



**THE COLLECTION AND COMPILATION OF FISH CATCH AND  
LANDING STATISTICS IN MEMBER COUNTRIES OF THE  
EUROPEAN ECONOMIC AREA**

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# Section 1

## Introduction

Progressively since 1991 EU legislation has been enacted obliging the Member States to submit monthly reports on the landings of fishery products and annual reports on the catches by their vessels in various regions of the North Atlantic and elsewhere. Bibliographical references to these legislative acts are given in Annex 1. Under the terms of the agreement establishing the European Economic Area these legislative acts are also applicable in Austria, Iceland, Liechtenstein and Norway<sup>1)</sup>.

### a) Landing statistics.

The legislation on landing statistics requires each Member State to submit to the Commission (Eurostat) data on the quantity and average price of fishery products landed by EU fishing vessels and by EFTA<sup>2)</sup> vessels in each calendar month in its territory. The submission of these data is required within six months of the end of the reference month. 50 species and, for each species, up to 4 forms of presentation are given in an annex to the legislation as an indication of those products for which information is required. These products correspond with those covered by the market management regime within the Common Fisheries Policy. National authorities may provide information for additional individually identified species and they are requested, though not obliged, to supply data on the landings in their territories by vessels from third countries.

The intention of the legislation is to harmonise the presentation of the medium-term data on landings available from the Member States and to supplement the partial short-term data (for selected products in representative ports) submitted to the Commission (Directorate-General for Fisheries) for the day-to-day management of the market for fishery products.

### b) Catch statistics.

The legislative acts on catch statistics convert into EU legislation the requirement of EEA countries to submit data to international fishery agencies on the STATLANT and FISHSTAT systems of questionnaires. These are long-standing standardised questionnaires developed by the agencies working within the Coordinating Working Party on Fishery Statistics (CWP). Although the species and fishing areas for which data are requested vary from region to region the questionnaires are of a standardised format and employ harmonised concepts and definitions.

The EU legislation covers the following questionnaires managed by the CWP: STATLANT 21A, 21B, 27A, 34A, 37A and 47A and FISHSTAT NS1.

The legislation was enacted so that the Commission may have available the data required for managing the EU's internal fishery resources within the Common Fisheries Policy, the data required by the Commission to meet the EU's obligations as a member of certain international agencies (for example, the Northwest Atlantic Fisheries Organisation) and the data required by the Commission in other fora

### c) Methodological reports.

All the legislative acts include an article as follows:

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<sup>1)</sup> Because Liechtenstein and Luxembourg have no marine or freshwater fisheries, no consideration of the methodology of the compilation of fisheries data for these two countries is included in this report.

<sup>2)</sup> European Free Trade Association

“Within 12 months of the entry into force of this Regulation, Member States shall submit a detailed report to the Commission describing how the data on catches are derived and specifying the degree of representativity and reliability of these data. The Commission shall draw up a summary of these reports for discussion within the competent Working Group of the Agricultural Statistics Committee.”

In order that these reports should cover the information considered to be necessary to evaluate the national methodologies and in order to facilitate the compilation of the present publication, Eurostat sent the national authorities a proposal for the content and format of the requested reports (see Annex 2). Most of the national authorities respected this requested format. Where this was not the case Eurostat reformatted the national report. On three occasions the Working Group “Fishery Statistics” of the Agricultural Statistics Committee has reviewed the compiled reports which will be found in Section 3 of this publication.

Eurostat has attempted to highlight the main elements in the national reports. This synthesis will be found in Section 2 of this publication.

## **Section 2:**

### **Synthesis.**

#### **Introduction**

In considering the methodologies used in the collection and compilation of fishery statistics in the member countries of the European Economic Area it is essential to keep in mind the large variation in the structure of the fishing industries in those countries. At one extreme there is the situation in Belgium with a very small number of ports, a very short coastline, a small and homogenous fishing fleet and with most of the fishery products being sold on official markets. At the other extreme is the situation in Greece, with a large number of landing places, a very long coastline, a large fishing fleet and with only a small proportion of the fishery products being marketed through official channels. Between these two extremes are many other situations to the extent that in no two countries are the fisheries industries directly comparable.

It must therefore be stressed that the systems of collecting and compiling fishery statistics in EEA countries will not be the same. For example, it is impossible to envisage that a statistical system developed for use in Belgium could be used to collect and compile complete, accurate and reliable data in Greece. As a result each national administration has developed a system which is intended to meet its own particular situation, both in terms of the structure of the industry and administrative infra-structure. Great care should be taken in commenting, for example, on the fact that one country has complete coverage in the collection of data whereas another country uses sampling procedures. It is more than likely that this difference is due to the structure of the industry and it should not be used to comment on the efficiency of the national administrations or on the reliability of their data.

#### **1 Organisation of the national system of fishery statistics.**

1.1 In most of the EEA member countries the responsibility for the collection and processing of fisheries statistical data is with the fisheries administration (the Ministry of Agriculture and Fisheries, Department of Fisheries or similar government department). In certain instances this responsibility has been delegated to them from the national statistical institute. In some countries processing of the data occurs in co-operation with the National Statistical Institute. In Greece and Italy it is the National Statistical Institute which is mainly responsible for the collection and processing of fisheries statistical data. However in these countries there is an increasing collaboration with fisheries ministries or similar bodies.

1.2 Although under the EU's statistical legislation the national authorities have an obligation to submit catch and landings data to the Commission (Eurostat), the method by which they meet their obligations varies. This may be by using existing national legislation or by introducing new legislation designed to oblige the fishing industry to report data to the national authorities. In many cases this legislation was not developed with the EU statistical legislation in mind but in application of the EU requirements on the use of the EU log-book. This often gives rise to difficulties in meeting the requirements of the EU's statistical legislation in that the log-book system only requires reporting of a limited number of species (those within the catch quota management system). There is no national legislation on the reporting of fisheries data in the Netherlands.

1.3 It is normally the organisation that collects and compiles the statistical data that submits the information to the Commission (Eurostat). Exceptionally in Sweden the National Board of Fisheries transmits the data to Statistics Sweden who then relay the data to the Commission. In the United Kingdom the data from the other UK Departments in Scotland, Northern Ireland the Channel Islands and the Isle of Man are

aggregated by the Ministry of Agriculture, Fisheries and Food and transmitted to the Commission.

## **2 Method of collecting, processing and compiling the data on catches, landings and average prices**

2.1 The basic documents used for the collection and compilation of catch and landing statistics in most EEA countries not operating in Mediterranean fisheries are very similar and are those developed for the administration of market management systems and catch quota systems.

In Greece, an alternative system has been developed to account for the different situations in their fishing activities. Firstly, most of the fisheries are conducted in the Mediterranean where there is not the highly developed system of catch quota management as in the Atlantic. Secondly, there are a very large number of fishing vessels making landings in a large number of mainly small landing places and disposing of their products in markets of a less formal structure than in the other countries. The system adopted is for the conduct of sample surveys. It was recognised that, until recently at least, these sample surveys produced results of questionable reliability and a great deal of effort has been put by the national authorities into improving the format of these surveys and installing checking procedures using material from other authorities (eg professional organisations, customs authorities)

2.2 The administrative documents used by countries fishing in the North Atlantic are of three basic types:

**Logbooks.** These are of an EU format (for EU Member States: see Annex 3) or of a closely related national format (for Iceland and Norway). In principle EU logbooks have to be completed by the skipper of all fishing vessels of more than 17 meters in length and of smaller vessels making fishing trips of more than 24 hours duration. These log-books normally require only the reporting, in the skipper's estimate of the live weight, of the species subject to catch quota regulations. Separate data may be required for each fishing exercise (for example, haul of a trawl) and for a change of fishing area (for example, economic zone, ICES<sup>3)</sup> fishing area, etc.). The major use of the log-book for statistical purposes is the allocation of the catch to fishing area and for the calculation of fishing effort. The quantities of fish caught recorded in the log-book is of secondary value being used principally to identify major discrepancies between the log-book report (in live weight) and the landings declaration (in landed weight).

