Netherlands) absent due to illness. Steve Warnes and Frans vanBeek acted as leaders of the sub-group on metier-variables and sub-group on stock-variables respectively.

1.3 Legal requirements

Within the new Data Collection Framework, the role of the RCMs and their tasks in regional co-ordination are clearly defined. In Article 5 of the Council Reg. 199/2008, it is stated that "*the Commission may organise Regional Coordination Meetings in order to assist Member States in coordinating their national programmes and the implementation of the collection, management and use of the data in same region*". Following recommendations made at Regional Coordination Meetings, "*Member States shall where appropriate submit amendments to their*

national programmes during the programming period".

In the Commission Regulation 665/2008, article 4, it is mentioned that RCMs "s*hall evaluate the regional co-ordination aspects of the national programmes and where necessary shall make recommendations for the better integration of national programmes and for task-sharing among Member States*".

In the Commission Decision 2010/93/EU, precise requirements for the RCMs are made or regional aspects are addressed :

- Section A. Collection of economic variables
  - Subsection 2.4.(d) : "*Regional Coordination Meetings shall define homogeneous clustering methodology at the level of supra regions so that economic variables are comparable*."
- Section B1 : Collection of Metier-related variables
  - Subsection 2.1 : "*Regional agreement on mergers shall be sought at the relevant Regional Coordination Meeting and endorsed by STECF"*
  - Subsection 2.4 : "*For the purpose of collection and aggregation of data, spatial sampling units may be clustered by regions* "
  - Subsection 3.1.(d) : "*Precision values and ranking system are referenced at the same level as the sampling programmes, i.e. at the national métier level for data that are collected through national programmes and at regional métier level for data that are collected through regionally coordinated sampling programmes."*
  - Subsection 3.1.(f) : "*The list of Group 3 species shall be established at the regional level by the relevant regional co-ordination meeting and agreed by STECF."*
  - Subsection 3.2.(c) :"*Precision values and the ranking system are referenced at the same level as the sampling programmes, i.e. at the national métier level for data that are collected through national programmes and at regional métier level for data that are collected through regionally coordinated sampling programmes*."
- Section B2 : Collection of Stock-related variables
  - Subsection 5.2 : When the shares of quotas correspond to less than 10% of the Community share and the sum of relevant quotas, of MS whose allocation is less than 10%, account for more than 25% of the Community share, "*the relevant Member States may set up a coordinated programme to achieve, for their joint landings, a joint sampling scheme"*.
  - *Subsection 5.3 : "If appropriate, the national programmes may be adjusted until 1st February of each year to take into account the exchange of quotas between Member States:"*
  - Subsection 5.4 : "*For stocks for which TAC's and quotas have not been defined and which are outside the Mediterranean Sea, the same rules established under point 5(1) apply on the basis of the average landings of the previous three years and with reference to the total Community landings from a stock;*".
  - Subsection 5.5 : "*For stocks in the Mediterranean Sea, the landings by weight of a Mediterranean Member State for a species corresponding to less than 10 % of the total Community landings from the Mediterranean Sea, or to less than 200 tonnes, except for Bluefin tuna."*
- Section C : Collection of transversal variables
  - Subsection 2.2 : "*The degree of aggregation shall correspond to the most disaggregated level required. A grouping of cells within this scheme may be made*

provided that an appropriate statistical analysis demonstrates its suitability. Such mergers must be approved by the relevant Regional Coordination Meeting."

- Appendix II : Geographical stratification by Region
  - Footnote : "*Sub-regions or fishing grounds are established by Member States for the first programming period (2009-2010); they may be redefined by Regional Coordination Meetings and agreed by STECF if necessary."*
- Appendix VIII : List of transversal variables with sampling specification
  - Footnote 2 : "*some adjustments could be proposed by Regional Coordination Meetings"*

1.4 Structure of the report

The terms of reference for the meeting are presented in Annex I and the agenda used in Annex II. The structure of the report follows the terms of reference, with the exception of section 3 which comprises the inter-linked terms of references 3 and 4. The terms of references are addressed as follows :

- Section 2 : term of reference 1 and 2 : Review previous recommendations and feedback from ICES
- Section 3 : terms of reference 3 and 4 : Metier and stock-related variables.
- Section 4 : term of reference 5 : Quality issues
- Section 5 : term of reference 6 : Review of the list of surveys
- Section 6 : term of reference 7 : Studies and pilot projects.
- Section 7 : Any other business.

2 Review progress in regional co-ordination since the 2009 RCM (follow-up of recommendations) and 6th Liaison Meeting report.

2.1 Follow-up of 2010 RCM NA and 7th Liaison Meeting

A follow up of the main recommendations and actions from the LM were discussed by the RCM. The Liaison Meeting (LM) between the chair of SGRN, the chairs of the different RCM, the Chair of the PGCCDBS, ICES and the Commission is held annually to analyse the RCM reports in order to ensure overall co-ordination between the RCMs. On the basis of the reports, the LM makes recommendations to the Commission.

The main points are considered in the following text.

DCF requirements:

- It was not possible for the RCM NA to prove if progress was made regarding the request to MS to upload their landings into Eurostat by ICES division and by gender and species without using generic codes.
- RCM NA notes that the collection of otoliths for turbot and John Dory had increased but the age determination of John Dory is problematic. RCM NA recommends that the collection of otoliths is continued but not proceed with age readings of John Dory until an agreed standardized method is developed.

DCF Requirements	
RCM NA 2011 Recommendation	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
Responsible persons for follow-up actions	All MS
Time frame (Deadline)	None

Feedback from assessment working groups:

- RCM NA has been informed that the situation regarding the non-provision of revised LPUE data series of megrim by Ireland has been clarified by the expert group and the issue will be addressed in the benchmark workshop for this species in 2012.
- RCM NA notes that MS progressed in delivering data in time for the expert groups.
- RCM NA notes that only Spain delivered a working document on the description of the method used for separating the catches/landings of the two Lophius species, in the assessment Working Group WGHMM 2011. RCM NA recommends that all ms involved make sure that this information is available to the next benchmark meeting in 2012.
- RCM NA notes that France and Belgium have investigated the cause of discrepancies on weights at age of Biscay sole and have progressed on a solution.

Feedback from assessment working groups	
RCM NA 2011 Recommendation	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.
Follow-up actions needed	Prepare a document to be forwarded to the WGHMM Lophius stock coordinators.
Responsible persons for follow-up actions	All MS having catches of Lophius in the Atlantic and having not provided this information to the ICES assessment Working group in 2011.
Time frame (Deadline)	End of 2011

Metier and stock variables:

- RCM NA notes that reference tables to ensure the adherence of species naming conventions should be harmonized with existing conventions, and that this issue should be dealt with in the RDB steering group (see section 4.2).
- RCM NA notes that descriptions of nationally ranked metiers still need to be completed (see section 3.2.1).
- RCM NA notes that Spain has provided information on the total value of the landings per metier and fishing ground in order to perform a full regional ranking but this regional ranking has not been performed this year (see section 4.2).
- RCM NA notes that Spain and Portugal still needs to arrange a common split of mesh size ranges for the trammel net fisheries (see section 6).
- RCM NA notes that there was a mismatch between the timing of the 2010 RCM NA meeting and the date for the revision of the NP due to the postponing of the meeting so that proposed actions could not be included in the revised NPs. Nevertheless, national correspondents have to ensure that the NPs include appropriate reference to RCM and bilateral agreements in relation to sampling activities.
- RCM NA notes that Scotland liaised with Belgium in order to set up a regional coordination referring to turbot and brill.
- RCM NA appreciates that a study on shared international age-length keys on mackerel was carried out by the mackerel stock coordinator with data from Ireland, Scotland, England, Netherlands, Germany, Portugal and Spain and provided to the RCM NA. The study was discussed in the subgroup on biological stock variables. RCM NA recommends that this study should be put forward to PGCCDS for their consideration (see section 3.4.3).

Quality issues:

- RCM NA were not informed on any progress on the follow up of the recommendation to DG-MARE and STECF to propose a standard data exchange format and a common codification for all the variables issued from the DCF.
- RCM NA notes that regarding the installation of a regional database (RDB) substantial progress was made. A steering group was established and met the first time in May 2011. A data call was initiated before the RCM meeting in 2011 and the outcome was evaluated during the meeting, (see section 4.2).
- RCM NA notes that regarding the implementation of a follow up project of COST no progress was made so far (see section 4.3).

2011 recommendations from ICES groups:

ICES Group	Recommendation	RCM NA comment
HAWG	HAWG is concerned to learn that there is a strong likelihood that certain countries will lose their pelagic observer programmes in 2011. HAWG recommends that all efforts be made to maintain observer coverage across fleets that catch a substantial proportion of pelagic fish.	RCM NA expresses also its concerns regarding this issue and notes that some observer programs have already stopped..
PGCCDBS	PGCCDBS recommends RCMs should compile an overview of the cephalopod catch data available and WGCEPH participants should approach the relevant national laboratories. The issue relating to the survey data should be forwarded to IBTSWG.	This is not in the remit of the RCM NA but should be addressed by WGCEPH.
PGCCDBS	PGCCDBS recommends that roundnose grenadier effort data should be provided by all involved countries (ref. WKDEEP 2010).	Should be dealt with in the RCM NS&EA because most of the catches are taken in this area.
PGCCDBS	PGCCDBS recommends that some exercises should be made to evaluate between observers (or for the same person) the quality of pre-anal fin length measurements for roundnose grenadier (ref. WKDEEP 2010).	Should be dealt with in the RCM NS&EA because most of the catches are taken in this area. The exchange exercise to be initiated by PGCCDBS.
PGCCDBS	PGCCDBS recommends that MS should ensure that, when collecting roundnose grenadier samples, hauling duration and fishing depth is recorded with all samples. Sampling should be spread across a number of trips rather than relying on large samples from fewer trips (ref. WKDEEP 2010).	Should be dealt with in the RCM NS&EA because most of the catches are taken in this area.
PGCCDBS	PGCCDBS recommends to examine the possibility of a longline survey for large pelagic sharks. (in the absence of any fisheries-independent data) (ref. WGEF 2010).	RCM NA is not able to check the proposed methods and usefulness of a longline survey, WGEF to reflect on methodology.
PGCCDBS	PGCCDBS recommends that RCM NA considers an increase of sampling levels of the fish and Nephrops fisheries in the Celtic Seas Ecoregion through: a) Self-sampling of catches (both landings and discards), b) Development and promote enhanced catch sampling through reference fleets and or fully documented fisheries (ref. WGCSE 2010).	RCM NA cannot address this kind of unspecific recommendation as it is not within DCF requirements.
PGCCDBS	PGCCDBS recommends that RCM NA should develop a Study Proposal for tagging in the light of uncertainties in unaccounted mortality and in stock structure of several WGCSE stocks in the assessment (ref. WGCSE 2010).	RCM NA cannot address this kind of recommendation as tagging is not currently eligible under DCF.
PGCCDBS	PGCCDBS recommends that research on hake growth should continue. Otoliths should continue to be collected, as age reading methods could soon be available (ref. WGHMM 2010).	RCM NA agrees fully and reminds MS that the collection of hake otoliths is within the requirements of the DCF.

PGCCDBS	PGCCDSB recommends that RCM NA considers ensuring adequate numbers of small and large (i.e. young and old) fish from deep-water stocks to be sampled, which will improve definition of both ends of the age–length relationship. Age sampling should cover the entire length range of the species (ref. WKDEEP 2010).	RCM NA cannot address this kind of unspecific recommendation. The request contains not enough information and RCM NA reminds expert working groups to be clear and specific in their recommendation.
PGCCDBS	PGCCDBS recommends that the WGCRAN request to increase and standardise sampling effort for bycatches (improve seasonal and spatial coverage) of brown fisheries should be taken up by SGRN to prioritise the allocation of sampling effort in the general context of the DCF. RCMs should look into the outcomes of SGRN.	Should be dealt with in the RCM NS&EA because brown shrimp are caught in this area.
PGCCDBS	PGCCDBS recommends to make better use of discard sampling in recording protected species bycatch occurrence in a range of other fisheries.	RCM NA supports this recommendation but notes that it is not clear what is meant with “other fisheries”. MS should protocol the catch of protected species. RCM NA notes that SGPIDS has already made an overview on which MS are collecting data.
PGCCDBS	PGCCDBS recommends an increase of the number of discard samples (% of trips covered by observers) on commercial vessels fishing on greater forkbeard (ref. WKDEEP 2010).	RCM NA supports this recommendation and reminds EWG that no sampling plan is designed for a single species. Therefore, RCM NA will recommend MS to make sure that sufficient sampling of deep-water fisheries is planned in their 2012 NP.
PGCCDBS	PGCCDBS recommends that catches (i.e. landings & discards) of deep-sea species should be fully recorded and reported, if possible, by haul-by-haul data for all trawl and longline fisheries (ref. WKDEEP 2010).	RCM NA supports this recommendation.
WGANSA	WGANSA recommends that an otolith exchange and an age reading workshop for horse mackerel be carried out in 2012, in order to ensure an agreement of ageing criteria among readers and a good quality of the catch-at-age and abundance-at-age data. The otolith collection from the 1982 year-class, being kept by IMARES (the Netherlands) should be used during the workshop, given that it is the only otolith collection with validated ages.	Not in the remit of the RCM NA but addressing PGCCDBS.
WGANSA	The WG recommends that a proper sampling for length and age in subarea VII is set up in order to allow to assess the status of sardine and anchovy in that subarea VII	RCM NA notes that information on length structure should be available from concurrent sampling. RCM NA recommends that STECF considers the collection of age information of sardine and anchovy for inclusion in the new DCF.
WGANSA	The WG recommends that studies to determine the stock identity and migrations of sardine along the European coasts (and in subareas VIII and VII in particular) are carried out.	RCM NA notes that a complete description of a study is needed in order to be proposed by the RCM.
SGPIDS	For standardized discard sampling between countries/Member States it is fundamental that all countries/Member States are represented at the study group, or at least, all requested information by	RCM NA is fully supporting this recommendation.

	Member States is available to the group.	
SGPIDS	In pursuit of increased standardization, it is important that Member States summarize the main technical details of their discard sampling protocols in a common language (e.g. English) and make this available for other Member States (e.g. published online).	RCM NA notes that this recommendation should be addressed by PGCCDBS. A summary of the catch or observer sampling protocol should be part of the NP, see section 5.
SGPIDS	It is recommended that greater attention is given to auxiliary variables, namely those that help to standardize fishing effort (e.g. grid device information) and reduce the variability of final fleet level estimates (e.g. post-stratification).	RCM NA notes that this recommendation should be considered by STECF.

Stock variables	
RCM NA 2011 recommendation	RCM NA recommends that STECF considers the collection of age information of sardine and anchovy in area VII for inclusion in the new DCF.
Follow-up actions needed	STECF to include this point when discussing modifications of the current DCF for the period 2014 onward
Responsible persons for follow-up actions	STECF
Time frame (Deadline)	2012

Metier vairables : Increase sampling in deep-water fisheries	
RCM NA 2011 recommendation	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.
Responsible persons for follow-up actions	MS
Time frame (Deadline)	October 2011

2.2 Feedback from ICES

ICES made a presentation on how ICES see the link between ICES and the DCF/RCMs. ICES is an end-user of the DCF data. This is a two way interactive process between ICES and DCF/RCMs and others involved in data collections.

ICES' MOU with the European Commission oblige ICES to report on data sampled by country and delivered to ICES assessment expert groups, in order for the European Commission to link this to the obligation by country against the DCF. ICES invited the RCM to comment on the standard ICES table for these data and suggested that these tables could be useful for other purposes as well.

It was mentioned that coordination and communication between ICES and the data collectors are improving and that further improvements are expected. It was mentioned the need to set up a RCM homepage where a lot of various types of data lists, reports etc. could be found. This would potentially improve the transparency of the work of the data collectors and making it more clear what data are available for the end-users.

It was mentioned that ICES is developing approaches for data poor stocks and that ICES is not aiming for full analytical assessments of all stocks. Abundance trends and indications of exploitation level compared to Fmsy are sometime good enough.

It was also mentioned that the data sampling of very small fragments of effort and metier units, could be problematic due to large uncertainties. Alternatives are available or could be developed along the lines suggested by e.g. ICES WGMIXFISH.

The ICES plan for benchmark assessments in 2012 and a tentative plan for 2013 were presented. It was mentioned that benchmark assessments are the best place for introducing new data series into an assessment approach for a given stock. It is therefore important that the RCMs and others are aware in due time of when a given stock is planned to be benchmarked in order to make the needed preparations.

3 Harmonise and coordinate the regional aspects in the NP proposals 2011

3.1 Naming conventions

3.1.1 Naming convention for metier related variables

The RCM NA decided to gather and update all previous conventions so that this report could act as a full reference for reporting information. Harmonization of métiers at level 6 was accomplished in the 2008 RCM NA and the mesh size ranges for all fishing grounds are shown in table 3.1 and table 3.2. The agreed mesh-size ranges are in accordance with the current EC Technical Regulation 850/98 and its subsequent amendments. If a new Technical Regulation was to be enforced, the harmonization proposed here will have to be reviewed.

The fishing grounds or sub-regions for the purpose of the ranking system are as follows:

- Bay of Biscay (ICEs divisions VIIIabde)
- Celtic Sea (ICES divisions VIIfgh)
- Irish Sea (ICES division VIIa)
- Western Channel (ICES division VIIe)
- Faeroe Islands (ICES division Vb)
- Western Scotland (ICES division VI)
- Western Ireland (VIIbcjk)
- Iberian (ICES sub-area IX and Division VIIIc)
- Azores (ICES Division X)

Table 3.1: Gear code, target assemblages and mesh size convention used by the RCM-NA for harmonization purpose.

Gear code	Target assemblage authorised (1)	Mesh size authorised
DRB	MOL	0_0_0
HMD	MOL	0_0_0
OTB	MOL, CRU, DEF, MCD, MCF, SPF, DWS, MPD, MDD	Table 3.2 – Towed gear
OTT	MOL, CRU, DEF, DWS, MCD, MPD	Table 3.2 – Towed gear
PTB	CRU, DEF, SPF	Table 3.2 – Towed gear
TBB	CRU, DEF, MCD, MCF	Table 3.2 – Towed gear
OTM	SPF, DEF	Table 3.2 – Towed gear
PTM	SPF, LPF, DEF	Table 3.2 – Towed gear
LHM	FIF, CEP	0_0_0
LHP	FIF, CEP	0_0_0
LTL	LPF	0_0_0

LLD	LPF, DEF, DWS	0_0_0
LLS	DWS, DEF	0_0_0
FPO	MOL, CRU, FIF	0_0_0
FYK	CAT, DEF	0_0_0
FPN	LPF	0_0_0
GTR	DEF	Table 3.2 – Passive gear
GNS	SPF, DEF, CRU, DWS	Table 3.2 – Passive gear
GND	SPF, DEF	Table 3.2 – Passive gear
PS	SPF, LPF	0_0_0
SSC	DEF	Table 3.2 – Towed gear
SDN	DEF	Table 3.2 – Towed gear
SB	FIF	0_0_0
MIS	MIS	0_0_0

(1) target species code: catadromous species (CAT), Crustaceans (CRU), Demersal species (DEF), Deep-Water Species (DWS), Cephalopods (CEP), Finfish (FIF), Large Pelagic Fish (LPF), Small Pelagic Fish (SPF), Mixed Crustaceans and Demersal (MCD), Mixed Cephalopod and Demersal (MCF), Mixed Pelagic and Demersal (MPD), Mixed Deep-water species and Demersal (MDD). Miscellaneous (MIS). Molluscs (MOL).

3.1.1.1 Iberian Fishing Ground Mesh Size Ranges

The level of optimisation and harmonisation of fisheries management can only be achieved by improving regional coordination. The North Atlantic RCM established, following Commission Decision 2010/93/EU, the Iberian fishing ground corresponding to the existing ICES sub-areas VIIIc and IXa.

Naming conventions for DCF metiers must follow mesh size ranges used by the RCM NA for harmonization purpose. These ranges are according to Regulation (EC) No 850/98. Ranges are compiled in table 4.1 from North Atlantic RCM 2010.

Referring to previous table of mesh size range proposed by RCM NA (2008 report), towed gears operated in the Iberian fishing ground were split in different mesh size ranges and sub-areas. This table did not prove problematic for passive gears. The problem arose with the sub-areas distinction and mesh size ranges for towed gear, which RCM NA agreed to modify as follows:

	Iberian Fishing Ground (VIIIc and IXa) – Mesh size ranges (mm)	
Towed Gears	<55	>=55

In Sub-area VIII and IX (IXa and IXb) mesh size ranges continue as established (as the defined mesh size ranges were already the same for all the Iberian fishing ground):

	Sub-area VIII and IX – Mesh size ranges (mm)					
Passive Gears	<40	40-49	50-59	60-79	80-99	>=100

3.1.1.2 Purse Seine in Bay of Biscay and Iberian Fishing Grounds

Commercial purse-seine fisheries off the Portuguese coast, area IXa, are carried out by vessels operating purse nets with a minimum mesh size of 16mm. Minimum mesh size for vessels operating along Spanish coast is 14mm. Considering that the same Spanish purse seine fleet can operate in sub-area VIII (Bay of Biscay fishing ground) and Iberian fishing ground and there's no mesh size range suitable with purse nets for both fishing grounds, RCM NA identifies the metier as PS_SPF_0_0_0.

Table 3.2: Mesh size ranges used by the RCM-NA for harmonization purpose.

		Mesh size ranges (in mm)					
Towed gears	Sub-areas V, VI & VII	<16	16-31	32-69	70-99	100-119	>=120
	Sub-area VIIIabde & Div. IXb	16-31		32-54	55-69	>=70	
	Area VIIIc & IXa	<55		>=55			
	Area X	20-39		40-64	>=65		
sive gears	Sub-areas V, VI & VII	10-30	50-70	90-99	100-119	120-219	>=220
	Sub-area VIII & Div. IX	<40	40-49	50-59	60-79	80-99	>=100
	Area X	-					

3.1.2 Naming convention for metier description sheets

In order to reduce the workload of both national coordinators when creating metier descriptions and that of the Fishing Ground coordinator at the international level when assigning files a standard naming convention should be used. This would give both all the information required when creating the file and ensure that the correct file can be allocated to the right Fishing Ground coordinator.

In each case the same information is needed:-

Gear type – Target Species – as detailed in table 3.1

Mesh size band - as detailed in table 3.2

Fishing ground - as detailed in text table section 3.1.1

Country code – Using DCF format

Each item separated by '_'

For example:-

Denmark produces a fleet description for mid-water trawlers targeting small pelagics in area VI with mesh size and gear qualifiers.

The file name would be: OTM_SPF_32-69_0_0_VI_DEN

Spain produces a fleet description for bottom trawling for hake in VIIbcjk with mesh size and gear qualifiers.

The file name would be: OTB_DEF_70-99_0_0_VIIbcjk_SPA

3.1.3 Naming convention for stock related variables

Based on the Appendix VII of the Commission Decision 2010/93/EU, RCM NA built an Excel table which can be used as a reference table for sending information related to stock variables. The naming convention used mainly replicates the wording used in the Appendix VII. This table is available in Annex VI

3.2 Métier related variables

3.2.1 Compilation of métier descriptions by fishing ground.

In 2009, the RCM NA provided and recommended a template for descriptions (homogeneity of the métier, target species, spatial and temporal distribution etc.) of the ranked métiers on a national level containing a subset of the information from the MS National Programmes, in order to allow the RCM to evaluate the compatibility of the fishing activities and generate a more complete regional overview. Should new métiers be observed in the national rankings, it is proposed that this template will be used to provide the descriptions for these new métiers. The list of fishing ground coordinators was updated in 2011 as follows:

Fishing Ground	**Coordinator**
Faeroe Islands (ICES division Vb)	Alastair Pout – UK
West of Scotland (ICES division VI)	Alastair Pout – UK
Irish Sea (ICES division VIIa)	Helen McCormick- Ireland
West of Ireland (VIIbcjk)	Helen McCormick - Ireland
Celtic Sea (ICES divisions VIIfgh)	Steve Warnes – UK
Western Channel (ICES division VIIe)	Christian Dintheer – France
Bay of Biscay (ICEs divisions VIIIabde)	Estanis Mugerza – Spain
Iberian (ICES sub-area IX and Division VIIIc)	Estanis Mugerza – Spain
Azores (ICES Division X)	Marina Dias – Portugal

The list of metier descriptions for the areas under the remit of the RCM NA is not yet complete. These are one of the major sources available to the RCM when looking at task sharing and merging of metiers for sampling as well as the best indicator available to the RCM in relation to spatial and temporal distribution of metier effort within a fishing ground at both the national and international level. It was agreed that the description of the fleets ranked in 2010 should be updated based on the effort from the latest data available (2010 Technical Reports) and that those of any new fleets that could possibly be ranked due to changes in fishing patterns completed. These should all be available for RCM NA 2012. This work, for the fishing grounds covered by RCM NA, should be coordinated by the Metier Description Coordinators listed above. The standard metier description template is given in Annex III and a file naming convention in section 3.1.2.

Metier variables : Metier descriptions	
RCM NA 2011 Recommendation	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. Updated and new files to be uploaded by Fishing Ground co-ordinators.
Follow-up actions needed	MS to complete metier descriptions
Responsible persons for follow-up actions	All MS
Time frame (Deadline)	RCM NA 2012

It was apparent that there had been different approaches between MS in the way data for <10m vessels where no log book data was available had been treated and also they way in which fleets using gears not specified for sampling within the submission of the MS to the RDB. This is discussed more fully in the section on the RDB.

3.2.2 Concurrent sampling.

After 2 years of implementation of the new DCF, it is clear that MS all undertake concurrent sampling of landings in slightly different ways, to the extent that protocols have been modified to ensure sampling can be undertaken within the constraints of landing practises. At present there is no standard reference for the RCM to identify the problems encountered and solutions applied when undertaking concurrent sampling at the point of landing. A questionnaire was agreed by the RCM to give an overview of the current methods employed by the MS. The questionnaire is given in Annex IV.

Metier and stock variables : Concurrent sampling	
RCM NA 2011 Recommendation	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
Responsible persons for follow-up actions	All MS, chair of RCM NA
Time frame (Deadline)	November 31 2011

3.2.3 Agreements on merging of metiers for sampling

The merging of metiers for sampling purposes relies on the sampling frames and sampling protocols put in place by each MS (see the outcomes of ICES WKMERGE 2010). In order to ensure that the basic data is collected in the most appropriate way the initial design of the sampling schemes used must take account of how the data is to be raised at both the national and international level before any merging can be considered.

ICES workshops WKPRECISE and WKMERGE recommended that member states adopt statistically robust sampling schemes for the collection of fisheries data. Such sampling schemes should be based on sampling frames consisting of vessel lists for at sea sampling; and lists of ports or access points for sampling of the landed fraction of the catch. Clearly defined probability-based rules for the select the sampling units, e.g. trips, are employed.

The precision estimates of the samples (be they expressed as confidence intervals standard deviations of relative standard deviations) are obtained using non parametric bootstrapping.

Many of the bias issues highlighted by WKACCU can only be quantified once sampling is conducted according to such a rigorous, statistically robust, sampling design.

There are a number of implications of this approach:

1. A sampling frame cannot be based on the métiers; métiers are "study domains" derived from the location of fishing and the catch composition. These can only be determined after the trip. Métiers are not stable over time but reflect the dynamics of the prevailing fisheries; their sample sizes can not be controlled, and sampling units e.g. trips can not be unambiguously identified to metier at the time of sampling.
2. The use of quota sampling based on targets for numbers of fish measured and otoliths collected is flawed because this leads to ad hoc, judgement based selection of sampling units for which there is no way to assess the bias in the data, or to correctly calculate the precision of such samples. Such sampling is also very inefficient.
3. Precision estimates can only be correctly calculated using non parametric bootstrapping provided there are enough replicate samples within the sampling stratum. How many replicates are needed has yet to be determined in the fishery context, but is likely to be at least 10. This means that the resolution of the sampling data (as reflected in the sampling design) is determined by the sample size achievable within the stratum for which there are the resources at the national level. The resolution at which national programmes will be able to provide raised data *with associated precision levels* is likely to be at a much coarser scale than currently is expected by the ICES assessment working groups and STECF effort working groups.
4. The submission of estimates from nation states to ICES assessment working groups, (and STECF effort working groups) needs to respect the sampling stratification used in the raising. This in turn has implications about the resolution at which assessment working groups can realistically obtain data. e.g. discard estimates by the quarter; and the design of data bases such as Intercatch (or Fishframe) that are used to facilitate this process.
5. Imputation and interpolation techniques are needed to relate raised national data to domains of interest. The imputation and interpolation of sampling data is currently being done in an ad hoc untransparent way by data providers and stock coordinators in a short time window before the assessment working groups commence work. This process needs to be rationalised, and made far more transparent.
6. Pooling of raw (i.e. unraised) sampling data between member states with a view to raising

it using a common methodology, should be carried out with extreme caution, and after methodological validation by the international community. Doing it without caution would risk very serious bias in numbers at age estimates. This has implications for the envisaged role and design of a regional data base.

The forthcoming ICES WKPICS1 meeting (November 2011) will be looking at these types of issues surrounding practical implementation of sampling plans. The RCM participants agreed it would be advisable to contact relevant staff within their Institute and suggest attendance by a representative of all MS at WKPICS1 to assist in the design of the sampling protocols and frames of the national programmes.

Metier variables : Merging metier	
RCM NA 2011 Recommendation	RCM NA recommends RCM participants to contact relevant staff within their institute to attend the ICES WKPICS1 meeting on practical implementation of statistical sound catch sampling programmes
Follow-up actions needed	Identify experts for attending WKPICS1
Responsible persons for follow-up actions	RCM NA participants
Time frame (Deadline)	November 2011

3.2.4 Discards sampling

3.2.4.1 Review of discards programmes

As it was impossible to proceed to a new ranking with 2010 data (see section 4.2), RCM NA could not identify any gaps or discrepancies in the NPs. In addition, RCM NA did not have access to the final agreed version of the MS National Programmes 2011-2013 to comment on protocols and actions 2012. This is very detrimental to RCMs work, and RCM NA recommends that DG MARE make all final versions of the 2011-2013 NPs available on the DCF website as soon as possible.

Metier variables : Availability of 2011-2013 National Programmes	
RCM NA 2011 Recommendation	RCM NA recommends DG MARE to place all final versions of the 2011-2013 NPs on the DCF website.
Follow-up actions needed	DG MARE and JRC to arrange uploading of the documents on the DCF public website
Responsible persons for follow-up actions	DG MARE
Time frame (Deadline)	As soon as possible

Spain proposed a Working Document (WD#1, Annex IX) on Creation of a regional view of the discard sampling programmes, identification of gaps and discrepancies for optimising the spatial, time and metiers coverage. This document could not be discussed due to the short duration of the meeting, but it raises sampling issues which should be discussed in the forthcoming ICES WKPICS meeting. RCM NA advises Spain to bring these relevant issues to the ICES meeting.

3.2.4.2 Update of the regional sampling tables with France programme

In June 2010, France had not yet quantified their sampling programme 2011-2013 in order to seek for RCM recommendations on top of a National analysis of the 2009-2010 sampling plan which was programmed to deliver its conclusions during the summer 2010. France eventually proposed a full sampling programme in October 2010, and the review tables proposed by RCM NA in 2010 have been updated with France and Spain sampling figures (Annex V).

3.2.4.3 Potential room for coordination

Based on the RCM NA 2010 report the follow metiers (underlined) were identified as candidates for international coordination. For each of the cases identified, the groups opinions from the 2011 RCM NA are given below each metier:

Celtic Sea (ICES Divisions VIIfgh):

FPO_CRU_0_0_0 by FRA, IRL, UK, GER (s): Major targets being edible crab (*Cancer pagurus*) and lobster (*Homarus gammarus*).
This metier need not be sampled at sea for discards (see table 3.3). Metier description sheet to be provided by France. In most MS this metier operates in inshore waters, where offshore fisheries exist national experts should seek to task share on sampling.

West of Scotland (ICES Sub-area VI):

OTB_DEF_100-119_0_0 by ESP, FRA, IRL, UK, GER (s): This metier is a candidate for task sharing.

West of Ireland (ICES Divisions VIIbcjk):

OTB_DEF_100-119_0_0 by ESP, FRA, IRL, UK: Metier description needs to be provided by France. This metier is a candidate for task sharing, as its counterpart in Western Scotland (ICES Sub-area VI).

There is need for precise fishing descriptions to identify task sharing possibilities within this metier, this could be done within a case study.

GNS_DEF_>=220_0_0 by FRA, GER, IRL, UK: Metier description sheet needs to be provided by France, Germany, Ireland and UK. This metier is a candidate for task sharing.

The group concluded that this metier is problematic for sampling. Most of the vessels working in this metier are Spanish owned but foreign flagged and the boats are not landing into the flag country. Some efforts on bilateral agreements were made by UK, GER, FRA and ESP to sample this metier but were unsuccessful due to the difficulties in accessing both the vessels and landings. A full description of this metier is needed in order to decide how to proceed.

3.2.4.4 Justification for not sampling for discards

The UK(E) submitted an 2009/10 Fisheries Science Report on Whelk (Busycon spp) Biology in order to seek support in removing the requirement for sampling at sea for the FPO_MOL_0_0_0 metier. The report was discussed by RCM NA and it was agreed that as there is limited discarding of non- finfish species and all the discarded molluscs a returned alive there was no need for at sea sampling for this metier. This information has been added to table 3.3 bellow which summarises all exemptions from at sea sampling agreed at RCM NA. The FSP report is given in Annex X (WD#2).

Table 3.3: Summary of agreements reached during RCM NA on the need to sample metiers on-board for discards estimation .

Metier	Area	RCM NA Comment	Sampling required	RCM NA report
FPO_CRU_0_0_0	VI, VII (excl. VIId)	Onboard monitoring unnecessary owing to 1. the small by-catch of finfish, and 2. the return of undersized crustaceans alive.	No	2009
LHP_DEF_0_0_0	VIIa, VIIe, VIIfgh	Onboard monitoring for discards was unnecessary as the volumes of discards are small, and the same issues of practicality and safety apply to the placing of observers on hand-lining vessels that are predominantly <10m but frequently as small as 6m.	No	2009
GNS_DEF_120-219_0_0 GNS_DEF_>=220_0_0	VIIfgh	Onboard observation still necessary as high rates of discarding were observed by France.	Yes	2009
DRB_MOL_0_0_0	VIIe	UK and France to conduct pilot studies		
PS_SPF_0_0_0	VIIIb VIIIc	Onboard monitoring unnecessary owing to low level of discarding (<2% by weight) observed in 2003 and 2004 by Spain.	No	2009
FPO_MOL_0_0_0	VI, VII (excl VIId).	Onboard monitoring of potting for Whelks (Busycon spp) unnecessary owing to Negligible by-catch of non-finfish species and return of undersized molluscs alive.	No	2011

3.2.5 Regional agreements on data collection

There is a clear responsibility for all Member States (MS) to perform sampling on landings within their own territory made by other MS' vessels (2010/93/EU). To enable for the MS liable to perform the sampling, as well as making the best use of the collected data, bilateral agreements are preferably set up between the landing MS and the flag MS. These agreements include elements such as expected volume of landings into the landing MS and details on how the data should be collected, compiled and submitted to the flag MS.

Presently in the Commission Decision 2010/93/EU, there is no threshold appointing how substantial the foreign landings need to be before the landing MS have an obligation to sample. In order to examine where foreign landings need to be sampled (and bilateral agreements set up), future (annual) analysis of all landing data uploaded into a Regional Database needs to be carried out. This analysis could not be done during the RCM NA 2011 because not all countries had uploaded the relevant landings into the test regional database.

It was agreed in the RCM NA 2011 that a threshold needs to be applied to sort out when MS have obligations to sample and consequently bilateral agreements should be set up, using the outcome of the RCM Baltic 2011 as a starting point. The following options were discussed:

- The 200 tonnes exemption rule in DCF stock sampling (2010/93/EU B2.1.5) applies to biological parameters, and can not be applied in the context of sampling landings abroad according to the RCM NA (as opposed to the opinion of the RCM Baltic) because of the recent shift to metier sampling instead of stock sampling.
- where less than 5% of a member state's total landings are landed abroad, sampling is excluded from the obligation of sampling abroad (corresponding to the application of 1639/2001) if the other 95% of the landings are sufficiently sampled by the landing countries for the relevant metier(s).
- The notion that if the number of samples is 3 or less (according to the future analysis), the sampling of the MS where the species were landed can be switched off and the landings should instead be sampled in the flag MS, is not supported by the RCM NA 2011. The reason is the loss of possibility to identify a potential different landing structure which would bias the estimates.
- The reference period to be used in the analysis should be the latest available reference year, instead of an average from a longer period of time, this because the trends for landings can change fast.

Métier related variables: Routines for establishing bilateral agreements	
RCM NA 2011 Recommendation	1. 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. 2. 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 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 RDB.
Follow-up actions	MS to make sure landings abroad data are included into RDB
Responsible persons for follow-up actions	MS
Time frame	Annually. Deadline 1st of July 2012.

Métier related variables: Routines for establishing bilateral agreements	
RCM NA 2011 Recommendation	In order to identify were bilateral agreements on sampling of foreign landings have to be set up, the RCM NA proposes a common understanding of thresholds for sampling. ➢ where less than 5% of a member state's total landings, sampling of landings abroad are excluded (corresponding to the application of 1639/2001), given that the other 95% of the landings are sufficiently sampled by the landing countries for the relevant metier(s) ➢ the analysis on when bilateral agreements are needed, should be done annually by the RCM using landing data from the previous year
Follow-up actions	DG MARE and STECF to reflect on this m
Responsible persons for follow-up actions	DG MARE and STECF
Time frame	2012

RCM NA 2011 informs the chair of RCM NS & EA to further reflect on this issue before the Liaison Meeting of October 2011.

