

**EU Data Collection Regulation,
1543/2000
Establishing a Community Framework for the Collection
and Management of Data Needed to Conduct the CFP**

Training Workshop on Fleet-based Approach

Nantes, 13 – 17 March 2006

FINAL REPORT

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2 Background and terms of reference

The EC Data Collection Regulation (DCR) has been implemented since 2001 with the aim of harmonising the collection of fisheries biological and economic data across the Member States. Despite the recognised benefits brought about by the DCR, the scientific community and managers acknowledged that the current procedure of collecting biological data on a stock basis and economic data on a fleet based did not favour the provision of relevant inputs to fishery-based management advice. The setting up of the second stage of the DCR in 2007 is the opportunity to integrate the fishery-based approach in the future collection of bio-economic data.

In 2001 and 2002, the European Commission requested ICES to start compiling catch-at-age data disaggregated by fishery that would be more suitable to perform fishery-based forecasts. ICES reacted by establishing in 2003 and 2004 the Study Group for the Development of Fishery-Based Forecasts (SGDFF). The two major tasks of SGDFF were to provide fleet and fishery definitions and advise on a database structure and data exchange format for the mixed-species and multi-fisheries forecasts. Since 2003, WGNSSK (the Working Group for the assessment of fisheries in the North Sea and Skagerrak) has compiled catch-at-age data disaggregated by country and by fishery, using the format defined by SGDFF, and has provided preliminary mixed-fisheries forecasts. The Advisory Committee for Fishery Management (ACFM) however, rejected the use of MTAC for advisory purposes, mostly based on the argument that the data were inadequate. Despite the concerns of ACFM, STECF has calculated mixed-fisheries catch options for the North Sea, North-Western and South-Western areas.

In 2003, the General Fisheries Commission for the Mediterranean (GFCM) defined Operational Units (OU) for the Mediterranean area. Although the OU have been primarily defined for management purposes, they will also be expected to facilitate consistent collection of bio-economic data in the Mediterranean Sea.

On the basis of these experiences, both in the ICES area and in the Mediterranean Sea, ICES PGCCDBS recommended in 2005 that a Workshop be established, under the auspices of the European Commission, to recommend a fleet and fishery segmentation to be used for the future sampling design of bio-economic data.

This Workshop was carried out in May 2005 (IFREMER, Nantes). One of the recommendations was that Member States (i) fulfil the regional matrix (with fishing efforts, etc) in order to evaluate their national fishing activity components and to identify possible problems and (ii) carry out some analysis (test the economic parameters) in order to propose adequate and stable fleet segmentation (length vessel classes).

The results had to be presented to the Regional Coordination Meetings (RCMs) by September/October 2005, so proposal for fleet segmentations at the regional levels could be done and then final decisions for all the areas could be taken during a final meeting later at the start of 2006.

Only some Member States, carried out the required analyses and were able to present results to the RCMs.

Most of the Member States have pointed out the difficulties in following the recommendations from the first Workshop. So, it has been decided to have a specific

Workshop in March (13-17) to train the scientists involved in the Fleet Based Approach on these issues (participants will have to come with some sets of data and some analysis will be carried out during the Workshop; the intention is to play with the data). Further complete analysis will have to be done on the national data in the Institutes.

This Workshop will be followed by a final meeting in June, where the results from the analysis carried out in the Institutes will be evaluated. Final decisions concerning the fleet segments and length vessel classes will be taken for each Region based on these results.

Terms of Reference

- a) Test the fleet segmentation (métier approach) as defined in the Nantes ad hoc expert meeting (May, 2005) and updated by subsequent RCMs (Sept. and Oct., 2005) and the Workshop on the Small Scale Fisheries (Sept., 2005).
- b) Propose guidelines for the filling of the matrices and report on the possible difficulties
- c) Test the relative performance of different characterisation of fleet segments (per length, per gear combination or both) in term of precision and bias on economic parameters such as gross revenues, operational costs, number of employees and effort (days at sea).
- d) Test the stability of vessels inside different characterisation of fleet segments, as suggested during the Nantes ad hoc expert meeting (May, 2005) and recommended by subsequent RCMs (Sept. and Oct., 2005) and the Workshop on the Small Scale Fisheries (Sept., 2005).
- e) Propose guidelines for conducting the analyses and report on possible difficulties

Datasets requirements

From each Member State:

- a) - Effort for 2003, by individual fishing trip or low aggregated data enabling to specify precisely the geographical area, period of the year, gear used, and when possible selectivity (mesh size, selective device, ...) and targeted species. Effort will be expressed as number of days at sea (and otherwise to be specified)
 - Sea-going observations by sample unit (voyage): precise information on geographical area, period of the year, gear used, and when possible selectivity (mesh size, selective device, ...) and targeted species. Effort will be expressed as number of days at sea, number of trips and number of hauls per vessel (and otherwise to be specified).
- c) Individual (by vessel) economic information collected in 2003 for the calculation of the economic indicators (Appendix XVII of the DCR) and technical characteristics of the national fleet (vessel length and gears used during 2003).
- d) Individual information related to the vessels (length, gears used during the year) for 2001, 2002, 2003 and 2004.

3 Executive summary

The training workshop is meant to prepare the June meeting that will be held in Nantes and is supposed to finalise the concept of the fleet-based approach in the framework of the new DCR. The mission of this training workshop was twofold :

- try to fill the matrix with effort information in order to be able to define guidelines, detect inconsistencies or impossibilities to report fishing activities in the matrix
- define guidelines for testing the fleet segmentation regarding the stability of the segments and the impact on the variance of the estimates.

It is then very naturally that the group sub-divided in a biologists and economists sub-group, although the key issues have always been discussed in plenary. All MS participating to the training workshop came with data (Annex A), even if these data were sometimes on an aggregated format that preserved from doing the proper work. The exercise of filling the matrix has proved to be fruitful, if compared to the numerous questions that arose and the associated discussions. The questions that could not be discussed by lack of time are shown in Annex B, and should be subject of argumentation in a forum before the next June meeting in order to clarify all the concepts.

The primary discussion dealt with the choice of the matrices to work with and the ones gathered in the last RCM (Baltic) has been chosen. The specific matrix of the Mediterranean had to be modified to look for consistency throughout the regions, while respecting the choice made by an *ad hoc* sub-group during the Kavala meeting. The overview of the proposed fishing activity dimension of the matrix can be found in annex C.

As foreseen, the filling of the matrix has caused some troubles and confusions so that guidelines had to be found and those agreed during the workshop are the object of a specific section. The filling exercise showed also some fishing activities not anticipated in the Regional level or not anticipated at all in the matrix. These cases are reported and it will up to the June meeting to find solutions. Some inconsistencies in the definition of fishing activities or target species led to the proposal of solutions that will have to be considered also in June. It is therefore essential that MS that did not participate to the training workshop or could not fill the matrix because of aggregated data make the exercise in due time before the June meeting. Some examples of fillings with reporting on difficulties are shown in Annex D.

An important expectation from the participants was the clear definition of all the concepts underlying the matrix. Some of them have been discussed, others will have to be discussed and the group felt that a glossary would be very much welcomed in order to avoid confusion.

One of the major outcome of the training workshop was the evidence that, with the current data, almost no country could split the information among the fishing activities for the segment of fleet not subject to log-book data (most of the Mediterranean fleet and most of the vessels less than 10 meters). It has therefore been strongly recommended to MS to carry out a sampling for fishing activities as soon as possible, on the model of the French fishing calendar census described in the small Scale Fishery report (Kavala, 2005) or by elaborating alternative approaches.

The economic sub-group has focused more on determining a methodology to test different typologies regarding the performance in term of precision, the relevance of length classes disaggregation and the stability over the years. Four typologies have been described combined with three different length segmentation, to conduct the test in due time before the June meeting by each Member States.

The section 4 and 5 address ToR a and b respectively. It was not possible to conduct the different tests during the training workshop so section 6 addresses ToR e to enable countries to perform the analysis “at home” before June. The report provides a number of recommendations to be considered by each Member States in the very near future and a number of recommendations for the next June meeting.

