Report of the Regional Co-ordination Meeting for the North Atlantic (RCM NA) 2014

Horta, Portugal
22– 26 September 2014

Table of Contents

1. Executive summary

The 11th RCM North Atlantic was held in Horta (Portugal) 22-26 September 2014. Due to the delayed introduction of the revised DCF the European Commission decided a roll-over in 2013 meaning Member States National Programmes 2011-2013 remains unchanged for the period 2014-2017. The limitations this decision brings for coordination of current MS national programmes have allowed RCM NA to focus in three major different aspects of the data collection where a better integration –as stated by article 4 Commission Decision 665/2008— is currently needed.

1. Concurrent sampling

One of the major changes in the DCF that came into force in 2009 was a shift towards concurrent sampling: a sampling strategy covering the sampling of all species during sampling operations. Via this strategy the DCF is able to facilitate the data demands of the existing stock-based assessments as well as serving the revised needs for the ecosystem approach to fishery management. The requirements for concurrent length sampling were developed in PGCCDBS07. Implementation studies were done through the following years at national level and an ICES Workshop (2008) discussed about the common problems and the way for best implementation. However it seems concurrent sampling has been under discussion in some countries since then. STECF report (STECF, 12-07) noted “that concurrent sampling of different fish stocks in the same catch is carried out differently in different Member States leading to inconsistent estimates of catch compositions from sampling schemes. There is a need to explain and define concurrent sampling in order to ensure consistent sampling by MS.” RCM NA analysed the current situation. Data collected is increasingly being used by groups to provide additional information, not available in the past under historic data collection methods. RCM NA detailed the ICES Working Groups that have benefited from the introduction of concurrent sampling allowing them to provide more robust advice. Moreover, there are a large number of stocks lacking quantitative assessments and reliable estimates of stock status. RCM NA specified recent studies indicating that simple harvest control rules using information on the catch length composition and length reference points can be used to deliver catch-based advice that is risk adverse (e.g. Geromont and Butterworth 2014, Jardim et al., 2014, ICES WKLIFE). Concurrent sampling may constitute an important source of biological data for many of the data-limited stocks and the application of these simple HCRs. And historical series are in fact very recent so more results from on-going work is expected. The benefits of concurrent sampling were also highlighted regarding species specific data in species that are often grouped together, with quality that can be verified given the experience and expertise of the data collectors. In the RCM NA it was evident that not all MS were carrying out sampling in this manner. The question as to whether this variability in sampling affects the quality and utility of the data collected needs to be investigated.

2. Regional coordination

Optimizing and harmonizing fisheries management across MS is dependent on improving regional coordination. This coordination is expected to improve through the use of tools as the regional data

bases where on-going work is being developed. RCM NA analysed that there is a need for harmonization of métiers at level 6. This work was being accomplished since the 2008 RCM NA and was somehow abandoned last years so the problem persists. Reviewing and collating fleet descriptions, metier definitions, standardising metier coding and merging national métiers into regional metiers are fundamental steps that has to be taken by MS. RDB is currently containing big amounts of data not useful for regional coordination. The 2014 RCM NA decided to produce a reference list containing all the possible combinations for métier naming. The reference list was compared with both, data uploaded into the RDB and list of métiers as provided in the MS National Programme (NP 2011-2013). The results of this comparison show the need to restrict the RDB uploads and métier lists provided in the NP accordingly to the reference list and following the métier naming standards. The current list of métiers uploaded to the RDB is incomplete and definitely contains incorrect métier codes.

3. Quality checks

There has been considerable discussion, guidance and recommendations about improving and reporting quality in relation to the DCF at STECF, RCMs and at ICES expert groups. This is an ongoing and collective task where specific inputs are needed. The report of RCM NA provides extensive guidelines to the MS how to implement quality assurance procedures. RCM NA focused on the quality issues and recommended QC and QA procedures at the National data capture and data processing level - those stages where the responsibility for checking the data remains firmly in the hands of the MS.This formsa simple standard QA document which can also inform data users and evaluators of the minimum checks carried out by each MS prior to any data upload to the RDB. There was not sufficient time to review the results and these will need to be done at the next RCM. The document itself will need to be reviewed as to its efficacy, whether it may form part of a Regional QA document and how it may be kept up to date if it does.

Between the other issues addressed by the RCM NA it is necessary to stress the landing obligation. This represents a fundamental shift in the management approach to EU fisheries. The RCM NA considered different topics related to this new situation and discussed how it might have an impact on data. The direction of some of these implications is also unclear until the implementation of the obligation has been defined and the practical implications on the ground can be addressed. First issue considered was the access to vessels for biological sampling and potential changes in behaviour of fishing vessels. Opinion of the RCM is that scientific observers should have no mandate for the control of fishing regulations. Previous observer programmes have indicated that changes in operational behaviour already occur when an observer is on board. It is suspected that this will increase with the introduction of the landing obligation. Secondly, changes in IT systems and protocols were addressed. The landing obligation will generate changes for the collection of sampling data. One of the major changes is that the catch will be split into three catch components. As already stated in the other RCMs on-board sampling protocols will have to be adjusted to account for the new defined components of the catch. National fisheries institutes must update and adapt their existing IT systems in order to include the new catch components. Furthermore, the regional data bases and

consecutively FishFrame and InterCatch need to be prepared and the uploading processes and raising and estimation procedures adapted. The third issue was the quality of data compliance of the logbooks. The quality of the data depends both on the quality of the catch information and the quality of the biological sampling. Both elements will be affected by the landing obligation. Concern is expressed by the RCM on the future quality of the catch statistics. The RCM is of the opinion that the discard plans, to be implemented in the different regions, should contain clear proposals on how different components of the catch should be monitored and that logbooks and IT systems should be adapted in a timely manner to record the different catch components.

Analysis of the data call for submission data to the RDB revealed huge work must be done in order to ensure correct data are available for regional coordination and/or expert groups. Most part of countries uploaded data (only Spain –not uploaded but available to the meeting- and France –similar situation- didn't do it) but superficial analysis showed the data uploaded was inconsistent: large differences between MS, low number of species uploaded indicating that uploads from several countries are still incomplete, incorrect name of the fishing activities making impossible check again the metier descriptions compiled in the past, etc. It is not the task of the RCM NA to check every data upload, so it was clear a new data call should be established to ensure MS upload correct data. Nevertheless RCM NA see big improvements in the work MS are doing regarding these data calls coming from a situation where some countries didn't provide the data to a new scenario where everyone is providing data and worries concern the quality, which is a large step forward.

Other items on the agenda were the consideration of the follow up of relevant recommendations made last year by Liaison Meeting; consideration of the cost sharing proposal received from RCM NS&EA; evaluation of the ICES data quality transmission sheets and presentations on relevant developments from ICES, EC and SC-RDB.

2. Introduction

2.1 General

The 11th RCM North Atlantic was held at the University of Azores in Horta (Portugal). 21 Participants joined the meeting in different settings. Besides sampling experts, ICES and DGMARE (Commission) were represented. No national correspondents attended the meeting.

The meeting was chaired by Kelle Moreau and Jose Rodriguez. There were three subgroups dealing with concurrent sampling, landing obligation and data quality issues. Manuela Azevedo, Helen McCorminck and Jon Elson acted as subgroup chairs with Brian Harley, Margaret Bell and Annemie Zenner as rapporteurs for the subgroups.

RCM NA thanks the University of Azores for inviting the meeting, the excellent facilities offered are appreciated. RCM NA wishes to thank ICES for hosting and organizing the sharepoint in a very efficient way.

2.2 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). This framework provides the basic data needed to evaluate the state of fishery resources and the fisheries sector and the impact of the fisheries on the marine ecosystems.

The Regional Coordination Meeting for the North Atlantic (RCM NA) proceeds from the Data Collection Framework (EC Regulation no. 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 EU 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 EU 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 coordination of the data collection are carried out at a regional level and specific Regional Coordination Meetings (RCMs) are in charge of facilitating this and these meetings aim to identify areas for standardisation, collaboration and task sharing between MS. RCMs are held annually and involve participants from each MS involved in the DCF.

At present, five RCMs are operative:

- 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
- the 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.

The regional split over 5 regions allows for coordination while taking into account regional aspects and specific problems. Regional Coordinating Meetings (RCMs) are held annually. The key objectives of the RCMs are to identify areas for standardisation, collaboration and cooperation between MS.

A Liaison Meeting (LM) between the chairs of the different RCMs is being held annually to analyse the RCM reports in order to ensure overall co-ordination between the RCMs.

2.3 Legal requirements

Within the DCF, the role of the RCMs and their tasks in regional coordination are clearly defined in various articles of the Council regulation.

Council Regulation 199/2008 Article 5: Coordination and cooperation

> 1. Member States shall coordinate their national programmes with other Member States in the same marine region and make every effort to coordinate their actions with third countries having sovereignty or jurisdiction over waters in the same marine region. For this purpose 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.
>
> 2. In order to take into account any recommendation made at regional level at the Regional Coordination Meetings, Member States shall where appropriate submit amendments to their national programmes during the programming period. Those amendments shall be sent to the Commission at the latest two months prior to the year of implementation.

Commission Regulation 665/2008 Article 4: Regional co-ordination

> 1. The Regional Coordination Meetings referred to in Article 5(1) of Regulation (EC) No 199/2008 shall 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.

2. The Chair of the meeting shall be designated by the Regional Coordination Meeting in agreement with the Commission for a two year period.

3. The Regional Coordination Meetings may be convened once a year. The terms of reference for the meeting shall be proposed by the Commission in agreement with the Chair and shall be communicated to the national correspondents referred to in Article 3(1) three weeks prior to the meeting. Member States shall submit to the Commission the lists of participants two weeks prior to the meeting.

Commission Decision 2010/93/EU

Where precise requirements for the RCMs are made and regional aspects are addressed.

2.4 Terms of Reference

1. Review progress in regional co-ordination since the 2013 RCM (follow-up of recommendations and 10th Liaison Meeting report). Evaluate the outcomes of the RCMs that took place in 2013 & of any other RCMs that took place in 2014, pending availability of outcomes, 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, ICES, GFCM, and ICCAT).

3. Regional coordination

1) Review the reports from the RDB-steering Committee meeting.

2) Update on regional databases since RCMs 2013.

3) Structure of the regional databases and identify needs of the RCMs that could be addressed by the RDB SC and suggest any new features/reports to be developed.

4. New CFP

- Consider impact of the implementation of the landing obligation, the discard plans and the programmes for monitoring of compliance of the discard ban for the data collection.

- Consider need for adjustment to be implemented in the NP's for 2015

5. Review progress on quality control, validation etc. procedures and suggest any changes or new procedures that may improve the data quality control. Consider processes how quality of data can be evaluated before the are used by the end-user

6. Revision of the DCF Regulation and development of a new EU Multiannual programme (EU MAP) for data collection

- Provide feedback on the STECF reports since the last RCMs, focusing on aspects related to regional coordination. Prepare a roadmap for the development of a regional sampling programme.
- Consider how the future role of RCGs (preparing sampling, allocating tasks, quality assessment at a regional level) can be achieved and what steps are required to get there. What can already be done before adoption of revised DCF?.

7. Direct management programme of EMFF
    - Propose studies and pilot projects (EMFF Article 86(2)a)
    - Consider Direct management funding possibilities under the EMFF (Article 86(2)d on research surveys under SFPAs
    - Explore interest of MS in participating in 'pilot RCG' projects funded under 86(2)f on regional cooperation
8. Propose a model for cost sharing of joint surveys
9. Analyse data from 2014 RCM data call (TBC).
10. Any other business

2.5 Structure of the report

The report address the terms of references as follows:

t.o.r	section
1	3
2	3
3	4
4	9
5	5
6	7
7	8
8	10
9	6

2.6 Participants:

Name	Country	email	Participation
Kelle Moreau	Belgium	kelle.moreau@ilvo.vlaanderen.be	full time
Annemie Zenner	Belgium	annemie.zenner@ilvo.vlaanderen.be	full time
Ana Juarez	Spain	ana.juarez@cd.ieo.es	full time
Jose Rodríguez	Spain	jose.rodriguez@st.ieo.es	full time
Brian Harley	UK (England)	brian.harley@cefas.co.uk	full time
Jon Elson	UK (England)	jon.elson@cefas.co.uk	full time
Frans van Beek	Netherlands	frans.vanbeek@wur.nl	full time
Lucia Zarauz	Spain	lzarauz@azti.es	full time
Estanis Mugerza	Spain	emugerza@azti.es	full time
Helen McCorminck	Ireland	helen.mccormick@marine.ie	full time
Dália Reis	Portugal	dreis@uac.pt	full time
Jens Ulleweit	Germany	jens.ulleweit@ti.bund.de	full time
Margaret Bell	UK (Scotland)	m.bell@marlab.ac.uk	full time
Alastair Pout	UK (Scotland)	a.pout@marlab.ac.uk	full time
Christian Dintheer	France	christian .dintheer@ifremer.fr	full time
Manuela Azevedo	Portugal	mazevedo@ipma.pt	full time
Marina Dias	Portugal	mdias@ipma.pt	full time
Mette Bertelsen	ICES	mette@ices.dk	part-time (3 days)
Henrick Kjems-Nielsen	ICES	henrikkn@ices.dk	part-time (3 days)
Bas Drukker	Commission	bas.drukker@ec.europa.eu	part-time (2 days)

2.7 Host

The meeting was hosted by the Institute of Marine Research – IMAR at the Department of Oceanography and Fisheries (DOP) in Horta, Faial Island. IMAR/DOP was created in 1991, as a non-profit private organization and continues to develop the work initiated in 1976 by the University of the Azores which is one of its founder members.

IMAR/DOP is involved in research activities related to the marine sciences. Main research programs deal with the description, experiment and modelling of oceanic ecosystems, within the areas of Ecology, Marine Biology, Physical and Chemical Oceanography, and Fisheries. The work conducted

aims to contribute to the scientific basis of policy support (either regional, national and internationally), to establish and promote key areas of scientific research on a multi-year scale, and to empower the Portuguese marine sciences community, making it competitive on a European and international level.

An important part of the work consists in data collection which is conducted in the Azorean sea (Subarea X, both in coastal waters and the open sea, regulated by the EU Data Collection Regulation (EC No 199/2008) and partly financed by the EU.

Cooperation is established with the International Council for the Exploration of the Sea (ICES), European Commission expert groups, the International Commission for the Conservation of Atlantic Tunas (ICCAT) and with Universities and research institutes in Portugal and other European countries.

3. Progress in regional co-ordination since the 2013 RCM

Due to the delayed introduction of the revised DCF, the Commission decided in 2013 to carry over the National Programmes from the Member States for 2011-2013 unchanged to the period 2014-2017, the need for co-ordination of their programmes has therefore been limited.

3.1 Follow-up of recommendations from the 2013 Liaison meeting

A Liaison Meeting (LM) between the Chairs of the RCMs, the chair of ICES PGCCDBS, the chair of PGMED, the chair of the Regional Database Steering Committee, the ICES representative, the Chairs of STECF EWG's DC-MAP and PGECON and the European Commission is held annually to analyse the RCMs, PGCCDBS, PGECON and PGMed reports in order to ensure overall coordination between the RCMs. The LM prioritises RCMs' recommendations and reviews the follow up actions required and makes recommendations to the Commission

The 10th Liaison Meeting was held at DG Mare, Brussels from 8th to 9th October 2013. The main outcomes and recommendations from the RCMs, PGECON, PGCCDBS and PGMed were presented by the respective chairs and discussed by the LM.

The 10th Liaison meeting considered all recommendations made by the RCMs and PGECON. These recommendations are listed below. The Liaison identified overlap between some recommendations made by the different RCMs and decided to merge these. Note that recommendations 1-6 are merged and composed from elements provided by several RCMs.

The recommendations are complemented with comments from the RCM NA 2014 in the field 'follow up in 2014'.

1. Training course on "Design and analysis of statistically sound catch sampling programmes"	
RCMs Baltic and NA Recommendation	A training course on "Design and analysis of statistically sound catch sampling programs" should be organised.
Justification	Guidelines for implementing statistically sound catch sampling are required in the DC-MAP. Based on the work done by ICES (WKPICS and SGPIDS) the training course should organized including development of a manual with guidance on best-practice and definitions.
Follow-up actions needed	To be organized by ICES.
Responsible persons for follow-up actions	RCM chairs
Time frame (Deadline)	April 1st 2014
LM 2013	LM endorses the recommendation. The recommendation is based on Baltic Rec 1 & NA Rec 10.
Follow up in 2014	A training course on this subject was given by ICES on 23-27 June 2014 in Copenhagen.

2. Quality assurance - Managed repository for RDB upload successes and data status reports	

RCMs Baltic, NS&EA and NA Recommendation	It is recommended that a system for administering and recording upload successes by Member States and a facility to provide a clear reference for data users on how complete the data is, are set up.
	For this purpose, a repository should be implemented for giving data users direct access to:
	• Up to date status reports on the contents of the database. These reports need to be live and available for data users so that
	  • data calls can be properly audited
	  • DB content can be properly interpreted
	• Up to date guidance notes
	• Up to date reference lists

Justification	Knowing the status of the data is crucial for auditing purposes, for quality control and to determine how the data can be used. It also allows users, within reason, to account for missing data in their estimates or reports. Changes to guidance and reference lists can be communicated to data users with reference to the repository.
Follow-up actions needed	SC-RDB to review possible solutions or develop and incorporate an application to provide end-users with this functionality and a reference repository.
Responsible persons for follow-up actions	SC-RDB
Time frame (Deadline)	Next SC-RDB meeting.
LM comments	LM endorses the recommendation. This recommendation is a merge of Baltic Rec 2, NSEA Rec 3 & NA Rec 5.
Follow up in 2014	The National Delegates to ICES approved to set some ICES-money aside for this purpose, so progress on the development of a system for administering and recording upload successes and data completeness by Member States is expected in the near future. These limited funds will however not allow for completing this task. The EC informed the RCM NA that they are studying the results of the 2014-2020 Data Collection MAP feasibility study and awaiting the outcome of their evaluation before deciding on the way forward and the funds needed to accomplish further progress.

3. Towards a regional sampling scheme	
RCMs Baltic and NS&EA Recommendation	It is recommended that a 'dry-run' on the process from end-user participation to defining data needs and designing a regional sampling scheme is carried out during the roll-over years 2014-2015. The process itself, participating meetings and end-user specification can be used as specified by STECF EWG 13-02.
Justification	Before adapting the current data collection management to a full regional approach, experience needs to be gained on the future process. This will allow fine-tuning of the process prior to the full implementation and will thus allow for a quick start once DC-MAP is fully implemented.
Follow-up actions needed	Commission to initiate and steer the process
Responsible persons for follow-up actions	Commission and RCMs
Time frame (Deadline)	2014-2015
LM comments	LM endorses the recommendation. This recommendation is a merge of Baltic Rec 3 & NSEA Rec 8.
Follow up in 2014	No initiative has been taken so far in response to this recommendation, and the follow-up action needed is perceived to be ill defined by the RCM NA 2014, as the Commission is unlikely to be able to effectively initiate and steer this process. It is also impossible to complete this huge task during RCMs in their current setup, but it should be (made) possible under the future RCG structure. This could also be a candidate for a future proposal under the Direct Management part of the EMFF. The Commission will launch a call for 2 proposals (in 2 separate regions) later in 2014 which will provide funding to develop a regional sampling scheme.

4. Specifying data quality diagnostics for fleet-based and stock-based biological data	
RCMs NS&EA & NA Recommendation	It is recommended that WKPICS3 provides detailed guidance on diagnostic methods to evaluate aspects of data quality to facilitate the work of Regional Coordination Groups in coordinating regional data collection and analysis, and provide any additional Terms of Reference for the proposed WGCATCH and WGBIOP to continue this development during the transition phase of DC-MAP. In addition recommends that WKPICS3 provides advice to SC-RDB on development requirements for the RDB related to data quality assurance and reporting.
Justification	A suite of diagnostic tools will be needed by RCGs to evaluate and respond to regional data quality issues. These include but are not limited to • errors in RDB related to quality assurance and control at national level and errors during RDB data uploading • quality of fleet-based biological data in terms of coverage and numbers of samples for length and age by stock, fleet and area as needed for coordinating national data collection activities, • quality of stock-based biological data such as for estimating growth parameters, maturity ogives and sex ratios in terms of data sources, coverage of the and numbers stock of samples
Follow-up actions needed	ICES to add Term of Reference to WKPICS3
Responsible persons for follow-up actions	ICES WKPICS3
Time frame (Deadline)	November 2013 WKPICS3 meeting.
LM comments	LM endorses the recommendation. This recommendation is a merge of NSEA Rec 1 & NA Rec 4.
Follow up in 2014	Addressed in section 2.3 and 2.4 of WKPICS3 report

5. Regional Database: Code lists and Reference tables for regional data base	
RCMs NS&EA and NA Recommendation	It is recommended that code lists and reference tables in the regional data base are made comprehensive and unambiguous. Fields and appropriate standardized code lists are needed for: • Harbour (limited to the EU Master Data Register) • Species (limited to WoRMS and further restricted to species needed by RCMs) • Metier (definitions already listed in regulation and RCM reports, but currently not restricted by RDB) • Sales location, sampling location (in the CS data), fish presentation (e.g. whole or partial), and data provider (i.e. who did the sampling and uploaded the data).
Justification	The design and implementation of design based sampling requires consistent coding of the data in all fields. It should not be possible to upload data outside the agreed codes without permission from the RCM chair.
Follow-up actions needed	RCMs need to update reference lists. These lists should be implemented in the RDB.
Responsible persons for follow-up actions	RCM chairs to liaise on this issue & RCMs to intersessionally decide on the restrictions to the lists and to provide these to the RDB administration. SC-RDB to ensure implementation by ICES Secretariat as host of the RDB.
Time frame (Deadline)	Spring 2014 (before the next RCM data call for uploading (or reuploading) data)
LM comments	LM endorses the recommendation. This recommendation is a merge of NSEA Rec 5, NA Rec 1 & NA Rec 7.
Follow up in 2014	Harmonisation of harbour codes has been taken care of intersessionally between the 2013 and 2014 RCM rounds. The list of harbour codes in the RDB is now limited to the EU Master Data Register. Progress on the restrictions on species has not been made. Also the harmonisation of metiers has not been addressed in 2013-2014, and is taken further during the RCM NA 2014 and the resulting list should be incorporated in the RDB, where metier codes are currently not restricted to a closed list. To ensure the recommended work on the harmonisation of species and metiers is not lost, this recommendation is repeated in RCM NA 2014 recommendation 2. The topic of harmonisation of sales location, sampling location, fish presentation and data provider will be addressed during the WKRDB5 in Oct 2014.

6. Design Based Sampling	
RCMs NS&EA and NA Recommendation	It is recommended that WKPICS/WGCATCH indicates which data fields and relationships are needed in the exchange format of the RDB to enable regional design based sampling. In addition it is recommended that means of linking effort measures more directly with landed species is needed. Presently the CL and CE can only be linked by metier.
Justification	The design and implementation of design based sampling requires appropriate fields and relationships to be available in the RDB. Specifically there is a need to link species information more directly with measures of effort. Presently the CL and CE can only be linked by metier.
Follow-up actions needed	Relevant ToRs for WKPICS/WGCATCH are set out. SC-RDB to ensure that the RDB developments enable design and estimation appropriate for design based sampling.
Responsible persons for follow-up actions	SC-RDB
Time frame (Deadline)	Oct 2013
LM comments	LM endorses the recommendation. This recommendation is a merge of NSEA Rec 5 & NA Rec 11.
Follow up in 2014	The SC-RDB will compile all recommendations for new fields in the RDB and evaluate these, so the expansion of the standard exchange format with the approved fields can be dealt with in one go.

7. Regional data base	
RCM Baltic 2013 Recommendation 4	RCM Baltic strongly recommends that funding is found to ensure further development and improvement of the RDB “FishFrame”.
Justification	For the improvement and moving toward a regional data collection programmes a regional data base is a fundamental tool for the RCMs. In addition when reporting to data calls and the Annual Reports a RDB is important. Furthermore, the demands from the users to a regional database is under constant change as the users discover new possibilities in the use of the data as they get more familiar with the use of the database and because the data collection, fish stock management and modeling environment changes and new data types and processing facilities become important.
Follow-up actions needed	DG MARE
Responsible persons for follow-up actions	DG MARE
Time frame (Deadline)	Funding should be made available as soon as possible
LM comments	The LM endorses the recommendation.
Follow up in 2014	The RCM NA was informed by DG MARE on their recognition of the importance of continued financial support for the hosting and further development of the RDB through its MoU with ICES. However, no support for development will be provided until a decision is made in relation to the future DCF database(s)/IT platform. The Commission-funded DCF database Feasibility Study has been carried out and was published just before the RCM NA 2014. Consultations on the best set up for future DCF database(s)/IT platform will follow in the autumn of 2014.

8. Quality assurance – RDB additional fields and managing data gaps	
RCM NS & EA 2013 Recommendation 2	The RCM recommends that a policy on how missing data values for MS are accounted for in the database and this decision communicated to RDB users.
Justification	Proper consideration needs to be given to how to account for empty data values. Missing data could devalue summary information and if estimates are derived how they are derived could change over time. An example is provided in the RCM report where landing information for a MS does not have both value and weights for some of their records. If this data is uploaded then the sum of the landings would not equate to the sum of the value (€). This could also occur in relation to missing fishing effort.
Follow-up actions needed	SC-RDB to consider the impact of missing data values and to provide clear guidance on how MS should manage these data.
Responsible persons for follow-up actions	SC-RDB
Time frame (Deadline)	Next SC-RDB meeting
LM comments	The LM endorses the recommendation.
Follow up in 2014	See response of RCM NA 2014 to recommendation 7. The SC-RDB is expected to respond.

9. Quality assurance – RDB additional fields and managing data gaps	
RCM NS & EA 2013 Recommendation 4	RCM recommends an additional field in the core tables to identify the administration that has collected and or uploaded the data.
Justification	Currently the country of landings or flag country is the only reference to the source of the data. But with bilateral agreements and most MS now sampling foreign vessels within their sampling schemes it is not always clear which country collected the data. This is crucial for auditing purposes, for quality control and to limit the opportunities for replication of data. This field is also required to allow data to be raised according to national sampling schemes.
Follow-up actions needed	SC-RDB to insert a field to identify the source or origins of the uploaded data.
Responsible persons for follow-up actions	SC-RDB
Time frame (Deadline)	Next SC-RDB meeting
LM comments	The LM endorses the recommendation.
Follow up in 2014	See response of RCM NA 2014 to recommendation 6.

10. Quality assurance - Managed repository for RDB upload successes and data status reports	
RCM NS & EA 2013 Recommendation 6	RCM recommends that MS document their interpretation of trips, samples and sampling events and describe what the TripID and SampleID represent in their uploaded data.
Justification	The key identifiers for the biological data refer to trips and samples in most instances, for example on a discard trip each event is quite distinct but ashore where sampling might only focus on components or categories of a landing then this can lead to a different interpretation and achievements are therefore not directly comparable. Sampling events, trips and samples are crucial for auditing and monitoring sampling design and key to significant quality indicators.
Follow-up actions needed	MS to provide a summary document of their interpretation of these key fields in the upload data formats. RCG to collate these documents for storing in the RDB repository (see earlier recommendation).
Responsible persons for follow-up actions	MS, SC-RDB
Time frame (Deadline)	Next SC-RDB meeting
LM comments	The LM endorses the recommendation.
Follow up in 2014	Partially done and taken further during the RCM NA 2014. This recommendation will also be dealt with in the WKRDB5 workshop to be held later in 2014. An example from the UK is included in Annexes (Annex 7 - CEFAS RDB Data Specs_Onshore / Annex 8 - Cefas DCF discards sampling description).

11. Quality assurance – surveys at sea	
RCM NS&EA 2013 Recommendation 7	The RCM recommends to develop a suite of diagnostics from which the quality of the (international) results of survey at sea can be assessed.
Justification	MS and RCGs have a legal requirement to report on the quality of data collection carried out under the DC-MAP to the European Commission.
Follow-up actions needed	Develop a toolbox with survey quality diagnostics, establish a process which applies and reports those.
Responsible persons for follow-up actions	ICES and other international organisations which coordinate DC-MAP surveys
Time frame (Deadline)	before the implementation of DC-MAP (2016)
LM comments	The LM endorses the recommendation.
Follow up in 2014	An ACOM/SCICOM discussion on the terms of reference for the ICES Steering Group on Integrated Ecosystem Observation and Monitoring (SSGIEOM) took place during the 2014 ICES Annual Science Conference, relating to the quality assurance of fishery independent and fishery dependent survey data. This discussion resulted in the listing of already existing reviews and ongoing work by STECF and several ICES working groups and workshops. The full response can be found in Annex 6 (Survey Request) of this report.

12. Quality assurance – Member States QA before loading to the RDB	
RCM NA 2013 Recommendation 2	MS to document Quality Control and Quality Approach procedures in summary for review at the next RCM.
Justification	MS have a duty of care and are required under the current DCF to ensure that the data within their own MS databases are also checked for inaccuracies before uploading anything to the RDB.
Follow-up actions needed	All RCM NA Member States to ensure quality checks are in place and are being carried out and documented.
Responsible persons for follow-up actions	MS and all RCMs
Time frame (Deadline)	Before RCMs in 2014
LM comments	The LM endorses the recommendation.
Follow up in 2014	The RCM NA 2014 stresses that documenting all quality assurance procedures for the entire process from the sampling to the upload of data in an international database is extremely important, and also includes quality checks at the national level. The WKPICS-series started to compose guidelines to set up such quality assurance framework for the future, and this work will be taken further by WGCATCH. National quality assurance procedures should also be described in the MS National Programmes and be evaluated by STECF. Most MS have not delivered documentation on their national quality assurance procedures to the RCM NA 2014. Some examples of diagnostic methods from Ireland are presented in Annex 5 (Examples of diagnostic methods IRL). This work is also taken further in RCM NA 2014 (see sections 5 and 6 of this report), leading to rec. 2.

13. Quality Control - Data discrepancies between official data held within Eurostat, InterCatch, RDB and that used by the Assessment Working Groups	
RCM NA 2013 Recommendation 3	It is recommended that a procedure should be in place to more easily compare the data held in each of ICES sources highlighting any anomalies. As there is data sharing between ICES and Eurostat any inconsistencies should be more easily explained.
Justification	A comparison of data held in different databases (including the RDB) highlighted substantial differences, giving rise to concerns about what data is being used in the assessments.
Follow-up actions needed	ICES to develop an easier procedure for comparing the data.
Responsible persons for follow-up actions	ICES
Time frame (Deadline)	RCMs 2014
LM comments	The LM endorses the recommendation.
Follow up in 2014	Official landings used by ICES are the same as Eurostat. The so called “ICES landings” are ICES estimates to cope with miss and underreported landings. When available, the ICES estimates are the landings values used in the assessments and therefore are the ones uploaded in InterCatch.

14. MARE/2012/22 LOT 2 scientific data storage and transmission under the 2014-2020 DC- MAP	
RCM NA 2013 Recommendation 6	RCM NA recommends that RCMs should take into account the results of the MARE/2012/22 LOT 2 scientific data storage and transmission under the 2014-2020 Data Collection MAP feasibility study due for completion February 2014 and consider the implications for further development of the RDB. This should be either added or included within the Tors for the next cycle of RCGs.
Justification	It is important that MS and RCMs remain up-to-date with the conclusions of evaluations and new developments of the RDB to ensure that qualitative work can be done during the RCMs and that meaningful recommendations can be made for future improvements.
Follow-up actions needed	LM to consider and add to TORs. RCGs to review the reports and advise on RDB development.
Responsible persons for follow-up actions	RCMs
Time frame (Deadline)	RCMs 2014
LM comments	The LM recommends that the RCM/RCG are involved as clients in the study as they are one of the main data end users.
Follow up in 2014	The results of the database feasibility study were published two weeks prior to the meeting of the RCM NA 2014, and presented by the Commission during this meeting (on behalf of the consultants that carried out the study, so no Commission views were expressed). Unfortunately, the RCMs have not been involved in the consultations on its conclusions and outcomes organised by the Commission, so more time is needed to fully understand the results of the study and their potential impact.

15. Eels and Salmon and DCMAP	
RCM NA 2013 Recommendation 8	The RCM recommends that eels and salmon work be integrated within the governance structure being developed for DCMAP (and with reference to the roadmap for the development of a regional sampling programme), and that these requirements be clearly expressed in the text of the DCMAP.
Justification	It is currently unclear whether the collection of data on eels and salmon will be part of the DC-MAP.
Follow-up actions needed	DGMARE - Further consideration to be given to where eels and salmon data collection should be placed in the DCMAP and the roadmap for the development of a regional sampling programme. Representation of eels and salmon data collection in DCMAP to be considered at the STECF EWG 13-18: 'Data Collections in EMFF' and the 3rd National Correspondents meeting of 2013.
Responsible persons for follow-up actions	DGMARE, NC, STECF
Time frame (Deadline)	Within the time frame of the DCMAP development
LM comments	The LM endorses the recommendation.
Follow up in 2014	This topic was addressed by STECF EWG 14-02. Guidelines were given on the inclusion of data collection for eel and salmon.

16. Regional Coordination: Cost sharing of International Ecosystem Survey in Nordic Waters and Blue Whiting joint research surveys	
RCM NA 2013 Recommendation 9	RCM NA recommends that the non-EU share of the research vessel cost for conducting the following surveys is shared among MS according to their EU-TAC shares for the main species concerned: i) the International Ecosystem Survey in the Nordic (Atlanto-Scandian herring), ii) the Blue Whiting Survey (blue whiting). Those MS having a EU-TAC share >= 5% (average TAC 2011-2013) are to be included in the cost sharing. The share is based on the relative share in the total costs of all MS participating. The share will be reviewed mid-term EMFF period.
Justification	There is a need to update current agreements to reflect the new financial structure under the EMFF, while the surveys themselves are automatically rolled-over to 2014 and 2015 under the current DCF regime. Furthermore, the cost sharing models for both surveys should be aligned.
Follow-up actions needed	Approval by National Correspondents
Responsible persons for follow-up actions	Jorgen Dalskov (DK) and Sieto Verver (NLD) to initiate and prepare proposal for NC meeting.
Time frame (Deadline)	November 1, 2013 (prior to NC meeting, date to be set)
LM comments	The LM endorses the recommendation.
Follow up in 2014	This topic was put forward at the National Correspondents meeting in July 2014. The report of this meeting mentions “In response to requests from several Member States for clear rules on how to allocate work and costs between Member States involved in joint surveys, the Commission clarified that it is essentially up to the Member States to decide on how they coordinate and allocate tasks and financing between themselves. The Commission is willing to support regions in finding solutions if they so wish.” So this discussion will be continued, and the problem will have to be solved between the involved countries.

17. Reviewing and finalizing/adopting the glossary of economic definition as prepared by EWG11-18 (report STECF 11-19)	
PGECON 2013Recommendation	PGECON 2013 suggested to include the Glossary in the Master Reference Register of DCMAP and to discuss the glossary with SBS experts in Eurostat before publishing it in MRR.
Follow–up actions needed	
Responsible persons for follow-up actions	DG Mare
Time frame (Deadline)	before 2014
LM comments	LM notes that this recommendation has been followed up by the STECF EWG dealing with the DC-MAP
Follow up in 2014	No response needed by RCM NS&EA.

18. Disaggregation of economic data	
PGECON 2013Recommendation	PCEGON strongly recommends a study on the disaggregation which delivers a comprehensive analysis of different approaches and methods, addressing also the availability of individual data which varies by MS.
Follow–up actions needed	
Responsible persons for follow-up actions	DG Mare
Time frame (Deadline)	before 2014
LM comments	This recommendation is addressed in Chapter 8 dealing with recommendations for studies
Follow up in 2014	No response needed by RCM NS&EA.

19. Methodology for establishment of threshold for which sampling by survey or panel is necessary.	
PGECON 2013Recommendation	To finally solve the issue of thresholds PGECON suggests to hold a workshop.
Follow–up actions needed	Threshold in activity needs to be defined at regional level
Responsible persons for follow-up actions	PGECON, DG Mare
Time frame (Deadline)	Before 2014
LM comments	LM notes that a workshop on sampling and statistical issues is planned for December 2013.
Follow up in 2014	No response needed by RCM NS&EA.

20. Compare price per capacity unit, depreciation rates and other assumptions applied by MS in estimating capital value and capital costs.	
PGECON 2013 Recommendation	PGECON suggested that this subject should be taken up in a workshop this year
Follow–up actions needed	
Responsible persons for follow-up actions	DG Mare
Time frame (Deadline)	
LM comments	LM notes that a workshop on sampling and statistical issues is planned for November 2013.
Follow up in 2014	No response needed by RCM NS&EA.

21. Accuracy indicators and precision targets for different fleet segments and different variables	
PGECON 2012Recommendation	PGECON recommended that more attention is given to harmonizing the calculation of the CV by inviting a statistician to PGECON 2014 to explain the calculation of CV's for different sampling methods. Moreover, PGECON recommends including a display of the CV by MS in the AER
Follow–up actions needed	
Responsible persons for follow-up actions	DG Mare
Time frame (Deadline)	
LM comments	LM suggests that this is taken up by STECF AER in 2014.
Follow up in 2014	No response needed by RCM NS&EA.

3.2 Feedback and recommendation from data end users

3.2.1 STECF EWGs (on DCF/EU MAP revision) since last RCM

Since 2011, eight meetings of STECF expert working groups were convened to advise the Commission on the revision of the data collection framework (EWG 11-02 Brussels, EWG 11-08 Helsinki, EWG 12-01 Barza, EWG 12-15 Brussels, EWG 13-02 Ispra, EWG 13-05 Varese, EWG 13-18 Brussels, EWG 14-02 Hamburg). In these meetings all elements relevant to the DCF have been addressed. The conclusions of these groups have been endorsed by STECFplenary. The last two meetings took place since the last RCM NA:

STECF EWG 13-18: Revision of DCF part 3 (Brussels, 25-28 Nov 2013)

STECF EWG 14-02: DCF revision part 4 (Hamburg, 24-28 Feb 2014)

The main task of the **EWG 13-18** was to advise on revisions on the current framework regulation (199/2008) and to propose elements for legislative text in order to implement the new CFP objectives and new data collection needs. The report contains text proposals for an improved role of RCGs, task-sharing mechanisms and end-user consultation, based on work of previous EWGs (mainly EWG 13-02). Other elements dealt with were: integration of monitoring of incidental by-catch of rare, sensitive and endangered species in fisheries monitoring programmes, vulnerable marine ecosystems and aquaculture and economic topics

For the **EWG 14-02**, the Commission had prepared fishes for a number of topics with options how to go forward, taken into account previous advice from STECF. The EWG was asked to comment on these. With regard to the overarching ‘architecture of the DCF’ the EWG endorsed the vision of greater delegation of responsibility to RCGs and PGECON, leaving only key aspects (species, variables and periodicity) of core variables set at EU level and additional variables plus details of all variables (disaggregation levels, units, definitions, methods, sample sizes etc.) would be left to RCGs and PGECON. In the case of RCG decisions on changes, these would override the EU MAP. Also advice was given on eel and salmon data collection needs. Other items dealt with were: data collection in areas with Fisheries Partnership Agreements and in Outermost Regions (expansion to RFO and SFPAs), data collection in the Mediterranean and Black Sea and recreational fisheries.

3.2.2 ICES

ICES secretariat gave an update of the 2014 activities on future activities that will take place in 2014 and beginning of 2015 as well as an update from data meeting held at ASC.

Also, the RCM NA was informed on the changed procedure of providing feedback on data quality and data transmission to ICES.

3.2.2.1 ICES assessment WGs and benchmark meetings

Recommendation from 2014 ICES EGs

A list of recommendations and stock data problems from ICES Expert Groups (EGs) concerning data issues were presented to the RCM NA (see table 3.2.2.1.a and table 3.2.2.1.b).

Table 3.2.2.1.1.a Recommendations from 2014 ICES Experts Groups to the RCM-NA, that were available in the ICES recommendation database by the start of the RCM meeting.

ID[1]	EG	Recommendation	RCM NA comments
232	PGCCDBS	Proposal for collaborative study on improvement of **WebGR** (Priority 1)	Not discussed at RCM NA, see section 7
234	PGCCDBS	Proposal for collaborative studies contracts on Exploration and Development of new facilities in **RDB-FishFrame** (Priority 1)	Not discussed at RCM NA, see section 7
235	PGCCDBS	Proposal for support **design based regional data collection programmes** (Priority 1)	Not discussed at RCM NA, see section 7
233	PGCCDBS	Proposal for **improving accuracy in fish age estimation** through understanding of the link between environmental conditions and physiological responses recorded in the otolith macrostructure (Priority 2)	Not discussed at RCM NA, see section 7
241	WGNEW	**Recreational catch data on pollack catches** Considering that catches of pollack by recreational fisheries may be substantial, data are required on the quantities of those catches. This relevant to pollack in all areas.	The RCM NA supports the recommendation to MS to collect data on recreational catches of Pollack and upload these to the RDB.
132	IBTSWG	The IBTSWG strongly recommends **Portugal** to update and use **gear monitoring equipment during the PGFS Quarter 4 survey**.	Portugal informed the RCM NA 2014 that this has been taken care of.

Table 3.2.2.1.b Stock data problems from 2014 ICES Experts Groups that were forwarded by ICES to the RCM-NA. These were NOT available in the ICES recommendation database by the start of the RCM meeting.

Stock	Data problem	To	RCM NA comments
Meg 7 & 8abd	**Discards availability:** Lack of discard data from the French fleets.	Ask the DPMA to supply these data as soon as possible (at least one month before WG(May)	France informed the RCM NA 2014 that this will be done.
Sol-bisc	**Maturity ogive need to be updated** Need to have sole under the MLS = 24 cm	Provide a campaign to collect small soles in the beginning of the year	There is no Q1 French survey in the Bay of Biscay that can serve as a source of maturity information for small sole. Instead of trying to come up with a new survey, RCM NA 2014 advises that the data of the Q4 French survey are tested for this purpose.
Blue Jack Mackerel in the Azores	**Missing longline CPUEs time seriessince 2011.**Longline CPUEs provide indices on adult abundance. These indices are derived from observer at sea program. Those	PGCCDBS, national administration	The RCM NA 2014 recognises the importance of this recommendation and urges MS that have these data to submit them to the relevant working group.