RCM NA 2011 feels that an increase of the knowledge of available tools to analyse exploitation patterns from VMS and electronic logbook data is required. In this context, the R package "vmstools" - a library of tools for fishery data-related analyses – was developed in the LOT 2-project "Comparative investigation of statistical methods for identifying and prediction métiers from logbooks data. A workflow applied to the international otter trawl fisheries in the North Sea". Therefore, RCM NA 2011 recommends that training courses for all member states should be arranged in the use of this tool.

Sampling of métier related variables: Making use of the outcome of the Lot 2 project on VMS and logbook data	
RCM Baltic 2011 Recommendation	In order for all MS to gain the knowledge concluded in the Lot 2 project on VMS and logbook data, the RCM recommends a training workshop on how the different appropriate tools can be used.
Follow-up actions needed	Organisation of workshop
Responsible persons for follow-up actions	ICES PGCCDBS
Time frame (Deadline)	2012

3.3 Recreational Fisheries

Commission Decision 93/2010 requires Member States to estimate quarterly catches of recreational fisheries targeting sea bass, salmon, sharks and eel (the latter in marine and inland waters) as in the scope of the RCM North Atlantic. Additionally, Council Regulation (EC) No. 1224/2009 (Article 55) includes the requirement for estimation of recreational fishery catches of recovery plan species.

For most countries, sampling of recreational fisheries is a quite new activity. In a number of cases, pilot studies have been carried out in the past, but in many institutes there is no expertise in sampling these types of fisheries. Therefore, the Workshop on Sampling Methods for Recreational Fisheries (WKSMRF) was held in April 2009, and attended by representatives from most of the RCM NA Member States. The report of WKSMRF gives an extensive summary of the national recreational fisheries and lists recommendations for recreational fisheries in the Atlantic area, including the recommendations to collect data at the scale of stock units when recreational fisheries data are to be used for stock assessments, and to set up an ICES planning group on recreational fisheries.

The ICES Planning group on Recreational Fisheries Surveys (PGRFS) met for the first time in June 2010 in Norway (Bergen) and again in 2011 (Spain, Mallorca). Only the 2010 report was available to RCM-NA. RCM reviewed outcomes of this meeting. Harmonization of the sampling of recreational fisheries was among PGRFS objectives. RCM appreciates progress made by the PG in terms of reviewing which methods can be used for monitoring and assessment of recreational fisheries and their benefits or deficiencies, clarifying concepts and definitions around RF, harmonizing reporting by counties under a common format to describe RF, and developing recommendations for common methodological approaches for surveying RF that could be developed through international collaboration in BS, NS, NA and MED. RCM welcomes also PGRFS effort to contribute to improve stock assessment by providing relevant data on RF catches when those are significant compared to catches of professional fishermen.

RCM-NA encourages all MS to participate in PGRFS dynamics and to provide information on their recreational fisheries in the common format recommended by this PG

Recreational fisheries: Best practice.	
RCM NA 2011 Recommendation	RCM NA recommends MS to include recommendations and outcomes of PGRFS in the adjustment of their 2012 NP, if relevant..
Follow-up actions needed	Revising MS NP proposals 2012.
Responsible persons for follow-up actions	All MS.
Time frame (Deadline)	October 2011

Recreational fisheries: Regional coordination.	
RCM NA 2011 Recommendation	RCM NA recommends that any scope for regional coordination should be dealt with by the ICES Planning group on Recreational Fishery Surveys (PGRFS), and the PGRFS should advise the RCMs of any proposal for coordination.
Follow-up actions needed	Discussion in the future PGRFS meeting
Responsible persons for follow-up actions	ICES and PGRFS
Time frame (Deadline)	2012

Recreational fisheries: Regional coordination.	
RCM NA 2011 Recommendation	RCM NA recommends DG MARE to include PGRFS under the eligible list of meetings
Follow-up actions needed	STECF to comment on this, and DG MARE to take appropriate action
Responsible persons for follow-up actions	STECF and DG MARE
Time frame (Deadline)	December 2011

Table 3.4 - Update of 2011-2013 new NP Proposals on recreational fisheries received by MS participants in the meeting.

MS	Summary of NP Proposal
UK	The NP stated: Carry out a two-phase approach involving : Use of a series of national household surveys by the Office of National Statistics to estimate recreational fishing effort for shore-based and boat-based activities in Great Britain A survey of charter boats to estimate fishing effort and catch per unit effort, focusing on DCF and Control Regulation species. Subsequently extended the survey planning to include on-site surveys of shore-based and private/rental boat angling, in order to estimate catch per unit effort for kept and released fish, and sizes of fish caught.
Ireland	**Proposed Sampling Method for DCF (Sea bass).** Sea anglers in Ireland are not licensed so no direct assessment of bass angler numbers, effort or catch is available for collation of catch statistics. Consequently an approach to sampling had to be devised. Within the narrow window of time available, and as agreed with MI, the bass catch in 2011 will be informed by two sources: IFI Inspectors have been requested to present a monthly report, based on their current monitoring activities, which will be focussed on bass catches within their area of responsibility. Angler encounter-type survey In Ireland the bass angling season extends from 16th June to 14th May inclusive and peak returns are observed in the July to October period. This peak is related to increased availability of bass over this period. The consistent bass angling areas are south of a line from Dundalk to mid-Clare and the survey effort is concentrated on these areas.
Spain	**Pilot study (2011-2013) for Sea bass** AZTI will carried out a pilot study on Sea bass in the Basque Country (Spain) in order to fulfill the DCF requirements and try to develop a survey of marine recreational fishing that would provide good catches and effort estimates that are unbiased and sufficiently precise for use in stock assessment and fisheries management.

3.4 Stock related variables

The DCF requires that member states collect data in order to estimate biological parameters of the stocks listed in Appendix VII of the Commission Decision and to estimate the precision of these parameters. These parameters are age, weight, sex ratio, maturity and in some cases fecundity. These data are to be provided on either an annual or triennial basis.

The DCF also requires that MS report, in their annual report, on results of the data collection of these parameters and the achieved precision. It was already recognised that it is in most cases impossible for a member state to estimate biological stock parameters based on their national data only. In most cases the MS have only access to the stock in part of the distribution area and their data alone is not representative for the entire stock. Therefore these parameters must be estimated on a regional level, and this requires MS to cooperate and analyse their data together. This was one of the arguments for establishing regional data bases where the MS can store the data and use it as a basis for analyses.

The estimation of some of the parameters is not straight forward and cannot be achieved directly from the collected data only. In most cases additional data analyses is required to estimate the parameter.

3.4.1 Data Quality

RCM 2010 recommended that MS should review the naming of stocks and stock areas to ensure the compilation of a complete list of NP proposals (III.C.1, III.C.3, III.E.1 and III.E.3) could be used for comparison and analysis. To sort out the errors regarding stock/area, species included as well as sampling levels, Appendix VII in EU Commission Decision 2010/93 need to be revised and corrected.

There are still some differences in how stocks are defined by each MS. In some instances, the defined areas for a stock may be combined and listed by a MS when in fact only one area will be sampled whereas another MS might only list the area they intend to sample. This could be down to how member states have interpreted the stock definitions listed in Appendix VII. The regulation states that a comma separating areas should be interpreted as inclusive and a backslash exclusive - for example when the minimum programme for a species is listed against VIIe/VIIfgh/VIIa, each area should be listed separately.

The RCM NA 2010 recommended that reference lists were used to ensure consistency in the naming of species (spelling), stock areas, parameters and variables (see also section 3.1.3). The compilation of tables III.E.3 was reviewed. Considerable time was spent cleaning up some of these inconsistencies so that the NPs could be compared but there was still some confusion and potential for misinterpreting how some of the variables were being collected. This could lead to some of the targets being misinterpreted, double counted or excluded from the comparisons - for example: weight @ age could be collected at the same time as length @ age, but both variables were listed separately. In another example, all the different variables were included on the same line for a MS and it is apparent that these could include the collection of length samples without other parameters.

Stock variables : Quality issues	
RCM NA 2011 Recommendation	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
Responsible persons for follow-up actions	MS
Time frame (Deadline)	October 2011

The RCM NA raises the issue of the use of certain stock data and/or certain parameters. The customer or end user should have some influence on what data is needed or required to be collected. If analysis is shown to suggest that the weight at age and/or maturity data collected from one survey is all that is needed for a benchmarked and good quality assessment of that stock then why do other MS need to struggle to collect data for the same stock.

Stock variables : Quality issues	
RCM NA 2011 Recommendation	RCM NA recommends DG MARE to review the exact needs for biological parameters for each stocks, in close relation with the end-users. In view of the future DCF, if data are not required by any EWG, these should be removed from the Appendix VII.
Follow-up actions needed	DG MARE and STECF to review biological parameters by stock in view of the future DCF.
Responsible persons for follow-up actions	DG MARE, STECF
Time frame (Deadline)	2012

It is clear that, because of the range of possibilities and interpretations of the variables as well as species and stock definitions; the size of the programmes and the number of MS involved, these programmes would be better held in a database other than excel tables - then validation on some of the parameters and variables could be used.

The formats used by MS for describing their landings and TACs in Table III E I complicates the process of reviewing whether MS are required to collect data or not. Landings and TACs are sometimes described in values and sometimes phrases and or text and these are therefore not easily comparable. The procedures for completing these tables stipulate that MS should record values in these fields. It has to be noted that these problems would disappear when data would be provided to a database system which restricts input only to acceptable formats.

3.4.2 Sampling Intensities

Overviews of planned sampling for age, weight, sex, maturity and fecundity are presented in Annex VII and are based on table III.E.3 from all MS National Programmes 2011-2013. So far, no proper analyses have been undertaken to evaluate the relevance of current sampling levels or to advise on appropriate sampling levels on a regional scale, but it is clear that some of these, for some MS, may appear extravagant whilst others appear so small as to have questionable relevance or worth. MS can see the contributions of other states to the sampling of a particular stock and these tables in annex could provide the scope for rationalising their NPs through further bilateral agreements.

The tables cover the entire programme for the full three years and also include those species and stocks listed in Appendix VII of the EU Commission Decision 2010/93 that currently do not form part of any NP - these are highlighted in bold.

The tables also identify NP for species that appear to not have a requirement for sampling (those that do will be tagged as "G1" or "G2" species and flagged with a sampling frequency annual, Y or triennial, T). This may just be another hiccup in naming conventions and mapping species to stocks as the EU requirement may be listed at the species group level rather than at the species level.

The colour coding highlights the range of proposed sampling levels: Red >1000 individuals over 3 years, Yellow > 5000 and Green > 10000. Any levels below 1000 are not highlighted at all and could imply low levels of sampling.

These tables should be reviewed with caution. Since the tables were constructed from a merge of the tables provided by the MS from their NP proposals, inconsistencies and errors in the tables between the MS had to be fixed. In some cases subjective decisions in correcting the tables had to be made. Also, after the meeting, it appeared that some countries were not included in the tables. There is also a suspicion that there may be double counting (length at age, weight at age). It is unclear why the sampling levels for some stocks might be so low or even non existent. In some cases the low levels of sampling might be set at a minimum because access to the stock is only available through surveys and the sampling levels are based on an average annual catch rates for the surveys. For a limited number of stocks listed in Appendix VII in the Commission Decision, no sampling is proposed by any MS. In general, these are stocks with low abundance and MS have no or limited access to these stocks. In other cases the catches are complying with the criteria for a derogation of sampling. In most cases the stocks concerned are not subject to TAC or scientific advice.

No analysis on the quality of these sampling rates has been carried out – it was not feasible within the time frame of the meeting but it may be safe to assume that if the sampling of stock is <100 per year the sampling is unlikely to provide a reasonable estimate.

3.4.3 Analysis of biological parameters

parameter: age

From the combined NP for age sampling (table 1, annex VII), over 60% of a combined target of around 900,000 ages are to be collected by Portugal. Cod, Megrim, Herring and Halibut for example all have high numbers (the figures for Cod and Halibut include sampling in all NAFO areas). However some of the gadoids and flatfish sampling is minimal.

In practice the collected age data is used in the form of ALK's to convert a measured length structure of the catch into an age structure. Tools have been developed in the COST project to estimate the precision of the age composition of the catch. However the age composition of a national catch is not representative for the age composition of the stock. An estimate of the age

structure of the stock (and its precision) can be provided by an analytical stock assessment or a high quality survey which covers the entire stock and provides an unbiased structure of the size classes in the stock.

parameter: sex ratio

Sex for some of these species can be recorded easily with length data through external characteristics. Crustaceans can be sampled for sex easily and accounts for over half of the 1.5 x 10^6 individuals to be sampled through the combined NPs (Table ,2 Annex VII). Megrim, blue whiting and pelagic species have high numbers. Overall, around 60% of this data is to be collected by the UK and Portugal.

The sex ratio in the stock and its precision cannot be directly obtained by measured observations from catches or surveys. For many species the sex ratio differs by age group because of differences in mortality (fishery and national mortality) between the sexes. These differences are caused by differences in metabolism, growth and behaviour between males and females. For many stocks the older fish in the stock are females. Therefore sex ratio's need to be collected by size or age group. An estimate of the sex ratio in the stock can be obtained by applying these ratio's to the size/age structure of the stock obtained from similar sources or analyses as describe by parameter age.

parameter: weight

Portugal is responsible for over half of the 850,000 observations expected (Table 3, annex VII). Over 1/3 of these observations are on pelagic species. Other high numbers are for Nephrops Squid and Hake stocks.

In fact two weight parameters have to be collected. Weight of the catch (at age or at length) has to be provided in order to check whether catch numbers x weight comply with the reported catches. These are also used to in forecasts in order to convert predicted catch numbers into weight. Weight at age/length in the catch is not a stock parameter and the requirement is missing in the present Decision.

Weight at age/length of the stock is used to convert stock numbers (at spawning time) into (spawning) biomass. They need to be representative of the total stock and collected at the right time of the year pending how the stock is calculated. The time of which they are required should be set in consultation with the end user (for instance ICES for stocks which are assessed by ICES WG). They can be derived from surveys covering the whole stock at spawning time. In that cases MS not involved in the survey would not require to collect these data. In case no surveys are available or suitable, they are derived from catch data (landings and discards) collected at the right time of the year by MS participated in fisheries of the stocks concerned. An analyses and estimation of precision must then be carried out on the combined data.

parameter: maturity

Portugal and Ireland propose to collect more than half of the data (Table 4, Annex VII). Around a third of the total for the three years is from crustacean species particularly Nephrops. The collection of this data might not have any cost implications as these data could be collected alongside other parameters. The high numbers for the Nephrops 'Stock areas' could be on account of the number of functional units or sub stocks within these areas. Another third of the total number is on a few of the pelagic stocks whereas a lot of the gadoid and flatfish stocks have very low numbers.

In the previous meeting of the RCMs, an inventory has been made on, how and when maturity data have to be collected. This inventory is not completed and also needs guidance from the end user (e.g. ICES).

parameter: fecundity

Portugal is responsible for over 95% of the 165,000 samples expected which will be collected predominately from pelagic species (Table 5, Annex VII).

Fecundity is only required for a few stocks. The data are used to convert estimates of egg production into spawning stock biomass. For some stocks there seem to be problems with obtaining sufficient measurements which compromise the quality of the estimates. Analyses of precision of estimates is straight forward.

Stock variables : Sampling intensities	
RCM NA 2011 **Recommendation**	RCM NA recommends an inter sessional study on combining the biological data in FishFrame, and estimating the biological parameters at the stock level. Blue whiting (*Micromesistius poutassou*) was listed as a candidate due to the number of MS having sampling obligations.
Follow-up actions needed	MS having blue whiting samples
Responsible persons for follow-up actions	Coordinator to be found by chair of RCM NA
Time frame (Deadline)	May 2012

Stock variables : Sampling intensities	
RCM NA 2011 **Recommendation**	In view of the large bandwidth of sampling intensities between the stocks (from very low to extremely high), RCM NA recommends ICES PGCCDBS to reflect on statistical issues related to optimal numbers to sample and minimal requirement under which sampling may only be a waste of time and resource.
Follow-up actions needed	ICES PGCCDBS
Responsible persons for follow-up actions	ICES PGCCDBS
Time frame (Deadline)	2012

3.4.4 Identification of stocks suitable for International age-length keys and task sharing for ageing;

The RCM 2011 were presented with a study carried out by Campbell and Kelly (WD#3, Annex XI) looking at the implications of sharing an international ALK for a mackerel stock. The study was not exhaustive and therefore limited on its conclusions but it highlights the potential problems of relying on a single ALK from a different MS. There is significant danger that each MS could be sampling a different component of the stock spatially and temporally which would have implications on the ages determined from lengths collected by other MS. It did show that where sampling is adequate and there is no difference in growth, there is reasonable correspondence in raised numbers at age when using ALK's from fisheries with similar selectivity's, however you would need to determine that before making assumptions about growth and selectivity. This

demonstrates that for at least this stock it is important that each MS should continue to compile and use their own ALK's.

Quote - "*It should be noted that while it may be statistically rational and fiscally desirable to pool ageing sampling for stock assessment between MS with similar fleet selectivity's operating across areas with similar species growth rates, such a development would potentially "blind" a stock assessment to potential changes in selectivity's across fleets. i.e. if the selection of a fleet which had been pooled because of similarities in selection and fishing area, were to change; the raised catch at age data for the assessment would miss change in the change in the exploitation of the stock.*"

The authors had insufficient time to carry out any in depth analyses of the differences in sampling regimes between participating MS and rightly pointed out that in order to provide a further rationalisation of results such detail still needs to be examined.

Although the geographical scale of some of the other stocks may not be as extreme as mackerel this demonstrates that the use of international age length keys should be considered with caution.

Stock variables : Task-sharing for ageing	
RCM NA 2011 Recommendation	RCM NA recommends ICES PGCCDBS to discuss the statistical and methodological procedures which would enable sharing international information on biological parameters.
Follow-up actions needed	ICES PGCCDBS
Responsible persons for follow-up actions	ICES PGCCDBS
Time frame (Deadline)	2012

3.4.5 Possibilities for extension to regional collection of data for maturity, sex-ratio and mean weights.

Based on the tables compiled in Annex VII, MS should seek for bilateral agreements where appropriate and expedient, but should not be obliged to do so.

Stock variables : Regional collection	
RCM NA 2011 Recommendation	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
Responsible persons for follow-up actions	All MS
Time frame (Deadline)	October 2011

3.4.6 Coordinate biological sampling for stocks where the sum of MS having a share of quotas/landings less than 10%, altogether exceeds 25%. (exemption rule III.B2.5.1.(b) in Decision 2010/93/EU).

Their was some concern at the RCM 2010 that the biological sampling of Micromesistius poutassou, Scomber scombrus, and Trachurus trachurus by a number of MS was not required despite their combined individual shares of quotas/landings exceeding the 25% threshold – it is clear from the compiled tables reviewing the NPs (see above and Annex VII) that for most of those MS listed in the previous report - these stocks will be extensively sampled. It must be noted that Denmark Lithuania and Poland were not included in the analysis, and regarding the species listed here, the tables should be completed by RCM in 2012.

4 Quality issue

4.1 Review progress on quality control, validation in NP proposals

The final agreed National Programs of the member states are still not available on the JRC website even though the Commission had promised to have it up by the RCM NA. Due to the lack of these final agreed National Programs, review of quality control and validation in the National Proposals was not possible.

Quality control will be better when all member state can supply *summaries* of their discard sampling protocols in *English*. This idea came from the SGPIDS and is fully supported by the RCM NA. It is therefore asked to the PGCCDBS to support this and take the appropriate steps.

Quality issues : data collection protocols	
RCM NA 2011 Recommendation	RCM NA recommends PGCCDBS to reflect on standard ways of drafting sampling protocols, in order to improve the description by MS in their NP proposals and to enable RCM to compare and compile international procedures.
Follow-up actions needed	ICES PGCCDBS for guidance and STECF for drafting future NP proposal guidelines
Responsible persons for follow-up actions	ICES PGCCDBS, STECF
Time frame (Deadline)	2012

RCM NA notes that most of the time still goes into cleaning the tables from the National Programs and extracting the data in a way it is useable for review and discussion. This however creates shortage in the time available to make proposals for regional coordination. Quality control by the RCM NA is difficult due to the nature of the National Programs provided to the RCM NA, in spite of the existence of annexes, reference lists and other documents with guidance for the member states on the makeup of the National Programs. All these documents are difficult to find though due to the publication of these documents only as annexes in the related RCM NA report. In 2010, the 7th LM recommended that a sharepoint facility be developed by the JRC for SGRN work as soon as possible. This sharepoint could also include public pages where reference tables would be more easily accessible to the member states.

Quality issues : Quality control	
RCM NA 2011 Recommendation	Echoing on the 7th LM (2010) recommendation, RCM NA recommends the setting of a sharepoint facility to serve the RCM needs and as a repository for all agreed references.
Follow-up actions needed	DG MARE and JRC to agree on a procedure
Responsible persons for follow-up actions	DG MARE, STECF, JRC
Time frame (Deadline)	2012

The metadata upon which the RCMs base their planning and coordination on, are also still provided in XLS-spreadsheets. In a database, the data would be of better quality there correct coding/recoding would be easier and data quality queries could be run. The RCM NA recommends (to the SGRN/for the next DCF) a database containing regional metadata that can be used for planning. When databases that can take up this metadata exist, clear protocols on how to populate this with the correct data should be provided to the member states. Roadmaps for the development of specific applications should also be set up. A steering committee/expert group specifically dealing with this metadata database for planning purposes could be a good idea. Good planning should be based on information including the number of vessels, number of trips, catches of the different stocks, landing harbours so the sample locations can be identified..

Quality issues : Stock variables	
RCM NA 2011 Recommendation	RCM NA recommends DG MARE and STECF to reflect on the construction on a meta information database to hold the details of the national programmes, with the view of eventually replacing the current set of Excel tables
Follow-up actions needed	DG MARE and STECF during discussion of the future DCF
Responsible persons for follow-up actions	DG MARE and STECF
Time frame (Deadline)	2012

4.2 Regional databases: agreement on a precise roadmap for the upload of data into FF and suggest any new features to be developed.

A data call has been launched in preparation of the RCM NA in order to prepare the ground of a regional ranking and also to gain experience in uploading data into a regional database. At the start of the RCM, France, Spain and Portugal had not uploaded their data into the test regional database, which had severe consequences in RCM ability to discuss gaps and discrepancies in the sampling programmes. In terms of experience, the countries having uploaded their data could provide a well appreciated feed-back.

The Chair of RCM NS&EA was contacted to request that MS prosecuting fisheries under the remit of the RCM NS&EA who have not uploaded data to the RDB do so prior to the meeting so that a more robust testing of the database can be undertaken.

4.2.1 Technicalities for the setting of a regional database

Data calls for the RCM's

Mandatory or not - Days At Sea (CE) and Official Landing Value (CL) are needed from all countries to do the regional ranking at the RCM's. At the moment these are not mandatory when uploading to FishFrame and therefore missing for some countries. A solution could be that the variables where set to be mandatory when uploading to FishFrame – up to the steering group to decide.

Métiers

Métiers (EU) vs. area - To secure consistency in the use of métiers per fishing ground a check for this should be implemented in the upload process. To do this a relational table between area, métiers and year will be made.

Table 4.1 - Structure of the relational table between area, métiers (EU) and area

EU Fishing Activity Category	Area	Year
OTB_DEF_>=70_0_0	8a	2010
OTB_DEF_>=70_0_0	8b	2010

If uploading a combination of métier, area and year not specified in the table, then an error specifying the problem will come up and it will not be possible to upload data to FishFrame. If it is a valid combination then it will be added to the relational table.

This check will be based on the métiers accepted by the RCM's and checked against data already in FishFrame. For the RCM NA, the references given in section 3.1 will be used. It should be implemented during the autumn 2011 by the designers and developers of FishFrame.

For the complete implementation, it is needed to have clear naming conventions for the problematic below.

Fisheries with non-regulated mesh sizes – _0_0_0 or _>0_0_0 - An inconsistency in the naming has evolved – some use _>0_0_0 to indicate that a gear has mesh, but the mesh size is non-regulated e.g. DRB_MOL_>0_0_0 and _0_0_0 for gears without mesh e.g. LHP_FIF_0_0_0 – Other use _0_0_0 for all gears. RCM NA recommends the use of **_0_0_0** in all situation, as detailed in table 3.1, section 3)

Unknown/unidentified– At the moment, a lot of different codes exist for this e.g. UND_UND_0_0_0, MIS_MIS_0_0_0 or Out_Matrix6. In the North Atlantic it is the practice to use MIS for unknown gear and/or target species. RCM NA recommends the use of MIS_MIS_0_0_0 in this case.

Exchange format

Discrepancies exist between the exchange format and the reality of FishFrame, so an update of the Exchange format is needed and should be released in this autumn 2011 by the designers and developers of FishFrame, after inputs from the Sterring Committee of the Regional Database.

Areas - The coding of areas in area 27 does not follow the specification in the exchange format – e.g. 4c is used instead of 27.IVc or 27.4.c.

Effort – Due to aggregation of effort at a high level some of the ranges for effort have been broadened during the upload phase before the RCM.

Species – In the exchange format it is stated that the FAO ASFIS reference is valid. It may cause problems if ICES Species Query Tool is used to check if a species is valid http://datras.ices.dk/Data_products/qryspec.aspx, as the latter is based on the Integrated Taxonomic Information System (ITIS)

Harbor

Coding of harbor – At the moment it is up to each country to define codes for harbor. It will make sense to use some common codes preferable coupled with some geographical information. In other EU projects (VMS Tool) the EU Master Data Register has been used

(http://ec.europa.eu/fisheries/cfp/control/codes/index_en.htm).

The steering Committee on Regional Database should decide on which register to use.

Overwriting/deletion of data

At the moment area is not a part of the overwriting of existing data – for CL - and the deletion function – for both CE and CL. This causes troubles for countries where different institutes handle different fishing grounds. This should be fixed during the autumn 2011 by the designers and developers of FishFrame.

Reports for the RCM's

At the moment it is possible to find most of the data used at the RCM's in existing report. The RDB output 'Sampling effort and geographical coverage' was approved, but there is a reflection to be brought by all RCMs together with STECF and DG MARE on standard outputs to develop for RCM use.

http://www.fishframe.org -> 'Data output' -> 'Report and analysis' -> 'Search by keywords'

Ranking of métiers - Development of a dedicated report for the ranking of métiers. It should be possible to choose which years to be part of the ranking. The output should be on region and fishing ground, so a relation between area and region/fishing ground should be established.

Landings abroad – Existing report 'Sampling effort and geographical coverage'.

Lookup tables

Export of lookup tables – It should be possible to export the Lookup tables in FishFrame, so as to use them in preparation of datasets to upload.

Definitions

The definition of low and high resolution is not clearly specified in the RDB website. The RCM NA recommends a small note on the website detailing the differences. Best practice would be uploading more high resolution data in the regional database.

4.2.2 Experience gained

The tentative ranking has put in evidence that some countries could not allocate metiers to vessels <10m, because of the lack of logbook information. STECF already recommended several times to implement specific actions to better inform this component of fleet and asked specifically for methodologies in the NP proposals and Annual reports. RCM NA therefore cannot accept a metier named 'No_logbook' as an entry for the regional database.

Metier variables : Regional ranking / RDB	
RCM NA 2011 Recommendation	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
Responsible persons for follow-up actions	All MS
Time frame **(Deadline)**	July 2012

The RCM NA decided to give the standard name 'MIS_MIS_0_0_0' as a code for a non-DCF-matrix listed metier. If this code gathers a significant fraction of the effort and/or landings, then MS should investigate if a non-referenced metier is important enough to be included in a future annex IV of the Commission Decision.

Metier variables : Regional ranking/ RDB	
RCM NA 2011 Recommendation	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.
Follow-up actions needed	Resubmit data into the regional database after correction
Responsible persons for follow-up actions	All MS
Time frame (Deadline)	July 2012

Metier variables : Regional ranking	
RCM NA 2011 Recommendation	RCM NA recommends STECF to investigate more closely the methods used by MS to deal with <10m transversal variables
Follow-up actions needed	Review NP proposals
Responsible persons for follow-up actions	STECF EWG 11-09
Time frame (Deadline)	December 2011

4.2.3 Roadmap for a regional database

The implementation of a regional database is in a pre-mature stage. Several objectives need to be achieved and this requires planning. The first step was to upload catch and effort data by metier by the MS. As expected this exercise has identified technical hitches which have to be solved at relatively short notice.

The next step would be to upload biological data which allow estimating of stock parameters and their precision at a regional basis. This was one of the main needs for implementing a RDB. Also here technical problems may be expected. Therefore it is suggested to limit the data call to a few stocks in order to sort out these problems before a call to upload the data for other stocks.

At the same time a roadmap should be prepared with a time frame identifying deliverables and analyses. The roadmap should identify expert groups (ICES or STECF) which provided methods and analysis of the data. Such analyses could provide guidance to the EC with regard to more realistic precision requirements to be included in future updates of the DCF.

Further The RCM NA considered it desirable to implement a module in the RDB containing meta information on proposed (NP) and realised (AR) sampling intensities. Presently this information is provided in the standard Excel tables attached to the national NP's and AR's. Analysis on these

tables by RCM and review groups proved to be unwieldy because of many inconsistencies and errors in the tables. Also the manipulation of the spread sheets by these groups easily leads to introducing errors. These problems would disappear if the meta information would be provided to a database which allow only the entry of legal data fields.

Quality issues : internal RCM work	
RCM NA 2011 Recommendation	RCM NA recommends that a module be implemented in the RDB containing information provided now in the DCF set of Excel tables, such as sampling plan and realised, achieved precision, etc…
Follow-up actions needed	Steering Committee of the RDB to include meta-information in the design of the RDB.
Responsible persons for follow-up actions	DG MARE and STECF
Timeframe (Deadline)	October 2011

4.2.4 Regional database steering committee

For the regional database steering committee to be held shortly after the Liaison Meeting, RCM NA appointed

- Alastair Pout (UK-Scotland) as a data user,
- Liam Caffrey (Ireland) as an IT expert and
- Christian Dintheer (France) as a data manager.

RCM NA believes that it is important that Portugal and Spain representatives can attend this first RDBSC in order to be aware of the exact design of the RDB and the precise expectations and benefits expected.

Date and venue of the RDB Steering Committee : 13 December 2011, Brussels.

4.3 Review the outcomes of the use of COST and recommend on the best practises for quality

RCM NA already considered in 2010 that a follow-up of the COST project was required. It stated that the framework for the continuation of the project had several objectives:

- avoiding the development of national versions of the tool
- creating a functional help mailing list and expanding/enhancing the examples (taking into account the simulation outcomes).
- correcting the possible bugs, improving the code, adapting to new versions of exporting (InterCatch)
- Progressing on benchmarking the methods and simulating different sampling schemes and levels with COSTsim
- Make the tool user friendly

Since no development has been made since the end of the COST project, the RCM NA still considers the need for a follow-up with the same objectives, including now the analysis of data on a regional basis.

Quality issues : COST follow-up	
RCM NA 2011 Recommendation	RCM NA recommends a follow-up of the COST project to ensure a maintenance of the statistical tool and improve the current settings, including user-friendly interface and a connexion to a Regional database.
Follow-up actions needed	DG MARE to investigate ways for financing such a project
Responsible persons for follow-up actions	DG MARE
Time frame (Deadline)	2012

5 SURVEYS

The surveys listed under the DCF play an important role as data source in the advisory process as well as providing vital information on ecosystems. However, in general surveys are expensive and the resource to finance surveys under the DCF are limited. Therefore, the list of surveys funded under the DCF are frequently evaluated for quality and usefulness. The last evaluations were in 2007 (SGRN 07-01, Anon. 2007) and in October 2010 by SGRN 10-03 Review of needs Related to Surveys.

Following the terms of reference the following surveys were presented for inclusion on to the list of DCF Surveys. Annex VIII contains a spreadsheet for the survey descriptions.

5.1 Change from national to international surveys

Deepwater survey: This is not a new survey but a proposal to incorporate the existing Scottish and Irish Deepwater trawl survey. Time series from existing surveys would be continued in VI and VIIN.

ICES advises that the following fisheries independent surveys should be extended or established to meet current and near-future requirements for stock assessment and ecosystem monitoring.

- A coordinated deep-water trawl survey to cover ICES Subareas VI and VII and Divisions Vb and XIIb that incorporates the existing deep-water trawl survey from Scotland and the now discontinued survey from Ireland;

These surveys have already been evaluated under SGRN 10-03 and further details on these surveys can be found in
http://www.ices.dk/committe/acom/comwork/report/2011/Special%20Requests/EC%20Scientific%20surveys%20for%20deep%20water%20fisheries.pdf

5.2 New surveys

Boar fish survey: There is no time series yet but the survey will be the only tuning index for this rapidly developing fishery. From WGWIDE 'Following the MoU between ICES and EU, boarfish (Capros aper) was included into WGWIDE. Sampling data are very limited and not easily accessible. Therefore it is recommended that boarfish should be included in the list of DCF species. In particular, the acoustic survey initiated in 2011 by Ireland needs to be continued annually and should be considered under the DCF. In addition to this it is essential that an improved estimate of target strength (TS) is obtained for this species. WGWIDE supports studies for the determination of this and recommends that this is added to the TORs of the acoustic working group.'

Porcupine UWTV survey: There is no specific survey currently for this nephrops stock and this proposed new survey would provide a stronger basis for assessment and advice which is urgently needed. In the WGCSE it states that the Spanish Porcupine Survey in the short term may be the most appropriate method of monitoring stock status, however a previous ACFM recommendation was that UWTV surveys should be developed for data poor Nephrops stocks.

The current ICES assessment and advice for the Porcupine Bank Nephrops stock is based indicators; a Spanish trawl survey, an exploitation proxy from length distributions of landings, size and sex ratio of the landings and survey and lpue's from the commercial fleet. The indicators based

on commercial data may no longer be representative of stock status due to changing fishing practices and inadequate sampling. Although a commercial vessel trawl survey has been developed this will only provide a relative stock indicator as the time series develops. The prospects for analytical assessments are not good given the deterioration in the quality and quantity of data from the commercial fishery. Despite the poor prognosis for developing assessment and advice the indications are that that the stock size has increased substantially since 2008. The seasonal closure implemented since 2010 has also probably provided significant conservation benefits but it is not possible to quantify these in any way.

Nephrops UWTV surveys can be used to provide a direct and relatively precise estimate of stock size making some assumptions about burrow occupancy, edge effect and detection rate. Since 2009 the scientific advice and catch options consistent with the ICES MSY framework have been provided by ICES for over a dozen Nephrops stocks using the methodology developed and described by WKNEPH (ICES, 2009). It is possible to give MSY based advice with a single years UWTV estimate of stock size and good information on the mean size of the catches (landings+discards) from the commercial fishery. Since 2011 it is now technically feasible for the Marine Institute to carry out an UWTV survey of the Porcupine Bank thanks to a new 1000m fibre optic cable. Two successful pilot deployments of the UWTV sledge were carried out using RV Celtic Explorer on the Bank in May 2011 at 464m and 512m.

This survey could also be used to monitor the impact of the closed area.

5.3 Modification of surveys design

Q1 Celtic Sea multi-gear survey. IBTS groundfish surveys are conducted in March in VIIa, VI, III, IV and VIId. At this time of year, mature individuals of spring-spawning demersal fish such as cod, haddock, whiting, plaice and sole are located on or near their spawning grounds. Conducting surveys at this time generally yields larger catch-rates of mature fish. Hence the data are more useful for providing age-based indices of abundance over the full age range, estimating mortality rates directly from survey data, and providing age-aggregated SSB indices. Data can also be linked more closely to meta-population structure. Environmental data collected at this time can relate more closely to conditions for larval survival, and the surveys can potentially provide a platform for additional sampling for fish eggs or using acoustics to map or estimate spawning aggregations of species such as cod. Distribution data can more accurately inform the design of spawning closures.

Currently, the quarter-1 IBTS surveys do not extend into the Celtic Sea. This is a severe disadvantage given the data deficiencies for the assessments of many stocks in this region, and leaves a gap in the coverage of spawning populations around the British Isles. The proposed new survey will be designed to provide extensive data sets on flatfish, roundfish and elasmobranch species and their environment in Divisions VIIe,f,g,h,&j using a variety of sampling gears. It will merge an IBTS-type survey using standard IBTSWG approved otter trawl gears and methods with a beam trawl survey meeting ICES-IBTSWG and ICES-WGBEAM standards, and achieve efficiencies compared to separate stand-alone surveys at different times whilst providing continuous coverage of the marine ecosystem in the Celtic Sea and western Channel. The beam trawl survey component will build on an existing non-DCF funded survey of VIIe conducted by CEFAS using a random stratified design to monitor abundance and population structure of flatfish such as sole, plaice, lemon sole, dab, megrim, turbot and brill, other demersal species including anglerfish and skates/rays, and shellfish species such as cuttlefish and crustacea, whilst collecting a wide range of environmental and habitat data. The otter trawl component will provide assessment data for cod, haddock, whiting, anglerfish, skates/rays and a wide range of other species from the diverse populations of the Celtic Sea as well as continuing the environmental and habitat data

collection. The combined survey will provide comprehensive data on the Celtic Sea ecosystem and provide a platform for ecosystem studies including diet analysis and stock structure analysis.

Both portions of the survey will ensure the UK meets its biological sampling targets for almost all DCF species in the first quarter, assisting the production of maturity ogives for all key species. Together with the additional environmental and ecosystem data that will be collected (temperature, salinity, chlorophyll, multi-beam data, litter and macro benthic community data), the survey will support descriptors 1,2,3,4,5,6 and 10 of the MSFD.

There is currently limited data collected in the first quarter in the Celtic Sea eco-region. The UK (England and Wales) would cease participation in the Q4 IBTS coordinated survey, where overlap in surveys coverage currently exists. This would result in no overall increase in costs to the Commission and would provide a wider range of biological parameters required by the DCF. This combined survey would also provide more data for stock assessment purposes, based on data collected from an historic quarter 1 Cefas survey series in the Celtic Sea.