4 Test the fleet segmentation (métier approach) – ToR a

4.1 The choice of the matrix to use for training

The sub- group dealing with the biological data has begun to work out their own data in order to fill the matrix as defined by the last RCM (RCM Baltic, October 2005). Actually, this RCM has gathered the complete set of Regional matrices in a common format.

The first issue raised was the non conformity between the information contained in this overview matrix and the latest version of the matrix for the Mediterranean that had been further discussed during a specific session of the Small-Scale Fishery (Kavala, September 2005). It is then a modified version of the Baltic RCM proposal that has been used as template for the training workshop.

The use of a single matrix containing all the fishing activities at a European scale proved to be source of confusion and difficult to handle. It has been decided to split the whole matrix in Regional matrices by only removing the lines that were considered as impossibility occurrences (see Annex C).

The Mediterranean group, both during Athens RCM on Mediterranean area (16/17 June 2005) and the Kavala meeting on small scale fisheries (12/16 September 2005), tried to develop at Regional level the fleet-based approach proposed during the Nantes meeting (23/27 May 2005), with some adaptations related to the fleet segmentation and the fishing activities based on the Mediterranean context.

The proposed common Regional level of disaggregation, level 5, of the fishing activities is presented in table B below.

During the training workshop it was agreed that the table used should be consistent and coherent with the philosophy of the matrix and with the fishing activity of the other regional groups (Baltic, North Sea, Atlantic) at least at the European level (Level 4).

The new proposal of generic segmentation of fishing activities is presented in table B, compared to the Kavala proposal (table A). Specifically the changes are the following:

- EU level 4 has been updated with predefined European fishing activities: fly shooting seine, anchored seine, pair seine, jigging, diving and glass eel fishing. The relevant cells at Regional level 5 have been filled with the targeted group of species

- Beach seine has moved to level 4
- Boat seine has been removed from level 4;
- empty cells at Regional level 5 have been filled with the targeted group of species;
- the disaggregation of “mixed species” under bottom otter trawl has been replaced by “mixed demersal and deep water species”;
- Pelagic fish has been defined as the target species for “lampara nets” instead of a rigging consideration
- “other fishing activities” have been removed from level 4 (this information already exists at level 1, Cf. Annex E)

A) Athens and Kavala 2005

Level 4 (EU level)	Level 5 (Regional level)
<i>Boat dredge</i>	
<i>Bottom otter trawl</i>	Deep water species
	Demersal species
	Mixed species
<i>Multi rig bottom trawl</i>	
<i>Bottom pair trawl</i>	Demersal species
<i>Beam trawl</i>	Benthic and demersal species
<i>Midwater otter trawl</i>	
<i>Pelagic pair trawl</i>	Small Pelagic species
<i>Hand and pole lines</i>	
<i>Troll lines</i>	Large Pelagic fish
<i>Drifting longlines</i>	Large Pelagic fish
<i>Set longlines</i>	Demersal species
<i>Pots and Traps</i>	
<i>Tangle net</i>	
<i>Trammel net</i>	
<i>Set gillnet</i>	Pelagic species
	Demersal species
<i>Driftnet</i>	
<i>Purse seine</i>	Small pelagic fish
	Large pelagic fish
<i>Lampara nets</i>	Without purse lines
<i>Boat seine</i>	
<i>Other fishing activities</i>	Beach seine
	Boat seine
<i>Other activities than fishing</i>	Other activities than fishing

B) Nantes 2006 new proposal

Level 4 (EU level)	Level 5 (Regional level)
<i>Boat dredge</i>	Molluscs
<i>Bottom otter trawl</i>	Deep water species
	Demersal species
	Mixed demersal and deepwater species
<i>Multi-rig otter trawl</i>	Demersal species
<i>Bottom pair trawl</i>	Demersal species
<i>Beam trawl</i>	Benthic and demersal species
<i>Midwater otter trawl</i>	Mixed demersal and pelagic species
<i>Pelagic pair trawl</i>	Small Pelagic fish
<i>Hand and pole lines</i>	FinFish
<i>Trolling lines</i>	Large Pelagic fish
<i>Jigging</i>	Cephalopods
<i>Drifting longlines</i>	Large Pelagic fish
<i>Set longlines</i>	Demersal species
<i>Pots and Traps</i>	Demersal species
<i>Tangle net</i>	Demersal species
<i>Trammel net</i>	Demersal species
<i>Set gillnet</i>	Small and large Pelagic fish
	Demersal species
<i>Driftnet</i>	Small pelagic fish
<i>Purse seine</i>	Small pelagic fish
	Large pelagic fish
<i>Lampara nets</i>	Small and large Pelagic fish
<i>Fly Shooting seine</i>	Demersal species
<i>Anchored Seine</i>	Demersal species
<i>Pair Seine</i>	Demersal species
<i>Beach seine</i>	Demersal species
<i>Glass eel fishing</i>	Glass eel
<i>Diving</i>	
<i>Other activity than fishing</i>	Other activity than fishing

The result of the exercise of filling the matrices with National data has raised a lot of issues. The quantified result of effort in fishing days by Region will be made available to the June meeting (finalisation of the fleet-based approach, Nantes).

The group recommends to the MS that has failed, for a reason or another, to report such information during the workshop, to fill the matrix in due time before June so that their comments be taken into account for the finalisation of the matrix design.

4.2 Some rules to set the Regional matrix

4.2.1 The absence of a metier occurrence in the Regional matrix

Data analyses carried out during the training workshop indicated that there were occurrences of fishing activities that did not conform to any of the existing fishing activities specified in

the matrix (at levels 4 & 5). In such cases Member States should check that the fishing activity has not resulted by error and is of sufficient importance for inclusion at level 4-5 (at regional and sometimes global level). If so they should raise this issue for consideration at the meeting in June and provide information regarding fishing gears, target species and importance relating to the (proposed new) fishing activity(ies).

The group recommends to the June meeting to consider the inclusion of the following fishing activities in the matrix :

- 1) Beam trawl mixed demersal fish and cephalopod (e.g. cuttlefish and sole in Atlantic)
- 2) Bottom otter trawl Mixed demersal and deep water species (e.g. anglerfish and deep water species in Atlantic Region)
- 3) Drift net demersal fish (e.g. sea bass)
- 4) Drift net small pelagic fish (e.g. herring in the North Sea, pilchard in Atlantic regions)
- 5) Fyke nets
- 6) Set gillnet Mixed demersal and deep water species (e.g. idem 2 in Atlantic Region)
- 7) Stationary uncovered pound nets [FPN] large pelagic fish (Atlantic Region)

4.2.2 The absence of activity in a métier in the Regional matrix

It is expected that certain fishing activities will not have activity from all countries but this does not pose any particular problems.

4.3 Inconsistencies and solutions proposed

4.3.1 The coherence between the structure of the matrix and handling in a database environment

There are different characterisation for the same fish depending on the gear used (pelagic vs small and large pelagic) :

The group suggest that small and large pelagic should be the reference and replace the reference to pelagic fish

At every level, the fishing activities should be the same across Regions : The proposal suggested in Annex E ensures the coherence of the metiers between Regions, and shows that the only way to merge Regional matrices is the level 4

4.3.2 The need to reconsider the stratification

During the training workshop several MS had problems filling in the matrix due to inconsistencies in the log-book data they had with them and the gears specified at level 4 in the matrix. Issues discussed in particular were the stratification of fixed nets into set gillnet, trammel net and tangle net and the stratification of bottom otter trawls into single rigs and multi rigs. It was the clear view of the group that the gears specified in the matrix need to exactly match the gears specified in the log-book regulation (EU Regulation 2807/83) as well as the fleet register regulation (EU Reg. 26/2004). During the meeting the group compared the gear and gear code in the fleet register regulation with the gears in the matrix and discovered some of the gears in the matrix (Jigging, tangle nets, glass eel fishing) do not have official codes which of course can create a severe problem.

