

MedStat 2011 – Fishing Vessel Census
OPERATIONAL MANUAL



By

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About this document

The authors would like to inform the readers that this document should be used in conjunction with its supplement which relates to the data structure, definitions and reference system. The supplement included with this edition shows the basic structure of the system, but other specific supplements are made available for each country or situation. It is also recommended that readers consult other related documents within this publication series such as the "Census Design and Implementation", the "Training Manual", the "System Design" and the "Software Documentation".

Abstract

The *FAO* programme *MedStat* developed within the activities of the *MedFisis* project provides a methodical approach to the challenge being faced by a country which is planning to undertake a National Fishing Fleet Census. The present document is part of a series of documents providing guidance on the implementation of a Fishing Fleet Census. Precisely, it describes the roles and tasks of the National Coordination Team, Supervisors and Field Recorders and provides guidelines on the management of the fleet survey, including budgeting, team structure, supervision, data quality control and practical aspects in conducting the survey. In addition, it provides detailed instructions on field work preparation, interviewing techniques and information recording practices. Furthermore, the document addresses the importance of the development and management of a dedicated database, in which the data collected is stored and processed, together with the key features and facilities required for statistical purposes and data management routines.

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In addition, special recognition goes to the many anonymous fishery field officers and statistical Recorders whose daily work provides the basics on which important decisions are often taken.

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Introduction

A *National Fishing Fleet Census* is a major undertaking for a country. Within the chosen working framework the census comprises the collection, through a specially designed *questionnaire*, of data on all the fishing vessels in a country or, according to national requirements, the task can focus on a particular fleet segment only (*i.e.* commercial fishery, artisanal fishery, inland water fishery, sport fishery, *etc.*). This is achieved by collecting the data directly at the ports and/or landing places and interviewing fishermen and vessel owners by means of the questionnaire. Theoretically, a census should take place on one occasion, covering the whole national fishing fleet (target population) in one day - a snapshot of the entire fleet at a single moment in time. However, in practice it takes some time to plan, and usually between one to three months to carry out.

A methodical approach to planning and conducting a fleet census has been developed by the *FAO MedFisis* project¹. *MedStat* provides the user with detailed instructions so that the census exercise can be undertaken within a comprehensive programme which coordinates the activities of all participants. These instructions are provided in the three sections which comprise this document; they are:

Section 1. for the **National Coordination Team** which offers advice on how to manage the whole survey in the areas of planning, budgeting, supervision, decision making and serving as a link to the government and to other major statistical data user institutions.

Section 2. for **Supervisors** which offers guidance on how to organise the logistics of the survey, participation in the recruitment of local *Field Recorders* and the distribution of their workload, the overall supervision of the exercise and the checking and validation of the collected data.

Section 3. for **Field Recorders** which provides detailed instructions on how to prepare for the field work, techniques to be employed in interviewing fishermen at ports or landing places, and explanations of the contents and correct completion of the questionnaires by using the *Data Field Descriptions* and *Reference Tables*.

The collected information is input in a dedicated database which becomes the *National Fishing Fleet Register* (or the Register of a certain fleet). Experience suggests that the Fishing Fleet Register database should mainly deal with data collection and storage, data management in the wide sense, data processing and presentation of the results, and limited and stable associated statistical analyses only. Built-in statistical analysis routines should only be limited to descriptive statistics and presentation. It is suggested, instead, to have, among the data management routine, a powerful and wide-ranging data “export” facility in order to enable user to exploit census data through commercial statistical packages to perform statistical analyses according to the needs.

Objectives of a Census

The objective of the census is the establishment of a detailed inventory of the fishing units of a country which will, among other things, facilitate managerial decisions. To this end, interviews have to be carried out following the questionnaire developed for this purpose. These interviews must produce quantitative and qualitative data on the national fishing fleet, specifically:

- the size of the fishing fleet in the country (list of all vessels),

¹ Coppola, S., Mosteiro, A. and Camilleri M. 2011. *MedStat 2011 – Fishing Vessel Census; Census design and implementation*. GCP/INT/918/EC/MedFisis - *MedFisis Technical Document*, 88 pp

- the fishing vessels' characteristics (length, gears used, equipment, *etc.*),
- the fishing vessels' distribution (base ports, fishing areas),
- the fishing seasonal pattern
- useful information used to extract statistics necessary to guide the management of the fleet and the resources targeted by this fleet.
- census data are the basis for any other surveys to be carried out in the field of fishery research (catch and effort, biological, economical. socio-economical, etc).
- finally, it is worth recalling that all countries have regional and international commitments in the area of data and information submission. The Census data are building blocks of any extra-national data base.

Section 1 – The National Coordination team

In setting up a census exercise, as in most activities, somebody should be nominated by the central Administration to coordinate and monitor the work. In a partial or small exercise, an individual with an appropriate professional profile may suffice. However, in the case of a national census and/or in medium/large countries, coordination should be the responsibility of a specially recruited team.

It is frequently the case that an individual nominated to take charge of a census exercise, because of high-level institutional commitments, or because his/her qualifications do not fully cover all aspects of the census exercise, are not able to manage the entire range of organisational and technical demands of the work. For this and other practical reasons, it is strongly recommended that in order to properly set up a national census, a Steering Committee, nominated and chaired by a *National Coordinator*, be established to assist throughout the implementation of the census. The first task will be to draft the terms of reference of the Steering Committee, its objectives, mandate, and expected outcome, as well as committee candidates' profiles, tasks and expected commitments, etc. Moreover, if the National Coordinator is not a specialist in census organisation or is not able to give full-time attention to this task, then he/she should appoint a census specialist to the team

The census of a national fishing fleet is a major undertaking that involves many people and activities that need to be well coordinated for the outcome to be successful. Although significant time is required to plan and implement a census, it is strongly recommended that, whatever the size and the characteristics of the fleet (the target population), it is completed within a year.

The above comments should be taken into serious consideration and therefore the overall responsibility for the census exercise must rest with an official, the National Coordinator, nominated by the government or by the National Census Office (or equivalent). This role should be undertaken by a high level national public officer who will be the person ultimately in charge of the census exercise. He/she should have a managerial profile and will be a facilitator for the overall programme. It is therefore crucial that the National Coordinator is involved in all the main steps of the exercise, especially those where major decisions need to be taken.

The National Coordinator will be in close contact with the Steering Committee who is the main counterpart on technical issues and is in charge of Field Supervisors under which operate the Field Recorders. The National Coordinator should be present, or interact, at every high level meeting (national or international) dealing with the census exercise.

Main tasks of the National Coordination Team

The national coordination team has many commitments and will deal with practically the whole programme of work which can be summarised as three main responsibilities:

- overall organization of the census and all its components,
- overall control of the implementation phase (including relationships with external entities), and
- survey evaluation and system consolidation.

Major individual roles

Although the coordination team acts as an ensemble, the responsibilities of individual members will differ in time commitment, accountability and expertise:

The National Coordinator will have a managerial profile and have a position within the Ministry (for fisheries or national statistics) that allows him/her to take decisions on behalf of the government and also support, with administrative backing, the advice given by the

technical experts (Steering Committee, International Consultants, *etc.*). He/she will make sure that the whole exercise is coherent at the national level, and will be able to take important decisions regarding funds, staff and the general administration of the exercise. The National Coordinator has to report to the government the proposed activities, and has to have the capacity to take decisions that will facilitate the smooth running of all activities decided upon. Therefore, he/she would be a sort of facilitator for the exercise; he/she would, for example, facilitate access to restricted areas (such as certain harbours) or even seek funding for the exercise if necessary.

The National Coordinator will also report the results to the government, and be the link between the major managerial participants in the exercise (authorities, steering committee, statistical office, international consultant *etc.*). The National Coordinator launches the census exercise and participates in its design and planning. He/she is also responsible for the inspection of the whole exercise and could intervene according to political/administrative requirements that may arise before or during the survey (for example, a change in the law, change of strategy for the exercise, *etc.*). The National Coordinator could propose Steering Committee members according to required profiles.