Comparison between current and proposed survey data collection

	Existing surveys		**Proposed new survey**	
	Western IBTS	**SW BTS**	**IBTS component**	**BTS component**
Coverage	VIIa, f, g, h	VIIe	VIIf, g, h	VIIe + some in VIIf, g, h
Coordinating body	IBTSWG	none	IBTSWG	WGBEAM
Data accessibility	Datras	Cefas	Datras	Datras
Duration	2005 - 2011	2006 – 2011/12	2013 onwards	2013 onwards
Species for age-based indices	Cod, haddock, whiting, plaice, megrim, hake.	Sole, plaice, lemon sole, dab	Cod, haddock, whiting, plaice, megrim, hake, pelagic fishes	Sole, plaice, lemon sole, dab, megrim, haddock, whiting
Species for length-based indices	Various elasmobranchs	Monk	Various elasmobranchs	Monk, elasmobranchs
Other species data	Gurnards, conger eel, John Dory, shell fish, squids, all species caught	Gurnards, conger eel, John Dory, shell fish, squids, all species caught	All Annex VII species where caught and additional G3 species	
Environmental / ecosystem data collected	Temperature, salinity, chlorophyll,	Acoustics, Rosette deployment for full water column water sampling	Acoustics, Rosette deployment for full water column water sampling, benthic species, litter	

Surveys	
RCM NA 2011 Recommendation	The RCM NA recommends that the inclusion of these surveys on to the DCF list of potential surveys and the modification of survey designs be considered by STECF
Follow-up actions needed	STECF to evaluate these surveys for inclusion on to the DCF list of eligible surveys
Responsible persons for follow-up actions	Chair of STECF EWG 11-09
Time frame (Deadline)	December 2011

6 STUDIES

6.1 Study on the portuguese trammel net fishery

Annex III to Regulation (EC) No 43/2009 regulates the use of gillnets in ICES zones IIIa, IVa, Vb, Via, VIb, VIIbcjk, VIII, IX, X, XII. According the rule in force, 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.

However, point 9.4 clearly stipulates the derogations for the use of gillnets and entangling nets down to 600 meters, targeting hake and anglerfish respectively which extends the area of activity to the area where they normally fish. 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'.

The Portuguese government has submitted additional information in relation to their request of 03.04.2009 to the Commission requesting an extension of the current derogations on the use of gillnets and entangling nets, as laid down in point 9.4 of Annex III (Part A) of Regulation (EC) No 43/2009, to trammel nets. STECF considered the Portuguese data on deep water sharks, including gulper sharks, submitted and notes that no data on other sharks were submitted. STECF concludes that, owing to the lack of discard information and the lack of information on other sharks, the composition of sharks in the catches of the Portuguese trammel net fleet fishing in Division IX cannot be reliably quantified.

STECF considered that it was unable to judge whether the use of trammel nets in waters less than 600m depth targeting anglerfish in area IX comply with the condition set out in point 9.12 of annex III of Regulation (EC) No 43/2009 that they must result in a very low level of shark by-catches and of discards.

To accomplish the objective "evaluation the fishing activities on shark populations in Subarea IX" it is necessary to increase the sampling effort on board of the observer program that is actually undertaken by Portugal under the DCF on the trammel net fleet. A Pilot study is thus proposed to fulfil the data requirements to reach that objective for a period of three years.

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.

RCM NA Comments : RCM NA recommends Portugal to include the study in their NP proposal 2012 as a pilot study, with the objectives of setting up a routine sampling programme for this fishery.

7 ANY OTHER BUSINESS

7.1 Chairmanship, venue and dates of next meeting

Next venue : Gallway (Ireland)

Chair for the next meeting : Sieto Verver (Netherlands)

History of RCM NA venues and chairs

Year	Venue	Chair
2004	Gallway (Ireland)	Paul Conolly (Ireland)
2005	Gijon (Spain)	Pilar Pereda (Spain)
2006	Lisbon (Portugal)	Graça Pestana (Portugal)
2007	Brest (France)	Joël Vigneau (p.i. Christian Dintheer)
2008	York (UK-England)	Christian Dintheer (France)
2009	Cadiz (Spain)	Joël Vigneau (France)
2010	Ostend (Belgium)	Joël Vigneau (France)
2011	La Rochelle (France)	Joël Vigneau (p.i. Sieto Verver)

8 Summary of recommendations

DCF Requirements	
RCM NA 2011 recommendation	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
Responsible persons for follow-up actions	All MS
Time frame (Deadline)	None

Feedback from assessment working groups	
RCM NA 2011 recommendation	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.
Follow-up actions needed	Prepare a document to be forwarded to the WGHMM Lophius stock coordinators.
Responsible persons for follow-up actions	All MS having catches of Lophius in the Atlantic and having not provided this information to the ICES assessment Working group in 2011.
Time frame (Deadline)	End of 2011

Stock variables	
RCM NA 2011 recommendation	RCM NA recommends that STECF considers the collection of age information of sardine and anchovy in area VII for inclusion in the new DCF.
Follow-up actions needed	STECF to include this point when discussing modifications of the current DCF for the period 2014 onward
Responsible persons for follow-up actions	STECF
Time frame (Deadline)	2012

Metier vairables : Increase sampling in deep-water fisheries	
RCM NA 2011 recommendation	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.
Responsible persons for follow-up actions	MS
Time frame (Deadline)	October 2011

Metier variables : Metier descriptions	
RCM NA 2011 Recommendation	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. Updated and new files to be uploaded by Fishing Ground co-ordinators.
Follow-up actions needed	MS to complete metier descriptions
Responsible persons for follow-up actions	All MS
Time frame (Deadline)	RCM NA 2012

Metier and stock variables : Concurrent sampling	
RCM NA 2011 Recommendation	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
Responsible persons for follow-up actions	All MS, chair of RCM NA
Time frame (Deadline)	November 31 2011

Metier variables : Merging metier	
RCM NA 2011 Recommendation	RCM NA recommends RCM participants to contact relevant staff within their institute to attend the ICES WKPICS1 meeting on practical implementation of statistical sound catch sampling programmes
Follow-up actions needed	Identify experts for attending WKPICS1
Responsible persons for follow-up actions	RCM NA participants
Time frame (Deadline)	November 2011

Metier variables : Availability of 2011-2013 National Programmes	
RCM NA 2011 Recommendation	RCM NA recommends DG MARE to place all final versions of the 2011-2013 NPs on the DCF website.
Follow-up actions needed	DG MARE and JRC to arrange uploading of the documents on the DCF public website
Responsible persons for follow-up actions	DG MARE
Time frame (Deadline)	As soon as possible

Métier related variables: Routines for establishing bilateral agreements	
RCM NA 2011 Recommendation	3. 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. 4. 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 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	MS to make sure landings abroad data are included into the RDB
Responsible persons for follow-up actions	MS
Time frame (Deadline)	Annually. Deadline 1st of July 2012.

Métier related variables: Routines for establishing bilateral agreements	
RCM NA 2011 Recommendation	In order to identify were bilateral agreements on sampling of foreign landings have to be set up, the RCM NA proposes a common understanding of thresholds for sampling. - where less than 5% of a member state's total landings, sampling of landings abroad are excluded (corresponding to the application of 1639/2001), given that the other 95% of the landings are sufficiently sampled by the landing countries for the relevant metier(s) - the analysis on when bilateral agreements are needed, should be done annually by the RCM using landing data from the previous year
Follow-up actions	DG MARE and STECF to reflect on this m
Responsible persons for follow-up actions	DG MARE and STECF
Time frame (Deadline)	2012

Sampling of métier related variables: Making use of the outcome of the Lot 2 project on VMS and logbook data	
RCM Baltic 2011 Recommendation	In order for all MS to gain the knowledge concluded in the Lot 2 project on VMS and logbook data, the RCM recommends a training workshop on how the different appropriate tools can be used.
Follow-up actions needed	Organisation of workshop
Responsible persons for follow-up actions	ICES PGCCDBS
Time frame (Deadline)	2012

Recreational fisheries: Best practice.	
RCM NA 2011 Recommendation	RCM NA recommends MS to include recommendations and outcomes of PGRFS in the adjustment of their 2012 NP, if relevant..
Follow-up actions needed	Revising MS NP proposals 2012.
Responsible persons for follow-up actions	All MS.
Time frame (Deadline)	October 2011

Recreational fisheries: Regional coordination.	
RCM NA 2011 Recommendation	RCM NA recommends that any scope for regional coordination should be dealt with by the ICES Planning group on Recreational Fishery Surveys (PGRFS), and the PGRFS should advise the RCMs of any proposal for coordination.
Follow-up actions needed	Discussion in the future PGRFS meeting
Responsible persons for follow-up actions	ICES and PGRFS
Time frame (Deadline)	2012

Recreational fisheries: Regional coordination.	
RCM NA 2011 Recommendation	RCM NA recommends DG MARE to include PGRFS under the eligible list of meetings
Follow-up actions needed	STECF to comment on this, and DG MARE to take appropriate action
Responsible persons for follow-up actions	STECF and DG MARE
Time frame (Deadline)	December 2011

Stock variables : Quality issues	
RCM NA 2011 Recommendation	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
Responsible persons for follow-up actions	MS
Time frame (Deadline)	October 2011

Stock variables : Quality issues	
RCM NA 2011 Recommendation	RCM NA recommends DG MARE to review the exact needs for biological parameters for each stocks, in close relation with the end-users. In view of the future DCF, if data are not required by any EWG, these should be removed from the Appendix VII.
Follow-up actions needed	DG MARE and STECF to review biological parameters by stock in view of the future DCF.
Responsible persons for follow-up actions	DG MARE, STECF
Time frame (Deadline)	2012

Stock variables : Sampling intensities	
RCM NA 2011 Recommendation	RCM NA recommends an inter sessional study on combining the biological data in FishFrame, and estimating the biological parameters at the stock level. Blue whiting (*Micromesistius poutassou*) was listed as a candidate due to the number of MS having sampling obligations.
Follow-up actions needed	MS having blue whiting samples
Responsible persons for follow-up actions	Coordinator to be found by chair of RCM NA
Time frame (Deadline)	May 2012

Stock variables : Sampling intensities	
RCM NA 2011 Recommendation	In view of the large bandwidth of sampling intensities between the stocks (from very low to extremely high), RCM NA recommends ICES PGCCDBS to reflect on statistical issues related to optimal numbers to sample and minimal requirement under which sampling may only be a waste of time and resource.
Follow-up actions needed	ICES PGCCDBS
Responsible persons for follow-up actions	ICES PGCCDBS
Time frame (Deadline)	2012

Stock variables : Task-sharing for ageing	
RCM NA 2011 Recommendation	RCM NA recommends ICES PGCCDBS to discuss the statistical and methodological procedures which would enable sharing international information on biological parameters.
Follow-up actions needed	ICES PGCCDBS
Responsible persons for follow-up actions	ICES PGCCDBS
Time frame (Deadline)	2012

Stock variables : Regional collection	
RCM NA 2011 Recommendation	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
Responsible persons for follow-up actions	All MS
Time frame (Deadline)	October 2011

Quality issues : data collection protocols	
RCM NA 2011 Recommendation	RCM NA recommends PGCCDBS to reflect on standard ways of drafting sampling protocols, in order to improve the description by MS in their NP proposals and to enable RCM to compare and compile international procedures.
Follow-up actions needed	ICES PGCCDBS for guidance and STECF for drafting future NP proposal guidelines
Responsible persons for follow-up actions	ICES PGCCDBS, STECF
Time frame (Deadline)	2012

Quality issues : Quality control	
RCM NA 2011 Recommendation	Echoing on the 7th LM (2010) recommendation, RCM NA recommends the setting of a sharepoint facility to serve the RCM needs and as a repository for all agreed references.
Follow-up actions needed	DG MARE and JRC to agree on a procedure
Responsible persons for follow-up actions	DG MARE, STECF, JRC
Time frame (Deadline)	2012

Quality issues : Stock variables	
RCM NA 2011 Recommendation	RCM NA recommends DG MARE and STECF to reflect on the construction on a meta information database to hold the details of the national programmes, with the view of eventually replacing the current set of Excel tables
Follow-up actions needed	DG MARE and STECF during discussion of the future DCF
Responsible persons for follow-up actions	DG MARE and STECF
Time frame (Deadline)	2012

Metier variables : Regional ranking / RDB	
RCM NA 2011 Recommendation	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
Responsible persons for follow-up actions	All MS
Time frame (Deadline)	July 2012

Metier variables : Regional ranking/ RDB	
RCM NA 2011 Recommendation	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.
Follow-up actions needed	Resubmit data into the regional database after correction
Responsible persons for follow-up actions	All MS
Time frame (Deadline)	July 2012

Metier variables : Regional ranking	
RCM NA 2011 Recommendation	RCM NA recommends STECF to investigate more closely the methods used by MS to deal with <10m transversal variables
Follow-up actions needed	Review NP proposals
Responsible persons for follow-up actions	STECF EWG 11-09
Time frame (Deadline)	December 2011

Quality issues : internal RCM work	
RCM NA 2011 Recommendation	RCM NA recommends that a module be implemented in the RDB containing information provided now in the DCF set of Excel tables, such as sampling plan and realised, achieved precision, etc…
Follow-up actions needed	Steering Committee of the RDB to include meta-information in the design of the RDB.
Responsible persons for follow-up actions	DG MARE and STECF
Timeframe (Deadline)	October 2011

Quality issues : COST follow-up	
RCM NA 2011 Recommendation	RCM NA recommends a follow-up of the COST project to ensure a maintenance of the statistical tool and improve the current settings, including user-friendly interface and a connexion to a Regional database.
Follow-up actions needed	DG MARE to investigate ways for financing such a project
Responsible persons for follow-up actions	DG MARE
Time frame (Deadline)	2012

Surveys	
RCM NA 2011 Recommendation	The RCM NA recommends that the inclusion of these surveys on to the DCF list of potential surveys and the modification of survey designs be considered by STECF
Follow-up actions needed	STECF to evaluate these surveys for inclusion on to the DCF list of eligible surveys
Responsible persons for follow-up actions	Chair of STECF EWG 11-09
Time frame (Deadline)	December 2011

ANNEXES

ANNEX I – TOR for the 2011 RCM's

Terms of Reference

1. Review progress in regional co-ordination since the 2010 RCM (follow-up of recommendations) and 7th Liaison Meeting report. Evaluate the outcomes of the 2011 RCM Long distance, in terms of complementarities and actions to be carried out by MS in the RCM region of competence.
2. Review feedback and recommendations from data end users; STECF EWGs and ICES benchmarks meetings.
3. Harmonise and coordinate the regional aspects in the NP proposals 2012 following the DCF framework, with particular emphasis on the following:

    a) Metier-related variables

    - Ranking system following regional harmonisation of the metiers at level 6, update of the 2010 regional view on fishing activities; creation of a regional ranking system to assess the Member States obligations and demands for derogation.
    - Landings - sampling agreement for landings abroad; discussion/agreement on concurrent sampling; agreement on merging of metiers for sampling; sampling intensities and data quality.
    - Discards - creation of a regional view of the discard sampling programmes, identification of gaps and discrepancies for optimising the spatial, time and metiers coverage. Complete the list of métiers important to sample and provide scientific justification for not sampling certain metiers for discards.
    - Recreational fisheries - review of the actions proposed in the NP proposals, identify whether there is scope for regionally co-ordinated actions.

    b) Biological stock-related variables

    - sampling intensities and data quality; identification of stocks suitable for International age-length keys and task sharing for ageing; possibilities for extension to regional collection of data for maturity, sex-ratio and mean weights.
    - Coordinate biological sampling for stocks where the sum of MS having a share of quotas/landings less than 10%, altogether exceeds 25%. (exemption rule III.B2.5.1.(b) in Decision 2010/93/EU).

    c) Transversal variables

    - Common understanding of effort definitions in relation to data collection methodologies.
    - Review the discrepancies between the data recording according to the Control Regulation and the data to be collected according to the DCF as for the transversal variables.
4. Propose actions and where possible conclude regional agreements on the collection of data outlined under ToR 3.
5. Quality issues
    - Review progress on quality control, validation etc. in NP proposals.
    - Regional databases: agreement on a precise roadmap for the upload of data into FishFrame and suggest any new features/reports to be developed.

ANNEX I – TOR for the 2011 RCM's

- Review the outcomes of the use of COST and recommend on the best practises for quality evaluation of the collected data and in addition propose future development of the COST tool.

6. Review potential new surveys that in the future could be included in the DCF list of surveys (update the list of surveys that was made at the RCM 2010).
7. Studies and pilot projects
8. Any other business

EU DATA COLLECTION FRAMEWORK (DCF),
REG. 199/2008, 665/2008 AND DECISION 2010/93/EC

Regional Co-ordination Meeting for the North Atlantic (RCM NA)
IFREMER, La Rochelle-L'Houmeau, France
12th September – 15th September, 2011

Agenda

Working hours:	Mon 13:00-18:00
	Tue 09:00-18:00
	Wed 09:00-18:00
	Thu 09:00-12:00
Coffee/tea breaks:	10:30 & 15:00
Lunch break:	12:30 – 13:30

Monday, 12 September 2011

13:00 Opening of the meeting, housekeeping, adoption of the agenda.

13:30 General discussion on the tasks to be addressed and appointment of sub-group chairs and sub-group rapporteurs with focus on:

- **ToR 3a:** ***Metier related variables*** (4-5 person)
- **ToR 3b:** ***Biological, Stock related variables*** (4-5 person)
- **ToR 5:** ***Quality*** (4-5 persons)
- **ToR 6:** ***Surveys*** (2 persons, info to be prepared in advance)

15:30 **ToR 2 :** Review feedback from data end users; STECF EWG's and ICES benchmark meetings.

16:30 **ToR 1:** Review progress in regional co-ordination since the 2010 RCM (follow-up of recommendations) and 7th Liaison Meeting report.

Tuesday, 13 September 2011

09:00 Opening and start work in sub-groups

16:00 Report on **ToR 6: Surveys**

16:30 State of progress in the sub-groups, feedback from plenary

Wednesday, 14 September 2011

09:00 Opening and start work in sub-groups

13:30 Presentation and plenary discussion on the outcomes, recommendations and proposals from sub-groups in preparation of the final proposals.

15:30 Outlook to new DCF, planning, ideas and schedule

16:00 Finalizing text, proposals and recommendations by subgroups

17:30 **ToR 7** : Studies and pilot projects

Thursday, 15 September 2011

09:00 opening and **ToR 4**: Proposed actions/regional agreements for data collection – overview

10:00 Signing bilateral agreements

10:00 Presentation and finalizing all RCM NA recommendations

12:00 Closure of the meeting

Metier description template		
RCM		
Fishing ground		
Name of métier:		
Flag country:		
Date of update:		
Description of the métier		
Spatial distribution of the fishing activity of the métier		
Seasonal pattern of the fishing activity of the métier		
Number of vessels involved in metier by LOA group:		
Detailed gear types and selectivity devices used in métier		
Main target and by-catch species for the métier		
Indicate level of discard of major species (mostly subset of G1 or G2 species): *(Text. e.g. Significant, Insignificant, Occasional high)*	Species	Level of discarding

Is significant part of the catches landed in foreign countries?	Landing country	Sampling agreement (y/n) ref. to table	
Sampling of the metier			
Indicate if this Métier is merged with other metiers for sampling			
Justification for merging:			
Sampling scheme	Type of sampling	Sampling frame and primary sampling unit for data collection	Data collected (retained catch; discarded catch; unsorted catch) and sampling method (concurrent, other)
Indicate if the Métier is associated with particular sampling problems:			
Additional remarks (historical and others):			

Annex IV – Concurrent sampling questionnaire

On shore sampling for length data

Did you implement concurrent sampling

All sites

All fleets

At which level have you implemented concurrent sampling	Which metiers covered by the sampling scheme and at what level
Level 1	
Level 2	
Level 3	

Non DCF sampling scheme

If concurrent sampling not undertaken detail reasons

If concurrent sampling undertaken detail

1. each of the major problems encountered and solutions implemented

2. advantages gained over previous sampling system

3. Any know feedback from End Users in relation to changes in data provision

Suggestions for improvement or modification

Overview of sampling programmes

This annex is an update of the RCM NA 2010 report with the French sampling programme included. The sampling programmes will be detailed by fishing grounds or sub-regions on the following order:

3. Bay of Biscay (ICEs divisions VIIIabde)
4. Celtic Sea (ICES divisions VIIfgh)
5. Irish Sea (ICES division VIIa)
6. Western Channel (ICES division VIIe)
7. Faeroe Islands (ICES division Vb)
8. Western Scotland (ICES division VI)
9. Western Ireland (VIIbcjk)
10. Iberian (ICES sub-area IX and Division VIIIc)
11. Azores (ICES Division X)

During RCM NA 2010, a new set of tables has been set up to describe the monitoring of the regionally ranked metiers, taking into account the availability of metier description sheets (Annex 10). Here are the explanation of the columns used:

5. MS involved : MS having declared effort and catches in the fishing ground for a given metier. The use of (s) behind the reference of MS indicate that this MS is a minor contributor besides the main MS. The order of MS in the cells are by alphabetical order.
6. Metier Desc. Sheet : Indicator of the availability of the metier description sheet in annex 10
7. Monitored on shore : Indicator of sampling planned for monitoring on shore. When figures are given for a sampling frame and are not split by metiers, for example France sampling on shore 48 trips of netters, then an artificial division is done with all occurrences of GNS and GTR in the area and a code is given between parenthesis (e.g. 12(a)). BA means Bilateral agreement.
8. Monitored at sea : Indicator of sampling planned for monitoring at sea. When a sampling frame is not split into metiers, for example France sampling at sea 48 trips of gillnetters, then an artificial division is done with all occurrences of GNS and GTR in the area and a code is given between parenthesis (e.g. 12(a)).
9. Comm. : reference on the comment made by the RCM, detailed below the table.

Bay of Biscay (ICES area VIIIabde)

From a total of 69 métiers operating in this area, 23 métiers have been ranked as cumulating 90% of the fishing activities at the level of the Bay of Biscay, i.e. ICES Divisions VIIIabde. Spain and France are the major countries operating on this fishing grounds, and five countries cumulate 9% of the landings and 1% of the effort, namely Belgium, Netherland, Germany, Ireland and UK. Although several métiers were ranked out at regional level, sampling plans for landings and discards are in place at national level. See also specific recommendations for France in section 4.1.8. Details of all information related to this section are presented in Annex 3, Tables 1.a-e.

ANNEX V – Overview of Regional sampling programmes

The métiers retained for sampling coordination at the regional level are the following:

	MS involved	Metier Desc. sheet	Monitored On shore	Monitored At sea	Comm.
GTR_DEF_>=100_0_0	FRA UK (s)	- X	24	65	1
OTB_DEF_>=70_0_0	ESP FRA IRL (s) UK (s)	X -	69 30	5 40	2
LLS_DEF_0_0_0	ESP FRA UK (s)	X X X	24 4	36	
OTT_CRU_>=70_0_0	FRA	X	0	38	3
FPO_CRU_0_0_0	FRA GER (s) UK (s)	-	4		4
MIS_DEF_0_0_0	FRA	-	-		5
GNS_DEF_>=100_0_0	ESP FRA UK (s)	X - X	24 12	- 20	6
OTB_MOL_>=70_0_0	FRA	-	2	4	7
OTT_DEF_>=70_0_0	FRA ESP	- -	12 69	16 5	8
DRB_MOL_0_0_0	FRA UK (s)	-	0	0	9
LHM_LPF_0_0_0	FRA	-	-		10
PTB_DEF_>=70_0_0	ESP	X	10	8	
GNS_DEF_40-49_0_0	FRA	-	2	7	11
OTB_MCD_>=70_0_0	ESP	X	2	3	
GTR_DEF_40-49_0_0	FRA	-	2	6	12
PTM_DEF_>=70_0_0	FRA	X	0	12	13
MIS_CAT_0_0_0	FRA	-	0	0	15
GND_DEF_0_0_0	FRA	-	0	4	16
OTB_DEF_32-54_0_0	FRA	-	2	8	17
GNS_DEF_80-99_0_0	FRA	X	2	5	18
PS_SPF_0_0_0	ESP FRA	X X	30 48	0 0	19
GNS_DEF_55-69_0_0	FRA	-	2	4	18

- GTR_DEF_100-119_0_0 : : Trammel net for hake (*Merluccius merluccius*) and sole (*Solea solea*). description sheet to be provided by France. This métier is sampled for both landings and discards.
- OTB_DEF_70-99_0_0 : Description sheet to be provided by France. This métier is sampled for landings and discards.
- OTT_CRU_>=70_0_0 : Trawl for Nephrops (*Nephrops norvegicus*) in functional units 23 (Bay of Biscay North) and 24 (Bay of Biscay South) by France. This will be monitored at-sea.
- FPO_CRU_0_0_0 : Pots for edible crab (*Cancer pagurus*) and lobster (*Homarus gammarus*). Description sheet to be provided by France. This métier operated by France will be sampled for the landings. Following the presentation of working documents from UK (Annex 11), it was the view of the RCM that this metier need not be sampled for discards (see also table 4.2).
- MIS_DEF_0_0_0 : RCM NA recommends France to describe exactly which is this metier not referenced in App. IV of the Comm. Dec. and provide a description sheet.
- GNS_DEF_100-119_0_0 : Metier merged with GTR_DEF_100-119_0_0 (comment 1) for sampling.
- OTB_MOL_>=70_0_0 : Trawl targeting squids and cuttle fish (*Sepia officinalis*) operated by France. Description sheet to be provided by France. This métier is sampled for landings and discards.
- OTT_DEF_70-99_0_0 : Metier merged with OTB_DEF_70-99_0_0 (comment 2) for sampling.
- DRB_MOL_0_0_0 : Description sheet to be provided by France. This métier should be sampled for landings.
- LHM_LPF_0_0_0 : : Hand and pole line for albacore (*Thunus alalunga*). : Description sheet to be provided by France. This métier should be sampled for landings
- GNS_DEF_40-49_0_0 : Description sheet to be provided by France. This métier is sampled for landings and discards.
- GTR_DEF_40-49_0_0 : Metier merged with GNS_DEF_40-49 (comment 11) for sampling.
- PTM_DEF_>=70_0_0 : Midwater pair trawl targeting sea bass (*Dicentrarchus labrax*) and sea bream (*Spondyliosoma cantharus*) by France. This metier is sampled at-sea.
- MIS_CAT : A metier description is needed for this metier.
- GND_DEF_0_0_0 : Description sheet to be provided by France. This métier is sampled for landings and discards.
- OTB_DEF_32-69_0_0 : Description sheet to be provided by France. This métier is sampled for landings and discards.
- GNS_DEF_80-99_0_0 : Description sheet to be provided by France. This métier is sampled for landings and discards.
- PS_SPF_0_0_0 : Purse seine targeting sardine (*Sardina pilchardus*) and mackerel (*Scomber scombrus*). This métier operated by France and Spain will be monitored for

the landings. France intended to carry out pilot onboard sampling for discards during 2010 to evaluate level of discards and will report back to RCM to clarify the need for future sampling of discards. Spain presented a WD (RCM NA 2009) in support of their decision to maintain sampling of this metier for discards at a low level. It was agreed that this was acceptable and Spain will continue to monitor this fishery (for discards) at the current level

Celtic Sea (ICES Divisions VIIf, VIIg, and VIIh)

From a total of 82 métiers operating in this area, 16 métiers have been ranked as cumulating 90% of the fishing activities at the level of Celtic Sea, i.e. ICES Divisions VIIf, VIIg and VIIh. Six MS operate in this area, namely, Belgium, France, Germany Ireland, Netherland and UK. Main activities relate to crustacean and demersal species with small pelagics coming into the ranking based on quantity landed and value. Details of all information related to this section are presented in Annex 3, Tables 2.a-e.

ANNEX V – Overview of Regional sampling programmes

The métiers retained for sampling coordination at the regional level are the following:

	MS involved	Metier Desc. sheet	Monitored On shore	Monitored At sea	Comm.
FPO_CRU_0_0_0	FRA IRL UK GER (s)	- X X	4 - 216		1
OTB_CRU_70-99_0_0	FRA IRL UK (s)	- X X	5 24	6 39	2
OTT_CRU_70-99_0_0	FRA	-	5	6	3
TBB_DEF_70-99_0_0	BEL IRL UK FRA (s)	X X X	- - 504	5 8 12	4
OTB_DEF_70-99_0_0	IRL UK	X X	- 72	- 36	5
LHP_FIF_0_0_0	UK FRA (s)	X	180		
GNS_DEF_120-219_0_0	UK FRA (s)	X	180(a)	27(a)	
OTB_DEF_100-119_0_0	FRA UK (s)	X X	8 72	16 36	6
GNS_DEF_>=220_0_0	IRL UK FRA (s)	X X	- 180(a)	- 27(a)	7
GTR_DEF_>=220_0_0	FRA IRL (s) UK (s)	-	-	6	8
OTT_DEF_100-119_0_0	FRA	-	4	8	9
FPO_MOL_0_0_0	UK IRL (s)	-	-		10
DRB_MOL_0_0_0	IRL UK (s) BEL (s) NL (s)	- X	-		11
SSC_DEF_0_0_0	IRL	X	-		12

	MS involved	Metier Desc. sheet	Monitored On shore	Monitored At sea	Comm.
OTM_SPF_32-69_0_0	FRA	-	-	BA (NL)	13
	GER	X	-	-	
	IRL	X	-	-	
	NL	X	-	-	
PTM_SPF_32-69_0_0	IRL	X	-	-	14
	UK (s)	X			

- 360 trips planned to be sampled on shore and 54 at sea by UK for all GNS

(2) FPO_CRU_0_0_0 : Major targets being edible crab (*Cancer pagurus*) and lobster (*Homarus gammarus*). This metier need not be sampled at sea for discards (see table 4.2). Description sheet to be provided by France and RCM agreements should be seeked in future RCM for sharing the sampling.

(3) OTB_CRU_70-99_0_0 : Metier targeting Nephrops (Nephrops norvegicus). Description sheet to be provided by France, and metier to sampled at sea by all major contributors.

(4) OTT_CRU_70-99_0_0 : Metier targeting Nephrops (Nephrops norvegicus), usually merged with OTB_CRU_70-99_0_0 (see comment 2)

(5) TBB_DEF_70-99_0_0 : Ireland to check if their sampling covers this metier in the Celtic Sea.

(6) OTB_DEF_70-99_0_0 : Ireland and UK all sampling but no further scope for task sharing as fisheries do not overlap (RCM NA report 2009). Ireland should split the samples per fishing ground as they stated that their sampling will cover VIIfgh and VIIa, in their NP proposal 2011-2013.

(7) OTB_DEF_100-119_0_0 : Description sheet to be provided by France and sampling is done at sea for discards estimates.

(8) GNS_DEF_>=220_0_0 : Seasonal fishery in Ireland. RCM NA was informed that the metier hould be sampled on shore and at sea.

(9) GTR_DEF_>=220_0_0 : Description sheet to be provided by France, and metier is sampled at sea.

(10) OTT_DEF_100-119_0_0 : Usually merged with OTB_DEF_100-119_0_0. See comment 6.

(11) FPO_MOL_0_0_0 : Description sheet to be provided by UK, and metier to sampled on shore.

(12) DRB_MOL 0_0_0 : Description sheet to be provided by IRL, and metier to sampled on shore.

(13) SSC_DEF_0_0_0 : Description sheet to be provided by IRL, and metier to sample.

(14) OTM_SPF_32-69_0_0 : Metier being exploited on several fishing grounds, including Celtic Sea. This metier is monitored at sea by all major contributors and will receive a sampling intensity depending on the proportion of time spent in the Celtic Sea

over all other fishing grounds.

(15) PTM_SPF_32-69_0_0 : Ireland to check whether this metier is covered for sampling together with OTM_SPF_3é-69_0_0.

Irish Sea (ICES Division VIIa)

From a total of 56 métiers operating in this area, 8 métiers have been ranked as cumulating 90% of the fishing activities at the level of area Irish Sea, i.e. ICES Division VIIa. Although five MS operate in this area, namely; Belgium France, Ireland, Netherlands and UK, only Ireland and UK have significant activity in this area and coordination between these countries has been continuous and ongoing. The métiers retained for sampling coordination at the regional level are the following: Details of all information related to this section are presented in Annex 3, Tables 3.a-e.

	MS involved	Metier Desc. sheet	Monitored On shore	Monitored At sea	Comm.
OTB_CRU_70-99_0_0	IRL UK	X X	18 756	30 252	
FPO_CRU_0_0_0	IRL UK	X X	- 252	- 180	1
DRB_MOL_0_0_0	IRL UK BEL (s) NL (s)	X X	12 36	39 18	
FPO_MOL_0_0_0	IRL UK	- -	- -		2
OTB_DEF_70-99_0_0	IRL UK	X X	- -	- -	3
TBB_DEF_70-99_0_0	BEL IRL UK	- X X	8 54 -	6 18 -	4
HMD_MOL_0_0_0	UK	-	-		5
PTM_SPF_32-69_0_0	IRL UK	- -	6 48	3 12	6

- FPO_CRU_0_0_0 : Sampling of this métier by Ireland is included in their sampling plan for the wider Area VII. UK provided working documents (RCM NA 2009 report) in support of their decision not to sample for discards (see table 4.2). RCM NA recommends Ireland to clarify their sampling plan for this metier.
- FPO_MOL_0_0_0 : Pots for whelks (*Buccinum undatum*). Ireland and UK would like SGRN to have more discussion on the obligations (and needs) to sample these metier catching only G3 species. Metier description must be provided for next RCM.
- OTB_DEF_70-99_0_0 : Metier merged with OTB_DDEf_100-119_0_0 for sampling.
- TBB_DEF_70-99_0_0 : UK to clarify how this metier will be sampled.

- HMD_MOL_0_0 : Mussel and cockle fishery. Same question as comment 2.
- PTM_SPF_32-69_0_0 : Metier description needs to be provided for next RCM.

Western Channel (ICES area VIIe)

From a total of 100 métiers operating in this area, 25 métiers have been ranked as cumulating 90% of the fishing activities at the level of area Western Channel, i.e. ICES Area VIIe. UK and France are the major countries operating on this fishing ground, and four countries cumulate 9% of the landings and 1% of the effort, namely Belgium, Netherlands, Germany and Ireland. Although several métiers were ranked out at regional level, sampling plans for landings and discards are in place at national level. Details of all information related to this section are presented in Annex 3, Tables 4.a-e.

The métiers retained for sampling coordination at the regional level are the following:

	MS involved	Metier Desc. sheet	Monitored On shore	Monitored At sea	Comm.
FPO_CRU_0_0_0	FRA UK	- X	16 432		1
DRB_MOL_0_0_0	FRA UK BEL (s) IRL (s) NL (s)	- X	12 36		2
OTB_DEF_70-99_0_0	FRA UK	- X	38 252	- 84	3
FPO_MOL_0_0_0	FRA UK	- -	8 -		4
OTB_MOL_70-99_0_0	FRA UK	- X	- -	7 -	5
TBB_DEF_70-99_0_0	UK BEL (s) FRA (s) IRL (s)	X X	504	72 12	
LLS_DEF_0_0_0	FRA UK (s)	X X	6 -		
GNS_DEF_120-219_0_0	FRA UK	- X	- 24(a)	7 8(a)	6
GNS_DEF_>=220_0_0	FRA UK (s)	- X	- 24(a)	9 8(a)	6
GTR_DEF_>=220_0_0	FRA UK (s)	- X	-	12	6
LHP_FIF_0_0_0	UK FRA (s)	X X	144		

	MS involved	Metier Desc. sheet	Monitored On shore	Monitored At sea	Comm.
GNS_DEF_50-70_0_0	FRA UK (s)	-	4 24(a)	4 8(a)	6
GNS_DEF_80-99_0_0	FRA UK (s)	-	3 24(a)	3 8(a)	6
GNS_DEF_100-119_0_0	FRA UK	- X	1 24(a)	1 8(a)	6
OTB_DEF_100-119_0_0	FRA UK	- X	- -	4 -	3
LHM_LPF_0_0_0	FRA	-	-		7
OTM_SPF_32-69_0_0	FRA NL UK GER (s) IRL (s)	- - X	- - 9(b)	BA(NL)+8 - -	8
GNS_CRU_>=220_0_0	UK	-	24(a)	8(a)	9
PS_SPF_0_0_0	FRA	-	-	-	10
PTM_DEF_70-99_0_0	FRA	X	-	8	11
MIS_SWD_0_0_0	FRA				12
MIS_DEF_0_0_0	FRA	-	-		13
OTM_SPF_16-31_0_0	FRA NL GER (s) IRL (s) UK (s)	- - X	- - 9(b)	5 - 	14
SSC_DEF_0_0_0	FRA NL UK (s)	- -	- -	- -	15
PTM_SPF_32-69_0_0	FRA UK NL (s)	- -	- -	3 -	16

144 trips planned to be sampled on shore and 48 at sea by UK for all GNS.

18 trips planned to be sampled at sea by UK for both OTM and PTM

- FPO_CRU_0_0_0 : Pots for crustaceans operated by UK and France, which will monitor the landings. UK provided working documents (RCM NA report 2009) in support of their decision not to sample for discards (see also table 4.2). Metier description to be provided by France.
- DRB_MOL_0_0_0 : Dredge for scallops. Metier description to be provided by France.
- OTB_DEF : Metier description to be provided by France and sampling is planned for landings and discards.