The group further became aware of that not all institutes, for the moment, have access to landing statistics detailed enough for describing national fisheries in consistence with the matrix.

The possibilities of merging gears at level 4 in the matrix due to similarities in exploitation patterns at this level were also discussed. It was, however, the groups view that due to **the absence of scientific evidence for such similarities, the design of the matrix at this level should not be reconsidered**

The group recommends that

- the gear information reported in the log-books exactly matches the gear codes used for the fleet register and by consequence with the matrix.
- Consideration have to be made to the gears (jigging, tangle nets, glass eel fishing) appearing in the matrix without corresponding codes in the log-book.
- all institutes should have the right to access to the most disaggregated information at a national level from the landings statistics (log-books, sales notes, ..)
- From the proposed matrix, no gears should be merged at level 4 due to expected similarities in exploitation pattern since no scientific evidence for this exists on the European scale.

5 Propose guidelines for the filling of the matrices and report on the possible difficulties – ToR b

5.1 Definitions matters

5.1.1 Proposal of definitions for gears

References :

- FAO fisheries technical paper 1999 : 222 Rev 1. Definitions and classification of fishing gear categories (Nedelec and Prado, 1990)
- FAO fishing gear fact sheets
http://www.fao.org/figis/servlet/static?dom=root&xml=tech/gears_search.xml

5.1.2 Proposal of a definition for exploitation pattern

As far as possible, the group has tried to base the definitions used in the FAO glossary (<http://www.fao.org/fi/glossary/default.asp>)

[FAO glossary] Exploitation pattern --The distribution of fishing mortality over the age (or length) composition of the fish population. It is determined by the type of fishing gear, area and seasonal distribution of fishing, and the growth and migration of the fish.

The group agrees with this definition, but is of the opinion that it should be extended to take into account the multi species composition of the catch.

5.1.3 Proposal of a definition for target species

The solution below, proposed by the North Sea RCM (RCM NS&NEA, 2005) has been discussed and was found to be not robust enough in certain circumstances, in particular in the case of the use of mid-water trawl.

“The distinction between demersal and pelagic targeted species remains and must relate to the gear used. This information is registered in the logbook and in the case of sampling, the allocation of a voyage before hand to the appropriate segment can be done as follows:

- *a gear which is designed to be in contact with the bottom will be regarded as targeting demersal fish*
- *a gear designed for fishing in the mid-water column will be regarded as targeting pelagic fish “*

The confusion between target species and (multi) species composition in the catch is everlasting. The reason is that the second is easily accessible through declarative forms (log-books, sales notes, ...) and the first is much more difficult to estimate, moreover at the population level.

Considering that the species composition of the catch/landings will be quantified in the matrix, the duplication of this information in the definition of the fishing activities is regarded as meaningless. Therefore the group suggest to use the proper definition of target species as defined by FAO :

[FAO glossary] Target species - Those species that are primarily sought by the fishermen in a particular fishery. The subject of directed fishing effort in a fishery. There may be primary as well as secondary target species.

The group was of the opinion that all the terms used in the matrix should be clearly defined in a glossary, and therefore recommends the creation of such a glossary on a dedicated website. Follow up of this action to be decided in the June meeting.

5.2 Guidelines for the filling of the matrix

While filling the matrix, two main issues were raised and were concerning the target species

5.2.1 The difference between a mixed and a non mixed target species

In the case of multi-species fisheries, a fishing activity is directed to a combination of groups of species, e.g. crustaceans and demersal fish or cephalopods and demersal fish. These groupings of species must be seen as targeted during the same fishing operation, i.e. using only one gear. If different gears have been operated during one fishing trip, it is possible that different groups of species have been targeted specifically by each of the gears, thus having to be reported in different non mixed target species fishing activities. If no fishing operation disaggregated information is available, then considerations must be given whether the different groups of species have been targeted by different gears (viz. different fishing activities) during the fishing trip.

In case of multi-species fisheries, some countries have difficulty to assign trips, based on logbook information, to a single group of species or to multi-species fisheries. Especially when the bycatch of a vessel is economically more important than the target species.

The group proposes that:

- to ensure the maximum usability of the matrix, a threshold to define multi-species fisheries should be avoided.
- Based on the target species definition (Cf. *supra*), an a priori determination of the group of targeted species should be done.

Next to this, there is a risk that countries allocate the data of their national fleet differently than other countries performing the same fishing activity in the same area. In this case, the data from the same fishing activity ends up in different cells of the matrix.

Therefore, the group recommends that a clear identification of fisheries in a region should be carried out at RCM level.

5.2.2 The distinction between demersal and pelagic target species

During the NS RCM it was decided that the gear in which a given species was caught should determine if the target species was categorised as demersal or pelagic. In several cases it has been pointed out that a number of species are caught by both demersal and mid water gears. Therefore, the group decided to retain the traditional definition where the grouping build on fish behaviour and independent of the gear used for catching the species. These groups are to be defined from an agreed reference list of species.

The group recommends that, like the definition matters, such a reference list should be available on a website and that the forthcoming June meeting should consider this issue.

5.3 Possible difficulties

In general, the filling of the matrix when log-book information is available at the most disaggregated level was considered as being difficult but not impossible. The main difficulty encountered has been to try to fill the matrix with data that have not been collected in correspondence with the format of the matrix. This was particularly evident for the countries having collected landings and effort data by a sampling approach and for the countries having little information on the component of the fleet not subject to the log-book Regulation. The group felt that this subject was to be discussed (see next section) in order to provide guidelines for improving the current state of knowledge.

5.4 Guidelines for the collection of data in absence of census information concerning effort and landings

The issues raised during the group were as follows :

- *How to design the sampling programme for filling the matrix, considering both the fishing activity and the fleet segmentation?*
 - How to specify (group of) target species in advance? Or just based on type of gear?
 - Is there interaction with the fleet segmentation used by the economists?
- *what is the raising procedure to use*
 - to get estimates at the population level ?
 - in the case of the use of multi-gear during a fishing trip?
- How to cope with seasonal fishing ?
- How do we cope with inactive vessels?

All the questions above are linked and refer to the estimates of effort for each cell of the matrix, in other words, the estimates of effort, for each of the vessels present in the fleet register detailed by the different fishing activities they have practised during the year.

The group felt that the issue has been addressed in ToR 5 of the Small Scale Fisheries (SSF) meeting (Kavala, 2005) and agrees on the general principles laid down in the report. In particular, the SSF report stresses “the need to have more information for all vessels (gears, metiers, about activity, fishing area, ...) than that available in the fleet register for all vessels.”

In Kavala, a working document has been presented (Berthou, Daures and Demaneche, 2005) and the process described to collect information on fishing activities of all the French fleet has been the basis for the following discussion.

The group acknowledged the need to conduct a two step approach that would necessitate

- 1 to collect or estimate the effort at the level of the population distributed by fishing activities and fleet segments
- 2 to estimate the DCR required parameters by a second sampling programme stratified by fishing activities and fleet segments.

The assessment of the absolute distribution of effort among the cells of the matrix can be done by census or by sampling. The population to sample is the total number of vessels in a length range segment. The sampling theory requests to randomly draw a number of vessels from the fleet Register list and use the sampling factor as raising procedure. The use of the registration ports, possibly grouped by district, to stratify the samples can be seen as a logical mean to increase the precision of the estimates even if the vessels moves to neighbouring harbours for landings. The field implementation of such a programme consists of an enquiry quantifying the effort and the monthly sequence of fishing activities operated the year before (see form in annex of Berthou, Daures and Demaneche, 2005). The assumption is that the distribution of effort among the cells of the matrix is constant from one year to another and is only affected by the total number of vessels in the length range segment, but it is possible to re-estimate the values of all parameters once the “real” values of effort are known (one year later).

The benefits expected is not only the assessment of the total effort by fishing activity but it allows to provide accurate information to derive a fleet segmentation that would improve the precision of the economic parameters. Moreover, such an approach by enquiry directly from the fishermen is the most accurate way to get the information on target species as defined in section 6.1.