**Landings declarations.** In principle all landings of fishery products are reported by the vessel skipper making the landing on a landings declaration form (see Annex 4). The landings declaration records the quantity of each species (normally only those subject to catch quotas or other regulations) in the landed weight of the product. In general, a landings declaration has to be made at the end of a fishing trip by the skipper of each fishing vessel regardless of size and duration of the fishing trip. In certain cases, for example for the smaller vessels, a declaration may not be required for each trip but may be submitted weekly or monthly. In such cases the national authorities may seek additional information from interviews with the skippers by national inspectors.

**Sales notes.** The authorities responsible for the sale of each landing (whether it be the vessel's agent or the auction authorities) submit to the national authorities information on each landing: the quantity of the species and form in which they are presented and the value of each product together with information on the vessel making the landing. This information may only be limited to those species under catch quota management or it may cover non-quota species.

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<sup>3)</sup> International Council for the Exploration of the Sea

2.3 The problem of the collection of data on landings in foreign ports may be divided into two:

- **landings in EEA ports.** The skippers of vessels landing catches in foreign ports are required to send copies of their log-books to the authorities of their home country within a specified deadline. However this information is incomplete in that it only gives the skipper's estimation of the catch weight and includes no information on the form of the landing and its value. The information is usually only limited to that for catch quota species. The national authorities therefore require additional sources of the information. This may be from the owners of the vessel or, more usually, by a bilateral arrangement with the national authorities. Member countries have established such bilateral contacts but a more recent survey suggests that they would wish for improved contacts. Until recently, some countries (for example, France) have relied on the feed-back from the DG XIV on the catch quota reporting system for catches by their vessels in other EU ports.
- **landings in third country ports.** In principle the national authorities require the skippers to send them copies of the log-book reports for the catches landed in the ports of third countries. However, if these catches are made in the economic zone of the third country under a contract or joint venture agreement between the authorities in the third country and the vessel concerned there may be no legal obligation to make such submissions. There is often a considerable delay between the date of landing and the receipt of the information reaching the national authorities.

In some circumstances these arrangements between vessels and the authorities of the third country have only been revealed to the authorities of the home countries due to the intervention of international bodies (eg Northwest Atlantic Fisheries Organisation) in their efforts to reconcile catch reports from the two national sources.

2.4 The assignment of the area of capture can present problems. For example, the log-book report may record fishing activities in two or more statistical areas but the information on the log-book and the landings declaration may not be sufficient to separate the catches in each. Two different solutions to this problem are adopted by member countries. In some cases the catch is allocated to the area in which most of the fishing was done (time spent in the area or fishing effort). The second method is to divide all the catch between the areas based on the time spent in each area. Neither method is ideal. The first assumes that the catch in the 'minor' area was insignificant and the second assumes that the catches of all the species reported were made in the proportion of the time spent in each area.

The general concept used to assign the area of capture to the landings of vessels not subject to log-book submissions (small vessels or vessels making trips of less than 24 hours duration) is to use the statistical area of the landing place. Information from interviews with the skipper by a national inspector may be used to verify the area of capture.

2.5 In the majority of member countries where the coverage of the landings data is complete the calculation of average price represents simply the total value of a product divided by the quantity. Problems do exist where fish are not sold through official marketing channels because the value and quantities may not be known. In some cases the ship owners supply information (for example, in the Netherlands and Portugal). In other cases the average price of the total amount of a product is assumed to be the same as that for that part of the landing for which full information is available (for example, in Greece).

2.6 The reliability of the catch and landings data is heavily dependant on the system used to integrate the data coming from the various sources (for example, log-books, landings declarations and sales notes) and the methods used to cross-check the information and eliminate discrepancies. The process may be extremely complicated

in situations where, for example, the fish are landed in a port a great distance from the place they are marketed.

In some countries this processing is largely manual from paper submissions. However there are various attempts to process the data from an early stage. In some countries (for example the United Kingdom) the log-book information is entered in the computer in the port offices in the place of landing and transferred over telephone lines to the central computer at the end of each day. This is matched with the sales notes that are processed in the place of sale. In Denmark, the Netherlands and Portugal the fisheries associations and companies are encouraged to transmit processed data to the computers of the national authorities. This early processing of the data has facilitated the checking of the information and has greatly speeded the availability of data, albeit provisional in nature.

The varying complexities of the national fishery industries and their infra-structures and the degree to which the data processing is computerised gives rise to substantial differences in the delay within which data are available. In the best cases provisional data may be available within one week whereas in other cases the delay is about four months. In all countries, the difficulties associated with obtaining data on the landings in foreign ports can cause substantial delays of six months or more.

### **3 Reliability and representativity of the data**

3.1 In Greece the collection of catch and landings data is based on sampling techniques. The complexity of the fishing industry excludes the possibility of total coverage of the landing sites and the collection of data on the destination of the products. The sampling methods have been the subject of study and, despite early doubts as to the reliability of data, there is good reason to believe that the modifications and refinements to the sampling techniques are now achieving results which are acceptable given the conditions in that country.

3.2 A relatively major problem reported by many countries is the fact that the EU log-book system only requires the reporting of data on the catches of species subject to the catch quota management system. The regulations on the reporting of catches and landings require information on a much larger range of species. Certain of the EU Member States have suggested that the range of species covered by the EU log-book system should be extended to cover the range of species in the statistical legislation. However, this would greatly complicate the format of the of the log-book particularly when one considers the wide range of fisheries one would have to cater for. One of the essential elements of log-book is that it should present a minimum of clerical duties for the skippers at sea.

No EU Member State catches a large proportion of the species listed in the annexes to the statistical legislation. For example, Greece and Italy do not catch species caught in fisheries of the Northwest Atlantic and Eurostat feels that, while the EU statistical legislation should be used as the legal basis requiring the submission of data on a wide range of species, the national authorities would be better to introduce national rules tailored to meet their own particular situations.

Perhaps surprisingly, a problem that has not been mentioned in the national reports is the factors used to convert the landed weight of the product to the live weight equivalent required for the reporting of catch statistics. A recent study has indicated that most countries have an imprecise knowledge as to the source and accuracy of the factors they employ. Many of the factors have been in use for many years and have not been the subject of recent technological studies. In many cases the factors have been assigned simply because they were in use in neighbouring countries. The use of an invalid factor can introduce a serious error in the final catch data.

In general, there are two main concerns about the quality of the officially reported data: -mis-reporting of fishing area and non-reporting or mis-reporting of catches and landings. For these reasons the officially reported catch statistics can differ, in some cases substantially, from those provided by scientists for fish stock assessment purposes. These scientists' estimates are based on the official data but are "corrected" using their knowledge of the fisheries, the area of capture of the reported species etc. The unofficial estimates are generally accepted in the international fora as being the better data sets for input into the fish stock assessments.