- FPO_MOL_0_0_0 : Pots for whelks. Metier description to be provided by France and UK. See question to SGRN in the Irish sea section comments 2.
- OTB_MOL_70-99_0_0 : Metier description to be provided by France, and sampling to be planned by France and UK for both discards and landings.
- GNS_DEF : Metiers description to be provided by France, and sampling is planned by France for both discards and landings.
- LHM_LPF_0_0_0 : To be checked whether it is a confusion with small pelagics (maquerel?).
- OTM_SPF_32-69_0_0 : midwater trawl targeting small pelagics. This metier operates in several fishing grounds as part of long trips. It is sampled by NL (bilateral agreement with NL for France), and the number of samples falling into the Western Channel depends on the proportion of effort allocated in this fishing ground over all the others.
- GNS_CRU_>=220_0_0 : Metier description to be provided by UK.
- PS_SPF_0_0_0 : Metier description and sampling to be planned for France.
- PTM_DEF_70-99_0_0 : trawling for blue whiting (*Micromesistius poutassou*). This metier operates in several fishing grounds as part of very long trips. It is sampled by France within a self-sampling programme, and the number of samples falling into the Western Channel depends on the proportion of effort allocated in this fishing ground over all the others.
- MIS_SWD_0_0_0 : Sea weeds fishing by France, not monitored through DCF.
- MIS_DEF_0_0_0 : RCM NA recommends France to describe exactly which is this metier not referenced in App. IV of the Comm. Dec. and provide a description sheet.
- OTM_SPF_16-31_0_0 : Metier description to be provided by France and the Netherlands, and sampling to be planned.
- SSC_DEF_0_0_0 : Seine for demersal fish. Metier description and sampling to be planned by the two MS operating this metier in the Western Channel.
- PTM_SPF_32-69_0_0 : : Metier description to be provided by France and UK and sampling is planned by France.

Faeroe (ICES Divisions Vb)

From a total of 9 métiers operating in this area, 5 métiers have been ranked as cumulating 90% of the fishing activities at the level of area Faeroe, i.e. ICES Division Vb. three MS operate in this area, namely, France, The Netherlands and UK. France and UK participate in several fisheries in this region with Germany and the Netherlands also involved in fisheries for small pelagic species which (along with other MS) account for 54% of the landings in the region. It is to be noticed that all the metiers operating in ICES division Vb are metier distributed over several neighbouring fishing grounds during long trips. Due to this, the number of samples falling in this fishing ground will be proportional to the fishing activity in Vb over all other neighbouring fishing grounds. Details of all information related to this section are presented in Annex 3, Tables 5.a-e.

The métiers retained for sampling coordination at the regional level are the following:

	MS involved	Metier Desc. sheet	Monitored On shore	Monitored At sea	Comm.
OTB_DWS_100-119_0_0	FRA	-	-	20	1
OTB_DEF_>=120_0_0	UK	X	24	12	
GNS_DEF_>=220_0_0	FRA	-	-	8	2
OTB_DEF_100-119_0_0	FRA UK (s)	- X	-	4	3
OTM_SPF_32-69_0_0	NL UK	X X	- 3	- -	4

-
  - OTB_DWS_100-119_0_0 : Trawling for deep water fish. Metier description sheet and sampling is planned by France.
  - GNS_DEF_>=220_0_0 : Only France has effort for this métier. Target is mainly anglerfish (*Lophius sp.*). The vessels are operating all along the slope up to the Bay of Biscay. Monitoring of this very geographic flexible fleet is planned by sampling at sea .
  - OTB_DEF_100-119_0_0 : . Metier description sheet and sampling is planned by France.
  - OTM_SPF_32-69_0_0 :. The Netherlands fishery relates to blue whiting and expected number of trips sampled in this fishing ground should be provided

West of Scotland (ICES Sub-area VI)

From a total of 73 métiers operating in this area, 10 métiers have been ranked as cumulating 90% of the fishing activities at the level of area West of Scotland, i.e. ICES Sub-area VI. Six MS operate in this area, namely, France, Germany, Ireland, Netherlands, Spain and UK. Fishing activity is mainly carried out by France, Ireland, Spain and UK with each country having significant sampling plans to cover landings and discards. The ranking for this region has been heavily influenced by the effort, landings and value associated with crustacean and small pelagic species. Although several métiers were ranked out at regional level, sampling plans for landings and discards are in place at national level. Details of all information related to this section are presented in Annex 3, Tables 6.a-e.

The métiers retained for sampling coordination at the regional level are the following:

	MS involved	Metier Desc. sheet	Monitored On shore	Monitored At sea	Comm.
FPO_CRU_0_0_0	UK IRL (s) GER (s)	X X X	234 30	24 30	
OTB_CRU_70-99_0_0	UK	X	606	72	
OTB_DEF_100-119_0_0	ESP FRA	X X	10 8	2(a) 10	 1

	MS involved	Metier Desc. sheet	Monitored On shore	Monitored At sea	Comm.
	IRL UK GER (s)	X X	30 36	24 42	
DRB_MOL_0_0_0	UK IRL (s)	-	138		2
LLS_DEF_0_0_0	ESP UK FRA (s)	X -	36 -		3
OTB_DEF_>=120_0_0	UK GER (s)	X	84	24	
OTM_SPF_32-69_0_0	GER NL UK FRA (s) IRL (s)	X X X X	- - 162	- - 51	4
OTB_DWS_100-119_0_0	FRA	-	4	10	5
PTM_SPF_32-69_0_0	IRL UK	X X	120	12	
OTM_DEF_70-99_0_0	FRA	-	Self-samp.		6

(a) 20 trips planned to be sampled at sea by Spain for this metier and OTB_DEF_70-99_0_0 and OTB_DEF_100-119_0_0 in West of Ireland, among which 2 are expected to operate in West of Scotland.

- OTB_DEF_100-119_0_0 : France should plan onboard observations for this metier. This metier is a candidate for coordination seeking.
- DRB_MOL_0_0_0 : Metier description should be provided by UK.
- LLS_DEF_0_0_0 : Metier description should be provided by UK.
- OTM_SPF_32-69_0_0 : Expected number of samples falling in this fishing ground should be provided by Germany and The Netherlands.
- OTB_DWS_100-119_0_0 : metier description to be provided by France for this metier
- OTM_DEF_70-99_0_0 : trawling for blue whiting (*Micromesistius poutassou*). A self sampling is carried out by France and metier description should be provided.

West of Ireland (ICES Divisions VIIb, VIIc, VIIj and VIIk)

From a total of 60 métiers operating in this area, 9 métiers have been ranked as cumulating 90% of the fishing activities at the level of area West of Ireland, i.e. ICES Divisions VIIb, VIIc, VIIj and VIIk. Six MS operate in this area, namely, France, Germany, Ireland, Spain, The Netherlands and UK. A feature of fishing activity in this area is the high level of effort associated to particular MS but actually fished by "Flag" vessels, with a high proportion of landings going abroad or landed in Ireland and transhipped for first sale elsewhere. Details of all information related to this section are presented in Annex 3, Tables 7.a-e.

The métiers retained for sampling coordination at the regional level are the following:

	MS involved	Metier Desc. sheet	Monitored On shore	Monitored At sea	Comm.
OTB_DEF_70-99_0_0	ESP FRA (s) UK (s)	X X	46(a)	9(b)	1
LLS_DEF_0_0_0	ESP UK FRA (s)	X X	24 -		2
OTB_DEF_100-119_0_0	ESP FRA IRL UK	X - X X	46(a) 5 24 -	9(b) 4 24 -	3
GNS_DEF_120-219_0_0	ESP FRA UK (s)	X - X	36 -	- 4	4
FPO_CRU_0_0_0	IRL GER (s) UK (s)	-	9		5
OTB_CRU_70-99_0_0_0	IRL	-	18	39	6
GNS_DEF_>=220_0_0	FRA GER IRL UK	- - - -	- - 42 BA (ESP)	4 - 24 -	7
OTM_SPF_32-69_0_0	FRA IRL NL UK GER (s)	- - - -	BA (NL) - 36 27	BA (NL) - 10 15	8
PTM_SPF_32-69_0_0	IRL NL (s) UK (s)	-	-	-	9

(a) 92 trips planned to be sampled on shore by Spain for both these metiers.

(b) 20 trips planned to be sampled at sea by Spain for these metiers and OTB_DEF_100-119_0_0 in West of Scotland.

- OTB_DEF_70-99_0_0 : Samples to be planned (better at sea) by Spain.
- LLS_DEF_0_0_0 : Samples to be planned by UK.
- OTB_DEF_100-119_0_0 : Metier description sheet to be provided by France. This metier is a candidate for coordination seeking, as its counterpart in Western Scotland (ICES Sub-area VI).
- GNS_DEF_120-219_0_0 : Metier description sheet to be provided by France.
- FPO_CRU_0_0_0 : Metier description sheet to be provided by Ireland.
- OTB_CRU_70-99_0_0 : Metier description sheet to be provided by Ireland.
- GNS_DEF_>=220_0_0: Metier description sheet to be provided by France, Germany, Ireland and UK. Sampling to be planned by France and Germany. This metier is a candidate for coordination seeking.
- OTM_SPF_32-69_0_0 : Metier description to be provided by France, Ireland, the Netherlands and UK. Sapling plan to be provided by Ireland.
- PTM_SPF_32-69_0_0 : Metier description sheet and sampling plan to be provided by Ireland.

Iberian (ICES division s VIIIc and IXa)

From a total of 31 métiers operating in this area, 24 métiers have been ranked as cumulating 90% of the fishing activities at the level of Iberian area, i.e. ICES Divisions VIIIc, and IXa. Three MS operate in this area, namely, Spain, Portugal, and France.

The métiers retained for sampling coordination at the regional level are the following:

	MS involved	Metier Desc. sheet	Monitored On shore	Monitored At sea	Comm.
FPO_MOL_0_0_0	ESP	X	60	-	
FPO_MOL_>=29_0_0	PRT	X	250	-	
GNS_DEF_>=100_0_0	ESP PRT	X X	72 250(b)	10(a) 4(c)	
GNS_DEF_80-99_0_0	ESP PRT	- X	102(b) 250(b)	10(a) 4(c)	
GNS_DEF_60-79_0_0	ESP PRT	- X	102(b) 250(b)	10(a) 4(c)	
LLS_DEF_0_0_0	ESP PRT FRA (s)	X X	84 80 1	- - -	

	MS involved	Metier Desc. sheet	Monitored On shore	Monitored At sea	Comm.
LLS_DWS_0_0_0	ESP PRT	X X	24 60	 12	
OTB_DEF_>=55_0_0	ESP FRA (s)	X	216	41(d)	
OTB_DEF_65-69_0_0	PRT	X	1016	27	
PS_SPF_0_0_0	ESP	X	1172	8	
PS_SPF_>=16_0_0	PRT	X	600	24	
OTB_CRU_>=70_0_0	PRT	X	28(e)	6(f)	
OTB_CRU_55-59_0_0	PRT	X	29(e)	6(f)	
LLD_LPF_0_0_0	PRT	X	60	-	
GTR_DEF_>=100_0_0	PRT	X	325(g)	-	
GTR_DEF_80-99_0_0	PRT	X	325(g)	-	
FYC_CAT_>=20_0_0	PRT	X	88	-	
TBB_CRU_>=20_0_0	PRT	X	100	36	
DRB_MOL_0_0_0	ESP PRT		- -	- -	
OTB_DES_>=55_0_0	ESP	X	-	96	
PTB_DEF_>=55_0_0	ESP	X	106	47	
OTB_MPD_>=55_0_0	ESP	X	156	40(d)	
LHM_SPF_0_0_0	ESP	X	130		

(a) 30 trips planned to be sampled for GNS_DEF_>=100_0_0 and GNS_DEF_60-79_0_0 and GNS_DEF_80-99_0_0 by Spain;

(b) Total of 750 trips to be sampled on shore by Portugal for metiers GNS_DEF_60-79_0_0, GNS_DEF_80-99_0_0 and GNS_DEF_>=100_0_0;

(c) Total of 12 trips planned to be sampled at sea by Portugal for metiers GNS_DEF_60-79_0_0, GNS_DEF_80-99_0_0 and GNS_DEF_>=100_0_0. As usually metiers making use of gillnets and trammel nets are operated by the same vessels, sampling may also cover metiers with trammel nets as gear type;

(d) 81 trips planned to be sampled for both OTB_DEF and OTB_MPD by Spain;

(e) Total 57 trips planned to be sampled on shore by Portugal for both OTB_CRU_55-59_0_0 and OTB_CRU_>=70_0_0;

(f) Total of 12 trips to be sampled at sea for both OTB_CRU_55-59_0_0 and OTB_CRU_>=70_0_0;

(g) Total of 650 trips to be sampled on shore by Portugal for both GTR_DEF_80-99_0_0 and GTR_DEF_>=100_0_0;

(h) Total of 204 trips to be sampled on shore for both GNS_DEF_60-79_0_0 and GNS_DEF_80-99_0_0

1. FPO_MOL_0_0_0: It is included in Spain sampling programme and there isn't further scope for task sharing as fisheries do not overlap with FPO_MOL_>=29_0_0 which is sampled by Portugal;
2. FPO_MOL_>=29_0_0: It is included in Portugal sampling programme. As about 15% of the total effort made by the fleet operating throughout the Portuguese mainland coast results on fishing with traps mesh size >=29 mm, Portugal could define the metier at level 6 and selected >FPO_MOL_>=29_0_0 for sampling;
3. GNS_DEF_>=100_0_0: At this moment it is possible for Portugal to separate effort and total landings information for GNS_DEF_60-79_0_0, GNS_DEF_80-99 and GNS_DEF_>=100, although, since these metiers are usually operated by the same vessels at uncertain times, for expected sampling purposes it is counted together. Spain and Portugal, both sampling for landings and discards but no further scope for task sharing as fisheries do not overlap;
4. GNS_DEF_80-99_0_0: At this moment it is possible for Portugal to separate effort and total landings information for both metiers, GNS_DEF_60-79_0_0, GNS_DEF_80-99 and GNS_DEF_>=100, although, since these metiers are usually operated by the same vessels at uncertain times, for expected sampling purposes it is counted together;
5. GNS_DEF_60-79_0_0: At this moment it is possible for Portugal to separate effort and total landings information for both metiers, GNS_DEF_60-79_0_0, GNS_DEF_80-99 and GNS_DEF_>=100, although, since these metiers are usually operated by the same vessels at uncertain times, for expected sampling purposes it is counted together;
6. LLS_DEF_0_0_0: Spain and Portugal, both sampling for landings but no further scope for task sharing as fisheries do not overlap;
7. LLS_DWS_0_0_0: Spain and Portugal, both sampling for landings and discards but no further scope for task sharing as fisheries do not overlap;
8. OTB_DEF_>=55_0_0: It is included in Spain sampling programme for landings and discards. There isn't further scope for task sharing as fisheries do not overlap with OTB_DEF_65-69_0_0 which is sampled by Portugal;
9. OTB_DEF_65-69_0_0: It is included in Portugal sampling programme for landings and discards. As Portugal can achieve information on effort and total landings at this level, for sampling purposes it was define the metier OTB_DEF_65-69_0_0;
10. PS_SPF_0_0_0: It is included in Spain sampling programme for landings and discards. There isn't further scope for task sharing as fisheries do not overlap with PS_SPF_>=16_0_0 define by Portugal;
11. PS_SPF_>=16_0_0: It is included in Portugal sampling programme for landings and discards. As the use of purse sein mesh size >=16 mm represents about 60% of the total landings and more than 51% of the total value throughout Portuguese mainland coast, Portugal could selected this metier at level 6;
12. OTB_CRU_>=70_0_0: At this moment it is possible for Portugal to separate effort and total landings information for both metiers, OTB_CRU_55-59_0_0 and OTB_CRU_>70_0_0, although, since these metiers are usually operated by the same vessels at uncertain times, for expected sampling purposes it is counted together. Both metiers are included in Portugal sampling programme for landings and discards.
13. LLD_LPF_0_0_0: Portugal is the only country with activity in this metier. It is included

in Portugal sampling program;

14. GTR_DEF_>=100_0_0: At this moment it is possible for Portugal to separate effort and total landings information for both metiers, GTR_DEF_80-99_0_0 and GTR_DEF_>=100, although, since these metiers are usually operated by the same vessels at uncertain times, for expected sampling purposes it is counted together. Both metiers are included in Portugal sampling programme. Spain and Portugal have activity in this metier but no further scope for task sharing as fisheries do not overlap;
15. FYC_CAT_>=20_0_0: It is included in Portugal sampling programme. Portugal is the only country with activity in this metier;
16. TBB_CRU_>=20_0_0: It is included in Portugal sampling program for landings and discards. Portugal is the only country with activity in this metier;
17. DRB_MOL_0_0_0: No sampling program;
18. OTB_DES_>=55_0_0: It is included in Spain sampling program for landings and discards. Spain is the only country with activity in this metier;
19. PTB_DEF_>=55_0_0: It is included in Spain sampling program for landings and discards. Spain is the only country with activity in this metier;
20. OTB_MPD_>=55_0_0: It is included in Spain sampling program for landings and discards. Spain is the only country with activity in this metier;
21. LHM_SPF_0_0_0: It is included in Spain sampling program for landings. Spain is the only country with activity in this metier.

Azores (ICES Division X)

From a total of 9 métiers operating in this area, 5 métiers have been ranked as cumulating 90% of the fishing activities at the level of Azores, i.e. ICES Division X. Only Portugal operate in this fishing ground. Details of all information related to this section are presented in Annex 3, Tables 9.a-e.

	MS involved	Metier Desc. sheet	Monitored On shore	Monitored At sea	Comm.
LHM_FIF_0_0_0	PRT		1416	144	
LHM_CEP_0_0_0	PRT		1050		
LLS_DEF_0_0_0	PRT		456	144	
PS_SPF_16-31_0_0	PRT		450		
LHP_FIF_0_0_0	PRT		270		

ANNEX VI - Naming convention for stocks

Region	Scientific_name	Area/Stock	RFMO	Group
North Atlantic	Alepocephalus bairdii	VI, XII	ICES	G2
North Atlantic	Ammodytidae	VIa	ICES	G2
North Atlantic	Anguilla anguilla	V, VI, VII (excluding d), VIII, IX, X, XII, XIV	ICES	G1
North Atlantic	Aphanopus spp	V, VI, VII (excluding d), VIII, IX, X, XII, XIV	ICES	G1
North Atlantic	Argentina spp	V, VI, VII (excluding d), VIII, IX, X, XII, XIV	ICES	G2
North Atlantic	Argyrosomus regius	V, VI, VII (excluding d), VIII, IX, X, XII, XIV	ICES	G2
North Atlantic	Aspitrigla cuculus	V, VI, VII (excluding d), VIII, IX, X, XII, XIV	ICES	G2
North Atlantic	Beryx spp	V, VI, VII (excluding d), VIII, IX, XII, XIV	ICES	G1
North Atlantic	Beryx spp	IXa, X	ICES	G1
North Atlantic	Cancer pagurus	V, VI, VII (excluding d), VIII, IX, X, XII, XIV	ICES	G2
North Atlantic	Centrophorus granulosus	V, VI, VII (excluding d), VIII, IX, X, XII, XIV	ICES	G1
North Atlantic	Centrophorus squamosus	V, VI, VII (excluding d), VIII, IX, X, XII, XIV	ICES	G1
North Atlantic	Centroscyllium fabricii	V, VI, VII, XII	ICES	G1
North Atlantic	Centroscymnus coelolepis	V, VI, VII (excluding d), VIII, IX, X, XII, XIV	ICES	G1
North Atlantic	Centroscymnus crepidater	V, VI, VII, IX, X, XII	ICES	G1
North Atlantic	Cetorhinus maximus	V, VI, VII (excluding d), VIII, IX, X, XII, XIV	ICES	G1
North Atlantic	Clupea harengus	VIa	ICES	G1
North Atlantic	Clupea harengus	VIaN	ICES	G1
North Atlantic	Clupea harengus	VIa S, VIIbc	ICES	G1
North Atlantic	Clupea harengus	VIIa	ICES	G1
North Atlantic	Clupea harengus	VIIj	ICES	G1
North Atlantic	Conger conger	V, VI, VII (excluding d), VIII, IX, XII, XIV	ICES	G2
North Atlantic	Conger conger	X	ICES	G2
North Atlantic	Coryphaenoides rupestris	V, VI, VII (excluding d), VIII, IX, X, XII, XIV	ICES	G1
North Atlantic	Dalatias licha	V, VI, VII (excluding d), VIII, IX, X, XII, XIV	ICES	G1
North Atlantic	Dasyatis pastinaca	VII, VIII	ICES	G1
North Atlantic	Deania calcea	V, VI, VII, IX, X, XII	ICES	G1
North Atlantic	Dicentrarchus labrax	V, VI, VII (excluding d), VIII, X, XII, XIV	ICES	G2
North Atlantic	Dicentrarchus labrax	IX	ICES	G2
North Atlantic	Dicologoglosa cuneata	VIIIc, IX	ICES	G2
North Atlantic	Dipturus batis	V, VI, VII, VIII	ICES	G1
North Atlantic	Dipturus oxyrinchus	V, VI, VII, VIII	ICES	G1
North Atlantic	Engraulis encrasicolus	IXa (only Cadix)	ICES	G1
North Atlantic	Engraulis encrasicolus	VIII	ICES	G1
North Atlantic	Etmopterus spinax	VI, VII, VIII	ICES	G1
North Atlantic	Eutrigla gurnardus	VIId, e	ICES	G2
North Atlantic	Gadus morhua	Va	ICES	G1
North Atlantic	Gadus morhua	Vb	ICES	G1
North Atlantic	Gadus morhua	VIa	ICES	G1
North Atlantic	Gadus morhua	Vib	ICES	G1
North Atlantic	Gadus morhua	VIIa	ICES	G1
North Atlantic	Gadus morhua	VIIe-k	ICES	G1
North Atlantic	Galeus melastomus	VI, VII, VIII, IX, X	ICES	G1
North Atlantic	Glyptocephalus cynoglossus	VI, VII	ICES	G2
North Atlantic	Helicolenus dactylopterus	V, VI, VII (excluding d), VIII, IX, X, XII, XIV	ICES	G2
North Atlantic	Homarus gammarus	V, VI, VII (excluding d), VIII, IX, X, XII, XIV	ICES	G2
North Atlantic	Hoplostethus atlanticus	V, VI, VII (excluding d), VIII, IX, X, XII, XIV	ICES	G1
North Atlantic	Isurus oxyrinchus	V, VI, VII (excluding d), VIII, IX, X, XII, XIV	ICES	G1
North Atlantic	Lamna nasus	V, VI, VII (excluding d), VIII, IX, X, XII, XIV	ICES	G1
North Atlantic	Lepidopus caudatus	IXa	ICES	G2
North Atlantic	Lepidorhombus boscii	VIIIc, IXa	ICES	G1
North Atlantic	Lepidorhombus whiffiagonis	VI	ICES	G1
North Atlantic	Lepidorhombus whiffiagonis	VII, VIIIabd	ICES	G1
North Atlantic	Lepidorhombus whiffiagonis	VIIIc, IXa	ICES	G1
North Atlantic	Leucoraja circularis	VI, VII, VIII	ICES	G1
North Atlantic	Leucoraja fullonica	V, VI, VII, VIII	ICES	G1
North Atlantic	Limanda limanda	VIIe	ICES	G2
North Atlantic	Limanda limanda	VIIa, f-h	ICES	G2
North Atlantic	Loligo vulgaris	V, VI, VII (excluding d), VIIIabde, IXb, X, XII, XIV	ICES	G2
North Atlantic	Loligo vulgaris	VIIIc, IXa	ICES	G2
North Atlantic	Lophius budegassa	IV, VI	ICES	G1
North Atlantic	Lophius budegassa	VIIb-k, VIIIabd	ICES	G1
North Atlantic	Lophius budegassa	VIIIc, IXa	ICES	G1
North Atlantic	Lophius piscatorius	IV, VI	ICES	G1
North Atlantic	Lophius piscatorius	VIIb-k, VIIIabd	ICES	G1
North Atlantic	Lophius piscatorius	VIIIc, IXa	ICES	G1
North Atlantic	Mallotus villosus	XIV	ICES	G2
North Atlantic	Melanogrammus aeglefinus	Va	ICES	G1
North Atlantic	Melanogrammus aeglefinus	Vb	ICES	G1
North Atlantic	Melanogrammus aeglefinus	VIa	ICES	G1
North Atlantic	Melanogrammus aeglefinus	Vib	ICES	G1
North Atlantic	Melanogrammus aeglefinus	VIIa	ICES	G1
North Atlantic	Melanogrammus aeglefinus	VIIb-k	ICES	G1
North Atlantic	Merlangius merlangus	VIII	ICES	G2
North Atlantic	Merlangius merlangus	IX, X	ICES	G2
North Atlantic	Merlangius merlangus	Vb	ICES	G1
North Atlantic	Merlangius merlangus	VIa	ICES	G1
North Atlantic	Merlangius merlangus	Vib	ICES	G1
North Atlantic	Merlangius merlangus	VIIa	ICES	G1
North Atlantic	Merlangius merlangus	VIIe-k	ICES	G1

ANNEX VI - Naming convention for stocks

Region	Scientific_name	Area/Stock	RFMO	Group
North Atlantic	Merluccius merluccius	IIIa, IV, VI, VII, VIIIab	ICES	G1
North Atlantic	Merluccius merluccius	VIIIc, IXa	ICES	G1
North Atlantic	Microchirus variegatus	V, VI, VII (excluding d), VIII, IX, X, XII, XIV	ICES	G2
North Atlantic	Micromesistius poutassou	I-IX, XII, XIV	ICES	G1
North Atlantic	Microstomus kitt	V, VI, VII (excluding d), VIII, IX, X, XII, XIV	ICES	G2
North Atlantic	Molva dypterygia	V, VI, VII (excluding d), VIII, IX, XII, XIV	ICES	G1
North Atlantic	Molva dypterygia	X	ICES	G1
North Atlantic	Molva molva	V, VI, VII (excluding d), VIII, IX, X, XII, XIV	ICES	G2
North Atlantic	Mullus surmuletus	V, VI, VII (excluding d), VIII, IX, X, XII, XIV	ICES	G2
North Atlantic	Mustelus asterias	VI, VII, VIII, IX	ICES	G1
North Atlantic	Mustelus mustelus	VI, VII, VIII, IX	ICES	G1
North Atlantic	Mustelus punctulatus	VI, VII, VIII, IX	ICES	G1
North Atlantic	Myliobatis aquila	V, VI, VII (excluding d), VIII, IX, X, XII, XIV	ICES	G1
North Atlantic	Nephrops norvegicus	VI Functional Unit	ICES	G1
North Atlantic	Nephrops norvegicus	VII Functional Unit	ICES	G1
North Atlantic	Nephrops norvegicus	VIII, IX Functional Unit	ICES	G1
North Atlantic	Octopus vulgaris	V, VI, VII (excluding d), VIIIabde, IXb, X, XII, XIV	ICES	G2
North Atlantic	Octopus vulgaris	VIIIc, IXa	ICES	G2
North Atlantic	Pagellus bogaraveo	IXa, X	ICES	G1
North Atlantic	Pandalus spp	V, VI, VII (excluding d), VIII, IX, X, XII, XIV	ICES	G2
North Atlantic	Parapenaeus longirostris	IXa	ICES	G2
North Atlantic	Phycis blennoides	V, VI, VII (excluding d), VIII, IX, X, XII, XIV	ICES	G2
North Atlantic	Phycis phycis	V, VI, VII (excluding d), VIII, IX, X, XII, XIV	ICES	G2
North Atlantic	Pleuronectes platessa	VIIa	ICES	G1
North Atlantic	Pleuronectes platessa	VIIe	ICES	G1
North Atlantic	Pleuronectes platessa	VIIfg	ICES	G1
North Atlantic	Pleuronectes platessa	VIIbc	ICES	G1
North Atlantic	Pleuronectes platessa	VIIh-k	ICES	G1
North Atlantic	Pleuronectes platessa	VIII, IX, X	ICES	G1
North Atlantic	Pollachius pollachius	V, VI, VII (excluding d), VIII, XII, XIV	ICES	G2
North Atlantic	Pollachius pollachius	IX, X	ICES	G2
North Atlantic	Pollachius virens	Va	ICES	G1
North Atlantic	Pollachius virens	Vb	ICES	G1
North Atlantic	Pollachius virens	IV, IIIa, VI	ICES	G1
North Atlantic	Pollachius virens	VII, VIII	ICES	G2
North Atlantic	Polyprion americanus	X	ICES	G2
North Atlantic	Prionace glauca	V, VI, VII (excluding d), VIII, IX, X, XII, XIV	ICES	G1
North Atlantic	Psetta maxima	V, VI, VII (excluding d), VIII, IX, X, XII, XIV	ICES	G2
North Atlantic	Pteroplatytrygon violacea	V, VI, VII (excluding d), VIII, IX, X, XII, XIV	ICES	G1
North Atlantic	Raja alba	IX	ICES	G1
North Atlantic	Raja brachyura	VII, IX	ICES	G1
North Atlantic	Raja clavata	V, VI, VII (excluding d), VIII, IX, X, XII, XIV	ICES	G1
North Atlantic	Raja microocellata	VII, IX	ICES	G1
North Atlantic	Raja miraletus	IX	ICES	G1
North Atlantic	Raja montagui	V, VI, VII (excluding d), VIII, IX, X, XII, XIV	ICES	G1
North Atlantic	Raja naevus	V, VI, VII (excluding d), VIII, IX, X, XII, XIV	ICES	G1
North Atlantic	Raja radiata	V	ICES	G1
North Atlantic	Rajidae nei	V, VI, VII (excluding d), VIII, IX, X, XII, XIV	ICES	G1
North Atlantic	Reinhardtius hippoglossoides	V, XIV	ICES	G1
North Atlantic	Reinhardtius hippoglossoides	VI	ICES	G1
North Atlantic	Salmo salar	V, VI, VII (excluding d), VIII, IX, X, XII, XIV	ICES	G1
North Atlantic	Sardina pilchardus	VIIIabd	ICES	G1
North Atlantic	Sardina pilchardus	VIIIc, IXa	ICES	G1
North Atlantic	Scomber japonicus	VIII, IX	ICES	G2
North Atlantic	Scomber scombrus	II, IIIa, IV, V, VI, VII, VIII, IX	ICES	G1
North Atlantic	Scophthalmus rhombus	V, VI, VII (excluding d), VIII, IX, X, XII, XIV	ICES	G2
North Atlantic	Sebastes marinus	V, VI, XII, XIV, SA 2+ (Div. 1F+3K)	ICES	G1
North Atlantic	Sebastes mentella	V, VI, XII, XIV, SA 2+ (Div. 1F+3K)	ICES	G1
North Atlantic	Sepia officinalis	V, VI, VII (excluding d), VIII, IX, X, XII, XIV	ICES	G2
North Atlantic	Solea solea	VIIa	ICES	G1
North Atlantic	Solea solea	VIIfg	ICES	G1
North Atlantic	Solea solea	VIIbc	ICES	G1
North Atlantic	Solea solea	VIIhjk	ICES	G1
North Atlantic	Solea solea	IXa	ICES	G1
North Atlantic	Solea solea	VIIIc	ICES	G1
North Atlantic	Solea solea	VIIe	ICES	G1
North Atlantic	Solea solea	VIIIab	ICES	G1
North Atlantic	Sparidae	V, VI, VII (excluding d), VIII, IX, X, XII, XIV	ICES	G2
North Atlantic	Squalus acanthias	V, VI, VII (excluding d), VIII, IX, X, XII, XIV	ICES	G1
North Atlantic	Squatina squatina	V, VI, VII (excluding d), VIII, IX, X, XII, XIV	ICES	G1
North Atlantic	Torpedo marmorata	VIII	ICES	G1
North Atlantic	Trachurus mediterraneus	VIII, IX	ICES	G2
North Atlantic	Trachurus picturatus	X	ICES	G2
North Atlantic	Trachurus trachurus	IIa, IVa, Vb, VIa, VIIa-c, e-k, VIIIabde	ICES	G2
North Atlantic	Trachurus trachurus	X	ICES	G2
North Atlantic	Trachurus trachurus	VIIIc, IXa	ICES	G2
North Atlantic	Trisopterus spp	V, VI, VII (excluding d), VIII, IX, X, XII, XIV	ICES	G2
North Atlantic	Zeus faber	V, VI, VII (excluding d), VIII, IX, X, XII, XIV	ICES	G2

Rajidae nei, Shark-like	To be defined by species according to landing, survey or catch data, as specified in footnote c of Appendix VII
IV Functional unit	To be defined by Functional unit, ex: IV FU05

Table 1 – Overview of sampling for age. Sum of Planned minimum No of individuals to be measured at a national level

RECregion	North Atlantic
Sampling year	**2011-2013**
Variable (*)	**ALK**

Sum of Planned minimum No of individuals to be m			MS								
RECspecies	RECarea	Group speci	BEL	ESP	FRA	GER	IRL	NL	PRT	UK	Gran total
Ammodytidae	**VIa**	G2									
Aphanopus spp	IX	G1								7500	7500
	X									150	150
	V,VI,VII (excl. VIId), VIII, XII,XIV										
Argentina spp	All areas	G2							900		900
Argyrosomus regius	**V,VI,VII (excl. VIId), VIII, IX,X, XII,XIV**	G2									
Aspitrigla cuculus	All areas	G2				3000				900	3900
	X									100	100
Beryx spp.	**all areas, excluding X and IXa**	G1									
Beryx spp	X	G1								1200	1200
Clupea harengus	Via	G1					6450			6000	12450
	VIa S, VIIbc						6000				6000
	Via,VIIbc								750		750
	VIIa						6000			4000	10000
	VIIj						3000				3000
Conger conger	All areas	G2			117						117
	X									125	125
Coryphaenoides rupestris	All areas	G1				1500					1500
	VI, XII				900						900
Dicentrarchus labrax	All areas	G2				3000				3675	6675
	IX										
Dicologlossa cuneata	VIIIc, IX	G2			60						60
Engraulis encrasicolus	IXa (only Cadix)	G1			3000						3000
	VIII				3000	1800					4800
Eutrigla gurnardus	**VIId,e**	G2									
Gadus morhua	NAFO div.	G1			0					27000	27000
	Vb									450	450
	Via									1050	1050
	Vib									60	60
	VIIa			75			3000			3600	6675
	VIIe-k					3600	4500			3750	11850
Glyptocephalus cynoglossus	NAFO div.	G2			0					4500	4500
	VI, VII									105	105
Helicolenus dactylopterus	All areas	G2			102						102
	X									900	900
Hoplostethus atlanticus	**V,VI,VII (excl. VIId), VIII, IX,X, XII,XIV**	G1									
Hippoglossoides platessoides	NAFO div.	G2			0					7500	7500
Lepidorhombus boscii	IX	G1								15000	15000
	VIIIc, IX				900						900
Lepidorhombus spp	VII, VIIIabd	G1				1500					1500
Lepidorhombus whiffiagonis	IX	G1								600	600
	VI						2250			1800	4050
	VII, VIIIabd				3000		6000			3750	12750
	VIIIc, IX				900						900
Limanda ferruginea	NAFO div.	G2			0						0
Limanda limanda	**VIIe/VIIa,f-h**	G2									
Lophius budegassa	IIIa, IV, VI	G1			1200		300				1500
	VI									39	39
	VIIb-k, VIIIabd						2250			135	2385
	VIIIc, IX				600						600
Lophius piscatorius	IIIa, IV, VI	G1			2010		2250				4260
	VI									2250	2250
	VIIb-k, VIIIabd						3000			1050	4050
	VIIIc, IX				1200						1200
Lophius piscatorius & budegassa	VIIb-k, VIIIabd	G1				3600					3600
Mallotus villosus	**XIV**	G2									
Macrouridae	NAFO div.				750						750
Macrourus berglax	NAFO div.									30000	30000
Melanogrammus aeglefinus	Vb	G1								450	450
	Via						3000			9000	12000
	Vib									900	900
	VIIa						2250			4400	6650
	VIIb-k					3000	6000			2550	11550
Merlangius merlangius	Vb	G2								60	60
	Via						2250			3600	5850
	VIIa						2250			6000	8250
	VIII					1290					1290
	VIIe-k					4500	4500			1800	10800

ANNEX VII - Stock variable sampling (Table 1 : Age)