The main tasks of the National Coordinator therefore include:

- participation in the general planning of the survey,
- involvement in the identification and selection of an advisor (census specialist),
- involvement in the recruitment/selection of the Steering Committee,
- launching the census exercise,
- instructing the Steering Committee Members regarding ministerial/government requirements (administrative, political, logistic or budgetary),
- facilitating the implementation of the pilot survey,
- preparation of budget estimates, decisions on budget allocation (staff, vehicles, overtime, *etc.*) and acquisition of funding when necessary,
- inspection of the census exercise in coordination with the Steering Committee members,
- acting as the link between the major managerial participants throughout the census exercise,
- resolving any administrative or political issues that may arise at any time, and
- presenting the results of the census exercise to the national authorities.

Steering Committee members will have a technical background (scientist, statistician, biologist, research institute representation, fishermen's syndicates, *etc.*), and therefore understand the technical issues related to the program, be able to decide whether it is feasible or not and give advice on the way forward as well as technical leadership. It should be considered mandatory that all the primary users of the Census results are member of the Steering Committee. The Steering Committee will be in charge of the field (or local) Supervisors and be able to provide replacements for them if necessary. It will work in direct contact with the National Coordinator on any important matters and updates him/her with the latest issues or results (see the next section for more information). It will also draft, in consultation with the expert (if needed), terms of reference for external teams to be associated with the Census implementation such as the data processing, which is often reported to be a difficult task. This is mainly because the data processing system design and its implementation are rarely clearly defined right from the beginning, which leaves a series of issues undecided and this may create friction when they have to be resolved. The above case refers mainly to the design of the database, the computer platform and the programming language to be chosen, its functionalities, limits to variations/modifications allowed during the survey, number and type of query panels, number and formats of foreseen outputs, training

tools and training availability, on-line technical assistance, documentation and, finally, the system copyright (both the intellectual and ordinary ownerships). Another area where problems could arise might be with agreements with transport companies, data entry operators, Field Recorders (shift times, night times and overtime) *etc.*, practically whenever the “who is doing what, when and how” question arises. It is recommended that an expert be involved before the agreements are discussed and reached. To summarise, the Steering Committee is in charge of all technical aspects of the *Census Survey*. It gives advice to the National Coordinator on any technical issue regarding the survey. It has the role of coordinating the work of the local Supervisors, under whom the Field Recorders operate.

External/ International Consultant. This role will arise when carrying out a census exercise with the support of an external expert who could also be an international expert recruited for the purpose. The consultant would advise on the data collection and data processing methodologies to be applied in order to make sure that they are adequate and follow international standards. He/she would also provide advice at the planning, design and data processing stages. The international consultant would participate and give support in the implementation of the exercise as well as in the setting up of the software and related training. He/she could monitor the census exercise and provide advice to the National Coordinator and Steering Committee. In *Appendix 3* general terms of reference for an external consultant is reported for reference.

Main tasks of the National Coordination team as a whole

Among the numerous tasks with which the team is charged, the following are the most representative:

General planning of the survey

Within the chosen framework, the National Coordination Team decide on the general planning of the *Census Survey* together with any other stakeholder considered important. Extensive information is available in *Design and Implementation of a National Fishing Census* (see *MedStat, 2001.a* in *References*). The National Coordination team should comprise all the expertise necessary to design and carry out the census. This includes:

- approval of the assessment and the quality check survey reports,
- mediation to obtain ministerial/parliament approval,
- establishing contact with other participants in the census exercise (national statistical office, research institute, *etc.*),
- participation in the definition of the national strata, the dataset and the database model to be used as well as the output requirements,
- taking decisions on budget allocation, resources, training, *etc.*
- participation in the design of a pilot survey, and
- authorising the implementation of informative seminars for local port authorities and fishermen associations.

Selection of Steering Committee members

The National Coordinator should provide assistance to the Ministry in recruiting an experienced advisor, representatives of all the involved stakeholders and several Supervisors who will be in charge of the team of Recorders. The Steering Committee Members must have technical experience in fisheries data collection exercises and, if possible, in fisheries statistics too. They should preferably have a scientific background and will be responsible for all technical aspects of the exercise. Moreover, they will be in charge of Local Supervisors who oversee the Recorders activities and will be the link between them and the National Coordinator.

The Local Supervisors should have extensive experience in fisheries field exercises, particularly in data collection, and should preferably be some of the most experienced Recorders. They will supervise the activity of the Field Recorders, guide them during the exercise and collect the completed questionnaires. The number of Local Supervisors to be recruited depends on the extent of the coastline and the size of the fishing fleet to be surveyed. Other factors which will influence the number of Supervisors to be recruited include the budget and the time allocated to the census.

Launching the census exercise

The census exercise must be launched from the Ministry concerned, probably with Parliament approval. Usually, the person officially launching the exercise is the National Coordinator in view of his/her responsibility over the whole exercise.

Giving instructions on methodology

The National Coordinator has to provide the Steering Committee Members with all the instructions necessary to carry out the census exercise in a coordinated way.

In the first place, the National Coordinator must ensure that the information regarding the port/landing place list is made available by the national authorities and is updated and correct. An extensive list of fishing Ports and landing places should also be provided. If this is not available, then the National Coordination team will need to organise a *Port Survey* to be carried out. This may be either prior to the *Census Survey* or at the same time, depending upon the resources available and the convenience of one method or the other.

For this purpose, a port/landing questionnaire is available from the *MedStat* system (see *Appendix 1*). The *Port Survey* will produce very valuable information about the geographical distribution of the ports and an overview of the distribution of fishing vessels. If done before the *Census Survey* then it will greatly help in the organisation of logistics and distribution of the workload among Recorders and Supervisors. Of course, this approach will involve greater expense.

On the other hand, although conducting the *Port Survey* at the same time as the *Census Survey* would reduce costs (logistics and personnel) it would not provide information prior to the census, so that the general organisation may have to be revised during the survey. This could include reorganisation of logistics and relocation of Recorders according to the situation in different ports such as number of vessels, distance to base, *etc.*

Regarding the data collection exercise, whether it is the *Port Survey* or the *Census Survey* itself, the Coordination team will need to inform the Supervisors about the number of Recorders to be recruited and number of cars and other items available, as well as about any changes in the time frame for the survey to be carried out.

Implementation of the pilot survey

Once the team has been selected, trained and briefed on the survey methodology, a *Pilot Survey* must be carried out so that the team may acquire hands-on experience and become acquainted with the real situation of the fisheries sector. The Coordination team must first decide on resources and time required for this survey, and then launch the pilot survey. This exercise will provide an excellent opportunity to ask questions, solve problems and face a real survey situation. It will also reveal the first picture of the national fleet. The pilot survey could be used as the beginning of the *Census Survey* so long as there are no major adjustments to be made to the census design.

Budget estimates and allocation

Starting with the budget made available by the national authorities for the *Census Survey*, the National Coordination team has to consider the number of ports, the approximate number of vessels and the time restrictions, if any, in order to plan for the number of Recorders that need to be recruited and their daily work schedule. When only a small number of Recorders is recruited then there will be a need to

consider payment for extra hours. Night shifts must also be considered since payments to Recorders will be significantly higher for extra hours and during night shifts.

The provision of cars must also be considered, taking into account geographical limitations (long distances to ports, etc.). The budget must also provide for the training of Recorders and Supervisors. The training should be conducted on national premises by specialists in the field. It is crucial to provide proper training for the whole survey team (see *MedStat, 2011e. in References*).

In cases where extra budget resources are necessary during the census exercise, it will be the responsibility of the National Coordinator to seek the necessary funding.

General Supervision

The National Coordination team is responsible for the general supervision of the exercise. It should meet once a week in order to discuss any developments or problems that have arisen in the survey, and decide the way forward. The National Coordinator will be informed of the number of questionnaires collected weekly, and any problem that could affect the execution of the survey.

Organisation of data entry, processing and analysis

The National Coordination team must ensure that the team chosen to deal with the data entry and data quality control is working properly and according to the contract. Once the Local Supervisors have agreed on the consistency and contents of the collected questionnaires, the team has to start the processing and analysis of the data, as they are reported by Field Recorders, supervised by a member of the Steering Committee. Ongoing statistics must be produced in order to spot in good time any possible deviation from the original plan. The Steering Committee Members have the opportunity, if requested, of double checking the questionnaires before handing them in for the data entry process.