The risk being that most of the MS would not be able to fill the matrix using the fleet-based approach, the group strongly recommends MS to obtain the pertinent data, for example by testing the fishing calendar (sampling) programme proposed above as soon as possible, i.e. from the moment the matrix has been fixed. The group recalls that such a recommendation has previously been made in Nantes, Kavala, and all RCMs in 2005.

The new DCR Regulation will come into force in 2008, so the implementation of a fishing calendar sampling programme in 2007 could be seen as a pilot study aiming at providing information also to design the optimum sampling for 2008.

Therefore, the group suggests that MS includes necessary actions and cost in their National Programme 2007 to collect relevant data. The group recommends that the Commission consider this initiative as having the up most importance in view of the next DCR Regulation.

6 Propose guidelines to achieve ToR C and D

6.1 A methodology based on a common framework

A common framework (see the common template) is defined by the Subgroup in order to:

- test the relative performance of each typology;
- test the relevance of more detailed length classes;
- test the stability of the typologies (with more than one year data).

4 alternative typologies and different length classes are defined and need to be assessed.

The methodology is based on the CV's calculation (Coefficient of variation = Standard deviation / Mean value) for several economic indicators (at least more than one, in priority gross revenue, fuel costs, gross revenue/days at sea; Fuel cost/days at sea) (see Annex F : Economic indicators – Priority for the analysis).

This analysis has to be done for each country with any given recent year to provide information for June meeting in order to select the most appropriate common typology at European level.

Member states should conduct these analyses and submit the results in due time for the June meeting since it will be the basis for the future regulation.

6.2 The common template

All the participants are invited to fill the above common template with their individual data (economic sample).

- 1 Year
- 2 Country
- 3 RCM region (Baltic, North Sea, NEA, MED, International Areas)
- 4 N_ID of the vessel
- 5 Typology 1: DCR Dominant Gear
- 6 Typology 2: Hierarchical Tree – 100% Exclusivity criterion (based on data in the EU Fleet register – 2 gears)
- 7 Typology 2b: Hierarchical Tree – 100% Exclusivity criterion (based on complementary data) – If not available exactly Typology 2
- 8 Typology 3: Hierarchical Tree – X % Exclusivity criterion (based on information of % activity per gear)
- 9 Typology 4: Hierarchical Tree after a Threshold value (based on information of % activity per gear)
- 10-15 % using a gear per year (Bottom Trawl ; Midwater trawl ; Purse seiner ; Other towed gear ; Netter ; Other fixed gear) – The sum need to be 100%
- 16 Length (m.)
- 17 Length classes: 4 classes (<12; [12-24[; [24-40[; >=40)
- 18 Length classes: 8 classes (<10; [10-12[; [12-15[; [15-18[; [18-24[; [24-40[; [40-80[; >=80)
- 19 Length classes: 9 classes (<7; [7-10[; [10-12[; [12-15[; [15-18[; [18-24[; [24-40[; [40-80[; >=80)
- 20 Gross revenue
- 21 Fuel cost
- 22 Days at sea
- 23 Gross revenue/ Days at sea
- 24 Fuel cost / Days at sea
Crew cost
Etc.... see the appendix XVII of the 1639/2001

6.2.1 RCM Regions (corresponding to the fishing areas)

* For vessels > 10 meters, this information can be derived from log books.

* For vessels < 10 meters, the RCM region is closely linked with the registration port.

The group recommends that a reference table linking the fishing port to a RCM region has to be available at European level, and that the forthcoming June meeting should consider this issue.

For the following analysis, a vessel that is involved in different RCM regions during a year should be allocated to the RCM region corresponding to the maximum gross revenue.

6.2.2 Typology 1 : DCR Dominant Gear

See The EU regulation 1639/2001 (appendix III).

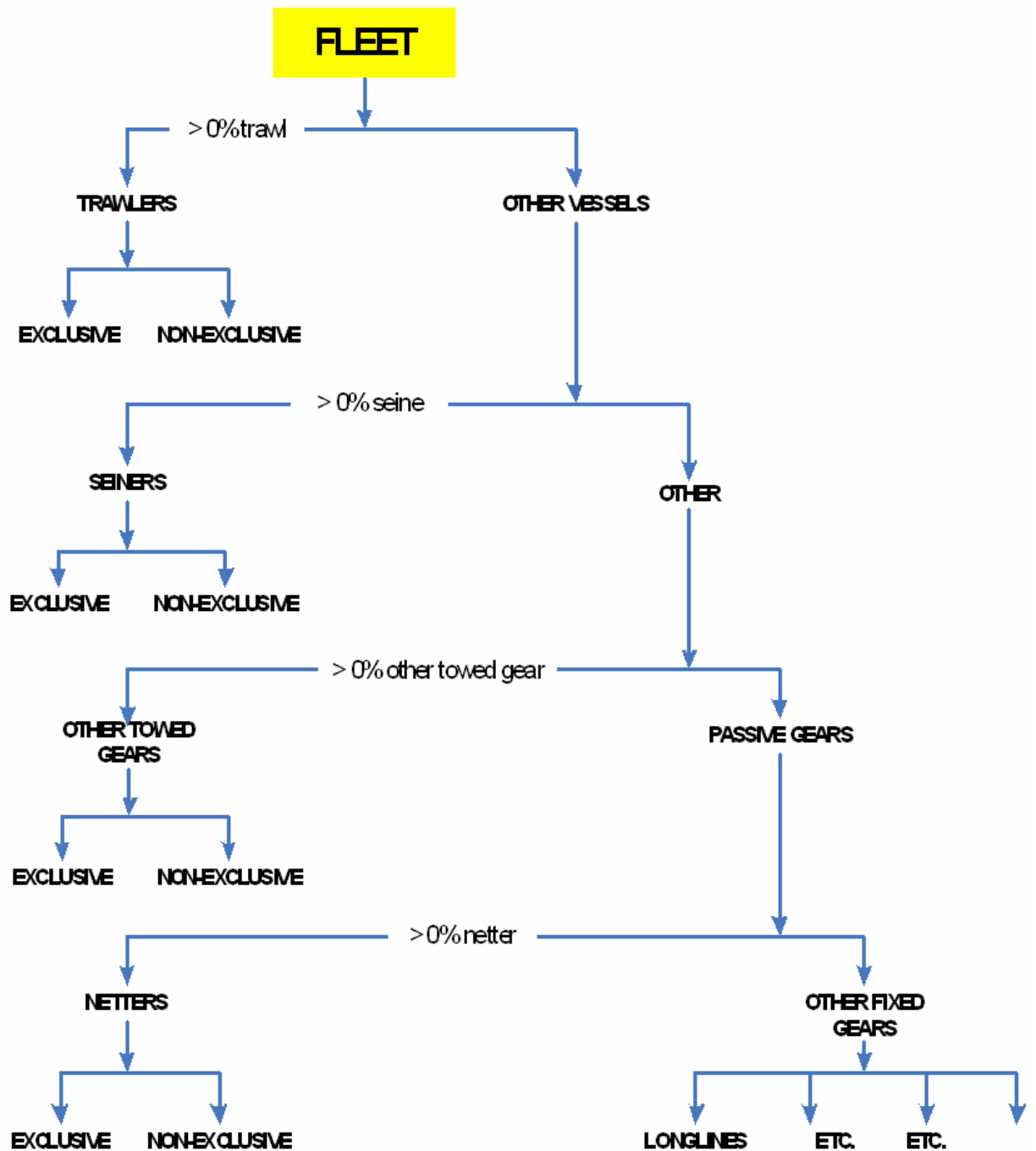
6.2.3 Typology 2: Hierarchical Tree – 100% Exclusivity criterion (based on data in the EU Fleet register – 2 gears)

The hierarchical tree approach is based on the technical possibilities for gear use of the vessels. The philosophy behind is that the technical characteristics of a vessel limit possible uses in different types of fishing. Some vessels might be used for several fisheries, whereas other vessels might only be used one type of fishery. E.g. vessels that are equipped for trawling, might also be used for seining with slight modifications, whereas vessels equipped for seining would need large modifications (larger engine, other equipment) in order to be able to go trawling. The hierarchical tree is shown in the figure.