Sum of Planned minimum No of individuals to be m			MS								
RECspecies	RECarea	Group speci	BEL	ESP	FRA	GER	IRL	NL	PRT	UK	Gran total
Merluccius merluccius		G1									
	IX								60000		60000
	Northeast Atlantic			150							150
	VIIIc, Ixa				1200						1200
	IIIa, IV, VI, VII, VIIIab				1800	6000				2751	10551
Microchirus variegatus	**V,VI,VII (excl. VIId), VIII, IX,X, XII,XIV**	G2									
Micromesistius poutassou		G1									
	IX								15000		15000
	I-IX, XII, XIV				2100		1500	6000			9600
Microstomus kitt	All areas	G2				300				1800	2100
Molva dypterygia	All areas	G1				1350					1350
	X								375		375
Molva molva	All areas	G2			177	900				600	1677
Mullus surmuletus	All areas	G2				1500					1500
	X								125		125
Pagellus bogaraveo	IX, X	G1			150						150
	X								1500		1500
Pandalus spp	NAFO div.	G2			0						0
Pecten maximus	VI									2500	2500
Phycis blennoides	All areas	G2			135						135
	X								50		50
Phycis phycis	**V,VI,VII (excl. VIId), VIII, IX, XII,XIV**	G2									
Phycis phycis	X	G2							300		300
		G1									
Pleuronectes platessa	VIIa			1350				1500		9000	11850
	VIIe									7200	7200
	VIIfgh			600				2250		3600	6450
	VIIhjk							2250			2250
	VIIbc							750			750
	VIII, IX, X										
		G2									
Pollachius pollachius	IX, X				168						168
	VII, VIII									450	450
	V,VI,XII,XIV										
Pollachius virens	VII, VIII	G1						1500		150	1650
	Va/Vb/IV, IIIa, VI										
Polyprion americanus		G2									
	X								375		375
Psetta maxima	All areas	G2								450	450
Raja brachyura	IX	G1							3000		3000
Raja clavata	IX	G1							7500		7500
Raja montagui	IX	G1							3000		3000
Raja naevus	IX	G1							450		450
Raja spp	NAFO div.	G1			0				4500		4500
Reinhardtius hippoglossoides		G1									
	NAFO div.				3000				48000		51000
	V, XIV						1800				1800
Salmo salar	**V,VI,VII (excl. VIId), VIII, IX,X, XII,XIV**	G1									
Sardina pilchardus	IX	G1							69000		69000
	VIIIabd				6000	3600					9600
	VIIIc										
Scomber japonicus	IX	G2							13500		13500
	VIIIc, IX				810						810
Scomber scombrus	II, IIIa, IV, V, VI, VII, VIII, IX	G1			6000		1200	9000	2925	11282	30407
	IX								22500		22500
Scophthalmus rhombus	All areas	G2								528	528
Sebastes marinus	NAFO div.	G1							1500		1500
Sebastes mentella	ICES Sub areas V, VI, XII, XIV & NAFO SA 2 + (Div. 1F + 3K) SA1	G1			1350						1350
	XII,XIV								8400		8400
Sebastes spp	NAFO div.	G1			120				63000		63120
Solea senegalenses	IX								10500		10500
Solea vulgaris	IX	G1							9000		9000
	VIIa			1500				1500		2250	5250
	VIIe					2100				7200	9300
	VIIfgh			2100				750		4500	7350
	VIIhjk							1500		1350	2850
	VIIIabd			600		5400					6000
	VIIbc							1500			1500
	VIIIc										
Sparidae	X	G2							200		200
	V,VI,VII (excl. VIId), VIII, IX, XII,XIV										
Trachurus mediterraneus	VIIIc, IX	G2			42						42
Trachurus picturatus	IX	G2							0		0
	X								375		375
Trachurus trachurus	IIa, IVa, Vb, VIa, VIIa-c, e-k, VIIabde	G2			3000		1200	9000	3750	100	17050
	IX								69000		69000
	VIIIc, IX				2100						2100
Trisopterus luscus	All areas				66	600					666
Trisopterus spp	IIa, IVa, Vb, VIa, VIIa-c, e-k, VIIabde	G2								900	900
	IX								60000		60000
	VIII,X, XII,XIV										
Zeus faber	X	G2							250		250
	V,VI,VII (excl. VIId), VIII, IX, XII,XIV										
Grand Total			6375	45957	48540	5700	102750	8325	565975	117985	901607

ANNEX VII - Stock variable sampling (Table 2 : Sex)

Table 2 – Overview of sampling for sex. Sum of Planned minimum No of individuals to be measured at a national level

RECregion North Atlantic
Sampling year 2011-2013
Variable (*) sex ratio

					MS								
Species group (a)	**T/Y**	**RECspecies**	**Species (Engl.)**	**RECarea**	**BEL**	**ESP**	**FRA**	**GER**	**IRL**	**NL**	**PRT**	**UK**	**Grand Total**
G2	T	*Alepocephalus bairdii*	Smoothhead	VI, XII		4500							4500
G1	**T**	***Anguilla anguilla***	**European Eel**	**V,VI,VII (excl. VIId), VIII, IX,X, XII,XIV**									
G1	Y	*Aphanopus spp*	Scabbardfish	IX							7500		7500
				X							150		150
G2	T	*Argentina spp*	Argentine	All areas						900			900
G2	**T**	***Argyrosomus regius***	**Meagre**	**V,VI,VII (excl. VIId), VIII, IX,X, XII,XIV**									
G2	T	*Aspitrigla cuculus*	Red gurnard	All areas			600						600
				X							100		100
G1	**Y**	***Beryx spp.***	**Alfonsinos**	**all areas, excluding X and IXa**									
				X							1200		1200
G2	T	*Cancer pagurus*	Edible crab	All areas								32500	32500
				V, VI, VII (excluding d), VIII, IX, X, XII, XIV					3000				3000
G1	T	*Centrophorus granulosos*	Gulper shark	X							30		30
G1	**T**	***Centrophorus squamosus***	**Leafscale gulper shark**	**V,VI,VII (excl. VIId), VIII, IX,X, XII,XIV**									
G1	**T**	***Centroscymnus coelolepis***	**Portuguese dogfish**	**V,VI,VII (excl. VIId), VIII, IX,X, XII,XIV**									
G1	Y	*Clupea harengus*	Herring	VIa					6450			4500	10950
				VIa S, VIIbc					6000				6000
				VIa,VIIbc						750			750
				VIIa					6000			1800	7800
				VIIj					3000				3000
G2	T	*Conger conger*	Conger	All areas		300							300
				X							125		125
G1	Y	*Coryphaenoides rupestris*	Roundnose grenadier	VI, XII		9000							9000
		Dalatias licha		X							30		30
G1	**Y**	***Deania calcea***	**Birdbeak dogfish**	**V,VI,VII (excl. VIId), VIII, IX,X, XII,XIV**									
G2	T	*Dicentrarchus labrax*	Sea bass	All areas			600					105	705
				IX									
G1	T	*Engraulis encrasicolus*	Anchovy	IXa (only Cadix)		3000							3000
				VIII		3000	1800						4800
G2	**T**	***Eutrigla gurnardus***	**Grey gurnard**	**VIId,e**									
G1	Y	*Gadus morhua*	Cod	NAFO div.		0							0
				VIa								300	300
				VIb								30	30
				VIIa					3000			450	3450
				VIIe-k			750		4500			150	5400
		Glyptocephalus cynoglossus		NAFO div.		0							0
		Helicolenus dactylopterus		X							900		900
		Hippoglossoides platessoides		NAFO div.		0							0
G2	T	*Homarus gammarus*	Lobster	All areas								8250	8250
				V, VI, VII (excluding d), VIII, IX, X, XII, XIV					15000				15000
G1	**Y**	***Hoplostethus atlanticus***	**Orange roughy**	**V,VI,VII (excl. VIId), VIII, IX,X, XII,XIV**									
		Isurus oxyrinchus		X							30		30
		Katsuwonus pelamis		X							250		250
G2	**T**	***Lepidopus caudatus***	**Silver scarbbardfish**	**IXa**									

ANNEX VII - Stock variable sampling (Table 2 : Sex)

					MS								
Species group (a)	**T/Y**	**RECspecies**	**Species (Engl.)**	**RECarea**	**BEL**	**ESP**	**FRA**	**GER**	**IRL**	**NL**	**PRT**	**UK**	**Grand Total**
G1	Y	*Lepidorhombus boscii*	Four-spot megrim	IX							15000		15000
				VIIIc, IX		1500							1500
G1	Y	*Lepidorhombus whiffiagonis*	Megrim	IX							600		600
				VI					525			900	1425
				VIIIc, IX		1500							1500
				VII, VIIIabd		4500			2400			900	7800
		Lepidorhombus spp		VII, VIIIabd			1500						1500
		Leucoraja circularis		VII(except VIId)	0								0
		Limanda ferruginea		NAFO div.		0							0
G2	**T**	***Limanda limanda***	**Dab**	**VIIe/VIIa,f-h**									
G2	T	*Loligo vulgaris*	Common squid	IX							15000		15000
G1	Y	*Lophius budegassa*	Black-bellied angler	IIIa, IV, VI		150			30				180
				VI								39	39
				VIIb-k, VIIIabd					150			135	285
				IX							3000		3000
				VIIIc, IX		300							300
G1	Y	*Lophius piscatorius*	Anglerfish	IIIa, IV, VI		600			120				720
				VI								2250	2250
				VIIb-k, VIIIabd					450			405	855
				IX							3300		3300
				VIIIc, IX		750							750
		Lophius piscatorius & budegassa		VIIb-k, VIIIabd			900						900
		Macrouridae		NAFO div.		9000							9000
G1	**Y**	***Melanogrammus aeglefinus***	**Haddock**	**Va/Vb**									
				Via					1050			6000	7050
				VIIa					1500			3600	5100
				VIIb-k			750		3000			1500	5250
G1	Y	*Merlangius merlangus*	Whiting	Via					675			2700	3375
				VIIa					1500			4500	6000
				VIIe-k			1200		2250			900	4350
G2	T	*Merlangius merlangus*		VIII			450						450
G1	Y	*Merluccius merluccius*	Hake	IX							60000		60000
				VIIIc, Ixa		3000							3000
				IIIa, IV, VI, VII, VIIIab		3000	1500		3900			1275	9675
G1	Y	*Micromesistius poutassou*	Blue whiting	IX							15000		15000
				I-IX, XII, XIV		3000		3000	6000				12000
G2	T	*Microstomus kitt*	Lemon sole	All areas			300						300
G1	**T**	***Molva dypterygia***	**Blue ling**	**all areas, excluding X**									
				X							375		375
G2	T	*Molva molva*	Ling	All areas		300	30						330
G2	T	*Mullus surmuletus*	Striped red mullet	All areas			180						180
				X							125		125
G1	Y	*Nephrops norvegicus*	Norway lobster	FU 28, 29							45000		45000
				IXa (only Cadix)		1800							1800
				VIII, IX Funcional unit			30000						30000
				VI Functional unit								300000	300000
				VII Functional unit			60000		150000			93000	303000
G2	T	*Octopus vulgaris*	Common octopus	IX							30000		30000
				X							50		50
G1	T	*Pagellus bogaraveo*	Sea bream	IX, X		150							150
				X							1500		1500
		Pandalus spp		NAFO div.		16389							16389
G2	T	*Parapenaeus longirostris*	White shrimp	IX		1950					30000		31950
G2	T	*Phycis blennoides*	Greater Forkbeard	All areas		300							300
				X							50		50
G2	T	*Phycis phycis*	Forkbeard	X							300		300
G1	Y	*Pleuronectes platessa*	Plaice	VIIa	1350				750			4500	6600
				VIIe								3600	3600
				VIIfgh	600				600			1800	3000
				VIIhjk					300				300
				VIIbc					360				360
G2	**T**	***Pollachius pollachius***	**Pollack**	**V,VI,VII (excl. VIId), VIII, XII,XIV**									
				IX, X		300							300
G1	Y	*Pollachius virens*	Saithe	Va/Vb/IV, IIIa, VI									
G2	T	*Pollachius virens*	Saithe	VII, VIII					150			6	156
		Polyprion americanus		X							375		375
		Prionace glauca		X							30		30
G2	T	*Psetta maxima*	Turbot	All areas								450	450
G1	T	*Raja brachyura*	Blond ray	All areas								267	267
				IX							3000		3000
				VII(except VIId)	0								0
				VII, IX					150				150
G1	T	*Raja clavata*	Thornback ray	All areas			600					1362	1962
				IX							7500		7500
				V, VI, VII (excluding d), VIII, IX, X, XII, XIV					300				300
				VII(except VIId)	0								0
				X							30		30

ANNEX VII - Stock variable sampling (Table 2 : Sex)

					MS								
Species group (a)	**T/Y**	**RECspecies**	**Species (Engl.)**	**RECarea**	**BEL**	**ESP**	**FRA**	**GER**	**IRL**	**NL**	**PRT**	**UK**	**Grand Total**
G1	T	*Raja montagui*	Spotted ray	All areas			600					1095	1695
				IX							3000		3000
				V, VI, VII (excluding d), VIII, IX, X, XII, XIV					450				450
				VII(except VIId)	0								0
G1	T	*Raja naevus*	Cuckoo ray	All areas			600					537	1137
				IX							450		450
				V, VI, VII (excluding d), VIII, IX, X, XII, XIV					150				150
				VII(except VIId)	0								0
		Raja spp		NAFO div.		10500							10500
		Rajidae		All areas			600						600
G1	Y	*Reinhardtius hippoglossoides*	Greenland halibut	NAFO div.		63000							63000
		Sarda sarda		X							30		30
G1	Y	*Sardina pilchardus*	Sardine	IX							69000		69000
				VIIIabd		7500	3600						11100
G2	T	*Scomber japonicus*	Spanish mackerel	IX							13500		13500
				VIIIc, IX		900							900
G1	Y	*Scomber scombrus*	Mackerel	II, IIIa, IV, V, VI, VII, VIII, IX		7500		2400	9000	2925		6550	28375
				IX							22500		22500
G2	T	*Scophthalmus rhombus*	Brill	All areas								528	528
G1	**Y**	***Sebastes marinus***	**Golden Redfish**	**ICES Sub areas V, VI, XII, XIV & NAFO SA 2 + (Div. 1F + 3K).**									
G1	Y	*Sebastes mentella*	Deep sea Redfish	ICES Sub areas V, VI, XII, XIV & NAFO SA 2 + (Div. 1F + 3K)		24000							24000
				SA1									
		Sebastes spp		ICES Sub areas V, VI, XII, XIV & NAFO SA 2 + (Div. 1F + 3K)				450					450
G2	T	*Sepia officinalis*	Cuttlefish	All areas		600							600
		Solea senegalenses		IX							10500		10500
G1	Y	*Solea vulgaris*	Sole	IX							9000		9000
				VIIhjk					150			525	675
				VIIbc					150				150
				VIIfgh	2100				150			2250	4500
				VIIa	1500				150			900	2550
				VIIe			2100					3600	5700
				VIIIabd	600		5400						6000
		Sparidae		X							200		200
		Squaliformes		X							30		30
G1	T	*Squalus acanthias*	Spurdog	All areas									
				V, VI, VII (excluding d), VIII, IX, X, XII, XIV									
		Thunnus alalunga		X							50		50
		Thunnus obesus		X							100		100
G2	T	*Trachurus mediterraneus*	Mediterranean horse mackerel	VIIIc, IX		300							300
G2	T	*Trachurus picturatus*	Blue jack mackerel	X							375		375
G2	T	*Trachurus trachurus*	Horse mackerel	IIa, IVa, Vb, VIa, VIIa-c, e-k, VIIabde		3000		2400	9000	3750		500	18650
				IX							69000		69000
				VIIIc, IX		4800							4800
		Trisopterus spp		IX							60000		60000
		Xiphias gladius		X							50		50
G2	T	*Zeus faber*	John Dory	X							250		250
		Grand Total			**6150**	**190389**	**114060**	**8250**	**242310**	**8325**	**498585**	**494659**	**1562728**

ANNEX VII - Stock variable sampling (Table 3 : Weight)

Table 3 – Overview of sampling for weight. Sum of Planned minimum No of individuals to be measured at a national level

RECregion	North Atlantic
Sampling year	2011-2013
Variable (*)	weight@length, weight@age

	Sum of Planned minimum No of individuals to be measured at a national				MS								
Species name	RECspecies	RECarea	Group	Weight	BEL	ESP	FRA	GER	IRL	NL	PRT	UK	Grand Total
Smoothhead	Alepocephalus bairdii	VI, XII	G2	T		3600							3600
European Eel	**Anguilla anguilla**		G1	T									
Scabbardfish	Aphanopus spp	IX	G1	Y								7500	7500
		X										150	150
Argentine	Argentina sphyraena	IX	G2	T								0	0
Argentine	Argentina spp	All areas									900		900
Meagre	**Argyrosomus regius**	V,VI,VII (excl. VIId), VI	G2	T									
Red gurnard	Aspitrigla cuculus	All areas	G2	T				600					600
		X										100	100
Alfonsinos	**Beryx spp**	**All areas, excluding X**	G1	Y									
		X	G1	T								1200	1200
Edible crab	Cancer pagurus	All areas	G2	T								3000	3000
		V, VI, VII (excluding d), VIII, IX, X, XII, XIV								1500			1500
Gulper shark	Centrophorus granulosos	X	G1	T								30	30
Leafscale gulper shark	**Centrophorus squamosus**	V,VI,VII (excl. VIId), VIII, IX,X, XII,XIV	G1	T									
Portuguese dogfish	**Centroscymnus coelolepis**	V,VI,VII (excl. VIId), VIII, IX,X, XII,XIV	G1	T									
Herring	Clupea harengus	VIa	G1	Y						6450		4500	10950
		VIa S, VIIbc								6000			6000
		VIa,VIIbc									750		750
		VIIa								6000		1800	7800
		VIIj								3000			3000
Conger	Conger conger	V,VI,VII (excl. VIId), VIII, IX, XII,XIV	G2	T		300							300
		IX										0	0
Conger	Conger conger	X	G2	T								125	125
Roundnose grenadier	Coryphaenoides rupestris	VI, XII	G1	Y		4200							4200
	Dalatias licha	X										30	30
Birdbeak dogfish	**Deania calcea**	V,VI,VII (excl. VIId), VIII, IX,X, XII,XIV	G1	Y									
Sea bass	Dicentrarchus labrax	V,VI,VII (excl. VIId), VIII, X, XII,XIV	G2	T				600				105	705
Sea bass	**Dicentrarchus labrax**	IX	G2	T									
Anchovy	Engraulis encrasicolus	IXa (only Cadix)	G1	T		3000							3000
		VIII	G1	Y		3000	1800						4800
Grey gurnard	**Eutrigla gurnardus**	VIId,e	G2	T									
Cod	**Gadus morhua**	**Va/Vb**	G1	Y									
		VIa										300	300
		VIb										30	30
		VIIa								3000		450	3450
		VIIe-k						750		4500		150	5400
Bluemouth rockfish	Helicolenus dactylopterus	X	G2									900	900
Lobster	Homarus gammarus	All areas	G2	T								1200	1200
		V, VI, VII (excluding d), VIII, IX, X, XII, XIV								3000			3000
Orange roughy	**Hoplostethus atlanticus**	V,VI,VII (excl. VIId), VIII, IX,X, XII,XIV	G1	Y									
	Isurus oxyrinchus	X										30	30
	Katsuwonus pelamis	X										250	250
Silver scarbbardfish	**Lepidopus caudatus**	IXa	G2	T									
Four-spot megrim	Lepidorhombus boscii	IX	G1	Y								15000	15000
		VIIIc, IX				1500							1500
Megrim	Lepidorhombus spp	VII, VIIIabd	G1	Y			1500						1500
Megrim	Lepidorhombus whiffiagonis	IX										600	600
		VI								2250		900	3150
		VII, VIIIabd				4500				6000		900	11400
		VIIIc, IX				1500							1500
	Leucoraja circularis	VII(except VIId)			0								0
Yellowtail flounder	Limanda ferruginea	NAFO div.	G2	T		0							0
Dab	**Limanda limanda**	VIIe/VIIa,f-h	G2	T									
Common squid	Loligo vulgaris	IX	G2	T								15000	15000
Black-bellied angler	Lophius budegassa	IIIa, IV, VI	G1	Y		150				300			450
		VI										39	39
		VIIb-k, VIIIabd	G1	Y						2250		135	2385
		IX	G1	Y								3000	3000
		VIIIc, IX				300							300
Anglerfish	Lophius piscatorius	IIIa, IV, VI	G1	Y		600				2250			2850
		VI										2250	2250
		VIIb-k, VIIIabd	G1	Y						3000		405	3405
		IX	G1	Y								3300	3300
		VIIIc, IX				750							750
Anglerfish	Lophius piscatorius & budeg	VIIb-k, VIIIabd	G1	Y				900					900
Haddock	**Melanogrammus aeglefinu**	**Va/Vb**	G1	Y									
		VIa	G1	Y						3000		6000	9000
		VIb	G1	Y									
		VIIa	G1	Y						2250		3600	5850
		VIIb-k	G1	Y				750		6000		1500	8250
Whiting	**Merlangius merlangius**	**Vb**	G1	Y									
		VIa	G1	Y						2250		2700	4950
		VIb	G1	Y									
		VIIa	G1	Y						2250		4500	6750
		VIII	G1	Y				450					450
		VIIe-k	G1	Y				1200		4500		900	6600
		IX, X	G2	T									
Hake	Merluccius merluccius	IX	G1	Y								60000	60000
		VIIIc, IXa				3000							3000
		IIIa, IV, VI, VII, VIIIab				3000	1500			2000		1425	7925
Blue whiting	Micromesistius poutassou	IX	G1	Y								15000	15000
		I-IX, XII, XIV				3000			3000	6000			12000
Lemon sole	Microstomus kitt	All areas	G2	T			300						300
Blue ling	**Molva dypterygia**	**All areas, excluding X**	G1	T									
		X	G1	T								375	375
Ling	Molva molva	All areas	G2	T		300	30						330
Striped red mullet	Mullus surmuletus	All areas	G2	T			180						180
		X										125	125

ANNEX VII - Stock variable sampling (Table 3 : Weight)

	Sum of Planned minimum No of individuals to be measured at a national MS												
Species name	RECspecies	RECarea	Group	Weight	BEL	ESP	FRA	GER	IRL	NL	PRT	UK	Grand Total
Norway lobster	Nephrops norvegicus	FU 28, 29	G1	Y							45000		45000
		IXa (only Cadix)	G1	Y		1800							1800
		VI Functional unit	G1	Y								1050	1050
		VII Functional unit	G1	Y			900			300		2000	3200
		VIII, IX Funcional unit	G1	Y			900						900
Common octopus	**Octopus vulgaris**	**All areas, excluding VIIIc, IXa**	G2	T									
		IX	G2								30000		30000
		X									50		50
Sea bream	Pagellus bogaraveo	IX, X	G1	T		150							150
		X									1500		1500
White shrimp	Parapenaeus longirostris	IX	G2	T		1300					30000		31300
Scallop	Pecten maximus	VI										250	250
Greater Forkbeard	Phycis blennoides	All areas	G2	T		300							300
		X									50		50
Forkbeard	Phycis phycis	X	G2	T							300		300
Plaice	Pleuronectes platessa	VIIa	G1	Y	2700				1500			4500	8700
		VIIe	G1	Y								3600	3600
		VIIfgh	G1	Y	1200				2250			1800	5250
		VIIhjk	G1	Y					2250				2250
		VIIbc	G1	Y					750				750
		VIII, IX, X	G1	Y									
Pollack	**Pollachius pollachius**	IX, X	G2	T		300							300
		V,VI,VII (excl. VIId), VIII, XII,XIV	G2	T									
Saithe	**Pollachius virens**	**Va/Vb/IV, IIIa, VI**	G1	Y									
		VII, VIII	G2	T					1500			6	1506
Wreckfish	Polyprion americanus	X	G2								375		375
	Prionace glauca	X									30		30
Turbot	Psetta maxima	All areas	G2	T								450	450
Blond ray	Raja brachyura	All areas	G1	T								267	267
		IX									3000		3000
		VII(except VIId)			0								0
		VII, IX							150				150
Thornback ray	Raja clavata	All areas	G1	T			300					1362	1662
		IX									7500		7500
		V, VI, VII (excluding d), VIII, IX, X, XII, XIV							300				300
		VII(except VIId)			0								0
		X									30		30
Spotted ray	Raja montagui	All areas	G1	T			300					1095	1395
		IX									3000		3000
		V, VI, VII (excluding d), VIII, IX, X, XII, XIV							450				450
		VII(except VIId)			0								0
Cuckoo ray	Raja naevus	All areas	G1	T			300					537	837
		IX									450		450
		V, VI, VII (excluding d), VIII, IX, X, XII, XIV							150				150
		VII(except VIId)			0								0
	Raja spp	NAFO div.				3000							3000
Other rays and skates	Rajidae	All areas	G1				300						300
Greenland halibut	Reinhardtius hippoglossoide	NAFO div.	G1	Y		21900							21900
		V, XIV	G1	Y				3600					3600
		VI	G1	Y									
	Sarda sarda	X									30		30
Sardine	Sardina pilchardus	IX	G1	Y							69000		69000
		VIIIabd				7500	2700						10200
Spanish mackerel	Scomber japonicus	IX	G2	T							13500		13500
		VIIIc, IX				900							900
Mackerel	Scomber scombrus	II, IIIa, IV, V, VI, VII, VIII, IX	G1	Y		7500		2400	9000	2925		6550	28375
		IX									22500		22500
Brill	Scophthalmus rhombus	All areas	G2	T								528	528
Deep sea Redfish	Sebastes mentella	ICES Sub areas V, VI, XII, XIV & NAFO SA 2 + (Div. 1F + 3K)	G1	Y		12900							12900
		SA1											
Redfish	Sebastes spp	ICES Sub areas V, VI, XII, XIV & NAFO SA 2 + (Div. 1F + 3K).						450					450
Golden Redfish	**Sebastes marinus**	ICES Sub areas V, VI, XII, XIV & NAFO SA 2 + (Div. 1F + 3K).	G1	Y									
Cuttlefish	Sepia officinalis	All areas	G2	T		600							600
	Solea senegalensis	IX									10500		10500
Sole	**Solea solea**	VIIa	G1	Y	3000				1500			900	5400
		VIIe	G1	Y			2100					3600	5700
		VIIfgh	G1	Y	4200				750			2250	7200
		VIIhjk	G1	Y					1500			525	2025
		VIIIabd	G1	Y	1200		5400						6600
		VIIbc	G1	Y					1500				1500
		VIIIc	G1	Y									
		IX	G1	Y							9000		9000
Sea breams (in plural)	Sparidae	X	G2								200		200
	Squaliformes	X									30		30
Spurdog	**Squalus acanthias**	All areas	G1	T									
Albacore	Thunnus alalunga	All areas							1800				1800
		X									50		50
Bigeye tuna	Thunnus obesus	X									100		100
Mediterranean horse mackerel	Trachurus mediterraneus	VIIIc, IX	G2	T		300							300
Blue jack mackerel	Trachurus picturatus	X	G2	T							375		375
Horse mackerel	Trachurus trachurus	IIa, IVa, Vb, VIa, VIIa-c, e-k, VIIabde	G2	T		3000		2400	9000	3750		500	18650
		IX	G2	T							69000		69000
		VIIIc, IX				4800							4800
Pouting	Trisopterus spp	IX	G2								60000		60000
Swordfish	Xiphias gladius	X									50		50
John Dory	Zeus faber	X	G2	T							250		250
	Grand Total				12300	102850	23760	11850	112400	8325	498585	68559	838629

ANNEX VII - Stock variable sampling (Table 4 : Maturity)

Table 4 – Overview of sampling for maturity. Sum of Planned minimum No of individuals to be measured at a national level

RECregion	North Atlantic
Sampling year	2011-2013
Variable (*)	Maturity

Sum of Planned minimum No of individuals to be measured at				MS							
RECspecies	RECarea			ESP	FRA	GER	IRL	NL	PRT	UK	Grand Total
Alepocephalus bairdii	VI, XII	G2	T	3600							3600
Anguilla anguilla	V,VI,VII (excl. VIId), VIII, IX,X, XII,XIV	G1	T								
Aphanopus spp	IX	G1	Y							7500	7500
	X	G1	Y							150	150
Argentina spp	All areas	G2	T						900		900
Argyrosomus regius	V,VI,VII (excl. VIId), VIII, IX,X, XII,XIV	G2	T								
Aspitrigla cuculus	All areas	G2	T		600						600
	X									100	100
Beryx spp	X	G1	Y							1200	1200
	all areas, excluding X and IXa	G1	T								
Cancer pagurus	V, VI, VII (exclud	G2	T					250			250
Centrophorus granulosos	X	G1	T							30	30
Centrophorus squamosus	V,VI,VII (excl. VIId), VIII, IX,X, XII,XIV	G1	T								
Centroscymnus coelolepis	V,VI,VII (excl. VIId), VIII, IX,X, XII,XIV	G1	T								
Clupea harengus	Via	G1	Y					6450		4500	10950
	VIa S, VIIbc	G1	Y					6000			6000
	Via,VIIbc	G1	Y						750		750
	VIIa	G1	Y					6000		1800	7800
	VIIj	G1	Y					3000			3000
Conger conger	All areas	G2	T	300							300
	X	G2	T							125	125
Coryphaenoides rupestris	VI, XII	G1	Y	4200							4200
Deania calcea	V,VI,VII (excl. VIId), VIII, IX,X, XII,XIV	G1	Y								
Dalatias licha	X									30	30
Dicentrarchus labrax	All areas	G2	T		600					105	705
	IX	G2	T								
Engraulis encrasicolus	IXa (only Cadix)	G1	T	1800							1800
	VIII	G1	Y	3000							3000
Eutrigla gurnardus	VIId,e	G2	T								
Gadus morhua	Via	G1	Y							300	300
	Vib	G1	Y							30	30
	VIIa	G1	Y					300		450	750
	VIIe-k	G1	Y					300		150	450
Helicolenus dactylopterus	X	G2								900	900
Homarus gammarus	V, VI, VII (exclud	G2	T					250			250
Hoplostethus atlanticus	V,VI,VII (excl. VIId), VIII, IX,X, XII,XIV	G1	Y								
Lepidopus caudatus	IXa	G2	T								
Isurus oxyrinchus	X									30	30
Katsuwonus pelamis	X									250	250
Lepidorhombus boscii	VIIIc, IX	G1	Y	1500							1500
Lepidorhombus whiffiagonis	VI	G1	Y					525		900	1425
	VII, VIIIabd	G1	Y	4500				600		900	6000
	VIIIc, IX	G1	Y	1500							1500
Limanda limanda	VIIe/VIIa,f-h	G2	T								
Loligo vulgaris	all areas, excluding VIIIc, IXa	G2									
	VIIIc, IXa	G2	T								
Lophius budegassa	IIIa, IV, VI	G1	Y	150				30			180
	VI	G1	Y							39	39
	VIIb-k, VIIIabd	G1	Y					150		135	285
	VIIIc, IX	G1	Y	300							300
Lophius piscatorius	IIIa, IV, VI	G1	Y	600				120			720
	VI	G1	Y							2250	2250
	VIIb-k, VIIIabd	G1	Y					450		405	855
	VIIIc, IX	G1	Y	750							750
Macrouridae	NAFO div.			3900							3900
Melanogrammus aeglefinus	Via	G1	Y					1050		6000	7050
	VIIa	G1	Y					1500		3600	5100
	VIIb-k	G1	Y					3000		1500	4500
Merlangius merlangius	Via	G1	Y					675		2700	3375
	VIIa	G1	Y					1500		4500	6000
	VIII	G2	T								
	VIIe-k	G1	Y					2250		900	3150
Merluccius merluccius	VIIIc, Ixa	G1	Y	3000							3000
	IIIa, IV, VI, VII, VIIIab			3000	1500			3900		1275	9675
Micromesistius poutassou	I-IX, XII, XIV	G1	Y	0		3000		6000			9000
Microstomus kitt	All areas	G2	T								

ANNEX VII - Stock variable sampling (Table 4 : Maturity)

Sum of Planned minimum No of individuals to be measured at	MS										
RECspecies	RECarea			ESP	FRA	GER	IRL	NL	PRT	UK	Grand Total
Molva dypterygia	X	G1	T						375		375
	all areas, excluding X	G1	T								
Molva molva	All areas	G2	T	300	30						330
Mullus surmuletus	All areas	G2	T								
	X	G2	T						125		125
Nephrops norvegicus	FU 28, 29								45000		45000
	IXa (only Cadix)			1800							1800
	VI Functional un	G1	Y							1050	1050
	VII Functional ur	G1	Y		900		150000			9000	159900
	VIII, IX Funciona	G1	Y		900						900
Octopus vulgaris	IX	G2	T						30000		30000
	X	G2	T						50		50
Pagellus bogaraveo	IX, X			150							150
	X								1500		1500
Pandalus spp	NAFO div.	G2		16389							16389
	all areas	G2									
Parapenaeus longirostris		G2	T								
	IX			1000					30000		31000
Pecten maximus	VI									0	0
Phycis blennoides	All areas	G2	T	300							300
	X	G2	T						50		50
Phycis phycis	X	G2	T						300		300
Pleuronectes platessa	VIIa	G1	Y					750		4500	5250
	VIIe	G1	Y							3600	3600
	VIIfgh	G1	Y					600		1800	2400
	VIIhjk	G1	Y					300			300
	VIIbc	G1	Y					360			360
Pollachius pollachius	IX, X	G2	T	300							300
	V,VI,VII (excl. VIId), VIII, XII,XIV	G2	T								
Pollachius virens	VII, VIII	G1	Y					150		6	156
	Va/Vb/IV, IIIa,	G1	Y								
Polyprion americanus	XI	G2							375		375
Prionace glauca	X								30		30
Psetta maxima	All areas	G2	T							450	450
Raja brachyura	All areas									267	267
	IX								3000		3000
	VII, IX							150			150
Raja clavata	All areas	G1	T							1362	1362
	IX								7500		7500
	V, VI, VII (excluding d), VIII, IX, X, XII, XIV							300			300
	X								30		30
Raja montagui	All areas	G1	T							1095	1095
	IX								3000		3000
	V, VI, VII (excluding d), VIII, IX, X, XII, XIV							450			450
Raja naevus	All areas									537	537
	IX								450		450
	V, VI, VII (excluding d), VIII, IX, X, XII, XIV							150			150
Raja spp	NAFO div.			3000							3000
Reinhardtius hippoglossoides	NAFO div.			21900							21900
	V, XIV/VI	G1	Y								
Sarda sarda	X								30		30
Sardina pilchardus	IX	G1	Y						69000		69000
	VIIIabd	G1	Y	7500							7500
Scophthalmus rhombus	V,VI,VII (excl. VIId), VIII, IX,X, XII,XIV	G2	T								
Scomber japonicus	IX	G2	T						13500		13500
	VIIIc, IX	G2	T	900							900
Scomber scombrus	II, IIIa, IV, V, VI,	G1	Y	7500		2400	9000	2925		6550	28375
	IX	G1	Y						22500		22500
Scophthalmus rhombus	All areas									528	528
Sebastes marinus	ICES Sub areas V, VI, XII, XIV & NAFO SA 2 + (Div. 1F + 3K).	G1	Y								
Sebastes mentella	ICES Sub areas V, VI, XII, XIV & NAFO SA 2 + (Div. 1F + 3K)	G1	Y	12900							12900
Sepia officinalis	All areas	G2	T	600							600
Solea vulgaris	IX	G1	Y						9000		9000
	VIIa	G1	Y					150		900	1050
	VIIe	G1	Y		450					3600	4050
	VIIfgh	G1	Y					150		2250	2400
	VIIhjk	G1	Y					150		525	675
	VIIIabd	G1	Y		1350						1350
	VIIbc	G1	Y					150			150
Sparidae	X	G2							200		200
Pagellus bogaraveo	IXa, X	G1	T								
Squaliformes	X								30		30
Squalus acanthias	V, VI, VII (exclud	G1	T								
Thunnus alalunga	X								50		50
Thunnus obesus	X								100		100
Trachurus mediterraneus		G2	T								
	VIIIc, IX			300							300
Trachurus picturatus	X	G2	T						375		375
Trachurus trachurus	IIa, IVa, Vb, VIa,	G2	T	3000		2400	9000	3750		500	18650
	IX	G2	T						69000		69000
	VIIIc, IX	G2	T	4800							4800
Xiphias gladius	X								50		50
Zeus faber	X								250		250
	V,VI,VII (excl. VIId), VIII, IX,X, XII,XIV	G2	T								
Grand Total				114739	6330	7800	216110	8325	316185	70959	740448

Table 5 – Overview of sampling for fecundity. Sum of Planned minimum No of individuals to be measured at a national level

RECregion	North Atlantic
Sampling year	2011-2013
Variable (*)	fecundity

Sum of Planned minimum No of individu		MS						
RECspecies	RECarea	ESP	GER	IRL	NL	PRT	UK	Grand Total
Aphanopus spp	IX					7500		7500
Engraulis encrasicolus	IXa (only Cadix)	100						100
	VIII	3000						3000
Raja brachyura	IX					3000		3000
Raja clavata	IX					7500		7500
Raja montagui	IX					3000		3000
Raja naevus	IX					450		450
Sardina pilchardus	IX					69000		69000
	VIIIabd	1000						1000
Scomber scombrus	II, IIIa, IV, V, VI, V	220	300		100		850	1470
Sepia officinalis	All areas	0						0
Trachurus trachurus	IIa, IVa, Vb, VIa, V	75	160		100		100	435
	IX					69000		69000
	VIIIc, IX	75						75
Grand Total		4470	460		200	159450	950	165530

RCM	Ecoregion	WG	Stock code	Stock	Survey	Acronym	Official Acronym	Tuning fleet	Total no. of tuning fleets	Category	Area covered	funded under DCF	used in stockassessment	used in s.a for how long	used for MSFD?	costs	ecosystem indicators covered	Countries involved	Period	Numbers of days	Number of hauls	Tuning age range	First year of the time series	survey data under DATRAS	Other comments
NA	Widely distributed and migratory stocks	WGDEEP	deepwater species in Vb,VI, VII, XIIb: RNG, BSA, BLI, GFO,SBR	Deepwater sharks in the Northeast Atlantic	Prposed international deepwater trawl survey	International deepwater trawl survey	IDS	N	-	Bottom trawl	Deepwater continental shelf Vb, VI, VII and XIIb	no	trends only no analytical assessment accepted		yes	19536/day	yes	UK-Scotland, IRL	September/December	20-25	100	-		Yes	This survey would incorporate the existing Scottish and Irish Deepwater trawl survey. Timeseries from exisitng surveys would be continued in VI and VIIN, a new timeseries would commence in XIIb. Details in http://www.ices.dk/committe/acom/comwork/report/2011/Special%20Requests/EC%20Scientific%20surveys%20for%20deep%20water%20fisheries.pdf
NA	Widely distributed and migratory stocks	WGEF	deepwater sharks	Deepwater sharks in the Northeast Atlantic	Prposed international deepwater trawl survey	International deepwater trawl survey	IDS	N	-	Bottom trawl	Deepwater continental shelf Vb, VI, VII and XIIb	no	trends only no analytical assessment accepted		yes	19536/day	yes	UK-Scotland, IRL	September/December	20-25	100	-		Yes	This survey would incorporate the existing Scottish and Irish Deepwater trawl survey. Timeseries from exisitng surveys would be continued in VI and VIIN, a new timeseries would commence in XIIb. Details in http://www.ices.dk/committe/acom/comwork/report/2011/Special%20Requests/EC%20Scientific%20surveys%20for%20deep%20water%20fisheries.pdf
NA	Celtic Seas	wgcse	nep-16	Nephrops in Divisions VIIck (Porcupine Bank, FU 15)	Underwater TV survey	UWTV	UWTV (FU 16)	Y	0	UWTV	FU16 Porcupine Bank	N	Y if carried out	na	yes - F in relation to FMSYestimation on Nephrops	~200,000 (Ireland Only), participation from Sp, FR and UK required	y	IR, UK, Spain, France	April/May	12	100	not applicable	None yet		Stronger basis for assessment and advice urgently needed. Could also be used to monitor the impact of the closed area.
NA	Celtic Seas	wgwide	boc-nea	Boarfish in the northeast atlantic	Joint science industry survey	IBAS	-	N	-	Acoustic	VIIbcghjk (VIIIa)	N	1st year so no time series yet	1	Potentially	20,000/day	Y	IR DK	July	21	variable	2-8	2011	No	There is no time series yet but the survey will be the only tuning index for this rapidly developing fishery
NA	Western English Channel/ Celtic Sea	celtic sea/ wgnew/elsmo	?	?	proposed multigear survey in VIIe,f,g and h	International deepwater trawl survey	Q1BTS	N	-	Beam trawl and Bottom trawl	VIIe,f,g and h	parially (VIIf,gh)	no		yes	30000 per day???	yes	Uk (E+W)	Feb/March	28-30	120+	-		Yes	This survey would incorporate an partial exisiting DCF funded survey and a non-DCF funded survey. The non DCF funded survey has 5 years of data that could contribute to assessments for Plaice and Sole in VIIe.