Link with Ministry

During the whole census exercise, the National Coordinator will keep the Ministry informed of the progress of the activities and the major issues that have arisen. He/she would also be the link between the major players in the exercise (Steering Committee Members, Field/Local Supervisors, international expert/consultants, national statistics office, and national government authorities). The National Coordinator will then be able to report to the national authorities any new activities/improvements suggested by the experts.

Survey results

The results of the survey (Fishing Vessel Register) should be presented to the Ministry in the form of a report. Once this report receives the Ministry's approval (after amendments if necessary), it should be made available to national and international bodies in different formats and presentation according to the various obligations and agreements.

Survey evaluation and system consolidation

Once the overall field work and data processing is completed, an in-depth analysis of the system for the Ministry should be undertaken prior to the transfer being formalised. The assessment should concern all the major domains that the survey covered, in particular:

- the adopted statistical design,
- the implementation (including cost analyses and lessons learned), and
- the data processing and reporting system.

Only after such an assessment should the system be handed over to the committing entity (*i.e.* the Ministry or the National Census Office). There is no standard way to assess the survey results; it really depends upon magnitude of the survey, the resources available and how the survey was designed and conducted, and by whom. Considering the assessment in greater detail:

Statistical system design

The coordination team should make a retrospective analysis of the requirements that they had specified at the design stage and compare these to the results actually achieved. Primarily, the results of the survey must be matched against the national and regional frameworks to ensure that a satisfactory standard has been achieved in both contents and coverage. The adopted stratification and codification systems must easily integrate into national and regional grids. No geographical area should be left uncovered and if there are any gaps they must be reported.

Should time and financial resources be available, or already planned in advance, a Quality Check Survey, targeting some important characteristics in some critical areas should be launched to assess the quality of the collected statistics. Should any serious errors, omissions, or suspected cheating / fabricated statistics arise, then immediate action is required. Normally, apart from random errors or inaccuracy, some cheating or negligence is found in a limited number of cases, particularly where there has been difficult access to fishing boats, or where a poor Recorder was supervised by a negligent Supervisor. There may also be situations in which the Recorder did not report, for whatever reason, problems that he encountered with the fishermen who, for example, may have refused to be interviewed or to have their vessels' characteristics measured. In such a case the unfortunate Recorder may have estimated these measurements but did not report it

It is evident that in situations such as these another localised survey must be undertaken and the situation rectified. Although frustrating, these cases should not be treated as serious problems, as they would be in a Catch and Effort Survey, since the data are static and can be recovered if timely action is taken.

Implementation and lessons learned

A summary of all the Supervisors' reports regularly submitted during the survey and decisions taken, if any, should be fully scrutinized. If mistakes were made or odd decisions taken they should be reviewed in the light of the experience gained, and perhaps used *a posteriori*, to rectify particular situations. Also, a list of the best Field Recorders and Supervisors should be compiled and kept in case there is a follow-up or any other fishery statistical survey.

Cost analyses should also be undertaken and the way in which the financial resources were used be assessed. It is also suggested that a comparative analysis be made of actual costs against those which may have arisen had other survey method techniques been adopted. The survey cost analyses, apart from its institutional value, may also serve to better estimate consolidation and running costs for the survey updating and maintenance.

All the members of the steering committee, which includes all primary users, must give their official approval of the reporting system and external communication of the census database

Data processing and tabulation

A detailed dossier concerning all administrative and technical specifications of the Census database must be prepared. The file, in addition to the technical specifications of the system, must also contain all the contacts, administration protocols, passwords, statuses, settings and the environmental structure. The dossier should be carefully evaluated by the expert team and appropriately validated.

Final tuning of the system, quality control and extensive testing of the produced software must be performed, possibly by a team.

It is suggested that the final version of the Census with all the associated technical specifications produced during the development phase be officially released to the committing entity together with the system administration procedures and the crisis management tools and any other relevant parts.

The developed system as a whole (data sets, settings, coding, protocols, management, *etc.*) duly documented and jointly tested segment by segment should be handed to the national programmer. He should also receive, for each segment, and for the system as a whole, an acceptance note inclusive of eventual doubts, constraints and any other comments that may help the maintenance and further expansion of the census database.

It is imperative that the system works properly, be error free, and that the implementation environment is fully available and owned by the Ministry/Department.

The tabulation system must be consistent with the system design and the export functions must provide up-loading/downloading facilities for general purposes as well as for specific requirements.

Survey consolidation.

This section should be read in connection with the chapter “*Conclusions; Census maintenance and its sustainability*” described in the report “*MedStat 2011. Design and Implementation of a Fishing Vessel Census*. MedFisis Technical Document. S. Coppola, A Mosteiro and M. Camilleri. FAO, Rome 2011”(see *MedStat, 2011.e* in *References*).

Based on the assessment made, the experts should estimate the running costs as well as the legitimacy of the updating and maintenance work being programmed.

Human and non-human resources should be estimated for the updating and maintenance of the system as a whole as well as the data management needed to keep the census data as much as possible reliable and up-to-date. If there are bills to be paid annually, such as hardware maintenance, software up-datedness, improvement and expansion of the reports, interaction with other system in the same domain, *etc.*, or any other foreseeable expenditures, these figures must be budgeted in advance and be part of the handing-over process.

Section 2 – The Supervisors

The census exercise comprises the collection, through the specially designed *questionnaire*, of data on all fishing vessels in a country. It is apparent that the quality of the eventual output and analyses must depend, to a great extent, upon the quality and accuracy of the information collected by the Field Recorders. The supervision of data collection is, therefore, crucial to the value of the overall operation and is the responsibility of the National Coordination Team, which is in charge of all technical aspects of the Census Survey, and Local Supervisors who oversee the day-to-day work of the Field Recorders.

Role of Local Supervisors

Ideally, Local/Field Supervisors should be experienced Recorders. They will have to inspect the work of the Recorders and, if necessary, replace them. Moreover, the Local Supervisors have to screen all questionnaires before passing them over to the steering committee.

A *Census Survey* takes between one and three months to be carried out. Due to the great importance of this exercise it is essential to establish a strong network between all participants in order to minimise mistakes and to keep all activities under control. There should therefore be weekly meetings of the Steering Committee Team and local Supervisors for a debriefing of the week's activities and to hand over the questionnaires completed during the week and screened by the Local Supervisors. They should also keep the National Coordinator informed. If possible, the Local Supervisors should meet on a daily basis with the Field Recorders in order to collect the daily questionnaires and to debrief them on any errors found. This meeting activity is very important to safeguard homogeneity and establish a correct harmonization of the system throughout the country through the adoption of clear instructions for the Field Recorders to prevent any odd situation they may encounter.

Technical preparation

In order to start preparation for the survey, certain information/documentation is needed:

- **List of ports** should be made available by the national authorities (National Coordinator); otherwise a port survey has to be carried out prior to the census of fishing vessels (see ports questionnaire in the *Census Recorders' Field Manual*).
- **List of vessels:** should be made available by the national authorities, even if it is only an outdated list.
- **Recorders' Field Manual.**
- **Training material** including national fishing vessel types, gear descriptions, species identification keys, etc.
- **Map of the country** with the statistical strata and ports.
- **Instructions from the National Coordinator** on the starting date, available time and resources to carry out the *Census Survey*.

The survey

Field operations are fundamental to this type of survey and therefore supervision of the work is crucial for its success. From the Supervisor perspective, the procedure to be implemented is divided into the following phases:

- Logistics: survey organization (national Supervisor' role).
- Recruitment, training and distribution of the workload to the Recorders.
- Data collection.
- Supervision of the Recorders' work (Local Supervisors' role).
- Data screening.