### **Section 3:**

**National reports.**

**1. Organisation of the national system of fishery statistics**

- 1.1 The National Statistical Institute (ÖSTAT) is responsible for collecting and processing statistics on aquaculture. (Austria has no sea fisheries.)
- 1.2 The legal basis is a Regulation of the Ministry of Land and Forestry (BGBl No. 4/1997).
- 1.3 ÖSTAT is responsible for reporting aquaculture statistics to the European Commission (Eurostat).

**2. Method of collecting, processing and compiling data on catches, landings and average prices.**

- 2.1– 2.4 The collection of data on aquaculture production is by means of a two-paged survey questionnaire sent by post to aquaculture producers. The producers must submit data on the type of production and the annual production of fish and crustaceans for consumption and restocking.
- 2.5 The production price for carp and trout are collected monthly from the Pond Producers Organisation.
- 2.6 The data are published as soon as all the data on the completed questionnaires have been processed.

**3 Reliability and representativity of the data**

- 3.1 - 3.2 The collection of data on the aquaculture production does not involve the use of sample surveys. A full survey has been conducted for many years. In order to guarantee a complete coverage, the list of producers is constantly up-dated.

## 1. Organisation of the national system of fishery statistics

1.1 The Sea Fishery Office (SFO) of the Ministry of Agriculture in Ostend has the task of collecting and processing fisheries data. The National Statistical Institute of the Ministry of Economic Affairs in Brussels regularly produces statistical tables based on data files from the SFO.

1.2 The general principle is that Community legislation over-rides national legislation. Before EU legislation on fishery statistics existed, information was provided on the basis of gentlemen's agreement.

There is a tax on sales in municipal auctions and the auction officers may receive an allowance for the compilation of each vessel's sales note.

1.3 The Sea Fishery Office (SFO) in Ostend is responsible for reporting statistics to the European Commission (Eurostat).

## 2. Method of collecting, processing and compiling the data on catches. Landings, and average prices

2.1 The EU log-book forms and the auction forms (market statistics) are the two main data sources.

The EU log-book has to be filled in by the skipper each day. For landings in a Belgian port, the log-book forms are collected by the auction officer immediately after landing and sent together with the market data to the SFO. For landings in a foreign port the log-book forms are sent to the SFO within 48 hours after landing. The completed EU log-book forms give the skipper's daily catch estimates expressed in live weight for the different TAC species and the ICES areas where fishing took place. The landing declaration gives the exact quantities in product weight of each TAC species, where necessary expressed in the number of boxes.

The market statistics are supplied by the fish market operators for each landing of a fishing vessel in one of the three Belgian fishery ports.

2.2 For vessels with the obligation of keeping an EU log-book the method of data collection has been described under 2.1.

Although skippers from vessels with an overall length of less than 17m and spending less than 24 hours at sea are not obliged to fill in an EU log-book at sea, they have to fill in a landings declaration form.

The group of vessels that only fish for shrimps in the coastal area sell their catches at the auction. In this case the auction forms are then used as landing declarations.

2.3 For landings in foreign ports, the log-book forms, with the skippers daily catch estimates for TAC species, and landing declarations have to be sent to the SFO within 48 hours of landing.

For landings in Denmark detailed market statistics are received by the SFO from the Ministry of Fisheries in Copenhagen. For landings in the Netherlands and the UK estimates are made for non-TAC species if no sales notes are available.

The SFO also has available the landings data of fish transported in containers and sold in Belgian ports.

2.4 The whole catch of a fishing trip is allocated to the statistical rectangle where, according to the EU log-book, most of the fishing activity took place during that trip.

2.5 In Belgium there exists a municipal auction duty. For all quantities sold at the auction, detailed information, such as quantity and value per size category, presentation form, quality category and destination, is recorded for each vessel and by date of landing.

The mean price of a species with a certain presentation form is calculated as the sum of the corresponding values divided by the weight.

2.6 Entering data on sales notes from landings in Belgian ports into the computer takes between 3 and 8 days after the date of sale, whereas for landings in foreign ports it can take up to 3 or 4 months.

### **3. Reliability and representativity of the data**

3.1 Data collection covers all landings by the Belgian sea fishery fleet in Belgian ports. All landings are sorted by species, so no landings by species are estimated from samples. In principle the data are collected for all species. Species which are not covered by the EU regulations and for which the importance is marginal are recorded as "other demersals", "other pelagics", "other crustaceans" and "other molluscs".

Regarding catch statistics it should be noted that, for about 50% of the landings in foreign ports, estimates have been made for those species which are not covered by the EU log-book regulation.

As no sampling techniques are applied for landings in Belgian ports and detailed data from the auction sales notes are available, it can be said that the landings data have a high level of accuracy.

3.2 EU log-books are a source of data; checks with the national log-book data and information on vessel movements are possible. On the other hand there is also a control at sea by control ships and aircraft. These controls make it also possible to check the positions of the vessels.

All landings and market data are recorded in kg landed weight. Only the skipper's daily catch estimates in the EU log-book are given in live weight equivalent. The conversion into live weight equivalent only occurs in the last stage, namely in the program which produces, for example, files for STATLANT questionnaires.

In general the whole quantity caught on a trip is allocated to the statistical rectangle where, according to the EU log-book, the main fishing activity took place.

No estimations of discarded fish are made.

## 1. Organisation of the national system of fishery statistics

- 1.1 The National Statistical Office and the National Office for of Agriculture and Food (BLE) are responsible for collecting and processing of fishery statistics.
- 1.2 The collection of fishery statistics is based on the Agricultural Statistics Law of 1992 in the version of 30 June 1998 as the national legal instrument, as well as the various EU Regulations. It is carried out on a monthly basis and covers all relevant data sources.
- 1.3 The National Statistical Office is responsible for the transmission of the landings data to the Commission (Eurostat). The Ministry of Agriculture and Food is responsible for the transmission of catch statistics to the Commission (Eurostat).

## 2. Method of collecting, processing and compiling the data on catches. Landings, and average prices

2.1 The main data sources are:

- log-book sheets (estimated quantities per species, fishing effort and fishing area)
- landings declarations (landed weight)
- auction forms and sales notes (quantity and value per species, presentation form, quality and category)
- landing declarations (fish and other species not sold at the market)

Each month the officials of the coastal states (Länder) collect data on quantities sold in the fish markets according to the catch and landings area and then transmit the data to the National Statistical Office.

- 2.2 Log-book sheets, landing declarations, sales notes and auction forms are submitted to the BLE immediately after the end of the trip, checked and electronically processed by this service. The data are further processed by the National Statistical Office.
- 2.3 The same data-handling procedure as mentioned under 2.2 operates for landings of German vessels in foreign ports. The vessels' captains are responsible for the delivery of the data and meet their obligations by completing the EU landings declaration. Trans-shipped catches are registered separately and counted against the national quota.
- 2.4 The data-processing follows the regular checking of the entries in the EU log-book, where the captain or his representative gives detailed information on the ICES-rectangle and position. The landed quantities from the sales-notes are automatically allocated by the processing programmes to the catch zones recorded in the log-book.
- 2.5 The calculation of the average price is based on the registered total quantities (in landed or product weight) and the corresponding value.
- 2.6 On their arrival in the National Office (BLE) all data in the log-books, the landings declarations and the sales notes are checked for plausibility and encoded and the technical data for the results per fishing trip assessed. Delays in processing can result partly from uncertainty in the catch information, partly through the late arrival of data on landings in foreign ports and through the problem of how to treat landings from fishing trips which have taken place over the New Year period.