In this case, Segmentation is based on gears combination with the following hierarchical tree: Trawl – Seine – Other towed gears and Other fixed gears. Segmentation is done step by step following this hierarchical tree. First every vessel which use Trawl is segmented and then every vessel which use seine and so on. The threshold value for “exclusivity” is 100% that’s mean that there is no recording of use of any other gear. Then, a vessel which spends 99% of its time Trawling and 1% with Net is “Non Exclusive Trawl”.

Methodology to be used based on information of gears used during the given year (Annex G: Explanation of the methodology to allocate vessel based on typology 2)

Typology 2 – Brief synthesis of the method



On the basis of the complete EU Fleet Register (December 2005) where maximum two gears are registered, each vessel has been allocated to a fleet segment regarding the typology 2.

The gears registered in the EU fleet may be updated or completed using additional information (logbooks, fishing forms, annual fishing calendar...). Based on this new source of information, the vessel is again allocated to a segment regarding the same methodology (typology 2b).

NB: If no further information is available, this column (typology 2b) will be exactly the same as typology 2.

6.2.4 Typology 3: Hierarchical Tree – X % Exclusivity criterion (based on information of % activity per gear)

Based on the typology 2 (and 2bis), the threshold criterion for exclusivity is 100%. The typology 3 investigates the possibility of using a more flexible criterion through percentage of activity of the vessels attributed to each gear. Information on the percentage of using each gear during the year (based on total number of days at sea or number of months by gear for example) is needed to achieve this typology 3.

The exclusivity % has to be tested from 50%, 60%, 70%, 80%, 90% to 100%. To visualise the results, a graph should be produced.

6.2.5 Typology 4: Hierarchical Tree after a Threshold value (based on information of % activity per gear)

An alternative way to regroup vessels could be based not on the technology or the potential use of gear but on actual fishing behaviour in terms of time spent at sea using a specific gear.

In this approach, we consider that a vessel spending more than 80% of its time using a specific gear is allocated to this specific segment. If not, the typology 3 (test from 50% to 70%) is to be applied.

o Length classes

Current DCR “4 length classes”	8 Length classes	9 Length classes
< 12 m.	< 10 m	< 7 m
		[7-10 m[
	[10-12m[	[10-12m[
[12-24m[	[12-15m[	[12-15m[
	[15-18m[	[15-18m[
	[18-24m[	[18-24m[
[24-40m[	[24-40m[	[24-40m[
>=40 m	[40-80m[	[40-80m[
	>=80m	>=80m

6.3 Analysis need to be conducted by each country

For the following analysis, the reference population is the national fleet register. It should be corrected for the totally inactive vessels.

For countries which have information on the whole fleet, the representativeness of the economic sample should be tested before the following analysis, at least based on the number of vessels.

First Step: Based on the current DCR “4 length classes” and individual economic data available, CV analysis must be conducted to define the most appropriate typology for the

country (see annex H:). This analysis needs to be done for each RCM region relevant for the country.

Second step: The table (Selected typology * 4 length classes) must be filled for each country and per RCM region with the economic sample and as far as possible for the whole population.

Length classes	Less 12 m.	12 – 24 m.	ETC...	
Fleet Segment/				
Exclusive Trawler				
Non Exclusive Trawler				
ETC....				

Third step : For cells (Fleet segment * length class) where there is a significant number of vessels in the sample, more detailed length classes can be tested based on the proposals in the common template for each length category.

The June meeting has to:

- * select the most appropriate common typology at European level;
- * define the most appropriate sub length classes at RCM levels, considering a generic European level of 4 length classes.

The subgroup notices that the member states do not have the same level of information and recommends implementation of surveys in order to collect data needed for the fleet segmentation. This kind of survey refers to the recommendation made in section 5.4.

6.4 General questions

How can we deal with inactivity of vessels? This question is crucial but must be removed to another workshop and the group suggest this issue to be addressed in the Salerno meeting.

Proposal for discussion for this next workshop: Based on the matrix and the fleet segmentation which will be finally defined, further information on activity per vessel and segment (days at sea, number of months...) must be collected at a large extent to investigate this question of active or inactive vessels inside a given segment. It will help to consider which reference population we need to maintain for our economic sampling. A first option could be the total register fleet but the knowledge of the distribution of population among different levels of activities is needed to weight the economic sample. A second option could be to define a “sub population” considered as “active vessels” regarding specific criteria or reference values per segment that we must define in common.

7 References

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8 ANNEXES

- ANNEX A** – Data brought by the workshop participants
- ANNEX B** – Questions raised but not discussed during the training workshop
- ANNEX C** – Anonymous example of matrix filled and reporting of problems
- ANNEX D** – Comments from Italy on the difficulty to fill the matrix
- ANNEX E** – Proposal of Regional matrix to consider during the June meeting
- ANNEX F** - Economic indicators available for each country – Priority for the CV analysis
- ANNEX G** - Explanation of the methodology to allocate vessel based on typology 2 (100% exclusivity criterion)
- ANNEX H** - Level of information per country to achieve the CV analysis and allocate their economic sample to alternative typologies (distinction between >12 meters and less than 12 meters vessels)

ANNEX A – Data brought by the workshop participants

	Landings and effort						Fishing activities		On-board observers	Economic		
	< 10 m			≥ 10 m			Census	Sampling	Sample	Sample	Annual sampling intensity	All indicators (appendix VI)
	Sales notes	Monthly forms	Sampling	Log-books	Auction sales Sales notes	Forms							Sampling
Belgium	-	-	-	X	X				X	X	70	X
Cyprus			X	X(*)						X		
Denmark	X			X	X				X	X	300	X
Estonia				> 12m						X	15%	X
Finland		X		X	X					X		
France		X		X	X			X	X	X	850	X
Germany		X		X						X	140	X
Greece			X	-			X		X	X	(1)	
Italy			X	-			X			X	1013	X
Latvia				X					X	X	25% (>10)	X
Lithuania	<12m			X(**)						X	54	X
Netherlands				X						X		X
Poland		X		X					X	X	400	X
Portugal	X		<12m	>12m	X				X	>12m	250	X
Spain	X			X	X		X			X		X
Sweden	X			X	X				X	X	100-200	X
UK - England & Wales	X			X	X				X			
UK - Scotland		X		X	X				X			

(*) National log-books

(**) > 12 m and excluding > 40 m

(1) 2 % (<12m), 4-50% (>12m)

ANNEX B – Questions raised but not discussed during the training workshop

Fleet register and log-book information

- What to do in case of suspicion (evidence) on wrong allocation of gears in the fleet register?
- What to do in case gear information in the log-books do not match the gears defined in the matrix (GN, MIS) ?
- Where to report dedicated shrimp trawl in the matrix?
- How is target species defined in the logbook data?
- How is target species defined in market sampling if your sampling is stratified on species, sorting, area and season and each sample (a box of fish) is randomly selected in each stratum with no indication of gear, vessel and catch parameters?
- How do we obtain “fishing days” and/or “days at sea” if no effort information are available from logbooks (only date of leaving port and date of landing)?
- If the current suggestion for fisheries stratification is more detailed than the requirements in the logbook regulation, is there a risk for increasing uncertainties while raising biological sampling to fishery level ?
- How is it possible to separate trips at the selectivity level (panel or not) from the logbook information ?
- Is it possible to give rules how “Fishing Activity” must be obtained (analysis, asking) from each category of data (logbook data, market sampling, on-board sampling)?
- Is it possible to specify ‘amphihaline and freshwater species’ instead of ‘freshwater species’ which would include species like salmon and eel

Country specific issues

- What to do when the license and the declarative diaries for the segment of vessels < 12m. refers to the fishermen, not the vessel? What to do when no vessel has been used like in the case of gillnetting in shallow waters or ice fishing? (specific to Estonia).