[1] For future feedback and communication to ICES secretariat keep the ID of the recommendations.

Stock	Data problem	To	RCM NA comments
	datasets should be collected and be made available on an annual basis		
Sardine in VIIIc and IXaAnchovy in IXa	**No intercalibration has been made between R/V Noruega and R/V Miguel Oliver.** The WG recommends an intercalibration between the Spanish, Portuguese to ensure the correct use of the joint biomass index for sardine in the assessment along the time series and compatibility between surveys results for anchovy	IEO and IPMA	The RCM NA 2014 endorses this recommendation to be completed by Spain, as it refers to an intercalibration between two Spanish vessels.
Sardine in Subarea VII	The WG noticed that there is **no monitoring program of sardine catches, age length keys, length distribution, discards and effort data in subarea VII**. This hampers assessment and provision of advice for this region.The WG demands that a Monitoring of sardine (catches, length, ALK, effort and discards) in subarea VII is requested and assured by countries involved in the fishery.	RCM	Information on sardine catches is available in the ICES Fishstat and in the EUROSTAT databases. Currently there are no national commitments to collect biological data on this stock in the existing National Programmes, so no improvement in the collection of such data is expected in the short term. Additionally, the rollover of previous NPs to 2014-2015 makes it unlikely that MS will include this sampling in a revised NP. Some biological data on sardine in VII have been collected by some MS through their concurrent sampling programmes.

In relation to the recommendations with ID number 232-235 from Table 3.2.2.1a, the full descriptions of the studies proposed by PGCCDBS 2014 (ICES, 2014) were presented to the RCM-NA. A study proposal from the ICES Working Group of Recreational Fisheries Survey (WGRFS) on the mortality of discards in European hook-and-line fisheries, their consequences and potential mitigation, was also available to the RCM-NA. Finally, also a study on the further development of UWTV Nephrops survey methodologies was recommended by the Working Group on Nephrops Surveys (WGNEPS). These studies were not discussed during the meeting (see section 7 of this report).

PGCCDBS 2014 also recommended the RCMs to improve the existing proposal for anglerfish. The revised proposal from the RCMs (RCM-NS&EA and RCM-NA) should then be looked at in the incoming ICES compilation workshop on anglerfish stocks in the ICES area. RCM NA had no additional improvements to add.

The full text of all these proposals can be consulted in Annex 9 of this report.

3.2.2.2 Incoming ICES activities in 2014 and 2015

a) Benchmark Workshop on Herring Stocks West of Scotland

ICES is planning a benchmark on herring stocks in the west of Scotland ecoregion. The following stocks will be benchmarked:

- Herring in Division VIa (North)
- Herring in Divisions VIa (South) and VIIb,c
- Herring in Divisions VIa (South) and VIIb,c

Data compilation workshop: 18-20 November 2014 in Galway or Dublin

Benchmark meeting: 2-6 February 2015 in Dublin

b) InterBenchmark process

ICESis planning the following Inter-benchmark Processes that will take place by correspondence:

IBPNEP17: Nephrops in FU17. Summer of 2015

IBPWoSROUND: assess the inclusion of the current west of Scotland group fish survey in the cod and whiting assessment. The process will take place between January and March 2015.

IBPWCFlat: assess the impact of not including the UK-WEC-BTS survey in the assessment in the sole and plaice stocks in Division VIIe. The process will take place between January and March 2015.

c) Data compilation Workshop on Anglerfish

This meeting was already approved last year and will take place in 3-7 November 2014 in ICES HQ.

3.2.2.3 ICES data calls planned for 2015

ICES is planning to send data calls for all the assessment working groups in the begging of 2015. The aim is to harmonise the format of data calls across different assessment working groups.

3.2.2.4 New ICES strategic plan

ICES has a new strategic plan, which considers the following Committee and Steering Groups:

Advisory Committee (ACOM)
Science Committee (SCICOM)
SCICOM Steering Group on Ecosystem Processes and Dynamics (SSGEPD)
SCICOM Steering Group on Ecosystem Pressures and Impacts (SSGEPI)
SCICOM/ACOM Steering Group on Integrated Ecosystem Assessments (SSGIEA)
SCICOM/ACOM Steering Group on Integrated Ecosystem Observation and Monitoring (SSGIEOM)
SCICOM/ACOM Benchmark Steering Group (BSG)

The SCICOM/ACOM Steering Group on Integrated Ecosystem Observation and Monitoring (SSGIEOM) is the primary body related with the data collection. The SSG consists in a meeting of the chairs of the EGs under the SSGIEOM umbrella [i.e. EG on surveys coordination; WGCATCH (commercial catch sampling), WGBIOP (biological parameters such as age reading and maturity) and

WGRFS (recreational fisheries)]. Further information is available at: http://www.ices.dk/community/groups/Pages/Steering-Group-on-Integrated-Ecosystem-Observation-and-Monitoring.aspx?PagePreview=true.

Two main ICES experts groups were established based on the work prepared by the ICES Planning Group of Commercial Catch, Discards and Biological Sampling (PGCCDBS): a) WGCATCH, dealing with methodological issues on commercial catch sampling; and b) WGPOIB, dealing with the quality assurance of the biological parameters used of stock assessment. The first WGCATCH meeting will take place this November, 10-14. WGBIOP will take place in 2015.

PGCCDBS also recommend that a new ICES expert group is established, PGDATA, to replace the current PGCCDBS work, considering the existence of the other two new EGs. More details of PGDATA proposal are available in section 7 of PGCCDBS 2014 report (ICES, 2014a). One of the main goals of PGDATA is to have a key role on the feedback from ICES as an end-user on data needs. PGDATA can play an important role on setting guidelines and tools for the RCG work.

An ACOM/SCICOM group has delivered a TOR for consideration at the Bureau meeting at ASC on how a systematic review of existing surveys could be initiated, and how ecosystem data can be included in future surveys. ACOM and SCICOM will also outline what is needed in terms of how to accomplish such a review, and identify what resources are currently available and what additional resources may be needed. It will be sent to the Commission for their consideration.

3.2.2.5 Alignment of ICES Ecoregions

From 2015 onwards, the ICES Ecoregions will be aligned with the MFSD ecoregions. Division VIIe will be part of the North Sea ecoregion instead of the Celtic Sea and West of Scotland ecoregion.

3.2.3 ICES feedback on data transmission and quality

3.2.3.1 Background

According to the EU-ICES MoU, "*ICES will communicate to EU problems regarding access to data, data quality, and completeness of data. This shall in particular apply to data collected through the data Collection Framework (DCF) established by the Commission Regulation No. 199/2008 of 25 February 2008).*

ICES will provide information on coverage and quality of collected data which are of relevant use for the advisory deliverables.

The information on the coverage and quality of data available for the advisory process will consist of an account of the types of data available internationally for each stock and comments regarding their quality and coverage where specific shortcomings will be highlighted per Member State. Ices will indicate how these shortcomings need to be complemented to obtain a dataset sufficient for scientific use."

In December 2012, the ICES Advisory Committee (ACOM) concluded that the previous approach to inform the European Commission on data transmission (a.k.a. Data tables) was not effective and a wrong use of the human resources in the ICES community. The workload involved in the production of the “data tables” was substantial. Also, the information of data collected (i.e. potentially available and transmissible) is not easily available. Stock coordinators were not aware of bilateral agreements and derogations of data collection. Considering all these aspects, ACOM decided to not use a new approach in 2013.

3.2.3.2 New approach, ICES feedback on 2013 and future data

The new approach is based on the advice sheets of each stock. The information is essentially available under the “Quality Consideration” and “Data Requirement” sections of the ICES advice sheets.

The new approach aims to i) be a more transparent approach since the basis is the text in the ICES advice sheets which are publically available and when through all the advisory process (expert group, advice drafting group and ACOM approval); ii) reduce the workload of ICES experts, since there is no need to fill-in another table and only the main issues are highlighted in the advice sheets.

In this compilation the issues highlighted for each stock were categorized as: i) data transmission; ii) data quality: iii) recommendations.

In some cases the Members States are not identified in the original text of the advice sheets. In order to provide that information, ICES checked what the relevant countries were based on the respective assessment working group reports and on communication with the EG chairs or the stock assessor.

Also when in the ICES advice is a remark on data transmission, but the data was NOT request by a data call that is noted in a comments field.

When the data issue is a generic matter of all the countries, instead of identify the individual countries, the ICES feedback is “All countries exploring the stocks”.

3.2.3.3 RCM-NA comments on the new ICES feedback on data transmission / quality

The RCM-NA members acknowledged the improvements of this new approach compared with the previous. Also the informal clarifications between the Members States and the European Commission on data issues are appreciate by the stock considered under the RCM-NA.

3.2.4 Other end-users

There is no feed back or recommendations from other end-users. No other end-users are relevant at this moment.

4. Regional Coordination

4.1 Issues for the regional coordination: Concurrent sampling

4.1.1 Rationale for concurrent sampling

The EU Data Collection Regulation (DCR) was revised during 2008 and came into force in 2009. After this revision, one of major changes in the DCR was the shift from a stock-based approach, centred only on the species evaluated in the area ICES, towards a fishing-activity based approach with metier as sampling unit (DCF). A new sampling strategy, named concurrent sampling, would cover the sampling of all species during a sampling operation.

Via this new sampling strategy, currently, the DCF is able to facilitate the data demands of the existing stock-based assessments as well as serving the revised needs for the ecosystem approach to fishery management.

In reference to this new ecosystem approach, in SGRN-06-03 (STECF, 2006) it was noted:

"In order to be able to fully appreciate and model the interactions between the different species taken by a métier, it is also essential to organise sampling in such a way that all species are sampled concurrently, actually meaning that all sampling for catch and length composition data is done simultaneously on all species in a vessel's catches or landing".

The bases for this new system were proposed by the ICCAT sub-committees on by-catches and environmental aspects merged into a single Sub-committee on Ecosystems. The general purpose of this sub-committee was developing an ecosystem approach to fisheries management within ICCAT. The terms of reference included ecosystem monitoring, research and modelling activities that would allow integrating ecosystem considerations into the scientific advice. The same approach was also taken by IOTC at its last Scientific Committee meeting (November 2006).

The requirements for concurrent length sampling of the landings were developed in PGCCDBS07 (ICES, 2007). To ease the shift, PGCCDBS07 (ICES, 2007) suggested that each national laboratory which had problems with the implementation, carried out implementation studies, selecting two or three metiers that can be regarded as typical. Protocols of such studies were presented together with a proposal for an ICES Workshop (ICES, 2008). Following the results of this implementation studies, common problems occurring in a member state were discussed and advice was given on a new proposed sampling scheme.

However, the shift from species-based to metier-based sampling has been under discussion since then. The report of STECF (STECF, 12-07) noted "that concurrent sampling of different fish stocks in the same catch is carried out differently in different Member States leading to inconsistent estimates of catch compositions from sampling schemes. There is a need to explain and define concurrent sampling in order to ensure consistent sampling by MS."

4.1.2 Concurrent sampling in RCM NA

During the course of the RCM NA, questions were raised about the history and utility of concurrent sampling (see section above). Through these discussions it was evident that not all MS were carrying out sampling in this manner. However, no formal documentation on which MS did what was available (it is not required to be reported in annual reports to the Commission, or possible to track in the RDB). Table 4.1.2 shows which MS carries out concurrent sampling, at which level, the reasons for the rationale and whether data is loaded to the RDB at that level. All RCM NA MS (other than Belgium) are able to carry out concurrent sampling in their offshore program. However, not all MS are able to do the sample concurrently during their onshore sampling program (the majority of MS are sampling at across a range of scheme levels, with some not able to sample concurrently at all) and the limiting factor here seems to be the inability to access the complete landings at the ports.

The question as to whether this variability in sampling affects the quality and utility of the data collected needs to be investigated.

The following section describes the pros and cons of concurrent sampling, including description of some of the hurdles that can be overcome in order to ensure that the data collected under DC-MAP meets the future growing needs of the MS and the Commission.

Table 4.1.2 MS situation on concurrent sampling and RDB upload of concurrent data

Country	Onshore	Year started	Reason	Offshore	Year started	Reason	RDB upload as concurrent
Belgium	N	NA	R5	N	NA	R2	N
France	1,2,3	2009	R1	1	2003	R2	N
Germany	N	NA	R6	1	1998	R2	Y
Ireland	1,2,3	2010	R3	1	1993*	R2	Y
Netherlands	N	NA	R7	1	2003	R2	N
Portugal	1,2,3	2009	R1	1	2009	R1	Y
Spain	1,2,3	2009	R1	1	2003	R2	N**
UK (ENG+WAL)	1,2,3	2010	R3	1	1996	R2	N
UK (SCO)	1,2 (or 3)	2009	R4	1	1975	R2	Y

R1 : Compliance with legal obligation

R2 : Historic procedure

R3 : Resources, landings practices and access to complete landings

R4 : Level 1-2 for demersal since 2009. Level 1-2 for Nephrops since 2011.

R5 : Between the landing and the sale of the fish, there is only a short time window available. Therefore, either a large team of samplers would be required or all fish need to be bought. Neither of these is an option as it would make the sampling extremely expensive

R6 : No market places

R7 : Landings practices and access to complete landings

* : Partially 1993- 2010 and completely since 2010

** : Concurrent data provided to the RCM NA, not uploaded

4.1.3 Pros and cons of concurrent sampling

4.1.3.1 Utility of the information being collected

Data collected, whether onshore or onboard vessels carrying out commercial fishing, is increasingly being used by groups to provide additional information, not available in the past under historic data collection methods. In the past, data was often grouped together for species that where either not deemed economically important or that were difficult to identify at sea by fishers (e.g. elasmobranch and triglidae). As these species have become more important, either economically or for science and preservation, species specific landings and catch data have become crucial to enable managers to provide quantitative and qualitative advice. Concurrent sampling has provided the opportunity for more species specific data to be available to these managers, with quality that can be verified, given the experience and expertise of the data collectors. The ICES Working Group on Elasmobranch Fishes (WGEF), Working Group on the Biology and Assessment of Deep-sea Fisheries Resources (WGDEEP), Working Group on Assessment of New MoU Species (WGNEW) and the Working Group on Cephalopod Fisheries and Life History (WGCEPH), have all benefited from the introduction of concurrent sampling and this has allowed them to provide more robust advice.

There are a large number of stocks lacking quantitative assessments and reliable estimates of stock status. Recent studies and on-going work indicate that simple harvest control rules using information on the catch length composition and length reference points can be used to deliver catch-based advice that is risk adverse (e.g. Geromont and Butterworth 2014, Jardim et al., 2014, ICES WKLIFE). Concurrent sampling may constitute an important source of biological data for many of the data-limited stocks and the application of these simple HCRs.

Although at present mixed fisheries advice focuses on stocks with quantitative assessments, data collected with the concurrent sampling may increase the information on the catch composition for a larger number of species/stocks lacking reliable catch/landings statistics. This information can be used to help improve the understanding of the technical interactions in a mixed fisheries context.

According to the current CFP (EC, 2013: Council regulation 1380/2013), data collected under the DCF needs to meet a number of key requirements (Article 25). Concurrent sampling looks to meet these needs, in particular related to the contribution of the CFP to the Good Environmental Status by 2020 (preamble 11). It provides new and additional information on species diversity and distribution which will enhance the data sets that can be used for the evaluation of GES under MSFD Descriptor 1 (Biodiversity) and Descriptor 4 (Food webs).

4.1.3.2 Balance between cost and utility

One of the major changes in the DCF that came into force in 2009 was a shift towards concurrent length sampling: a sampling strategy covering the sampling of all species during sampling operations.

A strong debate occurred between scientists of the different institutes involved in the data collection due to the problems that could be generated by sampling in this way.

One of the most important problems is the cost increase. This problem was identified by the sixteen Member States that participated in ICES Workshop on Implementation Studies on Concurrent Length Sampling (ICES, 2008).

A significant increase in the sampling effort is needed with concurrent sampling and this requires a potential increase in both personal and associated costs (e.g. Staff and travel & subsistence costs, data management etc.).

On the other hand, concurrent sampling has served to obtain new and additional information for many data limited species (mainly by-catch). The utility of this data has been analysed by some institutes. Different analyses were carried out:

- Number of species identified and measured before and after the implementation of concurrent sampling.
- Quality of the data obtained before and after the implementation.
- Impact in the quality of target species data after the implementation.
- An important issue was also the feedback obtained from the end users about the data provided related to these species (e.g. Sharks, rays, cephalopods etc.).

Positive results were obtained from these analyses showing and improvement in data limited species information, without losing the quality of the data and with no impact in the data collected for target species. The information collected in concurrent sampling made it possible to use this information in some stock assessment workings groups at species level (WGCEPH, WGEF, etc.).

The cost increase is evident with the implementation of concurrent sampling. However, an important improvement has occurred in the collection of data limited species information. For those countries that have not yet carried out a cost benefit analysis of concurrent sampling, it maybe beneficial for them to do so in order to justify the increase in costs and resources.

Concurrent sampling	
RCM NA 2014 Recommendation	The RCM NA recommends that a comprehensive evaluation of the utility of the data being collected with the concurrent sampling should be performed.
Justification	It is unclear whether the significant resource needed to carry out concurrent sampling provides benefits that outweigh the costs. Some ICES Working groups have benefited from concurrent sampling data collected however there is no empirical evidence to support this. In order to decide if concurrent sampling should continue, more feedback from end-users is required.
Follow-up actions needed	1. MS should carry out the evaluation on their own data collection schemes and report back to the RCM NA. 2. Original proposal from RCM NA was modified during the LM in this point: *Original RCM NA request* ICES feedback to RCM NA on data transmission to expert groups collected with concurrent sampling *Final Liaison Meeting agreement* ICES to set up a workshop proposal to see the implication the stopping of the concurrent sampling for those stocks and benefits concurrent sampling are providing or can provide considering the new and broader scopes of the revised DCF, such as the evaluation of impacts of fisheries on marine biological resources and on the ecosystem.
Responsible persons for follow-up actions	1. MS, RCM NA 2. ICES
Time frame (Deadline)	1. MS: Intersession work with results reported to RCM NA 2015 2. ICES: reporting data transmission to RCM NA 2015

References:

EC, 2013. Regulation (EU) No 1380/2013 of the European Parliament and of the Council of 11 December 2013 on the Common Fisheries Policy, amending Council Regulations (EC) No 1954/2003 and (EC) No 1224/2009 and repealing Council Regulations (EC) No 2371/2002 and (EC) No 639/2004 and Council Decision 2004/585/EC.

Geromont, H., Butterworth, D., 2014. Generic management procedures for data-poor fisheries: forecasting with few data. ICES JMS (doi:10.1093/icesjms/fst232).

ICES, 2007. Report of the Planning Group on Commercial Catch, Discards and Biological Sampling (PGCCDBS). ICES CM 2007/ACFM:09.

ICES, 2008. Report of the joint STECF/ICES Workshop on Implementation Studies on Concurrent Length Sampling (WKISCON). ICES CM 2008/ACOM: 31.

Jardim, E., Azevedo, M., Brites, N., 2014. Harvest control rules for data limited stocks using length-based reference points and survey biomass índices. Fisheries Research (submitted).

STECF, 2006. STECF sub-group on Research Needs (SGRN): Revision of the Biological Data Requirements under Data Collection Regulation (meeting code SGRN 06-03). Brussels, 27 November – 01 December 2006.

4.2 Overview of the fishing activities

4.2.1 Naming convections of metiers for regional coordination

In the Commission Decision 2010/93/EU, precise requirements for the RCMs were made and regional aspects were addressed. In Subsection 3.1.(d) it states:

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.

This highlights the importance of maintaining, providing and sharing comparable métier descriptions.

Moreover, optimizing and harmonizing fisheries management across MS is dependent on improving regional coordination. As agreed métier definitions are to form part of the process, there needs to be consistency in how they are defined and named.

Harmonization of métiers at level 6 is being accomplished since the 2008 RCM NA. Over last years, a lot of work at these RCMs has gone into reviewing and collating fleet descriptions, metier definitions, standardising metier coding and merging national métiers into regional métiers.

RCMs in the past have agreed on the naming convections, drawn up limited lists and provided strong recommendations that these lists are adhered to but still the problems persist. RCM NA highlight the importance of using fishing grounds, mesh size ranges and metier naming convention agreed by the RCMs. RCM NA 2012 already showed the need of updating Appendix IV (1-5) of Commission Decision 2010/93/EC and, in any case, the importance of allowing RCMs the responsibility to agree appropriate species metier aggregations – in accordance with regulation- for use within their region under future EU Data Collection programmes.

The role of the RDB in this context is fundamental providing the means for ensuring MS data is more consistent in the values they use in these data fields. But further development of the RDB is required to ensure this. MS are currently able to add to these definitive lists as there are no procedures for managing these lists within the RDB or protocols in place to limit these additions or instructions on communications and consultation. A process for managing these lists needs to be adopted.

Several problems concerning the names of the metiers have been detected. The 2014 RCM NA decided to go back and produce a reference list containing all the possible combinations for metier naming. These combinations are accordingly to the conventions gathered and updated in 2011 RCM

NA and 2012 RCM NA reports. The reference list produced (spreadsheet to be available at the 2014 RCM NA sharepoint under the folder “Report”) act as a full reference for metier coding summarizing all the agreed convections. It includes all the possible combinations composed following to the metier naming standards (Annex 2).

Naming convections and reference list can be updated if there’s a need to include any new metier, but MS work is needed. The current process dictates that any new required metier and fleet naming and description must follow the standard naming convention and provide a metier description template (example provided in Annex 10, Spanish metiers). Thus, if a required metier is not part of the reference list, its inclusion must be reflected in the metier naming standards (Annex 2). The fleet description should then be presented to the RCM for approval. Once approved by the group the reference list of metiers is revised. The next stage would be to update the agreed list within the RDB through ICES and the SC-RDB.

4.2.2 Metier naming inconsistencies

The reference list was compared with both, data uploaded into the RDB Table 4.2.2.a and list of metiers as provided in the MS National Programme (NP 2011-2013) Table 4.2.2.b. The results of this comparison show the need to restrict the RDB uploads and metier lists provided in the NP accordingly to the reference list and following the metier naming standards. The current list of metiers uploaded to the RDB is incomplete and definitely contains incorrect metier codes.

Table 4.2.2.a Number of metier uploaded in RDB CS tables matching and mismatching the metier naming reference list (RL).

		Number of métiers								
		BEL	DNK	ENG	GBR	GER	IRL	NLD	PRT	SCT
RDB	Match RL	8	14	63	7	4	43	3	14	12
	Mismatch RL	5	7	18	3	0	5	0	4	0
	TOTAL	13	21	81	10	4	48	3	18	12

Table 4.2.2.b Number of metier listed in the NP 2011-2013 (including those not selected to be sampled - table III.C.3) matching and mismatching the metier reference list (RL).

		Number of métiers							
		BEL	ESP	FRA	GER	IRL	NLD	PRT	UK
NP 2011-2013	Match RL	16	28	118	12	75	18	20	288
	Mismatch RL	0	7	37	5	46	0	4	27
	TOTAL	16	35	155	17	121	18	24	315

4.2.3 Naming standards for the RDB: proposed solution

Due to the amount of mistakes found in the names of the metiers in the data uploaded to the RDB MS were requested to provide the complete list of their national metiers during the RCM NA. Without that national revision it is indeed impossible to work with fisheries data in the RDB. Foremost, plan is to restrict the list of metiers in the upload, allowing to upload only those that follow the naming conventions. Only a few countries provided that list during RCM NA 2014. RDB managers have requested to RCM NA this list in order to prepare such restrictions for next data call.

If MS do not check their national metiers and correct the names, a potential risk to avoid RDB work is envisaged.

An agreement was reached to send RCM chairs the complete list of national metiers according to the naming convections. This list will be compiled and transmitted to RDB managers.

MS were requested to comply with this task intersesionally.

Recommendation 2 includes the requirement to update the current data on the RDB in relation to these restricted reference lists.

4.3 Tools for regional coordination: Regional Database

The RDB is a complex and comprehensive internet application for fisheries data. The system includes transmission of data from any country in any of the regions using an international standardized protocol. The data are checked before transmitted into the build-in relational database.

The data in the RDB are the fundamental data used for coordination the sampling among all the countries in the three RCMs; the RCM Baltic Sea, the RCM North Sea & Eastern Arctic and for the RCM North Atlantic region.

Any demand from the RCM regarding even better data quality can be implemented by development of further data checks. The development of the statistical sound designed based estimations of fisheries data should be developed and added in along with existing method.

4.3.1 ICES update on RDB

The operation of the RDB is carried out by ICES. The ICES Secretariat has since last year's RCM NA performed a lot of very different tasks:

- Supported national data submitters
- Corrected and updated codes and change check ranges like species, Size category, tLatDegrees
- Fixed the bug that data submitter could edit stocks
- Dealt with statistical rectangles for NAFO areas

- Reports: Ranking of metiers according to landing weight, value and effort
- Data extracts to RCMs
- Steering Committee RDB work
- Data policy final version send to National correspondent for approval
- Harbour code: It has been decided to use EU standard LOCODE as the standard harbour code list.

4.3.2 SC-RDB update: last meeting and roadmap

A presentation was prepared by Katja Ringdahl (Chair of RDB-SC) which summarised for the RCMs the main outcomes of the last meeting of the RDB-FF Steering Committee and the present state of play of the regional database (RDB).

The steering committee for the regional database (RDB-SC) met 8-9 January in Copenhagen, Denmark. It was the fifth meeting of the committee. Participants were representatives from the RCM Baltic, RCM North Sea & Eastern Arctic, RCM North Atlantic, ICES as well as observers from the RDB-SC for large pelagic fish (LPF) and Spain. The RDB-SC is responsible for strategic planning, technical governance, operational issues and estimates of costs in the overall governance of the RDB. The RDB-SC interacts with the Regional Coordination Meetings (RCMs) and Liaison Meeting (LM) on other tasks such as development needs and content governance.

The RCMs worked during their meetings on the basis of the RDB-FishFrame and put forward recommendations via the LM to the RDB-SC. The RDB-SC has also received recommendations from Experts Working Groups (EWGs). The recommendations covered issues such as completeness of data, harmonisation of input data and suggestions for revisions of exchange format aiming to improve the data and potential for data analysis. The RDB-SC considers it important to avoid frequent changes of the exchange format. Preferably should the changes be done at one go. Changes may also be coordinated with other SC for RDBs as they may utilize the same format. The RDB-SC thereby suggests the establishment of a supra regional RDB format and tools governance group to govern the revision process in a transparent way. This group should primarily work by WebEx.

The RDB-SC have so far received recommendations from RCMs and EWGs on revisions needed to support a regional approach to data collection and estimation as well as statistically sound sampling for sea and shore sampling programmes. The RDB-SC thereby initiated a workshop “Developing the RDB data format for design based sampling and estimation for on shore sampling”. The WK should document a range of on-shore sampling protocols, determine the extent to which these sampling protocols can be recorded by the ex-change format, suggest modifications and combine these modifications with findings from previous meetings. The WK will take place in Aberdeen 27-31 October 2014 and will be chaired by Alastair Pout and Liz Clarke (see section 4.3.4).

The RDB-SC did further initiate a revision of the data policy document with the aim to make access rights and routes clear for data providers, data users and the host. The idea is to split into “pre-approved uses” and “other uses”. Pre-approved uses mean that the MS give their approval beforehand to a limited number of expert groups, preferably during the RCMs (were national correspondents are present) each year. Expert groups for which the usage of data could be pre-approved should be the RCMs and in the future the Regional Coordination Groups (RCGs) with access to detailed data, and some ICES expert groups involved in scientific advice to the Commission and its partners (but only for aggregated data). The ICES secretariat should each year provide the RCMs with a list of relevant ICES groups which then could be finally agreed. For other users MS should be contacted for approval before RDB-FF data could be used. The RDB-SC suggests that MS should have one month to replay and that failure to reply is considered as a denial. The revised policy document has been submitted to the National Correspondents for approval. Most MS have responded in a positive way.

Concerning the data policy document, as some Member States did not accept in 2013 to use the RDB for transmitting their data in response to the annual RCMs data call, the RCM NA suggests that the approval or the refusal of such strategic documents by MS should be more explicitly registered at the UE level. A formal consultation of MS through the NCs meetings or by an official written request of the Commission could be relevant to register legal MS' involvement and to avoid possible future contextual denials.

4.3.3 DEVSTAT feasibility study and RDB-FF issue

DevStat is currently on a contract with the Commission to carry out a feasibility study “Scientific data storage and transmission under the 2014-2020 Data Collection Multi-Annual Programme (DC-MAP)”. The objectives of this study are i) to provide a description of the current data storage and transmission set-up, ii) to develop several possible scenarios for the future for the data storage and transmission set-up which allow achieving a number of policy objectives, and iii) to assess the effectiveness and feasibility of these possible scenarios. Four scenarios were proposed by the consortium. The regional databases (also called "regional nodes") are one of these scenarios.

The RDB-SC, during its last meeting, found it important to stress that the RDB concept is much wider than “simple” storage and transmission of data. Most users working with fisheries data use different estimations that origins from the collected data, not simple aggregations of data. The design based approach, regional data collection programs, quality assurance protocols needs to cover the estimation part as well. This seems though not fully understood outside the RCM and ICES worlds. The RDB-SC has thereby compiled a paper on vision and potentials for the RDB to describe its central role for the future data collection and analysis.

Main points discussed in the position paper are (see for more details the Annex 7 of the January 2014 RDB-SC meeting report):

- The RDB provides end-users with robust, harmonized data-sets and estimates. Estimates are calculated in a transparent system, allowing the assessment of its quality. But the risk that the complexity of how biological data is processed into estimates should not be underestimated.
- The RDB supports integrated regional data collection programs based on statistically sound sampling designs.
- The RDB continues to develop in accordance with end-user needs.
- The RDB increases the awareness of data collected under DCF, the overall usage of the data.

Concerning the third point, it is stressed that a study proposal for RDB development was proposed to the EC some years ago through RDB-SC, PGCCDBS, RCMs and LM. Main issues of this proposed study are the following:

- Development of additional tools for analysis and data tabulating to support regional coordination.
- Testing of trial stocks from different expert groups.
- Stream line the interfacing with InterCatch.
- Explore options and cost implications of implementing of external tools (i.e. COST) in the RDB-FF.
- Requirements and automatisation of Data calls procedures.
- Development of more flexible structure to handle correct processing of design based sampling schemes.
- Development of procedures to ensure confidentiality on individual vessel level for CL, CE and on value.

In spite of the positive responses given by all the abovementioned bodies, only a small budget was got up to now, allowing to cover only current maintenance of the RDB plus some small facilities improvements. The RCM NA heard the reserved EC' stance, which is waiting all the conclusions of works and studies presently carried out before choosing between the different scenarios proposed. But it also stressed the crucial need for MS and end-users to find in the short term useful technical improvements allowing a wider and easier use of the RDB.

4.3.4 WKRDB 5 role in the road map

A workshop to develop the RDB data exchange format to enable design based sampling will be held in Oct 2014 in Aberdeen. For the csData format the workshop will explore the appropriate additional tables and fields needed to record sampling information at the scheme and primary sampling unit level. A new form of data structure that combines aspects of the population data, at present stored as

cl landings data, and ce effort data, will also be explored. It is hoped that prototype structures will be generated in the R statistical software language and that the R package “survey” (Lumley 2010) will be used to explore the estimation stage of data in these new structures. The work will be based on case studies and it is hoped that examples of sample data collected by different national fisheries laboratories will be tested. The use of dedicated statistical software in conjunction with RDB data was recommended by WKPICS 2 (2011) and is a key stage in the development of the RDB.

4.3.5 RCM NA membership of the SC-RDB

From 2011 SC-RDB consist of three members by region nominated by each RCM (North Atlantic, Baltic, and North Sea and Eastern Atlantic) and ICES representatives. Members are expected to have different expertise (user, data expert, database expert, developer, etc) and the group was conceived to be relatively small for practical reasons. There are no time frame constraints to membership. As SC-RDB is not thought to represent national interests, members are not nominated taking their nationality into account.

As Liam Caffrey left the SC-RDB this year, there was one vacancy for membership of the steering committee of the regional data base to be nominated by the RCM NA.

So based on this figures, Membership of the SC-RDB was discussed to better understand current situation, evaluate if changes were needed and appoint one person. In order to keep SC-RDB a real work group RCM NA agreed that sending participants from every MS was not necessary. While time frame of the membership was not discussed a need was detected to balance the representation in the SC-RDB. Considering current SC-RDB most part of the experts come from northern countries; RCM NA considered it important that expertises from different fisheries are represented in the steering committee and agreed on the need of proposing representatives of southern fisheries in order to keep SC-RDB more balanced. Statistical knowledge was also considered as some SC-RDB members had express the current lack of expertise in this area.

RCM NA appointed Nuno Prista (IPMA, Portugal) for SC-RDB.

4.4 Bilateral and multilateral agreements in place

Last year, the Commission made a compilation of the bilateral agreements in place. The compiled bilateral agreements were available in an Excel document on the SharePoint. The Commission requested the RCMS to update the document if needed. Changes to the bilateral agreements were made by the MS during the Baltic RCM, the RCM NS&EA and the RCM NA allowing then to have a complete list before the Liaison Meeting early October 2014. The chairs of the last RCM are responsible to take the document to the Liaison meeting.

5. Data Quality issues

5.1 Progress in data quality and its reporting in the DCF since RCM NA 2013

There has been considerable discussion, guidance and recommendations about improving and reporting quality in relation to the DCF at STECF, RCMs and at ICES expert groups - PGCCDBS, SGPIDS, WKPICS, WGRFS etc.

STECF EWG 13-18 (STECF, 2014) on the revision of the DCF provided a substantial section on data quality indicators in their report. They concluded that sampling programmes should be evaluated in relation to two aspects of sampling:

- The ability of the programme to deliver unbiased data fit for purpose
- The quality of the data and estimates covering bias and precision.

Evaluation should be through a peer-review process supported by clear documentation of the sampling programmes and their outcomes.

There were two key messages:

- Quality assurance is required for all components (including design and implementation of data collection schemes, data archiving as well as methodologies to derive final estimates). Member States need to establish documented quality assurance frameworks which can be compared with future agreed international standards.
- Quality evaluation need encompass all types of data, including transversal data.

A discussion paper prepared by the Commission on the revision of the DCF was the subject of a stakeholder's consultation 16 January 2014. The document offered a new provision in the DCF that should require:

- Member States to set up a process whereby they will ensure "quality certification" at national level establishing documented quality assurance frameworks to agreed international standards and to be evaluated by STECF. This will also cover the design.
- A move to regional, statistically-sound sampling, following best practice guidelines harmonizing the data collection methods, the quality.
- RCGs (for biological sampling) and the Planning Group for Economic Issues (PGECON) for economic sampling to advise on the best practice guidelines

- Member States to follow the recommendations of the RCG/PGECON, once these have been validated by STECF or the Liaison Meeting, regarding methodologies for sampling.
- Future IT systems/databases for DCF data provision to end-users should include automated quality checking procedures.

It questioned:

- Will compliance with the above deliver to the end user?
- Should quality targets remain at a national or a regional level and what should they be?
- Who should set them (the EU multiannual Programme, the RCGs/PGECON?)?
- Would it be sufficient that Member States just provide quality indicators?

The consultation questioned who would be the appropriate evaluating body, STECF or an expert quality assessment panel. There were conflicts about whether minimum sampling levels in terms of effort would be sufficient and suggestions that quality control assurances should be required of Member States as part of any evaluation. Two elements of evaluation, compliance and quality could be considered by STECF at the Member States level. Regional Coordination Groups (RCGs) could check quality at the regional level. End-users could also be involved in the quality check.

A key conclusion was that - IT tools need to be available, in time, to facilitate the evaluation of Member States' implementation and data quality and to support the work of RCGs in planning statistically sound sampling, allocating tasks and to assess quality as a regional level.

Both the STECF and consultation minutes place considerable responsibilities on the future Regional Coordination Groups:

- supporting development of statistically-sound regional sampling schemes
- evaluating the quality of the resultant data
- establishing quality control procedures in the regional data base

Although these roles are yet to be formally established.

It is clear that quality assessment will form a key part of any future evaluation and a quality assurance framework will need to work from the top down and not just at the national level. It will need to work from the final raised estimates and assessments through the regional sampling plans and translated to national sampling programmes. At each stage quality assessments and quality indicators will need to be documented and reviewed.

5.2 Stages in data quality assurance and quality control, and who is responsible

The procedure in the design, collection, quality control and use of DCF data should follow a well-defined series of steps. RCM NSEA 2014 gave an example in terms of a regional sampling programme coordinated by the RCGs for use in assessments conducted by ICES. This is repeated here to demonstrate that at each stage the responsibilities are often shared between different groups and require consultation and exchanges between them.

1. Specification of the objectives of the data collection in terms of end-user needs - what estimates are required (e.g. catches and size/age compositions for métiers), and what precision is needed (responsibility of end users in consultation with RCGs).
2. Identifying the most appropriate statistical design of data collection schemes (RCGs and ICES collaborate to provide guidance, ensuring that national data can be combined robustly for end use; individual countries are then responsible for putting this in practice in their own schemes).
3. Evaluating the sampling effort and its distribution across strata needed to deliver the required estimates and precision, and quantifying the relationship between costs and precision. (RCGs in consultation with end users and individual MS).
4. Implementation of the scheme (national responsibility)
5. Continuous monitoring of performance (national responsibility; reporting to RCGs in relation to regional data)
6. Data archiving and quality control /validation of data (national responsibility for archiving, checking and then uploading national data on RDB; RCGs for checking data in regional data base and ICES for data in DATRAS etc.- though for the RDB this could be a role of ICES, the database host).
7. Data analysis to investigate quality of the data (bias / precision) and provide quality indicators for data supplied to end users (RCGs for data in RDB – also using other information on national data quality from MS; ICES for data in DATRAS etc.; stock assessment scientists or others may also carry out their own checks)
8. Preparation of full documentation of design, implementation, analysis, estimates and quality indicators (RCG/ICES for regional coordinated programmes, based on national documentation).
9. Use of the data, for example in stock assessments. (ICES).
10. Feed-back on quality issues arising from the assessment process (ICES) and establishment of responsive actions such as targeted studies, workshops, inter-calibration exercises etc. (ICES collaborating with RCGs).
11. Adaptation of the sampling schemes as required (RCGs initially, then individual countries as required).

Figure 5.2 provides an example of how this process occurs in support of stock assessment and advice conducted by ICES. This is elaborated further in the RCM NSEA 2014 report but it demonstrates the requirement for quality control and assessment at each stage and to communicate these between each group.

The process starts with the end-user needs for data, in this case the obligations of RFMOs such as the European Commission to manage fisheries. In EU waters the data needs are specified through the DCF. End users such as ICES, STECF or others then issue data calls or other specific requests for data at various levels of aggregation. Currently the data needs translate into sampling programmes, data archiving and associated quality control procedures at a national scale. In future it is envisaged that the RCGs will propose an optimization of sampling effort between countries, collate data in a regional data base and carry out quality control on the regional data sets. This process is currently in development.

Since 2002 and the formation of PGCCDBS initiatives within ICES have undeniably led to improved quality of data, and have caused a rapid change in the culture of fishery sampling schemes towards statistically-sound designs. However, it has been apparent that the end users of the data, specifically in the stock assessment process, are not making full use of information on data quality. A new ICES Planning Group on Data Needs for Assessment and Advice (PGDATA) has been proposed for consideration by ACOM and SCICOM. A responsibility of this group will be to develop guidelines and procedures for information on data quality to be provided to and incorporated into stock assessment benchmark processes. In addition, PGDATA will develop tools to evaluate the impact of data quality on assessments and advice, and to evaluate the cost-effectiveness of changes in data collection. These will be of high relevance to the RCGs, and PGDATA will work closely with the RCGs on this.

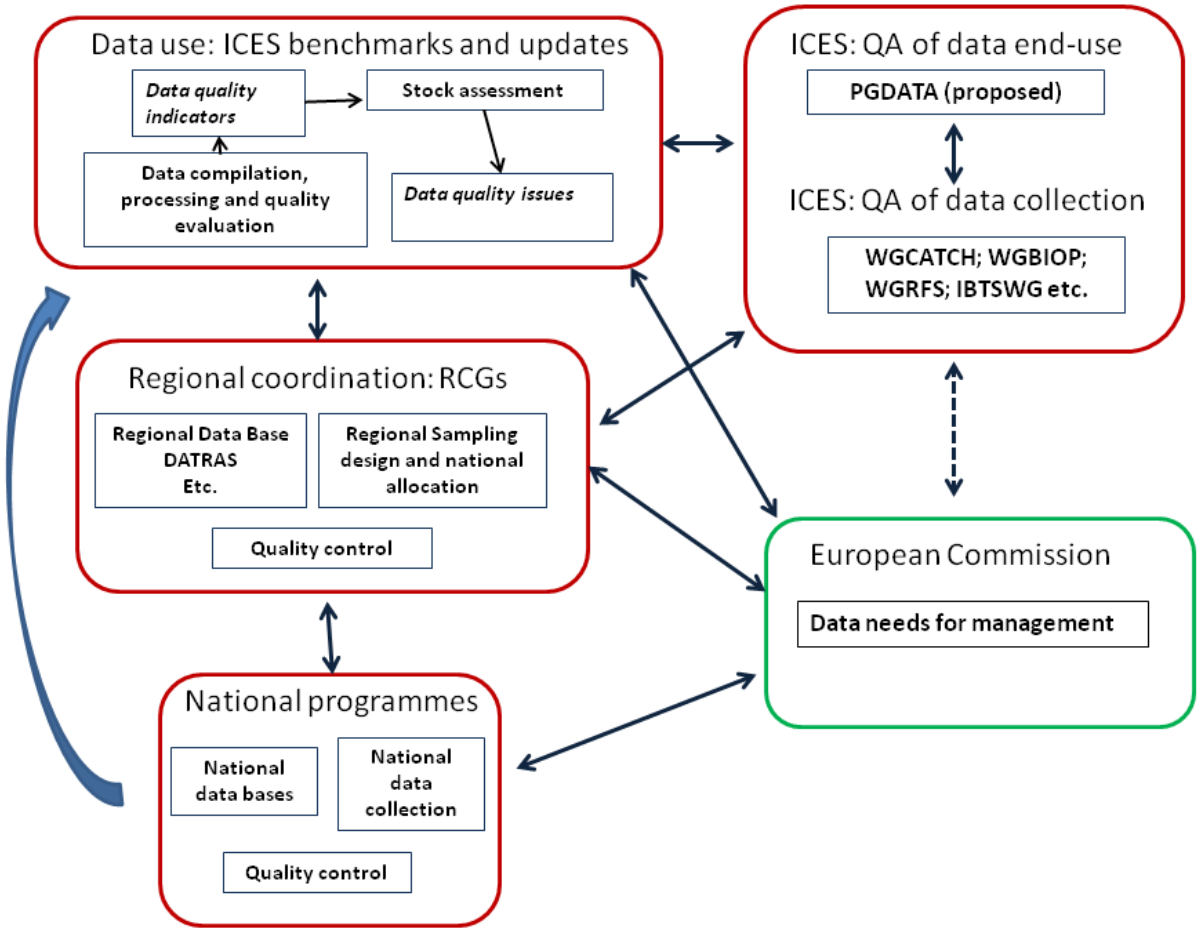


Fig. 5.2 Schematic of where data quality assurance and quality control will take place for the systems of stock assessments and management advice in the ICES area, once the Regional Coordination groups and regional data bases are fully operational.