Due to the variety of data sources involved, only cumulative catch data can be published in the course of the year. The final monthly breakdown follows at the end of

the year. The final catch statistics for the year are published in April of the following year. For landing statistics this schedule is somewhat later for technical reasons.

### **3. Reliability and representativity of the data**

- 3.1 In the German fisheries statistical system all landings of all species are covered. Some species which for Germany are unimportant or are non-quota species are aggregated under "other species". Checking takes place of data coming directly from the fishing vessels and corresponding data from other sources. No sampling techniques are used in the collection of data.
- 3.2 The above-mentioned data sources are an excellent basis for the production of catch and landing statistics. Controls at sea and in the ports ensure the observance of the requirements of national and international regulations.

## 1. Organisation of the national system of fishery statistics

- 1.1 The Ministry of Fisheries has the responsibility for collecting and processing the data on fishery statistics. The 6<sup>th</sup> Office of the Ministry, the Data and Computer Office, has the task of collecting and recording the data and of maintaining the databases, which are the basis for the administrative and statistical systems in the Ministry of Fisheries.
- 1.2 The legislation used for collecting the data is Department Orders issued by the Ministry of Fisheries, one for keeping log-books and one for the submission of information on catches of fish. The D.O.'s are based on Parliament Act no. 306 of 4 June 1986 on marine fishing (art. 41), Act no. 1052 of 23 December 1997 on quality control of fish and fish products (art.27), and Act no. 636 of 17 July 1992 on the administration of EU legislation establishing a common structural policy for the fisheries sector and on the market management system for fishery products (art. 1 sec. 1 and 2, and art.3).
- 1.3 The 5<sup>th</sup> Office of the Ministry of Fisheries, the Secretariat for Fishery Research, has the responsibility of submitting statistical reports to the Commission (Eurostat).

## 2. Method of collecting, processing and compiling the data on catches. Landings, and average prices

- 2.1 a Sales notes. The data on landings of fish, crustaceans and molluscs are collected from the merchants who do the first handling of the products. The handler or purchaser of the goods submits a copy of the sales note to the Ministry of Fisheries within 48 hours of accepting the goods.

The obligation to report lies with all persons performing first-hand handling of the fish. If a fisherman sells his catch directly to the consumers, then the fisherman himself has the obligation to report this to the Ministry of Fisheries.

The report on fish handling (sales note) must include the following information: identification of the reporting agent, the registration identification of the fishing vessel (if the fish is purchased from a non-registered boat, the social security number of the sales person), the date of landing and the place of landing.

The sales note must include the weight and value of each species, with the following specifications: for species which have been classified by quality and size category in EU legislation or in supplementary Danish legislation, quantities and values should be given for each category separately. Furthermore it must be specified for each lot if it has been withdrawn by the P.O. or discarded due to hygienic conditions. For industrial catches at least, the name of the predominant species in the lot should be given

Finally the level of processing/presentation of the product should be given. For instance, whether the fish were alive, gutted/ungutted, with or without head, fillets, boiled or frozen etc. This means, that both quantity and value should be given separately for each species, size category, presentation and type of use.

- 2.1 b Log-books When landing in Danish ports the fishermen must dispatch the log-book sheets to the local Fishery Inspection Office before leaving the port again or at least within 48 hours of landing. For fishing trips shorter than 24 hours by vessels of overall length of less than 12 meters, skippers may be exempted from the duty of keeping log-book, provided they have presented a signed "declaration on fishing area", and that they fish in accordance with this declaration.

The declaration on fishing area is a document where the fisherman will affirm that he will fish in one specific fishing area. If the fisherman wish to fish in another fishing area, he will have to present a new declaration on fishing area or to comply with the duty of keeping log-book. Every fisherman who has not signed a declaration on fishing area has an obligation to hand in the log-book sheets.

2.2 About fifty of the most important purchasers of fish submit daily reports of fish supply electronically from their own computer systems directly to the computer in the Ministry of Fisheries. A large part of the most important species is well covered, some up to 100%, by these on-line reporters. The sales notes for the approximately 250 other purchasers are recorded and processed by the Ministry of Fisheries.

Log-books and declarations on fishing area are submitted to the local Fishing Inspection Offices. Each form is checked thoroughly by the local staff before being dispatched to the Ministry of Fisheries, where the information is recorded and processed.

2.3 When a Danish vessel makes landings in foreign ports, the skipper is obliged to dispatch copies of the log sheets to the Fishing Inspection Office for the home port of the vessel. He is also obliged to dispatch a copy of the sales note to the Danish Ministry of Fisheries. The same obligations apply for transshipment to foreign vessels. All forms of transshipment are prohibited unless a specific permission for transshipment has been issued by the Ministry of Fisheries.

2.4 The sales note register is the basis for the official fishery statistics. All sales notes are supplied with information on fishing area either from the matching log-book, the declaration on fishing area, or from other available information about the behaviour of the fisherman or from knowledge of the fishing pattern in the port of landing.

The information on fishing area is applied to the sales notes by electronic comparison of sales notes and log-books plus declarations on fishing area. The log-book is by far the most important source of information on fishing area. If there are more than one fishing area on the log-book, then the data on the sales note will be split according to the log-book information for each species. This is not done electronically but manually. The annual number of sales notes which have to be split amounts to approximately 1500-2000.

2.5 The calculation of average prices is based on the total registered quantities and the corresponding values. Estimation is not necessary because all lots of commercialised fish etc. are registered. The value of the Danish landings in foreign ports are registered in Danish krone using the exchange rate on the day of marketing.

2.6 Log-books and sales notes are processed daily. Overnight new statistical data sets are compiled for management and control purposes. For use in the information system for official statistics new data sets with preliminary figures are released about 30 days after the end of each month. Thus preliminary figures for a year are released by the end of January of the next year, and final figures are released by the end of June.

### **3. Reliability and representativity of the data**

3.1 Sampling techniques are not used in the collection of data for the official fishery statistics. Sampling is not necessary because all commercial catch and landings of fish, crustaceans and molluscs are recorded. Non-commercial fisheries, e.g. recreational fisheries, are also covered by the sales note system provided the catch is sold on the market. But that is, of course, rarely the case: recreational catches are usually for the fisherman's own consumption.

3.2 The Danish system of fishery statistics is very detailed and the daily work necessary for its maintenance could seem very laborious. However, its strong point is that it permits good analyses of the structure and performance of the fishing industry.

The increasing proportion of on-line transmissions of data to the Fisheries Ministry has resulted in a considerable reduction in the manual work necessary for recording the information. Therefore more time can be spent on improving the quality of the data.

Reliable calculations of the level of catch for most stocks may be produced with very limited use of estimates, which makes it possible to monitor the fisheries very closely.

The recording of the log-book data is currently being decentralised. In future the registration will be handled at the local Fishery Inspection Offices. One of the objectives of this decentralisation is the principle of performing the task of recording close to the source of information and thus improving the condition for validation and checking of the data.

## 1. Organisation of the national system of fishery statistics

1.1 In Spain, the particular statistical tasks incumbent upon the state are carried out by the statistical services specified in Law No 12/1989 on the Public Statistical Service. Article 23 of this Law states: "the public statistical service shall be developed by central government through the National Statistical Institute, the Higher Council for Statistics, and the units from the different ministerial departments and any other State controlled public bodies which have been entrusted with this task."