Logistics

The organisation of the survey should start with the following considerations:

- identification and number of landing places and their location (list of ports/landing places),
- approximate number of vessels (units to be surveyed) per port (big/small ports),
- assessment of the accessibility of each port (access from a road or behind a cliff, distance to the Recorders base, *etc.*),
- coastal length and distance between ports,
- number of Recorders available for the survey,
- number of cars available (one car must be made available to the Supervisor), and
- the total number of days allocated to the census exercise.

As stated in the previous section, it is necessary to have an updated list of ports in order to organise the survey. If this list is not available or not updated then it will be necessary to carry out a port survey (see *Part 3 The Field Recorders* for further explanations and questionnaire).

The number of Recorders to be recruited depends on a number of mainly budgetary issues and is one of the tasks of the National Coordinator. The Steering Committee Members will be briefed by the National Coordinator on a number of issues including the time allocated to the survey (available total number of days and hours per day), the number of Recorders to be recruited and the number of cars or other vehicle available. One car, or any other means of transportation, must always be available for the Supervisor to be able to visit any port for supervision of the work or provide assistance should the need arise.

The Supervisor must also make sure that all materials needed by the Recorders are provided to them: hard copies of the questionnaires, pencils, rubbers, a cloth, a torch and a measuring tape. The Supervisor is also responsible for informing the local port authorities on the identity (name, contact details) of the Recorder assigned to their area and the starting date and duration of the exercise.

Recruitment of Recorders

The Recorders should as far as possible, be recruited locally, *i.e.*, from each stratum. This simplifies the logistic problems connected with the displacement of the Recorders. Moreover, in this way each Recorder will be familiar with the area assigned and therefore be aware of social issues, geographical constraints and may have some knowledge of the local fisheries. Night shifts and overtime have to be considered when recruiting Recorders, because of the personal and economical implications associated with them.

It is always advisable to recruit experienced Recorders first. Priority should be given to those having previous experience in the field of fisheries (census exercises, catch surveys, biological parameters, *etc.*); however, experience in other types of surveys could also be an advantage compared with no experience at all.

Training of Recorders

It is essential for the *Census Survey* Recorders to have proper training before the start of the survey. Ideally, as stated, the Recorders should have a fisheries background or knowledge, but in reality for some of them this could be the first occasion on which they are directly in contact with the fishermen's environment. The Recorder training should take place at the local/national research institute or similar premises before the start of the *Census Survey* and immediately after their recruitment (see *Training Manual* in references).

The ***theoretical training*** should comprise:

- the *Census Survey* (general explanation, purpose, survey area, survey plan and organisation),
- interviewing and data acquisition techniques.
- questionnaire, data field definitions and reference system (compilation of questionnaires, how to use the field definitions and reference system),
- knowledge of the local fisheries sector: vessel types, fishing gear specifications, descriptions and use, documentation, equipment, fish species, areas, periods, fishing techniques, *etc.*

- GPS and map use (only for the port survey).

Recorders should be provided with a copy of Part 3 of this document, which is a sort of *Census Field Manual for Recorders*.

The **practical training** (on-the-job training) is usually carried out during a *Pilot Survey*. This usually takes place before the census exercise for which the Supervisor has to receive detailed instructions from the National Coordinator. However, if a pilot survey does not take place then practical training can be organised for the group of Recorders in a port, so that they can become familiar with interviewing, data collection and the compilation of questionnaires. It can also be the first opportunity for them to become familiar with the main vessel types and gears; it is also a good occasion for them to raise questions. The training exercise should be carried out in the same manner as it will be during the *Census Survey*. It will also provide a good opportunity for the Supervisor to check the questionnaires compiled by the Recorders and provide further clarifications. Trained and experienced Recorders should be retained for further exercises.

Workload

The distribution of the workload must follow equity and uniformity criteria, in such a way as to avoid overloading some Recorders. Therefore, when recruiting the Recorders for each stratum, care has to be taken to recruit a number of Recorders proportional to the vessel density and length of coast *etc.* Knowing the number and size of ports (in terms of number of vessels) and the number of Recorders available to carry out the survey, a straight forward division can be made in order to obtain the number of ports/vessels that have to be assigned to each Recorder.

After this first calculation, some adjustments have to be done by assigning the closest ports to each Recorder to ease the transportation requirements and best use the time available. Moreover, the distance between the ports assigned to each Recorder and any other geographical limitations have to be considered. If necessary a car must be made available for the Recorder, or that port reassigned to another Recorder closer to the area. When a port or a group of ports is isolated and far from any Recorder area, a day trip could be considered. The Recorders' knowledge of the local area (geographic constraints, *etc.*) could also be useful to the Supervisor to better organise the workload. It is always useful to get feedback from experienced Recorders.

During the pilot survey or the practical exercise, the necessary time to carry out one interview and fill in the questionnaire can be estimated (for example, 30 minutes per vessel). This will provide the Supervisor with a means of controlling the work done on a daily basis by the Recorders. Therefore, a Recorder working an eight hour shift (no overtime) at $\frac{1}{2}$ an hour per vessel, could interview around 15 vessels per day. This calculation gives an estimate of the total time necessary to finalise the census exercise (and feedback for the National Coordinator). Of course, the above is only theoretical, because some time has to be allocated for the Recorders to revise and organise the questionnaires compiled during the day, travel time, salutation with fishermen and/or other questioning person, *etc.* It is advisable that Supervisors meet regularly with their Recorders to show his presence and, at the same time give credit to their work. So, time must also be allocated for these activities (revision/screening and debriefings). From the above example, we may end considering only, say, 10 vessels per day.

Data collection

This is the most important part of the exercise. If data is collected in an incomplete way or includes errors, the scope of the survey will be hindered and the results may not be representative of the real situation. It is therefore very important to give detailed instructions to Recorders on how to collect the data in a harmonised way. The instructions regarding advice on how to carry out the survey and how to fill up the questionnaires are available in the *Field Recorders section* of this manual that should be provided to the Recorders.

The questionnaire was developed for ease of data collection and input; it also had to be practical for use in the field. The main codes used during the survey should be available in a summarised table so as to minimise time for searching in a separate document (*References or Codification System* document).

The data collected in the field has two purposes:

- evaluation of the quality of the national register data, and
- estimation of the number of active fishing vessels and their distribution along the coast.
- collection and description of the vessels characteristics, and
- other administrative and licensing issues.

Detailed instructions for the Recorders are necessary to minimise the errors in coverage and content:

- **Coverage errors:** omissions of ports and landing places, or omissions or wrong inclusions of vessels in a different stratum (e.g., vessels landing in different ports), and
- **Contents errors:** derived from the lack of accurate information on the vessel characteristics collected (e.g. erroneous length, etc.).

In order to reduce coverage errors, the survey has to be carried out mile by mile along the coast. It is therefore extremely important to have a complete list of all ports and landing places available. As previously stated, this should be provided by the national authorities or, if it is not available or is obsolete, a port survey must be carried out beforehand. In this respect, it can be useful to meet the Recorders locally recruited before starting the survey. Identifying a knowledgeable local informant at each fishing site is crucial.

Every week the questionnaires must be handed over to the Supervisor. They are responsible for carrying out the first screening of the data, while the Steering Committee Members are responsible for the validation of the data as a whole.

Supervision of the Recorders' work

In order to obtain satisfactory results in this type of surveys, the Recorders, although responsible workers, must be constantly supervised by an expert in order to maintain the level of work and keep to the established procedures.

The Supervisor's role is to make sure that the survey is being done (Recorders are attending the ports assigned to them), that the questionnaires are properly filled up and that the Recorders maintain the same procedure in interviewing and compiling the data, *i.e.*, that they follow the rules given to them and do not change the methodology at any point. Moreover, Supervisors have to make sure that this methodology is applied in a standard way by all Recorders. To this end, it is advisable for the Supervisor to visit a different port every day or every few days in order to check that the interviews are carried out without any problem, and take the opportunity to watch work being done and advise on issues that may arise. On the other hand, a small meeting with the Recorders every other day should be organised by Local Supervisors in order to collect the questionnaires and comment on any issues arising during the data collection, as well as announcing any decision taken. When an issue is raised by a Recorder during the data collection phase (e.g. unclear answer to a question), which could apply to other vessels, a decision has to be taken by the Steering Committee on a standard way of dealing with it to decide on the best option in such a situation and keep it standard throughout the exercise. This decision has to be communicated to all Recorders, and all previously collected questionnaires revised accordingly.