Creation of a regional view of the discard sampling programmes, identification of gaps and discrepancies for optimising the spatial, time and metiers coverage.

Discrepancies

1. **Instability of sampling frame**

Changes of sampling frame (due to, for example increasing number of sampling frame dimensions (Spatial, Technical, Temporal…) and strata within each sampling frame dimension (i.e fishing grounds, more defined fishing techniques or target species, or quarterly sampling) are usually set out without formal study of their true effectiveness. Stratify not always result in an improvement of target estimators (by means of bias and variability); on the contrary, adding more sampling dimensions may cause over-stratification, understood as a sampling protocol containing more strata than the needed.

2. **Insufficient sampling coverage**

Increase of numbers of strata has not led to a necessary increase of sampling coverage. This sampling scenario forces to an excessive fragmentation of the sampling effort available to cover all strata. Consequently to the above, it is expected that insufficient coverage within a sampling plan suffering over-stratification will produce an additive effect that greatly reduces the quality of the estimators.

3. **Primary Sampling Unit (PSU)**

Spanish Discard Sampling Programs (SDSP) mix Stratified Sampling and Multistage Sampling designs. Each strata are defined by multidimensional components (Technical, Spatial and Temporal dimensions) creating a number of sampling frames from where a number of large aggregate units, called Primary Sampling Units (PSU) are drawn for sampling purposes. In SDSP trip is considered as the PSU, and for every trip sampled, a multistage sampling is performed along the nested units within trip, until the sampling element (Ultimate Sampling Unit, USU) is measured.

For some countries are common sampling on trips which cover more than one sampling strata defined at level 6; spatial (different fishing ground for same métier), temporal (different fishing period for different components of the same métier) or fishing objective (different target species for the same métier), violating the Stratified Sampling Design assumptions on that strata.

4. **Dependence of SDSP on fishers voluntary participation**

Randomness associated to PSU sampling (and all others SU housed within PSU) is the most important theoretical assumption to be preserved in order to achieve unbiased estimates of discards. As no legal framework forces fisherman to collaborate in DSP´s, random selection of SU and the performance of the sampling itself depends on the voluntary attitude of fishermen. Collaboration may be conditioned by direct factors (accommodation of observers onboard, unawareness of the program objectives, confusion between the observer and inspector figures, etc…) or tangential (enforcement of assessment decisions, quotas, MLS etc…, not supported by fishermen). As consequence, the scientific staff must invest effort in maintaining good relations with the industry. The investment of this unplanned effort in social relations by unskilled employees does not always achieve visible results.

5. **Precision level**

A large number of factors affect discards causing the high variability inherent to this fishing practice. Natural variability of discards yield dispersion parameters estimates exceeding the accuracy limits preset by the European Commission. A logical strategy to reduce the uncertainly of discards estimations is an increment of sampling effort, however, this increment could be seen as a waste of economical resources when fishers are not willing to collaborate with the national DSP (Point 4). Increase sampling level on a fishery where not all vessels collaborate in the DSP may led to obtain accurate biased estimations of discards, an ideal scenario for Type I errors when analyzing this king of data

Final Report

Whelk Biology

Prepared by:

Andy Lawler and Belinda Vause

Cefas, Lowestoft and Sussex SFC

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Summary

The fishing vessels *Tomkat of Selsey* and *Beachy Head* were chartered in September 2009 to carry out two potting surveys in the whelk fisheries in two areas off the Sussex coast in the eastern English Channel. The main objective was to investigate the population structure of whelks spread throughout the two survey areas, one off Selsey (West Sussex) and the other off Eastbourne (East Sussex). A trial mark-recapture experiment was set up in each area to test the feasibility of using this type of methodology to assess exploitation rates and population sizes in these fisheries. Additionally, samples of whelks were collected and a sampling programme initiated to determine various aspects of whelk reproductive cycle and growth rate.

Volume of whelks caught, numbers measured and gear hauled during each of the two potting surveys.

Dates	Vessel	Area	Stations or fleets	Number of pots hauled	Typical number of pots per fleet	Volume of whelks landed (baskets)	Number of whelks measured
11 - 19 September 2009	*Tomkat of Selsey*	Selsey	35	1750	50	81.4	13 662
24 – 30 September 2009	*Beachy Head*	Eastbourne	56	5600	100	83.3	26 650

Catch rates of whelks on both surveys were generally low and although typical for the time of year in which the surveys were undertaken, are atypical of those that could be expected at the peak of the season.

Catch rates of whelks of commercial size were generally larger in the western survey area off Selsey, especially at sites east of Selsey Bill. The sites yielding the best catch rates from the Eastbourne area were generally just off Sovereign harbour and Pevensey Bay. The size range of the catch was larger from the eastern area, but the mean size of whelks in the catch was higher in the western area.

The standard commercial gear used for these surveys fished very cleanly with only extremely low numbers of by-catch species taken.

Typical whelk traps, as used on the potting surveys

This Fisheries Science Partnership survey was planned to provide data on the variation and distribution of catches of whelks, as well as the size compositions of the catch. The monthly sampling programme initiated during the surveys will provide growth data that can be combined with the size compositions to provide estimates of whelk mortality rates. The trial mark–recapture experiments carried out in both areas suggest that given certain practical considerations, a full-scale application of the methodology in future may provide useful information on population size and exploitation rate.

Introduction

The Fisheries Science Partnership (FSP) was established in 2003 to build relationships between fishermen and scientists, and to involve fishermen in the co-commissioning of science. The FSP is funded by the UK's Department for Environment, Food and Rural Affairs (Defra).

Traditionally, the whelk fisheries in the eastern English Channel have been exploited at modest levels for food and bait. Over the past two decades they have become an increasingly valuable alternative source of income for some crab and lobster fishermen, especially during winter when the other fisheries may yield less. Recently, some fishermen have become more reliant on the whelk as the local crab fisheries suffered from poor catches and prices. In some cases this extended the traditional season for the whelk fishery and increased the level of fishing effort on the whelk stocks. Aspects of whelk biology make the species potentially susceptible to both growth- and recruitment-overfishing, and the perceived increase in fishing effort has led to concern among some industry members about the sustainability of the fisheries. This concern led the industry, via the Sussex Sea Fisheries Committee, to propose that an investigation be undertaken as part of the 2009/2010 FSP programme.

The main objectives of this project were to investigate the population structure of whelks within the inshore static-gear fishery of both the Selsey and Eastbourne areas of the eastern English Channel; to trial a mark–recapture experiment in both areas to ascertain the potential of the methodology to determine the exploitation rate and the population size; and to design and initiate a monthly maturity sampling programme to determine the size at sexual maturity and the seasonality of the reproductive cycle.

This report presents the results of the potting surveys carried out on whelk grounds off the Selsey and Eastbourne coasts between 11 and 30 September 2009 as part of the 2009/10 FSP programme. The whelk fisheries are located in the general vicinity of the mixed fisheries for brown crab and lobsters; although specific gear is used, some of the habitats occupied by each stock may overlap. The project used the commercial fishing vessels *Tomkat of Selsey* (skipper Chris Wilson) for the western area and *Beachy Head* (skipper George Piper) for the eastern area.

The detailed operational plan was discussed at meetings between Cefas and the vessel skippers immediately prior to starting each survey. The detailed operational plans for the programme are given in Appendix 1.

Methods

Vessels and fishing gear

FV *Tomkat of Selsey* (P1010) is a multipurpose, aluminium catamaran, primarily equipped for potting, but also capable of netting. Overall length 9.88 m and breadth 4.66 m, with 420 kW main engine power provided by twin Doosan engines.

FV *Beachy Head* (NN748) is a fibreglass vessel equipped for potting. Overall length 11.83 m and breadth 5.19 m, with 189 kW main engine power provided by twin Gardner engines.

The FV *Tomkat of Selsey* typically fishes fleets of 50 pots approximately 18.3 m apart (~900 m fleets). The traps used were approximately 350 mm in diameter and 330 mm high, weighted with lead in the base. Escape holes were typically 23 mm diameter. FV *Beachy Head* deployed traps in fleets of 100 that are 16 m apart (~1600 m long), 380 mm in diameter and 350 mm high, with iron weights in the base. Escape holes in the sides were 12 mm diameter, and those in the base were 22 mm diameter. Bait for both vessels was various, but generally locally sourced shellfish and fish used in combination.

Survey design

The fishing surveys were designed to provide coverage of the whelk fisheries within the main areas exploited by the potting fleets operating out of Selsey and Eastbourne. The most intensive sampling was carried out in close proximity to these two ports, where much of the gear operated by the two survey vessels is situated during normal fishing operations. During the course of the fishing surveys, fleets of pots were moved farther from port to provide additional spatial coverage of the whelk grounds. The nature of static gear operations and potential conflicts with other fishing activities means that spatial coverage was not unrestricted during the survey period. For logistical reasons, the surveys were carried out outside the main whelk fishing season, and as such it is accepted that the catch rates observed, although representative for the time-period, are not typical of those at the seasonal peak of the fishery.

A truncated fleet of just 6 pots (183 m long) was fished in a locale within easy access of Selsey and another fleet of 20 pots was fished close to Eastbourne. These pots were used as sites for mark–recapture experiments using whelks marked with coloured rubber bands. Trip reports for both these subsurveys are included in Appendix 2.

Data capture and catch processing

Station details, including the skipper's interpretation of ground type (skipper-defined ground type), soak time, bait type and water depth were recorded for each site. At each site the catch was passed over each vessel's onboard sieving device (riddle) and separated into components for landing and to be discarded. The volumes of these two components were recorded and the shell heights of the whelks from a suitable subsample from each were measured to the nearest mm below using a Vernier caliper. Weights were recorded using a spring balance or estimated by a crew member (one basket of whelks weighs approximately 32 kg).

Photograph of a whelk shell showing the height measurement used throughout the survey.

A qualitative assessment of the species present in the bycatch was carried out throughout the survey. A more accurate assessment of the bycatch was also carried out by careful collection of the bycatch content of 5 pots per fleet at selected stations (five samples were taken from the Selsey area and ten from the Eastbourne area). Most of these were analysed at facilities onshore and the species composition quantified.

At the experimental sites, whelks were marked with coloured rubber bands (one colour per day) and released at a point midway between the two anchors of each experimental fleet. Initially, low catch rates at these sites necessitated using pre-marked whelks from an adjacent site to supplement release numbers. These fleets were hauled consecutively on each subsequent day of the survey, and the numbers of recaptures and unmarked animals were recorded.

Analytical methods

Spatial patterns in the variation in catch rates of whelks were examined by compiling maps showing the weight caught per fleet (standardised to 100 pots) for both the total catch (cpue) and landed component (lpue).

Size compositions for the catch were plotted and examined for each fishing operation and for the two potting areas separately. The mean size of the whelks in the catch at each site was determined and collated spatially. Length distributions were combined and raised to provide the size compositions for the total catch for each survey area. Two length-converted catch-curve methodologies were applied to these size compositions, using provisional growth data to provide estimates of total mortality for each area, both the linearized catch curve method and the cumulative catch curve method of Jones and van Zalinge (Sparre, 1998).

Standardised catch rates of the total catch and the landed component (lpue and cpue) were conditioned using log-transformation and analysed with all available explanatory variables, using a generalized linear modelling technique to determine which factors most likely were influencing the catches. The factors provided by the skippers during the surveys included water depth and temperature, seabed type and soak time, and the extent of the tide as acquired from tide tables. The two survey areas were analysed separately. Initially, all available explanatory variables were used to describe the variability in catch rates, but sequential removal of the least influential factors based on analysis of variance left only those that described catch rates significantly.

A refined Lincoln–Peterson method was used to provide a provisional estimate of the population of whelks in the immediate vicinity of each experimental fleet.

The numbers of whelks in the population (N) is given by

$$N = \frac{(M+1)(C+1)}{R+1} - 1,$$

where M is the number of animals captured and marked, C the number of animals captured on the subsequent operation, and R is the number of marked animals recaptured during the subsequent operation.

Results

Fishing stations

The fleet positions in Figure 1 were obtained by joining the positions of the end anchors taken from the vessels' GPS with a straight line. Owing to the close proximity of some fleets, others may partially obscure their position in the Figure.

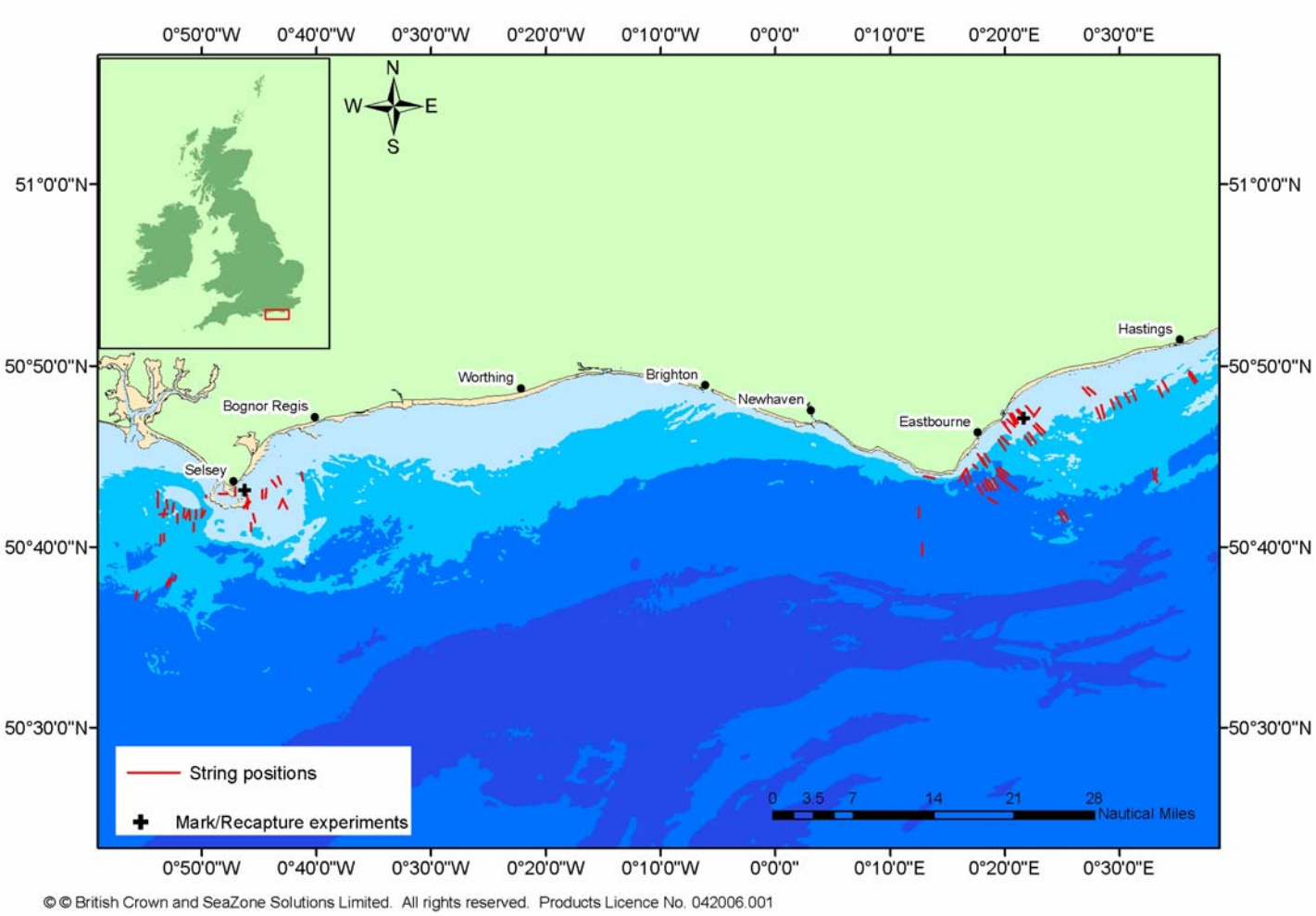

Figure 1. Sussex coast whelk biology. Fishing survey fleet positions in the Selsey and Eastbourne areas.

Distribution patterns

Distribution maps for the total catch standardised to 100 pots (cpue) are given in Figures 2 and 3, and those for the standardised landed component (lpue) are shown in Figures 4 and 5. The size of the symbols is proportional to the weight caught or landed at each station per 100 pots. The proportions of the catch that were landed, the mean catch rates, and the values of lpue by both survey areas, separately and combined, are shown in Figure 6. It is important to realise that the catch rates observed over the course of the surveys help describe whelk activity at that time, but that they do not predict the likely productivity of these sites during the remaining season. Both skippers commented that the timing of the survey was synchronous with the time of year when low catch rates would be expected.

Catch

Catch rates were generally higher from fishing positions in the Selsey area than in those from the Eastbourne area (mean cpue 235.4, cf. 70.4 kg per 100 pots). Of the stations around Selsey, the catch rates at those to the east of Selsey Bill and some positions farther offshore were generally higher than those to the west. The highest catch rates in the Eastbourne area were just off Sovereign harbour and Pevensey Bay. The lowest cpue was just 1.05 kg per 100 pots at a site around 3 nautical miles off

Bexhill, and the highest was 452 kg per 100 pots from a fishing position adjacent to Pagham harbour.

Landings

The values of lpue were again generally higher from the Selsey area (mean lpue 147.7, cf. 47.0 kg per 100 pots), with those fishing stations to the east of Selsey Bill being much higher. The lpue from fishing positions close to Sovereign harbour and Pevensey Bay were the highest of those in the Eastbourne area. The lowest and the highest values of lpue observed during both surveys were at the same sites as those where the lowest and highest catches were observed (1 kg per 100 pots off Bexhill and 400 kg per 100 pots off Pagham harbour). Although lpue values were on average higher in the Selsey area, the proportion of the catch landed was higher for the fishing positions in the Eastbourne area (71% cf. 64%).

Population structure

More than 40 000 whelks were measured for the standard fishing survey work alone, allowing good quality length distributions to be constructed for each fishing site. For brevity, only combined size compositions for each area are included here. It is not practical to identify the sex of whelks in the field, so the length data listed are for both sexes combined.

A summary of the numbers and the size of the catch is given in Table 1, and the size distributions combined and raised to the total catch for each survey area are shown in Figure 7. The spatial distributions of the mean size of the catch for each survey area are shown in Figures 8 and 9.

Area	Number raised to catch in thousands	Mean size (mm)	Standard error of the mean	95% confidence interval	Smallest whelk (mm)	Largest whelk (mm)
Both areas	420	49.4	0.015	0.030	8	102
Eastbourne	216	46.8	0.024	0.047	8	102
Selsey	204	52.0	0.017	0.033	17	81

Table 1. Sussex coast whelk biology. Mean size and ranges for catch of whelks by survey area (standard error of the mean with 95% confidence interval included).

The mean size of whelks from both surveys was 49.4 mm, with whelks from the Selsey area being on average larger than those from the Eastbourne area (mean 52.0 mm cf. 46.8 mm). The combined and raised length distribution for both areas shows that the size composition for the Eastbourne area was wider, and with a pronounced positive skew (on the right). Therefore, although the largest whelks came from the Eastbourne sites (102 mm), there was a significant component of the catch <45 mm minimum landing size. This is somewhat in contrast to the proportion of the catch landed, and demonstrates different discarding practices by the two vessels. The smallest whelks, just 8 mm, were also taken in the catches off Eastbourne. The mean sizes of whelks in the landed component of the catch were similar for both areas at

58.3 mm and 56.4 mm for Eastbourne and Selsey, and 57.8 mm for both areas combined (standard errors for the means were 0.097, 0.082 and 0.41).

The two Length Converted Catch Curve methodologies applied to these data provide some insight into the mortality exerted on these populations, and are shown in Figure 10. The values of total mortality (*Z*) for Selsey estimated by each method are 2.25–2.62, and for Eastbourne 1.72–1.63 for the linearized catch curve method and the Jones and van Zalinge method, respectively.

Bycatch

Both of the types of whelk pots used during the survey fished very cleanly with very low numbers of other species present in the pots. The average by-catch per whelk pot, taken from five samples of five whelk pots from the Selsey area and from five samples of five whelk pots from the Eastbourne area are compared in Table 2. The results show the average weight of bycatch per pot in Eastbourne to be greater than twice the weight of bycatch in Selsey, but in three of the Eastbourne samples, *Maja brachydactyla*, the common spider crab, was present; these are relatively large heavy animals compared with the other bycatch species and this influences the results. In the samples where the common spider crab was not present, there was little difference in bycatch weight. An average of ~6 non-target animals was present per whelk pot in Selsey compared with 4 in Eastbourne. Molluscs were the most common bycatch phylum in Selsey, with the topshell *Gibbula cineraria* the most abundant. In contrast, crustaceans were the most common bycatch phylum off Eastbourne, with the hermit crab *Pagurus bernhardus* the most abundant. A photograph showing typical species present as bycatch is shown in Appendix 4.

Phyla	Selsey	Eastbourne
Crustaceans	1.88	3.12
Molluscs	4.36	0.52
Annelids	0.04	0.20
Echinoderms	0.00	0.24
Mean weight all Phyla per pot (g)	0.94	2.16

Table 2. Sussex coast whelk biology. Mean numbers of individuals per pot by phyla and survey area from five pot samples of bycatch. The bottom line entry is the mean weight of all bycatch per pot.

Mark–recapture experiment

A summary of the results of the mark and recapture experiment carried out off Selsey is presented in Table 3, and those for the Eastbourne area in Appendix 3.

Selsey			Recaptures			
date	Numbers released	band colour	White	Red	Blue	Unmarked
12/09/2009	710	White	0	0	0	0
13/09/2009	521	Red	0	0	0	477
14/09/2009	488	Blue	3	1	0	140
15/09/2009	-	-	16	19	0	81
18/09/2009	-	-	3	1	0	59
19/09/2009	-	-	0	1	1	292
22/09/2009	-	-	0	0	0	24 kg
24/09/2009	-	-	23	25	45	12 kg (est. 388)
26/09/2009	-	-	45	80	52	-
29/09/2009	-	-	6	38	37	-
02/10/2009	-	-	18	39	26	-
07/10/2009	-	-	43	53	35	-
23/12/2009	-	-	32	32	26	-

Table 3. Sussex coast whelk biology. Numbers of whelks marked and recaptured and captures of unmarked whelks by day fished during the mark-recapture experiment off Selsey. Shaded rows were post-survey data kindly provided by the skipper and crew.

Selsey

A total of 1719 whelks were marked with rubber bands over the first three days of the experiment. Owing to the very low catch rates, the natural population in the vicinity of the experiment had to be supplemented by whelks from another area. Recapture rates for the duration of the survey were very low and variable. The skipper kindly offered to monitor the experimental fleet after the survey and recapture rates improved five days later.

The population size in the vicinity of the fleet was estimated to be 4892, based solely on the white-banded animals and recaptures on 15 September. Using the recaptures of that day, but red-banded ones, the estimate becomes 3052. These estimates include the population after it had been increased by releasing animals from another area. Using recapture information from data provided post-survey when both recaptures and captures were higher (24 September) and using all releases combined gives a higher population estimate of 8818.

Eastbourne

In all, 1546 whelks were marked over the first three days, with a different colour on each day of the experiment. Very low catch rates were observed up to the last day of the survey (30 September). Again, the skipper kindly offered to monitor the experimental fleet after the survey. Using recaptures for the last day and the three different colours yielded three estimates of population size, 8080, 10 362 and 18 363. Again these estimates include the numbers of whelks which were added to the area from outside.

Factors influencing catch rates and lpue – linear modelling

Selsey

Sequential removal of the least influential factors until only significant variables remained suggest that the height of the tide and the water depth together describe 41% of the variance in whelk catch rates. Tidal height alone explained 21% of the variance in whelk lpue. The relationships are all positive, suggesting, for example, that higher catch rates are achieved during periods of bigger tides and in deeper water. None of the other factors provided additional explanatory power.

Eastbourne

Substratum type explained 46% of the variation in the catch rates of whelks (cpue). The average catch rate for fleets on soft, mixed and hard ground was 110.9, 59.5 and 30.1 kg per 100 pots. Substratum type alone explained 38% of the variation in lpue, with the average lpue for soft, mixed and hard ground being 68.8, 44.3 and 22.3 kg per 100 pots.

Discussion

Anecdotal information and official fisheries statistics suggest that the whelk fisheries in the eastern English Channel are under increasing fishing pressure. The primary purpose of this project was to initiate research that will eventually lead to a better understanding of the exploitation of whelks in the region. Data collected during the surveys and from the monthly maturity sampling will provide information about the likely affect of any new management measures considered necessary to conserve the stocks.

This FSP project successfully used commercial static gear to help explain the population structure and spatial variations in catch rates of whelks. It proved useful in developing industry contacts and providing local knowledge, as well as discovering sources of additional data not anticipated at the outset.

Length distributions of whelks acquired during this work are also valuable as a prerequisite of any assessments carried out in future on these fisheries in support of advice offered by Cefas or the Sussex SFC. Knowledge of spatial variation in length compositions is important for the design and interpretation of sampling programmes. In addition to the data presented here, the performance of various sizes and formats of riddle grids was evaluated, data that will be useful if current MLS legislation is reviewed.

It should be stressed that the estimates of total mortality of the whelk population using LCCC methods are sensitive to the growth estimates used (currently unpublished and more relevant to other fisheries) and, as part of ongoing work following this FSP project, appropriate growth rates will be estimated and these data rigorously reanalysed. The actual growth parameters used may be more applicable to slower-growing whelks in colder water, so we caution that the mortality results estimated here may be optimistic.

Analysis of both catch rates and lpue using the linear modelling approach was carried out to help determine the factors that best defined the catch rates of the various stocks.

The significance of a particular explanatory variable may not necessarily indicate dependence, because it is likely that a given parameter may well act as a proxy for another variable. For example, the catch rates of whelks around Selsey appear to be positively affected by the size of the tide. The size of the tide may well influence catch rates, or alternatively be just a coincidence in tides being large on the days that the survey vessel fished the grounds with the highest density of whelks. Although the catch rates were standardised and log-transformed to condition the data, some assumptions regarding the data that are necessary for the use of such a parametric statistical technique may not hold true. Such techniques may be quite robust to departures from these assumptions, but caution should be applied to the results. As such, the modelling in this report should be regarded more as an exploratory tool than a formal hypothesis-testing method. Formal testing of specific hypotheses regarding the significance of particular factors and how they relate to the catch rates and lpue of whelks may be better achieved using non-parametric techniques.

Results from the mark–recapture experiment suggest that recapture rates are highly variable, and that there is an initial delay between release and recapture. This may be a consequence of the low mobility rates of whelks or perhaps an indication of a behavioural response to first capture. It will not be possible to derive a value for the density of whelks from population estimates without knowing the effective range of the traps. This will depend on a number of factors, including the attractive range of the bait and the mobility of the whelks. Were this experiment to be scaled up in size or intensity, consideration would have to be given to spatially separating the traps and altering the density of traps on the seabed, as well as the number of animals to be marked and the time-scale over which recaptures were to be expected. Anecdotal information received from one of the skippers three months after this experiment suggested that the rubber bands used were perishing and this would suggest that this marking method is suitable for short-term studies only. More elaborate modelling, for example using Poisson regression techniques, may do more justice to the data, but are earmarked for the future and not in terms of the analysis here.

Acknowledgements

Owners/skippers Chris Wilson, Peter Storey and George Piper and the crews of "*Tomkat of Selsey*" and "*Beachy Head*" are warmly thanked for their help, advice and willing cooperation throughout this project. All Cefas and Sussex Sea Fisheries Committee staff involved in the surveys, data processing and facilitation, and in project administration, are thanked for their valuable contribution to the success of this project, which was funded by Defra.

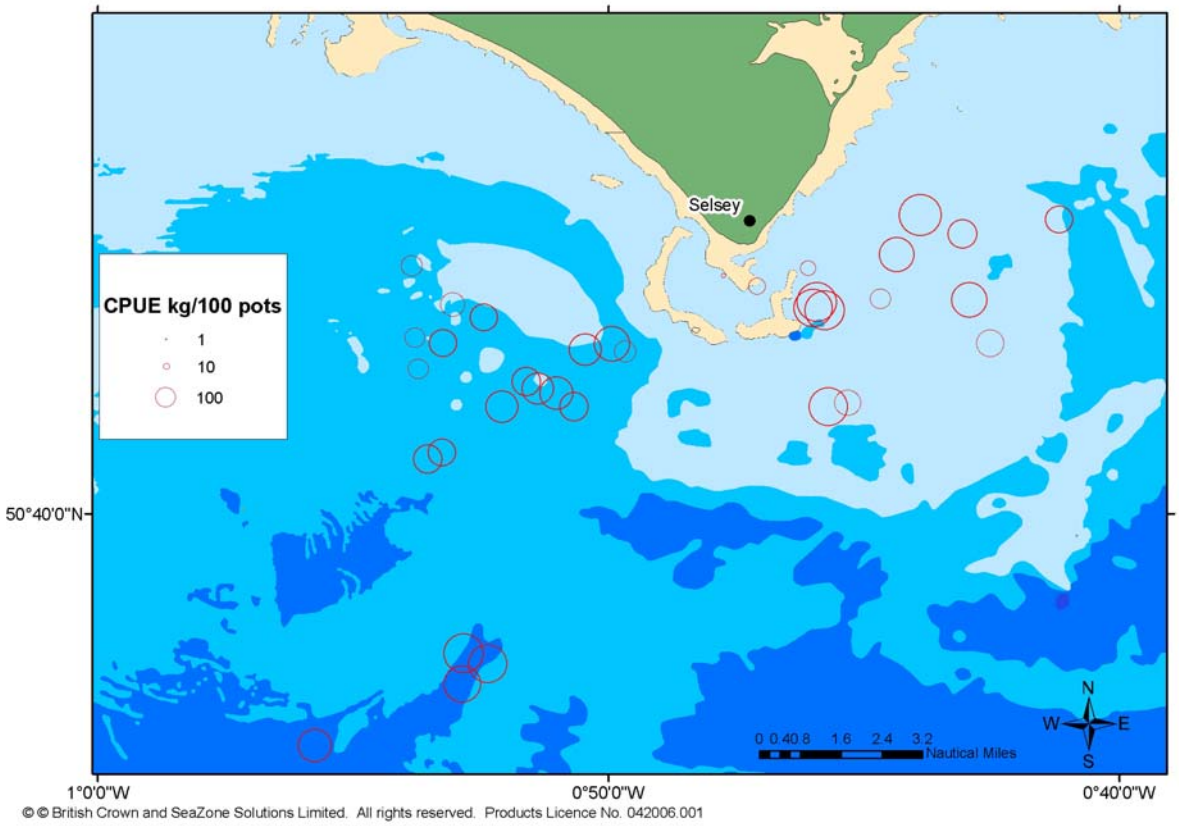

Figure 2. Sussex coast whelk biology. Catch per unit effort by station position off Selsey.

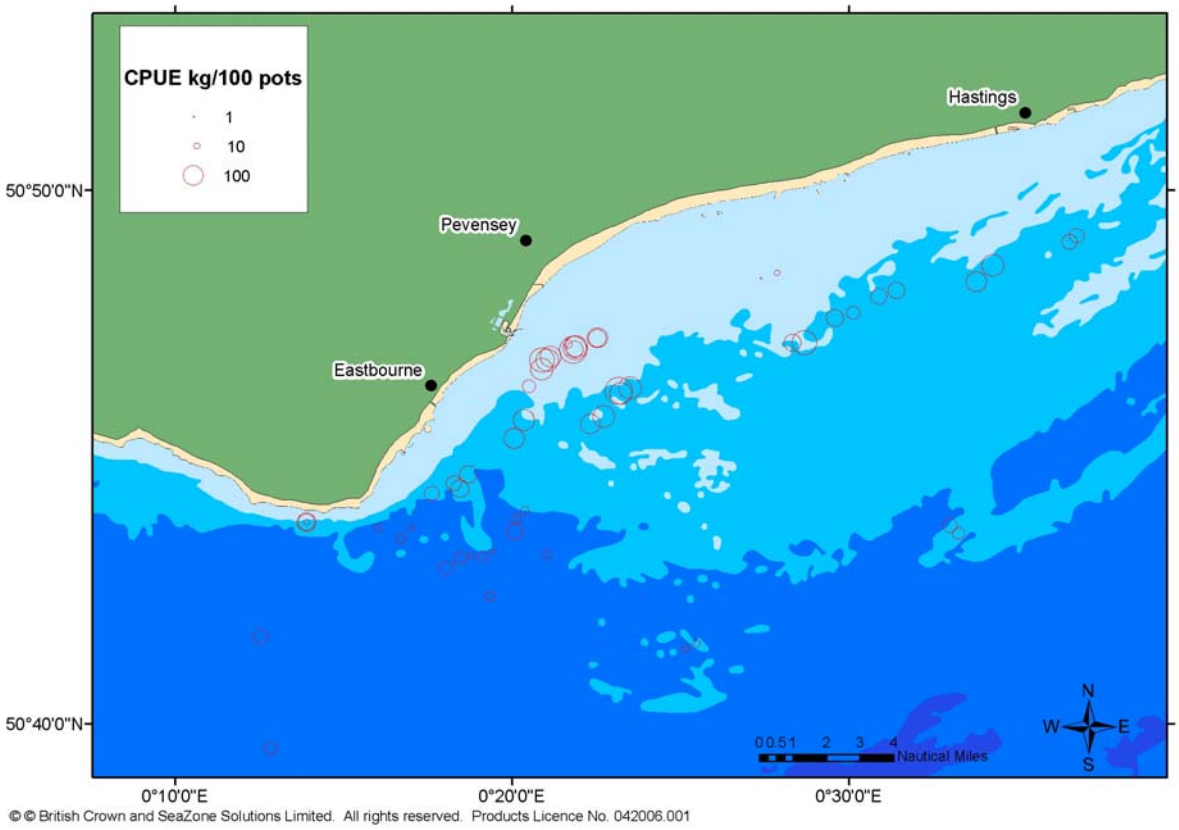

Figure 3. Sussex coast whelk biology. Catch per unit effort by station position off Eastbourne.

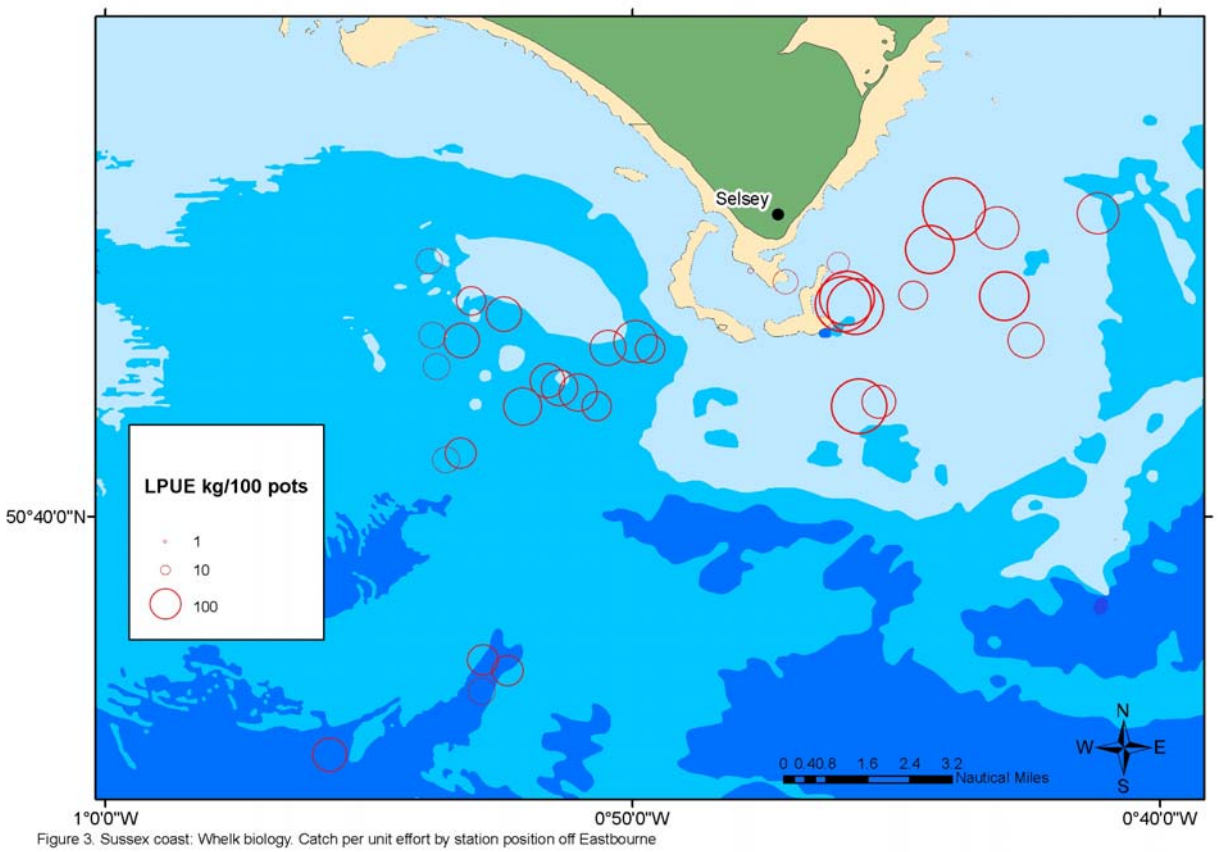

Figure 3. Sussex coast: Whelk biology. Catch per unit effort by station position off Eastbourne

Figure 4. Sussex coast whelk biology. Landings per unit effort by station position off Selsey.