Article 19(6) of the Law on the Jurisdiction of Central Government assigns to the Technical General Secretary the task of directing and facilitating the production of statistics on matters within the sphere of competence of the Department, in co-operation with the National Statistical Institute, and in any other fields he considers appropriate. "

The allocation of tasks to the units of the Ministry of Agriculture, Fisheries and Food (MAPA) is set out in Royal Decree No 654/1991, which amended the basic structure of this Ministry. In specifying which units in the Department have statistical tasks, the Royal Decree follows the guidelines set by the Law on the Jurisdiction of Central Government. For example, Article 4(2)e) stipulates that the compilation of statistics and sectoral analyses are functions of the Technical Secretariat-General. In turn, this body assigns the performance of these tasks to the Sub-Directorate-General for Statistics and Sectoral Analysis.

The involvement of the various statistical services in the statistical activity of central government is set out in the corresponding National Statistical Plan, in accordance with Law No 12/1989. Royal Decree No 136/1993 approved the first of these plans for the years 1993/1996 and designated MAPA and the authorities acting as its agents on the coast as the bodies to compile the statistics on sea fishing landings.

In addition to the National Statistical Plans, there are also provision for Sectorial Statistical Plans, which are compiled by the various ministerial departments for the fields in which they are responsible (Article 33 of Law No 12/1989).

The Ministry of Agriculture, Fisheries and Food has its own statistical plan, which was passed by Royal Decree No 265/1985. Article 1(1) of this decree states that this plan "takes the form of a set of actions designed to obtain statistical information for the purposes of the State in the agricultural, fishing and food sectors, thus enabling the Department to implement its policies". In Article 2, the Technical Secretariat-General is given the task of programming and producing those statistics in the Plan which are not carried out directly by the National Statistical Institute.

More specifically, the Ministry of Agriculture, Fisheries and Food's statistical plan gives the Department's Technical Secretariat-General the tasks of programming and producing the statistics on fish landings and fish catches (paragraph e of point 2 - basic statistics for short term economic analysis - in the Annex to Royal Decree No 265/1985).

From all the above, it can be said, in summary, that the Ministry of Agriculture, Fisheries and Food's involvement in the National Statistical Plans and the programming and implementation of the Department's sectoral plans are the responsibility of the Technical Secretariat-General and, more specifically, the Sub-Directorate-General for Statistics and Sectoral Analysis.

1.2 Royal Decree No 136/1993, which approved the National Statistical Plan for the years 1993/1996, includes statistics on sea fishing landings.

Furthermore, the statistics which must be compiled pursuant to the EU Regulations are automatically to be included in the National Statistical Plan (Article 45(2) of Law 12/1989).

The three EU Regulations which require statistics to be kept on landings of fisheries products and catches in the North Atlantic should, therefore, be included in this National Statistical Plan, the first explicitly and the other two by implication.

The data used to compile fisheries statistics are generally obtained from administrative sources. As a central government statistical service, the Technical Secretariat-General is authorised to use administrative data derived from the activities of the Ministry of Agriculture, Fisheries and Food for statistical purposes (paragraph (d) of Article 33 of Law No 12/1989).

Direct data collection for statistical purposes is governed by Chapter II of Title One of Law No 12/1989, on the Public Statistical Service.

- 1.3 The Technical Secretariat-General of the Ministry of Agriculture, Fisheries and Food is the unit responsible for programming and producing the statistics on landings governed by Council Regulations (EEC) Nos 1382/91 and 2104/93, the statistics on catches in the north-east Atlantic governed by Council Regulation (EEC) No 3880/91 and the statistics on catches in the north-west Atlantic governed by Council Regulation (EEC) Nos 3881/91 and 2018/93 and on the statistics on catches in other areas (Council Regulation (EC) no 2597/95).

The unit responsible for most of the data from administrative sources used in compiling the statistics is the Secretariat-General for Sea Fishing.

The unit responsible for transmitting the information to Eurostat is the Technical Secretariat-General of the Ministry of Agriculture, Fisheries and Food.

## **2. Method of collecting, processing and compiling the data on catches. Landings, and average prices**

- 2.1 The statistics for landings and catches in 1992 were compiled using data from the following sources:

- a) The landings statistics of the Technical Secretariat-General of MAPA. These data are collected solely for statistical purposes. They are the main source of data on landings statistics in 1992 for the simple reason that they provide the greatest volume of information. They provided, for example, the information on 50.22% of the total weight of species landed as well as data on 128 products (species and groups of species, in various presentations) within the greatest geographical area.

The main information sources for landings of fresh and chilled fish are the Fishermen's Guilds. Some town councils and producers' organisations also provide information on these landings, albeit to a lesser extent.

Information on landings of frozen and salted fish is provided by ships' captains, ship-owners and producers' organisations.

- b) The Directorate-General for Fish Markets of the Secretariat-General for Sea Fishing (SGPM).

This is administrative information intended to facilitate market management. It is a source for the 1992 landing statistics, accounting for 21.28% of the total weight landed. The data obtained are essentially on frozen products (cephalopods and

hake) and fish for the processing industry (Canary Islands sardines for fishmeal production).

The data on frozen products are provided by producers' organisations. The data for the Canary Islands sardine boats are provided by their owners.

c) The Spanish Institute of Oceanography(IEO) (SGPM).

The information obtained by the IEO is intended for scientific purposes. The data used to compile the 1992 landings statistics referred to all types of tuna. They represented 100% of the tuna in these statistics and 24.03% of the total weight landed. These data are provided by the captains and owners of the vessels engaged in this kind of fishing and some Fishermen's Guilds.

d) The SGPM's Directorate-General for Fishery Resources - Vessels in Area 21 (NAFO)

All the information is obtained within the framework of the NAFO Convention. It is the source of the statistics for catches in Area 21. It also contributes to the landings statistics in 1992, accounting for 0.91 % of the total weight landed. The information is provided by the captains and owners of the vessels operating in Area 21.

e) The SGPM's Directorate-General for Fishery Resources - TAC's and quotas in Area 27 (ICES).

These data are for the purposes stated in the various EU Regulations on TAC's and quotas applied to the fishing of various species in Area 27.

They provide the statistics on catches in Area 27 and represent 3.56% of the total weight landed in the landings statistics for 1992. 98.66% of the vessels were over ten meters in length and they accounted for 3.54% of the total catch and 0.02% of the total weight landed.

The information on vessels over ten meters in length fishing species or groups of species subject to TAC's and quotas is provided by those vessels' owners and captains.

The vessels under ten meters in length which fish for the species subject to TAC's and quotas were investigated in 1991 using sampling techniques. The information was obtained from the licensees in the markets where the fish was sold. The data for this fleet for 1992 were obtained via an estimate based on the 1991 survey and the data for catches of the species subject to TAC's and quotas produced by vessels over 10 meters in length in 1991 and 1992.

## 2.2 Data collection

a) MAPA's Technical Secretariat-General's landings statistics. Some administrative sections of the Spanish Navy have traditionally been the statistical agents of the Ministry of Agriculture, Fisheries and Food (MAPA) in the field of sea fishing.

MAPA plans to carry out these tasks directly in the short- to medium-term.

MAPA's statistical agents obtain the data on landings of fresh and chilled fish from the records kept at the fish markets, in some cases, and by direct observation at auctions in others. The data on frozen and salted fish are obtained from the manifests and sworn declarations made by the captains and owners of vessels.