Main aspects of the Local Supervisor's work includes:

- assigning tasks to the different Recorders and keeping them informed of eventual changes in the instructions,
- being on call for any eventuality, including the replacement of a Recorder if necessary,

- receiving the completed questionnaires from Recorders and carrying out a first screening in order to eliminate the most obvious errors and omissions,
- controlling the Recorders qualitative and quantitative activity/performance,
- checking that all instructions are followed, and
- ensuring that the time schedule is being followed.

Data screening

Some of the most common errors in the questionnaires are:

- incorrect registration of some of the vessel's characteristics (values out of range, *etc*),
- omissions of some of the vessel's characteristics (especially compulsory fields), and
- fishing vessels not registered.

It is very difficult, even for an experienced Recorder, to collect data without any mistakes. This is even more obvious in a *Census Survey* where the amount of data collected by each Recorder is great. The quantity of errors can be reduced by taking preventive measures such as close supervision of work, but is very costly. Errors in this type of survey can be significant to the meaning of the whole exercise. There must therefore be some control over data obtained by observation or data which is very quantitative by, for example, statistical testing.

This control can be achieved in two phases:

- **manual phase:** the Supervisor examines the questionnaires collected individually for correctness of name, date and code, systematic errors, missing fields, *etc*.
- **automatic phase:** after inputting the data to the electronic system, an electronic check can be carried out.

During the manual phase, the Supervisor needs to inform the Recorders of the common mistakes in the questionnaires, so that attention is paid not to make them again.

The automatic control includes the following procedures (but see the census/register *Software User Guide* for an exhaustive list):

- all numerical data can be compared with a table of check variables: minimum and maximum values, control of the coding, *etc*.
- crossed control among several variables; for example, the registration date cannot be before the construction date of the vessel; the vessel type has to match the type of gear on board (contrasting codes); checking of variables related among them (length, width, height); *etc*.

These control measures can take place during the data collection phase and the data input phase.

After all screening and corrections are finalised, the Local Supervisors have to submit the questionnaires to the Steering Committee who will validate them and forward them to the staff dealing with the data entry, after informing the National Coordinator accordingly. This task should be done weekly.

Section 3 – The Field Recorders

The Field Recorder has the major task of collecting the comprehensive, accurate and truthful data that will constitute the basis for the whole system. It is therefore vital that the Field Recorders carry out this important task to the very best of their ability. The census exercise comprises the collection, through the specially designed *questionnaire*, of data on all fishing vessels in a country. These data, collected all over the country, are compiled into a single database which becomes the *National Fishing Fleet Register*, (see *Fig.1* below). Statistical analysis of the register provides an understanding of the many features of the fleet listed in the *Objectives* above.

MedStat Vessel Register – The Census Questionnaire 1

THE CENSUS QUESTIONNAIRE

(1.1) Recorder name: (RefRecorders) _____ Code: _____

(1.2) Date: ___ / ___ / ___ (ddMM/yyyy)

Recording Serial: _____

Recording place: _____

(1.3) Recording event: (RefEvents) _____

IMPORTANT NOTICES

- All undlined bold fields are required (compulsory); this information must be inserted in the MedStat System.
- For Engine, Winch and Fishing Operation undlined fields are required for each eventual engine, winch or operation.
- The column "Table" refers to the Codification System paper (*MedStat References Census*).
- Numbering on the left follows numbering of fields in the software; therefore it should not be changed.

2. Fishing vessel characteristics

2.1	<u>Unique Registration Number</u>		vessel
2.2	<u>Registration Number</u>		---
2.3	<u>External Marking</u>		---
2.4	<u>Flag</u>	<input type="checkbox"/> (Country) <input type="checkbox"/> Other: _____	Reference
2.5	<u>Registration Office</u>		Reference
2.6	<u>Registration Date</u>	___ / ___ / ___ (ddMM/yyyy)	---
2.7	<u>Vessel type</u>		Reference
2.8	<u>Vessel name</u>		---
2.9	<u>Original name</u>		---
2.10	<u>Original registration number</u>		---
2.11	<u>Original decision details</u>		---
2.12	<u>Original flag</u>		Reference
2.13	<u>Operational status (one only)</u>		Reference
2.14	<u>Non operational reason (compulsory only if non operational status)</u>		Reference
2.15	<u>Home port</u>		Reference
2.17	<u>Acronyms</u>		---

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Figure 1: Field questionnaire

The data collected through the questionnaire comprise:

- recording information (dates, event, Recorder),
- fishing vessel characteristics (vessel identification, base port),
- structural characteristics of the vessel (dimensions and construction),

- fishing authorisation,
- engine,
- equipment (navigation, communication, fish finder, preservation, processing, safety, *etc.*),
- electronics (VMS and IRCS),
- deck machinery (winches, power blocks, *etc.*),
- ownership,
- crew,
- operative port(s) (periods),
- fishing operation (gear, period, zone, stock), and
- pollution prevention.

Training

All Recorders should have undergone the training programmes (see *References*) organised by the national authorities before participating in a census exercise. Training includes theoretical training on interviewing techniques, data collection and compilation of questionnaires as well as practical, on-the-job training, usually carried out during a *Pilot Survey*.

The ***theoretical training*** should comprise:

- the *Census Survey* (general explanation, purpose, survey area, survey plan and organisation),
- interviewing and data acquisition techniques,
- questionnaire, data field definitions and reference system (compilation of questionnaires, how to use the field definitions and reference system),
- knowledge of the local fisheries sector: vessel types, fishing gear specifications, descriptions and use, documentation, equipment, fish species, areas, periods, fishing techniques, *etc.*
- GPS and map use (only for the port survey).

The ***practical training*** (on-the-job training) is usually carried out during a *Pilot Survey*. This usually takes place before the census exercise. However, if a pilot survey does not take place then practical training can be organised for the group of Recorders in a port, so that they can become familiar with interviewing, data collection and the compilation of questionnaires. It can also be the first opportunity for them to become familiar with the main vessel types and gears; it is also a suitable occasion for them to raise questions. The training exercise should be carried out in the same manner as it will be during the *Census Survey*.

Preparation for the survey

Before starting the field operations, the Recorder should meet the Supervisor in order to receive instructions on when, where and with which units he/she should carry out the interviews. The Field Recorder is responsible for the data he/she collects, and is therefore also responsible for making sure that he/she has all materials and logistics organised before starting the field work (see *Recorder Check List* in *Appendix 2*).

The Field Recorder must be acquainted with the questionnaires, field descriptions and references (included in the “*Source of Information, Data Structure, Definition and Codification of a Fishing Vessel Census*”, see *MedStat, 2011.c* in *References*) and its use, as well as with specific information regarding the national fleet (most common vessel types, gears, *etc.*). The Field Recorders’ preparations should include:

- making sure he/she receives the port/landing places list assigned to him/her,
- ascertaining how many landing places have been assigned to him/her and where are they located,

- at least one day before the census, drawing up the itinerary that he/she will cover during the census exercise; the order in which this is done is not as important as that all landing places are visited,
- considering the accessibility of the port, whether it is behind a cliff or with access from a road *etc*, and making sure that he/she has suitable means of transport/access to the place,
- obtaining some idea of the number of fishing vessels to be expected in each of the landing places,
- estimating the necessary time to be allocated to survey each boat (probably about ½ hour per vessel),
- taking into account the two previous pieces of information, estimating the time required to carry out the survey in each port (total hours or days), and passing this information on to the Supervisor for eventual programme adjustments,
- acquiring enough hard (paper) copies of the questionnaire for the day's work, together with pencils, rubbers, a cloth, a torch and a measuring tape,
- prior to attending the port or landing place, filling in the questionnaire header information (Recorder identification, date, port),
- making sure he/she has a copy of the Data Field Descriptions and References (codes) and a table summarising the most important ones,
- before starting the exercise in a port, informing the port authorities and fishermen associations of his/her arrival; they should already be aware of the activities taking place and this will provide time for them to organise the interview,
- making sure that the port authorities will either supply a list of vessels in the port or will call upon fishermen/vessel owners to make up the list; the local authorities will call upon all fishermen present in the landing place to a meeting to be informed of the start of the interviewing process, though this will be more difficult in bigger landing places,
- making sure he/she has a good understanding of the scientific and local names of the species caught in each area, as well as of the different types of fishing gears, so that when carrying out the interview the proper answer is selected,
- preparing a folder with all the elements of information available for the port/landing place (estimation by the administration of the number of vessels, previous data, Recorders previous knowledge, *etc.*), and preparing another folder for the compiled questionnaires which allows for the separation of questionnaires from different vessels, and
- last but not least, obtaining a weather forecast and planning accordingly.