5.3 Quality control procedures

Historically RCMs have focused on the data collection and quality of the sampling data in reference to fleet components and historic landings. The expertise within the RCMs, with the exception of the National coordinators, predominately relates to the collection and use of the biological data. The transversal data has a huge influence on any weighting of the sampling data and the quality of the transversal data in this context is accepted. The first section below refers to the quality of the sample

data with reference to the biological data (once raised) and the last section considers the quality of the transversal data.

5.3.1 Biological data

RCM NA 2013 provided a table detailing quality issues, example of diagnostics and examples of mitigation procedures at different stages from sampling design to the supply of processed data and estimates, for the process leading to uploads to RDB and subsequent regional data analysis (Annex 3). Following a recommendation made bythe RCM to evaluate aspects of data quality and provide further guidance and diagnostic tools, WKPICS 2013 developed further on this table to reference implications for the development of the RDB – how the RDB could be developed to further support the QA process.

Using this table RCM NSEA 2014 provided a comprehensive breakdown of recommended data checks for each stage from programme design, data collection through to data use. The RCM provided more detailed guidance on the minimum level of checking required and referenced tools or methods to assure data quality. RCM NA reviewed the draft report and endorses this approach.

With the limited time available at this meeting, RCM NA focused on the quality issues and recommended QC and QA procedures at the National data capture and data processing levels - the stages where the responsibility for checking the data remains firmly in the hands of the MS. These are detailed, in turn, below.

	Stage	Quality issues	QA / QC procedures	Example diagnostics
3.	National data capture	Transcription errors; data entry errors; incomplete entry; ancillary data missing (e.g. missing link between a length sample and vessel data)	Electronic data capture; range checks and other error traps in input software; cross checking of DB content and independent inventory or metadata – in relation to missing data; cross checking biological and fleet data; DB consistency checks and reports.	Outlier detection; data values beyond range checks; Differences between DB content and independent inventory or metadata; inconsistencies between biological and fleet data.

Responsible: MS

Frequency: Real time when the data is entered and/or immediately after.

Recommended checks:

WKPICS3 and SGPIDS 2012 provided some guidance on internal data integrity checks and summaries of current practice.

The list below is not exhaustive and demonstrates the ways of capturing keying errors or issues with the collected data. Some of the errors could be captured at the point of sampling – when using electronic measuring boards for example, checks could be hard coded into the database as part of validation when keying in the data or checks could be included in the production of validation reports. These checks are therefore not necessarily exclusive to any one of these stages but for ease are listed in relation to at least one of the sampling stages below. This list is based on the limited response from RCM NA 2013 Recommendation 2 and to avoid repetition it does not distinguish between the different sampling environments, onshore, at sea or on surveys.

These lists assume the staff collecting and entering the data have had sufficient training, are competent and are following documented standard protocols and procedures and are subject to documented QA checks.

Biological Data screening (survey and commercial onshore and offshore catch sampling)

1. Data capture
    - Standard data recording forms with unambiguous data fields for capturing all the crucial data for each sampling event. Consider water proof paper or white boards.
    - Standard calibrated sampling tools – measuring boards/callipers
    - Electronic data capture
        - Limits transcription errors
        - Can provide a time stamp for each fish sampled
        - Pre-screening to capture incomplete fields
        - Upload validation (*see Data entry checks below*)
        - Post notifications including upload success
2. Data entry
    - Qualifying data
        - Reference to data source – recorded rather than assumed.
            - Environment - Vessel, Quay, Market, Merchants
            - Catch details -Skipper, logbooks, merchant, Official records
            - Sampler ID – this might refer to staff profile which could include references to relevant, training, competencies and experience.
            - Sampling information
                - Vessel selection method – *Random drawlist (list vessels from which a vessel is drawn) or other*
                - Sampling unit (sub gear) - *Codend, Combined codends, Port side, starboard side etc.*
                - Gear parameters - *Fishing length, Headline length, footrope, Fleet length etc.*
                    - Relating to specific gears
                        - *Cod end mesh, Mesh size, Tooth bar length etc.*
                        - Presence or absence - SQMP and mesh size, Chain mat, Veil nets, etc.
            - Sampling details
                - Catch component
                - Raising factors
                - Sampling unit – *Count, Measure, Volume*
        - Units of measurement, weight, volume, count
            - Whether estimated or not
            - Reference number of the calibrated measuring tool
    - Compulsory fields - Ensures no crucial information is missed.
    - Data checks
        - Relative values
            - Date of landing - *relative to current date and date of sampling*

        - Date of sampling - *relative to current date and date of landing*
        - Port of landing - *relative to port of sampling*
        - Port of sampling - *relative to port of landing*
    - Limited lists (for example 'drop down lists')
        - Qualifying data *(see above)*
        - Vessel list
            - Registered vessels - *No dummy*
            - More than one vessel can be attributed to a sample if the vessel is not known
        - Gear
        - Ports
        - Area – *dependant on rectangle*
        - Rectangle – *dependant on area*
        - Species
    - Range limits
        - Min and max lengths by species
        - Length weight checks
        - Sample weight within a range based on the calculated weight from the length distribution
        - Individual weight v calculated weight (based on length)
        - Calculated sums v entered total
        - Shoot and haul positions within rectangle and area information
        - Gear parameters - Fishing length, mesh sizes etc.
        - Length v. age and Length v. weight relationships
        - *Length age relationships (see below)*

3. Post validation (see document)
    - Status
        - A record of what stage the data is at – *Complete, Checked, Valid and available for use*
    - Double checking
        - All trips checked against paperwork - all errors corrected, scored and recorded
        - Persistent errors investigated.
    - QC reports which summarise the data and data ranges.
        - Relational data - comparing the current trip data with similar data stored on the national sampling database. See Irish example WKPICS 3 Section 2.4.2 pp. 33. Catch ratios, Raising Factors, Trip length, Tow length, Tow duration, Soak time, Regional species lists – relating to the likelihood of its occurrence.
    - Cross checking with other data sources
        - Comparing sample details against - official data and sales notes recording commercial catch and effort data and details recorded for trip sampled. Presence or absence
        - VMS data
    - Otolith processing and ageing
        - Refer to PGBIOP guidance
        - Use trained and competent staff. Record of competency
        - Proportional checks.
        - QA - otolith exchanges

	Stage	Quality issues	QA/QC procedures	Example diagnostics
4.	National data processing	Incorrect allocation of trips to métiers or strata; use of weight-length relationships; errors or undetected changes in analysis software; Problems with code lists such as vessel tables; Failure to take sampling strategy into account. Use of inappropriate auxiliary (raising) variables. Wrong species code	Document the national Quality assurance procedures; checking analysis routines using standard test datasets; Following guidelines for raising data; checking for correlation with aux variable; checking species distribution. Comparing observer data with landings on a broad scale.	Unexpected changes in processed data from previous years; Length-weight diagnostics; Comparing raised retained catch (using aux variable other than landings) to the official landings; Check number of samples in strata; Check contribution of each sample to final estimate.

Responsible: MS

Frequency: Annually, however part of the data processing checking can be done on a more regular basis.

Recommended checks:

What the data is required for will affect what pre-processing checks are needed however to ensure confidence in the underlying data more regular checks should be carried out. Most of the recommended checks in the processing phase compare current and historic data. Current data values should fall within acceptable limits/variance this year's annual data with a timeline or the full dataset.

In the post data validation checks and pre–processing checks it is more difficult to correct data and therefore it's more likely the data or information will be excluded or deleted if the correct value cannot be established.

Relational checks

- Monitoring achievements
    - Review data collected in relation to the sampling design – number of samples against strata and commercial effort
- Spatial plots – sampling events compared to fishing effort – see SGPIDS 3
- Temporal plots – trends analysis
    - Changes in mean weight and length at age
    - Changes in discard rates, catchability
    - Changes in catch rates
- Length – weight relationship. Find outliers
- Otoliths – consistency plots – can cohorts be followed (age – age +1), length at age, weight at age
- Species – checking species codes in relation to caught weights and area

Raising

- Use of appropriate auxiliary (raising) variables, there should be a positive correlation between what you need to raise with what you are raising with.
- Compare the raised values with last year's values for the same strata

Observer trips

- Weights of samples and landings provided could be obtained in a number of different ways including; actual weights, volumetric estimate, or a guestimate. These weights can be checked by comparing them with the total calculated weight from a length weight relationship applied to the length frequency distributions.
- Compare the logbook information from the observer trip with sales slip
- Check the observers record of the gear with the official logbook and any regulations for that area

Scientific surveys

- Plot planned stations and conducted stations on the same map

Annual reports

- Internal QA reports?
- Quality indicators
- Effective sample size.
- Non response rates

To improve and maintain quality, good documentation of sampling schemes and data management is key. Most member states probably have these records and carry out continuous data checking procedures and quality control but standard templates that document what is being done are required to improve on any evaluation. A key to any evaluation of quality is assurance that minimum standards and criteria are met. To be able to compare and improve national quality standards RCMs should have access to these documents.

To start this process RCM NA compiled templates based on the recommended data checks detailed in the lists above, and focusing primarily on national catch sampling schemes. These lists are not comprehensive and space is provided to add further checks that some MS might also carry out. The national representatives at the meeting were asked to complete these tables. The results are available in tables below (Tables 5.3.1a,b,c). Taking into account their size (making them not very appropriate for a report) and the fact of being tables very useful for national needs, these excel spreadsheets can be found at the RCM NA SharePoint. This provides some answer to Recommendation 12 from the Liaison meeting (See section 3.1)

This forms a simple standard QA document which can inform data users and evaluators of the minimum checks carried out by each MS prior to any data upload to the RDB. There was not sufficient time to review the results and these will need to be done at the next RCM. The document itself will need to be reviewed as to its efficacy, whether it may form part of a Regional QA document and how it may be kept up to date if it does. One important issue which was raised by MS representatives when filling the tables is that the meaning of some fields was not clear and could be interpreted in

various ways. If the table is to be used for regional coordination, it is crucial to agree the meaning of each field and provide clear and unambiguous instructions.

A lot of MS have Manuals and Standard Operating procedures. These are often for internal use only, only in the native tongue, and likely protected by intellectual property rights. Institutes have referred to these and compare procedures at international catch sampling workshops (SGPIDS, WKPICS). It is not essential that these are published or make up part of these QA documents. It is enough to know that there are protocols and guidelines in place that ensure consistency in the sampling. Regional and international cooperation at workshops and planning groups have worked to standardise processes so it is recommended for MS to review this as part of the peer reviewed quality audit.

Table 5.3.1.a National data capture at sea

NATIONAL DATA CAPTURE - At sea sampling											
Please complete with Y (Yes), a null will be assumed as N (No)	Belgium	France	Germany	Ireland	Netherlands	Portugal	ortugal Azore	Spain	ı (basque Cou	K (Eng + Wale	UK (Scotland)
Completed	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Trained and competent staff.											
• documented standard protocols and procedures	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
• subject to documented QA checks.	Y	Y	Y	Y	Y	Y	Y	N	N	Y	Y
Data capture											
• Standard data recording forms with unambiguous data fields for capturing all the crucial data for each sampling event.	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
• Standard calibrated sampling tools – measuring boards/calipers	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
• Electronic data capture	Sometimes	Sometimes	N	Y	N	N	N	N	N	N	partly
o A time stamp for each fish sampled	N	N		N		NA	NA		NA		partly
o Upload pre-screening to capture incomplete fields	Y	Y		Y		NA	NA		NA		Y
o Post notifications including upload success	Y	Y		Y		NA	NA		NA		Y
Data entry											
• Qualifying data											
o Reference to data source – recorded rather than assumed.											
▪ Sampler ID – this could refer to a staff profile which includes references to training, competencies and experience.	Y	Y	Y	Y	Y	Y	Y	N	N	Y	Y
▪ Target species	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	partly
▪ Sampling information											
• Vessel selection method - *Drawlist or other*	(opportunisti	Y	(opportunisti	(opportunisti	O	(Opportunist	(opportunisti	Y	Y	Y	Y
• Vessel refusals and call logs.	N	Y	Y	N	N	In prep.	Y	Partial	Y	Y	Y
• Sampling unit (sub gear) - *Codend, Combined codends, Port side, starboard side etc*	Y	Y	mostly	Y	Y	Y	Y	mostly	Y	Y	Y
• Gear parameters - *Fishing length, Headline length, footrope, Fleet length etc*	N	Sometimes	not always	Y	not always	Y	Y	Y	Y	Y	N
o Relating to specific gears											
▪ *Cod end mesh, Mesh size, Tooth bar length etc.*	Y	Y	Y	Y	Y	Y	NA	Sometimes	Y	Y	Y
▪ Presence or absence - *SQMP and mesh size, Chain mat, Veil nets, etc*	Y	lectivity devic	N	Y	?	Y	NA	?	Y	Y	N
▪ Sampling details											
▪ Catch component	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
▪ Raising factors	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
▪ Sampling unit – *Count, Measure, Volume*	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
o Units of measurement, weight, volume, count											
▪ Whether estimated or not	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
▪ Reference number of the calibrated measuring tool	N	N	N	N	N	N	N	N	N	N	N
o Measurement - recorded rather than assumed											
▪ Carapace length, Total length, Shell height, Fork length etc.	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
• Compulsory fields - Ensures no crucial information is missed.	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
• Data checks											
o Relative values											
▪ Date of landing - *relative to date of departure*	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y
▪ Date of departure - *relative to date of landing*	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y
▪ Date of haul - *relative to date of landing and departure*	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y
o Limited lists (for example 'drop down lists')											
▪ Qualifying data *(see above)*	Y	Y	Y	Y	?	Y	Y	Y	Y	Y	Y
▪ Vessel list	Y	Y	Y	Y	?	Y	Y	Y	Y	Y	Y
• Registered vessels - *No dummy*	Y	Y	Y	Y	?	Y	Y	Y	Y	Y	Y
▪ Gear	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
▪ Ports	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
▪ Area – *dependant on rectangle*	Y	Y	Y	Y	Y	Y	NA	Y	Y	Y	Y
▪ Rectangle – *dependant on area*	Y	Y	Y	Y	Y	Y	NA	Y	Y	Y	Y
▪ Species	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
o Range limits											
▪ Min and max lengths by species	N	Y	Y	Y	Y	(through QCA	Y	Y	Y	Y	partly
▪ Length weight checks	N	Y	Y	Y	N	(through QCA	Y	Y	Y	N	partly
▪ Sample weight within a range based on the calculated weight from the length distribution	N	Y	Y	Y	N	(through QCA	Y	Y	N	N	N
▪ Individual weight v calculated weight (based on length)	N	N	N	Y	N	(through QCA	Y	Y	N	N	N
▪ Calculated sums v entered total	N	Y	Y	Y	Y	(through QCA	Y		Y	Y	Y
▪ Shoot and haul positions within rectange and area information	Y	Y	within rectang	Y	Y	(through QCA	NA	Y	Y	Y	Y
▪ Gear parameters - Fishing length, mesh sizes etc	Y	N	N	Y	Y	(through QCA	Y	Partially	N	Y	partly
▪ Length v. age and Length v. weight relationships	N	Y	Y	Y	N	(through QCA	Y (Partially)	Y	Y	N	N
Post validation											
• Status											
o A record of what stage the data is at – *Complete, Checked, Valid and available for use*	Y	Y	N	Y	Y	N	Y	N	N	Y	N
• Double checking											
o All trips checked against paperwork - all errors corrected, scored and recorded	PARTIAL	Y	N	Y	Y	random samp	Y	N	PARTIAL	Y	Y
o Persistent errors investigated.	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
• QC reports which summarise the data and data ranges.											
o Relational data - comparing the current trip data with similar data stored on the national sampling database. See Irish example WKPICS 3 Section 2.4.2 pp. 33. Catch ratios, Raising Factors, Trip length, Tow length, Tow duration, Soak time, Regional species lists – relating to the liklihood of its occurence.	N	Y		Y	N	N	N	N	In prep.	In prep.	N
• Cross checking with other data sources											
o Comparing sample details against - official data and sales notes recording commercial catch and effort data and details recorded for trip sampled. Presence or absence	N	Y		Y	N	Y	Y	N	Y	N	Y
o VMS data	N	Y		Y	Y if in doubt	N	N	N	N	N	Y
• Otolith processing and ageing											
o Otolith reading											
o Training to competency	Y	Not at sea		Y	y	Y	N	Y	Y	Y	Y
o QC	Y	Not at sea		Y	y	Y	N	Y	al (for some f	Y	Y
o QA - otolith exchanges	Y	Not at sea		Y	y	Y	N	Y	al (for some f	Y	Y

Table 5.3.1.b National data capture on shore

NATIONAL DATA CAPTURE - Onshore sampling									
Please complete with Y (Yes), a null will be assumed as N (No)	France	Ireland	Netherlands	Portugal	ortugal Azor	Spain	(Basque Cou	(Eng + Wal	UK (Scotland
Completed	Y	Y	Y	Y	Y	Y	Y	Y	Y
Trained and competent staff.									
• documented standard protocols and procedures	Y	Y	Y	Y	Y	Y	Y	Y	Y
• subject to documented QA checks.	In prep.	Y	Y	In prep.	Y	N	N	N	Y
Data capture									
• Standard data recording forms with unambiguous data fields for capturing all the crucial data for each sampling event.	Y	Y	Y	Y	Y	Y	Y	Y	Y
• Standard calibrated sampling tools – measuring boards/calipers	Y	Y	Y	Y	Y	Y	Y	Y	Y
• Electronic data capture	Partly	Partly	N	N	N	N	N	Y	partly
o A time stamp for each fish sampled	N	N		NA	NA	NA	NA	Y	Y
o Upload pre-screening to capture incomplete fields	Y	Y		NA	NA	NA	NA	Y	Y
o Post notifications including upload success	Y	Y		NA	NA	NA	NA	Y	Y
Data entry									
• Qualifying data									
o Reference to data source – recorded rather than assumed.									
▪ Environment - Vessel, Quay, Market, Merchants	Y	Y	Y	Y	Y	Y	Y	Y	Y
▪ Source of catch details -Skipper, logbooks, merchant, Official records	Y	Y	Y	Y	Y	Y	Y	Y	Y
▪ Sampler ID – this could refer to a staff profile which includes references to training, competencies and experience.	Y	Y	Y	N	Y	N	N	Y	Y
▪ Sampling information									
• Vessel, Trip, sample selection method - *Drawlist or other*	Y	Random	N	Y (Random)	Y	Y	Y	N	Y (not shellfish)
• Gear parameters - *Fishing length, Headline length, footrope, Fleet length etc*									
o Relating to specific gears									
▪ *Cod end mesh, Mesh size, Tooth bar length etc.*	N	N	N	N	Y	N	Y	Y	Y
▪ Sampling details									
▪ Raising factors	Y	Y	Y	Y	Y	Y	Y	Y	Y
▪ Calculation method	Y	Y	Y	Y	Y	Y	Y		Y
▪ Sampling unit – *Count, Measure, Volume*	Y	Y	Y	Y	Y	Y	Y	Y	Y
o Units of measurement, weight, volume, count									
▪ Whether estimated or not	Y	Y	N	Y	Y	Y	Y	N	Y
▪ Reference number of the calibrated measuring tool	N	N	N	N	N	N	N	Y	N
o Measurement - recorded rather than assumed									
▪ Carapace length, Total length, Shell height, Fork length etc.	Y	Y	Y	Y	N	Y	Y	Y	Y
• Compulsory fields - Ensures no crucial information is missed.	Y	Y	Y	Y	Y	Y	Y	Y	Y
• Data checks									
o Relative values									
▪ Date of landing - *relative to current date and date of sampling*	Y	Y	Y	In prep.	Y	Y	N	Y	Y
▪ Date of sampling - *relative to current date and date of landing*	Y	Y	Y	In prep.	Y	Y	N	Y	Y
▪ Port of landing - *relative to port of sampling*	Y	Y	Y	In prep.	Y	Y	N	Y	Y
▪ Port of sampling - *relative to port of landing*	Y	Y	Y	In prep.	Y	Y	N	Y	Y
o Limited lists (for example 'drop down lists')									
▪ Qualifying data *(see above)*	Y	Y	Y	Y	Y	Y	Y	Y	Y
▪ Vessel list	Y	Y	Y	Y	Y	Y	Y	Y	Y
• Registered vessels - *No dummy*	Y	Y	Y	Y	Y	Y	Y	Y	Y
• More than one vessel can be attributed to a sample if the vessel is not known	N	N	N	N	N	?	?	Y	partly - shellfish only
▪ Gear	Y	Y	Y	Y	Y	Y	Y	Y	Y
▪ Ports	Y	Y	Y	Y	Y	Y	Y	Y	Y
▪ Area – *dependant on rectangle*	Y	Y	Y	NA	NA	Y	Y	Y	Y
▪ Rectangle – *dependant on area*	Not always	Y	Y	NA	NA	NA	Y	Y	Y
▪ Species	Y	Y	Y	Y	Y	Y	Y	Y	Y
o Range limits									
▪ Min and max lengths by species	Y	Y	Y	through QC	Y	N	Y	Y	Y
▪ Length weight checks	Y	Y	Y	through QC	Y	Y	Y	Y	partly
▪ Sample weight within a range based on the calculated weight from the length distribution	Y	N	Y	through QC	Y	Y	N	Y	partly
▪ Individual weight v calculated weight (based on length)	N	Y	N	through QC	N	N	N	Y	N
▪ Calculated sums v entered total	NA	N	Y	through QC	Y	Y	Y	Y	N
▪ Length v. age and Length v. weight relationships	NA	Y	Y	through QC	Y (Partially)	N	Y	N	N
Post validation									
• Status									
o A record of what stage the data is at – *Complete, Checked, Valid and available for use*	Y	N	Y	N	Y	Y	N	Y	Y
• Double checking									
o All trips checked against paperwork - all errors corrected, scored and recorded	Y	Y	Y	andom samp	Y	Y	Some	Some	Y
o Persistent errors investigated.	Y	Y	Y	Y	Y	Y	Y	Y	Y
• QC reports which summarise the data and data ranges.									
o Relational data - comparing the current trip data with similar data stored on the national sampling database. See Irish example WKPICS 3 Section 2.4.2 pp. 33. Catch ratios, Raising Factors, Trip length, Tow length, Tow duration, Soak time, Regional species lists – relating to the likliehood of its occurence.	N	N	N	N	N	N	In prep.	In prep.	N
• Cross checking with other data sources									
o Comparing sample details against - official data and sales notes recording commercial catch and effort data and details recorded for trip sampled. Presence or absence	Y	Y	Y	Y	Y	Y	Y	N	Y
o VMS data	Y	Y	Y	N	N	N	N	N	N
• Otolith processing and ageing									
o Otolith reading									
o Training to competency	Y	Y	Y	Y	Y	Y	Y	Y	Y
o QC	Y	Y	Y	Y	Y	Y	Y	Y	Y
o QA - otolith exchanges	Y	Y	Y	Y	Y	Y	Y	Y	Y

Table 5.3.1.c National data processing

NATIONAL DATA PROCESSING													
Please complete with Y (Yes), a null will be assumed as N (No)	Belgium	France	Germany	Ireland	Netherlands	Portugal	ortugal Azor	Spain	(Basque Cou	(Eng + Wal	UK (Scotland	
Completed		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Relational Checks												
• Monitoring achievements												
o Review data collected in relation to the sampling design – number of samples against strata and commercial effort		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
• Spatial plots – sampling events compared to fishing effort – see SGPIDS 3		Y	partly	Y	Y	Y	N	N	N	N	N	Y
• Temporal plots – trends analysis												
o Changes in mean weight and length at age		Y	N	Partly	N	Y (Partly)	Y(Partially)	Partly	N	Y	Y	Y
o Changes in discard rates, catchability		Y	N	Y	N	Y (Partly)	Y	Partly	N	N	N	Y
o Changes in catch rates		Y	N	Y	N	Y (Partly)	Y	N	N	N	N	Y
• Length – weight relationship. Find outliers		Y	Y	Y	N	Y	Y	N	Y	N	N	Y
• Otoliths – consistency plots – can cohorts be followed (age – age +1), length at age, weight at age		Y	N	Y	N	Y (Partly)	Y	Partly	N	Y	Y	Y
• Species – checking species codes in relation to caught weights and area		Partly	partly (only in relation to weights)		Y	Y	N	Y	Y	Y	Y	Y
Raising												
• Use of appropriate auxiliary (raising) variables, there should be a positive correlation between what you need to raise with what you are raising with.		Y	N	Y	N	Y (Assumed)	Y	Y	?	N	N	?
• Compare the raised values with last years values for the same strata		Y	Y	Y	N	Y	N	Y	Y	Y	Y	Y
Observer trips												
• Weights of samples and landings provided could be obtained in a number of different ways including; actual weights, volumetric estimate, or a guestimate. Check with total calculated weight from a length weight relationship applied to the length frequency distributions.		Y	Y	y	N	N	Y	Y	N	N	N	partly
• Compare the logbook information from the observer trip with sales slip		Y	N	N	Y	N	Y	N	Y	N	N	Y
• Check the observers record of the gear with the official logbook and any regulations for that area		Y	partly	y	N	N	N	N	Y	Y	Y	Y
Scentific surveys												
• Plot planned stations and conducted stations on the same map		Y	not useful!!	Y	N	Y	NA	Y	Y	Y	Y	Y
Annual reports											N	
• Internal QA reports?	annual worksh	N	Y	N	Y	N	partial	In prep.	In prep.	In prep.	N
• Quality indicators		Y	N	N	N	In prep.	N	N	N	N	N	N
• Effective sample size.		Y	N	N	N	N	N	N	N	N	N	N
• N on response rates		Y	N	N	N	In prep.	N	N	Y	N	N	N

5.3.2 Transversal

Control and capture of this data usually falls within the remit of Enforcement or Control Agencies – quality is often assumed or accepted. Some of the aspects or processes used to validate the biological data can highlight issues with the transversal data. These data are crucial to weight the samples collected for the assessments. The quality of these data has to be considered in the same context therefore as the biological data. The impact of the landing obligation on the quality of catch estimates is of huge concern to the RCMs (discussed in section 8) which highlights how important the data is.

The relevance and accuracy of this data is not wholly outside the remit of the RCGs. At a regional level there should be some assurance of the quality of the transversal data being uploaded to the RDB and that currently is not apparent. RCGs might have little control over the quality of these data but it is important to understand where the data comes from, how the data is derived and how it is quality assured. At a national level any data checks and assurances should be documented and should form part of a MS QA portfolio.

Transversal data collected by Member States are for the most part collected under procedures introduced for control and enforcement purposes under the Control Regulation (EC) 1224/2009.

General principles for the analysis of 'control' data including validation are set out in Article 109 of the Regulation which requires Member States to ensure that they are accurate, complete and submitted within set deadlines. Member States are also obliged to perform cross-checking, analyses and verifications of data through automated computerised algorithms and mechanisms. The data to be cross checked and verified are set out in Article 109.2 and include fishing activities data (in particular the logbook, landing declaration, transhipment declaration, sales notes and takeover declarations etc.); and information from various electronic sources including VMS, ERS and AIS. Article 9.8 further obliges Member States to establish national plans to implement a validation system covering these. The plan allows Member States to prioritise validation and cross-checks and subsequent follow up of inconsistencies on a risk management basis.

6. Upload to RDB

6.1 Analysis of data from 2014 RCM data call

For a number of years MS are requested to submit data to the Regional Data Base (RDB) for the purpose of coordination and quality evaluation. In order to have a complete dataset, data call in 2014 was launched requesting information (commercial landing, effort and biological sampling) for 2009-2013. The RCM NA has evaluated the performance of the submission and the content of the database.

In 2014 data call all countries have delivered for the first time in the RCM NA landings, effort and sampling data to the RCM NA.

All countries have uploaded data into the RDB, except France (brought the data to the meeting) and Spain (answered the data call in requested time emailing the files to the RCM chairs). Due to the short available time for the subgroup and the need to response all ToRs, it was not possible to merge data from extracted from the RDB with the rest of the data provided to the RCM NA. Therefore 2014 data from France and Spain are not included in the data extracts from the RDB which are showed in next tables. It is stressed the importance of answering the data call uploading the data in the RDB to allow RCM to optimise the available working time and to ensure –at least for part of the data for which the current tool do it- the complete validation of the data done during the screening process in the upload.

Data uploaded to the RDB goes through standard filters which stop the upload if the values in fields fall outside expected ranges or are not on a limited list. However, these reference lists (for example species lists, harbours and metiers) have not been as restrictive as they should. The management of the list needs to be improved. RCGs should have some control on the lists, for example, setting which values are acceptable and which are not.

Tables 6.1.a and 6.1.b provide an overview of what data is on the system but they do not provide any indication of how complete or usable the data is. Throughout the data call MS would have been in correspondence with the RDB administrators (ICES) if there were any technical issues when uploading data. However no formal records are available of whether the upload was successful or how an issue was solved and therefore there is no indication of how complete the data is. Failures range from technical issues to political issues and concerns about data protection. However, how this is reported is inconsistent and data gaps are not apparent to any data users. RCM NA 2013 made the recommendation to improve the RDB system – to contain tables or references to how complete the data is, not just what is on the system but what data is not. RCM NA proposes a process to improve on this (see section 6.3)

Table 6.1.a Number of species in landings data (CL), number of species in length samples (CS) and number of species in age samples (CA) for each year

Flag country	2009			2010			2011			2012			2013		
	CL	CS	CA	CL	CS	CA	CL	CS	CA	CL	CS	CA	CL	CS	CA
Belgium	49	10	7	55	24	7	50	10	7	55	10	7	47	14	3
Denmark	4			4	1		5	2	2	5	1	1	8	2	1
England		111	12	116	114	16	115	107	19	120	136	20	118	115	10
France				123			122			98	1				
Germany				8			10	3	3	17	4	2	15	14	4
Ireland	119	113	12	129	116	13	121	126	12	126	125	12	121	108	10
Netherlands	33	12	5	33	5	4	34	16	5	35	9	4	35	6	5
Northern Ireland		4	3	59	10	5	60	24	6	64	3	1	54	4	
Portugal	197	107	6	203	108	5	196	111	6	347	114	6	338	109	6
Scotland		5	5	110	22	11	102	28	11	108	27	13	98	128	12
United Kingdom		60	9		72	10		66	9		70			62	
Wales		24	3	79	2		76	3	1	69	9	1	61	1	

Table 6.1.b Number of métiers in effort data

Flag country	2009	2010	2011	2012	2013
Belgium	4	4	4	4	6
Denmark	3	2	2	2	2
England		99	92	102	97
France		51	52	53	
Germany		6	4	5	4
Ireland	24	25	24	24	24
Netherlands	9	12	9	15	8
Northern Ireland		29	26	24	26
Portugal	19	20	18	19	21
Scotland		66	58	63	55
Wales		32	36	37	31

The consistency in the trends for each country might provide an indication that the data was complete for member states and a spike in the number of species or metiers sampled over the years might indicate an issue that requires further investigation. The differences between the upload of the different data types – transversal v. biological data might be indicative of technical or interpretive issues but without knowing what data was not uploaded we cannot tell how useable the data is.

The SC-RDB still need clear guidance on what QA and status reports and validation reports are required by the RCGs.

6.2 Comparison of the annual reports and the RDB contents.

RCM NA made a comparison of the data in the DCF Annual Reports and the RDB as this could provide an indication on how complete the RDB data is at the moment. A comparison of the number of species sampled, and the number of length measurements, from the annual reports table IIIC6 for commercial species and the data extracted from the RDB in Sept 2013 indicates that there are considerable differences between the two (table 6.2). In 4 of 6 cases the number of species in the RDB is less than stated in the annual report, in 2 cases it is more. Numbers of length measurements in the RDB are lower for all MS but the case of Belgium, varying from 2% shortfall to a 96% shortfall. France and Spain provided data to the RCM but have not uploaded 2013 data to the RDB, , so no data could be extracted from the RDB for these countries. Possible explanations for the differences are that not all data has been uploaded, this may be particularly the case with discard samples and for shellfish species, or sampling trips where no data were collected. However, there can be also some other interpretation issues, as whether MS had to upload in the RDB all sampling data or only data about the stocks that are currently assessed. The same rules should apply for all MS when uploading the data to the RDB.

AR are the only reference we have about MS sampling achievement. Harmonising the contents of the annual reports with the RDB contents is very desirable, and would legitimate the use of the RDB data to coordinate the regional sampling. However, it must be taken into account that it is not on the scope of RCG to evaluate the AR.

Table 6.2 Comparison of the number of species sampled and the number of length measurements, in table IIIC6 of the annual reports and in the RDB

	Submitted numbers from table IIIC6		2013 Data extracted from the RDB		
Sampling Country	Number of species	Total measures of length	Number of species (length measures)	Number of measured lengths	% difference in numbers of lengths
BEL	27	287074	70	335413	16.8
ESP	231	660975	0	0	-100
FRA	27	15527	0	0	-100
GER	53	103821	14	69410	-33.1
IRL	124	446063	108	280116	-37.2
NLD	26	63961	3	2666	-95.8
PRT	241	436818	117	427643	-2.1
UK	168	843723	180	530813	-37.1
Grand Total		2857962		1646061	-42.4

6.3 Data Upload Logs

There are a range of users that need a ready reference to a data upload log which summarizes what is on the database:

- MS, when uploading the data, might only be interested in comparing what they managed to upload with what they thought they were uploading.
- For evaluation and estimation the user will need to know whether the data is complete. If it is not complete, the user will need to know whether the available data is usable and how the incompleteness of the data might limit its use.
- For auditing, the user will need to know what data has been collected and the user will need assurance that it is in a format that can be used or not.
- Database administrators and developers need to know whether there were issues when uploading data, whether they were resolved, when and how – and how, or wheter they were just ignored.

All these different uses are summarised in the text table below.

Table 6.3.a Different uses of a data upload log which summarizes what is on the RDB

Type of 'upload log'-user	Requirements for the log	Status in the current database
Data uploaders e.g. Member States	– details of the data that were successfully uploaded and details of those that did not	An acknowledgement of the upload is provided, but further detail is required.
Data users e.g. expert groups, remote users	– reference to how complete the data is – references to interpretation and possible limits for use of the data	– –
Evaluators e.g. auditors, European Commission, RCGs	– details that can be used for QA and/or assessment of compliance to the National/Regional Sampling Programs	–
RDB developers	– details necessary to improve on successes and data interpretation	–

The RDB will be developed to record the status of the data within it, but until it is available RCM NA recommends that a standard log should be submitted at the time of each data call to provide RCGs and data users with a reference to what data is not on the system (See Recommendation 2). These logs will need to be combined, stored and managed so that they are pertinent to any changes to data structure, any resolved issues and data calls over time. The recommendation also covers a process for deleting and amending data.

Table 6.3.b provides an example of the Upload log with a number of example entries covering a range of issues. To populate this table, RCMNA referred to some consistent issues that Portugal detailed in Reports provided at RCM NA 2012 to 2014. The examples of issues and successes listed are not exhaustive.

If for technical, political (see record no. 217, Table 6.3.b) or interpretive reasons some of the data is not uploaded, this needs to be stated in the upload log as well.

It would be unsafe to assume that “data uploaded is complete and contains all the data collected under the DCF unless otherwise stated”. It is therefore implicit that successes are recorded as well (see record no. 218, Table 6.3.b).

Issues that arise during a data upload that are easily resolved with a simple communication with ICES (the database administrators) can be ignored if corrected. However if the administrators need to and are free (without referring to the RCGs) to add to reference lists or extend data limits to help with an issue then this should be communicated to all National correspondents. For tracking, these instances might need to be included in the upload log.

The upload log will primarily record issues that could not be resolved before the data call deadline and to inform data users and direct and document any resolutions, but also important to keep a log of other simple resolved issues thus keeping the track of RDB issues. However to ensure similar issues are resolved more easily and track changes to the database and the data this document will need to be kept live in some format. The returns from member states will need to be collated and reviewed at the RCGs and SC-RDB. Some issues might not be easily resolved. An example might be when RCGs want to control the data that is uploaded by using restricted reference lists. Another example might only be solved by providing additional fields in the RDB in order for the data to remain interpretable. Both these issues will need to go through a review and prioritisation process which will delay the completeness and therefore limit the use of the data.

The Upload log the form of an excel workbook that comprises 3 spreadsheets of which the first is the table and the last 2 contain lookup tables or reference lists. This is a draft and amendments and additional fields may be required to capture all the issues and resolutions in sufficient detail.

Some of the fields in the table have been limited for entry by the use of dropdown menus. The first, dark grey row in the table (Table 6.3.b) provides a simple reference to what is expected in each field. The text table below provides more detail.

Column-header	Explanation	Choices
UniqueID	Unique number, intrinsic to the table.	None
Datacall	Year of the datacall	Free text
RCM	The RCM/RCG the datacall was for.	List: NA NS & EA Baltic
Member State	The member state uploading the data.	Free text
Date	Date of upload.	Free text
Data Type	Data Type	List: CS CE CL
Table	Free text so that an upload record applicable to different tables can be registered only once. Combinations to be registered with a comma as separator (e.g. “CA, HH, HL”).	List: All TR CA HH HL SL
Full upload	Was the upload complete or did some data not load successfully?	List: Yes No
If No then reason	If the upload was not complete, what type of issue arose/caused this incomplete upload?	List: Technical Choice Procedural
Sampling_type	Free text so that an upload record applicable to different sampling types can be registered only once. Combinations to be registered with a comma as separator (e.g. “M, D”). In the “Lists”-tab the abbreviations are linked to their Sampling_type_Long (for reference).	List: M S V D All
Field	Free text so that an upload record applicable to different fields can be registered only once. Combinations to be registered with a comma as separator (e.g. “Species, Age”).	See “Field Lists” sheet
Issue	A description of the data that was or was not uploaded.	Free text
Background	The reason why data could not be uploaded or was only partially uploaded.	Free text
Action	What actions need to be taken to resolve the issue in order for the data to be uploaded.	Free text
Responsible	To whom does this issue need to be addressed? Who would be in the correct position to take the necessary actions?	Free text
Status	An open issue has not been dealt with before. An ongoing issue has been picked up by the responsible entity/person but has not yet been resolved. A referred issue was not addressed to the right responsible, and was then referred to the appropriate responsible.	List: Open Ongoing Referred Resolved
Free text in field “-“:	• *no action needs to be taken* • *there is no issue* • *Not applicable*	

Table 6.3.b The proposed upload log completed with a number of examples showing successes and issues requiring resolution.

UniqueID	Data call	RCM	Member State	Date	Data Type	Table	Full upload	If *No* then reason	Sampling type	Field	Issue	Background	Action	Responsible	Status
Unique number		List	Free text		List		List	List	List		*Why is the data not completely uploaded? What data was not able to be uploaded?*	*The reason why this data could not be uploaded, but should be uploaded*	*What needs to be done?*	*By whom does this need to be done?*	List
213	2012	NA	PT	04/09/2014	CS	TR, HH	No	Procedural	S	No sets Hauls on trip	Data from trips with no haul were not uploaded.	Currently, the RDB is assuming that some fishing always takes place as it requires that some haul data is entered for every trip. However, some fishing trips register no hauls. This happens when a vessel goes out to sea and breaks down; or when a purse seiner searches for fish schools but returns to shore without making any haul.	A decision needs to be made on how to deal with such a situation.	RCM/RCG	Open
214	2012	NA	PT	04/09/2014	CS	HH	No	Technical	S	Area	Data on trips registering hauls in NEAFC-areas not included in the lookup table were not uploaded.	Some areas in NEAFC are not included in the lookup table (e.g., 27.IIb). Complete data on trips registering hauls in these areas cannot be uploaded.	These NEAFC areas need to be added to the lookup table	Developer	Open
215	2014	NA	BE	04/09/2014	CS	CA	No	Choice	All	Species, individual biological parameters	LEM individual ages and weights not uploaded.	LEM is a new species for the BE age-determination team. Before upload a whole QA and validation-investigation needs to be done.	In the process of a whole QA and validation-investigation.	Member State	Ongoing
216	2011	NA	BE	04/09/2014	CS	CA	No	Choice	All	Species, Age	HKE ages not uploaded.	HKE otoliths were sampled but not analysed so no ages available for upload.	Unclear	Unclear	Open
217	2014	NA	FR	04/09/2014	CS	All	No	Choice	-	-	Confidentiality issue	-	Agreement between EC and National Correspondent needs to be set up.	EC, National coressponden t	Ongoing
218	2014	NA	UK	05/09/2014	CS	All	Yes	-	-	-	-	-	-	-	-

6.4 Data interpretation

Some MS stated that they have had to re-interpret data fields or provide '*dummy'* data values to fit their data to the current RDB format. RCM NA 2013 recommended that MS provided clear documentation of how key fields – such as "Trip number" (Trip ID) is interpreted. The Documentation for the database does give summary definition of all these fields but assumes that all sampling is carried out the same way. Table 6.4 provides an example of how some data have been interpreted in different ways by MS. This is an important issue because different interpretations can lead to the data being misused. Coherence should be maintained in the information provided to the RDB, and if differences exist, they should be documented.