Biological and discards sampling based on the matrix

- What will be the sampling level?
- Do we have to sample all the cells of the matrix?
- Will there be thresholds for the biological sampling of fishing activities in the revised DCR? If so based on what?
- If the segment of vessels < 10m. is going to be split, what will be the rationale?

Guidelines for analysis

- How do we handle the fact that level 6 (regulation) will change over time?
- How to ensure the consistency between old data and data which are going to be collected in the future?
- How discriminate the inshore and offshore fisheries?

ANNEX C – Anonymous example of matrix filled and reporting of problems

Proposed structure of the data matrix					
NEA					
Level 4 - Gear level	Level 5 - Regional level	< 12 m	12 - 24 m	24 - 40 m	>= 40 m
Boat Dredge	Molluscs	17982	2513	0	0
Mechanised/Suction Dredge	Molluscs				
Bottom otter trawl	Molluscs	3991	5304	762	0
	Crustaceans	1429	5666	8	0
	Demersal fish	5739	16175	10867	816
	Deep water species	0	0	1373	606
	Mixed crustaceans and demersal fish				
	Mixed cephalopods and demersal fish				
	Mixed pelagic and demersal fish				
Multi-rig otter trawl	Molluscs	0	690	0	0
	Crustaceans	707	14993	77	0
	Demersal fish	312	12110	1586	0
	Deep water species	0	21	188	0
	Mixed crustaceans and demersal fish				
Bottom pair trawl	Demersal fish	0	13	278	0
	Crustaceans				
Beam trawl	Crustaceans				
	Demersal fish	0	22	0	0
	Mixed crustaceans and demersal fish				
Midwater otter trawl	Pelagic fish	22	34	0	122
	Demersal fish	0	20	0	0
Pelagic pair trawl	Pelagic fish	160	1968	162	0
	Demersal fish	247	2845	44	0
Hand and pole lines	Finfish	660	94	12	0
Trolling lines	Pelagic fish				
Jigging	Cephalopods				
Drifting longlines	Pelagic fish				
Set longlines	Demersal fish	4184	720	266	0
Pots and traps	Molluscs	4034	144	0	0
	Crustaceans	9800	3307	0	0
	Finfish	632	0	0	0
Tangle net	Crustaceans				
	Demersal fish				
	Deep water species				
Trammel net	Demersal fish	7672	7785	12	0
Set gillnet	Demersal fish	4835	5658	3511	151
	Pelagic fish	74	0	0	0
Driftnet	Pelagic fish	1476	0	0	0
Purse seine	Small pelagic fish				
	Large pelagic fish	361	2686	32	0
Fly Shooting seine	Demersal fish				
Pair Seine	Demersal fish				
Beach seine	Finfish				
Glass eel fishing	Glass eel	12868	0	0	0
Diving	Molluscs	757	0	0	0

Zone	Level4_DCR	Level5_DCR	<12	[12-24[	[24-40[	[40-100[
NorthSea	Bottom_otter_trawl	Deep_water_fish	0	0	0	1674
NEAtlantic	Boat_Dredges	Demersal_fish	32	12	0	0
NEAtlantic	Bottom_otter_trawl	Pelagic_fish	24	266	0	0
NEAtlantic	Drifting_longlines	Demersal_fish	792	438	0	0
NEAtlantic	Driftnet	Demersal_fish	848	0	0	0
NEAtlantic	Hand_and_pole_lines	Demersal_fish	432	19	0	0
NEAtlantic	Hand_and_pole_lines	Pelagic_fish	238	75	12	0
NEAtlantic	Longlines	Demersal_fish	241	0	0	0
NEAtlantic	Purse_seine	Demersal_fish	0	134	0	0
NEAtlantic	Purse_seine	Pelagic_fish	361	2686	32	0
NEAtlantic	Set_gillnet	Crustaceans	1149	732	0	0
NEAtlantic	Set_longlines	Demersal_fish	3943	720	266	0
NEAtlantic	Set_longlines	Pelagic_fish	11	0	0	0
NEAtlantic	Shore_fishing	Crustaceans	222	0	0	0
NEAtlantic	Shore_fishing	Molluscs	1558	0	0	0
NEAtlantic	Tickle_chain	Algae	451	62	0	0
NEAtlantic	Trammel_net	Crustaceans	136	90	0	0
NEAtlantic	Trammel_net	Molluscs	541	63	0	0
NEAtlantic	Trammel_net	Pelagic_fish	11	0	0	0

	Difficulty to classify the gears used
	Métiers badly defined
	Target species not taken in account in the level 5
	No distinction between small and large for that gear
	Externality coming in the RCM area
	Non existing métiers - To group in OTHERS ?

ANNEX C – Anonymous example of matrix filled and reporting of problems

Proposed structure of the data matrix					
NORTH EAST ATLANTIC					
Level 4 - Gear level	Level 5 - Regional level	< 12 m (1)	12 - 24 m	24 - 40 m	>= 40 m
Boat Dredge	Molluscs	22			
Mechanised/Suction Dredge	Molluscs	408	980		
Bottom otter trawl	Molluscs	219	11564	9365	
	Crustaceans	154	16497	4494	
	Demersal fish	557	22417	28018	
	Deep water species				
	Mixed crustaceans and demersal fish				
	Mixed cephalopods and demersal fish				
	Mixed pelagic and demersal fish				
Multi-rig otter trawl	Molluscs				
	Crustaceans				
	Demersal fish				
	Deep water species				
	Mixed crustaceans and demersal fish				
Bottom pair trawl	Demersal fish	5	469	9712	
	Crustaceans			38	
Beam trawl	Crustaceans	10	5		
	Demersal fish	22	12		
	Mixed crustaceans and demersal fish				
Midwater otter trawl	Pelagic fish				
	Demersal fish		79		
Pelagic pair trawl	Pelagic fish				
	Demersal fish				
Hand and pole lines	Finfish	646	6451	2955	
Trolling lines	Pelagic fish	25	38		
Jigging	Cephalopods				
Drifting longlines	Pelagic fish	166	1299	282	
Set longlines	Demersal fish	838	3572	1617	
Pots and traps	Molluscs	5714	3958	7	
	Crustaceans	825	411	9	
	Finfish	627	1016	19	
Tangle net	Crustaceans				
	Demersal fish				
	Deep water species				
Trammel net	Demersal fish	2986	15222	3306	
Set gillnet	Demersal fish	2867	8046	1492	
	Pelagic fish				
Driftnet	Pelagic fish				
Purse seine	Small pelagic fish				
	Large pelagic fish				
Fly Shooting seine	Demersal fish				
Pair Seine	Demersal fish				
Beach seine	Finfish				
Glass eel fishing	Glass eel				
Diving					

(1) Vessels 10-12 meters

REMARKS: For this exercise, we are not able to distinguish among demersal, pelagic and deep water fishes in the gear level

Proposed structure of the data matrix					
BALTIC/2004					
Level 4 - Gear level	Level 5 - Regional level	< 12 m	12 - 24 m	24 - 40 m	>= 40 m
Bottom otter trawl	Demersal fish		88	231	
	Pelagic fish		764	23	
	Freshwater species				
Multi-rig otter trawl	Demersal fish				
Bottom pair trawl	Demersal fish				
	Pelagic fish		187	121	
Midwater otter trawl	Pelagic fish		166	11353	
	Demersal fish		1	745	
Pelagic pair trawl	Pelagic fish		567	2528	
	Demersal fish			8	
	Freshwater species				
Hand and pole lines	Finfish				
Drifting longlines	Pelagic fish		4		
Set longlines	Demersal fish				
Pots and traps	Finfish				
Tangle net	Demersal fish				
Trammel net	Demersal fish				
Set gillnet	Demersal fish			980	
	Pelagic fish				
	Freshwater species				
Driftnet	Pelagic fish		10		
	Demersal fish			31	
Anchored Seine	Demersal fish				
Beach seine	Finfish				