The survey

It is during the survey that Recorders carry out the important task of collecting the data that will become the *National Fishing Fleet Census*.

General advice to Recorders

Field Recorders should:

- respect the survey strategy as defined by the team before the start of the survey,
- not take the initiative on the methodology to be followed without agreement of the team,
- keep to the routines laid down in this document to fill in the questionnaires,
- not leave out questions and should not answer only partially,
- not suggest answers to the people interviewed, and
- listen to the answers given with great care and keep an open mind about the likely truthfulness of the information provided.

On arrival at a landing place

If the Recorder works within a team of Recorders, then when the team arrives at the landing place it must first meet a representative from the administration, or an authority from the port. Immediately, an explanation should be given by the team of Recorders about the objectives of the survey and request a call for all fishermen to gather. While fishermen are gathering, a member of the Recorders' team designated to this task for all landing places, can visit the landing place, obtain the GPS position, take some photographs of the landing place, the vessels and the fishing gears. He/she should also count the vessels present, note the inactive vessels, and obtain an estimation of the number of vessels that are fishing, *etc.*

If the Recorder is working alone, he/she should first meet with the authorities and request the available list of vessels. Then he/she should fill in the port questionnaire, assisted by the authorities. In addition to the requested information, the Recorder can take personal notes about the landing place.

Port / landing place questionnaire

It is good practice to include a census of ports and infrastructures when visiting a port or landing place for the first time. Although usually considered very static, the port information can show changes in the fleet structure over time (changes in numbers of vessels or vessel type). It may even show reductions or increases in the number of ports/landing places due to a number of reasons such as diversion of vessels to a more convenient landing place (better access, better services, better location, *etc*) or, simply, drastic fleet capacity changes which increase/reduce the number of vessels in a certain port and force its closure or result in changes to its characteristics.

The port/landing place questionnaire (see *Appendix 1*) will assist in building a databank of ports with fishing fleets. Information that may be registered about a landing place includes:

- name,
- location,
- available telecommunications,
- administrative details,
- operating limits,
- a general estimation of the number of vessels and fishermen in the place, and
- technical, commercial and servicing infrastructures, *etc.*

A physical description of the landing place could also record such features as:

- the geographic situation,
- the type of coast,
- natural or artificial protections, and
- access, *etc.*

Finally, the Recorder must try to obtain information about the commercialisation and other activities at the landing place, especially that related to gear and vessel maintenance. Personal annotations can also be made on any impressions obtained from the place or the people interviewed.

Interviewing rules

There are a number of rules that must be followed when interviewing fishermen. They are:

- respect must be shown to fishermen,
- interviewing fishermen when they are tired or very busy is to be avoided,
- the scientific purpose of the survey must be explained at all times,
- it is important to establish a dialogue and rapport with fishermen for the work to be most efficient,

- a Recorder must be patient and considerate; he/she should be aware of social issues in the local area that can affect fishermen, and common sense should be used when dealing with these issues.
- notes should be taken on issues of concern to fishermen who should be assured that these comments will be passed on to the Recorder's superiors for consideration by national authorities,
- recorded information should be shown to fishermen in order to build trust, and
- when certain that untruthful information is being given then, after leaving the place, make a note in the comments area of the questionnaire.

Development of the interview with fishermen

In the case of a Recorder conducting a survey alone in small ports or landing places, with a small number of vessels, the fishermen could gather around the Recorder in order to provide the information on the vessels. In bigger ports, it would be advisable to interview one fisherman/vessel owner at a time, following the list provided by the port authorities.

In the case of a team of Recorders, once fishermen are gathered around the Recorders a member of the team must introduce the survey explaining some general issues and the scientific purpose of it.

When requesting information from fishermen the Recorder must, if possible, visually check the information first hand by either requesting and reading the available documentation (e.g., vessel registration/ownership, fishing authorisation, builder certificate, etc.), or by observing the characteristics (hull material, the engine plate and location, other equipment, gear onboard, etc) directly from the vessel.

Whilst interviewing, the Recorder should be observant as this could help in determining proper answers to fields, or discern between truthful and misleading answers. It may also lead to the discovery of, for example, modifications to fishing gears which should be recorded. To this end, the Recorder should have available the design of the most common local gears, and therefore be able to recognise any modifications made to that gear.

At the end of the interview, and before moving to the next fisherman/vessel, the Recorder should make a quick general check of the questionnaire in order to identify any missing data fields. At this point clarifications can still be made by the fisherman.

Compiling the *MedStat* census questionnaire

The advice offered in the previous sections of this document should be followed when undertaking any *Census Survey* of a fishing fleet. The routines presented in this section must be adhered to when conducting a *MedStat Census Survey*. Some general points that the Recorder must understand when dealing with *Medfisis* documentation are:

- the *MedfStat questionnaire* is used to collect the data from the field (one questionnaire per vessel),
- the *Data field descriptions document* explains what is requested in each field of the questionnaire,
- the *References document* includes a list of all possible answers for fields that are related to a table in the questionnaire,
- written answers on the questionnaires must be legible and, whenever possible, worded as complete sentences especially in the comments/remarks part, taking into consideration the fact that the data entry will most probably be performed by another team of people and misinterpretations could occur,
- the Recorder must do his/her best to identify the appropriate answer and should double-check before determining that an item cannot be found in the *References document*,

- it is essential that a Recorder understands the interrelationships between the documents constituting the *Source of Information...*” (see *References*), and
- great attention must also be paid to the measuring units in which values in each field are measured so that they are properly recorded - wrong measuring units (such as recording the length of a boat in feet instead of metres) will render the information worthless; unusual dimensions, values or units must be noted in the remarks area of the appropriate section.

The heading

It is essential that questionnaires are started by filling in the heading data for each questionnaire:

- Recorder’s name and code,
- the date,
- recording place,
- recording serial number, and
- page number.

These last two data could be recorded as, for example: ‘ *Questionnaire No. 11, page 5 of 8*’. This information will be used to retrieve a questionnaire that has been mixed with others by mistake. See a *Medfisis questionnaire heading* in *Fig.2*.

<p>(1.1) Recorder name: (RefRecorders) _____ Code: _____</p> <p>(1.2) Date: ___ / ___ / _____ (dd/MM/yyyy)</p> <p>Recording Serial: _____</p> <p>Recording place: _____</p> <p>(1.3) Recording event: (RefEvents) _____</p>

Figure 2. MedStat questionnaire heading.

It must be kept in mind that most probably other people will input the data to the system, which means that all the information recorded on the sheets have to be clear and the heading data must allow tracking the vessel and the Recorder (for any further clarifications). All pages of the questionnaire should be kept together either by stapling or by putting them in a folder, for example.

For EU members, three extra fields need to be recorded in this section:

- the import country,
- the public aid code, and
- the administrative decision date.

The Fields

All **underlined and bold** fields are compulsory; therefore they must not be left empty. If for some reason the information on a compulsory field cannot be collected, the Recorder should first try talking to fishermen associations about this, and inform the Local Supervisor. Even the non-compulsory fields should be completed if possible as all of these comprise very useful information. It is assumed that Recorders will make every effort to collect all information regardless of its compulsory or non-compulsory status.