The RDB documentation defines the "Trip Number" for the two sampling environments as being,

" a) Sea sampling, as the period between when a vessel departs from a port (or factory ship) and arrives at a port (or factory ship) for discharge of its catch.

b) Market sampling, as a sampling trip to a market. This would typically be just one day. If this grouping information is not available nationally, any other reasonable grouping of market samples can be used. The time-span of the trip has no implication for the raising of the market samples."

It is clear from Table 6.4 that for the sea sampling data the interpretation is generally as defined but for market sampling the "Trip number" can refer to a trip to the market, a vessel sampled or even the individual species sampled.

A simple example of how a MS might prepare a summary document of their interpretation of the key fields in the upload data formats is provided by UK (England) in Annex 7. The original document is for internal use and so to the uninitiated it might not mean much but for the UK (England) data providers and users it provides a ready reference of how the data was compiled. It would not take much effort to re-interpret the descriptions to highlight any departure from the original definitions and in reference to Table 6.4 it is clear there is a departure from the required definitions.

Table 6.4 MS interpretation of the key fields used in the DB

MS	Trip number (TR)	Days at Sea (TR)	Fishing Duration (HH)	Numbers at length (HL)
Belgium	Fishing trip observed by a sampler. Several Trips can be in the same journey if different ICES Subdivisions have been fished between departure and landing.	Calculated value by sailing and landing dates provided in the log books.	Haul duration supplied by sampler in minutes.	Number of fish grouped by length class.
Germany	Fishing trip observed by a sampler, can be divided into part A, B etc if interrupted by landing events	Calculated value by sailing and landing dates provided in the log books	Haul duration supplied by sampler in minutes	Number of fish grouped by length class
Ireland	Either a sample from a certain vessel in a harbour or an observer fishing trip	Calculated value by sailing and landing dates provided in the log books	Haul duration supplied by sampler in minutes or from logbooks	Number of fish grouped by length class
Netherlands	For the Dutch biological data collected at the auction as well as discard data, TripId refers to a vessel landing at an auction on a specific date. Sampled refers to the samples taken from that vessel on that specific day at the auction (e.g. multiple species sampled separately), or on board throughout a discard trip.	Calculated value by sailing and landing dates provided in the log books.	Haul duration supplied by sampler in minutes.	Number of fish grouped by length class
Portugal	Defined as any departure with the purpose of fishing interrupted by a landing event. This led to incomplete data upload because currently the RDBFF is assuming that fishing always takes place during a fishing trip (requiring haul data is entered for every trip) but some fishing trips register no hauls or no landings.	For TR upload purposes, days at sea are considered in whole day fractions and reported as Date_Arrival - Date_Departure+1. In table TR the days-at-sea are rounded up to unit day (e.g., 0.25 days => 1 day). However, in CE table it is not clear which criteria should be used for rounding: a) one may decide to pool all days-at-sea together and round the final amount or b) one may decide to round each trip to the unit day and only then sum it up. These alternatives may give quite different raising factors and lead to inconsistency between countries and between the TR and CE tables. They may also cause effort overestimation in fleets characterized by smaller trips (e.g., small scale fleets that perform short 1/4-1/2 day trips).	Fishing duration is defined differently, depending on gear type. Currently no guidelines exist on how it should be defined in different gears. Following WKRDB 2013 1 instructions, imputation rules were derived and used. The imputation algorithm can be made available.	Frequency of individuals by length class (not raised)
Spain	From departure to return.	Not provided to the RDB. It would be number of days from departure to return.	Not provided to the RDB. It would be calculated differently depending on the metier and the aggregation level.	Numbers of individuals measured of that length class
UK (England + Wales)	Observer data - a unique ID for each vessel trip.	Number of hours from departure to return divided by 24 rounded up to an integer value.	Time in minutes between the shoot and haul of any gear.	Number of fish measured in that length class. Length class can be total live length, carpace width, carapace length, mantle length, shell height, maximimum dimension.
	Onshore samples - This is a unique ID for each species sampled for length and each species sampled for age. This is used to account for possible samples from the same vessel being allocated to different regions, rectangles or gear.	Blank	Blank	Number of fish measured in that length class. Standard UKE length classes can be total live length, carpace width, carapace length, mantle length, shell height, maximimum dimension.
UK (Scotland)	From 2013 onwards this is a fishing trip, from departure to return. Prior to 2013 however this was a fishing trip in an ICES division, so a single "trip" would be split by the mumber of divisions it fished in, these split trips applied to ~ 3 -4 trips of ~ 60 done per annum.	Whole days from trip departure to return, but see definition of trip.	Difference in minutes between start and end of haul.	Numbers of individuals measured of that length class (i.e. not "raised")

6.5 Data extraction and analysis in reference to sampling plans

Sampling plans at their best need to present clear and readily understandable data that describes the sampling a nation is planning to undertake. This is as relevant for the national schemes as to the national component of a regional sampling design.

Under a design based sampling scheme it is a fairly straightforward procedure to define the sampling plan and to quantify the envisaged data collected. For example (Table 6.5.a) a sampling plan would outline the particular schemes, the strata, the strata totals, the planned number of PSU, and the likely outcomes of the sampling will achieve. Primary sampling units are likely to be site and day for most on-shore sampling schemes and vessel in most at-sea sampling schemes. In either case the trip is likely to be the secondary sampling unit. Given basic conversion e.g. the expected number of trips to be sampled on a typical visit to a market, the likely number of fish to be measured from a trip and the number of otoliths collected given the number of fish sampled.

Table 6.5.a Sampling plan presenting pertinent information that can be set out for a sampling scheme as one element of a nation component of a regional sampling design

Scheme	Strata	Time scale	Sampling frame	Planned PSU	Envisaged samples [1]	Likely species	Data measures [2]
on-shore demersal	NE fishmarkets A	annual	N=2 markets x ~360 days	60 site & day visits	~ 120 individual fishing trips	mixed demersal species	~ 9600 lengths ~3600 age samples
	Island markets B	annaul	N=3 markets x ~350 days	50 site & day visits	~100 individual trips	mixed demersal species	~8000 lengths ~ 3000 ages
	Small landing ports	annual	N=230 ports X ~70 days	15 site & day visits	~ 30 individual trips	mixed demersal species, Nephrops, some cephalopods	~2400 lengths ~ 900 ages
1. Based on an average of 2 fishing trips sampled ber visit							
2. Based on 80 fish measured and 30 age samples collected							

Once the sampling has been conducted and the collected data has been loaded into the RDB it is a relatively easy task to extract the comparable statistics to determine the extent to which the sampling has been achieved (Figure 6.5). Table 6.5.b shows by sampling country some of the data that can be obtained from the sampling data contained in the current CS Data structures. The number of days when sampling was conducted, the number of trips recorded, the number of unique vessels sampled, numbers of species sampled and the numbers of lengths, ages and maturity measures taken.

Table 6.5.b The realised outcomes of sampling from the 2013 RDB upload of sampling data. All countries all areas and all species considered. For the auditing of a national contribution the focus would obviously be on the national component of the regional scheme.

Sampling country	Number of days with sampling for length frequency	Number of trips (definition of trip?)	Number of unique vessels (vessel id is not mandatory)	Number of Species with length	Number of Species with age wgt or mat	Number of length measurements	Determined ages samples (with lengths)	Individual weight samples	Individual maturity samples
BEL	31	67	16	76	3	551505	10504	5656	0
DEU	117	178	73	131	15	307363	32730	25628	24168
DNK	261	991	287	175	58	716987	110251	171680	497
ENG	307	3301	1	148	19	461882	24800	3673	2222
EST	310	1492	28	46	46	72445	21954	65669	0
FIN	154	280	7	38	8	54139	5254	9892	7896
GBR	172	261	1	70		23041			
IRL	241	771	201	108	16	287626	35040	41323	0
LTU	48	62	1	13	6	21651	5689	11689	5418
LVA	102	307	1	18	10	7298	16587	16626	6054
NLD	184	470	141	48	19	32672	13001	14875	0
POL	152	236	75	49	14	67832	12198	12198	11582
PRT	256	2423	1	117	21	427643	8051	18424	0
SCT	244	1045	180	144	12	525243	33308	0	1785
SWE	206	493	39	8	7	6709	22825	22933	15404

The issues that need to be addressed in making the extractions from the RDB more relevant to the envisages sampling plans, and thus a better measure of the actual achievements, are largely due to the limited nature of the data relating to the sampling that can be stored at present in the CS data structure. There is currently no ability to define the sampling schemes, and sampling strata, to which the samples belong, there is no ability to specify the site and day or vessel PSU, there are ambiguities about the way the trip code field is being populated, vessel identifier (even through it is encrypted) is not a mandatory field, and there is presently the ability to enter biological samples with no date. RCM NA 2013 made recommendations to improve on this last year – a work shop in October 2014 will hopefully clarify what changes are required for the RDB to be able hold, use and interpret this qualifying data.

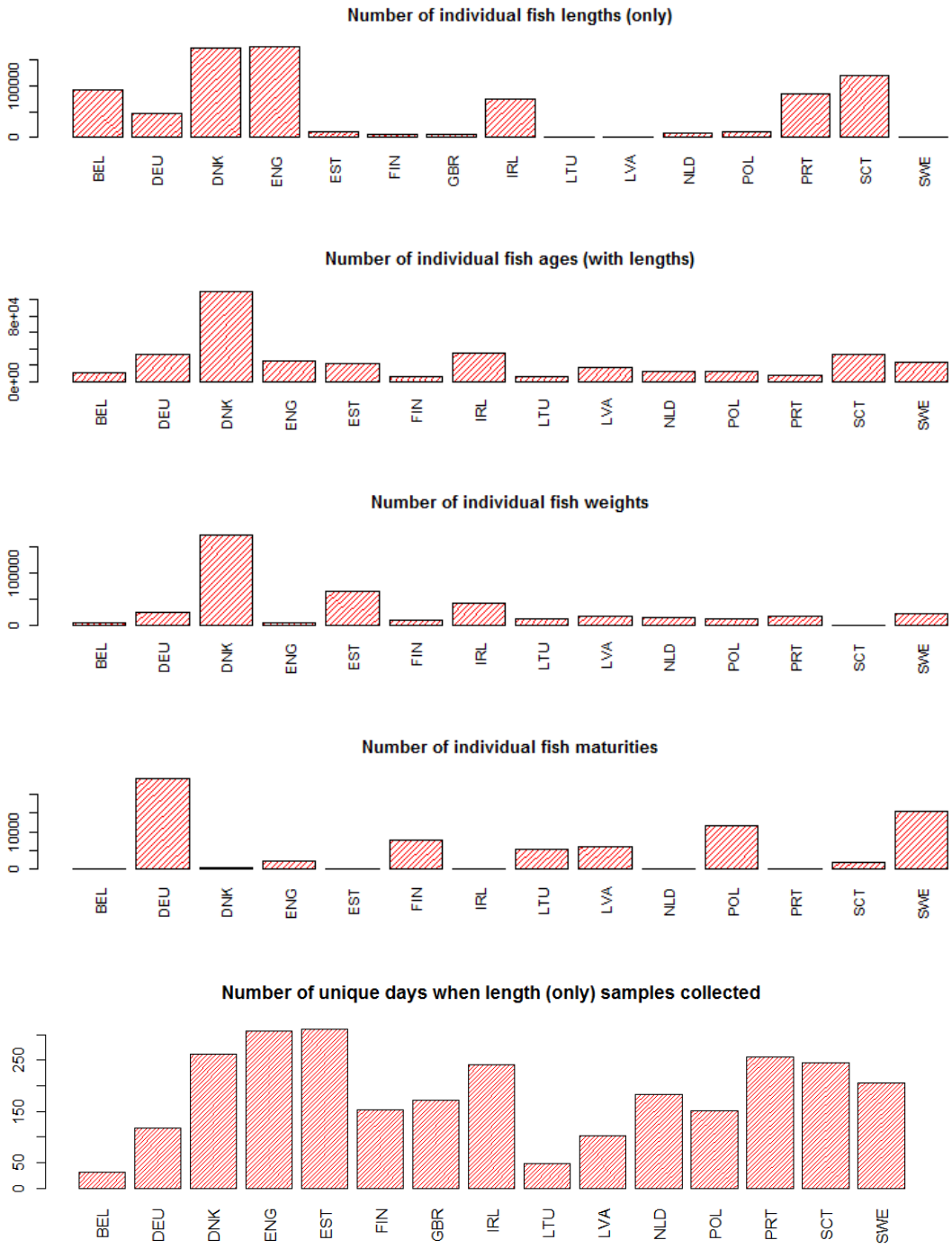


Figure 6.5 Relative numbers of fish lengths, age samples, weight samples and maturity samples by sampling countries.

6.6 Other issues

6.6.1 Reference lists and data inconsistencies

Recommendations were made at RCM NA 2013 that Harbour lists, Species lists and Metiers need to be more closely limited and harmonised. The SCRDB have agreed to use the LOCODE code as the standard for harbour codes. The LOCODE codes are the world standard which EC and UN are using. The RCMNA recommends that the species lists are limited to taxonomic species and groups listed in the World Register of Marine Species (WoRMS). Some decision will need to be

made on how that list might be limited – there are currently over 220,000 accepted species in that list and if you need to include higher taxa and species groups it may become unmanageable.

As seen in the *Review of the fishing activities* (section 4.2) the current metier list on the RDB is restrictive but it is not correct – to review the data meaningfully in relation to metiers it needs to be more restrictive and be limited to the metiers that were agreed (last revision RCM NA 2012). If RCGs want to control and limit the metiers to these lists they need to revisit what is currently on the system and provide the database with that list. A total re-upload of the current data would be required and MS would have to limit their metiers to agreed list. Any new or additional metiers required would have to go through an RCG review.

6.6.2 Small scale fishery data

RCM NA expressed a concern that if only logbook data are uploaded in the RDB (tables CL and CE), information about the catches and effort made by small scale under 10m and recreational fishers might be incomplete. This is an important point that needs to be taken into account when using the data held on the RDB because, in some countries this component makes a significant contribution to total catches and effort for certain species and fleets. Table 6.6.2 summarizes how MS are dealing with this issue and the sources of information they are using. During RCM NA there was not sufficient time to review the results and these will need to be done at the next RCM

Table 6.6.2 shows that small scale fisheries are mainly covered by sales notes information and that recreational data are not being included in the regional data base by any MS.

Country	Are you including data from small scale vessels under 10 m to fill in CL and CE tables?	What source of information are you using?	Are you including data from recreational fishers to fill in CL and CE tables?	What source of information are you using?
Belgium	no small scale fishery in the NA region	NA	no recreational fishery in the NA region	NA
France	CE & CL	Monthly fishing declarations, auction data, sales notes	No	NA
Germany	no small scale fishery in the NA region	NA	no recreational fishery in the NA region	NA
Ireland	CL yes and No CE	Sales notes and sentinel vessel data	No	NA
Netherlands	no small scale fishery in the NA region	NA	no recreational fishery in the NA region	NA
Portugal	CE & CL	sales notes	No	NA
Spain	CE & CL	sales notes	No	NA
UK (England + Wales)	CE & CL	Control data uploaded from declarations, buyers and sales notes onto national databases FIN/FAD/IFISH	No	NA
UK (Scotland)	CE & CL	FIN/FAD/IFISH	No	NA

Spain provided more detail and specified that their artisanal fleet metiers are identified from sales notes. Their method consists of the application of multivariate analysis on a matrix of trips and landings by species in reference to their economic value. The obtained economic landing profiles are then compared with the fishing tactics allowed by the Spanish legislation in order to define the final métiers.

This highlights an issue if disaggregated data is required, but also an issue that sales notes do not provide effort data. The issue about effort not always being available was raised at RCM NA 2013 - the sum of the trips that make up the landings in the CL table would not equate to the sum of the trips that make up the effort data in the CE tables.

6.7 Conclusion

The regional database is supposed to be a tool for RCGs to coordinate monitor and design regional sampling plans. If these data are not uploaded, not complete or/and incorrect then RCMs/RCGs will not be able to do their job. With further work from MS and correct development the database could provide the source data for future estimations and assessments.

There are issues with the data currently held on the RDB. RCMNA 2013 did an extensive review of the data on the system last year (RCM NA, 2013). These data have neither been revised nor the issues corrected. 2013 data has now been added but without cleaning the previous years data there seemed little point in repeating the same exercises.

In 2014 all countries have delivered for the first time in the RCM NA landings, effort and sampling data to the RCM NA which is considered a major improvement. Nevertheless problems were detected regarding:

- two countries that didn't upload the data
- several inconsistencies in data uploaded from some MS.

Revision of the data during the RCM NA showed a general improvement of the available data to the meeting is needed to allow coordination. As the RDB is expected to be the tool to work through the data in the RCMs this implies all MS to upload their national data and ensure this data is complete and follows the regional agreements. None of these three premises were completely reached in the RCM NA 2014.

Two main points are stressed:

- the need for RCM to have all data uploaded in the RDB
- the need for MS to ensure the quantity and the quality of the data is good enough. The following fields for improvement were identified:
    a. closed reference lists agreed in RCMs (metiers, ports, species..)
    b. minimization of the differences between AR and RDB
    c. use of a data upload log
    d. clarification of ambiguous fileds which can be interpreted in different ways by MS
    e. Inclusion of information describing sampling plans in the RDB

2. Quality assurance – RDB data upload and corrections	
RCM NA 2014 Recommendation	The RCM NA recommends that 1. the reference lists for metiers, harbours and species in the RDB are restricted to the agreed lists (metiers: RCM metier lists, harbours: EU Master Data Register, species: AphiaID (WoRMS)); 2. any data that cannot be uploaded should be recorded on a standard upload log distributed with the data call; 3. MS reload all their data in reference to the restricted lists.
Justification	There are inconsistencies and errors in the data on the RDB that have been caused by non-restrictive reference lists for metiers, harbours and species, and insufficient data checks by MS. The annual data checking procedures that are currently carried out at RCMs reveal these errors and data gaps, limiting the potential for data analysis. A log of data completeness is needed so that users can assess the limitations of the data and therefore what interpretations or analysis can be done with it. Currently it is unclear how the data can be used. The RDB will be developed to record the status of the data within it, but until this feature is available a standard log submitted at the time of each data call can provide RCGs and data users with a reference to what data is not on the system as well as what is.
Follow-up actions needed	1. RCMs to provide ICES, as the RDB administrators, with the restricted reference lists. ICES needs to incorporate these lists in the RDB; 2. RCM chairs to include upload log in data call 2015; 3. MS need to reload their data (ICES needs to delete all the data first) and complete the log and submit it to RCM chairs. These logs should be made available for analysis at the next RCMs.
Responsible persons for follow-up actions	1. RCMs, ICES 2. RCM chairs 3. MS, ICES
Time frame (Deadline)	1. Reference lists: before RCM data call 2015 2. Upload log: to include in data call 2015 3. Reloading of data and submitting of upload log to RCM chairs: by deadline specified in data call 2015

7. Situation of the revised DCF

The representative of the EU Commission presented an overview of two key DCF meetings that took place in 2014: a meeting on the revised DCF held with stakeholders (January 2014) and National Correspondents (July 2014) as part of the consultation process with stakeholders.

The representative of the EU commission, presented the intentions for the revision of the DCF that by the Commission. Regulation 199/2008 will continue to be the legal base for data collection. The regulation will not be repealed, but amended taking into account the principles established in article 25 of the basic CFP regulation. This will be a Co-decision process where Council and European Parliament will decide, and it could prolong still some time. The Commission will make a proposal, available probably in the first half of 2015. For the moment the EU MAP and National Programmes are rolled over until 2016.

This EU multiannual program will be less restrictive (on how to sample) and more flexible to future new modifications.

The revision is being done in consultation with stakeholders and directed to:

a) adjust the scope of the DCF to the new CFP

b) orienting data collection to end-user

c) improving data quality

d) improving availability of data

e) simplifying and rationalizing the data collection

f) oriented for the regional cooperation

g) improving the compliance

h) assessing fisheries impact on the ecosystem by improving the availability and harmonisation of data.

All the information from Commission was welcomed by participants. Nevertheless it was considered that taking into account the work previously done by RCM NS&EA –with the contribution of some RCM NA participants- and the lack of major developments around the revision of the DCF, RCM NA could make a better use of the available time developing other specific areas such as quality issues, landing obligation scenario or RDB improvements. Also remarkable that RCM NS&EA initiated a road map last year which was further developed by RCM NA 2013. Without new major elements in this context it was not considered appropriate to invest more time at this moment.

8. Studies and pilot projects

Most part of the studies and pilot projects sent to the RCM NA have been already supported by PGCCDBS and/or Liaison Meeting in different years. RCM NA considered that these studies have all of them quite number of reasons to be supported and found no clear distinctions to recommend one over another. A guideline should be established to evaluate all the studies in a common and homogeneous way. The lack of this guidelines risk to leave the decision of prioritization to national or individual interest of the participants thus risking the process to become unfair.

RCM NA lack of agreement to prioritise some studies over others shouldn't be an obstacle to allow these studies supported in different meetings (some of them even supported for some years) to be founded. To have a correct track of the list of the studies and projects presented to the RCM NA for consideration these are presented in Annex 9.

9. Implications of the landing obligation

The impact of the implementation of the landing obligation, the discard plans and the programmes for monitoring of compliance of the discard ban for the data collection.

9.1 Implementation of the landing obligation

The timetable for the implementation of the landing obligation in the North Atlantic is 1st January 2015 for pelagic and industrial fisheries; 1st January 2016 for the main target species of the demersal species and Nephrops fisheries and 1st January 2019 for all other species in fisheries not covered above.

The landing obligation will be implemented on a regional level and may differ between regions and is at present not defined. This makes it impossible to plan for changes in monitoring of the catches to the new situation. The implementation is being prepared by regional groups such as the Baltfish (Baltic region),Scheveningen and North Western Waters Advisory Council and Southern Waters Advisory Council (North Sea, Eastern Arctic and North Atlantic regions). Draft proposals are being formulated by these groups but need to be completed and adopted by the Commission.

The introduction of the obligation to land all catches in the recent reform of the Common Fisheries Policy (CFP) represents a fundamental shift in the management approach to EU fisheries, switching the focus from the regulation of landings to catches. The landing obligation included under Article 15 of the new CFP basic regulation prohibits the discarding of species subject to catch limits (i.e. TAC and quota species) as well as those subject to minimum size limits in the Mediterranean. It contains a number of exemptions namely species not covered by catch limits; species where high survivability can be demonstrated; prohibited species, limited volumes of permissible discards which can be triggered under certain conditions, the so called de minimis exemptions, as well as inter-species and interannual quota flexibility mechanisms.

Four EWG's (STECF 13-23,STECF 14-01, STECF 14-06 and STECF 14-11) have been convened by STECF to explore in detail the issues surrounding the obligation and to date have covered:- interpretational issues, defining management units, dealing with third countries, defining Minimum Conservation reference sizes, developing criteria to evaluate discard plans and the effect of exemptions and de-minimus on control, enforcement and compliance levels.

The RCM NA considered the following topics below and discussed how they might have an impact on data collection with the implementation of the landing obligation. The landing obligation will have a higher impact on the Demersal fisheries than on other fisheries.

The direction of some of these implications is also unclear until the implementation of the obligation has been defined and the practical implications on the ground can be addressed.

9.2 Access to vessels for biological sampling and potential changes in behaviour of fishing vessels

EWG 14-01 and EWG 14-02 both note that the introduction of the landings obligation has the potential for wide-reaching consequences for the current approaches to monitoring and control.

The new CFP signals a change from the current system which is based on the monitoring of landings, to one where the monitoring and control of catches will be the main focus for the monitoring and control of TACs. Control observers may have an essential function in this context. This however, may have a number of implications for the current scientific observer sampling programme carried out under the Data Collection Framework (article 11.2, Council Regulation 199/2008).

Scientific observers have no mandate for the control of fishing regulations and in the opinion of the RCMs and STECF, this situation should remain as is. Scientists' role is solely to collect biological data which are used largely for stock assessment and ecosystem monitoring purposes. There is a legal requirement for skippers to carry observers and these can be refused on grounds of space and safety. Historically access to vessels relied on the goodwill of the skippers and owners but, if there is a perception that there is a dual function in both collection of biological data and monitoring of compliance with the landing obligation, it is likely that the current goodwill and the level of observer coverage could be compromised.

There are also concerns that when vessels take observers that there are changes in behaviour of that vessel. There is a probability that the fishing behaviour will change when there is an observer on board and they are now fully complying with the landing obligation - this may not be indicative of the behaviour of other vessels in that metier. Previous observer programmes have indicated that changes in operational behaviour already occur when an observer is on board. It is suspected that this will increase with the introduction of the landing obligation.

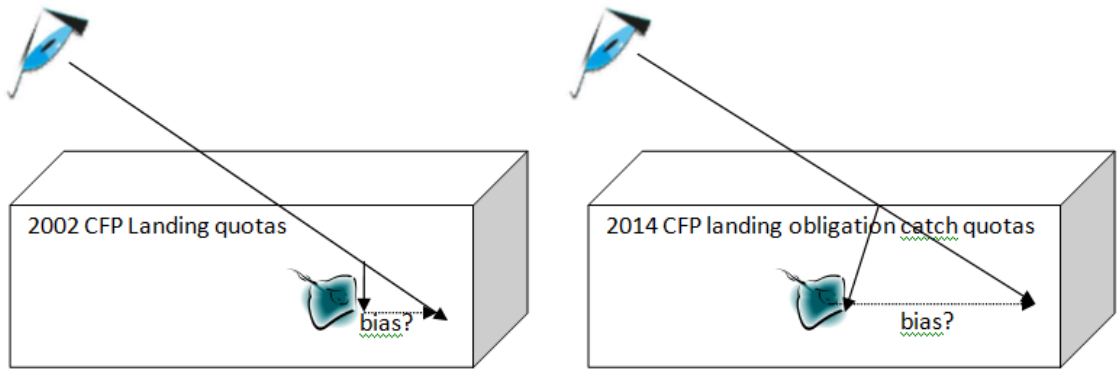


Figure 9.2 Bias in observer programs (modified from a French presentation).

9.3 Changes to protocols and IT systems

The stepwise implementation of the landing obligation for all TAC species in EU fisheries from 2015 onwards will generate changes for the collection of sampling data. One of the major changes is that the catch will be split into three catch components whereas at present the catch is split into two components, the landings and discards. With the landings obligations in force the components of the catch will be:

1. The landed species component > Minimum Reference Size (MRS), used either for human consumption or directed for industrial purposes, the "wanted catch".

2. The component of fish < MRS that has to be landed under the landing obligation, the “unwanted catch”. This component is not allowed for direct human consumption.

3. The “real” discards component. This can be fish which are allowed to be returned directly to sea due to exemptions rules like the ‘de-minimis’ rule, high survivability of the caught species etc. Also, all non TAC species are still allowed to be discarded and belong in this component.

As already stated in the other RCMs on-board sampling protocols will have to be adjusted to account for the new defined components of the catch. The on-board observer will be required to sample either all three components - the wanted catch, the unwanted catch and the discards - in case of concurrent sampling or both the discard component and the unwanted catch component being sampled on board and the wanted component being sampled onshore. This will require new sampling forms and probably new ways of working at-sea, and fisheries institutes will need to prepare such protocols. It might be necessary to get a higher sampling frequency in order to get representative samples of all catch components.

National fisheries institutes must update and adapt their existing IT systems in order to include the new catch components which at present are typically setup on the basis of a landings and a discard component . Furthermore, the regional data bases and consecutively FishFrame and InterCatch need to be prepared and the uploading processes and raising and estimation procedures adapted. The estimation of total catch for a certain fish stock with all included raising procedures (e.g. to sampling trip level or national fleet level by quarter), which is necessary for the assessment, will now require to take into account three components; the landed component for human consumption (or wanted catch), the unwanted catch component, and the discards component. Existing raising procedures which were required only for landings and discards will not work anymore and their modification is far from being a trivial process.

It should be further emphasised that the unwanted catch, once landed, can only be estimated from on-shore sampling if there are complete and accurate monitoring catch data which includes this unwanted component and there are sufficient sampling opportunities on shore. Neither of these conditions can be determined until the commencement of the landing obligation and for this reason it is recommended that at-sea sampling schemes are continued.

9.4 Logbooks and quality of data compliance of the logbook

The implementation of the landing obligation has considerable implications for fisheries data collection. Collection of fisheries data is structured in two basic elements: 1) recording of the catches and 2) sampling the catches for biological parameters. The objective of the data collection is to obtain reliable unbiased estimates of the composition (species) and structure (age, length) of the catches. The quality of the data depends both on the quality of the catch information and the quality of the biological sampling. Both elements will be affected by the landing obligation.

Concern is expressed by the RCM on the future quality of the catch statistics. Catches will be channelled through different routes and need to be recorded adequately. The known draft proposals for the discard plan have not addressed the recording of the catches sufficiently. The concerns mainly apply to the recording of the component of the catch which was previously

discarded (unwanted catch) and now needs to be documented. In the past discard estimates were mainly based on observer programmes carried out by scientists. In the new obligation all discards need to be recorded exhaustively because they are counted against the quota.

In order to obtain accurate records of the 'unwanted catch' a monitoring system should be implemented which record, by fishing trip and by species, the catches brought ashore and those discarded at sea. This implies that logbooks and IT systems with catch information must be adjusted. This is presently not the case and it may lead to chaos in the catch registration next year. Documentation of the catches is further complicated by the possibility of being able to record part of the catch, which the boat either has no allocated quota or has exhausted its allocated quota, to the quota of other species.

Further concern is expressed that, pending the implementation and enforcement of the landing obligation, this will create incentives for illegal discarding and for the use of 'catch' quota to land fish of marketable size. It will be very difficult to enforce the discard ban unless fishery inspection is sufficiently equipped to enforce the implementation.

The RCM is of the opinion that the discard plans, to be implemented in the different regions, should contain clear proposals on how different components of the catch should be monitored and that log-books and IT systems should be adapted in a timely manner to record the different catch components.

9.5 Access to the landed components - wanted and unwanted

For the collection of sampling data one of the major changes with the implementing of the landing obligation for all TAC species in EU fisheries is that the catch will be split into a three basic components as described above. This division of the catch into three components differs from the present situation where the catch is split into two basic components: the "landings" and the "discards", the last ones being the sum of components 2 and 3.

Basically, sampling access to component 1 will be possible on-shore or at-sea, whereas access to component 3 will be only possible at sea. For component 2 and from a scientific point of view, it will depend on where this part of the catch will be sorted into species. Only sampling at sea can provide a complete picture of the whole catch in terms of species compositions and length distributions of all species. Once component 2 comes ashore the probability of being able to sample in a sound scientific way decreases. To increase observers at sea programmes would only be achieved with a subsequent and substantial increase in costs.

It is unclear how the storage of the unwanted catch component will be handled on-board. The condition of the unwanted catch component has possible ramifications for the quality of the biological data that can be obtained from this component. Specific concerns include the species composition and identification, the ability to estimate the demographic structure of the sampled trips catches, the estimates of sample numbers, the ability to measure fish and collect otoliths and even the ability to access samples at all (e.g. under health and safety regulations). The landing location and fate of this unwanted catch on shore is also as yet unclear and will remain so until the landing obligation actually comes into force. The unwanted catch component will almost certainly

not be available at the fish auctions were much of the present sampling of the landed catch occurs. This has implications for on-shore sampling designs and data collection protocols.

Additional problems that the vessels could encounter include:

- The increased amount of time required to sort the whole catch by species into marketable and non-marketable components (the total weight by species will count against the vessels' quota for that species).
- The amount of space needed on board the vessel to accommodate the undersized (and normally discarded) fish, whether in the fish hold or elsewhere.

Landing obligation – Updating protocols, datasheets and IT systems.	
RCM NA 2014 Recommendation	The RCM NA recommends that logbooks and IT systems should be adjusted to accommodate the accurate recordings of all catch components, including the part that can be released under the de minimis exemptions.
Justification	Where we have two catch categories under the current EU legislation (landings and discards), the introduction of the landing obligation will create a third category, namely the part of the catch that is released under the de minimis exemptions. Also these have to be known and sampled accurately to allow for a correct scientific evaluation of the state of the stocks. In some fisheries (pelagic fisheries) that form part of the discussions in the RCM NA the landing obligation will be introduced in the beginning of 2015, but the logbooks and IT systems have not been adjusted to accommodate this third catch category yet.
Follow-up actions needed	Logbooks and IT systems to be adjusted.
Responsible persons for follow-up actions	EU, National authorities in all MS
Time frame (Deadline)	For implementation January 2015 for Pelagic fisheries and January 2016 for Demersal Fisheries.

9.6 Discard plans and the programmes for monitoring of compliance of the discard ban for the data collection:

The RCM subgroup was not in the position to comment on the discard plans and the programmes for monitoring of compliance of the landing obligation for data collection. The European Fisheries Control Agency have been doing most of the ground work with Member States to develop their monitoring and control programmes for the forthcoming discard plan.

9.7 Updating of National Programmes

The RCM NA is aware that there will be some changes to the national programmes in light of the Pelagic landing obligation in January 2015 but indications from the Commission are that NP do not need to be resubmitted for 2015. It would be sufficient to explain the necessary changes of the sampling procedures in the Annual Report for 2015.

10. Cost sharing of joint surveys

At present two research vessels surveys are conducted as joint Member States financed surveys; the International Ecosystem Survey in the Nordic Seas and the Blue Whiting Survey in the Atlantic.

In the International Ecosystem Survey in the Nordic Seas (IESNS) is carried out by Norway, Russia, Iceland, Faroes Islands and the EU and is the main survey used in the assessment of Norwegian spring spawning herring carried out by ICES. The Danish R/V Dana is representing the EU in this survey. The costs of the survey and scientific crew are shared by MS and in this case proportional with the MS TAC share of Norwegian spring spawning herring which are the main targeted species at this survey. Only those MS's that are having a quota share of 5% or more are included in the cost sharing. Denmark, Germany, Ireland, the Netherlands, Sweden and UK are all having a share of 5% or more. This survey, under the acronym ASH, is included in the list of research surveys at sea under the current DCF (D10/93 Appendix XIV).

The blue whiting survey is carried out by Norway, Russia, Faroes Islands and the EU. It is the only survey which provides fishery independent information to the ICES assessment. The EU is represented in this survey by Irish R/V Celtic Explorer and the Dutch R/V Tridens. The costs of the survey and scientific crew are shared by Member states and in this case proportional with the landings of blue whiting. Only those MS's that are having a landing share of 5% or more are included in the cost sharing. Denmark, Germany, Ireland, the Netherlands, Spain and UK are all having a landing share of 5% or more. Also this survey is included in the list of research surveys at sea under the current DCF.

Until 2013 the total research vessel cost for conducting the surveys have been included in National Programme for the "vessel MS" and the Commission have funded 50% of that cost. The other 50% has been shared according to the above mentioned cost sharing model, either TAC share or landing share. The costs for the scientific staff have been included in the respective MS NP.

From 2014 until 2020 funding of the data collection is made available under the EMFF (article 77) under shared management. Therefore, the cost sharing model has to be changed as it would be unbalanced if the "vessel MS" should include the total research vessel cost in their Operational Programme and in the Annual Work Plan.

Last year, the RCM NA recommended a cost sharing model to be presented and agreed by the NCs of the MS involved in the survey in the NC meeting. However, the Commission refused to discuss the proposal at the NC meeting and considered this should be agreed within the RCMs. The RCM NS&EA took up the recommendation and considered that there is a need for agreement on cost sharing of these surveys in the short term but also that there is also a need for guidelines and legal fall back options for future joint MS activities.

The RCM NS&EA discussed a cost model for the present joint MS financed surveys and for future joint surveys. When implementing new joint surveys the following cost sharing model is suggested:

1. The vessel cost of conducting the survey concerned is shared among MS according to their EU-TAC shares for the main species concerned or if the purpose of the survey covers several species, the MS share is calculated as a mean of the EU-TAC percentage shares for the species concerned.
2. Only those MS having a EU-TAC share >= 5% are to be included in the cost sharing.
3. For those MS having a EU-TAC share >= 5% a relative distribution key is calculated based on their EU-TAC share of the species concerned.
4. Each MS participating in the survey concerned is providing scientific staff for the survey according the calculated share (point 3).
5. The vessels to be used for conducting the survey is based on the following criteria:
    i. The vessel is technically equipped and at a size to carry out the survey concerned.
    ii. The vessel can carry the number of scientific staff needed for carrying out the survey concerned.
    iii. The vessel is available at the time of the survey concerned.
    iv. If more than one vessel fulfil criteria i to iii the vessel to be used should be agreed by the MS concerned.

The RCM NS&EA 2014 agreed that the above described cost sharing model be used for the International Ecosystem Survey in the Nordic Seas (IESNS) carried out by the Danish R/V Dana and the Blue Whiting Survey carried out by the Irish R/V Celtic Explorer and the Dutch R/V Tridens for years 2014 and 2015 or until a new data regulation is in place.

The Agreement achieved by the NC present in the RCM NS&EA was presented to the RCM NA for approval by the relevant NCs which were absent in the North Sea meeting. However, no NCs were present in the RCM NA.

The Irish participant informed that Ireland would support the agreement. Irish agreement with the cost sharing proposal would be done in a more formal way by a message of the NC to the chairs of the RCMs in the coming week. RCM chairs have not received any comment from Irish NC until the date of this report publication.

The Spanish participants consulted also their NC to have a response before the Liaison meeting in October. Spanish NC agrees with the terms of the proposal but he considers an important point is missing related to the costs of the surveys. He pointed that a discussion around this took place in RCM NA 2013 where he already presented this issue. Spanish position is that a last consideration should be added to the fifth point of the proposal. Then, in case more of one vessel fulfil criteria i to iii the vessel to be used should be agreed by the MS concerned based on the lowest economic offer (once all the other points – technically equipped, correct size, place for scientific staff and availability – are ensured). Taking into account that after scientific improvement the reduction of cost is one the most important reasons for regional coordination, this objective and common consideration should be added to the proposal in terms similar to this:.

v. Agreement to select between vessels that fulfil criteria i to iii should take into account economic cost of the surveys to ensure a rational and efficient use of the data collection budget.

It is concluded that the NCs of the MS involved in the ASH survey have achieved agreement on the sharing of the cost of this survey according to the Agreement presented below. With regard to the blue whiting survey the agreement still needs to be discussed by NC involved.

RCM NA presented this situation during the LM where European Commission highlighted it's up to MS to agree of this type of proposal. It seems to RCM NA chairs MS position are not very distant and recommend NC to establish an intercessional discussion to agree on final solution. Once again, presence of NC in RCM NA meetings is also highly recommended.

11. Any other business

11.1 New co-chairman and next meeting

RCM NA decided to run to a co-chairs system taking into account that it is expected that in the near future intersessional activities will increase. After a two years term, Kelle Moreau is resigning as chair of the RCM NA and Estanis Mugerza was appointed as new co-chair and therefore will join Jose Rodriguez for 2015.

The 2015 meeting will be held at the Thuenen Institute of Sea Fisheries in Hamburg, Germany. Timing of the meeting will be decided at a later stage.

In order to facilitate the common memory of the group, the following table provides an overview of the venues and chairmanship of this RCM.

Year	Venue	Chairs
2014	Horta, Portugal	Kelle Moreau (Belgium) and Jose Rodriguez (Spain)
2013	Sukarrieta, Spain	Kelle Moreau (Belgium)
2012	Galway, Ireland	Sieto Verver (The Netherlands)
2011	La Rochelle, France	Joel Vigneau (France) replacing Sieto Verver
2010	Ostend, Belgium	Joel Vigneau (France)
2009	Cadiz, Spain	Joel Vigneau (France)
2008	York, UK-England	Christian Dintheer (France)
2007	Brest, France	Joel Vigneau (France) replacing Christian Dintheer
2006	Lisbon, Portugal	Graca Pestana (Portugal)
2005	Gijon, Spain	Pilar Pereda (Spain)
2004	Galway, Ireland	Paul Conolly (Ireland)

12. Glossary

AER	Annual Economic Report
AR	Annual Report (of activities carried out by MS under the DCF)
ACOM	Advisory Committee of ICES
ASC	Annual Science Committee
CE	Data exchange format for commercial effort data (FishFrame)
CFP	Common Fisheries Policy
CL	Data exchange format for commercial landings data (FishFrame)
COST	Toolbox for quality evaluation of fisheries data
CR	Council Resolution
CRR	ICES Cooperative Research Report
CS	Data exchange format for commercial biological sampling data (FishFrame)
CV	Coefficient of Variation
DCF	Data Collection Framework (follow up of DCR)
DC-MAP	Multi Annual Programme for Data Collection (expected follow up of DCF)
DCR	Data Collection Regulation
EAFM	Ecosystem Approach to Fisheries Management
EC	European Commission
EMFF	European Maritime and Fisheries Fund
EU	European Union
EUROSTAT	Directorate-General of the EC which provides statistical information to the EU
EWG	STECF Expert Working Group
FishFrame	Regional Data Base Platform. Also used to refer to the standard data exchange format.
GFCM	General fisheries Commission for the Mediterranean
IBTSWG	International Bottom Trawl Survey Working Group
ICCAT	International Commission for the Conservation of Atlantic Tunas
ICES	International Council for the Exploration of the Sea
InterCatch	ICES Database
LM	Liaison Meeting
MoU	Memorandum of Understanding
MRR	Master Reference Register
MS	Member State
MSFD	Marine Strategy framework Directive
NA	North Atlantic
NAFO	Northwest Atlantic Fisheries Organization
NE	North East
NP	National Programme (of activities carried out by MS under the DCF)
NS & EA	North Sea and East Arctic
PG	see PGCCDBS
PGCCDBS	Planning Group on Commercial Catches, Discards and Biological Sampling
PGECON	Planning Group on Economic Issues
PGMED	Mediterranean Planning Group for Methodological Development
PSU	primary sampling units
QA	Quality Assurance

QC	Quality Control
RCG	Regional Coordination Group
RCM	Regional Coordination Meeting
RDB	Regional Data Base (of the RCM)
RFMO	Regional Fisheries Management Organisation
SC-RDB	Steering Committee Regional Data Base
SG	Study Group
SGPIDS	Study Group on Practical Implementation of Discard Sampling Plans
STECF	Scientific, Technical and Economic Committee for Fisheries
TAC	Total Allowable Catch
VMS	Vessel Monitoring System, satelite based system to locate vessels
WG	working group
WGBFAS	Working Group on Baltic Fisheries Assessment
WGBIFS	Baltic International Fish Survey Working Group (ICES)
WGBIOP	Working group on Biological Parameters (ICES)
WGCATCH	Working group on commercial catches (ICES)
WGNEW	Working Group on Assessment of new MoU species
WGNEPS	Working Group on Nephrops Surveys
WGNSSK	Working Group on the Assessment of Demersal Stocks in the North Sea and Skagerrak
WGRFS	Working Group on Recreational Fisheries Surveys
WGRS	Working Group on Redfish Surveys
WKAVSG	Workshop on age validation studies of Gadoids
WKBALFLAT	BENCHMARK WORKSHOP
WKBUT	BENCHMARK WORKSHOP
WKCELT	BENCHMARK WORKSHOP
WKDEEP	BENCHMARK WORKSHOP
WKESDCF	Workshop on eel and salmon DCF data
WKHAD	Benchmark Workshop on Haddock stocks
WKMATCH 2012-	Workshop for maturity staging chairs
WKMATCH 2012-	Workshop for maturity staging chairs
WKMERGE	Workshop on methods for merging metiers for fishery based sampling
WKNARC	Workshop of National Age Readings Coordinators
WKPICS	Workshop on practical implementation of statistical sound catch sampling programmes
WoRMS	World Register of Marine Species
WP	Work Package
WKRDB 5	Workshop regional data base (FishFrame)

13. References

Council Regulation (EC) 199/2008 of 25 February 2008 concerning the establishment of a Community Framework for the collection, management and use of data in fisheries sector for scientific advice regarding the Common Fisheries Policy

Commission Regulation (EC) No 665/2008 of 14 July 2008 laying down detailed rules for the application of Council Regulation (EC) No 199/2008 concerning the establishment of a Community framework for the collection, management and use of data in the fisheries sector and support for scientific advice regarding the Common Fisheries Policy

Commission Regulation (EC) No 1078/2008 of 3 November 2008 laying down detailed rules for the implementation of Council Regulation (EC) No 861/2006 as regards the expenditure incurred by Member States for the collection and management of the basic fisheries data

Commission Decision (EC) No 2010/93/EC of 2010 adopting a multi annual Community programme pursuant to Council Regulation (EC) No 199/2008 establishing a Community framework for the collection, management and use of data in the fisheries sector and support for scientific advice regarding the Common Fisheries Policy.