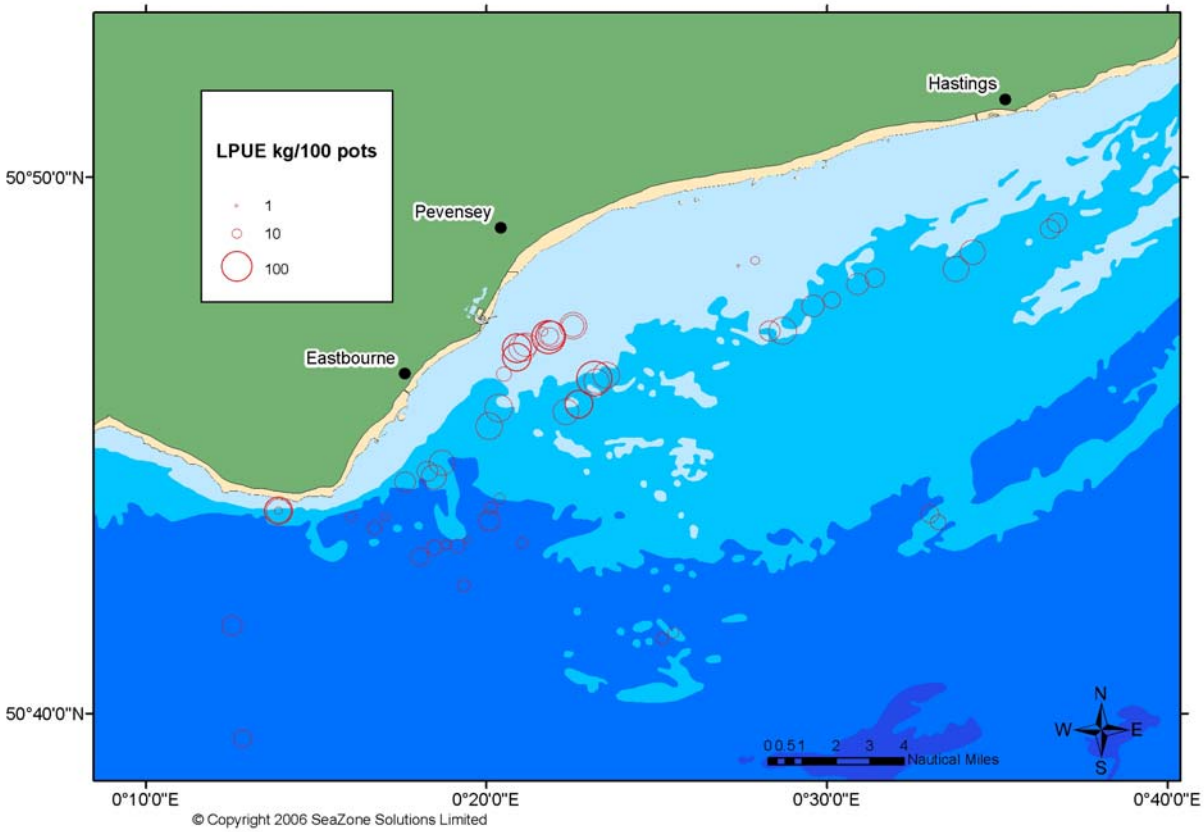

Figure 5. Sussex coast whelk biology. Landings per unit effort by station position off Eastbourne.

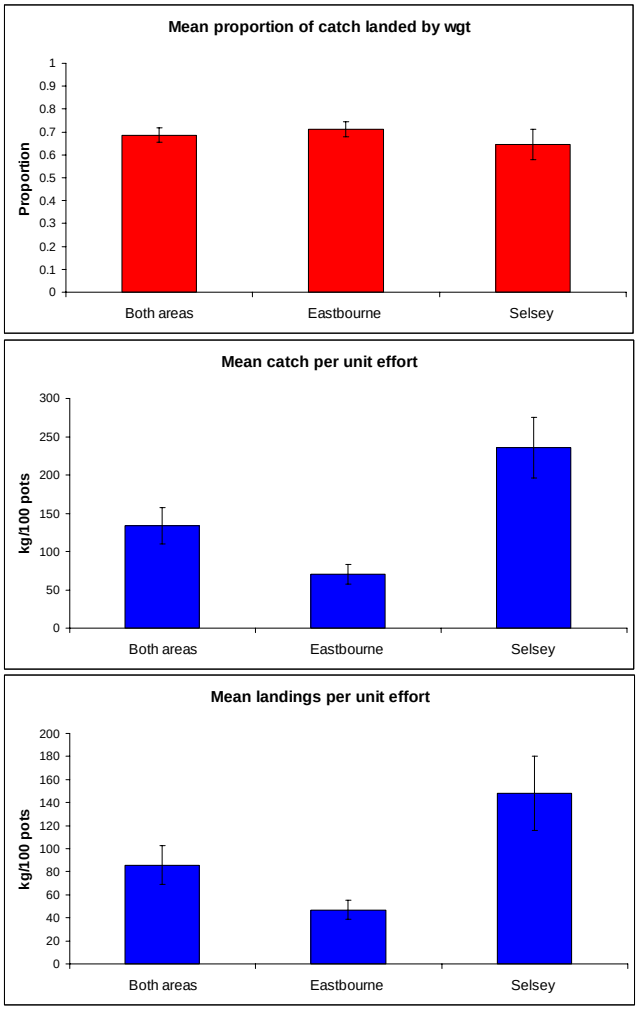

Figure 6. Sussex coast whelk biology. The mean proportion of the catch landed (by weight), mean cpue and lpue by survey area (all with 95% *CI* of the mean).

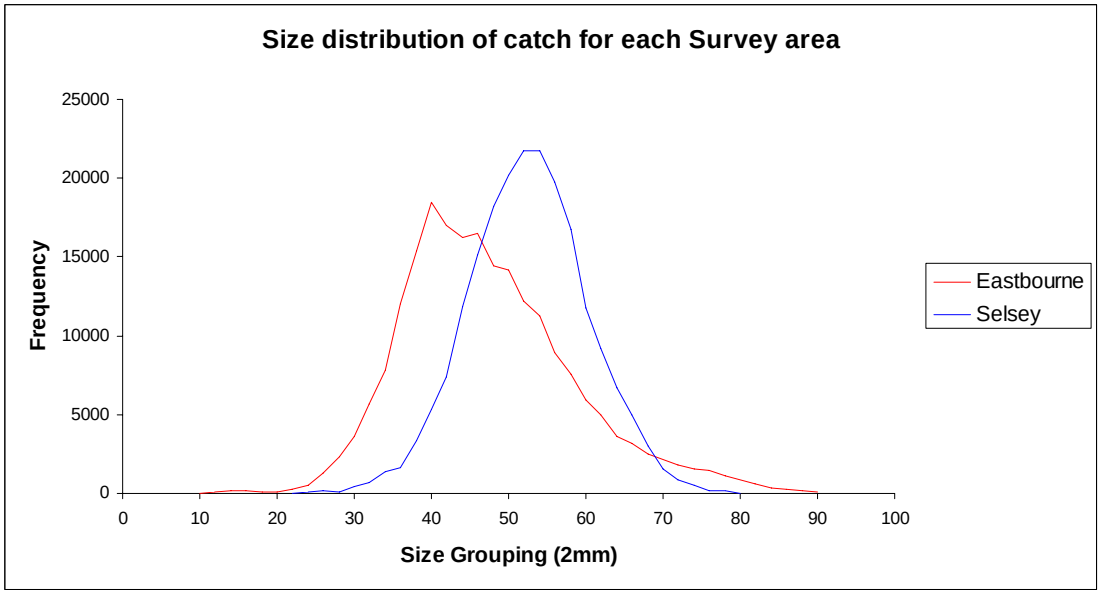

Figure 7. Sussex coast whelk biology. Size distribution of whelks raised to total catch by survey area.

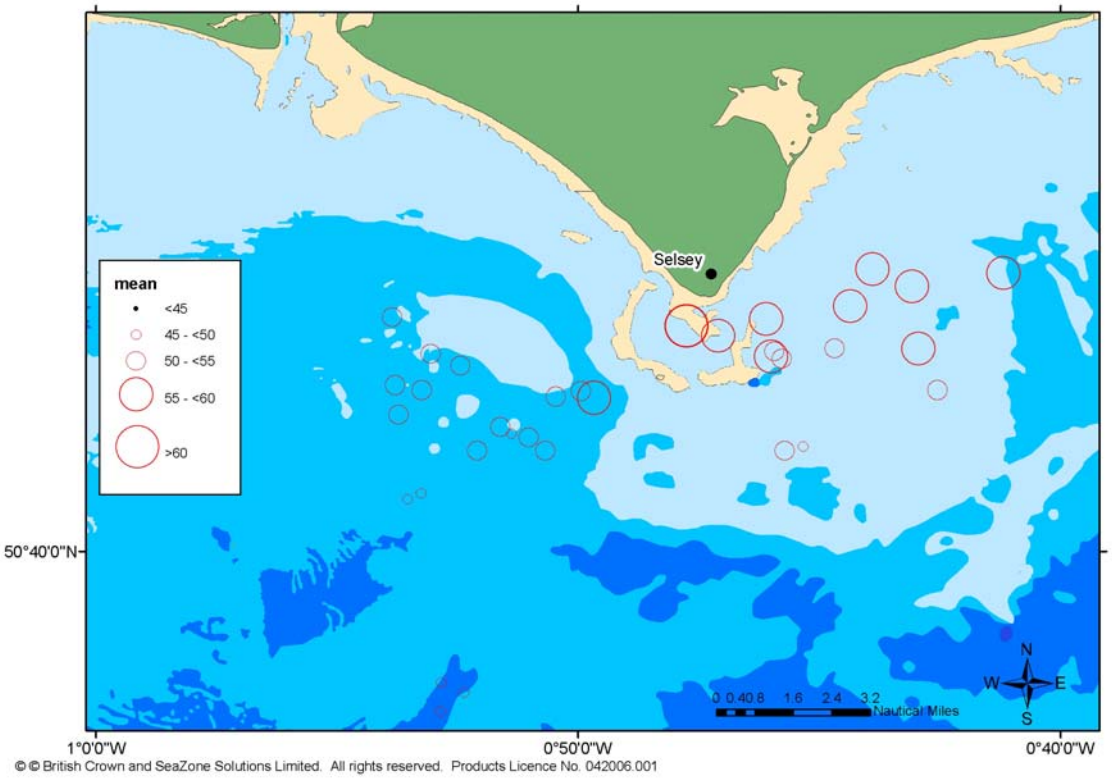

Figure 8. Sussex coast whelk biology. Mean size of whelks in the catches from the Selsey area.

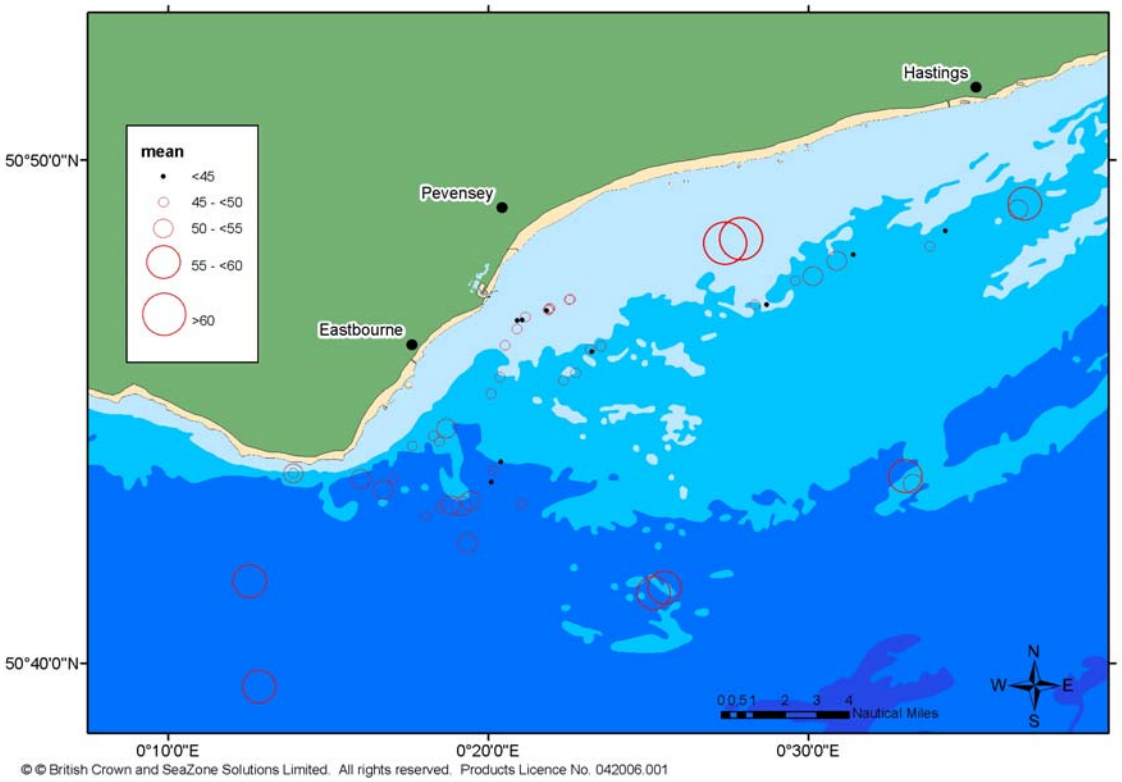

Figure 9. Sussex coast whelk biology. Mean size of whelks in the catches from the Eastbourne area.

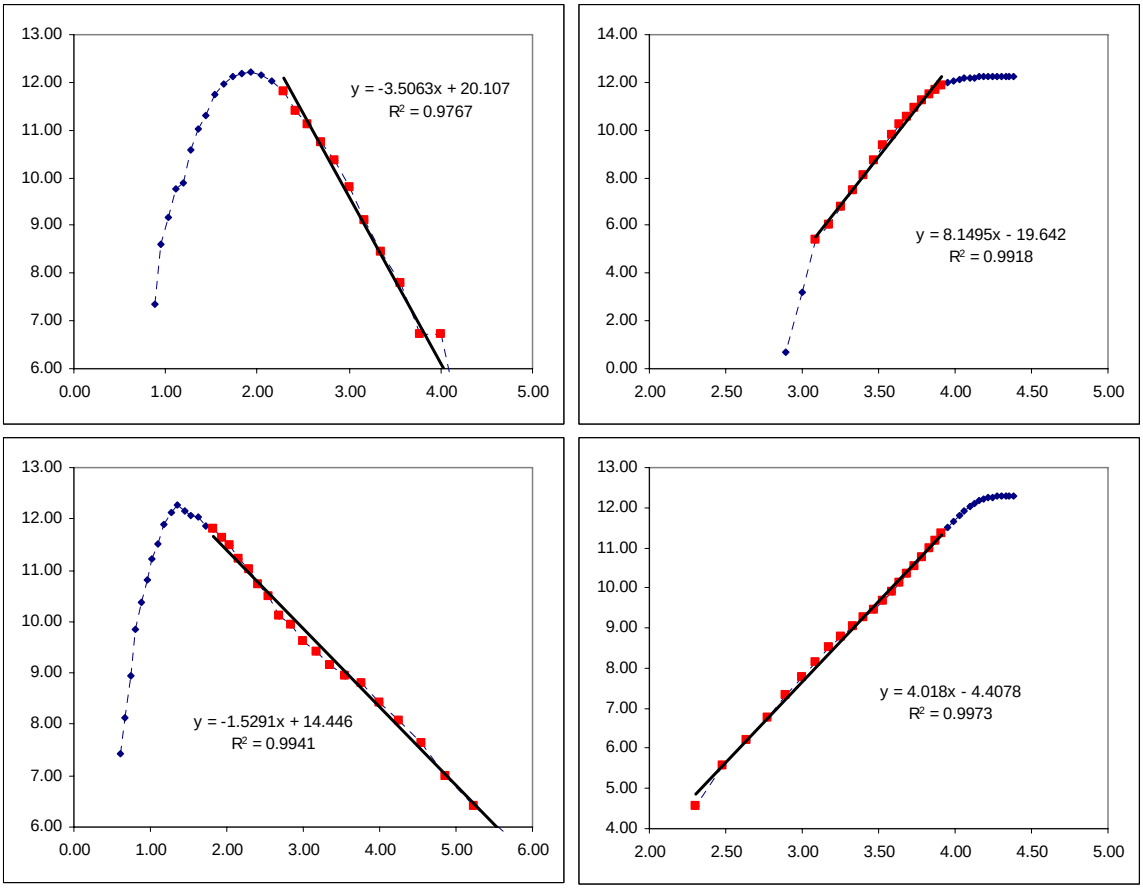

Figure 10. Sussex coast whelk biology. Results of LCCC analysis (RH method of Jones and van Zalinge; top Selsey area, bottom Eastbourne area). Growth parameters provisionally used L_{inf} = 100 mm, K = 0.39 and T_0 = 0.

Appendix 1 Detailed Survey Plans

Fisheries Science Partnership 2009/10

Channel Whelk MF033: September 2009

Detailed Operation Plan (as agreed 10th September 2009)

VESSEL

FV TomKat of Selsey (P1010)
Skipper: Chris Wilson

SCIENTISTS

1. Andy Lawler Cefas
2. Belinda Vause Sussex SFC

OBJECTIVES

- Describe the population structures and their differences in space of whelk as taken by baited traps.

- Design and initiate a monthly sampling programme to determine size at sexual maturity and the seasonality of the reproductive cycle.

- Carry out a trial mark-recapture experiment to assess the potential of such techniques for determining the population size and exploitation rate for whelk in the Selsey area.

FISHING GEAR

The fishing gear will be typical whelk pots, and will be deployed in fleets of around 50 traps. Traps will be baited with suitable fresh bait when available.

AREA OF OPERATION and FISHING POSITIONS

Fishing operations will be carried out on fishing grounds in the English Channel in the vicinity of Selsey. Operations will be restricted to an area between the shore and 9 nautical miles off the coast. Limitations with the mobility of potting gear and initial pre survey fishing positions will influence the survey-fishing positions. The final decision on where to set gear will be the responsibility of the skipper.

PERIOD OF SURVEYS

The Fishing Survey will commence on the 11th September with two scientists onboard. The duration of the trip will be 7 fishing days but this may not be continuous if fishing conditions are not suitable.

FISHING ACTIVITIES

An average of 5 fleets of 50 pots will be hauled during daily trips from Selsey dependant on adequate steaming time. The catch of whelks will be recorded for each fleet of pots and length distributions will be recorded. A crewmember will assist the scientists by arranging for sub samples of undersized whelks to be retained for measuring. The skipper will record the positions of the ends of each fleet and soak times. Fleets will be repositioned around the fishery on a daily basis. To enable a trial mark-recapture experiment to be carried out a small string of 6 pots will be deployed within easy access of Selsey (to facilitate daily hauling as weather permits).

SORTING AND RECORDING THE CATCH

The crew will be required to assist in sorting the catch as required by the scientists and preparing any fish for sale. The entire catch should be available to the scientist for sampling, and none discarded without being recorded. The catch will be sorted into the commercial species, which will be further divided into landed or discarded components. Some of the catch will be taken ashore for further analysis.

DATA TO BE RECORDED BY SKIPPER

The scientist will provide recording sheets on which the skipper will record the following details for each tow:

Date
Station number
Shooting and hauling times
Shooting and hauling positions of ends of each fleet (latitude and longitude)
Soak times
Other relevant information e.g. tidal state, weather conditions and seabed type (hard or soft).

The skipper should provide full gear specifications and at the end of the survey an electronic copy of the station positions from the plotter.

DATA TO BE RECORDED BY SCIENTIST

The scientist must ensure that all catch composition, length frequencies and raising factors are fully and correctly entered on the recording sheets, and that all wheelhouse log sheets and biological sampling sheets are collated at the end of each sampling day.

The scientists must ensure that data is secure and on return to the laboratory is processed and analysed in a suitable manner.

CRUISE REPORT

The scientists will maintain a diary of activities, including an electronic copy where possible, and a draft cruise report in standard CEFAS format will be prepared for submission to CEFAS within one week after the cruise. The cruise narrative should be read and agreed by the skipper (report will bear the sentence “seen in draft by skipper”).

Signed:

…….. (skipper) …….(date)

……(Cefas) …….(date)

Channel Whelk MF033: September 2009

Detailed Operation Plan (as agreed 23rd September 2009)

VESSEL

FV Beachy Head (NN748)
Skipper: George Piper

SCIENTISTS

3. Chris Firmin and Andy Lawler Cefas
4. Belinda Vause Sussex SFC

OBJECTIVES

- Describe the population structures and their differences in space of whelk as taken by baited traps.

- Design and initiate a monthly sampling programme to determine size at sexual maturity and the seasonality of the reproductive cycle.

- Carry out a trial mark-recapture experiment to assess the potential of such techniques for determining the population size and exploitation rate for whelk in the Eastbourne area.

FISHING GEAR

The fishing gear will be typical whelk pots, and will be deployed in fleets of around 100 traps. Traps will be baited with suitable fresh bait when available.

AREA OF OPERATION and FISHING POSITIONS

Fishing operations will be carried out on fishing grounds in the English Channel in the vicinity of Eastbourne. Operations will be restricted to an area between the shore and 6 nautical miles off the coast. Limitations with the mobility of potting gear and initial pre survey fishing positions will influence the survey-fishing positions. The final decision on where to set gear will be the responsibility of the skipper.

PERIOD OF SURVEYS

The Fishing Survey will commence on the 24th September (provisional) with two scientists onboard. The duration of the trip will be 7 fishing days but this may not be continuous if fishing conditions are not suitable.

FISHING ACTIVITIES

An average of 8 fleets of 100 pots will be hauled during daily trips from Eastbourne dependant on adequate steaming time. The catch of whelks will be recorded for each fleet of pots and length distributions will be recorded. A crewmember will assist the scientists by arranging for sub samples of undersized whelks to be retained for measuring. The skipper will record the positions of the ends of each fleet and soak times. Fleets will be repositioned around the fishery on a daily basis. To enable a trial mark-recapture experiment to be carried out a small string of around 20 pots will be deployed within easy access of Eastbourne (to facilitate daily hauling as weather permits).

SORTING AND RECORDING THE CATCH

The crew will be required to assist in sorting the catch as required by the scientists and preparing any fish for sale. The entire catch should be available to the scientist for sampling, and none discarded without being recorded. The catch will be sorted into the commercial species, which will be further divided into landed or discarded components. Some of the catch will be taken ashore for further analysis.

DATA TO BE RECORDED BY SKIPPER

The scientist will provide recording sheets on which the skipper will record the following details for each tow:

Date
Station number
Shooting and hauling times
Shooting and hauling positions of ends of each fleet (latitude and longitude)
Soak times
Other relevant information e.g. tidal state, weather conditions and seabed type (hard or soft).

The skipper should provide full gear specifications and at the end of the survey an electronic copy of the station positions from the plotter.

DATA TO BE RECORDED BY SCIENTIST

The scientist must ensure that all catch composition, length frequencies and raising factors are fully and correctly entered on the recording sheets, and that all wheelhouse log sheets and biological sampling sheets are collated at the end of each sampling day.

The scientists must ensure that data is secure and on return to the laboratory is processed and analysed in a suitable manner.

CRUISE REPORT

The scientists will maintain a diary of activities, including an electronic copy where possible, and a draft cruise report in standard CEFAS format will be prepared for submission to CEFAS within one week after the cruise. The cruise narrative should be read and agreed by the skipper (report will bear the sentence “seen in draft by skipper”).

Signed:

…….. (skipper) …….(date)

……(Cefas) …….(date)

Appendix 2 Cruise reports

CENTRE FOR ENVIRONMENT, FISHERIES AND AQUACULTURE SCIENCE
LOWESTOFT LABORATORY, LOWESTOFT, SUFFOLK NR33 OHT
2009 FISHERIES SCIENCE PARTNERSHIP

FSP Programme MF033: Eastern Channel whelk biology

REPORT: FV *Tomkat (*P1010) cruise 1.

SKIPPER: C Wilson

SCIENTIFIC STAFF: A Lawler Cefas
B Vause Sussex SFC
C Trigg Sussex SFC (15th September)

DURATION: 11th- 19th September 2009

LOCATION: West Sussex, Eastern English Channel

AIMS:

1. To describe variations in catch rates and size composition of whelks in the sea area off Selsey using baited commercial traps.
2. To initiate and design a monthly sampling programme to determine the size at sexual maturity and the seasonality of the reproductive cycle in the Selsey area.
3. To carry out a trial mark-recapture experiment to assess the potential of such techniques for determining the population size and exploitation rate for whelk in the Selsey area.

NARRATIVE:

Tomkat sailed from Selsey at 0730 on 11 September and preceded to gear she had set in the traditional whelk grounds within a few miles off the Selsey coast. Fishing operations continued on a daily basis from Selsey throughout the survey, moving gear around the ground to get good spatial coverage. On each day a small fleet of 6 pots were fished in the same position to mark and recapture whelks. On 15 and 16 September Tomkat was unable to fish her gear due to a fresh ENE wind. The survey resumed 0615 on 17 September and continued until the survey was completed at 1200 on 19 September.

Results

1. *Tomkat* fished 35 fleets of around 50 pots in the survey area. From 1,750 pot hauls made on the survey a total of 81.4 baskets of whelks were landed (approx. 2.6 t).
2. Over 13 thousand whelks were measured from samples taken from both discarded and landed components of the catch at each of the 35 fishing locations.
3. A total of 1719 whelks were marked with a combination of coloured rubber bands. Over the duration of the survey 45 marked whelks were recaptured.

Andy Lawler 2nd October 2009.

CENTRE FOR ENVIRONMENT, FISHERIES AND AQUACULTURE SCIENCE
LOWESTOFT LABORATORY, LOWESTOFT, SUFFOLK NR33 OHT
2009 FISHERIES SCIENCE PARTNERSHIP

FSP Programme MF033: Eastern Channel whelk biology

REPORT: FV *Beachy Head (*NN748) cruise 2.

SKIPPER: G Piper

SCIENTIFIC STAFF:

C Firmin	Cefas (24-28th)
A Lawler	Cefas (29-30th)
B Vause	Sussex SFC
A Kavadellas	Sussex SFC (26th)
C Trigg	Sussex SFC (27th)

DURATION: 24th- 30th September 2009

LOCATION: East Sussex, Eastern English Channel

AIMS:

4. To describe variations in catch rates and size composition of whelks in the sea area around Eastbourne using baited commercial traps.
5. To initiate and design a monthly sampling programme to determine the size at sexual maturity and the seasonality of the reproductive cycle of whelks in the sea area off Eastbourne.
6. To carry out a trial mark-recapture experiment to assess the potential of such techniques for determining the population size and exploitation rate for whelk off the East Sussex.

NARRATIVE:

Beachy Head sailed from Eastbourne at 0600 on 24 September and preceded to gear she had set in the traditional whelk grounds off the East Sussex coast. Fishing operations continued on a daily basis from Eastbourne throughout the survey, moving gear around the ground to get good spatial coverage. On each day a small fleet of 20 pots were fished in the same position to mark and recapture whelks. The survey continued uninterrupted until the survey was completed at 1830 on 30 September.

Results

4. *Beachy Head* fished 56 fleets of around 100 pots in the survey area. From 5,600 pot hauls made on the survey a total of 83.3 baskets of whelks were landed (approx. 2.6 t).
5. Over 26 thousand whelks were measured from samples of both discarded and landed components of the catch at each of the 56 locations.
6. A total of 1546 whelks were marked with a combination of coloured rubber bands and over the course of the survey 206 were recaptured.

A Lawler 2nd October 2009.

Appendix 3 Summary of a mark-recapture experiment

Eastbourne			Recaptures						
date	Numbers released	band colour	W	R	B	R+W	B+W	Y+W	Unmarked
24/09/2009	468	R	0	0	0	0	0	0	0
25/09/2009	552	W	0	1	0	0	0	0	545
26/09/2009	526	B	4	2	0	0	0	0	678
27/09/2009	2	Y	2	8	0	0	0	0	632
28/09/2009	26	R	12	5	7	2	0	0	408
29/09/2009	32	G	19	8	5	0	0	0	1013
30/09/2009	-	-	61	40	25	0	2	1	776
02/10/2009	-	-	2	0	0	0	0	0	-

Table 3. Sussex coast: Whelk biology. Numbers of whelks marked and recaptured and captures of unmarked whelks by day fished during mark-recapture experiment off Eastbourne. Shaded row was post survey data kindly provided by skipper. Additional data to be provided. W - white, R - red, B – blue, G - green and Y - yellow.

Appendix 4 Example of species present in typical whelk pot by-catch

RCM NA Shared ALKs Case Study – NEA Mackerel

Andrew Campbell and Ciarán Kelly

Marine Institute, Galway, Ireland

Introduction

In 2010, the RCM NA recommended that a case study for deriving regional stock based age-length keys be carried out for NEA Mackerel. The purpose of such a study is to evaluate if it is appropriate to introduce task sharing, at a stock level, with regard to sampling for ageing of fish. This working document outlines the work carried out to date.

Data Available

Catch numbers at age and sampling information (number of samples, number measured and number aged) for NEA Mackerel is provided every year to the WGWIDE working group by each nation involved in the fishery. The data is aggregated by quarter and ICES division. However, for the purposes of this study data is required at a more disaggregated level. The countries involved in the RCM NA were requested to provide the following information:

- A description of sampling stratification
- A description of the sampling regime
- Details of the individual length frequencies
- Age Length Keys

Data was collected from 7 countries (Ireland, Scotland, England, Netherlands, Germany, Portugal and Spain) and was based on the 2010 catch and sampling data prepared for the 2011 assessment at WGWIDE.

The table below details the numbers of fish measured and aged by each country per ICES area and quarter where sampling was carried out. The number of LFs and ALKs is also given. Where an ALK is shared across quarters or ICES divisions, this is indicated. For example, England uses a single ALK for ICES divisions VIIe and VIIf in the first semester.

Scotland Pelagic Trawl (Single), RSW

	IVa (Q3)	IVa (Q4)	VIa (Q1)	VIIj (Q1)	VIIb (Q1)		
Catch (t)	18,961	28,495	53,375	18,703	17,763		
Measured (LFs)	2659 (16)	3812 (17)	2712 (23)	773 (6)	607 (5)		
Aged (ALKs)	567 (16)	885 (17)	754 (23)	278 (6)	218 (5)		

England Lines

	VIIe (Q1)	VIIe (Q2)	VIIf (Q1)	VIIf (Q2)	VIIf (Q3)	VIIe (Q4)	VIIf (Q4)
Catch (t)	8	191	2	153	269	48	30
Measured (LFs)	513 (1)	610 (1)	468 (1)	824 (1)	1830 (1)	75 (1)	1012 (1)
Aged (ALKs)	382 (1)				329 (1)	205 (1)	

Ireland Pelagic Trawl (Pair), RSW

	IVa (Q4)	VIa (Q1)	VIa (Q4)	VIIb (Q1)	VIIj (Q1)		
Catch (t)	14,348	23,893	8,297	4,932	5,211		
Measured (LFs)	1637 (1)	3177 (1)	569 (1)	1193 (1)	2402 (1)		
Aged (ALKs)	686 (1)	1039 (1)	241 (1)	577 (1)	1108 (1)		

Germany Pelagic Trawl (Single), Freezer

	VIa (Q1)	IIb (Q3)	IIa (Q3)	VIId (Q1)	VIIb (Q1)		
Catch (t)	3,568	3	2	1	4,737		
Measured (LFS)	1,424 (1)	232 (1)	333 (1)	140 (1)	1409 (1)		
Aged (ALKs)	395 (1)	86 (1)	91 (1)	331 (1)	225 (1)		

Ne'lands Pelagic Trawl (Single), Freezer

	VIId (Q1)	VIIe (Q1)	VIIj (Q1)	VIIj (Q2)	IVa (Q3)	VIId (Q3)	VIIe (Q3)
Catch (t)	79	2	10,771	528	16	2	18
Measured (LFs)	150 (3)	82 (1)	1,700 (3)	259 (2)	146 (1)	98 (1)	112 (1)
Aged (ALKs)	75 (1)	25 (1)	350 (1)	100 (1)	25 (1)	25 (1)	25 (1)

(cont)	VIId (Q4)	VIIh (Q4)	VIa (Q4)
Catch (t)	8	368	6,964
Measured (LFs)	170 (1)	116 (1)	62 (1)
Aged (ALKs)	25 (1)	25 (1)	25 (1)

Portugal Purse Seine, Demersal Trawl, Lines

	IXaN (Q1)	IXaN (Q2)	IXaN (Q3)	IXaN (Q4)			
Catch (t)	229	197	1,809	128			
Measured (LFs)	1,174 (1)	1,950 (1)	1,741 (1)	784 (1)			
Aged (ALKs)	401 (1)		468 (1)				

Spain Purse Seine, Demersal Trawl, Lines

	VIIIcE (Q1)	VIIIcE (Q2)	VIIIcW (Q1)	VIIIcW (Q2)	IXa N (Q1)	IXa N (Q2)	
Catch (t)	33,925	929	4,909	198	6,569	1,405	
Measured (LFs)	7,883 (0)	NA (0)	NA (0)	241 (0)	NA (0)	NA (0)	
Aged (ALKs)	2915 (1)		1,048 (1)				

Spain (cont)	VIIIcW (Q3)	VIIIcW (Q4)	IXa N (Q3)	IXa N (Q4)	VIIIb (Q1)	VIIIb (Q2)
Catch (t)	176	177	305	132	6,641	0
Measured (LFS)	483 (0)	81 (0)	512 (0)	298 (0)	2782 (0)	0 (0)
Aged (ALKs)	945 (1)				476 (1)	

In total 102 separate length-frequency distributions are available with 101 ALKs. Spain provided ALK information but did not submit length-frequency distribution in time for this analysis. Most countries provided a single age length key per stratum where the stratum appeared to be the ICES sub division and quarter (or semester in the case of Portugal), the Scottish sampling programme defines the stratum by vessel, and this explains why there are so many age length keys.

Results

Baseline

To investigate the consistency and utility of the ALKs provided, a bootstrap approach has been taken, randomly sampling (with replacement) from sets of keys when converting length-frequency data to numbers at age. This was done in the R statistical computing language. To establish a baseline result with which bootstrapped results can be compared, the ALKs used by each country were initially applied to their respective length-frequency distributions. This resulted in a number at age vector similar to that supplied to WGWIDE. Some discrepancies were introduced as it was sometimes necessary to estimate the raising factors for individual LFs. The resulting vector of number at age was used as the baseline in this study.

Bootstrap With All ALKs

The first bootstrap exercise used the full set of 101 keys from which a sample was drawn (with replacement) for each of the LFs. 1000 iterations were carried out resulting in 1000 population vectors from which the mean, median and quartiles were calculated for each age. Figure 1 shows the result of this exercise. Box and whisker plots have been used to display the range of values calculated for the number at each age. The box limits correspond to the interquartile range with the whiskers extending to the most extreme outliers. The black dot and horizontal line correspond to the mean and median values respectively. Finally, the red dot shows the value calculated in the baseline exercise described above.

Mackerel catches in 2010 were dominated by 4 and 5 year old fish with significant contributions also from 2-3 and 5-7 year olds. Catches above 10 years old form a relatively small part of the total. Using all the available keys results in some wide variations in catch numbers at age (e.g. for 5 year olds a minimum of $1.28x10^8$ and a maximum of $2.03x10^8$). However, the interquartile range (in which 50% of the results lie) is much smaller with mean and median values also in good agreement.

It should be noted that these results will be implicitly weighted in favour of those sampling schemes which have the most ALKs as these are the keys most likely to be resampled. In this case, the Scottish data accounts for just over half of all keys, by virtue of the sampling scheme employed (trip based). Coincidentally, Scotland also accounts for a major proportion of the catches. This coincidence dominates the correspondence of the bootstrapped result with the raising carried out as per WGWIDE.

Bootstrap with Individual Country ALKs

A series of bootstrap analyses were performed limiting the keys from which the resamples were drawn to those corresponding to each country. The results from using the Scottish keys are shown in figure 2. Generally, the results are similar to those in figure 1. There is less variation in extreme values which is consistent with a smaller, less diverse set of keys. Estimates for 6 year olds are higher than those when all keys were used indicating that relatively speaking, 6 year olds are more strongly represented than in the keys from other countries. Also notable is the underestimate of aged 0 fish. This is expected since such fish are usually only caught in any quantity in the fisheries in the southern areas in the second semester and are thus absent from ALKs derived from sampling of vessels operating predominantly in IVa and VIa.

The results of the bootstraps for the other countries are show in figure 3 (Spanish ALKs), figure 4 (Dutch ALKs), figure 5 (Portuguese ALKs), figure 6 (English ALKs), figure 7 (Irish ALKs) and figure 8 (German ALKs). These results reflect the variations and limitations in each of the sampling programs from which the keys are derived.