The Recorder should take some time before the survey to become acquainted with the fields requested and check their correspondence to the *Field Descriptions* (numbering of fields is the same

as in the questionnaire) and the *References*. The link to the *References* is indicated in the column 'Table', on the right-hand side of the questionnaire. If there is no corresponding reference table, there would be an empty space for a written answer (for instance, in the first set of data, Fishing Vessel Characteristics, the field 'Fishery Registration Number' requires a written answer, so there is no correspondence in the Reference document). Essentially, there are five types of answers:

- an indication in the column 'Table', corresponding to the References Tables (in this case, the corresponding code for the particular answer must be selected and entered in the empty space),
- an empty space to write the answer,
- boxes to indicate the right answer by clicking one or several of them,
- boxes to indicate a date (days, month and year, or only month or year), and
- yes/no answer.

See some examples of these in *Fig. 3 below*.

			TABLE
2.1	Unique Registration Number		---
2.2	Registration Number		---
2.3	External Marking		---
2.4	Flag	<input type="checkbox"/> (Country) <input type="checkbox"/> Other: _____	Ref: Countries
2.5	Registration Office		Ref: Minor Strata
2.6	Registration Date	___ / ___ / _____ (dd/MM/yyyy)	---
2.7	Vessel type		Ref: Vessel Types

Figure 3. Example of links to references, boxes and date entry in Medfisis questionnaire

If a Recorder is not sure of what type of answer to give, then he/she should check:

- the corresponding table of the *Data Field Descriptions* document for clarification, and/or
- when available, the Descriptions column in the Reference Table.

Fishing Vessel Characteristics

For certain fields the information can be obtained from the documentation of the vessel. For example, the Fishery Registration Number, the Registration Office, the Flag, the Registration Date, *etc* can all be obtained from the vessel's registration document. Therefore, it will be convenient to ask to see this document and to take the appropriate information from it. Notes should also be taken of any information that the fisherman or vessel owner may provide, but there could be errors or misleading information, so looking at the registration document is the best option.

For the Vessel Type field, it is suggested that the Recorder first asks the fisherman/owner and secondly, if this information is not available in the registration document, then look in the References for the vessel types (see example below in *Fig.4*) and corresponding codes (IDs). If the situation is still not clear, then any informative documents that indicate the most common vessel types and gears in the country may be consulted. Should there be any major differences then a note or explanation should be given in the Remarks area (2.17).

ID	Description	Name	NameENG	STD Abbreviation	VesselType FFFAQ
0100		Trawlers	Trawlers	TO	01
0200		Seiners	Seiners	SO	03
0210		Purse seiners	Purse seiners	SP	02
0300		Dredgers	Dredgers	DO	9.1

Figure 4. Vessel types in the References document

Structural Characteristics

In this section Length Overall, GT and Decked are the compulsory fields. The Length Overall is defined in the Data Field Description (see *Fig.5*).

3.	Structural characteristics	
3.1	Overall length (m.)	The principal longitudinal dimension of the hull of the vessel. In other words: the length of the fishing vessel (m) as indicated on the property notebook and the Marine Fishing Licence. If in doubt, or the length is not indicated, the length needs to be measured from the bow to the stern.

Figure 5. Overall length defined in the Data Field Description

Overall Length, Width and Height may be confirmed by actual measurement with a tape measure. Although not compulsory, these measurements could be used to calculate the capacity of the vessel, should this data not be available. All of this information should be available from the Property Book or in the Fishing Authorisation but should there be any reasonable doubts as to its veracity then a measurement with the tape should be taken.

Since 1996 the measurement of vessel tonnage is by GT (gross tonnage), which should also be available in the aforementioned documents. Otherwise, indicate the GRT (gross registered tonnage) according to the Data Field Descriptions. The GT field is compulsory only for EU members.

Finally, it must be recorded whether the vessel has a 'covered' or 'closed' area or not (decked/undecked). Many artisanal fishing vessels are small and undecked.

Fishing Authorisation

Similarly, Fishing Authorisation Type and ID number, *etc.*, should be obtainable from on-board documentation. The main types of fishing vessels are trawler, purse seiner, and long liner but there is a greater variety represented by a lower number of vessels, which can be found in the Reference Table. The Recorder should be acquainted with the vessel types of his/her country, so that there will not be major problems identifying them in the majority of situations.

All different gears should be recorded and ranked in order of importance; if more than three gears are present, then data for all of them should be collected, either by adding fields to the questionnaire tables or by adding the information in the general remarks section (14).

The main fishing gear class used by the vessel (and registered in the vessel documentation) should be indicated in the first place and then other gear classes in order of priority of use. The main gear class is usually related to the vessel type (*e.g.* a trawler will most probably have a trawling net as main gear, a long liner will have lines with hooks as main gear and so on). Therefore, while interviewing and filling in the questionnaire on these issues, consistency should be checked between vessel type and main gear.

For each one of these gear classes all information requested should be collected by indicating their corresponding codes in the spaces provided for this purpose. The fishing gear type and target group of species are compulsory fields. After each gear, the Remarks area can be used for any comments on each gear, including any local variations on the drawings of national gear types. For this, it is highly advisable to be fully acquainted with the national gear types before starting the survey.

Engine

The best way to obtain information about the engine is to look at it. The compulsory fields are the Location and Power. The fisherman will have to give details of the power - in kW. When measurement of the power in kW is not available then it can, as a last resort, be recorded in horse power. This value will have to be converted during the data entry. The energy source can be indicated with the

appropriate code from the References document. The same information should be collected should there be a second or more engines on board, ranking the main engine in first place.

Electronics

Although the fields in this section are not compulsory for all vessels, it should be collected when available. For some vessels it is compulsory; for example from January 2011, VMS is compulsory for vessels over 15 m in the GFCM area. For International Radio Call Sign (IRCS) and Vessel Monitoring System (VMS) it is only necessary to record whether it is fitted or not.

Equipment

All fields in this section are non-compulsory, but when available this information should be collected. This section is organised into several blocks according to the equipment category:

- navigation,
- communication,
- fish finder,
- safety,
- preservation,
- processing, and
- other.

and the same information is required for each of them:

- equipment type,
- purchase year,
- quantity, and
- measurement and units.

Most of this information may be collected quickly and easily by visiting the bridge of the vessel or by asking the fisherman or owner.

Only the equipment code (from the corresponding Reference table) needs to be recorded. If several items of apparatus (equipment types) exist under the same category, they should all be recorded. The 'Other equipment' sub-section under each category is reserved for items of apparatus that are not specified in the Equipment Categories Reference table (RefEquipmentCategories).

The safety equipment could be found in different locations inside the vessel (flares on the bridge, life boat on the deck, fire extinguisher on the engine room and living quarters, *etc.*).

Deck Machinery

The various options for the Method of Activating the Fishing Gear (compulsory field) are listed in the corresponding Reference table, and can be observed on the vessel or, if unknown, found by asking the fisherman.

The same applies to the rest of the fields in this section (winch information) for which the Recorder should have a basic knowledge provided by the training. If this is not the case, then the best option would be to ask the fisherman/owner, and try to observe the various components and become acquainted with them, their nomenclature and the type of fishing gear that they are related to. The winch type, quantity and operation mode should be indicated for each type of winch present on board. Information on several winch types can be collected in this section although only the type and the operation method are compulsory.

Ownership

When possible it is advisable to speak directly to the owner of the vessel since vessel ownership is very sensitive information. The only compulsory fields are the company name and the operator (owner, operator...). The other information should be collected only if the owner is willing to give it.

Information on more than one owner can be collected in this section.

Crew

This section is not compulsory; however, it is valuable information and it should be quite straight forward to obtain the minimum, maximum and number of full-time fishermen working in the fishing vessel during the year.

Port of operation (previous year)

This section relates to the areas and periods of fishing activity by indicating which were the Operative Ports of the vessel at different Periods (indicate the month) during the previous year. Information on several port/periods can be recorded in this section. This information may be obtained by asking the fishermen.

Fishing operation (previous year)

The Fishing Operation data for the previous year is very important so almost all fields are compulsory. Up to three Fishing Operations can be recorded with their corresponding

- gear type,
- period of operation,
- fishing zone, and
- resource targeted.