ICES-ACOM 2013. Report of the third Workshop on Practical Implementation of Statistical Sound Catch Sampling Programmes (WKPICS3), 19-22 November 2013, ICES HQ, Copenhagen, Denmark. ICES CM2013/ACOM:54 REF: ACOM, PGCCDBS, RCMS, STECF-EWG onDCF

ICES 2012. Report of the second Workshop on Practical Implementation of Statistical Sound Catch Sampling Programmes (WKPICS2), 6-9 November, Copenhagen, Denmark. ICES CM 2012/ACOM:52 REF. PGCCDBS, RCM'S, STECF/SGRN

ICES 2012. Report of the Study Group on Practical Implementation on Discard Sampling Plans (SGPIDS). 18–22 June 2012, ICES HQ, Copenhagen, Denmark. ICES CM 2012/ACOM:51 REF. PGCCDBS

ICES 2013. Report of the third Workshop on Practical Implementation of Statistical Sound Catch Sampling Programmes (WKPICS3), 19-22 November 2013, ICES HQ, Copenhagen, Denmark. ICES CM2013/ACOM:54 REF: ACOM, PGCCDBS, RCMS, STECF-EWG on DCF

ICES 2013. Report of the Study Group on Practical Implementation of Discard Sampling Plans (SGPIDS). 24 June – 28 June 2013, Lysekil, Sweden. ICES CM 2013/ACOM:56

ICES 2014. Report of the Planning Group on Commercial Catches, Discards and Biological Sampling (PGCCDBS) 18 -22 February 2014 Horta (Azores), Portugal. ICES CM 2014/ACOM:34

Lumley, T. 2010. Complex Surveys; A Guide to Analysis Using R. Wiley, New York

LM 2011: Report from the 8th Liaison Meeting 2011.

LM 2012: Report from the 9th Liaison Meeting 2012.

LM 2013: Report from the 10th Liaison Meeting 2013.

STECF 12-02 Review of the Revised 2012 National Programmes and on the Future of the DCF (EWG 11-19) EUR 25308 EN JRC 70899

STECF 12-07 Review of Proposed DCF 2014-2020 – Part 1 (EWG 12-2) EUR 25338 EN, JRC 71290

STECF 13-01 Review of Proposed DCF 2014-2020 – Part 2 (EWG 12-15) EUR 25825 EN, JRC 79209

STECF 13-06 Review of DC MAP- Part 1 (EWG 13-02) EUR 25974 EN, JRC 81593, 42 pp

STECF 13-12 Review of DC MAP- Part 2 (EWG 13-05)EUR 26095 EN,JRC 83566

STECF-13-23Landing obligation in EU fisheries (EWG 13-16)EUR 26330 EN, JRC 86112, 115 pp

STECF 14-01 Landing Obligation in EU Fisheries - part II (EWG 13-17)EUR 26551 EN, JRC 88869, 67 pp

STECF 14-02 Revision of DCF (EWG 13-18)EUR 26573 EN, JRC89196, 103 pp

STECF 14-06Landing Obligations in EU Fisheries - part 3 (EWG 14-01)EUR 26610 EN, JRC 89785, 56 pp.

STECF 14-07 DCF revision – Part 4 (EWG 14-02)EUR 26612 EN, JRC 89788, 77 pp.

Annex 1: Summary of recommendations

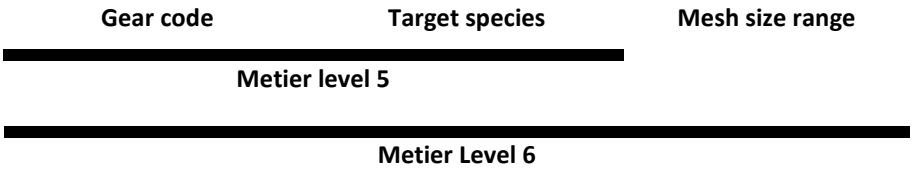
1. Concurrent sampling	
RCM NA 2014 Recommendation	The RCM NA recommends that a comprehensive evaluation of the utility of the data being collected with the concurrent sampling should be performed.
Justification	It is unclear whether the significant resource needed to carry out concurrent sampling provides benefits that outweigh the costs. Some ICES Working groups have benefited from concurrent sampling data collected however there is no empirical evidence to support this. In order to decide if concurrent sampling should continue, more feedback from end-users is required.
Follow-up actions needed	3. MS should carry out the evaluation on their own data collection schemes and report back to the RCM NA. 4. Original proposal from RCM NA was modified during the LM in this point: *Original RCM NA request* ICES feedback to RCM NA on data transmission to expert groups collected with concurrent sampling *Final Liaison Meeting agreement* ICES to set up a workshop proposal to see the implication the stopping of the concurrent sampling for those stocks and benefits concurrent sampling are providing or can provide considering the new and broader scopes of the revised DCF, such as the evaluation of impacts of fisheries on marine biological resources and on the ecosystem.
Responsible persons for follow-up actions	3. MS, RCM NA 4. ICES
Time frame (Deadline)	3. MS: Intersession work with results reported to RCM NA 2015 4. ICES: reporting data transmission to RCM NA 2015

2. Quality assurance – RDB data corrections	
RCM NA 2014 Recommendation	The RCM NA recommends that 4. the reference lists for metiers, harbours and species in the RDB are restricted to the agreed lists (metiers: RCM metier lists, harbours: EU Master Data Register, species: AphiaID (WoRMS)); 5. any data that cannot be uploaded should be recorded on a standard upload log distributed with the data call; 6. MS reload all their data in reference to the restricted lists.
Justification	There are inconsistencies and errors in the data on the RDB that have been caused by non-restrictive reference lists for metiers, harbours and species, and insufficient data checks by MS. The annual data checking procedures that are currently carried out at RCMs reveal these errors and data gaps, limiting the potential for data analysis. A log of data completeness is needed so that users can assess the limitations of the data and therefore what interpretations or analysis can be done with it. Currently it is unclear how the data can be used. The RDB will be developed to record the status of the data within it, but until this feature is available a standard log submitted at the time of each data call can provide RCGs and data users with a reference to what data is not on the system as well as what is.
Follow-up actions needed	4. RCMs to provide ICES, as the RDB administrators, with the restricted reference lists. ICES needs to incorporate these lists in the RDB; 5. RCM chairs to include upload log in data call 2015; 6. MS need to reload their data (ICES needs to delete all the data first) and complete the log and submit it to RCM chairs. These logs should be made available for analysis at the next RCMs.
Responsible persons for follow-up actions	4. RCMs, ICES 5. RCM chairs 6. MS, ICES
Time frame (Deadline)	4. Reference lists: before RCM data call 2015 5. Upload log: to include in data call 2015 6. Reloading of data and submitting of upload log to RCM chairs: by deadline specified in data call 2015

3. Landing obligation – Updating protocols, datasheets and IT systems.	
RCM NA 2014 Recommendation	The RCM NA recommends that logbooks and IT systems should be adjusted to accommodate the accurate recordings of all catch components, including the part that can be released under the de minimis exemptions.
Justification	Where we have two catch categories under the current EU legislation (landings and discards), the introduction of the landing obligation will create a third category, namely the part of the catch that is released under the de minimis exemptions. Also these have to be known and sampled accurately to allow for a correct scientific evaluation of the state of the stocks. In some fisheries (pelagic fisheries) that form part of the discussions in the RCM NA the landing obligation will be introduced in the beginning of 2015, but the logbooks and IT systems have not been adjusted to accommodate this third catch category yet.
Follow-up actions needed	Logbooks and IT systems to be adjusted.
Responsible persons for follow-up actions	EU, National authorities in all MS
Time frame (Deadline)	For implementation January 2015 for Pelagic fisheries and January 2016 for Demersal Fisheries.

Annex 2: Metier naming standards

In each case the same information is needed:



Gear code: as detailed in 2	Each item separated by '_'
Target species: as detailed in 3	
Mesh size range: as detailed in 4	

The metier naming follows 3 steps:

1. North Atlantic Region Fishing grounds

ICES area	VIIIabde	VIIfgh	VIIa	VIIe	VI	VIIbcjk	VIIIc, IXa	X
Fishing Ground	Bay of Biscay	Celtic Sea	Irish Sea	Western Channel	Western Scotland	West of Ireland	Iberian	Azores

2. Gear code, target assemblages and mesh size authorized

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	3rd step – Towed gear
OTT	MOL, CRU, DEF, DWS, MCD, MPD	3rd step – Towed gear
PTB	CRU, DEF, SPF, MPD	3rd step – Towed gear
TBB	CRU, DEF, MCD, MCF, MOL	3rd step – Towed gear
OTM	SPF, DEF	3rd step – Towed gear
PTM	SPF, LPF, DEF	3rd step – Towed gear
LHM	FIF, CEP, SPF, DEF, DWS	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	3rd step – Passive gear
GNS	SPF, DEF, CRU, DWS	3rd step – Passive gear
GND	SPF, DEF	3rd step – Passive gear

PS	SPF, LPF	0_0_0
SSC	DEF	3rd step – Passive gear
SDN	DEF, MCF	3rd step – Passive 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. Mesh size ranges used by the RCM-NA for harmonization purpose.

The agreed mesh-size ranges are in accordance with the current EC Technical Regulation 850/98 and its subsequent amendments.

		Mesh size ranges (in mm)					
Towed Gear	Sub-areas V, VI & VII	<16	16-31	32-69	70-89	90-119	>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		
Passive Gear	Sub-areas V, VI & VII	10-30	50-70	90-99	100-119	120-219	<=200
	Sub-area VIII & Div. IX	<40	40-49	50-59	60-79	80-99	>=100
	Area X	-					

Annex 3: Quality issues, table RCM 2013

RCM NA 2013 Table. Quality issues, example diagnostics and example mitigation procedures at different stages from sampling design through to supply of processed data and estimates (examples are given – not exhaustive).

	Stage	Quality issues	QA/QC procedures	Example diagnostics
1	Sampling design	Statistical sound design (bias)	Description of national survey design against best practice guidelines	Evaluation against best practice guidelines
2	Sampling implementation	E.g. sampling levels (precision); data gaps, non-response, observer effects (bias)	Description of national survey implementation against best practice guidelines. e.g. Ensure adequate samples within strata; record refusal rates and details;	Data quantity and coverage from RDB data summaries; use of COST diagnostic tools; comparison of other data from observed & non observed trips
3	National data capture	Transcription errors; data entry errors; incomplete entry; ancillary data missing (e.g. missing link between a length sample and vessel data)	Electronic data capture; range checks and other error traps in input software; cross checking of DB content and independent inventory or metadata; cross checking biological and fleet data.	Outlier detection; data values beyond range checks; Differences between DB content and independent inventory or metadata; inconsistencies between biological and fleet data.
4	National data processing	Incorrect allocation of trips to metiers or strata; use of weight-length relationships; errors or undetected changes in analysis software;	Quality assurance of data processing procedures and codes; checking analysis routines using standard test data sets;	Unexpected changes in processed data from previous years; Length-weight diagnostics
5	Upload to RDB	Incomplete uploads; undetected errors in national database.	Range checks and other error traps in RDB; cross checking of RDB and national DB content and ICES landings etc.	Outliers; data values beyond range checks; Differences between RDB content and national DB content.
6	RDB data extraction and analysis	Compatibility of national data sets (e.g. metier definitions; different forms of bias); imputation or other handling of missing data; national sampling design or cluster effects not properly reflected in data analysis; errors or undetected changes in analysis software	Suite of diagnostic checks for RDB data; Full documentation of national sampling programmes; Cross checking data analysis procedures and national sampling design; Test data sets for analysis software.	Gaps / inconsistencies revealed in RDB diagnostic outputs or other data quality reports. Proportion of catch comprising strata with missing or imputed biological data. Differences between national survey design descriptions and analysis hierarchy. Unexpected changes in processed data from previous years.
7	Supply of data / estimates to end users	Transmission of data quality indicators to end users for data and estimates at stock / fleet / region scale.	Compilation of data quality reports.	Precision & bias indicators; Nos. of primary sampling units achieved by country / stratum; effective sample sizes; other diagnostic plots

Annex 4: IPMA report on upload issues to FishFrame 5.0

Report on Upload Issues to Fishframe 5.0: Portuguese Commercial Fisheries Sampling

PNAB / DCF

4 September 2014

Bernardo Alcoforado, Nuno Prista, Marina Dias, Manuela Azevedo

Divisão de Modelação e Gestão dos Recursos de Pesca, IPMA I.P., Lisboa, Portugal

Introduction

We report on the difficulties experienced at IPMA when uploading data to RDBFF (Fishframe 5.0) in response to the RCM NA and RCM NS&EA 2014 data call. Since the previous data calls, IPMA made substantial progress in solving most of the difficulties previously felt at the level of a) exchange format compatibility, b) integration of multiple database through R and SQL routines, c) automation of quality checks and d) estimation algorithms for fish weights and imputation algorithms for missing values. While uploading data into the regional database in response to 2012 and 2013 data calls, IPMA reported several issues experienced during the data upload which reflected inadaptation and lack of flexibility in the RDBFF and contributed with suggestions towards improved standardization and adaptability of the RDBFF formats. Most of these issues were also discussed during WKRDB 2013 1 (ICES HQ, 4-6 June 2013) and reported to the RCMs that took place in 2012 and 2013.

In the last report (Report on Upload Issues to Fishframe 5.0: Portuguese Commercial Fisheries Sampling, from 15 July 2013), IPMA identified the issues that had been solved and the ones that remained. Some of the issues still pending depended on decisions of the RCMs and/or RDBFF Steering Committee, namely the harmonization of metiér names. In what concerns the latter since 2008, several RCMs have put considerable effort in data compilation, harmonizing naming and definitions of métiers, finding a common distinction of mesh size ranges at fishing ground level, allowing regional ranking of métiers to sample. The current RDBFF setup does not allow métier entering as agreed regionally (see table 1). The issue was raised and discussed during RCM NA 2013 of which there is not yet final report

so the métier naming harmonization issues are yet to be solved.

Table 1- Iberian métiers naming convention agreed regionally and its availability at RDBFF lookup table (fishing activities highlighted in **bold** are not included in RDBFF).

Naming Convention Agreed Regionaly	FishFrame			
Fishing ground	**Gear LVL4**	**Target Assemblage LVL5**	**Metier LVL6**	**FishingActivity EUlvl6?**
Iberian	**FYC**	**Catadromous**	**FYC_CAT_0_0_0**	**N**
Iberian	FPO	Molluscs	FPO_MOL_0_0_0	Y
Iberian	GNS	Demersal fish	GNS_DEF_>=100_0_0	Y
Iberian	GNS	Demersal fish	GNS_DEF_60-79_0_0	Y
Iberian	GNS	Demersal fish	GNS_DEF_80-99_0_0	Y
Iberian	GTR	Demersal fish	GTR_DEF_>=100_0_0	Y
Iberian	GTR	Demersal fish	GTR_DEF_80-99_0_0	Y
Iberian	LLS	Demersal fish	LLS_DEF_0_0_0	Y
Iberian	LLS	Deep water species	LLS_DWS_0_0_0	Y
Iberian	**OTB**	**Crustacean**	**OTB_CRU_>=55_0_0**	**N**
Iberian	**OTB**	**Demersal fish**	**OTB_DEF_>=55_0_0**	**N**
Iberian	PS	Small Pelagic Fish	PS_SPF_0_0_0	Y
Iberian	**TBB**	**Crustacean**	**TBB_CRU_<55_0_0**	**N**

The issues identified during the RCM NA and RCM NS&EA 2014 data call are listed below:

Overview of data uploaded in response to RDBFF datacall 2014

Type of Data	Data uploaded
Sea Sampling (IXa, observer programme)	Most
Sea Sampling (NAFO, NEAFC, IXa pilot-	None
Market Sampling (IXa)	Most
Vendor (IXa)	Most

List of pending issues to be addressed by RCMs, RDB Steering Committee and RDBFF support. **Note:** this list is an update of an original issues reported by IPMA in response to RCM 2012 and RCM 2013 data calls.

Table	Sampling_typ	Field	Issue	Action	Status
TR/HH	S	Number of sets/hauls on trip	Currently the RDBFF is assuming that some fishing always takes place as it requires that some haul data is entered for every trip. However, some fishing trips register no hauls. This happens when a vessel goes out to sea and breaks down; or when a purse seiner searches for fish schools but returns to	Data were uploaded. However, data from trips with no haul were not uploaded. The relevant RCMs will be informed of this issue.	Reported: RDBFF datacall 2012, WKRDB_1_2013, RCM and RDBFF administrators (21-06-2013), RDBFF datacall 2013 **Status:**
TR/HH	S (Gear "PS")	Number of sets/hauls on trip	Some PS_SPF trips register 100% slipping in all hauls. Slipping is part of the catch but it is not landings nor discards. Including such trips in table TR creates a conflict with table HH, SL and HL because a proper "Catch _registration" and "Catch _category" option for "slipping"	Data were uploaded. However, slipping was considered as discard. IPMA notes that considering slipped fish as regular discard biases mortality calculations because many slipped fish can show high survival. The relevant RCMs will be informed of this issue.	Reported: RDBFF datacall 2012, WKRDB_1_2013, RCM and RDBFF administrators (21-06-2013), RDBFF datacall 2013 **Status:**
TR	S	Days at sea	In the table TR the days-at-sea are rounded up to unit day (e.g., 0.25 days => 1 day). However, in CE table it is not clear which criteria should be used for rounding: a) one may decide to pool all days-at-sea together and round the final amount or b) one	Data were uploaded. For the time being, days at sea were considered in whole day fractions and reported as Date_Arrival-Date_Departure+1. This issue may create a conflict with data from logbooks reported in table CE particularly if different member	Reported: RDBFF datacall 2012, WKRDB_1_2013, RCM and RDBFF administrators (21-06-2013), RDBFF datacall 2013

			raising factors and lead to inconsistency between countries and between the TR and CE tables. They may also cause effort overestimation in		is still to be addressed
HH	S	Station number, Catch_registration, other haul characteristics	When no haul is performed in a trip there is no "Station number", date, time or other haul characteristics.	Data were uploaded. However, data from trips with no haul were not uploaded. The relevant RCMs will be informed of this issue.	Reported: RDBFF datacall 2012, WKRDB_1_2013, RCM and RDBFF administrators (21-06-2013), RDBFF datacall 2013 **Status:**
HH	S (Gear "PS")	Station number, Catch_registration	When purse seiners slip all of their catch, a variable percentage of fish may survive. Such hauls have a "Station number" but slipping is very different from "discards" and "landings" so they require a "Catch_registration" and "Catch_category" level of their own (e.g., "Slip").	Data were uploaded. However, slipping was as considered discard. IPMA notes that considering slipped fish as regular discard biases mortality calculations because many slipped fish can show high survival. The relevant RCMs will be informed of this issue.	Reported: RDBFF datacall 2012, WKRDB_1_2013, RCM and RDBFF administrators (21-06-2013), RDBFF datacall 2013 **Status:**
HH	S, M	Species_registration	The exact meaning of "partial" is not clear. It may refer to a) not all species were sampled or b) all species were sampled but these were not all logged into RDBFF.	Data were uploaded. IPMA used "partial" as indicative that not all taxa sampled were logged into RDBFF. In Portuguese fisheries there is a vast array of species (>200 taxa) recorded, including many invertebrates. Only the species and stocks defined in the DCF were	Reported: RDBFF datacall 2012, WKRDB_1_2013, RCM and RDBFF administrators (21-06-2013), RDBFF datacall 2013 **Status:**

SL	all	Species	In Portuguese fisheries there is a vast array of species (>200 taxa) recorded, including many invertebrates. Many of these species are not present in the lookup-table and so cannot be uploaded. Furthermore, due to logistics sometime supra-specific groupings are recorded. WKRDB_1_2013 suggested that when species and groupings are not present in the look-up table these are submitted for addition. However the taxonomy of many of these species is subject to constant	Data were uploaded. However, only the species and stocks defined in the DCF were uploaded. Examples of taxa that were not uploaded are 'Asteroidea','Balistes spp','Batrachoides spp','Bothidae', 'Etmopterus pusillus','Galeus atlanticus','Illex coindetii','Labridae','Loligo forbesi','Mitsukurina owstoni', 'Mugilidae', 'Myliobatidae', 'Porifera', 'Raja maderensis', 'Rostroraja alba', 'Salmo spp',	Reported: RDBFF datacall 2012, WKRDB_1_2013, RCM and RDBFF administrators (21-06-2013), RDBFF datacall 2013 **Status:** As far as we know this issue is still to be addressed
HH	S	Fishing duration	Missing values are not allowed; Fishing duration is not defined for the different gears complicating standardization.	Data were uploaded. Following WKRDB 2013 1 instructions, imputation rules were derived and used. The imputation algorithm can be made available for RCM and RDBFF discussion. National imputation algorithms should be standardized at RCM level. Additional RCM standardization is also required as to what is considered fishing	Reported: RDBFF datacall 2012, WKRDB_1_2013, RCM and RDBFF administrators (21-06-2013), RDBFF datacall 2013 **Status:** As far as we know this
HH	S	Pos.Start. Lat.dec Pos.Start. Lon.dec	Mandatory Field does not account for missing values so imputation is required.	IXa: Data were uploaded. Following WKRDB 2013 1 instructions, imputation rules were derived and used. The imputation algorithm can be made available for RCM and RDBFF discussion.	Reported: RDBFF datacall 2012, WKRDB_1_2013, RCM and RDBFF administrators (21-06-2013), RDBFF

			NAFO/NEAFC: Some of the longitudes exceed the current data range in FishFrame	standardized at RCM level. NAFO/NEAFC: Data were not uploaded The relevant RCMs will be	**Status:** As far as we know this issue is still to be addressed
HH	S (NEAFC)	Area	Some areas in NEAFC are not included in the lookup table (e.g., 27.IIb). Complete data on trips registering hauls in these areas cannot be	Data were not uploaded. The relevant RCMs will be informed of this issue.	Reported to RCM (21-06-2013) **Status:** As far as we know this
HH	all	FishingActivityEUlvl6	The lookup table "FishingActivityEUlvl6" is not harmonized according to the latest revision of métier codes (e.g., multi-gear métiers are still not accepted for Sampling type "M","D","V"; OTB_CRU_>=55_0_0 is not accepted, etc). This hampers the quality of data submission because imputation is not accurate in such cases. WKRDB_1_2013 concluded that the RCMs should quickly contact RDBFF Support Service with an	Data were uploaded. However, data could only be correctly uploaded for the métiers present on the "FishingActivityEUlvl6" lookup table. In response to 2014 RCM data call and to ensure the upload of all data, IPMA had to input some fishing trips with the codes available on the RDBFF lookup table. Again, it must be emphasized that these metier naming is not the one agreed regionally and only proper names	Reported: RDBFF datacall 2012, WKRDB_1_2013, RCM and RDBFF administrators (21-06-2013), RDBFF datacall 2013 **Status:** As far as we know this issue is still to be addressed
HH	all	Mesh_size	Mesh size should not be mandatory for FPO_MOL_0_0_0 (e.g., clay pots for octopus) and other métiers ended in "_0_0_0" where mesh size has not been recorded or may not apply. Furthermore mesh size frequently cannot be collected in the market sampling of multi-	Data were uploaded. Following WKRDB 2013 1 instructions, mesh_size 999 was used when mesh size was unknown. However, mesh size "0" would be more in line with the metier codes that do not require mesh size (FPO_MOL_0_0_0). Furthermore,	Reported: RDBFF datacall 2012, WKRDB_1_2013, RCM and RDBFF administrators (21-06-2013), RDBFF datacall 2013

			instructions as to how this field should be filled when mesh size is not available. Such instructions should take into account the need to update the lookup table		is still to be addressed
SL	S (NAFO, NEAFC) All	catch_category	IXa: Purse seiners frequently slip a part (or all) of their catch and thus require an extra "Catch_category" (e.g., "Slip"). New issue: July 2014 NAFO/NEAFC: In the vast majority of hauls only the unsorted catch	IXa: Data were uploaded. However, slipping was as considered discard. IPMA notes that considering slipped fish as regular discard biases mortality calculations because many slipped fish can show high survival. NAFO/NEAFC: Data were not uploaded.	Reported: RDBFF datacall 2012, WKRDB_1_2013, RCM and RDBFF administrators (21-06-2013), RDBFF datacall 2013 **Status:** As far as we know this
SL	S (IXa GNS and GTR, IXa LLS_DWS)	Weight and Subsample_weight	IXa: in GNS_DEF, GTR_DEF and LLS_DWS trips only numbers and length can be obtained on board. Therefore, weights must be estimated prior to upload. Doing this raises the issue of a) standardization across countries, b) "in vivo estimate" vs "actual" weight of discards when, e.g., many damaged fish are present in the discard samples, c) how to input weights when individuals have not been measured due to onboard logistics.	IXa (observer program): Data were uploaded when species had weight-length relationships available or when reasonable imputation could be achieved. Following WKRDB 2013 1 instructions, weights were imputed based on the length frequencies of samples. An algorithm for weight estimation and imputation using on length-weight relationships was developed. The imputation algorithm can be made available for RCM and RDBFF discussion.	Reported: RDBFF datacall 2012, WKRDB_1_2013, RCM and RDBFF administrators (21-06-2013), RDBFF datacall 2013 **Status:** As far as we know this issue is still to be addressed

				IXa (pilot studies): Data were not uploaded as the above mentioned algorithm for weight estimation and imputation	
HL	S	Length class	Damaged fish that cannot be measured are frequently part of the discards of some metiers (e.g., gillnets). These are part of the sample weight but at the moment there is no length_class they can be fit into (length class = '999' does not qualify as it is meaningful and may jeopardize estimates such as mean length). Damaged fish will push down the mean weight of the sample in comparison to	Data were uploaded. Damaged fish were deleted from the length frequency. IPMA notes that doing this may impair some estimates but not other. Example: Mean length can be estimated if one assumes the same length distribution for damaged and undamaged fish; However, Subsample_weight incorporates an estimate of more fish than the ones effectively measured so mean weights should	Reported: RDBFF datacall 2012, WKRDB_1_2013, RCM and RDBFF administrators (21-06-2013), RDBFF datacall 2013 **Status:** As far as we know this issue is still to be addressed
CA	All	Sex	RDBFF has no code for juveniles	Data were uploaded. Juveniles were considered as "non-sexed". IPMA notes that juveniles should be distinguished from non-sexed fish on order not to bias some analyses. The relevant RCMs will be informed of this issue.	Reported: RCM and RDBFF administrators (21-06-2013), RDBFF datacall 2013 **Status:** As far as we know this issue is still to be addressed
CA	S (IXa)	Stock	New issue: July 2014 Some stock combinations are missing and cannot be uploaded, e.g., Raja Brachyura is not defined for IXa.	Data was uploaded except for Raja Brachyura, Aspitrigla cuculus, Pagellus acarne, Psetta maxima, Palaemon serratus, Ammodytes sp., Thunnus obesus, Todarodes	**Status:** As far as we know this issue is still to be addressed

				Rostroraja alba that are not defined for IXa. The relevant RCMs will be	
CA	all	aging_method	New issue: July 2014 'Spine Analysis' option is missing in FishFrame.	Data were uploaded without specifying aging method.	**Status:** As far as we know this issue is still to be
CA	all	maturity_scale	New issue: July 2014 'Abnormal' is not a level of IPMA scale but rather recorded as an side observation.	Data were uploaded but do not identify 'abnormal'. IPMA notes that this may bias some specific analysis.	**Status:** As far as we know this issue is still to be addressed
SL, CA	all	---	Some species lengths are not recorded as total length (e.g., squid: mantle length; grenadiers: pre-anal length; blue fin tuna: furcal length; shrimp and lobster: carapace length; some crabs: carapace width). This indicates a need for uploading an alternative measures instead of the total length. At present this measure cannot be specified.	Data were uploaded in the format they were collected in the field (i.e., no conversion to total length was applied). IPMA notes that at present there is no way of distinguishing different types of lengths measurements and this may bias some analyses. A flag field should be present to indicate different types of measurements. Some internal conversion	Reported: WKRDB 2013 1, RCM and RDBFF administrators (21-06-2013), RDBFF datacall 2013 **Status:** As far as we know this issue is still to be

Other issues:

An update to the manual of RDBFF data exchange format should be made and put available online as the changes introduced in, e.g., WKRDB_2013_1, are not yet present in the current version.

A manual detailing the RDBFF upload procedures and use of graphical interface should be available online as not all data submitters are able to attend FishFrame training courses. Absence of such manual slows down the uploading process, leads to unnecessary errors in the update of *code lists*, etc.

An online mailing list could be used to provide complementary support. Such list would allow users to exchange knowledge, reducing the workload of administrators and improving data standardization across member states.

Some improvements could be made to the online dashboard to allow the identification of the users that submitted and approved the data as well as a summary of upload statistics (e.g., a table summary with the data submitted by the different users and MS would also be highly beneficial). Online information on the authorized data submitters and administrators per MS is also lacking.

Case sensitive records: heterogeneous case sensitive codes still persist with no apparent reason (e.g., Catch_registration accepts lower case letters such as “Lan” and “Dis”; However, Catch_category uses upper case letters “LAN”, “DIS” for similar concepts).

Annex 5: Examples of diagnostic methods (IRL)

Observer data - Ireland

After data of an observer trip are entered, an automatic quality control report is produced that helps to identify potential problems with the data. The report identifies problems with:

- Database consistency: (duplicate data; data existing in one table but not in another, e.g. haul data without trip data; missing data)
- Raising factors (from sample to haul level): very small or large sample weights; high raising factors, discard sample weight larger than estimated total discards; large proportion of discards in the catch; low or high catch or landings rate (kg/hr); etc.
- Tow data: Excessive tow length or fishing speed (tow length is estimated from the straight-line distance between the start and end positions of the tow); Zero tow length; Impossible or unexpected shoot or haul positions; Short tow duration; Negative tow duration; Missing tow duration; Long tow duration; Tow shot before previous tow was hauled; Tow dates outside cruise dates.
- Length data: Any fish that are larger than the 99th percentile * 1.5 or smaller than 1st percentile * 0.5, are identified as outliers.

In order to identify outlying values, boundaries are defined (somewhat arbitrarily), so e.g. if a sample weight is smaller than 5kg it is flagged as an outlier (Figure 2.4.2.1). A series of SQL queries identifies outliers and passes a table to R which pasts the results into a pdf report using Sweave. Below are some examples of query results which are pasted into the report:

- Haul 23: Tow length is longer than expected (23.8nm/4.9h)
- Haul 7: Proportion of discards is high (0.83)
- Haul 1: Shoot date (2001-04-22) before departure date (2001-04-23)
- Haul 4: Haul 4 was shot before haul 3 was hauled
- Haul 3: Unexpected length for Dab (47cm)
- Haul 6: Catch rate is high (7200kg/2.5h)
- Haul 7: Raising factor is high (457.2)
- Haul 12: Sample data with missing Haul data. Sample header id: 48632

The report also generates a number of tables with haul and sample information that allow the user to drill down into any of the issues that are flagged. Additionally, two figures are produced to help put any outliers into context.
In addition to the quality control reports for individual trips, the contribution of each trip to the overall estimate of the discards or retained catch in a stratum is also investigated (Figure 2.4.2.3).

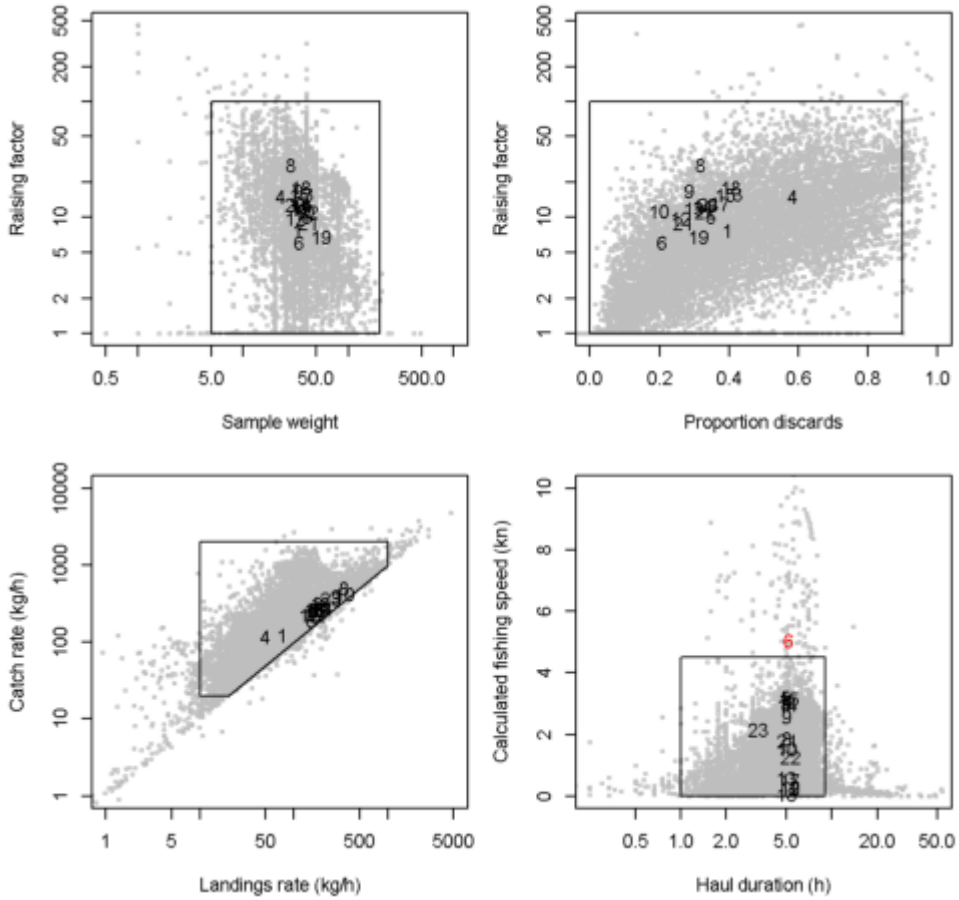


Figure 2.4.2.1. Diagnostic checks for observer data in Ireland. All observed values in the database shown in grey (each point represents a haul). The boxes represent the expected range of values, any values outside the boxes will be flagged as outliers. The black numbers refer to the haul numbers of the current survey, hauls outside any of the boxes are plotted in red, e.g. haul number 6 in the bottom-right plot which had an unexpectedly high fishing speed (which could be due to errors in the start/end time or start/end position).

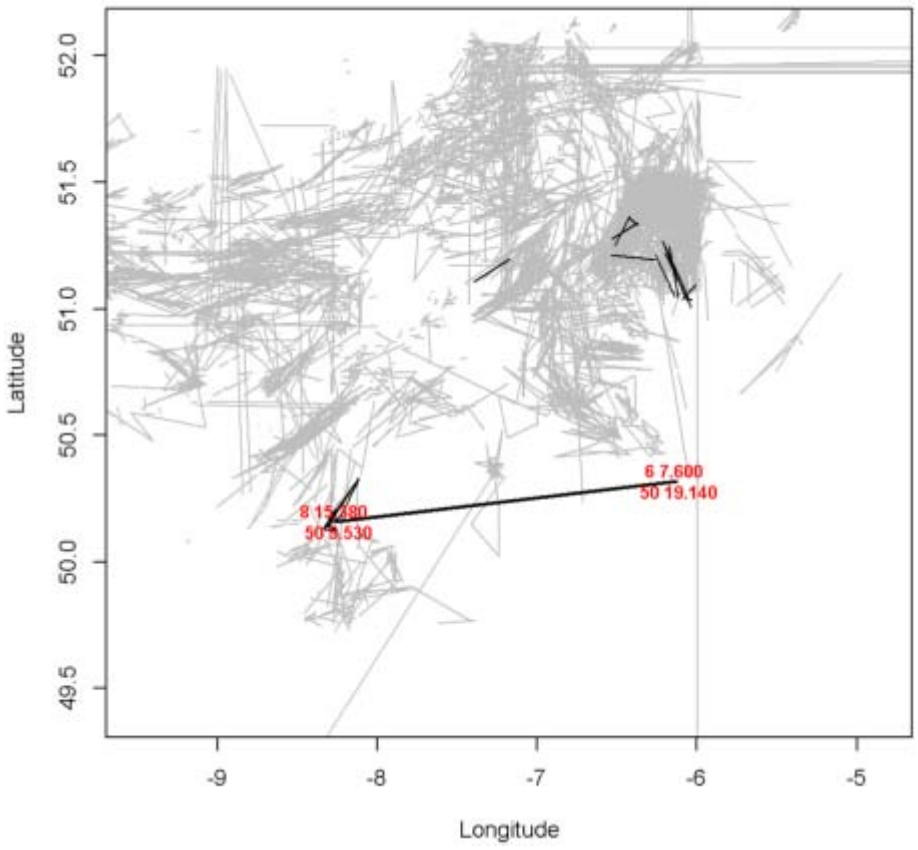


Figure 2.4.2.2. Diagnostic checks for observer data in Ireland The figure above shows the shoot and haul positions (connected by a straight line) of all the trips in the database in grey and of the current haul in black. The positional data for a suspicious haul are also given in red. In this case it appears that the longitude of the shoot or haul position was entered wrongly.

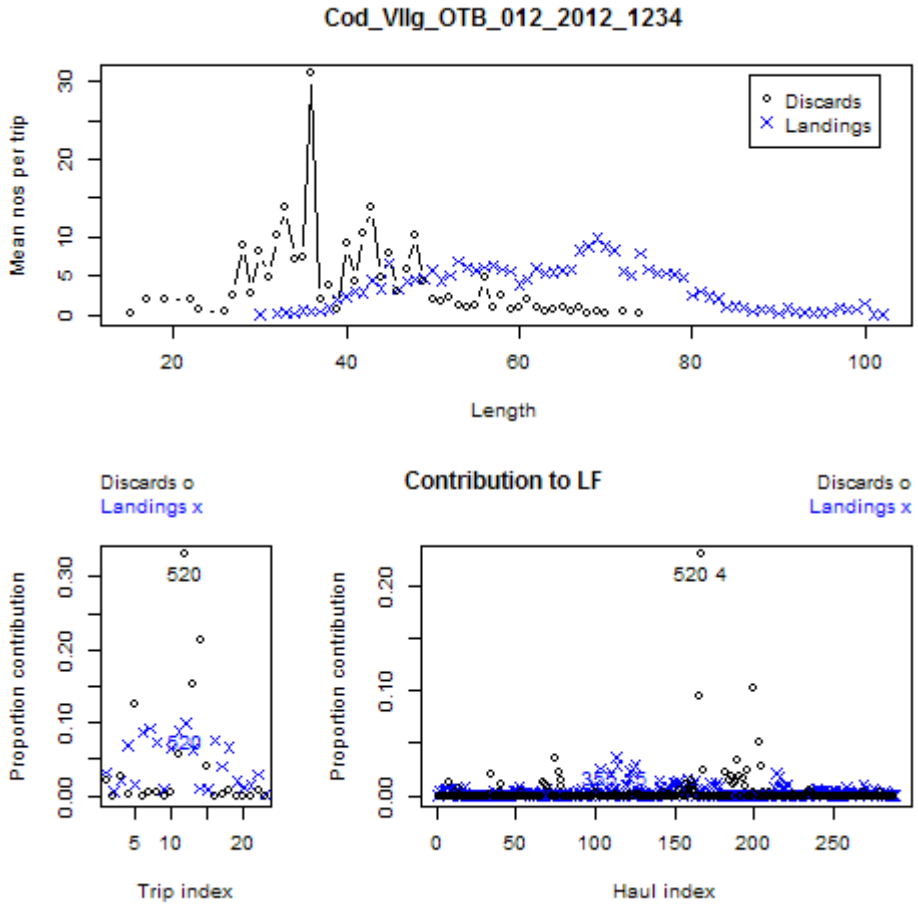


Figure 2.4.2.3. Diagnostic checks for observer data in Ireland. Figures show how much each trip (bottom left) and each haul (bottom right) contribute to the total estimate (each trip and each haul are given an arbitrary index number for plotting). So for example, if the estimated weight of discards on 23 sampled trips is 1000 kg and 250kg of that comes from a single haul, then the contribution of that haul is 25%. The figure above shows that trip number 520 contributed more than 30% of the discard estimate and that a single haul (haul 4) on that trip contributed more than 20% of the total discard estimate. Such a result would be a reason to drill down into the data for that particular trip (and haul).