In general, if the set of ALKs is constructed from a significant number of samples then the results are less variable, such as for Spain, Portugal and Ireland. There is much greater variability when keys are sparse i.e. they contain relatively few aged fish. This can be seen in the results from the bootstrap drawing from only Dutch keys. There is a wide range for all ages. Age 5 fish are significantly underestimated. Closer analysis of the Dutch keys shows that 7 of 10 keys contain only 25 fish and that 5 year olds were not common in these particular samples.

The results from the English keys (figure 6) show that consideration must be given to the nature of the fleet and its associated selectivity. There is very poor agreement with the baseline results when all LFs are

raised using ALKs derived from the English sampling program which targets only handliners in VIIe and VIIf. To explore this further the average length at age was calculated from the ALKs. The results are shown in figures 9 and 10. It is clear that, for ages over 3, fish sampled by England are smaller at age than those in other fisheries. Additionally, Portugal (11+) and Spain (13+) appear to be using an inappropriate plus group (the assessment for mackerel requires a plus group of 15).

Discussion

A number of preliminary conclusions can be drawn from this study, particularly with regard to possible problems that may arise by using shared ALKs inappropriately. That said however the study also shows that where sampling is adequate and there is no difference in growth, there is reasonable correspondence in raised numbers at age when using ALK's from fisheries with similar selectivity's.

If it can be established that there are different growth characteristics between fish caught in different geographical areas then it is inappropriate to share ALKs between these areas. This may be the case in the southern area (particularly area IXa) where young fish (2-3 year olds) from the Portuguese sampling have higher average length than those from other waters (see figure 10). It may be the case that a separate ALK could be established for the Southern waters. A more in depth study of Spanish and Portuguese sampling data may indicate that it would be appropriate for them to share keys. Additionally, fish caught in areas IV,VI and VII appear to have similar growth characteristics and this may also be an area where the construction of a shared key is appropriate.

Several fleets are represented in the data including pelagic trawl (single and pair) by RSWs and also freezer trawlers. The southern fleets include a combination of purse seine, demersal trawl and other artisanal gears (lines and gillnets). The English fleet in areas VIIe and VIIf consists exclusively of handliners (this is the only fishing method permitted in this area). The sampled catch from this fleet is significantly different from the others in this study. As a result, the keys derived from this sampling regime are not suitable for application to catches by other fleets. In corollary, should a common key be applied to an LF derived from a fishery with a significantly different selection pattern (or if a particular fleet modifies its selection pattern by altering its fishing methods) then this will not be reflected in the resulting number at age vector.

The quality of an individual ALK is primarily determined by the number of fish aged in the process of constructing the key. Sparse keys may be applicable for applying directly to the catch from which they were originally sampled (providing all the lengths have a subsample selected for ageing) but their application elsewhere is of limited utility, in the context of a shared key.

Further work: The short timeline available to complete this work precluded more in depth analyses of the differences in sampling regime between participating MS. In order to provide a further rationalisation of results such detail should be examined.

Shortcomings: It should be noted that while it may be statistically rational and fiscally desirable to pool ageing sampling for stock assessment between MS with similar fleet selectivity's operating across areas

with similar species growth rates, such a development would potentially “blind” a stock assessment to potential changes in selectivity’s across fleets. i.e. if the selection of a fleet which had been pooled because of similarities in selection and fishing area, were to change; the raised catch at age data for the assessment would miss change in the change in the exploitation of the stock.

Acknowledgements: We kindly thank the MS data coordinators who kindly supplied data for this study and responded to queries about their sampling designs.

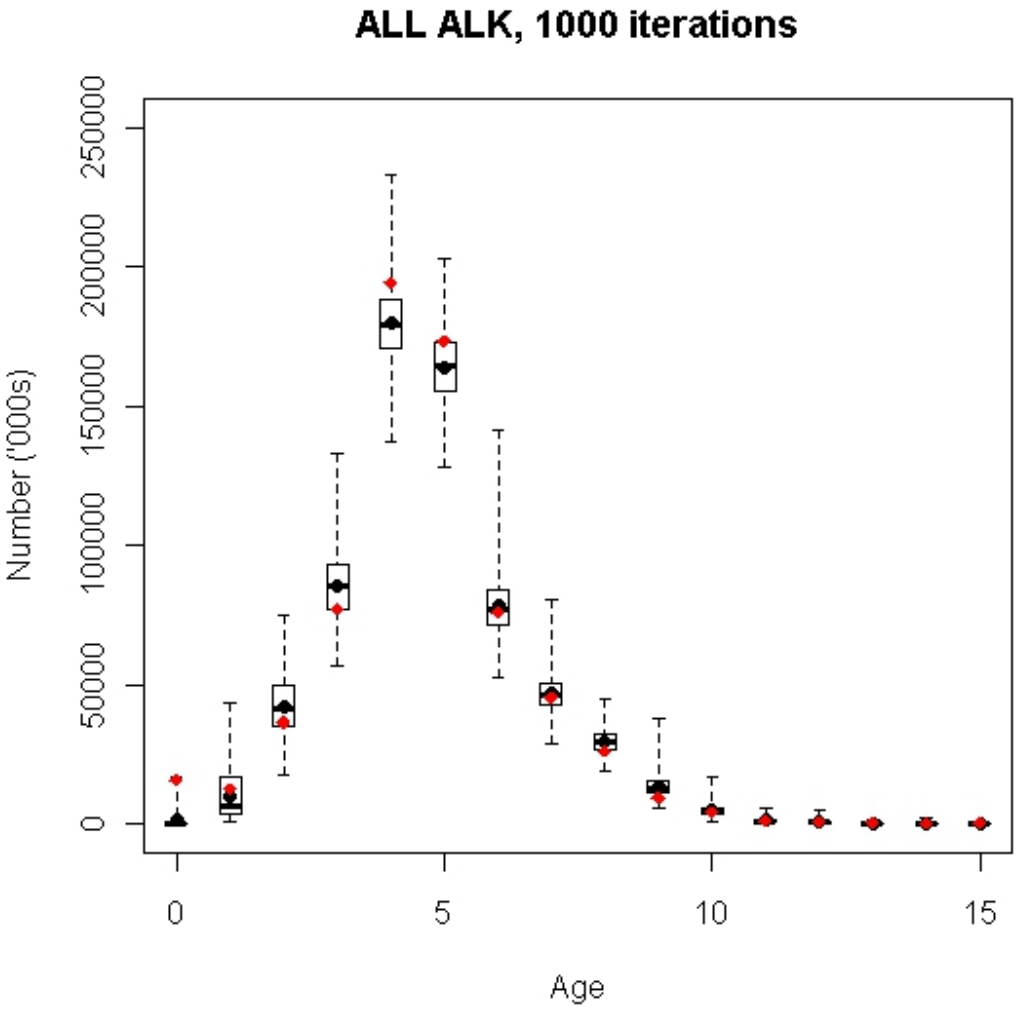

Figure 1: Bootstrap using all available ALKs. Box limits denote the interquartile range, whiskers extend to the most extreme outliers. Black dots show the mean, black bars the median and red dots the baseline result.

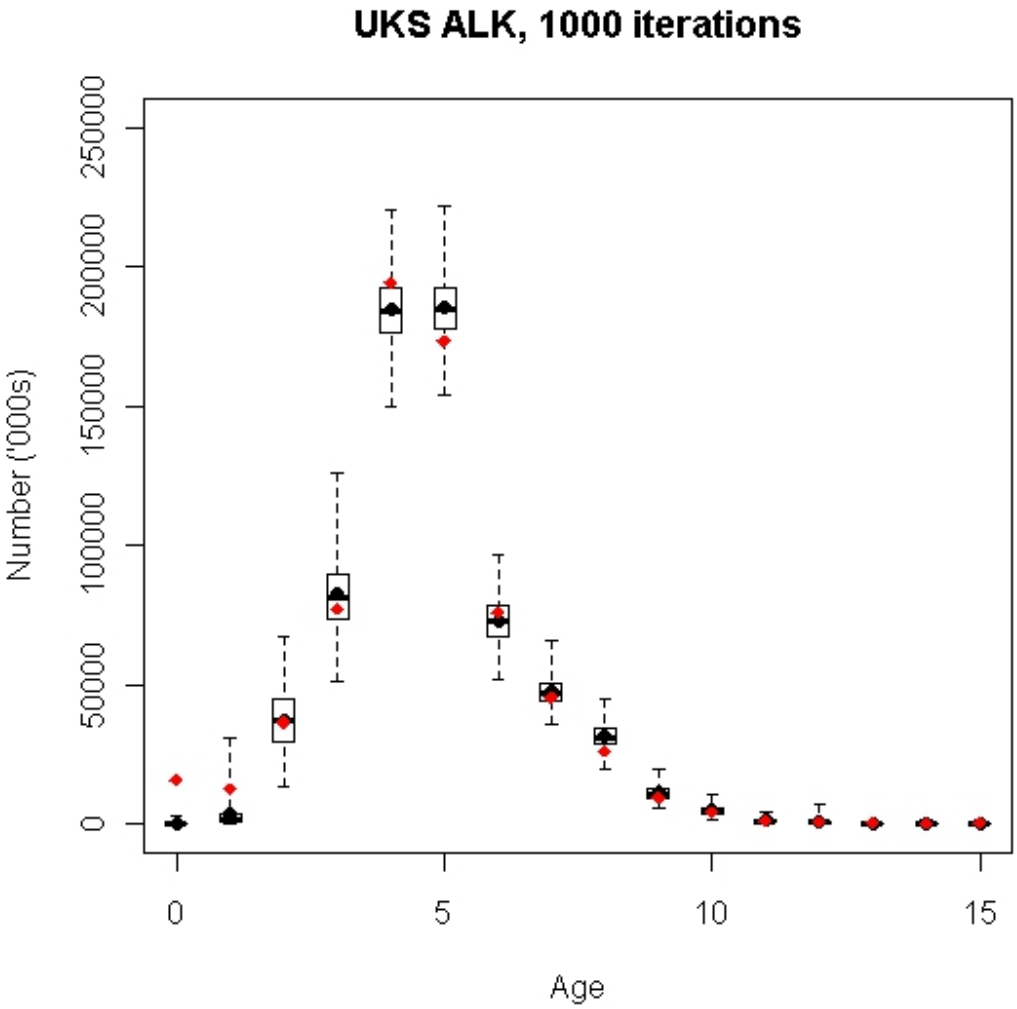

Figure 2 Bootstrap using ALKs from Scottish sampling program. Box limits denote the interquartile range, whiskers extend to the most extreme outliers. Black dots show the mean, black bars the median and red dots the baseline result.

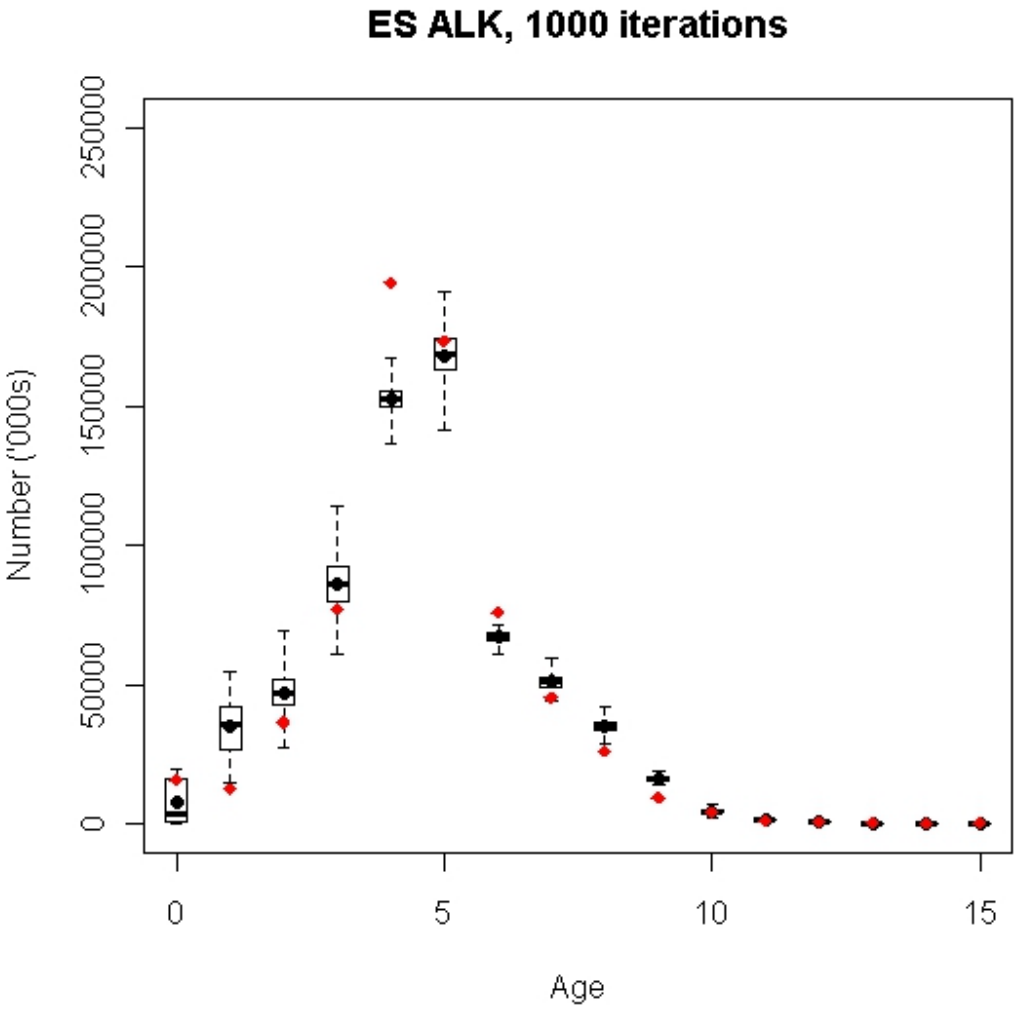

Figure 3. Bootstrap using ALKs from Spanish sampling program. Box limits denote the interquartile range, whiskers extend to the most extreme outliers. Black dots show the mean, black bars the median and red dots the baseline result.

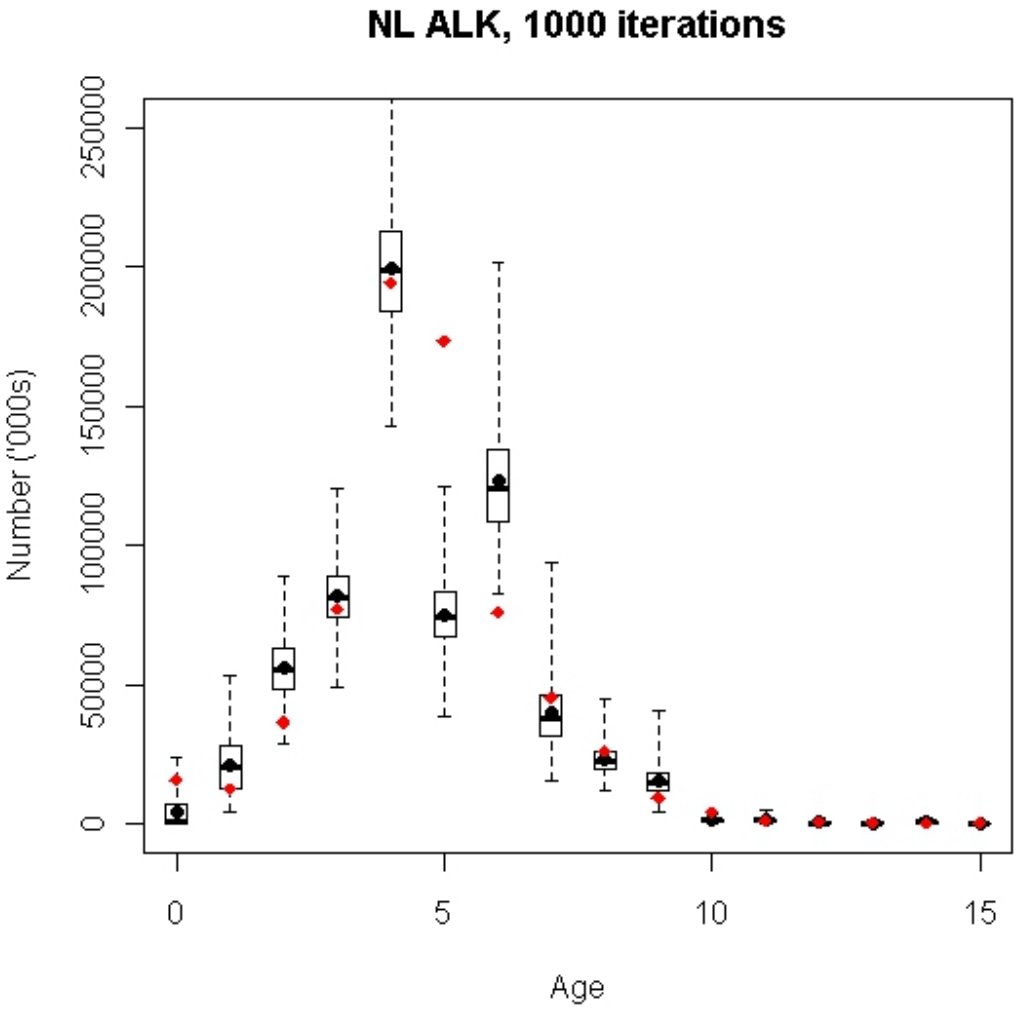

Figure 4. Bootstrap using ALKs from Dutch sampling program. Box limits denote the interquartile range, whiskers extend to the most extreme outliers. Black dots show the mean, black bars the median and red dots the baseline result.

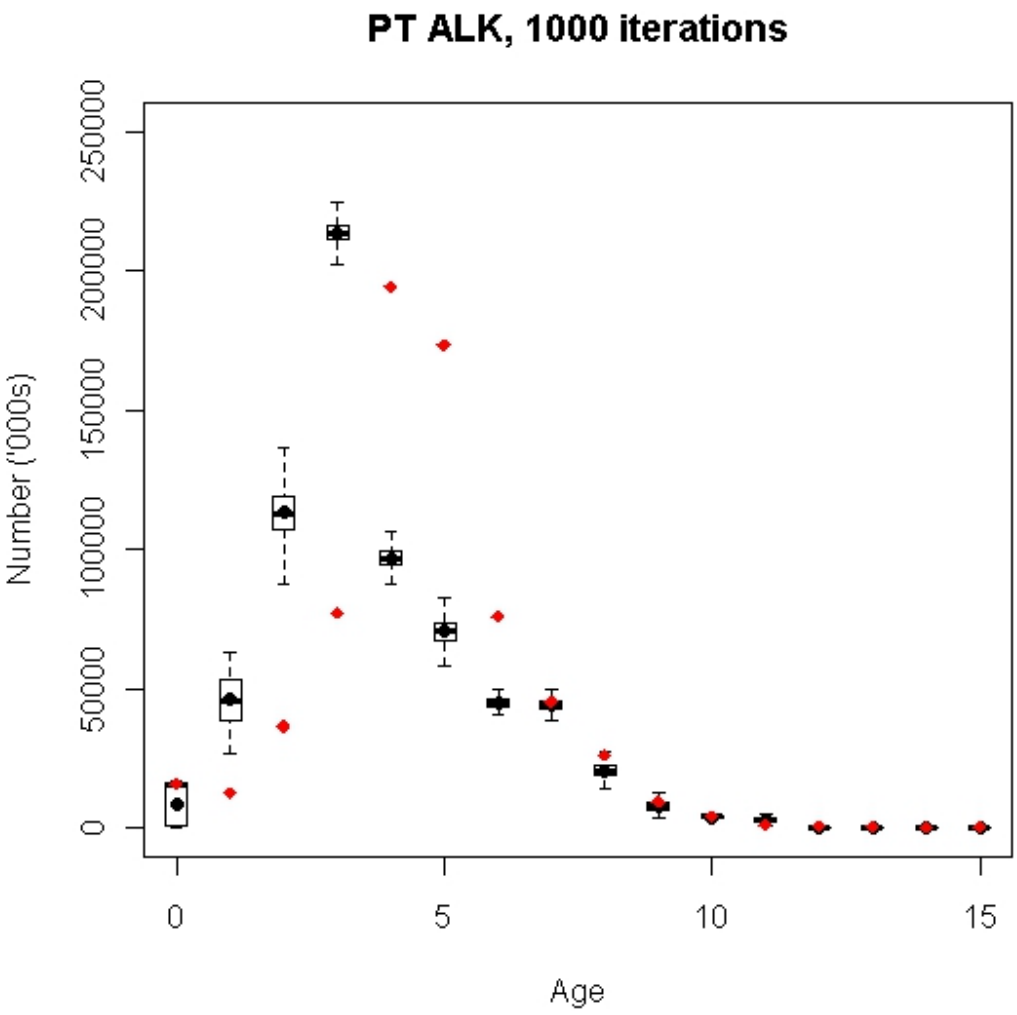

Figure 5: Bootstrap using ALKs from Portuguese sampling program. Box limits denote the interquartile range, whiskers extend to the most extreme outliers. Black dots show the mean, black bars the median and red dots the baseline result.

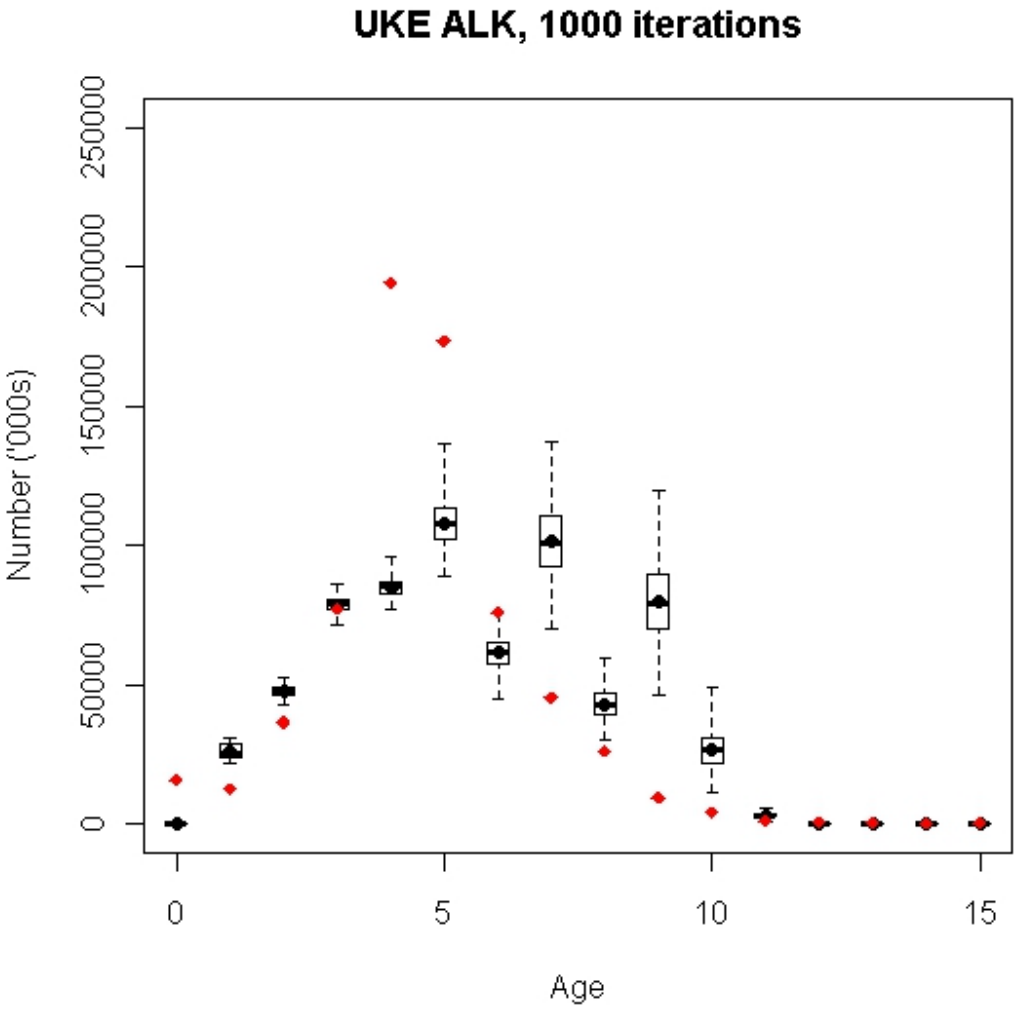

Figure 6. Bootstrap using ALKs from English sampling program. Box limits denote the interquartile range, whiskers extend to the most extreme outliers. Black dots show the mean, black bars the median and red dots the baseline result.

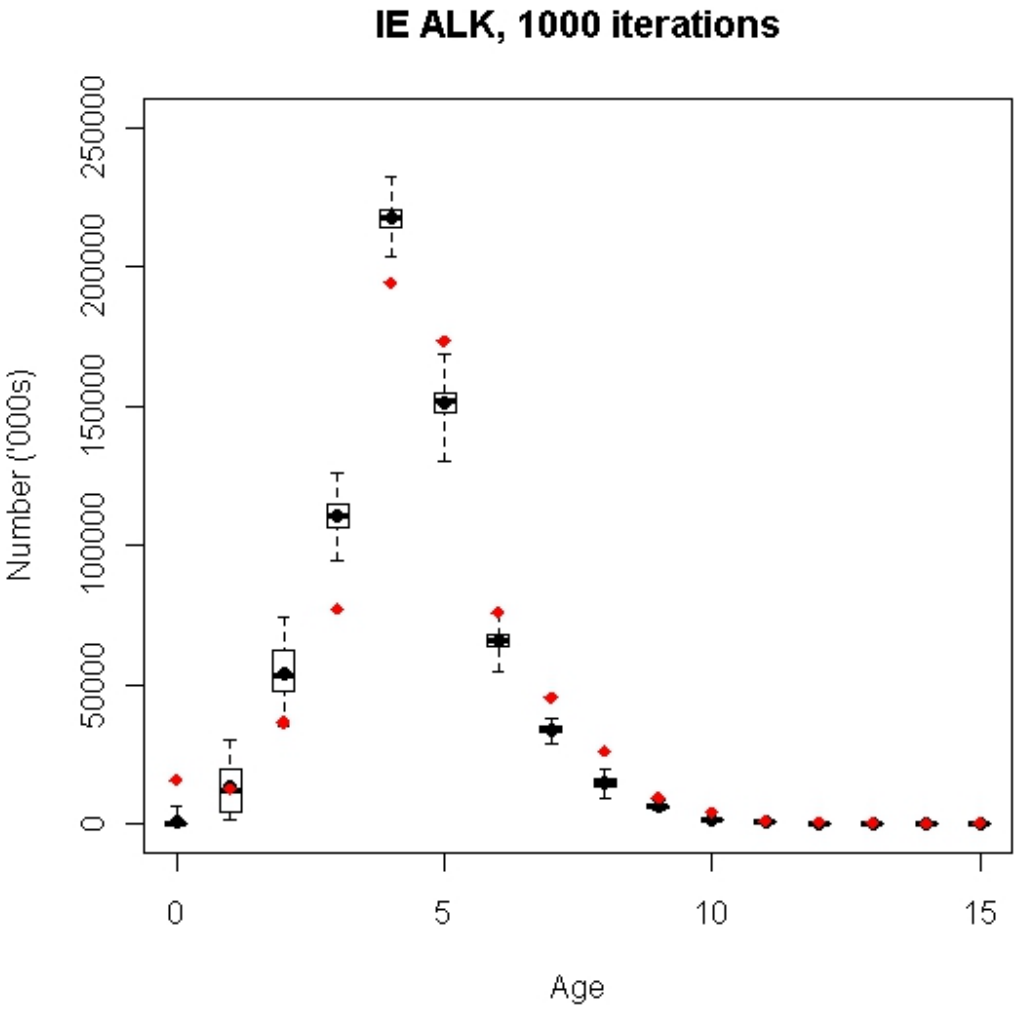

Figure 7. Bootstrap using ALKs from Irish sampling program. Box limits denote the interquartile range, whiskers extend to the most extreme outliers. Black dots show the mean, black bars the median and red dots the baseline result.

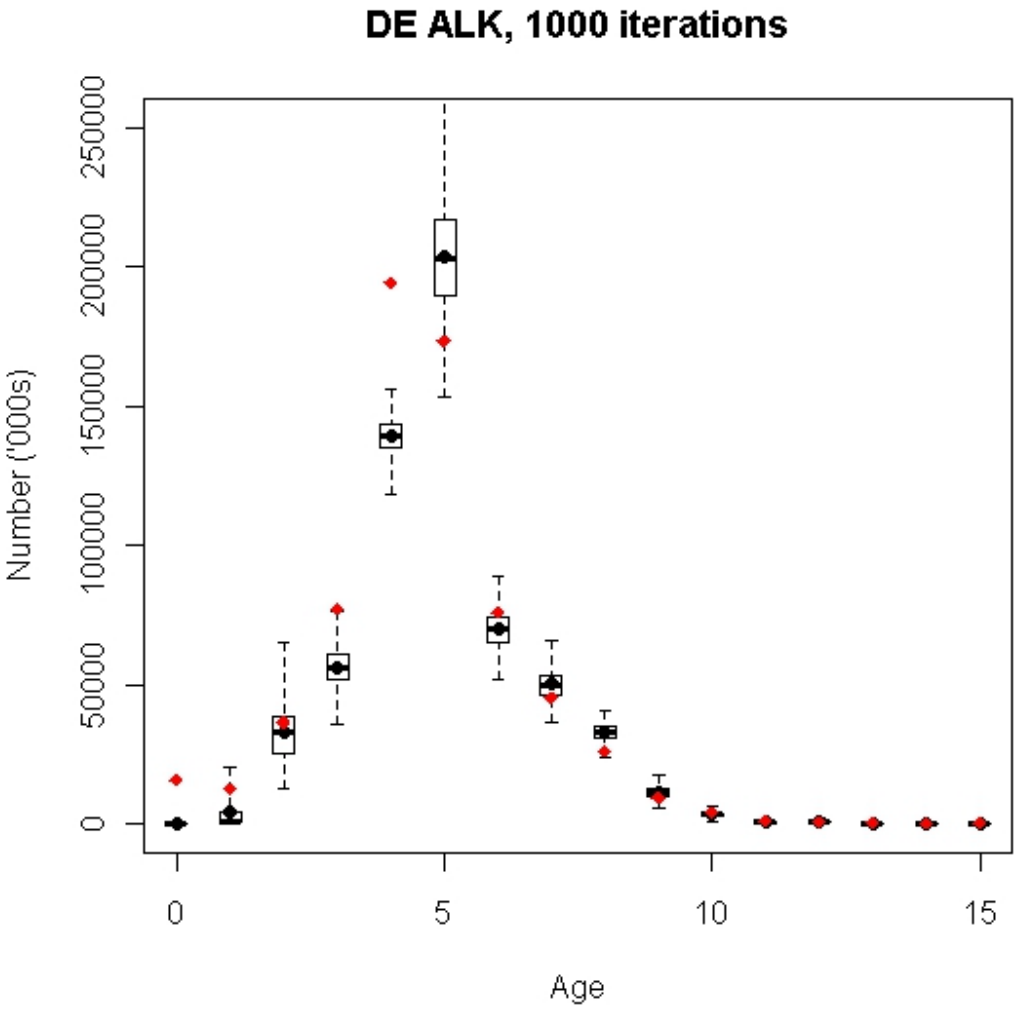

Figure 8. Bootstrap using ALKs from German sampling program. Box limits denote the interquartile range, whiskers extend to the most extreme outliers. Black dots show the mean, black bars the median and red dots the baseline result.

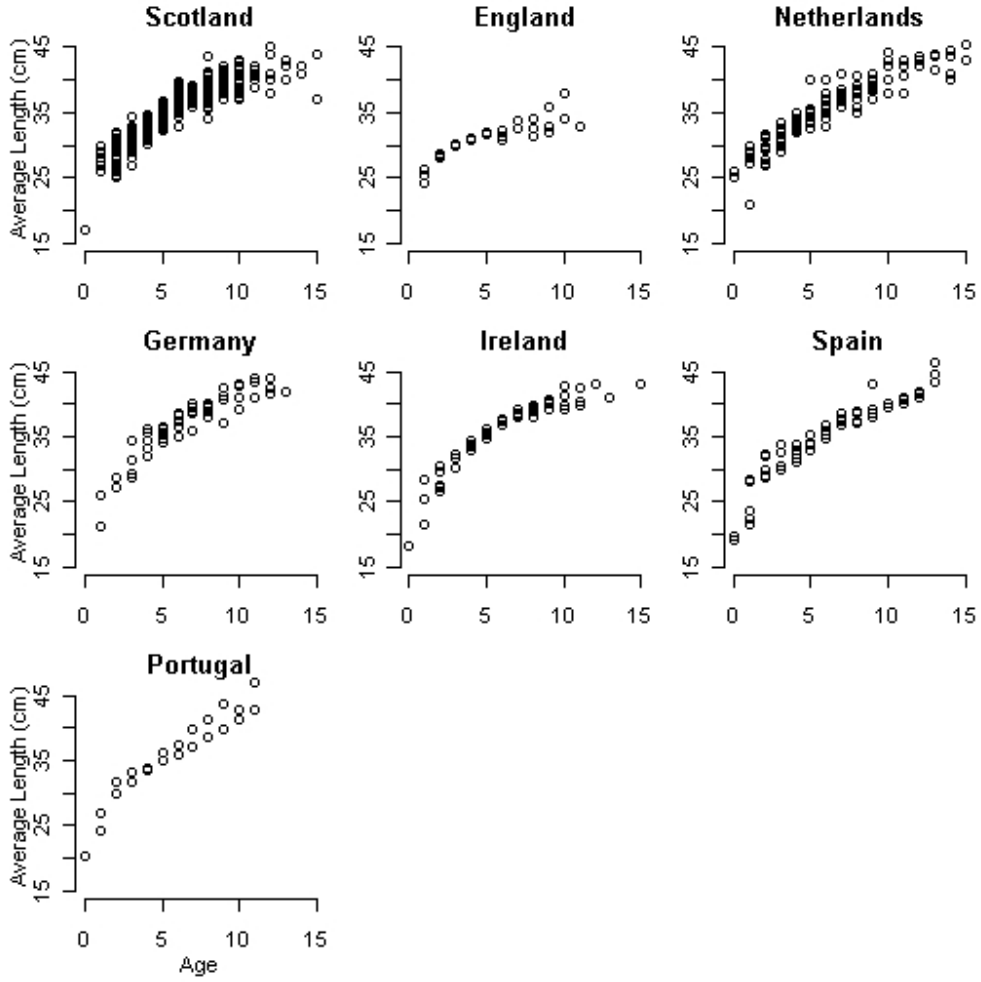

Figure 9. Average length at age from all ALKs

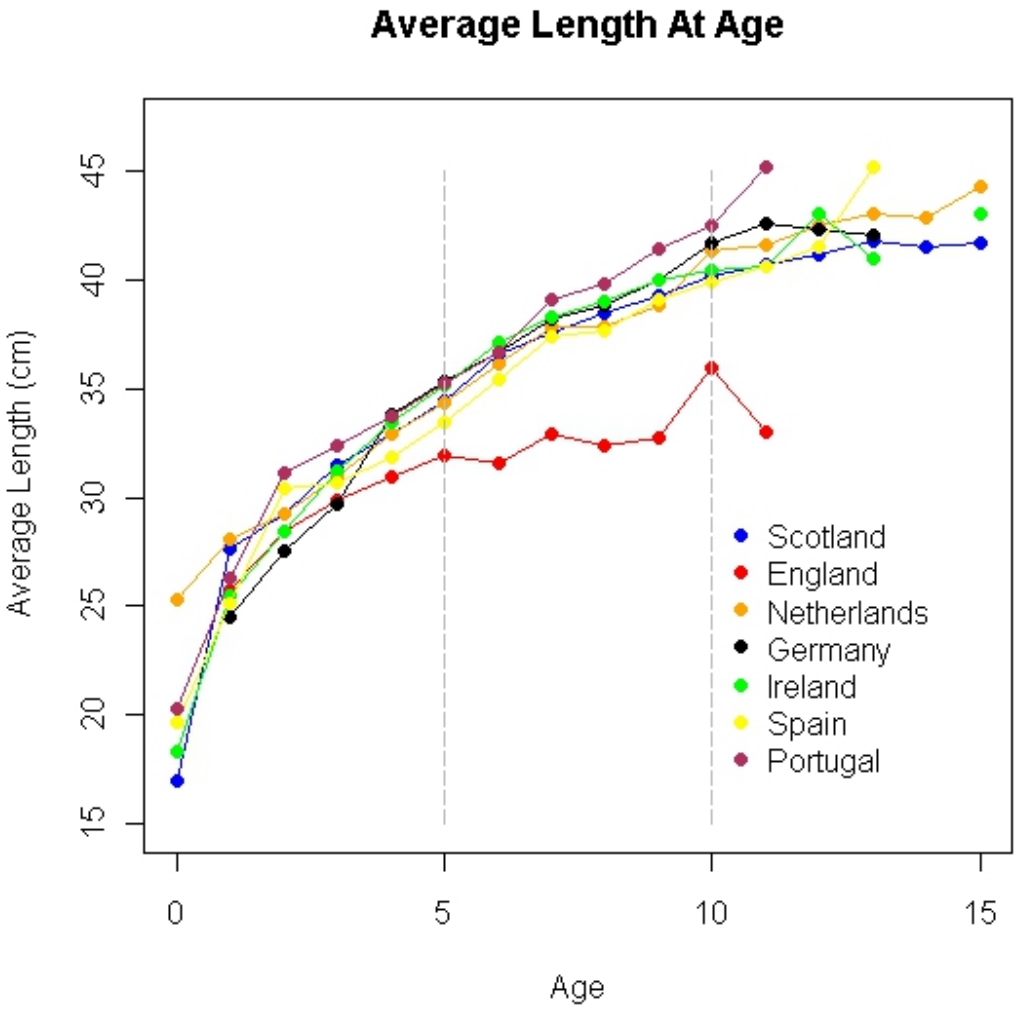

Figure 10. Comparison of average length at age from composite keys