If there are usually more than three fishing operations, new sub-sections should be added to this section of the questionnaire, or notes can be made at the end of the questionnaire in the General Remarks section. All of these fields correspond to fields in the respective References tables. This information must be obtained from fishermen since it relates to the previous year's activities and cannot be confirmed in the field.

The Field Recorder should also be acquainted with the fish species common in the country and their scientific and local names, in order to properly record the main targeted group of species indicated by fishermen. Other fish species are normally caught together with the targeted one, but are not the target/objective of the fishery; these are grouped with the target species. If the Recorder did not receive training in the identification of the main local species targeted by the fleet, then it would be very helpful to have a book with illustrations of the local species with scientific and local names.

Pollution prevention

For this type of information it is necessary to ask the fisherman what procedures they use to deal with oil and other types of residue. When it is not provided by fishermen, this information may be available from fishermen associations and port authorities.

General remarks

In this section remarks can be recorded about any issue that might be of interest regarding the questionnaire in general, or those related to a particular section of the questionnaire that may require the attention of the Local Supervisor.

Synthesis of collected information

When all of the questionnaires have been completed, and before leaving the landing place, it is important to put together all the information collected and verify that it is all correct. This is particularly

so when different teams have worked at the same landing place, in order to ensure that the information collected is consistent.

It is useful to compare the data obtained about the number of vessels and fishermen with those provided by the administration or port office, and to explain the reason for any major differences, such as:

- the inclusion of vessels or fishermen not recorded in outdated official lists, or
- vessels that are in the list but cannot be found in the port due to their being temporarily at another port, or
- scrapping of vessels, *etc.*

The Recorder should seek information about these vessels from the port authorities and fisherman associations, *etc.*

It is also important to check whether all gears have been properly identified. If further clarification is needed, there is still time to question the fishermen.

Once all checks have been carried out, the questionnaires must be kept in a file in the following order:

- (1) the preliminary documents (basic information on the port),
- (2) any notes taken,
- (3) the questionnaires, and
- (4) the description or questionnaire of the landing place.

Before leaving the landing place it is recommended that a note be made of the names and functions of the important local people contributing to the survey. When possible, note their telephone number for further contact if necessary. It is also advisable to give contact details of the institute/department to the local representatives in case they need to pass on more information or there is interest in visiting the institute.

The Field Recorder should revise, on a daily basis, all the information collected through the questionnaires and make sure that it is properly organised into its several folders. He/she should meet the Supervisor every other day in order to inform him/her about the progress made on the survey and to point out any problems/doubts that may arise. The Field Recorder must hand in the questionnaires at that time.

Appendix 1: Port/Landing Place (Infrastructures) Questionnaire

Port / Landing Place (Infrastructures) Questionnaire

Recorder name: _____ Code: _____

Date: DD/MM/YYYY

Recording Serial: _____

Name of port / landing place: _____**Geographical location**

GPS Coordinates: Latitude _____ Longitude _____

Province: _____

Region: _____

Postal reference: _____

Physical description

Type of coast: _____ (beach, cliffs, rocky, etc)

Natural or artificial protections: _____ (islands, pier, etc)

Access ways: _____ (road, path, transport, etc)

Other: _____

Administrative details

Marine department: _____

Harbour office: _____

Legal authority: _____

Telecommunications

Telephone: _____

Fax: _____

Electronic mail: _____

Website: _____

Operating limits

Access limits: _____

Draft: _____ Length: _____

Tonnage: _____

Maximum admissible size of fishing boats: _____

Fishing fleet

Estimated number of vessels: _____

Estimated number of fishermen: _____

Estimated number of fishermen per boat: _____

Main types of fishing vessel: _____

Main types of fishing gear: _____

Estimated average length of vessels: _____

Servicing Infrastructures

Number of refrigerating plants: _____

Characteristics: _____

Number of freezing plants: _____

Characteristics: _____

Number of oil/petrol pumps: _____

Electricity: (yes/no) _____

Water: (yes/no) _____

Ice: (yes/no) _____

Boatyard: (yes/no) _____

Medical emergency services: (yes/no) _____

Laying-up services: (yes/no) _____

Gear repairs: (yes/no) _____

Commercial Infrastructures

Sale of electronic items and engines: (yes/no) _____

Fish Market: (yes/no) _____

Type of fish market: (big, small, international...) _____

Associations: (yes/no) _____

Marine agent: (yes/no) _____

Comments

Appendix 2: Recorder Check List

Items to check before starting the interviewing	Tick if available
List of ports / landing places	
Location of assigned places	
Itinerary for the census	
Accessibility and transport to the interviewing place	
Number of fishing vessels per port / landing place	
Estimated time for interviewing each vessel	
Estimated time for covering each port	
Interviewing material (hard copies of questionnaire, pencil, etc)	
Header information filled up for daily questionnaires (Recorder information)	
Copy of Data Field Descriptions & References (summarised table)	
Informed the port authorities before arrival	
List of vessel in each port (from port authorities)	
Fishermen informed of the interviewing process	
List of species caught in the area	
List of gears used in the area	
Folder with port information	
Folder for completed questionnaires	
Checked weather forecast for interviewing day	

Appendix 3: Terms of reference

TERMS OF REFERENCE for International Consultants

Experts in Census Surveys

Under the general supervision of the [Committing Ministry/Division] and of the direct supervision of the [Committing Service/Office], the incumbent will participate in the data collection system of fishery infrastructures and fishing fleet data. Specifically, the incumbent will:

- participate in the design of the statistical surveys to be conducted in the country;
- supervise the data collector group assigned to this activity;
- collect fishery infrastructure and fleet data according to a given schedule and with total discretion and reservation;
- compile fishery forms and questionnaires according to instructions and in all their parts using appropriate codification, as applicable;
- be present at the data collection site/s whenever required/requested;
- check the completed questionnaires for consistency and completeness;
- perform data quality control of the final statistics before submission;
- submit the completed questionnaires to the Centre, according with instructions received;
- promptly report any circumstances that may be interfering with the work progress and the quality of the data collected;
- Interact with the team based in [Ministry / Division/Service / Office] for all technical issues concerning the above activities;
- perform any other duties within his/her sphere of competence, according to needs and circumstances, as requested by the Supervisor;
- prepare and submit a report on completion of each mission describing activities performed and work progress.

Duration: three months in 3 missions (each in a group of countries)

Experts in catch and effort surveys

Under the general supervision of the [Committing Ministry/Division] and of the direct supervision of the [Committing Service/Office], the incumbent will participate in the data collection system of fishery infrastructures and fishing fleet data. Specifically, the incumbent will:

- participate in the design of the statistical surveys to be conducted in the country;
- be familiar with species identification, vessel category and gear types;
- supervise the data collector group assigned to this activity;
- organize and supervise the data collating of LogBooks;

- organize, supervise and follow-up the sample selection of landing places (Primary Sampling Units) and of fishing units (Secondary Sampling Units) according to a given schedule;
- compile fishery forms and questionnaires according to instructions and in all their parts using appropriate codification, as applicable, and with total discretion and reservation;
- be present at the data collection site/s whenever required/requested and be available on different places on selected days during the landing time;
- check the completed questionnaires for consistency and completeness;
- perform data quality control of the final statistics before submission;
- submit the completed questionnaires to the Centre, according with instructions received;
- promptly report to the [Committing Ministry/Division/Service/Office], responsible officer any circumstances that may be interfering with the work progress and the quality of the data collected;
- Interact with the team based in [Committing Service/Office], for all technical issues concerning the above activities;
- perform any other duties within his/her sphere of competence, according to needs and circumstances, as requested by the Supervisor;
- prepare and submit a report on completion of each mission describing activities performed and work progress.

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The present document is part of a series of documents providing guidance on the implementation of a Fishing Fleet Census. Precisely, it describes the roles and tasks of the National Coordination Team, Supervisors and Field Recorders and provides guidelines on the management of the fleet survey, including budgeting, team structure, supervision, data quality control and practical aspects in conducting the survey. In addition, it provides detailed instructions on field work preparation, interviewing techniques and information recording practices.

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