Annex 6: Response from ACOM/SICOM to survey review

Response from ACOM/SCICOM to request on survey review

There are already ongoing activities that are in line with the request for a review, some other aspects are already planned and some that need to be planned.

Reviews Available

Currently available is the STECF report, which reviews the all the DCF funded fisheries surveys. Not the relevance or the possibilities, only the use of the current data. The view in ACOM is that this document sufficiently covers the fisheries aspect of the DFCF funded surveys, but NOT the ecosystem aspects.

WKECES established a survey review methodology based on an 'ideal ecosystem survey' developed by WGISUR, and used this to review four surveys (PELGAS/PELACUS, Barents SEA survey, NS small scale trawl survey, and CEFAS Western Channel beamtrawl survey). The aim of the workshop was to evaluate surveys with distinct ecosystem characteristics and then synthesize the results of this evaluation to provide advice for WGISUR as to the important considerations when developing ecosystem surveys for the implementation of the ecosystem approach to management. WGISUR has additional reports contain useful reviews and has developed a flow diagram for setting up ecosystem surveys, of which some of the criteria might be used in the review process.

WKCATDAT reviewed what ecosystem data products could currently be delivered by surveys in the context of the 11 MSFD descriptors (file attached). A table by survey métier is available on the ICES website. The products were categorised in three classes; currently available, 'easily added' and that could be done but would require additional ship time. Several métiers were evaluated in detail to make this evaluation (TV survey, Bottom Trawl and Beam Trawl). CATDAT also included a review of the necessary land-based activities to deal with and analyze the additional material.

CEFAS investigated the effect of cutting down on stations on the CV's of the survey outcomes (see WGISDAA report, chapter 3.1.2.1), and presented this during WGISDAA 2014. Potential effects on the CV's of stock assessment indices by extending the data collection on surveys are described in Smith & Hubley (2014).

Current related work

WGISDAA has planned activities looking at statistical analyses to evaluate some of the consequence for reducing sampling within a survey. This was principally in a statistical sense of increasing variance Issues like risk to the survey and some spatial aspects were also not considered.

ICES SSGIEOM: The list of ICES coordinated surveys (under SSGIEOM) are currently being mapped to information being collected. The various survey expert groups are collating the information about the surveys and the corresponding data products. The current plan is to have this done by the end of 2014. We will then have better overview of what is currently delivered from the surveys under SSGIEOM expert groups. The list will be crosschecked with the STECF report to see

to the information from the data list used by the ICES secretariat (from the STECF report) under the scope of the SSGIOEM, and this is used to build the list.

LOT projects: Three contracts to look at MSFD sampling in Baltic, NS/Celtic Sea and Med. The CS study is looking at using the existing fishery survey resources to build a designed for purpose ecosystem survey and/or improving the existing surveys. Also included is evaluation of other ad hoc data collection such as litter and benthic fauna to evaluate potential use but this work needs to be extended. The projects will end early 2015.

There is currently no process that explicitly includes national surveys so some of these have not been addressed.

The Future

The next step is to complete the current list of surveys and match them with the needs from the traditional assessment groups, the integrated assessment expert groups and the needs to supply MSFD indicators. The latter has been a topic for the WGISUR working group. The idea is to use these lists as a framework to match the needs with the potential surveys currently coordinated by ICES. The current structure would allow this to happen under the coordination steering groups IEOM and IEA. Though this would need to be resourced if it is to done properly or soon.

The existing and planned activities will only to some extent address the request from the Bureau. Some additional aspects could be considered:-

- A cost benefit framework would help to make the evaluation easier (Though both costs and benefits are currently unclear)
- Identifying data gaps and overlaps - a SWOT analysis – needs a wider consultation from more ACOM SCICOM groups. This will take some time to formulate.
- It would be possible to merge lists of surveys, working groups, and potentially also drivers and indicators by utilizing new semantic technologies. By putting linkages between data, users, and delivery advice into an ontology, it becomes possible to interrogate and map the relationships between surveys and data demands easily. Such a process could start simple, by storing the list of survey data, users, and products and then gradually evolve to include wider aspects such as the components of e.g. ODEMM relationships.

If a major analysis of possibilities is to be developed, the next step should be an initial workshop, to bring together user groups chairs and survey groups chairs (SSGIEOM & SSGIEA), as well as statistical (WGISDAA?) and data expertise (DIG). There is a need to carry out some prioritization, which is currently often based on feasibility but could be based on need, if this can be specified. There is a requirement to define spatial and temporal scale requirements for ecosystem information and to map these together and onto existing surveys to determine potential utility. This implies a workshop and some follow up work It was unclear at the time of writing whether the request from Bureau is for this workshop to make a proposal or a proposal to request funding for a workshop and subsequent work.

Annex 7: Cefas RDB Data Onshore

Trip record (TR) in commercial fisheries sampling data (CS)

Order	Name	Type	Req.	Basic checks	Comments	Cefas Comments
1	Record type*	String	M		Fixed value TR.	Always set to 'TR'.
2	Sampling type*	String	M	Code list[1]	"S" = sea sampling, "M" = market sampling of known fishing trips, "D" = market sampling of mixed trips, "V" = vendor.[1]	case when s.fldnoofvessels = 1 then 'M' when s.fldnoofvessels > 1 then 'D' end
3	Landing country*	String	M	Code list	ISO 3166–1 alpha-3 codes: the country where the vessel is landing and selling the catch.[2]	Used nationality of the landing port – mapped to agreed set of codes.
4	Vessel flag country*	String	M	Code list	ISO 3166–1 alpha-3 codes: the flag country of the vessel. This can be different from the landing country (see description of Landing country).[2]	case when r.fldNoOfVessels = 1 then r.fldVesselNationality else 'GBR' end – mapped to agreed set of codes
5	Year*	Integer	M	1 900–3 000		datepart(year,s.fldDateOfLanding)
6	Project*	String	M	Code list	National project name. Code list is editable.	Always set to previously agreed code – 'GBE-DCF'.
7	Trip number*	Integer	M	1–999 999	National coding system.[3]	Used fldElementCompositionID to cater for multiple gear/assemblage/reg/rect records in an event – cannot use fldsampleid as this refers to a category and not a sample. Also causes problems for multi-species samples.
8	Vessel length	Integer	O[4]	3–160	Over-all length in metres	case when r.fldNoOfVessels = 1 and floor(r.fldVesselOverLen) > 0 and floor(r.fldVesselOverLen) < 3 then cast(3 as varchar) when r.fldNoOfVessels = 1 and floor(r.fldVesselOverLen) between 3 and 160 then cast(floor(r.fldVesselOverLen) as varchar) else '' end
9	Vessel power	Integer	O[4]	4–7 500	Vessel power (kW).[5]	case when r.fldNoOfVessels = 1 and floor(r.fldVesselEnginePower) > 0 and floor(r.fldVesselEnginePower) < 4 then cast(4 as varchar) when r.fldNoOfVessels = 1 and floor(r.fldVesselEnginePower) between 4 and 7500 then

						cast(floor(r.fldVesselEnginePower) as varchar) else '' end
10	Vessel size	Integer	O[4]	1–2 500	Gross registered tonnes (GRT).	case when r.fldNoOfVessels = 1 and floor(r.fldVesselRssTons) > 0 and floor(r.fldVesselRssTons) < 1 then cast(1 as varchar) when r.fldNoOfVessels = 1 and floor(r.fldVesselRssTons) between 1 and 2500 then cast(floor(r.fldVesselRssTons) as varchar) else '' end ICES are happy to have a mix of GT and GRT in this field – assume (generally correctly) if vessel < 15m then this is GRT otherwise GT.
11	Vessel type	Integer	M[6]	Code list	1 = stern trawler, 2 = side trawler, 3 = gillnetter, 4 = other boats.	Always set to '4' - other boats – information not available.
12	Harbour	String	O	Code list	Landing harbour.	'UK-'+REPLACE(STR(s.fldportoflanding,4),SPACE(1),'0') – mapped to agreed set of codes.
13	Number of sets/hauls on trip	Integer	O[6]	2–99[7]	Total number of hauls/sets taken during the trip. Both the stations where biological measures were taken and the stations that were not worked up should be counted here.[8]	CAST('' as varchar)
14	Days at sea	Integer	O	1–60	In days.[9]	CAST('' as varchar)
15	Vessel identifier (encrypted)	Integer	O	1–999 999	Encrypted vessel identifier. Id encrypted so that no-one can map the Id to the real vessel.	CAST('' as varchar)
16	Sampling country	String	M	Code list	ISO 3166–1 alpha-3 codes. The country that did the sampling.	Always set to 'ENG' All samples uploaded are collected by Cefas staff.
17	Sampling method	String	M	Code list	"Observer" or "SelfSampling".	Always set to 'Observer'.

Fishing station record (HH) in commercial fisheries sampling data (CS)

Order	Name	Type	Req.	Basic checks	Comments	Cefas Comments
1	Record type*	String	M		Fixed value HH.	Always set to 'HH'.
2	Sampling type*	String	M	Code list	"S" = sea sampling; "M" = market sampling of known fishing trips; "D" = market sampling of mixed trips; "V" = vendor.	See TR comments.
3	Landing country*	String	M	Code list	ISO 3166−1 alpha-3 codes	See TR comments.
4	Vessel flag country*	String	M	Code list	ISO 3166−1 alpha-3 codes. The flag country of the vessel. This can be different from the landing country (see description of LandingCountry).	See TR comments.
5	Year*	Integer	M	1 900 − 3 000		See TR comments.
6	Project*	String	M	Code list	National project name. Code list is editable.	See TR comments.
7	Trip number*	Integer	M	1 − 999 999	National coding system.[1]	See TR comments.
8	Station number*	Integer	M	1−999[2]	Sequential numbering by trip.[1]	Pseudo species number created to take into account multi species samples where there is no other ID field that can be used. Stations are numbered from 1 upwards based on species number sorted alphabetically within the event.
9	Fishing validity	String	O[3,4]	Code list	I = Invalid. V = Valid.	case when s.fldvalid = 1 then 'V' else 'I' end
10	Aggregation level	String	O[3, 5]	Code list	H = haul. T = trip.	Always set to 'T' – haul information not available.
11	Catch registration	String	M	Code list	The parts (landings/discards) of the catch, registered as "All", "Lan", "Dis", "Non".[6]	case when r.fldDescription = 'landing' then 'Lan' when r.fldDescription = 'Catch' then 'All' end
12	Species registration	String	M	Code list	The species in the catch, registered as "All", "Par", "Non".[7]	All set to 'Par' – we don't know if all species in the catch were sampled even when concurrent sampling.
13	Date	String	M	"1900−01−01" to "2020−12−31"	"YYYY-MM-DD" (ISO 8601).[8] Fishing starting date.	left(convert(char,s.flddateoflanding,126),10)

14	Time	String	O	00:00−23:59	Starting time. “HH:MM”… in UTC.[9]	CAST(" as varchar)
15	Fishing duration	Integer	O[3]	5−99 999	In minutes.[10]	CAST(" as varchar)
16	Pos.Start.Lat.dec.	Dec(5)	O[3]	20.00000−80.00000	Shooting (start) position in decimal degrees of latitude.[11]	CAST(" as varchar)
17	Pos.Start.Lon.dec.	Dec(5)	O[3]	−31.00000−31.00000	Shooting (start) position in decimal degrees of longitude.[11]	CAST(" as varchar)
18	Pos.Stop.Lat.dec.	Dec(5)	O	20.00000 − 80.00000	Hauling (stop) position in decimal degrees of latitude.[11]	CAST(" as varchar)
19	Pos.Stop.Lon.dec.	Dec(5)	O	−31.00000−31.00000	Hauling (stop) position in decimal degrees of longitude.[11]	CAST(" as varchar)
20	Area	String	M	Code list	Area level 3 (level 4 for Baltic, Mediterranean, and Black Seas) in the Data Collection Regulation (EC, 2008a, 2008b).	case when s.fldrectangle = '29e5' then '7e' else a.rdbarea – uses r.fldDivision mapped to RDB code. 29E5 only valid for VIIe on RDB.
21	Statistical rectangle	String	O[3, 12]	Code list	Area level 5 in the Data Collection Regulation (EC, 2008a, 2008b). This is the ICES statistical rectangles (e.g. 41G9) except for the Mediterranean and Black Seas, where GFCM geographical subareas (GSAs) are used.[13]	r.fldRectangle
22	Subpolygon	String	O	Code list	National level as defined by each country as child nodes (substratification) of the ICES rectangles. It is recommended that this is coordinated internationally, e.g. through the Regional Coordination Meetings (EC RCMs).	case when r.fldSubRectangle is null then cast(" as varchar) else cast(r.fldSubRectangle as varchar) end – preceeded by 'GBE-'
23	Main fishing depth	Integer	O	1−999	Depth from surface to groundrope in metres.[5]	CAST(" as varchar)
24	Main water depth	Integer	O	1−999	Depth from surface in metres.[14]	CAST(" as varchar)
25	Fishing activity category National	String	O	Code list	Fishing activity category (= métier). National level as defined by each country as child nodes (substratification) of the level-5 codes.	'GBE-'+s.fldgear
26	Fishing activity category European lvl 5	String	O[15]	Code list	Fishing activity category (= métier). Level 5 as defined in a hierarchic structure in the Data Collection Regulation (EC, 2008a, 2008b).	CAST(" as varchar) – you can only have lvl5 or lvl6 and lvl6 is now mandatory.

27	Fishing activity category European lvl 6	String	O[15, 16]	Code list	Fishing activity category. Level 6 as defined in a hierarchic structure in the Data Collection Regulation (EC, 2008a, 2008b). Level 6 is further specified by the Regional Coordination Meetings (EC RCMs, Council Regulation [EC] No 1543/2000) or any later authorized revision.	s.rdbgear+'_'+s.fldtargetassemblage+m.meshgroup – GARi gear mapped to RDB code + target assemblage + mesh mapped to range code for gear type. Then lots of additional fiddles for incorrect data.
28	Gear type	streng	M	Code list		s.rdbgear – GARi gear mapped to RDB code.
29	Mesh size	Integer	O[17]	1−999	Stretch measure.[18]	case when s.fldmesh is null or s.fldmesh = 0 then 999 else s.fldmesh – Mandatory field
30	Selection device	Integer	O[3]	Code list	Not mounted = 0, Exit window / selection panel = 1, grid = 2. Additional code '9' (Unknown) added A selection device is defined as a square-meshed panel or window that is inserted into a towed net.	Always set to '9'.
31	Mesh size in selection device	Integer	O	20−200	In mm. The mesh size of a square-meshed panel or window shall mean the largest determinable mesh size of such a panel or window.	cast(" as varchar)

Species list record (SL) in commercial fisheries sampling data (CS)

Order	Name	Type	Req.	Basic checks	Comments	Cefas Comments
1	Record type*	String	M		Fixed value SL.	Always set to 'SL'.
2	Sampling type*	String	M	Code list	"S" = sea sampling, "M" = market sampling of known fishing trips, "D" = market sampling of mixed trips, V" = vendor.	See HH comments.
3	Landing country*	String	M	Code list	ISO 3166–1 alpha-3 codes.	See HH comments.
4	Vessel flag country*	String	M	Code list	ISO 3166–1 alpha-3 codes. The flag country of the vessel. This can be different from the landing country (see description of LandingCountry).	See HH comments.
5	Year*	Integer	M	1 900–3 000		See HH comments.
6	Project*	String	M	Code list	National project name. Code list is editable.	See HH comments.
7	Trip number*	Integer	M	1–999 999	National coding system.	See HH comments.
8	Station number*	Integer	M	1– 999	Sequential numbering by trip.	See HH comments.
9	Species*	String	M	Code list	Scientific name in Latin (*Genus species*).	GARi species code mapped to RDB species code.
10	Catch category*	String	M	Code list	The fate of the catch: "DIS" = discard, "LAN" = landing.	Always set to 'LAN'.
11	Landing category*	String	M	Code list	The intended usage at the time of landing. This should match the same field in CL record (whether or not the fish was actually used for this or another purpose): "IND" = industry or "HUC" = human consumption.	Always set to 'HUC'.
12	Commercial size category scale*	String	O	Code list	Commercial sorting scale code (optional for "Unsorted").	Always set to 'English'.
13	Commercial size category*	Integer	O	Code list	Commercial sorting category in the given scale (optional for "Unsorted"). (EC, 2006) and later amendments when scale is "EU".	Pseudo catagory number created within SQL to take into account multi species samples etc. – may not match with category number in GARi. On GARi a category is called a sample and you are allowed multiple species on the sample and each combination needs to have a category

						number. For example if you have sampled ANF and there are 4 categories (samples) and 2 contain MON and 4 contain WAF then MON will be staion 1 categoies 1 and 2 and WAF will be station 2 categories 1 to 4.
14	Subsampling category*	String	O	Code list	Used when different fractions of the same species are subsampled at different levels. Typically used when few large specimens are taken out from the total catch before the many small fish are subsampled.	cast(" as varchar)
15	Sex*	String	O	Code list	M = Male, F = Female, T = Transitional (optional for "Unsexed").	cast(" as varchar)
16	Weight	Integer	M	1−9 999 999 999	Whole weight in grammes. Decimals not allowed. Weight of the corresponding stratum (Species – Catch category – size category – Sex).	s.fldaggregateliveweight – after loads of fiddling – see SQL.
17	Subsample weight	Integer	O[1]	1−9 999 999 999	Whole weight in grammes. Decimals not allowed. For sea sampling: the live weight of the subsample of the corresponding stratum. For market sampling: the sample weight is the whole weight of the fish measured (e.g. the summed weight of the fish in one or more boxes).	s.fldapportionedsampleliveweight – after loads of fiddling – see SQL.
18	Length code	String	O[1]	Code list	Class: 1 mm = "mm", 0.5 cm = "scm"; 1 cm = "cm"; 2.5 cm = 25 mm", 5 cm = "5 cm".	Hard coded from look-up table based on species code.

Length record (HL) in commercial fisheries sampling data (CS)

Order	Name	Type	Req.	Basic checks	Comments	Cefas Comments
1	Record type*	String	M		Fixed value HL.	Always set to HL.
2	Sampling type*	String	M	Code list	"S" = sea sampling, "M" = market sampling of known fishing trips, "D" = market sampling of mixed trips, "V" = vendor.	See SL comments.
3	Landing country*	String	M	Code list	ISO 3166–1 alpha-3 codes.	See SL comments.
4	Vessel flag country*	String	M	Code list	ISO 3166–1 alpha-3 codes. The flag country of the vessel. This may be different from the landing country (see description of LandingCountry).	See SL comments.
5	Year*	Integer	M	1 900–3 000		See SL comments.
6	Project*	String	M	Code list	National project name. Code list is editable.	See SL comments.
7	Trip number*	Integer	M	1– 999 999	National coding system.	See SL comments.
8	Station number*	Integer	M	1– 999	Sequential numbering by trip.	See SL comments.
9	Species*	String	M	Code list	Scientific name in Latin (*Genus species*).	See SL comments.
10	Catch category*	String	M	Code list	The fate of the catch: DIS = discard, LAN = landing.	See SL comments.
11	Landing category*	String	M	Code list	The intended usage at the time of landing. This should match the same field in the LS record (whether or not the fish was actually used for this or another purpose): IND = industry, HUC = human consumption.	See SL comments.
12	Commercial size category scale*	String	O	Code list	Commercial sorting scale code (optional for "Unsorted").	See SL comments.
13	Commercial size category*	Integer	O	Code list	Commercial sorting category in the given scale (optional for "Unsorted"). See (EC, 2006) and later amendments when scale is "EU".	See SL comments.
14	Subsampling	Integer	O	Code list	Used when different fractions of the same species are subsampled at different levels. Typically used when	See SL comments.

	category*				few large specimens are removed from the total catch before the many small fish are subsampled.	
15	Sex*	String	O[1]	Code list	M = Male, = , F = Female, T = Transitional = (optional for “Unsexed”).	cast('' as varchar)
16	Individual sex	String	M	Code list (sex)	If M = Male, = , F = Female, T = Transitional = (optional for “Unsexed”). Only different from “Sex” if individual length distribution is obtained on HL-level (and not on SL-level).	case when m.fldsex in ('m','f','b') then m.fldsex else cast('' as varchar(1))
17	Length class*	Integer	M	1−3 999	In mm. Identifier: lower bound of size class, e.g. 650 for 65−66 cm.	m.fldallocatedsize
18	Number at length (not raised to whole catch)	Integer	M	1−999	Length classes with zero should be excluded from the record.	floor(sum(m.fldsamplingnumberatlength))

Sex-Maturity-Age-Weight-Length record (CA) in commercial fisheries sampling data (CS)

Order	Name	Type	Req.	Basic checks	Comments	Cefas Comments
1	Record type*	String	M		Fixed value CA.	Always set to 'CA'.
2	Sampling type*	String	M	Code list	"S" = sea sampling, "M" = market sampling of known fishing trips, "D" = market sampling of mixed trips, "V" = vendor.	case when b.fldnoofvessels = 1 then 'M' when b.fldnoofvessels > 1 then 'D' end
3	Landing country*	String	M	Code list	ISO 3166–1 alpha-3 codes.	Used nationality of the landing port – mapped to agreed set of codes.
4	Vessel flag country*	String	M	Code list	ISO 3166–1 alpha-3 codes. The flag country of the vessel. This may be different from the landing country (see description of LandingCountry).	case when r.fldNoOfVessels = 1 then r.fldVesselNationality else 'GBR' end – mapped to agreed set of codes
5	Year*	Integer	M	Code list	1 900–3 000.	datepart(year,s.fldDateOfLanding)
6	Project*	String	M	Code list	National project name. Code list is editable.	Always set to previously agreed code – 'GBE-DCF'.
7	Trip number*	Integer	M	1–999 999	National coding system.[1]	Used fldElementCompositionID to cater for multiple gear/assemblage/reg/rect records in an event – cannot use fldsampleid as this refers to a category and not a sample. Also causes problems for multi-species samples.
8	Station number*	Integer	O[2]	1–999	Sequential numbering by trip.	Always set to '999'.
9	Quarter*	Integer	M	Code list	1–4.	datepart(QUARTER,b.fldDateOfLanding)
10	Month*	Integer	O	Code list	1–12.	datepart(MONTH,b.fldDateOfLanding)
11	Species*	String	M	Code list	Scientific name in Latin (*Genus species*).	GARi species code mapped to RDB species code.
12	Sex*	String	O	Code list	M= Male = , F = Female, T = Transitional = (optional for "Unsexed").	case when b.fldSex in ('m','f','b') then cast(b.fldSex as varchar(1)) else cast('' as varchar(1))
13	Catch category*	String	M	Code list	The fate of the catch: DIS = discard, LAN = landing.	Always set to 'LAN'.
14	Landing category*	String	M	Code list	The intended usage at the time of landing. This should match the same field in the LS record	Always set to 'HUC'.

					(whether or not the fish was actually used for this or another purpose): industry or human consumption.	
15	Commercial size category scale*	String	O	Code list	Commercial sorting scale code (optional for “Unsorted”).	cast(" as varchar) – biological samples not categorised.
16	Commercial size category*	Integer	O	Code list	Commercial sorting category in the given scale. (optional for “Unsorted”).	cast(" as varchar) – biological samples not categorised.
17	Stock*	String	O	Code list	[3]	case when b.fldSpecies = 'her' then 'Clupea harengus-P' else cast(" as varchar) end
18	Area*	String	M	Code list	Area level 3 (level 4 for Baltic, Mediterranean, and Black Seas) in the Data Collection Regulation (EC, 2008a, 2008b).	case when b.fldrectangle = '29e5' then '7e' else a.rdbarea – uses r.fldDivision mapped to RDB code. 29E5 only valid for VIIe on RDB.
19	Statistical rectangle*	String	O[4]	Code list	Area level 5 in the Data Collection Regulation (EC, 2008a, 2008b). This is the ICES statistical rectangles (e.g. 41G9) except for the Mediterranean and Black Seas where GFCM geographical subareas (GSAs) are used.	r.fldRectangle
20	Subpolygon*	String	O	Code list	National level as defined by each country as child nodes (substratification) of the ICES rectangles. It is recommended that this is coordinated internationally, e.g. through the Regional Coordination Meetings (EC RCMs).	case when r.fldSubRectangle is null then cast(" as varchar) else cast(r.fldSubRectangle as varchar) end – preceeded by 'GBE-'
21	Length class*	Integer	M	1−3 999	In mm. Identifier: lower bound of size class, e.g. 650 for 65–66 cm.	floor(b.fldSize)
22	Age*	Integer	O	0−99	Estimated age.	b.fldAge – only selecting records where age is not null.
23	Single fish number (id)*	Integer	M	1−9 999 999	National numbering system of the individual fish. Preferably unique within the given Station and Species, but necessarily unique for the given combination of key fields above.	b.fldIndividualID
24	Length code	Integer	M	Code list	Class: 1 mm = “mm”, 0.5 cm = “scm”; 1 cm = “cm”; 2.5 cm = “25 mm”, 5 cm = “5 cm”.	Hard coded from look-up table based on species code.
25	Aging method	String	O[5]	Code list	Methodology for estimating the age.	case when b.fldSpecies = 'bse' then 'Scale' else 'OWR' end

26	Age-plus-group	String	M	Code list	+ = Plus group, − = Not plus group.[6]	Always set to '-'.
27	Otolith weight	Dec(5)	O	0.000 00– 99.999 99	In grammes.	cast('' as varchar)
28	Otolith side	String	O	Code list	The side of the fish where the otolith was taken. R = right, L = left.	cast('' as varchar)
29	Weight	Dec(1)	O	1.0−99 999.9	In grammes.	case when b.fldCalculatedLiveWeight is null then '' else CAST(floor(b.fldCalculatedLiveWeight) as varchar) end
30	Maturity staging method	String	O	Code list	Methodology for estimating the maturity stage.	cast('' as varchar)
31	Maturity scale	String	O	Code list	The maturity scale gives the range of the possible stages (values).	cast('' as varchar)
32	Maturity stage	String	O	Code list	The stage (value) in the given scale.	cast('' as varchar)

Annex 8: Cefas at sea sampling programme design against best practice

DOCUMENTATION OF SAMPLING DESIGN, PERFORMANCE OF SAMPLING AND PRODUCTION OF ESTIMATES					
Process that need to be described	Best practice	Comment	Bad practice	Cefas sampling design	Comment on adherence to best practice
Target population	The target population needs to be identified and described. Access to the target population for sampling purposes need to be analysed and documented.			Target population for DCF is all fish and shellfish species for which estimates of discard quantities are required by Commission Decision 2010/93/EU, taking account of any derogations granted. In general we target the total catch for sampling. Access to the population is through a regularly updated list frame of fishing vessels, from which a stratified random selection is made for direct observation by Cefas observers according to the procedures described below.	
Primary sampling units (PSUs)	Choice of PSUs should be identified, justified and documented. PSUs could be trips, vessels*time or sites*time (harbours, markets, access points). Size of PSUs should be documented	If PSU is something else than trip, vessel or site the choice need to be thoroughly explained.		The PSU is in principle a fishing vessel included in the vessel list frame. As described in the ICES WKPICS reports, the selected trip is therefore a secondary sampling unit picked at random. In practice, for analysis, we treat the trips as the PSUs of a virtual sampling frame, where the trips are not known in advance, but all trips are documented exhaustively in the national fleet activity data base (FAD; Ifish2) allowing the sampling probabilities to be re-evaluated at the end of the year. The intended sampling probabilities are based on numbers of trips in each stratum observed in the most recent year with full data.	
Sampling frame	The sampling frame (list of PSUs) should be a complete list of non-overlapping PSUs. The sampling frame should ideally cover the entire target population.	If it is not possible to cover the entire target population with the sampling frame it is good practice to clearly describe how large the excluded part of the population is and the reason for excluding it.	To exclude large parts of the target population in an ad-hoc way.	The sampling frame is a virtual frame of all fishing trips of the vessels in the list, which comprises all commercial fishing vessels [registered in E&W] operating from all ports in England [&Wales]. The list of active vessels is updated quarterly. The frame excludes the following vessels & fishing trips: 1. Vessels less than 7m, excluded for health & safety reasons 2. Vessels considered unsafe to take observers for reasons other than size. 3. Vessels specialising in fishing methods or target species for which a derogation has been granted: [Appendix 1] 3.1 Shellfish dredgers 3.2 Line vessels 3.3 Some pelagic vessels 3.4 Potting vessels 4. Vessels fishing from foreign ports or outside England [&Wales]. Vessels subject to bilateral agreements to be sampled in another country, or where RCMs consider the	Wales programme being re-designed independently of English fleet to meet National (Welsh Gov) requirements. Administrations need to agree on procedure for sampling each others vessels when vessels are working in other administrations waters. Is it safe to assume that the sampled local fleet are representative of the entire UK fleet? Work to be done.

				metier is effectively sampled by another country [Appendix 2] 4.1 Anglo-Spanish demersal vessels operating from English & Welsh ports; 4.2 Anglo -Dutch beamers predominantly landing to Dutch ports 4.3 Anglo -Dutch trawlers fishing sole and plaice in the North Sea 4.4 English [&Welsh] Vessels fishing from other UK administrations (See comment)	
Stratification of the sampling frame	Strata should be well defined, known in advance and fairly stable. Clear definitions and justifications of strata should be available. One PSU can only be in one stratum. The minimum number of samples within a stratum is dependent on objective, PSU and variance and needs to be calculated. The number of samples within a stratum needs to be justified, in particular if it is below 10.	If the desired minimum number of samples per stratum is not analytically assessed, the choice needs to be justified and described. Care needs to be taken to avoid over-stratification.	To over-stratify (few or no samples in each strata) the sampling schemes. Over-stratification results in increased risk for bias, particularly for ratio estimates, and a need to impute data.	The overall sampling effort is largely constrained by the financial and staff resources made available by the UK government for this work – currently around 525 staff days are available for at-sea observer sampling. This affects the number of stratum that can be effectively sampled. Gear groups have been combined by region. The polyvalent and seasonal nature of these regional fisheries will be captured by the sampling effort. The list of vessels in the sampling frame is stratified by: Region (4 strata) and predominant fishing method (6 strata). In addition some region / fishing method strata are further stratified by vessel LOA (<10m; 10m+). *The number of vessels refered to below is only indicative as the vessel number will change from quarter to quarter.* A stratum of <10m mixed demersal fishing with trawls, beam, seine, fixed and drift nets is defined due to the often polyvalent nature of the activities of this size of vessel many of which may also fish pots and lines. 10m+ Beam trawlers using 80mm+ mesh [68 vessels in total] are defined as a stratum as these vessels comprise a well-defined fleet with very high incidence of beam trawling for benthic species. 10m+ Scallop dredgers are defined as a stratum as these vessels comprise a well-defined fleet [99 vessels] targeting Scallops. A 10m+ stratum of mixed demersal fishing with trawls, seines, fixed and drift nets [115 vessels] is defined due to the often polyvalent nature of the activities of these vessels in certain regions. 10m+ Netters are defined as stratum in a region where fleets are almost exclusively limited to one gear type in highly variable but distinctive offshore fisheries. 10m+ Trawlers are defined as stratum in a region where fleets are almost exclusively limited to one gear type in variable but	

				distinctive demersal fisheries. The stratification scheme is shown in Appendix 3 together with the number of fishing trips and total catches in the baseline year[s] used for allocating sampling effort, excluding vessels for which there is an agreed derogation for sampling. The sampling targets by stratum are also given in Appendix 3. A minimum target of 3 trips per quarter per stratum is nominally set, so an annual target of <10 trips is indicative of the sampling being limited to the more significant quarters.	
Distribution of sampling effort	The way sampling effort is distributed between strata needs to be described. In accordance with best practice, this can be based on analysis of variance or just distributed proportionally. The different sampling inclusion probabilities/weighting need to be documented.	If other methods, such as expert judgment are used, this should be explained and justified.		Sampling effort (number of trips to sample by stratum) is allocated according to information on fishing effort and catches in the previous year. The method is described fully in Appendix 3. The ratio of target trips to fleet trips is an indicator of the desired sampling inclusion probabilities.	
Sample selection procedure	In accordance with good practice, the selection of PSUs to sample should be done in a controlled way allowing for estimation of sampling inclusion probabilities for the different samples. In principal this mean that samples shall be chosen randomly (probability based sampling). Random sampling can be either simple random sampling or systematic random sampling. The selection procedure needs to be	If it is impossible to use probability-based sampling, the samples need to be thoroughly validated for how representative they are. This process need to be described. If a non-probability based sampling design is applied, this needs to be accounted for in the estimation process (e.g model based estimations).	Ad-hoc based sampling, without proper documentation to allow estimation of bias, where the sampling inclusion probabilities cannot be estimated.	A random, probability-based sampling scheme is adopted. The procedure is as follows: [List SOPs and guidance – Appendix 4] 1. An updated vessel list and contact details is compiled for each sampling stratum. 2. At the start of each quarter the list for each regional stratum is randomised. 3. Sampling staff operating in a region work down the list, contacting skippers to arrange a trip. A workplan is agreed with the observer at the start of each quarter as to which stratum they will have responsibility for. The observers work inter-dependently and work sequentially down the shared drawlists. The process is summarised in the guidance document - DrawlistGuidance_Ver4.docx Appendix 4. 4. There are several reasons why a sampling trip may not be possible: - Skipper refuses - Vessel is at sea and will not be available within the sampling period. - Vessel is unsafe or unable to take an observer safely.	

	justified and described	This needs to be thoroughly explained. For small-scale fisheries where there is no census information on the target population, the only way to sample in accordance with good practice is randomly.		- Etc. etc. If a vessel cannot be sampled the observer selects and approaches the next vessel in the list. 5. The vessel selection and contact process is logged and the response. Any none response is categorised and the reasons recorded. This process is standardised so that the success rates, refusal rates, none response rates and departures from best practice can be easily analysed and reported.	
Hierarchical structure in the sampling	All the levels in the hierarchical structure of the sampling scheme need to be documented. Sampling should be random at all levels. Sampling probabilities should be worked out at each level, and information for this needs to be collected (e.g number of boxes)		Failure to account for the different levels of sampling units in the design and estimation processes. (Risk for bias as well as hiding true variation)	The hierarchy for sampling is as follows, assuming a "virtual frame" of vessel trips (see SOPs in Appendix 4 - Observer Training Manual). 1. Primary sampling unit: The fishing trip 2. Secondary unit: - hauls within trips [a minimum of 60% of hauls is sampled systematically across the entire period of the trip to ensure spatial and temporal coverage. 3. Tertiary unit: - Catch component (Landings/Discards) - Nets within a fleet - Baskets within haul - Baskets within catch component 4. Size categories of species within baskets 5. Etc……	
Protocol for selection of samples at lower sampling levels (SSU, etc.)	Such protocols should exist in a national repository			The detailed sampling protocols for selection of secondary and lower sampling units is given in the Standard Operating Procedure (Appendix 4) Currently, otoliths are collected only from the discarded component according to a length-stratified scheme. For a species, the SOP specifies collecting 1 otolith per 1cm length class from each trip and ICES area when sampling for length.	
System to monitor performance of sampling schemes - Quality Indicators	Non-response rates should be recorded. Precision of estimates (relative standard error) should be calculated, where relevant. Effective			The following systems are in place to monitor sampling performance and data quality: 1. Sampling achievements are summarised and monitored on an ongoing basis on a spreadsheet held in a shared drive, and through regular contacts with sampling staff, so that issues can be identified and resolved as early as possible. 2. The sampling design is statistically robust, using probability-	RCMs are starting to review QA procedures and QA reports that provide spatial coverage; numbers of PSUs vs nos. actual trips by stratum etc., using the COST type

	sample size (or appropriate proxy such as number of vessels or trips sampled) should be calculated and recorded.			based sampling. 3. Non-response rates are recorded. These could be used to review potential bias and to improve on access to fisheries were consistent refusals are an issue. Currently these response rates are monitored internally by data managers and program managers and not published. 4. Monitoring spreadsheets are updated before departure and on return and these are used to provide a unique id for each trip and to track -achievements. On return the observer ensures all the paperwork is in good ordered and complete to a high minimum standard. These data are entered onto the Observer DB. Error traps include: - Min and max gates on fields: • Size of species • Mesh sizes • Dates and times • Area of (Ordinates and ICES Rectangle) - Limited lists: • Active Vessel Registration • Gear • Species • Meshes • Gear descriptors and metrics 5. Once entered the entered data and data integrity is checked by another observer - following procedure (Appendix 5 – current reference ObserverDBDataCheckingProtocol_Ver1.docx). Any errors are investigated, corrected and recorded. 6. Summary reports provide overviews to identify outliers and extreme values in the data (RFs, rare species and length ranges). These can be limited to trip or all the data in a stratum and will be carried out quarterly by an administrator. Any obscure values will be investigated. 7. Precision is currently estimated using COST tools, but 8. numbers of PSUs (trips sampled) is documented as a proxy for effective sample size. Quarterly reports of the sampling activity against fishing activity will provide an indication of how well the sampling design is working.	approaches are suggested. Work to do.
Documentation of raising/weighting procedure for	Data analysis methods should be fully documented, covering:			To be completed….	

national estimates	(1) how the multi-stage sample selection is accounted for in the raising/weighting procedures; (2) ancillary information (for example from fleet census data), that is used to adjust sample weights to correct for any imbalance in samples compared to the population; (3) methods of adjustment for missing data and non-responses.				

Annex 9: Proposals for studies and pilot projects

Proposals for studies and pilot projects under EMFF article 86,2a

Study on European anglerfish (Lophius piscatorius and Lophius budegassa) in all ICES areas and megrim (Lepidorhombus whiffiagonis) in VII and VIIIa,b&d

Proposed by the DCF RCMs.

Objective

Improvement of the assessment and management of three important demersal stocks in western waters: Megrim (*L. whiffiagonis*) in VII and VIIIa,b,d and White and Black anglerfish (*L. piscatorius and L. budegassa*) in all ICES areas IIa to IXa, including Va,b for accomplishing sound scientific advice. Based on reviewing data collected under DCF and industry related variables and parameters to be included in the assessment.

Base line:

ICES deployed a Benchmark in March 2012 to solve data and methodological problems detected in megrim and angler assessment. The result of an intensive work previous and during the ICES Benchmark did not accomplish the objectives of obtaining analytical assessment for these stocks and thus provide sound scientific advice.

Main drawbacks detected in Megrim VIIb, c, e-k and VIIIa, b, d data and assessment during ICES Benchmark:

1. Incorporate annual estimates of discards (France) to explain some possible recruitment, also to obtain consistent data along the series.
2. A complete revision and in depth analysis for checking changes detected in the data homogeneity of three time period identified: 1984-1989; 1990-1998 and 1999-2010.
3. The distribution of megrim stock does not include ICES Division VIIa and VIId. Further work is needed to assess the stock identity of megrims in this area.

Main drawbacks detected in Anglerfish data and assessment during ICES Benchmark

1. No clear evidence of the current stock or population definition. There is a lack of information concerning their biology, movements and possible migratory patterns. This information is fundamental to reduce uncertainties regarding stock boundary,
2. No accepted ages are used in the assessment since more growth studies are necessary for validation of growth estimates.
3. The incorporation of good discard estimates in order to have information about individuals less than 0.5 kg in weight.
4. Better maturity estimates are needed in order to have a good S/R relationship, it is clear that with the sampling level from DCF and using the data from surveys the information for larger females is not available.

Objectives and action required based on data drawbacks.

Objective 1. Improvement of catch data (Megrim and Anglerfish)

It is necessary to develop catch data series (landings, discards) for evaluating historical fishery impacts. There are major uncertainties in accuracy of reported landings, and estimated discards in many areas. This aspect of the project will extract and review existing data, and consult with stakeholders to agree data series or alternative possible catch histories for use in assessments, with suitable quality indicators. Some specific tasks will include:

1. Historical discards data (2000-2011): a. Data recovery; b. Review and analyse data.
2. Quality of historical landings data including splitting catches for combined-species categories.
3. Onwards: a. Workshops with Advisory Councils to review data quality issues and explain the importance of obtaining discard data.

Objective 2. Development of commercial tuning fleets (Megrim and Anglerfish):

For both actions: data availability and results of the analysis will be reviewed in consultation with the industry. This is linked with objective 1 in terms of historical data quality. A specific example is revision of the French trawling data series in Subarea VII and of the Basque "Baka" Otter trawl fleet to check for suitability in being included as new commercial abundance indices.

Objective 3. Improved biological parameters of anglerfish.

There are large uncertainties in important biological parameters particularly ageing, growth, and maturity, which have considerable impact on estimates of stock productivity and biological reference points, and ability to fit models to data. Large discrepancies in the interpretation of age from otoliths and illicia remain a concern, and validation studies are needed. Natural mortality rates are poorly understood. Impacts of sexual dimorphism on assessments also need consideration.

1. **Reproductive parameters: a. Scientific work:** will focus on revision of the maturity ogives. **b. Industry involvement from all countries collecting data**. Support in the collection of biological data. Development of a simple "on board sampling method" which is required due to landing of fish gutted.
2. **Growth parameters (Anglerfish): scientific work** will focus on methods to validate ages derived from otoliths and illicia, developing agreement on approaches for ageing fish from each stock, and agreeing growth parameters and age composition data for use in assessments. Validation methods may include: **a. Indirect growth validation** e.g. cohort tracking; **b. Direct growth validation** studies, for example from tagging–recapture studies. Some detailed information on previous studies on ageing anglerfish and validation methods is given below.
3. **Natural mortality.** A better understanding of potential rates of natural mortality will be obtained from better knowledge of life history parameters. Tag-recapture data may also provide some insights.