No data for 2004

No vessels in the Baltic Sea

ANNEX D – Comments from Italy on the difficulty to fill the matrix

When fleet segmentation methods have been discussed (Nantes 23-27/05/2005; RCM Athens 16-17/06/2005; Kavala 12-16/09/2005) two major points have to be considered at least for Italian regions:

1. the absence of complete official information on fleet activity. The logbook is compulsory in the Mediterranean only for a minority of fleet (vessels of overall length exceeding 10 metres) and will contain information only where vessels retain on board quantities exceeding 50 kg live-weight equivalent of the species included in a specific list (**Annex VII of Regulation (EC) No 2737/1999**).
2. the multi-specificity of the fleet. Most fishing-vessel licences allow the use of more than one fishing system. Moreover, the prevalence of small scale fisheries in the Italian fleet is coupled to a high degree of versatility, so that more than 80% of the vessels are authorized to use several fishing gears. Multi-gearred vessels are generally small sized ones, characterized by limited ability in transferring between fishing areas, and dependence on seasonal availability of resources. This, together with the geographical dispersion of the fleet, spread evenly across the national coastline, determines the presence of countless technical and productive microcosms, strongly correlated to the spatial/temporal distribution of the resources;

The proposal for fleet segmentation “matrix” is based on a generic approach to split the fishing trips into groups of similar exploitation pattern, clustered in a hierarchical tree. An equivalent multi level approach is applied to the fleets for economic sampling purpose. The economic and biological information can be gathered harmoniously in a matrix where the fleets segments correspond to the lines and the fishing activities correspond to the columns. The basis for filling the cells of the matrix should be the knowledge on a trip by trip of the gear used, area, targeted species, fishing time and catches per species (discards + landings). In particular, a crucial information for biological sampling and discard estimation is the number of trips per fishing activity in a given month.

In some countries and for vessels > 10 m. log-books give great part of this information (except the targeted species and discards). Even in this case, considering that the log-book information is an estimation of the landings made by the skipper, log-book data are generally cross-checked with the auction or the sales notes, when available.

When no official data exist, and this is the Italian case, a field survey is necessary to get the information on what kind of fishing activity has been performed by month. The exhaustive activity calendar implemented in France, for example, gives indication on metier and area practised and also gives an indication on the targeted species for all the registered vessels.

In Italy at the moment we do not have a grid of effort or production desegregated by fleet and fishing activities. We have information on production and effort "only" for fleet segments, as they are defined **by appendix III of EU regulation n. 1639/01**. Therefore, the “matrix” approach is not applicable.

To solve the problem, one option is to implement a kind of fishing calendar, like the one used in France, for vessels > 12 meters. This approach implies a yearly field survey to ask each vessel what kind of fishing activity (gear*area*species) they have practised the year before.

The implementation of a fishing calendar will present several organisational problems and could be expensive considering the high number of vessels and of landing sites.

At the same time, in Italy a network of data collectors already exists and it could be used also for the implementation of the fishing calendar. This network is composed by people established in the fishery world, who have working relationship with relevant associations and

ANNEX D – Comments from Italy on the difficulty to fill the matrix

fishermen service centres. Due to their closeness to the industry, people in these positions can easily contact ship-owners.

Small scale fisheries

The complexity of the small scale fisheries (vessel < 12 meters vessels using passive gears), in terms of species and diversity of fishing techniques and practices, together with its economic structure, requires fishermen to be flexible and to adapt quickly to external factors, including management measures.

From a data collection point of view, one crucial point is that the small scale segment is mainly composed by “multi-purpose” vessels (seasonally varying target species, fishing practices, etc.). Therefore, the first step in adopting a fishery-based approach, should be to identify the fishing activities employed by these vessels by area and by season. Obviously, for data collection purpose, the number of fishing activities to consider should be a compromise between precision and cost, which implies that fishing operations may have to be grouped into a limited number of fishing activities.

Two approaches could be suggested to collect basic biological information (see Kavala SSF Report 2005 Annex 1):

- an activity census of the small scale fleet. This solution seems to be too ambitious and not practicable to apply considering the high number of vessels belonging to the small scale segment and their geographical dispersion
- a sample approach. Starting from a representative sample of the segment, it will be possible to raise age-structured landings sampled by fishing activity to the total landings.

Conclusion

Following the above considerations, data on a trip level are not available for the Italian fleet. Therefore, to fill the cells in the grid a yearly field survey is necessary to collect information on the fishing activities practised the year before. This field survey can be considered feasible at least for vessels > 12 meters.

For small scale fisheries coverage of all the fleet will be too expensive and those vessels are characterised by a multi-purpose activities. Anyhow for the small scale fisheries a sample procedure seems to be preferable to some kind of census approaches because of the cost-effectiveness relationship.

ANNEX E – Proposal of Regional matrix to consider during the June meeting

		Proposed structure of the data matrix							
Level 1	Level 2	Level 3	Level 4 - EU level		Level 5 - Fishing activity Regional level				
Activity	Classes of gear	Gear Groups			Mediterranean level	North East Atlantic	North Sea and Eastern Arctic	Baltic	
FISHING ACTIVITY	Dredges	Dredges	Boat Dredge [DRB]		Molluscs	Molluscs	Molluscs	Molluscs	
			Mechanised/Suction Dredge [HMD]		Molluscs	Molluscs	Molluscs	Molluscs	
	TRAWLS	BOTTOM TRAWLS	Bottom otter trawl [OTB]		Demersal species	Molluscs	Molluscs	Molluscs	Molluscs
						Crustaceans	Crustaceans	Crustaceans	Crustaceans
						Demersal fish	Demersal fish	Demersal fish	Demersal fish
						Mixed crustaceans and demersal fish	Mixed crustaceans and demersal fish	Mixed crustaceans and demersal fish	Mixed crustaceans and demersal fish
						Mixed cephalopods and demersal fish	Mixed cephalopods and demersal fish	Mixed cephalopods and demersal fish	Mixed cephalopods and demersal fish
						Small pelagic fish	Small pelagic fish	Small pelagic fish	Small pelagic fish
			Deep water species	Deep water species		Freshwater species			
			Mixed demersal and deep water species	Mixed pelagic and demersal fish	Mixed pelagic and demersal fish	Mixed pelagic and demersal fish			
			Multi-rig otter trawl [OTT]	Demersal species	Molluscs	Molluscs	Molluscs		
					Crustaceans	Crustaceans	Crustaceans		
		Demersal fish			Demersal fish	Demersal fish			
		Deep water species			Deep water species	Deep water species			
		Bottom pair trawl [PTB]	Demersal species	Crustaceans	Crustaceans	Crustaceans			
				Small pelagic fish	Small pelagic fish	Small pelagic fish			
		Beam trawl [TBB]	Benthic and demersal species	Crustaceans	Crustaceans	Crustaceans			
				Demersal fish	Demersal fish	Demersal fish			
		PELAGIC TRAWLS	Midwater otter trawl [OTM]	Mixed demersal and pelagic species	Small pelagic fish	Small pelagic fish	Small pelagic fish		
					Demersal fish	Demersal fish	Demersal fish		
	Pelagic pair trawl [PTM]		Small pelagic fish	Small pelagic fish	Small pelagic fish	Small pelagic fish			
				Demersal fish	Demersal fish	Demersal fish			
	HOOKS AND LINES	ROD AND LINES	Hand and pole lines [LHP] [LHM]	FinFish	FinFish	FinFish			
			Trolling lines [LTL]	Large pelagic fish	Large Pelagic fish				
			Jigging	Cephalopods	Cephalopods				
		LONGLINES	Drifting longlines [LLD]	Large pelagic fish	Large pelagic fish				
			Set longlines [LLS]	Demersal species	Demersal fish	Demersal fish			
	TRAPS	TRAPS	Pots and traps [FPO]	Demersal species	Molluscs	Molluscs	Molluscs		
					Crustaceans	Crustaceans	Crustaceans		
	NETS	Entangling nets and gillnets	Tangle net	Demersal species	Crustaceans	Crustaceans	Crustaceans		
					Demersal fish	Demersal fish	Demersal fish		
					Deep water species				
			Trammel net [GTR]	Demersal species	Demersal fish	Demersal fish	Demersal fish		
					Small and large pelagic fish	Small pelagic fish	Small pelagic fish		
			Set gillnet [GNS]	Demersal species	Demersal fish	Demersal fish	Demersal fish		
							Freshwater species		
	Driftnet [GND]	Large pelagic fish	Large pelagic fish						
	SEINES	Surrounding nets	Purse seine [PS]	Large pelagic fish	Small pelagic fish	Small pelagic fish	Small pelagic fish		
					Small pelagic fish	Small pelagic fish	Small pelagic fish		
			Lampara nets [LA]	Small and large pelagic fish					
		Seines	Fly Shooting seine [SSC]	Demersal species	Demersal fish	Demersal fish	Demersal fish		
			Anchored Seine [SDN]	Demersal species	Demersal fish	Demersal fish	Demersal fish		
			Pair Seine [SPR]	Demersal species	Demersal fish	Demersal fish	Demersal fish		
			Beach seine [SB]	Demersal species	Finfish	Finfish	Finfish		
	OTHER GEAR	OTHER GEAR	Glass eel fishing	Glass eel	Glass eel	Glass eel			
MISCELLANEOUS	MISCELLANEOUS	Diving							
OTHER ACTIVITY THAN FISHING			Other activity than fishing	Other activity than fishing	Other activity than fishing	Other activity than fishing	Other activity than fishing		
INACTIVITY			inactive	inactive	inactive	inactive	inactive		