All the data collected by the Ministry's statistical agents are forwarded to the Technical Secretariat-General.

b) Data from the Directorate-General for Fish Markets (SGPM-MAPA). The data are obtained from the landings documentation and sales notes which the members return to their individual organisations.

c) Data from the Spanish Institute of Oceanography (IEO)(SGPM-MAPA).

The captains and owners of vessels catching any kind of tuna, and some Fishermen's Guilds, send their catch declarations to the IEO.

d) Data from the SGPM's Directorate-General for Fishery Resources - Vessels in the NAFO area

There are three systems for obtaining these data. In the first place, the captains of the vessels in the area send radio messages to the SGPM within a maximum of two weeks following the catch. Secondly, on landing, the daily logs and the EU landing declarations are handed over to the SGPM's agents on land. Thirdly, the shipowners' associations inform the SGPM of their members' catches.

e) Data from the Directorate-General for Fishery Resources for monitoring TAC's and quotas in Area 27(ICES)

The owners and captains of vessels over ten meters in length complete the daily logs and landing declarations laid down by the EU and hand them over to the SGPM's agents on land.

The data for vessels under ten meters in length fishing for species subject to TAC's and quotas were obtained by interviewers who completed the corresponding questionnaire after interviewing the licensees in the markets which made up the sample chosen. This is explained in greater detail under 3.1 below.

### 2.3 Description of the methods used to obtain data from vessels landing in foreign ports and from transshipments.

This information is contained in the T2M documents which accompany the products until their arrival in the territory of the European Union. In Spain, the Ministry of Economic Affairs and Finance, via the Directorate-General of Customs, is responsible for monitoring the transit and landing of this type of products in Spanish territory. It has so far not been possible to set up a system incorporating this information into the landing statistics.

### 2.4 Catches made by vessels fishing in the NAFO area and by vessels over ten meters in length fishing on species subject to TAC's and quotas in Area 27 (ICES) are allocated directly to the fishing areas on the basis of the declarations by their captains and owners.

When the species subject to controls are caught by vessels under 10 metres in length they are allocated to the areas corresponding to their landings.

The statistics for catches in Area 27 in 1992 do not include species which are not subject to any controls.

### 2.5 The data collected on fish auctioned at market obtained from the Technical Secretariat-General's landings statistics pertain to the quantity and prices obtained for each species. In those statistics, the value of landings of frozen and salted fish is obtained from estimates made by the parties providing these data. The average prices are obtained in both cases by dividing the value by the quantity.

In the information provided by the Directorate-General for Fish Markets, the average prices for hakes are weighted by quantity according to presentation. The weightings for cephalopods are by quantities and presentations of each species.

## 2.6 Processing, tabulation and approximate time required.

- a) The SGT's landings statistics. The Spanish Navy collects the data from the parties providing the information and sends them to the MAPA Technical Secretariat-General (SGT) each month. This unit acknowledges receipt of the information and carries out an initial check on the data received. These data are sent to the Secretariat-General for Sea Fishing (SGPM), where they are computerised. Once this has been done, they are validated and tabulated using processes designed by the SGT.

The SGPM transmits the resulting print-outs with the corresponding statistical tables to the SGT.

It generally takes approximately six months to carry out the procedure described above. In 1993, it took a little longer, on account of the administrative restructuring mentioned at 2.2a.

- b) Other information sources. The data used to compile statistics on landings and catches obtained from sources other than that described at a) above are usually received from the corresponding bodies every month. However, these can only be consolidated approximately five months after the end of each period, due to the fact that a substantial number of the vessels from which these data are obtained are at sea for trips lasting several month. By that time, the corresponding government units have sent the data to the SGT for processing and tabulation.
- c) Compilation of the 1992 statistics for catches and landings in Area 21 and for catches in Area 27 required by Council Regulation (EEC) Nos 1382/91, 3880/91, 3881/91, 2018/93, 2104/93 and 2597/95.

The data for 1992 obtained from the information sources described above were submitted to several processes in the SGT. In theory, with the co-operation of the Spanish Institute of Oceanography (IEO), each record was linked with the corresponding taxonomic and 3-alpha code from the International Standard Statistical Classification of Aquatic Animals and Plants (ISCAAP) used by the FAO. To each product the corresponding presentation code at the time of landing was assigned. The main source used for the landings statistics were the data from the SGT Landings Statistics, expanded by any additional information obtained from the other sources.

The statistics on landings from Areas 21 and 27 were obtained directly from the data provided by the Directorate-General for Fishery Resources. On completion of all the processes described, the tabulations required by the EU Regulations cited above were carried out.

## 3. Reliability and representativity of the data

- 3.1 The data used to produce the statistics are obtained from administrative sources, with the exception of those for species subject to TAC monitoring and quotas caught by vessels under 10 metres long. These were obtained from surveys carried out in 1991. The census of the working fishing fleet took a sample of 13 ports and recorded landings by vessels grouped according to their gear. The sample was made up of 1218 vessels, 835 with inboard engines and 383 without fixed engines. The 1991 data were obtained by direct interview of the licensees in the ports selected in the sample. The 1991 results provided the basis for estimating the 1992 results. The estimates obtained for 1992 account for 0.02% of the total weight landed in the landing statistics. The same estimates represent 1.44% of the weight in the statistics on catches in Area 27 (ICES), bearing in mind, of course, that these statistics were compiled solely using the data for species subject to TAC's and quotas. These figures are evidence of how

few of the species subject to TAC's and quotas are actually caught by vessels under 10 metres long.

3.2 The length of the Spanish coast (over 7 800 km), the great number of vessels in the working fishing fleet and the range of potential landing points all constitute considerable structural problems for establishing an efficient system of fishery statistics. The peripheral agencies of central government are undergoing big changes. With the coming into force of Law No 27/1992 on Ports of the State and of the Merchant Navy, the navy will no longer carry out the fisheries tasks which have fallen to it hitherto. It is the intention of the Ministry of Agriculture, Fisheries and Food to assume these responsibilities directly in the short- to medium term.

It is estimated that introducing the mechanisms established in the planned EU monitoring Regulation will provide a solid basis for setting up a system of fisheries statistics in Spain which can guarantee the coverage, reliability and timeliness of the data required. Given the complexity of the statistical aspects deriving from how the Regulation is to be applied in Spain, it may be necessary to negotiate a transitional period of one or two years for the system to become fully effective.

## 1. Organisation of the national system of fishery statistics

- 1.1 Greek fishery statistics are compiled mainly by the Secretariat-General of the National Statistical Service of Greece (SG of the NSSG), although the Ministry of Agriculture, the Agricultural Bank of Greece and other specialised bodies in the fisheries sector also compile data. They either constitute the official statistical data on the national fisheries sector (NSSG data and publications), or meet specific official needs of special bodies dealing with fisheries policy (Ministry of Agriculture, Agricultural Bank, etc.).
- 1.2 The national legislative framework for statistical surveys of sea fishing is provided by Joint Decision 30112/254 of 9 October 1963 by the Ministries of Co-ordination, Economic Affairs, Industry and Merchant Shipping, as amended by Decision 744 of 9 April 1969 by the Ministries of Co-ordination, Economic Affairs, Agriculture and Merchant Shipping, given that fisheries as a branch of economic activity comes under the responsibility of the Ministry of Agriculture. Furthermore, Decision 53/BI of 13 February 1970 of the Ministries of Co-ordination, Economic Affairs, Merchant Shipping and Agriculture restricted statistical surveys of sea fishing to commercial fishing vessels of 20 horsepower and over.
- 1.3 The statistical forms (questionnaires) on sea fishing are filled in by the fishermen concerned, collected and forwarded to the Central Service of the Secretariat-General of the NSSG, mainly by the local customs authorities. These data refer to catches by fish species, quantity and value. The landing place is not recorded. Only 28-32% of national fish catches pass through the 9 fish-wharves that are currently operational and that allow landings of fishery products to be closely monitored. The SG of the NSSG is the body officially responsible for compiling national fishery statistics.