The age estimation of anglerfish in the ICES area for stock assessment has been traditionally based on two different calcified structures (CS), the illicium (used by the majority of the European countries) and the sagitta otolith (used only by two countries). Growth studies alternative to the age estimates on CS of white anglerfish, such as tagging-recapture (Laurenson et al., 2005; Landa et al., 2008a), daily growth (Wright et al., 2002) and length frequency distributions of catches (Dupouy et al., 1986; Thangstad et al., 2002; Jónsson, 2007), showed that the growth pattern estimated using the traditional standardized age estimation criterion based on illicia (Duarte et al., 2002) was underestimated and

that criterion was not accurate, although it was standardized and used in several age estimation anglerfish workshops (Anon 1991, 1997, 1999; Landa et al., 2002; Duarte et al, 2005). The age estimation using illicia of a decadal time-series was performed for the southern stock assessment of white anglerfish using the traditional standardized age estimation criterion (Duarte et al., 2002). A catch-at-age by year matrix was built, but inconsistencies in cohort tracking were found (Azevedo et al., 2008).

Modifications in the methodology of illicia preparation and in the traditional standardized age estimation criterion have allowed obtaining a new age estimation criterion on illicia (Landa, pers. com.). Using it, the catches-at-age have been able to be more successfully tracked. Therefore this new criterion was judged to be more accurate and it was used for the age estimation in the "Anglerfish (*Lophius piscatorius*) illicia and otoliths exchange 2011" (a working document presented to the 2012 PGCCDBS Meeting). The results of this exchange have showed similar results to those from the 2004 workshop (Duarte et al., 2005):

i. Illicia and otoliths age readings comparison. Strong discrepancies be-tween illicia and otoliths readings were found. It is not possible to use the age estimates of both CS together, illicia and otoliths, for stock assessment purposes.
ii. Illicia. Although the relative bias values among the assessment readers can be considered good, the agreement values and precision suggest that they are not still sufficiently acceptable for building a valid ALK. The search for a reliable criterion for age estimation of anglerfish based on CS is more advanced in illicia than for otoliths. There is an illicia age estimation criterion that allows cohort tracking (indirect age validation) but only in the Porcupine Bank of the Atlantic.
iii. Otoliths. The age estimation of anglerfish, based on otoliths, is difficult mainly due to the occurrence of confusing false annuli and to the increase of opacity with age. The location of the first annulus is also a problem, even among expert readers, in the last and present exchanges. There have also been advances in daily growth studies (Wright et al., 2002; Woodroffe et al., 2003) that can help locate the first annulus more precisely. Analysis of age composition data from the Scottish industry-science partnership trawl survey in Area VI and IVc show tracking of cohorts in data derived from otolith readings (ICES WKROUND meeting 2013).

Further research should enhance our knowledge of the true growth of anglerfish by developing and using methodologies that allow validation, before the attempt to standardize reading criteria. It is unproductive to go further in estimating anglerfish growth patterns and age without progress being made in age validation (Duarte et al., 2005). Improving the precision in the absence of accuracy cannot, under any account, guarantee data quality (de Pontual et al., 2006).

The proposed collaborative study among several European countries could be based on the following tasks:

i. Indirect growth validation based on the ability to clearly track cohorts in time series of catch-at-age data or progression of length modes in survey data.
ii. Direct growth validation studies. Tagging is a direct method of validating the growth of a fish during its time at liberty, including for large specimens, where validated in-formation is very scarce. Two tagging programs have been undertaken for white anglerfish, one on the Atlantic northern shelf stock (Laurenson et al., 2005) and another on the two stocks of the Atlantic southern shelf (Landa et al., 2008b). Recovery rates the two studies were 3.8–4.5%. Given the difficulty of tagging a large number of specimens of this species, it was not possible to obtain information from specimens which had spent much time at liberty. Most of the available information from those tagging-recapture programs corresponded to information from small

and medium specimens, but not from large specimens. Despite this, invaluable information was obtained to advance on the validation of the growth pattern of white anglerfish, and to obtain more information on the movements and interaction be-tween stocks (Laurenson et al., 2005; Landa et al., 2008b).

Objective 4. Compilation of high-resolution catch and effort data

Scientist and Advisory Councils will require from national administrations high resolution spatial data (VMSs/AIS). The importance of this objective is based on the actual situation of all data being transmitted electronically and the rapid disappearance of the hand-written logbooks. However, some administrations appear to be reluctant to provide of these data to scientist for assessment and management purposes.

Objective 5. Exchange of knowledge with scientist assessing other Megrim and Anglerfish stocks.

This objective will involve collaboration with scientists involved in biological studies and assessment of other megrim and anglerfish stocks to identify common problems, data deficiencies, methodological possibilities and proposal of solutions.

Objective 6. Exploring alternative methodologies not fully dependent on resolving the biological issues (ageing and reproduction). Choosing the most suitable assessment models.

Based on the results of work addressing Objectives 1 – 5, the project will evaluate how the stocks may be assessed using a range of approaches suitable for stocks characterised by types and quality of data (as defined by ICES). The relative performance of the resulting assessment for different stocks and methodologies, and the likely impact on the form and quality of advice, will be evaluated. The impact on future data requirements in the DC-MAP will be evaluated.

Justification of why a dedicated research project is needed:

No progress can be expected if there is no international commitment from countries exploiting these stocks to carry out the necessary work on data and methods to assess these stocks. However it appears unlikely that time between possible future Benchmarks and Working Groups would be enough for: i) solving data availability, ii) reviewing their quality, iii) new model trials and even iv) exchange of experiences between researches working in same species but different stocks. That is why it would be recommended that resources could be made available for a real improvement in the assessment of these stocks. The present study is proposed for in a depth treatment of data quality, improvement in data collection and interpretation, and model selection.

Proposal of research team:

AZTI-tecnalia (Basque Country Spain); IEO (Spain); IPMA (Portugal), IFREMER (France); Marine Institute (Ireland); CEFAS (United Kingdom); Marine Scotland; Advisory Councils.

This study should include the anglerfish stocks in all ICES areas, and megrim in VII and VIIIa,b,d, and therefore other institutes might also be involved.

Indicative budget

€500 000, 3 years duration.

Note: this study was already endorsed by the 9th Liaison Meeting.

Discards in European hook-and-line fisheries: mortalities, consequences for stock assessments, and mitigation potential

Commercial and recreational hook-and-line fisheries are widespread in European coastal waters, yet studies have shown that unaccounted hooking mortalities of over 30% in released fish have rendered fishing regulations like minimum sizes and bag limits ineffective (Coggins et al. 2007). There is also potential for sub-lethal effects, e.g. behavioral changes (Cooke and Sneddon 2007). Sub-lethal effects can occur as a consequence of hooking and handling stress and, even if the individual fish survives, can have significant consequences for the stock. For example, discarded fish may skip spawning or interrupt protection of spawning nests, both of which can lead to a loss of reproductive success (Suski et al. 2003). Fish with altered behavior after being discarded are more prone to predation which can lead to increased mortalities if predators are present (Cooke and Philipp 2004). This lack of knowledge will affect on our ability to effectively manage stocks that are exploited by hook-and-line fisheries.

The European Commission have pledged to end discarding in the period 2014-2018, with only “species for which scientific evidence demonstrates high survival rates, taking into account the characteristics of the gear, of the fishing practices and of the ecosystem” excluded from the landing obligation. For many species, discard mortality is unknown, so programmes have been initiated to collect data on commercially caught fish. However, these studies generally focus on commercial netting and trawling with little data collection planned on hook-and-line fisheries. This represents a large gap in the evidence-base and has a significant impact on effective fisheries management as stock assessments will be inaccurate if discard mortality is not accounted for. This is particularly important if discard proportions and mortality is high, which may lead to a significant underestimation of actual fishing induced mortality (Kerns et al. 2012).

Discards of unwanted bycatch species and target species are high in both commercial and recreational marine hook-and-line fisheries in Europe. European marine recreational anglers often release more than 50% of their Atlantic cod, European sea bass, pollack, and sea trout catches (Ferter et al. 2013). The European eel and some elasmobranch species are protected in many countries so must be discarded, and target species that are under the legal minimum size must also be returned. Catches by recreational anglers can represent a significant proportion of the total removals (e.g. 25% of removals of European sea bass). Hence, post-release mortality is a large uncertainty in the assessment of stocks that are targeted by both commercial and recreational fishers. However, discard mortality of hook-and-line caught fish is not easy to measure and can vary significantly between species and fisheries. Many factors are also important including water temperature, hooking damages and on-board handling (Bartholomew and Bohnsack 2005; ICES 2014).

A mixture of desk-based study and experimental work is needed to compile data on mortality of hook-and-line caught fish, to underpin the evidence-base to account for discard survival and sub-lethal effects in stock assessment and management. This should consist of reviewing existing literature, assessing the potential for extrapolation between species and fisheries, setting up generic mortality profiles, and conducting species-specific mortality studies to fill the gaps. It needs collaboration across Europe and with other countries including the USA to ensure that the best use of existing data is made, and that a representative range of habitats can be covered.

Specific knowledge gaps to be addressed:

1. Despite high discard rates, species and fishery specific discard mortalities are unknown for most of the relevant European marine hook-and-line fisheries. Thus, discard mortalities need to be estimated from mortality studies for use in stock assessments. Lack of data on discard mortalities will affect the accuracy of our stock assessments and impact on our ability to manage hook-and-line fisheries.

2. Sub-lethal effects on fish that survive the discard event are unknown but need to be studied as they can have significant effects on the stock, e.g. due to predation or reproductive loss. Without data on sub-lethal affects, it is very difficult to parameterise stock assessment models correctly, leading to uncertainty in assessments.

3. Extrapolation of experimental discard mortality estimates to specific management units is challenging. Methods like vitality assessments in combination with mortality studies may be useful to overcome this issue, but need to be tested. If successful, this will lead development of generic mortality profiles for groups of species and fisheries that can be used in stock assessment negating the need to collect data on all species and fisheries.

4. It is not know if some of the species or hook-and-line fisheries qualify for exemption from the EU discard ban. However, for species with generally high survival potential, low mortality rates can be achieved through the development and implementation of best practice guidelines.

Estimtaed cost: 300,000 – 500,000 euro.

References:

Bartholomew, A. & Bohnsack, J. (2005) A review of catch-and-release angling mortality with implications for no-take reserves. *Reviews in Fish Biology and Fisheries* **15**, 129-154.

Coggins, L. G., Catalano, M. J., Allen, M. S., Pine, W. E. & Walters, C. J. (2007) Effects of cryptic mortality and the hidden costs of using length limits in fishery management. *Fish and fisheries* **8**, 196-210.

Cooke, S. J. & Philipp, D. P. (2004) Behavior and mortality of caught-and-released bonefish (*Albula* spp.) in Bahamian waters with implications for a sustainable recreational fishery. *Biological Conservation* **118**, 599-607.

Cooke, S. J. & Sneddon, L. U. (2007) Animal welfare perspectives on recreational angling. *Applied Animal Behaviour Science* **104**, 176-198.

Ferter, K., Weltersbach, M. S., Strehlow, H. V., Vølstad, J. H., Alós, J., Arlinghaus, R., Armstrong, M., Dorow, M., de Graaf, M., van der Hammen, T., Hyder, K., Levrel, H., Paulrud, A., Radtke, K., Rocklin, D., Sparrevohn, C. R. & Veiga, P. (2013) Unexpectedly high catch-and-release rates in European marine recreational fisheries: implications for science and management. *ICES Journal of Marine Science: Journal du Conseil* **70**, 1319-1329.

ICES (2014) *Report of the Workshop on Methods for Estimating Discard Survival (WKMEDS).* 17–21 February 2014, ICES HQ, Kopenhagen, 114 pp.

Kerns, J. A., Allen, M. S. & Harris, J. E. (2012) Importance of assessing population-level impact of catch-and-release mortality. *Fisheries* **37**, 502-503.

Suski, C., Svec, J., Ludden, J., Phelan, F. & Philipp, D. (2003) The effect of catch-and-release angling on the parental care behavior of male smallmouth bass. *Transactions of the American Fisheries Society* **132**, 210-218.

Further developing UWTV Nephrops survey methodologies (DevNepS)

Proposed by ICES WGNEPS 2013/2014

Duration: 36 months

Background:
Over the last decade there has been significant progress towards establishing a consistent, efficient and effective method for assessing and advising on the status of *Nephrops* resources in European seas using UWTV surveys. The number of stocks with routine *Nephrops* UWTV surveys has increased linearly over time and in 2014 around 18 Functional Units are expected to have surveys. ICES has developed an approach to give "Category 1" assessments and catch advice consistent in line with the MSY approach for all stocks with regular UWTV surveys. A data limited UWTV based approach has also been used to give precautionary catch advice for stocks with some information (Figure 2). Landings of *Nephrops* in Europe are worth approximately €400m annually and there is also significant downstream economic activity such as processing (source: EUROSTAT). Further research and development work is now needed to improveand extend the UWTV survey and assessment methodologies across Europe. This will ensure that the management of this resource is informed by the best possible science.

Objective:
The specific objectives of this project are as follows:

- To support the expansion of survey coverage to stocks with no or developing UWTV surveys through technology, methodology and personnel transfer.
- To improve data collection and quality control procedures on existing surveys, making use of new and innovative technologies
- To address the main uncertainties associated with the assessment and provision of advice as highlighted by WGNEPS and other scientific groups.
- To improve data availability and processing by making UWTV survey data and assessment data available through ICES online databases.

- To fully integrate new benthic and ecosystem monitoring requirements under the MSFD and OSPAR into existing UWTV surveys

WORK PACKAGES:

Work Package 1. Technology, methodology and expertise transfer to support the development of new surveys.
The main aim of this work package is to fast track new surveys quickly through the development phase to a point where they can be used to give high quality management advice. It will involve technology, methodology and expertise transfer from laboratories with established surveys such as the Marine Institute, Marine Scotland Science, CEFAS and AFBI to new or developing surveys in the Skagerak Kattegat FU3&4, Bay of Biscay (FU23-34), Cadiz (FU31), Botney Gut – Silver Pit (FU5), Devil's Hole (34), Off Horn's Reef (33) and in the Mediterranean (Barcelona , Italy, Greece). In areas where *Nephrops* landings are not that substantial strategies for cost effective survey monitoring will be explored such as developing low cost UWTV methodologies for small scale fisheries and multi-annual surveys. This work package will also collaborations with the working with the fishing industry and other stakeholders to identify their main priorities and develop a shared understanding of the method.

Work Package 2. Developing data collection and quality control toolbox
The main aim of WP 2 is to improve efficiency and quality control on existing surveys by:

- Establishing best practice in video collection, archiving, validation and retrieval.
- Developing of standardized paperless systems for count and ancillary data collection (trawl marks & other biota).
- Developing and document an R package for UWTV survey data processing including functions to QC, analyze and visualize data.
- Further developing training material e.g. burrow counting manual, reference footage.

Work Package 3. Addressing the major uncertainties
Although the UWTV methodology has gained widespread acceptance there have been criticism of the approach in the literature and amongst some parts of the fishing industry. The main aim of this WP is to address the key methodological uncertainties and assumptions highlighted in previous ICES Expert Group meetings with a series of well defined experiments and new technologies. These would include;

- Experiments to investigate *in situ* burrow occupancy & edge effects using divers, landers and ROVs
- Further develop video mosaicing and burrow identification algorithms.
- Trial new technologies on existing surveys such as scanning lasers, HD cameras and 3D cameras
- Collection of data to investigate modelling uncertainties, selection size, growth and M?
- To investigate how the uncertainty in the input data/parameters translates into uncertainty in the catch options.

Work Package 4. Improving the data sharing, assessment and advisory processes
The aim of this WP efficiency and quality of the assessment and advisory process by;

- Working with ICES to develop an international database which will hold burrow counts, ground shape files & other data associated with UWTV surveys.
- Integrating the *Nephrops* stock assessment results format into the new standard plots database.
- Develop and document an R package with functions to carry out all components of the stock assessment process including producing abundance estimates from UWTV survey data, analyzing and plotting commercial data, calculating reference points and producing catch option tables.

Work Package 5. Extending the use of UWTV surveys to ecosystem monitoring & new species
UWTV surveys have an important role beyond Nephrops stock assessment in terms of monitoring the ecosystem. Most existing surveys already collect data on other benthic mega-fauna, environmental data, benthic community data and sediment information using videos, trawls, grabs and CTDs. The aim of this WP is to review existing data holdings and plan for future monitoring requirements under the MFSD and OSPAR.

EXPECTED deliverables

- Technology & Personnel transfer
- Several Scientific papers
- 2 Rpackages
- An ICES UWTV database housing survey results, time series burrow density estimates, ground shape files, functional unit shapefiles.
- Improved consistency across FUs and EGs in the assessment data, fully reproducible science and integration of *Nephrops* assessments into Standard Plots
- Improvement of ICES SIPS and WG efficiency

Project Justification

This project is closely linked to the on-going work of WGNEPS and national survey programmes within the DC-MAP. The need for this project was first identified in 2007 by WKNEPHTV and has been restated in the recommendations of most UWTV related ICES expert groups since. The fact that there has been limited progress on several of the activities outlined in the WPs above illustrates that there is a need for additional resources through a dedicated research project at this time. The need for WP1 has also been highlighted by the fishing and other stakeholders. For example the Draft Management Plan for North Sea *Nephops* being prepared by NSAC calls for improved UWTV coverage in the North sea and greater effort by scientist to explain methodologies. The French industry are run a project to carry out the first pilot UWTV survey of the Bay of Biscay to address the data needs for the FU23&24 stock. WP2 is needed improve survey efficiency and ensure consistent quality across different surveys. WP 3 should improve our understanding of the inherent uncertainties in the methodology and address the concerns raised by detractors which will help with acceptance of the method in new areas. WP 4 is timely because it will make UWTV survey data accessible through dedicated ICES UWTV databases and ensure the quality of ICES outputs. The adaptation of existing surveys to ecosystem surveys is particularly important. UWTV surveys have a clear role in terms of MSFD D6 “The sea floor integrity ensures functioning of the ecosystem” and OSPAR Recommendation 2010/11 on furthering the protection and restoration of sea-pen and burrowing megafauna communities in the OSPAR Maritime Area. It is important that ecosystem monitoring on UWTV surveys is developed in a way that will address new and emerging requirements.

INDICATIVE BUDGET

3 million

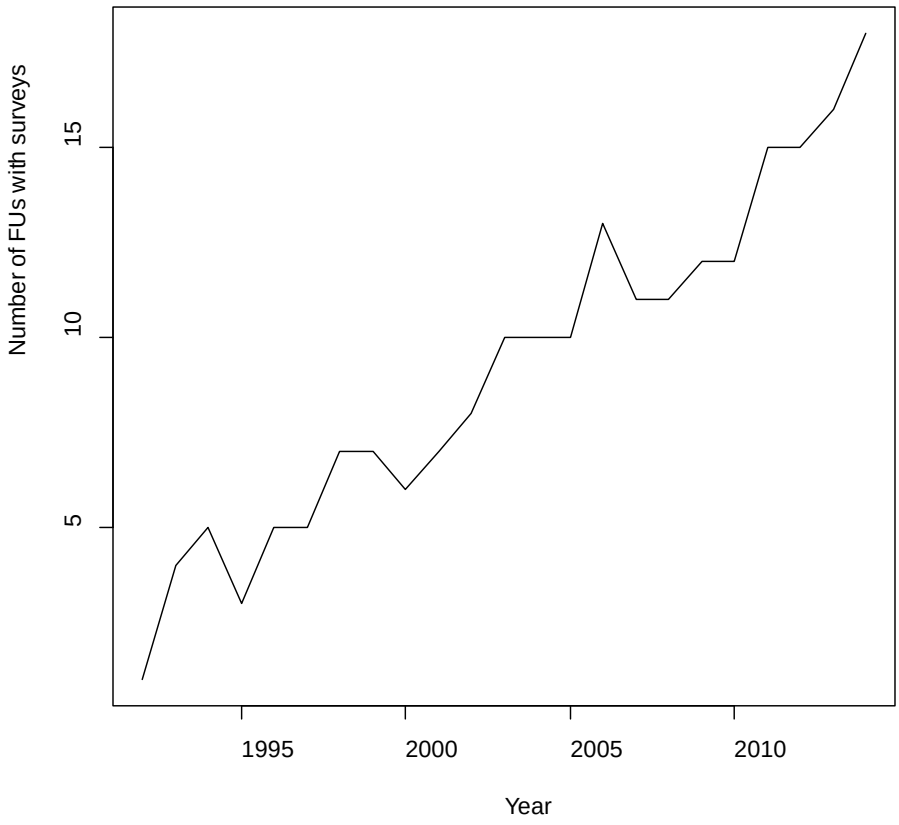


Figure 1. The number of *Nephrops* Functional Units with UWTV surveys over time.

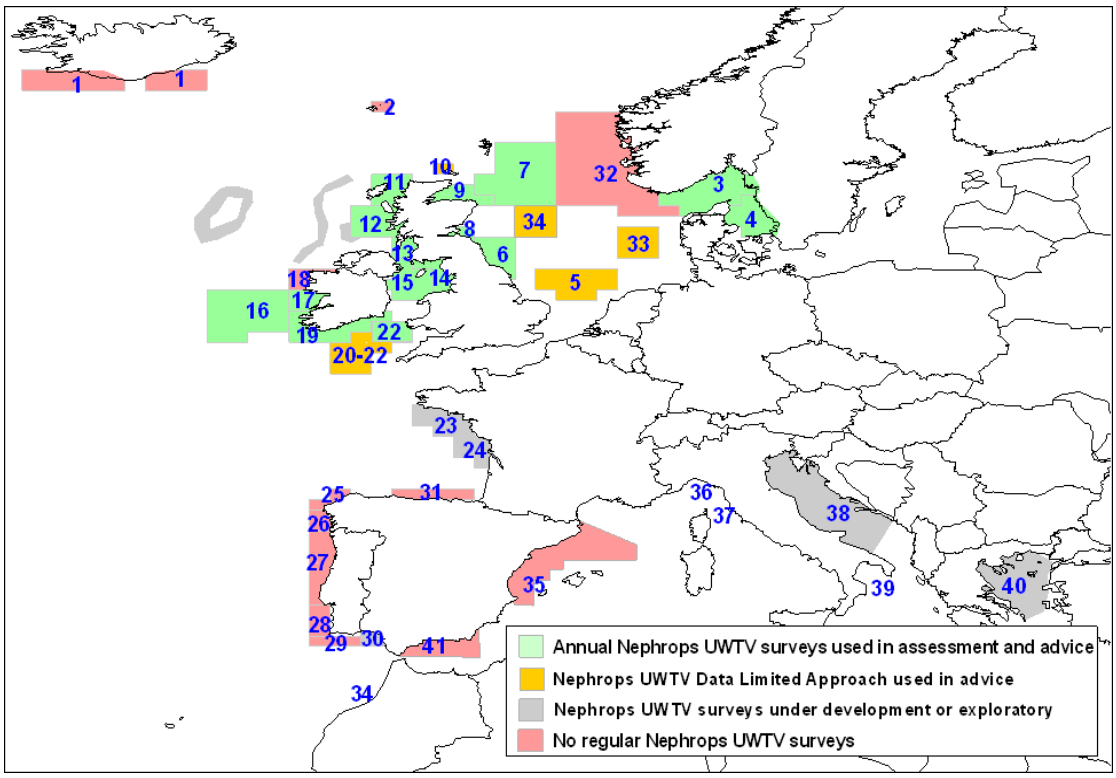


Figure 2. *Nephrops* UWTV survey Coverage in 2014

Proposal for studies and pilot projects under EMFF article 86,2d

There are no proposals under this article

Proposal for studies and pilot projects under EMFF article 86,2f

Recommendation for a collaborative study of improvement of WebGR (PRIORITY 1)

WebGR is a set of Open Source web services developed within an EU tender project in 2008 to support studies of fish growth (age) and reproduction (maturity). This tool assists fisheries scientists in the organization and data analysis of calibration workshops for classification of biological structures and provides means to analyse the results of such exercises. The tool has not been further developed since 2010. Nevertheless, since 2010 several workshops and exchanges have used WebGR with variable success. Unanimously, the members of these expert groups saw a great potential in using this software and its tools. However they experienced different problems while using it and at the same time had several requests on how to improve this tool and obtaining more complex outputs. This feedback highlighted the strong need for further improvement of WebGR and it is the basis for the present study proposal.

The objective is to substantially improve the software, which will amend the contribution to improve the quality of growth and reproduction studies, by guaranteeing a consistent application of age reading protocols and maturity scales, ultimately influencing fisheries management advice. Additionally, the use of this tool is not necessarily limited to age and maturity studies. In principle WebGR can be applied to all situations, where individual scientists need to discuss the interpretation of a protocol, for the identification of the status of biological material.

The desirable upgrading of WebGR is manifold. First of all, a more user-friendly interface would be beneficial both for workshop managers organizing online exercises and for participants joining them. The arrangement of a workshop is currently troublesome, consisting in more steps than actually needed, therefore a process consisting of sequential steps and a detailed error report need to be implemented. Furthermore, there is a great need for improvement of the picture uploading mechanism and to enhance exploring tools, in terms of new measuring tools. Concerning the output, the most basic features are presently implemented and the easy export procedure allows users to use the data on a standard statistical package or spreadsheet. The main aim is to develop an R package and implement a set of statistical methods. An extended statistical output will give a more complete and standardized evaluation of potential differences among readers/stagers.

Presently, the service is freely provided at http://webgr.azti.es but without any warranties in case of problems, with a high risk of data loss. It would be rather beneficial both for ICES and the users, if ICES could host the server. This would guarantee a wider dissemination of this useful tool and ensure a better site management and support. Furthermore, an offline access to the workshop is to be aimed for. This features needs to be implemented so that all individual users' annotations will be synchronized with the server as soon as one goes online again).

The second Workshop on national age reading coordinators (WKNARC2) took place in May 2013 and embarked on the first phase through identification and debate on the more practical user interface improvements, and made an outline of a Study proposal for a full upgrading of WebGR. Subsequently, the Workshop on Statistical Analysis of Biological Calibration Studies (WKSABCAL), taking place in October 2014, will give the necessary input to the second phase (i.e. statistical output) of the improvement of WebGR.

The project objectives will be achieved over 18 months through the realization of a list of tasks classified in 5 Work-Packages (WP). WP 1: Project Management; WP 2: Development; WP 3: Statistical methods; WP 4: Training and dissemination; WP 5: Site management.

PGCCDBS strongly supports this initiative and study proposal

Indicitative Budget

€300,000 to be spent over 18 months.

Recommendation for a collaborative study on Improving accuracy in fish age estimation through understanding of the link between environmental conditions and physiological responses recorded in the otolith macrostructure (PRIORITY 2)

The study aims at identifying the biological meaning of otoliths features such as annually recurring patterns, checks associated with spawning or other life stage events as well as periods of environmentally induced physiological stress. The timing of these features and the causal relationship between otolith feature and the fish's environment and behaviour can be validated by combining different validation techniques (micro and macrostructure analysis, microchemistry). Identification of the underlying processes affecting otolith macrostrucure should be based on species and stocks with an easily interpretable otolith structure. Results from these analyses will provide the necessary input data to calibrate generic simulation tools that can link bioenergetic processes and environmental conditions with otolith visual appearance. The applicability of such an approach should subsequently be tested on stocks of the same species with highly complex otolith patterns and known otolith growth

rates. This study will provide an evaluation of the applicability of this approach and should therefore focus on a limited number of species from different geographical locations/stocks where samples from tag-recapture programs are available.

The objective of this study is improving the accuracy of age data used in stock assessments. It aims to validate different features within the calcified structure by combining well established validation techniques.

Background

Age estimates based on the interpretation of otolith macrostructure features have been used extensively in stock assessment for many years. For some stocks good precision in age estimation has been achieved, whilst in other stocks where otoliths are more difficult to interpret precision is lower. Even within the same species the otolith's visual appearance - and thus readability - may vary, presumably as a consequence of a combination of stock-specific environmental conditions and physiological responses. Validation of the biological significance of the structures used for age estimation is essential for improving both precision and accuracy of these estimates and, consequently, improving stock assessment. There are well-established techniques available that can provide information on the timing of the formation of specific otolith features (micro structure analysis) and reveal the relationships between visual patterns in the otoliths and physical and chemical properties of the environment experienced by the fish (micro-chemistry). Application of these methods simultaneously on known-age otoliths from tag-recapture programs will provide the key to understanding the biological meaning of otolith features.

Terms of reference

- References to ageing workshops, PGCCDBS, PGMED, WKNARC and WKAVSG
- Reference to projects TACADAR, EFAN, CODYSSEY, DECODE, AFISA, MARMER and French hake tagging
- Providing input to relevant ICES stock assessment working groups
- Validation of features within otoliths.
- Accurate age data
- Greater understanding of different life histories of stocks within the same species.

The main tasks to be undertaken by the contractor are the following:

1) Compile available material for re analysis from existing otolith archives.
2) Perform comparative micro increment and micro chemical analysis on selected otoliths.
3) Analyse increment patterns in otoliths from different stocks of the same species
4) Re-evaluate age estimates in light of findings.
5) Present the recommendations to end users, to establish expertise and international cooperation for further work on other species.

Timetable and Final Report

The duration of the study shall not exceed 24 months from the signature of the contract. An interim report of the study should be made available after 12 months of the signature of the contract and a final report should be made available within one month of the termination of the project.

Budget

The maximum budget allocated for this study is € 1,500,000 covering all expenses, including personnel, preparation and analysis of samples, meetings, consumables.

The study proposal was endorsed by the WKNARC2.

Study proposal on "Exploration and Development of new facilities in RDB-FishFrame 5.0" (Priority 1)

Background:

The demands from the users to a Regional Database is under constant change; firstly because the users discover new possibilities in the use of the data as they get more familiar with the use of the database and secondly because the data collection, fish stock management and modelling environment changes and new data types and processing facilities become important. The first one mostly requires design of new output reports to tabulate new combinations of the existing variables, while the second one quite often requires adding of new variables and processing functionality. A central point is the design-based approach in data collection, and, eventually, regional data collection programmes which are foreseen in the DC-MAP. Furthermore, RDB-FishFrame has now been introduced to additional regions. This has given rise to additional requests on how data should be centrally processed due to new sampling stratifications practiced in the Member States included compared to existing ones. It is essential that a database reflects new demands and does not act as a straightjacket preventing new progressive initiatives. A constant development is therefore very important in order to keep the momentum.

The development will be outsourced to the extent that external expertise is necessary in order to follow the time schedule.

Indicative budget: € 450,000

Development

The main fields for development in 2013-14 are identified by the RDB-Steering Committee and presented in no specific order of priority:

1) Development of additional tools for analysis and data tabulating to support regional coordination. (20% of total budget)
Outputs: Technical report, programming development
Development of output reports which provide:

- Overview of data status by region; data coverage;
- Support the planning of future regional based sampling schemes;
- Overview of potential areas for task sharing between member states.

2) Testing of trial stocks from different expert groups for national raising, by borrowing age-length keys from own and/or other countries and correct functionality accordingly.
- All data submitters for the selected stocks raise data in the RDB
- Output compared and corrections made where needed

3) Stream line the interfacing with InterCatch
- Develop functionalities which when data have been raised to a certain level automatically will move data to InterCatch

4) Explore options and cost implications of implementing external tools (i.e. COST) in the RDB-FishFrame. (35% of total budget)

Outputs: Technical report, Technical Workshop(s), programming development
Such analysis should include the following elements:
- An inventory to collate and examine the tools present but also tools missing
- What level of documentation/quality controls would be required of a tool to be accepted into the RDB?
- What exports should the RDB provide to other formats/tools?
- What changes need to be made to the COST format/coding to comply with the RDB?
- Is COST sufficiently documented (methods, quality controls etc.)?
- Which level of integrating should the RDB.-FishFrame provide to COST (just export to COST or an interface that allows users to manipulate RDB data using COST tools/functions)?
- Proof of concept of programmatic interface to RDB-FishFrame

5) Requirements and automation of data calls procedures. (20% of total Budget)

Outputs: Technical report, programming development
- What is formally required from the regional database to reply to data calls?
- What data calls can we respond to at present/future? (The present functionalities and documentations in the regional database need to be compared with most common data calls)
- Alignment with FLUX developments

6) Development of more flexible structure to handle correct processing of design based sampling schemes to address regional differences in approach. (25% of total budget)

Outputs: Technical report, Technical meetings/workshops covering all regions
- What changes need to be made in the Exchange Formats in order to comply with design based sampling schemes?
- Which additional processing functionality need to be developed in order to comply with design based sampling schemes?

7) Development of procedures to ensure confidentiality on individual vessel level for CL, CE and on value.

Study proposal to "Support design based regional data collection programmes" (Priority 1)

This Study Proposal was developed and proposed by PGCCDBS (2012) but was not funded by the Commission. PGCCDBS considers that there remains an important need for a Study that will facilitate the countries in each region to design and implement statistically-sound sampling and help RCMs/RCGs to propose optimisation of regional sampling schemes.

Objective of proposed study

The Study will develop an operational framework for establishing and coordinating design-based sampling programmes at a regional scale for the most cost-effective delivery of fishery and biological data required by the revised DCF and any specific additional needs to support assessment and fishery management.

Duration of project

It is anticipated that the project would run for two years, and cover two periods of RCM and Liaison meetings to allow consultation and discussion of proposals.

Indicative budget: € 450,000

The need for the proposed study

A design based sampling strategy is a prerequisite for transparency in the data collection-assessment-advice process since it allows for straightforward estimation processes, assessment of bias as well as variance associated with different estimates. In particular, it supports estimators that do not depend on complex models and assumptions about the underlying stochastic process of the catching operations of the fleet. It also enables the use of DCF data in the wider scientific/management community since data are collected in a transparent way following sound statistical procedures including documentation of sampling protocols and sampling designs.

Due to severe logistical constrains in sampling of fisheries, many national sampling programmes may in reality be more or less ad hoc based. Recent ICES workshops including WKMERGE, WKPICS and SGPIDS have started to examine how sampling schemes can be adapted to deal with different types of logistical constrains without compromising the basic requirements of statistical design. Within these workshops it has become evident that countries need support to design and implement such statistically-sound sampling schemes.

Currently, the DCF Regional Coordination Meetings (RCMs) focus heavily on “task sharing” for metier and stock based sampling. It is foreseeable that in the new DCF, the role of RCMs may evolve more towards establishing and coordinating statistically-sound programmes of data collection to deliver the estimates for stocks and fleets required at the regional scale. This could include agreement of sampling frames, allocation of sampling effort amongst Member States, documentation of sampling schemes, and review of achievements and data quality. To adopt this role, RCMs would require guidance and a system of support because the sampling problems already encountered by individual countries will remain at the regional scale. If true progress should be made towards regional data collection programmes, it is crucial that sufficient resources and expertise are available for Member States and RCMs to carry out the necessary tasks.

Study specifications

The study will require setting up a core project team to work out principles for regional sampling designs, and to work closely with RCMs, ICES EGs, European Commission and Liaison Meeting to

review how the structure and operation of RCMs should be adapted to best serve the needs of the revised DCF. The project team will focus particularly on:

- Understanding the fleet-based and stock-based estimates that are required to support assessments and advice at a regional scale.
- Defining an operational framework for RCMs to coordinate annual or multi-annual regional sampling programmes to deliver the estimates.
- Identifying logistical constraints to national sampling schemes within a region, and proposing solutions for how these could be handled in regional sampling plans and within the component national strata (ref: WKMERGE; WKPICS1–3).
- Establishing procedures for optimising sampling schemes and allocation of sampling amongst Member States in relation to regional objectives and available resources.
- Identifying the procedures for estimation and sample raising at the regional scale.
- Developing Quality Indicators for regional datasets.
- Identifying developments needed in the Regional Databases to support regional sampling programmes.
- Propose future support systems to help RCMs implement and evaluate regional sampling programmes.

RCM areas to be covered

The project will initially scope out the problem across all DCF regions in consultation with RCMs, European Commission and PGs, but depending on resources may then focus on one or two regions as case studies.

Project tasks

Subject to discussion with the European Commission, it is anticipated that a two-year Study would involve the following tasks:

- Initial workshops and WebEx meetings with key RCM, ICES Planning Group and European Commission representatives, and invited external experts, to agree the basic principles of implementing and optimising a regional programme of sampling to deliver the required estimates.
- Identification of the structure of a regional sampling programme allowing a fully coordinated international approach to delivering the required data and estimates, including documenting the characteristics of the fisheries and stocks to be sampled in each country, development of sampling frames, stratification schemes, sample selection procedures, optimal allocation of sampling effort amongst countries, estimation procedures and production of quality indicators.
- Presentation of proposals to RCMs, ICES EGs, European Commission and Liaison Meeting, for discussion and further development.
- Development of final proposals and report.