ANNEX F - Economic indicators available for each country – Priority for the CV analysis

	Gross revenue	Crew cost	Fuel costs	Repair and maintenance costs	Other operational costs	Investment (Insurance value)	Employment	Days at sea (effort)
France								
Germany							X	
Holland						X		
Greece	X	X	X	X	X	X	X	X
Belgium						X		
Sweden							X	
Spain								
Latvia		X	X	X	X	X	X	X
Lithuania				X		X		
Cyprus						X		
Portugal		X	X	X	X	X	X	
Finland		X	X	X	X	X		
Poland								
Italy						X		
Denmark								
Scotland *								
Estonia *								
Malta *								
United Kingdom *								
Ireland *								

X: corresponding to missing information at individual level

*: No expert present in the Nantes March's meeting

ANNEX G - Explanation of the methodology to allocate vessel based on typology 2
(100% exclusivity criterion)

1/ First Step: Synthesis of the annual fishing activity for each vessel of the French Fleet

Necessity of clustering “Métiers” to “Gears” through a “hierarchical tree”.

Gears “level” retained:

Bottom Trawls - Pelagic Trawls - Dredges - Glass eel gears - Seines - Other towed gears;

Nets - Pots and Traps - Lines and Long Lines - Other fixed gears;

Other activity than fishing – Inactivity

Calculation per vessel of:

- Number of gears used

- Number of months of use per gear

- Addition of the indicators resulting from the precedent point, to define a percentage of use per gear

2/ Second Step: Segmentation of all the vessels using “trawl” gears

Vessels using only “trawl” gears => Exclusive Trawlers divided into:

Exclusive Bottom trawl

Exclusive Pelagic trawl

Mixed bottom and pelagic trawl

Vessels using “trawl” gears and at least one more gear => Non Exclusive trawlers divided into:

Trawler also using dredges (possibly glass eel gears and/or fixed gears)

Trawler also using glass eel gear (possibly fixed gears)

Trawler also using at least one more fixed gear

3/ Third Step: Segmentation of all the vessels using “Seines”

Seiners divided into:

Exclusive Seiners (use only “seines”)

Non exclusive Seiners (use “seines” and at least one more gear)

4/ Fourth Step: Segmentation of vessels using one other towed gear

Other towed gear divided into:

Dredges (Exclusive and Non Exclusive (at least one more fixed gear - possibly glass eel gear))

Glass eel gears (Exclusive and Non Exclusive (at least one more fixed gear))

After this step, all vessels using at least one “towed gear” belong to one and only one Fleet Segment.

NB: The fishing effort is estimated for the moment by number of month(s) of activity per gear.

ANNEX G - Explanation of the methodology to allocate vessel based on typology 2
(100% exclusivity criterion)

5/ Fifth Step: Segmentation of vessels using at least one “fixed gear” and only “fixed gears”

Distinction between the following four fixed gears:

- Nets
- Pots and Traps
- Hook métiers
- Other fixed gears - primarily coastal gears

Distinction of fleet segments based on gears combination:

- Exclusive Netters (possibly coastal gears)
- Exclusive Pots - Traps (possibly coastal gears)
- Exclusive Hook métiers (possibly coastal gears)
- Netters and Pots - Traps (possibly coastal gears)
- Netters and Hook métiers (possibly coastal gears)
- Hook métiers and Pots - Traps (possibly coastal gears)
- Exclusive coastal gears

6/ Sixth Step: The inactive vessels

Distinction of the inactive vessels

ANNEX H - Level of information per country to achieve the CV analysis and allocate their economic sample to alternative typologies (distinction between >12 meters and less than 12 meters vessels)

Country	Vessels > 12 meters					Comments
	Typology 1 : DCR Dominant Gear	Typology 2 : Hierarchical Tree – 100% Exclusivity criterion (based on EU Fleet register)	Typology 2b: Hierarchical Tree – 100% Exclusivity criterion (based on complementa ry data)	Typology 3: Hierarchical Tree – X % Exclusivity criterion (based on information of % activity per gear)	Typology 4: Hierarchical Tree after a Threshold value (based on information of % activity per gear)	
France	X	X	X	X	X	Based on Annual Fishing calendar complementary to logbooks
Germany	X	X	X	X	X	
Holland	X	X	X	X	X	
Greece		X				
Belgium	X	X	X	X ?	X ?	
Sweden	X	X	X	X	X	
Spain	?	X	?	?	?	
Latvia	X	X	X			
Lithuania	X	X	X (1)			(1) Just to determine inactive vessels
Cyprus	X	X	X	X	X	
Portugal	X	X	X	X	X	
Finland	X	X	X	X	X	
Poland	X	X	X	X	X	
Italy	X	X	X	X	X	
Denmark	X	X	X	X	X	
Scotland *		X				
Estonia *		X				
Malta *		X				
United Kigdom *		X				
Ireland *		X				

X: corresponding to available information

*: No expert present in the Nantes March's meeting

ANNEX H - Level of information per country to achieve the CV analysis and allocate their economic sample to alternative typologies (distinction between >12 meters and less than 12 meters vessels)

Country	Vessels < 12 meters					Comments
	Typology 1 : DCR Dominant Gear	Typology 2 : Hierarchical Tree – 100% Exclusivity criterion (based on EU Fleet register)	Typology 2b: Hierarchical Tree – 100% Exclusivity criterion (based on complementa ry data)	Typology 3: Hierarchical Tree – X % Exclusivity criterion (based on information of % activity per gear)	Typology 4: Hierarchical Tree after a Threshold value (based on information of % activity per gear)	
France	X	X	X	X	X	Based on Annual Fishing calendar
Germany	X	X				Allocation is done using the gear n°1 in the Fleet register
Holland	X	X	X	X	X	
Greece		X				
Belgium		X				No vessels less than 12 meters
Sweden	X	X	X	X	X	
Spain		X				
Latvia	X	X				
Lithuania	X	X				Only 2004 data available
Cyprus	X	X	X			No data on the % of gear used for each individual vessel
Portugal	X	X	X (1)			(1) Based on licensed gears
Finland	X	X	X (1)	X (1)	X (1)	(1) Information available but will included lot of work
Poland	X	X	X	X	X	
Italy	X	X	X	X	X	
Denmark	X	X	X	X	X	
Scotland *		X				
Estonia *		X				
Malta *		X				
United Kigdom *		X				
Ireland *		X				

X: corresponding to available information

*: No expert present in the Nantes March's meeting