## 2. Method of collecting, processing and compiling the data on catches. Landings, and average prices

- 2.1 The SG of the NSSG, in association with the Ports Authority and Customs Offices in the ports carries out the monthly survey of sea fishing (deep-sea, offshore and coastal) by commercial vessels of 20 horsepower and over.
- 2.2 - 2.3 The statistical unit comprises the vessel engaged in independent fishing activity, i.e. with its own means. For deep-sea fishing, i.e. trawlers fishing outside the Mediterranean (mainly in the Atlantic Ocean), the inventory method is used to determine the statistical parameters. This involves collecting data from all fishing enterprises for fishing vessels sailing under the Greek flag. The statistical forms are filled in for each vessel by the relevant fishing enterprises and refer to the month in which the catch was shipped to a Greek port. Quantities of fish sold directly abroad are also included. All catches from deep-sea fishing vessels are frozen.

For offshore and coastal fishing a random stratified sampling method is used. The reasons for this are:

- a) a large number of fishing vessels (approximately 50% or more of total vessels on average) do not fill in statistical forms for a full year or a fixed period of time
  - b) there is a full and detailed register of motorised fishing vessels that come under this statistical survey, and this can be used to stratify units.
- 2.4 The fishing ground is taken to be the area in which the fishing vessel was operating and obtained its catch. Fishing grounds are divided up by geographical region into

those outside and those within Greek territorial waters. There are 18 of these in all (two outside and 16 within).

2.5 Prices by type of catch are provided separately by the nine fish-wharves currently in operation throughout the country, and these are used to work out average prices per month.

2.6 The work involved in producing fishery statistics is divided up into the following stages:

- a) at the beginning of each year fishermen are provided (indirectly via the local customs authorities in the case of coastal and offshore fisheries, and directly in the case of deep-sea fisheries) with the necessary statistical printed matter, i.e. monthly questionnaires, daily catch log-books and the statistical manual for fisherman.
- b) monthly collection (indirectly from the customs authorities and directly from the deep-sea fishing enterprises) of completed statistical forms.
- c) completeness, reasonableness and classification checks on monthly statistical forms
- d) encoding of replies from statistical forms and preparation of these for computer processing.
- e) transmission of statistical forms to computing centre for planned processing work by month and type of fishing gear (deep-sea and offshore trawler-purse seiners, trawlers, seiners and other vessels), with separate continuous numbering. The necessary adjustments are also made and new fishing vessels added to produce an updated register of fishing vessels.
- f) once the register has been updated, special tables are drawn up for motorised vessels by category, horsepower, etc. These data accompany special computing records for the presentation of statistical results.

### **3. Reliability and representativity of the data**

3.1 In accordance with the procedures described above (paragraphs 2.2 - 2.3), fish catches are calculated by estimating the total number of vessels per fishing ground. Thus, for offshore fishing, the basis is taken to be the total population of vessels by type of fishing gear, proportional to the sample units (trawler/purse-seiners and seiners). A different method is used for coastal fishing: a count is made of the fishing vessels (trawlers and other vessels) by home port for each fishing ground, and the figures are then compared with the corresponding number of vessels by type of fishing gear, corrections being made where appropriate in relation to the number of boats per fishing ground. The aim of these calculations, methods and stratification, etc., is to reduce the statistical error to the minimum possible, thus ensuring that the data are more reliable.

3.2 As pointed out in paragraph 1.3 above, the monthly data on landings of fishery products are estimates, because the nine fish-wharves currently in operation and used for monitoring handle a small proportion (about 30%) of the total catches. Co-ordinated efforts are being made and all necessary measures being taken to improve the quality and reliability of monthly statistics on fishery production.

## **1. Organisation of the national system of fishery statistics**

1.1 The two main sources of data are the auctions (market statistics) and the EU fishing log-books. These data are validated and processed by the CRTS (Centres Regionaux de Traitement des Statistiques) and then transmitted to the CAAM (Centre Administratif des Affaires Maritimes) to be maintained in the database. Data on landings at auctions which are computerised are also transmitted to the FIOM (Fond d'Intervention et d'Organisation des Marches) and then sent to the CAAM.

1.2 The collection of fishery statistics is partly based on national legislation and partly on EU legislation (fishing log-books).

1.3 The Secretariat d'Etat à la Mer is responsible for the submission of data to the Commission (Eurostat).

## **2. Method of collecting, processing and compiling the data on catches. Landings, and average prices**

2.1 - 2.6 The main data sources are the market statistics (quantity and value of landings), landing declarations (landings not passing the auction) and the EU log-book (catch estimates and fishing areas). The information is verified and completed (landings converted to live weight equivalent) at the CRTS (there are 4 of these regional centres: Brouage, St Malo, Lorient and La Rochelle) and further compiled at the CAAM (creating statistical tables and forms for the different users).

## **3. Reliability and representativity of the data**

3.1 The main problems in the fisheries statistical system seem to be associated with the complexity of co-ordinating and combining the different fluxes of information to and from the various organisations. It is expected that the situation will improve after the installation of new computer systems (Oracle under UNIX).

## 1 Organisation of the national system of fishery statistics

- 1.1 The Ministry of Agriculture and Forestry (MAF) and the Finnish Game and Fisheries Research Institute (FGFRI) collect and process the data in co-operation. Primarily MAF has the responsibility for fisheries control. For that purpose MAF maintains fishery registers and collects data on landings and sales. FGFRI complements the data and produces reports and final statistics. FGFRI has the responsibility to maintain other fisheries statistics too, concerning, for example, commercial inland fisheries, aquaculture, fish processing, import and export of fish products, fish consumption and recreational fisheries.
- 1.2 The EU's fisheries control legislation has been defined and implemented by national law (No. 1139/1994) and a decision (No. 1575/1994) made by MAF. These regulations oblige fishermen to report their catches and the first-hand buyers to report their purchases. The national Fishery Law (No. 286/1992) defines the fishermen's obligations to report catches.
- 1.3 The FGFRI is responsible for the submission of statistical reports to the Commission (Eurostat).

## 2. Method of collecting, processing and compiling the data on catches. Landings, and average prices

- 2.1 - 2.2 The source of the data and a description of the method used to collect the data are as follows:

**Log-books and monthly coastal fishery reports:** Log-books and monthly coastal fishery reports, plus foreign landing declarations, are the basis of the official catch, effort and landing statistics in Finland. All fishing vessels greater than 10m in length must send logbook sheets to the regional offices of MAF (six units along the coast and the Åland Islands) within 48 hours of landing. The logbook format is a variant of the EU-logbook – modified to meet the situation in the Baltic Sea. Vessels equal to or less than 10m in length give monthly coastal fishery reports of their catches. All commercial species are reported. The monthly coastal fishery reports are sent to the regional office of MAF within 5 days of the end of each reference month. In addition, the salmon catches of vessels of 10m or less have to be reported within 48 hours of landing on a special salmon reporting form.