Annex 10: Metier descriptions template (Spanish example)

List of metier descriptions

Metier	Fishing ground	ESP
1. **DRB_MOL_0_0_0**	Iberian (ICES Divisions VIIIc and IXa)	X
2. **FPO_CRU_0_0_0**	Iberian (ICES Divisions VIIIc and IXa)	X
3. **FPO_FIF_0_0_0**	Iberian (ICES Divisions VIIIc and IXa)	X
4. **FPO_MOL_0_0_0**	Iberian (ICES Divisions VIIIc and IXa)	X
5. **GNS_DEF_40-59_0_0**	Iberian (ICES Divisions VIIIc and IXa)	X
6. **GNS_DEF_60-79_0_0**	Iberian (ICES Divisions VIIIc and IXa)	X
7. **GNS_DEF_80-99_0_0**	Iberian (ICES Divisions VIIIc and IXa)	X
8. **GNS_DEF_>=100_0_0**	Bay of Biscay (ICES Divisions VIIIabd)	X
9. **GNS_DEF_>=100_0_0**	Iberian (ICES Divisions VIIIc and IXa)	X
10. **GNS_DEF_120-219_0_0**	Western Ireland (ICES Divisions VIIbcjk)	X
11. **GTR_DEF_40-59_0_0**	Iberian (ICES Divisions VIIIc and IXa)	X
12. **GTR_DEF_60-79_0_0**	Iberian (ICES Divisions VIIIc and IXa)	X
13. **HMD_MOL_0_0_0**	Iberian (ICES Divisions VIIIc and IXa)	X
14. **LHM_ CEP _0_0_0**	Iberian (ICES Divisions VIIIc and IXa)	X
15. **LHM_DEF_0_0_0**	Iberian (ICES Divisions VIIIc and IXa)	X
16. **LHM_ DWS _0_0_0**	Iberian (ICES Divisions VIIIc and IXa)	X
17. **LHM_SPF_0_0_0**	Iberian (ICES Divisions VIIIc and IXa)	X
18. **LLS_DEF_0_0_0**	Western Scotland (ICES Subarea VI), Western Ireland (ICES Divisions VIIbcjk), Celtic Sea (VIIfgh) and Bay of Biscay (ICES Divisions VIIIabd)	X
19. **LLS_DEF_0_0_0**	Iberian (ICES Divisions VIIIc and IXa)	X
20. **LLS_DWS_0_0_0**	Iberian (ICES Divisions VIIIc and IXa)	X
21. **OTB_DEF_>=55_0_0**	Iberian (ICES Divisions VIIIc and IXa) and EU Iberian waters (Portuguese waters)	X
22. **OTB_DEF_>=70_0_0**	Bay of Biscay (ICES Divisions VIIIabd)	X
23. **OTB_DEF_70-99_0_0**	Western Scotland (ICES Subarea VI), Western Ireland (ICES Divisions VIIbcjk) and Celtic Sea (ICES Divisions VIIfgh)	X
24. **OTB_DEF_100-119_0_0**	Western Scotland (ICES Subarea VI) and Western Ireland (ICES Divisions VIIbcjk)	X
25. **OTB_ MCD_>=55_0_0**	Iberian (ICES Divisions VIIIc and IXa)	X
26. **OTB_MCF_>=70_0_0**	Bay of Biscay (ICES Divisions VIIIabd)	X
27. **OTB_MPD_>=55_0_0**	Iberian (ICES Divisions VIIIc and IXa)	X
28. **OTB_MPD_>= 70_0_0**	Bay of Biscay (ICES Divisions VIIIabd)	X
29. **OTB_SPF_>=70_0_0**	Bay of Biscay (ICES Divisions VIIIabd)	X
30. **PS_SPF_0_0_0**	Iberian (ICES Divisions VIIIc and IXa) and Bay of Biscay (ICES Divisions VIIIabd)	X
31. **PTB_ DEF _>=70_0_0**	Bay of Biscay (ICES Divisions VIIIabd)	X
32. **PTB_ MPD _>=55_0_0**	Iberian (ICES Divisions VIIIc and IXa)	X
33. **SDN_ MCF _<55_0_0**	Iberian (ICES Divisions VIIIc and IXa)	X
34. **TBB_MOL_<55_0_0**	Iberian (ICES Divisions VIIIc and IXa)	X

1. Metier: DRB_MOL_0_0_0

RCM	RCM NA (NORTH ATLANTIC)
Fishing ground	Iberian (ICES Divisions VIIIc and IXa)
Name of metier:	**DRB_MOL_0_0_0**
Flag country:	SPA
Date of update:	010112
Description of the metier	
Spatial distribution of the fishing activity of the metier	Two areas: Galicia (Northwest Iberian waters: ICES VIIIc and IXaN); Gulf of Cadiz (ICES IXaS)
Seasonal pattern of the fishing activity of the metier	Depending on biological cycles and closed seasons for target species. Also commercial criteria.
Number of vessels involved in metier by LOA group:	**North and Northwest Iberian waters (VIIIc and IXaN):** · 2,062 vessels <10 LOA group · 14 vessels 10-12 LOA group **Gulf of Cadiz (IXaS):** · 5 vessels <10 LOA group
Detailed gear types and selectivity devices used in metier	**Authorized gear:** Galician minor-gear fleet (also in Cadiz at a lower level). Towed dredges ("*rastro*") targeting molluscs (bivalves). **Management measures:** **Galicia:** vessels <10 GT, depths >15 m and daytime working hours (8-14h) (Decree 15/2011, DOG nº31)
Main target and by-catch species for the metier	**Target species:** **Northwest Atlantic Iberian waters (VIIIc and IXaN):** · Edible cockle (*Cerastoderma edule*) · Pullet carpet shell (*Venerupis pullastra*) · Japanese carpet shell (*Ruditapes phillippinarum*) · Banded carpet shell (*V. rhomboides*) · Grooved carpet shell (*R. decussatus*) **Gulf of Cadiz (IXaS):** · Wedge shell (*Donax trunculus*) **By-catch species:** other bivalve species

2. FPO_CRU_0_0_0

RCM	RCM NA (NORTH ATLANTIC)
Fishing ground	Iberian (ICES Divisions VIIIc and IXa)
Name of metier:	**FPO_CRU_0_0_0**
Flag country:	SPA
Date of update:	010112
Description of the metier	
Spatial distribution of the fishing activity of the metier	North and Northwest Iberian waters: ICES VIIIc and IXaN
Seasonal pattern of the fishing activity of the metier	Mainly during the second-semester
Number of vessels involved in metier by LOA group:	· 455 vessels <10 LOA group · 11 vessels 10-12 LOA group · 4 vessels 12-18 LOA group
Detailed gear types and selectivity devices used in metier	**Authorized gear:** Minor-gear fleet. Traps ("*nasas*") targeting velvet swimming crab. **Management measures:** **Galicia:** number of traps according to vessel size and number of crewmembers (Decree 15/2011, DOG nº 31). Limits on catches and closed seasons (Order 23/12/2011, DOG nº 1).
Main target and by-catch species for the metier	**Target species:** · Velvet swimming crab (*Necora puber*) · Common prawn (*Palaemon serratus*) **By-catch species:** other crustaceans

3. FPO_FIF_0_0_0

RCM	RCM NA (NORTH ATLANTIC)
Fishing ground	Iberian (ICES Divisions VIIIc and IXa)
Name of metier:	**FPO_FIF_0_0_0**
Flag country:	SPA
Date of update:	010112
Description of the metier	
Spatial distribution of the fishing activity of the metier	North and Northwest Iberian waters: ICES VIIIc and IXaN
Seasonal pattern of the fishing activity of the metier	Annual
Number of vessels involved in metier by LOA group:	· 83 vessels <10 LOA group · 19 vessels 10-12 LOA group · 15 vessels 12-18 LOA group
Detailed gear types and selectivity devices used in metier	**Authorized gear:** Minor-gear fleet. Traps ("*nasas*") targeting conger and pouting. **Management measures:** **Galicia:** daytime working hours (7-17h), maximum 48 traps per vessel, depths >30 m (outside Galician Atlantic Islands Maritime-Terrestrial National Park) (Decree 15/2011, DOG nº31).
Main target and by-catch species for the metier	**Target species:** · Conger eel (*Conger conger*) **By-catch species:** Pouting (*Trisopterus luscus*)

4. FPO_MOL_0_0_0

RCM	RCM NA (NORTH ATLANTIC)
Fishing ground	Iberian (ICES Divisions VIIIc and IXa)
Name of metier:	**FPO_MOL_0_0_0**
Flag country:	SPA
Date of update:	010112
Description of the metier	
Spatial distribution of the fishing activity of the metier	Two areas: North and Northwest Iberian waters: ICES VIIIc and IXaN; Gulf of Cadiz (ICES IXaS)
Seasonal pattern of the fishing activity of the metier	Annual, except closed season for target species
Number of vessels involved in metier by LOA group:	**North and Northwest Atlantic Iberian waters (VIIIc and IXaN):** · 471 vessels <10 LOA group · 175 vessels 10-12 LOA group · 108 vessels 12-18 LOA group **Gulf of Cadiz (IXaS):** · 34 vessels <10 LOA group · 9 vessels 10-12 LOA group · 15 vessels 12-18 LOA group · 1 vessel 18-24 LOA group
Detailed gear types and selectivity devices used in metier	**Authorized gear**: Minor-gear fleet. Pots (locally called "*nasa*" in Galicia or "*alcatruces*" in the Gulf of Cadiz) targeting cephalopods (octopus). **Management measures:** **Galicia:** Authorized number of pots according to vessel type and number of crewmembers, depths >30 m (outside Galician Atlantic Islands Maritime-Terrestrial National Park), maximum length of pots: 550 mm, maximum authorized line of pots: 5,000 m (Decree 15/2011, DOG nº31). **Gulf of Cadiz:** Closed season for octopus from 15/09 to 31/10 (Resolution 10/09/2010, BOJA nº 184). Closed season for octopus from 15/12 to 13/07, 125 pots per crewmember (Resolution 7/12/2011, BOJA nº293).
Main target and by-catch species for the metier	**Target species:** · Common octopus (*Octopus vulgaris*) **By-catch species:** No

5. GNS_DEF_40-59_0_0

RCM	RCM NA (NORTH ATLANTIC)
Fishing ground	Iberian (ICES Divisions VIIIc and IXa)
Name of metier:	**GNS_DEF_40-59_0_0**
Flag country:	SPA
Date of update:	010112
Description of the metier	
Spatial distribution of the fishing activity of the metier	Gulf of Cadiz (ICES IXaS)
Seasonal pattern of the fishing activity of the metier	Annual
Number of vessels involved in metier by LOA group:	· 66 vessels <10 LOA group · 13 vessels 10-12 LOA group · 31 vessels 12-18 LOA group · 8 vessels 18-24 LOA group
Detailed gear types and selectivity devices used in metier	**Authorized gear**: Minor-gear fleet. Set gillnet. Piece of netting: maximum height of 4 m. Length entire gear 4,500 m. **Minimum authorized mesh**: 40 mm, 50 mm and 60 mm according to the target species (RD 1428/1997).
Main target and by-catch species for the metier	**Target species:** · Meagre (*Argyrosomus regius*) · Hake (*Merluccius merluccius*) · Cuttlefish (*Sepia officinalis*) · Common pandora (*Pagellus erythrinus*) **By-catch species:** rays (*Raja spp.*), wedge sole (*Dicologlossa cuneata*), rubberlip grunt (*Plectorhinchus mediterraneus*)…

6. GNS_DEF_60-79_0_0

RCM	RCM NA (NORTH ATLANTIC)
Fishing ground	Iberian (ICES Divisions VIIIc and IXa)
Name of metier:	**GNS_DEF_60-79_0_0**
Flag country:	SPA
Date of update:	010112
Description of the metier	
Spatial distribution of the fishing activity of the metier	North and Northwest Iberian waters: ICES VIIIc and IXaN
Seasonal pattern of the fishing activity of the metier	Annual
Number of vessels involved in metier by LOA group:	· 102 vessels <10 LOA group · 116 vessels 10-12 LOA group · 111 vessels 12-18 LOA group · 2 vessels 18-24 LOA group
Detailed gear types and selectivity devices used in metier	**Authorized gear**: Minor-gear fleet. Set gillnet ("*beta*"). Piece of netting: maximum height of 3 m and maximum total length of 50 m. Entire gear 4,500 m. **Minimum authorized mesh**: general 60 mm, extended to 80 mm when targeting sole and hake (Spanish Royal Decree RD 410/2001).
Main target and by-catch species for the metier	**Target species:** · Horse mackerel (*Trachurus trachurus*) · Pouting (*Trisopterus luscus*) · Hake (*Merluccius merluccius*) · Red mullet (*Mullus surmuletus*) **By-catch species:** other fish species

7. GNS_DEF_80-99_0_0

RCM	RCM NA (NORTH ATLANTIC)
Fishing ground	Iberian (ICES Divisions VIIIc and IXa)
Name of metier:	**GNS_DEF_80-99_0_0**
Flag country:	SPA
Date of update:	010112
Description of the metier	
Spatial distribution of the fishing activity of the metier	North and Northwest Iberian waters: ICES VIIIc and IXaN
Seasonal pattern of the fishing activity of the metier	Annual
Number of vessels involved in metier by LOA group:	· 1 vessel 10-12 LOA group · 30 vessels 12-18 LOA group · 23 vessels 18-24 LOA group · 3 vessels 24-40 LOA group
Detailed gear types and selectivity devices used in metier	**Authorized gear**: Set gillnet ("*volanta*") targeting hake. Piece of netting: maximum height of 10 m and maximum total length of 50 m. Length entire gear 7,000 m. **Minimum authorized mesh**: 90 mm (Spanish Royal Decree RD 410/2001)
Main target and by-catch species for the metier	**Target species:** · Hake (*Merluccius merluccius*) **By-catch species:** pouting (*Trisopterus luscus*), horse mackerel (*Trachurus trachurus*), axillary seabream (*Pagellus acarne*)

8. GNS_DEF_>=100_0_0

*Operating in Bay of Biscay and Iberian fishing grounds (two different metier description templates provided)

RCM	RCM NA (NORTH ATLANTIC)
Fishing ground	Bay of Biscay (ICES Divisions VIIIabd)
Name of metier:	**GNS_DEF_>=100_0_0**
Flag country:	SPA
Date of update:	010112
Description of the metier	
Spatial distribution of the fishing activity of the metier	Bay of Biscay: ICES VIIIabd
Seasonal pattern of the fishing activity of the metier	Annual
Number of vessels involved in metier by LOA group:	· 2 vessels 18-24 LOA group · 10 vessels 24-40 LOA group
Detailed gear types and selectivity devices used in metier	**Authorized gear:** Set gillnet targeting hake in VIIIabd. **Management measures:** Minimum mesh size 100 mm (EC Reg. Nº 1162/2001).
Main target and by-catch species for the metier	**Target species:** · Hake (*Merluccius merluccius*) **By-catch species:** arrow squids (*Ommastrephidae*), John dory (*Zeus faber*)

9. GNS_DEF_>=100_0_0

*Operating in Iberian and Bay of Biscay fishing grounds (two different metier description templates provided)

RCM	RCM NA (NORTH ATLANTIC)
Fishing ground	Iberian (ICES Divisions VIIIc and IXa)
Name of metier:	**GNS_DEF_>=100_0_0**
Flag country:	SPA
Date of update:	010112
Description of the metier	
Spatial distribution of the fishing activity of the metier	North Iberian waters: ICES VIIIc
Seasonal pattern of the fishing activity of the metier	Annual
Number of vessels involved in metier by LOA group:	· 4 vessels 10-12 LOA group · 11 vessels 12-18 LOA group · 7 vessels 18-24 LOA group · 3 vessels 24-40 LOA group
Detailed gear types and selectivity devices used in metier	**Authorized gear:** Set gillnet ("*rasco*") targeting anglerfish **Management measures:** Piece of netting: maximum height of 3.5 m and maximum total length of 50 m. Entire gear 11,000 m. Minimum mesh size 280 mm (Spanish Royal Decree RD 410/2001).
Main target and by-catch species for the metier	**Target species:** · White anglerfish (*Lophius piscatorius*) and black anglerfish (*Lophius budegassa*) **By-catch species:** no

10. GNS_DEF_120-219_0_0

RCM	RCM NA (NORTH ATLANTIC)
Fishing ground	Western Ireland (ICES Divisions VIIbcjk)
Name of metier:	**GNS_DEF_120-219_0_0**
Flag country:	SPA
Date of update:	010112
Description of the metier	
Spatial distribution of the fishing activity of the metier	Mainly VIIj (Great Sole)
Seasonal pattern of the fishing activity of the metier	Annual
Number of vessels involved in metier by LOA group:	· 2 vessels 24-40 LOA group
Detailed gear types and selectivity devices used in metier	**Authorized gear**: Set gillnet targeting hake **Minimum authorized mesh**: 120 mm (EC Reg. Nº 1162/2001)
Main target and by-catch species for the metier	**Target species:** · Hake (*Merluccius merluccius*) **By-catch species:** No

11. GTR_DEF_40-59_0_0

RCM	RCM NA (NORTH ATLANTIC)
Fishing ground	Iberian (ICES Divisions VIIIc and IXa)
Name of metier:	**GTR_DEF_40-59_0_0**
Flag country:	SPA
Date of update:	010112
Description of the metier	
Spatial distribution of the fishing activity of the metier	Gulf of Cadiz (ICES IXaS)
Seasonal pattern of the fishing activity of the metier	Annual
Number of vessels involved in metier by LOA group:	· 168 vessels <10 LOA group · 14 vessels 10-12 LOA group · 37 vessels 12-18 LOA group · 2 vessels 18-24 LOA group
Detailed gear types and selectivity devices used in metier	**Authorized gear**: Minor-gear fleet. Trammel net ("trasmallo") with three walls of netting. Maximum total length: 4,500 m. **Minimum authorized mesh**: inner net of 40 mm, 50 mm or 60 mm, according to the target species (Spanish Royal Decree RD 1428/1997).
Main target and by-catch species for the metier	**Target species:** · Cuttlefish (*Sepia officinalis*) · Wedge sole (*Dicologlossa cuneata*) · Meagre (*Argyrosomus regius*) · Caramote prawn (*Penaeus kerathurus*) · Purple dye murex (*Bolinus brandaris*) · Hake (*Merluccius merluccius*) **By-catch species:** rays (*Raja spp*), red mullet (*Mullus surmuletus*), common pandora (*Pagellus erythrinus*)…

12. GTR_DEF_60-79_0_0

RCM	RCM NA (NORTH ATLANTIC)
Fishing ground	Iberian (ICES Divisions VIIIc and IXa)
Name of metier:	**GTR_DEF_60-79_0_0**
Flag country:	SPA
Date of update:	010112
Description of the metier	
Spatial distribution of the fishing activity of the metier	North and Northwest Iberian waters (ICES VIIIc and IXaN)
Seasonal pattern of the fishing activity of the metier	Annual
Number of vessels involved in metier by LOA group:	· 541 vessels <10 LOA group · 148 vessels 10-12 LOA group · 152 vessels 12-18 LOA group · 1 vessel 18-24 LOA group
Detailed gear types and selectivity devices used in metier	**Authorized gear**: Minor-gear fleet. Trammel net ("*Trasmallo*", "*Miño*") with three walls of netting. **Management measures:** "Trasmallo": two outer nets of 400 mm mesh size and one inner net of 60 mm (Spanish Royal Decree RD 410/2001). Maximum length of 50 m and maximum height of 2 m (by panel). Maximum total length: 4,500 m. "Miño": the outer nets of 500 mm and one inner net of 90 mm (Spanish Royal Decree RD 410/2001). Maximum length of 50 m and maximum height of 3 m (by panel). Maximum total length: 4,500 m.
Main target and by-catch species for the metier	**Target species:** · Cuttlefish (*Sepia officinalis*) · Spiny spider crab (*Maja squinado*) · Rays (*Raja spp.*) · White anglerfish (*Lophius piscatorius*) · Sole (*Solea solea*) **By-catch species:** Ballen wrasse (*Labrus bergylta*), hake (*Merluccius merluccius*), pouting (*Trisopterus luscus*), gurnards (Triglidae)…

13. HMD_MOL_0_0_0

RCM	RCM NA (NORTH ATLANTIC)
Fishing ground	Iberian (ICES Divisions VIIIc and IXa)
Name of metier:	**HMD_MOL_0_0_0**
Flag country:	SPA
Date of update:	010112
Description of the metier	
Spatial distribution of the fishing activity of the metier	Gulf of Cadiz (ICES IXaS)
Seasonal pattern of the fishing activity of the metier	According to closed season
Number of vessels involved in metier by LOA group:	· 9 vessels <10 LOA group · 11 vessels 10-12 LOA group · 85 vessels 12-18 LOA group
Detailed gear types and selectivity devices used in metier	**Authorized gear**: Mechanized (hydraulic) dredge targeting striped venus clam. **Management measures:** closed season from 18/12 to 15/06 (Order 16/12/2010, BOJA nº 245). Maximum daily catch (Order 23/01/2007, BOJA nº 22). Authorized vessels list (Order 24/06/2011, BOJA nº 128).
Main target and by-catch species for the metier	**Target species:** · Striped venus clam (*Chamelea gallina*) **By-catch species:** No

14. LHM_CEP_0_0_0

RCM	RCM NA (NORTH ATLANTIC)
Fishing ground	Iberian (ICES Divisions VIIIc and IXa)
Name of metier:	**LHM_CEP_0_0_0**
Flag country:	SPA
Date of update:	010112
Description of the metier	
Spatial distribution of the fishing activity of the metier	North Iberian waters: ICES VIIIc
Seasonal pattern of the fishing activity of the metier	Second-semester
Number of vessels involved in metier by LOA group:	· 20 vessels <10 LOA group · 8 vessels 10-12 LOA group · 12 vessels 12-18 LOA group · 2 vessels 18-24 LOA group
Detailed gear types and selectivity devices used in metier	**Authorized gear**: Hand line targeting squids
Main target and by-catch species for the metier	**Target species:** · Squids (*Loligo spp.*) **By-catch species:** No

15. LHM_ DEF _0_0_0

RCM	RCM NA (NORTH ATLANTIC)
Fishing ground	Iberian (ICES Divisions VIIIc and IXa)
Name of metier:	**LHM_ DEF _0_0_0**
Flag country:	SPA
Date of update:	010112
Description of the metier	
Spatial distribution of the fishing activity of the metier	North and Northwest Iberian waters (ICES VIIIc and IXaN)
Seasonal pattern of the fishing activity of the metier	Spring
Number of vessels involved in metier by LOA group:	· 9 vessels 10-12 LOA group · 3 vessels 12-18 LOA group · 1 vessel 18-24 LOA group
Detailed gear types and selectivity devices used in metier	**Authorized gear**: Hand line targeting hake
Main target and by-catch species for the metier	**Target species:** · Hake (*Merluccius merluccius*) **By-catch species:** horse mackerel (*Trachurus trachurus*)…

16. LHM_ DWS _0_0_0

RCM	RCM NA (NORTH ATLANTIC)
Fishing ground	Iberian (ICES Divisions VIIIc and IXa)
Name of metier:	**LHM_ DWS _0_0_0**
Flag country:	SPA
Date of update:	010112
Description of the metier	
Spatial distribution of the fishing activity of the metier	Gulf of Cadiz (ICES IXaS), specifically Strait of Gibraltar
Seasonal pattern of the fishing activity of the metier	Annual
Number of vessels involved in metier by LOA group:	· 36 vessels <10 LOA group · 17 vessels 10-12 LOA group · 17 vessels 12-18 LOA group
Detailed gear types and selectivity devices used in metier	**Authorized gear**: Longline ("*voracera*") targeting blackspot seabream. **Management measures**: Seasonal fishery closure between February 1st and March 31st; restricted fishing areas (from Punta Camarinal to Punta Europa); authorized "voracera" fleet fishing gear technical characteristics (maximum 1,000 hooks per crewmember, maximum 30 lines and 3 automatic machines per vessel); annual fishing effort <140 days per vessel (Order AAA/1589/2012). Minimum size of fish retained or landed; Annual Total Allowable Catch (TAC) (EU Regulation).
Main target and by-catch species for the metier	**Target species:** · Blackspot seabream (*Pagellus bogaraveo*) **By-catch species:** Silver scabbardfish (*Lepidopus caudatus*)

17. LHM_ SPF _0_0_0

RCM	RCM NA (NORTH ATLANTIC)
Fishing ground	Iberian (ICES Divisions VIIIc and IXa)
Name of metier:	**LHM_ SPF _0_0_0**
Flag country:	SPA
Date of update:	010112
Description of the metier	
Spatial distribution of the fishing activity of the metier	North Iberian waters: ICES VIIIc
Seasonal pattern of the fishing activity of the metier	February – April (according to mackerel migration)
Number of vessels involved in metier by LOA group:	· 12 vessels <10 LOA group · 61 vessels 10-12 LOA group · 114 vessels 12-18 LOA group · 39 vessels 18-24 LOA group · 19 vessels 24-40 LOA group
Detailed gear types and selectivity devices used in metier	**Authorized gear**: Hand line targeting mackerel. **Management measures**: distribution of quotas by types of fishing (34.63% hand line) (Order ARM/271/2010)
Main target and by-catch species for the metier	**Target species:** · Mackerel (*Scomber scombrus*) **By-catch species:** Atlantic chub mackerel (*Scomber colias*)

18. LLS_DEF_0_0_0

*Operating in Western Scotland, Western Ireland, Celtic Sea and Bay of Biscay fishing grounds; and in Iberian fishing ground (two different metier description templates provided)

RCM	RCM NA (NORTH ATLANTIC)
Fishing ground	Western Scotland (ICES Subarea VI), Western Ireland (ICES Divisions VIIbcjk), Celtic Sea (VIIfgh) and Bay of Biscay (ICES Divisions VIIIabd)
Name of metier:	**LLS_DEF_0_0_0**
Flag country:	SPA
Date of update:	010112
Description of the metier	
Spatial distribution of the fishing activity of the metier	Through four DCF fishing grounds, mainly VIIb (West Ireland), VIIj (Great Sole), VIIh (Little Sole) and VIIIa (South Brittany)
Seasonal pattern of the fishing activity of the metier	Annual
Number of vessels involved in metier by LOA group:	· 3 vessels 18-24 LOA group · 56 vessels 24-40 LOA group
Detailed gear types and selectivity devices used in metier	**Authorized gear**: Bottom longline targeting demersal fishes. **Management measures**: regulated under Accession Treaty.
Main target and by-catch species for the metier	**Target species:** · Hake (*Merluccius merluccius*) · Atlantic pomfret (*Brama brama*) · Conger eel (*Conger conger*) · Blackbelly rosefish (*Helicolenus dactylopterus*) · Forkbeards (*Phycis spp.*) **By-catch species:** ling (*Molva molva*), wreckfish (*Polyprion americanus*)

19. LLS_DEF_0_0_0

*Operating in Iberian fishing ground; and Western Scotland, Western Ireland, Celtic Sea and Bay of Biscay fishing grounds (two different metier description templates provided)

RCM	RCM NA (NORTH ATLANTIC)
Fishing ground	Iberian (ICES Divisions VIIIc and IXa)
Name of metier:	**LLS_DEF_0_0_0**
Flag country:	SPA
Date of update:	010112
Description of the metier	
Spatial distribution of the fishing activity of the metier	Two areas: North and Northwest Iberian (ICES VIIIc and IXaN); Gulf of Cadiz (ICES IXaS)
Seasonal pattern of the fishing activity of the metier	Annual
Number of vessels involved in metier by LOA group:	**Galician and Cantabrian waters (VIIIc and IXaN):** · 263 vessels <10 LOA group · 92 vessels 10-12 LOA group · 111 vessels 12-18 LOA group · 20 vessels 18-24 LOA group · 3 vessels 24-40 LOA group **Gulf of Cadiz (IXaS**): · 48 vessels <10 LOA group · 2 vessels 10-12 LOA group · 1 vessel 12-18 LOA group
Detailed gear types and selectivity devices used in metier	**Authorized gear**: Bottom longline targeting demersal fishes. **Management measures**: **Galician and Cantabrian waters:** maximum 4,000 authorized hooks and 15 km line length (Spanish Royal Decree RD 410/2001). **Gulf of Cadiz:** maximum 2,000 authorized hooks and 4 km line length (Spanish Royal Decree RD 284/2006).
Main target and by-catch species for the metier	**Target species:** · Hake (*Merluccius merluccius*) (Galician & Cantabrian waters) · Atlantic pomfret (*Brama brama*) (Galician & Cantabrian waters) · Conger eel (*Conger conger*) · Forkbeards (*Phycis spp.*) (Gulf of Cadiz) **By-catch species:** other fish species

20. LLS_ DWS _0_0_0

RCM	RCM NA (NORTH ATLANTIC)
Fishing ground	Iberian (ICES Divisions VIIIc and IXa)
Name of metier:	**LLS_ DWS _0_0_0**
Flag country:	SPA
Date of update:	010112
Description of the metier	
Spatial distribution of the fishing activity of the metier	Gulf of Cadiz (ICES IXaS)
Seasonal pattern of the fishing activity of the metier	Annual
Number of vessels involved in metier by LOA group:	· 1 vessel <10 LOA group · 6 vessels 10-12 LOA group · 12 vessels 12-18 LOA group · 1 vessel 18-24 LOA group
Detailed gear types and selectivity devices used in metier	**Authorized gear:** Bottom longline targeting silver scabbardfish **Management measures:** 12 authorized vessels at one time. Maximum 2,700 authorized hooks and 4.5 km line length (Order APA/50/2005). Main landing ports: Barbate and Conil de la Frontera.
Main target and by-catch species for the metier	**Target species:** · Silver scabbardfish (*Lepidopus caudatus*) **By-catch species:** No

21. OTB_DEF_>=55_0_0

RCM	RCM NA (NORTH ATLANTIC)
Fishing ground	Iberian (ICES Divisions VIIIc and IXa) and EU Iberian waters (Portuguese waters)
Name of metier:	**OTB_DEF_>=55_0_0**
Flag country:	SPA
Date of update:	010112
Description of the metier	
Spatial distribution of the fishing activity of the metier	North and Northwest Iberian waters(ICES VIIIc and IXaN); and Portuguese waters to the north of Peniche (ICES IXa Centre)
Seasonal pattern of the fishing activity of the metier	Annual
Number of vessels involved in metier by LOA group:	**North and Northwest Iberian waters (VIIIc and IXaN):** · 2 vessels 18-24 LOA group · 59 vessels 24-40 LOA group **Portuguese waters (IXaC**): · 5 vessels 18-24 LOA group
Detailed gear types and selectivity devices used in metier	**Authorized gear**: Bottom otter trawl targeting demersal fishes. **Management measures:** minimum mesh size 70 mm. Fishing activity at depths >100 m (Spanish Royal Decree RD 1441/1999).
Main target and by-catch species for the metier	**Target species:** · Hake (*Merluccius merluccius*) · Megrims (*Lepidorhombus spp.*) · Horse mackerels (*Trachurus spp.*) · Anglerfish (*Lophius spp.*) · Pouting (*Trisopterus luscus*) **By-catch species:** rays (*Raja spp.*), curled octopus (*Eledone cirrhosa*), …

22. OTB_DEF_>=70_0_0

RCM	RCM NA (NORTH ATLANTIC)
Fishing ground	Bay of Biscay (Divisions VIIIabd)
Name of metier:	**OTB_DEF_>=70_0_0**
Flag country:	SPA
Date of update:	010112
Description of the metier	
Spatial distribution of the fishing activity of the metier	Divisions VIIIabd
Seasonal pattern of the fishing activity of the metier	Annual
Number of vessels involved in metier by LOA group:	· 12 vessels 24-40 LOA group · 2 vessels >40 LOA group
Detailed gear types and selectivity devices used in metier	**Authorized gear**: Bottom otter trawl targeting demersal fishes. **Management measures:** minimum mesh size 100 mm (EC Reg. Nº 1162/2001). Net mesh size can be minimized to 70 mm by the use of escape devices (EC Reg. Nº 51/2006).
Main target and by-catch species for the metier	**Target species:** · Anglerfish (*Lophius spp.*) · Megrims (*Lepidorhombus spp.*) · Pouting (*Trisopterus luscus*) **By-catch species:** mackerel (*Scomber scombrus*), hake (*Merluccius merluccius*), …

23. OTB_DEF_70-99_0_0

RCM	RCM NA (NORTH ATLANTIC)
Fishing ground	Western Scotland (ICES Subarea VI), Western Ireland (ICES Divisions VIIbcjk) and Celtic Sea (ICES Divisions VIIfgh)
Name of metier:	**OTB_DEF_70-99_0_0**
Flag country:	SPA
Date of update:	010112
Description of the metier	
Spatial distribution of the fishing activity of the metier	Mainly Great Sole (VIIj), Little Sole (VIIh) and Porcupine Bank (ICES VIIc)
Seasonal pattern of the fishing activity of the metier	Annual
Number of vessels involved in metier by LOA group:	· 31 vessels 24-40 LOA group
Detailed gear types and selectivity devices used in metier	**Authorized gear**: Bottom otter trawl targeting megrims. **Management measures:** minimum mesh size 80 mm, except in the Irish Box to protect juvenile hake where net mesh size shall be >100 mm (EC Reg. Nº 1162/2001).
Main target and by-catch species for the metier	**Target species:** · Megrims (*Lepidorhombus spp.*) · Anglerfish (*Lophius spp.*) **By-catch species:** lemon sole (*Microstomus kitt*), John dory (Zeus faber), arrow squids (*Ommastrephidae*), hake (*Merluccius merluccius*)

24. OTB_DEF_100-119_0_0

RCM	RCM NA (NORTH ATLANTIC)
Fishing ground	Western Scotland (ICES Subarea VI) and Western Ireland (ICES Divisions VIIbcjk)
Name of metier:	**OTB_DEF_100-119_0_0**
Flag country:	SPA
Date of update:	010112
Description of the metier	
Spatial distribution of the fishing activity of the metier	Mainly between Great Sole (ICES VIIj) and Porcupine Bank (ICES VIIc) slopes
Seasonal pattern of the fishing activity of the metier	Annual
Number of vessels involved in metier by LOA group:	· 23 vessels 24-40 LOA group · 2 vessels >40 LOA group
Detailed gear types and selectivity devices used in metier	**Authorized gear:** Bottom otter trawl targeting hake. **Management measures:** minimum mesh size 100 mm because of targeting hake, regardless of the waters in which they are operating (EC Reg. Nº 1162/2001).
Main target and by-catch species for the metier	**Target species:** · Hake (*Merluccius merluccius*) **By-catch species:** demersal fish species (anglerfish, megrims …) and Norway lobster (*Nephrops norvegicus*)

25. OTB_MCD_>=55_0_0

RCM	RCM NA (NORTH ATLANTIC)
Fishing ground	Iberian (ICES Divisions VIIIc and IXa)
Name of metier:	**OTB_MCD_>=55_0_0**
Flag country:	SPA
Date of update:	010112
Description of the metier	
Spatial distribution of the fishing activity of the metier	Gulf of Cadiz and South Portuguese waters (ICES IXaS)
Seasonal pattern of the fishing activity of the metier	Annual
Number of vessels involved in metier by LOA group:	**Gulf of Cadiz (IXaS):** · 58 vessels 12-18 LOA group · 78 vessels 18-24 LOA group · 4 vessels 24-40 LOA group **Portuguese waters (IXaS**): · 1 vessel 12-18 LOA group · 9 vessels 18-24 LOA group · 1 vessel 24-40 LOA group
Detailed gear types and selectivity devices used in metier	**Authorized gear:** Bottom otter trawl targeting both crustaceans and demersal fishes. **Management measures:** minimum mesh size 55 mm, annual fishing effort <200 days per vessel (Order ARM/2515/2009).
Main target and by-catch species for the metier	**Target species:** · Deepwater rose shrimp (*Parapenaeus longirostris*) · Hake (*Merluccius merluccius*) · Cuttlefish (*Sepia officinalis*) **By-catch species:** blue whiting (*Micromesistius poutassou*), octopus (*Octopus vulgaris*), other fish and crustaceans

26. OTB_MCF_>=70_0_0

RCM	RCM NA (NORTH ATLANTIC)
Fishing ground	Bay of Biscay (ICES Divisions VIIIabd)
Name of metier:	**OTB_MCF_>=70_0_0**
Flag country:	SPA
Date of update:	010112
Description of the metier	
Spatial distribution of the fishing activity of the metier	Bay of Biscay: ICES VIIIabd
Seasonal pattern of the fishing activity of the metier	Annual
Number of vessels involved in metier by LOA group:	· 7 vessels 24-40 LOA group · 2 vessels >40 LOA group
Detailed gear types and selectivity devices used in metier	**Authorized gear:** Bottom otter trawl targeting both cephalopods and demersal fishes. **Management measures:** minimum mesh size 100 mm (EC Reg. Nº 1162/2001). Net mesh size can be minimized to 70 mm by the use of escape devices (EC Reg. Nº 51/2006).
Main target and by-catch species for the metier	**Target species:** · Squids (*Loligo spp.*) · Red mullet (*Mullus surmuletus*) · Pouting (*Trisopterus luscus*) · Cuttlefish (*Sepia officinalis*) · Anglerfish (*Lophius spp.*) **By-catch species:** catsharks (*Scyliorhinus spp.*), seabass (*Dicentrarchus labrax*), hake (*Merluccius merluccius*)…

27. OTB_MPD_>=55_0_0

RCM	RCM NA (NORTH ATLANTIC)
Fishing ground	Iberian (ICES Divisions VIIIc and IXa)
Name of metier:	**OTB_MPD_>=55_0_0**
Flag country:	SPA
Date of update:	010112
Description of the metier	
Spatial distribution of the fishing activity of the metier	North and Northwest Iberian waters: ICES VIIIc and IXaN
Seasonal pattern of the fishing activity of the metier	Annual. Most captures of mackerel from February to March (according to the mackerel migration).
Number of vessels involved in metier by LOA group:	· 1 vessel 18-24 LOA group · 56 vessels 24-40 LOA group
Detailed gear types and selectivity devices used in metier	**Authorized gear**: bottom otter trawl ("*jurelera*") targeting pelagic fishes. **Management measures:** minimum mesh size 55 mm (Order APA/16/2002).
Main target and by-catch species for the metier	**Target species:** · Horse mackerel (*Trachurus trachurus*) · Mackerel (*Scomber spp.*) **By-catch species:** secondary, demersal fish species (hake)

28. OTB_MPD_>=70_0_0

RCM	RCM NA (NORTH ATLANTIC)
Fishing ground	Bay of Biscay (ICES Divisions VIIIabd)
Name of metier:	**OTB_MPD_>=70_0_0**
Flag country:	SPA
Date of update:	010112
Description of the metier	
Spatial distribution of the fishing activity of the metier	Mainly VIIIb (South Biscay)
Seasonal pattern of the fishing activity of the metier	
Number of vessels involved in metier by LOA group:	· 1 vessel 24-40 LOA group · 1 vessel >40 LOA group
Detailed gear types and selectivity devices used in metier	**Authorized gear**: bottom otter trawl targeting both pelagic and demersal fishes. **Management measures:** minimum mesh size 100 mm (EC Reg. Nº 1162/2001). Net mesh size can be minimized to 70 mm by the use of escape devices (EC Reg. Nº 51/2006).
Main target and by-catch species for the metier	**Target species:** · Atlantic mackerel (*Scomber scombrus*) · Squids (*Loligo spp.*) · Horse mackerels (*Trachurus spp.*) **By-catch species:** pouting (*Trisopterus luscus*), catsharks (*Scyliorhinus spp*.), hake (*Merluccius merluccius*), …

29. OTB_SPF_>=70_0_0

RCM	RCM NA (NORTH ATLANTIC)
Fishing ground	Bay of Biscay (ICES Divisions VIIIabd)
Name of metier:	**OTB_SPF_>=70_0_0**
Flag country:	SPA
Date of update:	010112
Description of the metier	
Spatial distribution of the fishing activity of the metier	Mainly VIIIb (South Biscay)
Seasonal pattern of the fishing activity of the metier	
Number of vessels involved in metier by LOA group:	· 3 vessels 24-40 LOA group
Detailed gear types and selectivity devices used in metier	**Authorized gear**: bottom otter trawl targeting small pelagic fishes. **Management measures:** minimum mesh size 100 mm (EC Reg. Nº 1162/2001). Net mesh size can be minimized to 70 mm by the use of escape devices (EC Reg. Nº 51/2006).
Main target and by-catch species for the metier	**Target species:** · Atlantic mackerel (*Scomber scombrus*) · Squids (*Loligo spp.*) · Pouting (*Trisopterus luscus*) **By-catch species:** red mullet (*Mullus surmuletus*), hake (*Merluccius merluccius*), …

30. PS_SPF_0_0_0

RCM	RCM NA (NORTH ATLANTIC)
Fishing ground	Iberian (ICES Divisions VIIIc and IXa), Bay of Biscay (ICES Divisions VIIIabd)
Name of metier:	**PS_SPF_0_0_0**
Flag country:	SPA
Date of update:	010112
Description of the metier	
Spatial distribution of the fishing activity of the metier	Two areas: Northwest and North Iberian waters (ICES Divisions VIIIc and IXaN, with access to Bay of Biscay waters (ICES Divisions VIIIabd)) Gulf of Cadiz (ICES IXaS)
Seasonal pattern of the fishing activity of the metier	Depends on biological cycle of target species (mackerels in winter, anchovy in spring)
Number of vessels involved in metier by LOA group:	**North and Northwest Iberian waters (VIIIc IXaN):** · 75 vessels <10 LOA group · 21 vessels 10-12 LOA group · 80 vessels 12-18 LOA group · 76 vessels 18-24 LOA group · 94 vessels 24-40 LOA group **Gulf of Cadiz (IXaS**): · 5 vessels 10-12 LOA group · 54 vessels 12-18 LOA group · 28 vessels 18-24 LOA group · 4 vessels 24-40 LOA group
Detailed gear types and selectivity devices used in metier	**Authorized gear**: purse seine targeting small pelagic fishes. **Management measures:** purse seine vessels of more than 11 m in overall length (Spanish Royal Decree RD 2176/2004). **North and Northwest Iberian waters**: minimum mesh size 14 mm. Entire gear 130 m height and 600 m maximum total length (Order APA/676/2004). **Gulf of Cadiz**: minimum mesh size 14 mm. Entire gear 80 m height and 450 m maximum total length (Order APA/679/2004).
Main target and by-catch species for the metier	**Target species:** · Sardine (*Sardina pilchardus*) · Horse mackerel (*Trachurus trachurus*) · Atlantic mackerel (*Scomber scombrus*) · Anchovy (*Engraulis encrasicolus*) · Atlantic chub mackerel (*Scomber colias*) **By-catch species:** other pelagic fish (bogue *Boops boops*, …)

31. PTB_DEF_>=70_0_0

RCM	RCM NA (NORTH ATLANTIC)
Fishing ground	Bay of Biscay (ICES Divisions VIIIabd)
Name of metier:	**PTB_DEF_>=70_0_0**
Flag country:	SPA
Date of update:	010112
Description of the metier	
Spatial distribution of the fishing activity of the metier	Bay of Biscay: ICES VIIIabd
Seasonal pattern of the fishing activity of the metier	Annual, with a slight drop in August due to the fleet rest period
Number of vessels involved in metier by LOA group:	· 8 vessels 24-40 LOA group
Detailed gear types and selectivity devices used in metier	**Authorized gear**: Bottom pair trawl targeting demersal fishes. **Management measures:** minimum mesh size 100 mm (EC Reg. Nº 1162/2001). Net mesh size can be minimized to 70 mm by the use of escape devices (EC Reg. Nº 51/2006).
Main target and by-catch species for the metier	**Target species:** · Hake (*Merluccius merluccius*) **By-catch species** (very secondary)**:** Atlantic mackerel (*Scomber scombrus*), blue whiting (*Micromesistius poutassou*), horse mackerel (*Trachurus trachurus*), pouting (*Trisopterus luscus*), …

32. PTB_MPD_>=55_0_0

RCM	RCM NA (NORTH ATLANTIC)
Fishing ground	Iberian (ICES Divisions VIIIc and IXa)
Name of metier:	**PTB_MPD_>=55_0_0**
Flag country:	SPA
Date of update:	010112
Description of the metier	
Spatial distribution of the fishing activity of the metier	Northwest and North Iberian(ICES VIIIc and IXaN)
Seasonal pattern of the fishing activity of the metier	Annual. Catches of mackerel mostly in spring (according to the reproductive mackerel migration along the Cantabrian Sea).
Number of vessels involved in metier by LOA group:	· 1 vessel 18-24 LOA group · 45 vessels 24-40 LOA group
Detailed gear types and selectivity devices used in metier	**Authorized gear**: Bottom pair trawl targeting both pelagic and demersal fishes. **Management measures:** minimum mesh size 55 mm (Order APA/16/2002), which shall be maximized to 70 mm when targeting hake (Spanish Royal Decree RD 1441/1999).
Main target and by-catch species for the metier	**Target species:** · Blue whiting (*Micromesistius poutassou*) · Hake (*Merluccius merluccius*) · Atlantic mackerel (*Scomber scombrus*) **By-catch species:** other fish species (horse mackerel *Trachurus trachurus*, Atlantic chub mackerel *Scomber colias*, Atlantic pomfret *Brama brama*…)

33. SDN_MCF_=<55_0_0

RCM	RCM NA (NORTH ATLANTIC)
Fishing ground	Iberian (ICES Divisions VIIIc and IXa)
Name of metier:	**SDN_MCF_=<55_0_0**
Flag country:	SPA
Date of update:	010112
Description of the metier	
Spatial distribution of the fishing activity of the metier	Galicia (mostly Northwest Iberian waters: ICES IXaN)
Seasonal pattern of the fishing activity of the metier	According to rest period (spring-summer)
Number of vessels involved in metier by LOA group:	· 3 vessels 10-12 LOA group · 1 vessel 12-18 LOA group
Detailed gear types and selectivity devices used in metier	**Authorized gear**: Danish seine targeting cuttlefish. **Management measures:** minimum size 8 cm (for cuttlefish) (Order 29/10/2007, DOG nº 215).
Main target and by-catch species for the metier	**Target species:** · Cuttlefish (*Sepia officinalis*) **By-catch species:** octopus (*Octopus vulgaris*), rays (*Raja spp*.)

34. TBB_MOL_=<55_0_0

RCM	RCM NA (NORTH ATLANTIC)
Fishing ground	Iberian (ICES Divisions VIIIc and IXa)
Name of metier:	**TBB_MOL_=<55_0_0**
Flag country:	SPA
Date of update:	010112
Description of the metier	
Spatial distribution of the fishing activity of the metier	Galicia (mostly Northwest Iberian waters: ICES IXaN)
Seasonal pattern of the fishing activity of the metier	According to closed season
Number of vessels involved in metier by LOA group:	· 49 vessels <10 LOA group · 21 vessels 10-12 LOA group · 13 vessels 12-18 LOA group
Detailed gear types and selectivity devices used in metier	**Authorized gear**: beam trawler ("*bou de vara*") targeting scallops. **Management measures:** Closed season from April to October (Order 23/12/2008, DOG nº 253). Quota of queen scallop 150 Kg per vessel and day (Order 23/12/2011, DOG nº 1).
Main target and by-catch species for the metier	**Target species:** · Queen scallop (*Aequipecten opercularis*) · Great scallop (*Pecten maximus*) **By-catch species:** cuttlefish (*Sepia officinalis*), pouting (*Trisopterus luscus*), plaice (*Pleuronectes platessa*)…