**Sales notes:** The first-hand buyers of fish have an obligation to submit sales notes to the regional offices of MAF within 48 hours of the purchase. This obligation concerns TAC-species (Baltic herring, cod, salmon and sprat).

The sales notes include the following information: identification of buyer and fishing vessel, date and place of landing and weight (also number of salmon) and price of fish. The weight and the price are given separately for different size classes and for the different level of presentation or processing (for example gutted/ungutted, fillets).

- 2.3 For landings in foreign ports and for transshipment the log book sheets have to be sent to the regional district of MAF within 48 hours of arriving to home port. Besides that the landing declarations are left to the country in question. Log books and landings declarations to foreign ports are cross-checked in FGFRI. At the moment Finnish fishermen make landings in foreign ports in Sweden, Denmark, and Estonia. There has been some minor landings in Russia too. MAF has a bilateral arrangement with Swedish and Danish authorities to exchange landings information on monthly basis. The landings data has been completed also by the information given by Producer's

Organizations of Sweden. Landings of Finnish vessels to Estonian and Russian ports are reported to Finnish authorities with log book sheet submissions.

- 2.4 Fishing areas refer to ICES sub-divisions and the statistical rectangles of the Baltic Sea as designated by the International Baltic Sea Fishery Commission. If a vessel catches fish in more than one rectangle, the catch is allocated to the most important rectangle during the haul or the trip.
- 2.5 The average prices for TAC-species are calculated from the data in sales notes. The average price is weighted against the quantity of fish landed. The prices for non-TAC species are calculated from the purchase and price data received from the largest first-hand fish buyers. The prices are recorded without taxes.
- 2.6 Before processing, the EU-log books and monthly coastal fishery reports are checked thoroughly in the regional offices of MAF. All the data are used internally from the time of registration in the regional districts of MAF, mainly for control and management purposes. The preliminary monthly landings reports are compiled by MAF two weeks after the end of the month. At the end of the year the EU-log books and monthly coastal fishery reports and recorded data are sent to FGFRI for processing and analysis. The catch data are cross-checked against the sales notes data. The first preliminary statistical tables are released at the end of January of the following year. The definitive catch statistics are published in June.

The sales notes for TAC-species are recorded in the regional offices of MAF for control purposes and the data are submitted to FGFRI once a month. There are some delays in the submissions of these sales notes by the fish first hand buyers side to the authorities, FGFRI regularly completes monthly sales statistics to be submitted to EUROSTAT within 3-4 months after the referring month. For non-TAC species, FGFRI collects sales data (copies of original book keeping) from a sample of the largest fish first hand buyers. In some cases the data give information on sales of the TAC-species too, and it can be used to check and complement the TAC data. FGFRI publishes sales statistics twice a year.

### **3. Reliability and representativity of the data**

- 3.1 Sampling techniques are used only to estimate the average prices of non-TAC species. About 50 % of landings of the non-TAC species are covered by the sample. The catch of these species has been about 5 % of the total catch.
- 3.2 Each fishing vessel must be registered before starting professional fishing. The vessel and fishermen registers are updated continuously. Every vessel on the register receives either an EU-log book or a monthly coastal fishery book and is obliged to fill in and return those documents. However, there are some cases of non-reporting. The catches of non-respondents are estimated by post-stratifying the population according to vessel size, main gear used and home region. The income class of fishermen is used as a strata when available. In recent years the estimated share has been about 5 % of the total catch. The reliability of the catch data has partly been examined for 1990 by independent balance calculations, but some surveys indicate that the catch statistics of the TAC-species are more reliable than those of some minor species caught by coastal fishery.

Fish trading is not authorised in Finland. The companies that buy fish are mostly small and the enterprises are scattered along the long coast-line. There are no fish auctions. Before Finland joined the EU in 1995 first-hand fish buyers were not obliged to report their purchases for fisheries control. That is why there have been some delays in developing a full and high quality data flow system. The total landed weight of TAC-species according to the sales note data is about 70-80% of the total nominal catch of the corresponding species recorded on the log-books and monthly reports. The difference can be explained partly by landings in foreign ports and by the different

presentation form of the fish (product weight on the sales note against the live weight equivalent on the logbooks). In addition, all first-hand purchases are not covered by the fishery control data: for example, no sales notes are available for fish sold directly to consumers or if the fishermen use the catches as feed on their own fur or fish farms. Thus some small-scale first-hand fish buyers do not report all their purchases of fish.

## 1. Organisation of the national system of fishery statistics

1.1 The collection of data is carried out by the National Statistical Institute (ISTAT), with the help of the local bodies of the Ministry of the Agriculture Politics (MIPA) the coastal fish markets.

1.2 Law No 41 of 17 February 1982 on sea fishing activities and development adopted some important provisions to promote the reform of the system of fisheries statistics in response to information requirements. In particular, the holders of fishing licences have to submit a declaration giving statistical data on their fishing activities.

Data on catches in the Mediterranean Sea and in waters beyond the Mediterranean are collected using the forms ISTAT/FOR/102, ISTAT/FOR/102.1 and ISTAT/FOR/103. Data on prices are collected using the form ISTAT/FOR/104.

1.3 Fisheries data are transmitted to the Commission (Eurostat) by the National Statistical Institute.

## 2. Method of collecting, processing and compiling the data on catches. Landings, and average prices

2.1 - 2.6 The data refer to the total quantities recorded for fishery products caught by the Italian fleet in the Mediterranean and in waters beyond this sea (deep-sea fisheries). The quantities of fish caught in the Mediterranean are reported each month (form ISTAT/FOR/102) by around 350 reporting bodies (district navigation offices, local navigation offices, dockside offices, wholesale fish markets, fish collection bodies and fishermen's co-operatives). Because there is no method of reporting quantities of fish which do not pass through the market carrying out the survey (fish that are sold through other markets, fish which go directly to processors or fish sold locally for direct consumption) these quantities have to be estimated.

Fish caught in tuna nets in the Mediterranean are reported by another monthly survey (form ISTAT/FOR/103) referring to the quantity of fishery products obtained exclusively in the fixed tuna gear in any month in which the nets were laid. Quantities of certain species are distinguished and broken down according to their destination. The survey forms are completed by the owners or skippers of the vessels.

Data on catches from fishing beyond the waters of the Mediterranean have to be reported separately using another form (form ISTAT/FOR/102.1). This is to be filled in after each trip by each vessel flying the Italian flag which has been fishing in distant waters

## 3 Reliability and representativity of the data

3.1 Data on catches are reported as part of a total survey covering the production stage. Certain facts - such as the huge number of fishing vessels and landing locations scattered along 8 000 km of coast and the system of free trade beyond the wholesale fish markets - mean that the surveys cannot monitor the many routes taken by the product on landing. To solve this problem and to avoid the use of estimates, a ISTAT/MIPA working group has been established to study the use of sampling techniques.

A sampling method is already used to determine the value of fishery products. The reporting of prices for products in transactions in about 50 wholesale markets can be

considered reliable, in that the values recorded can be considered sufficiently representative.

- 3.2 For several years, MIPA has been conducting, with the assistance of the private research institute IREPA, a sample survey of catches and fishing activities. The ISTAT/MIPA working group is currently studying how this survey can be improved and adapted to meet the EU's requirements. It is hoped that, in the near future, this survey can be used to replace completely the current statistical system, thereby giving a sole source of reliable data for Italy.

## 1. Organisation of the national system of fishery statistics

1.1 Fishery statistics are collected by the Sea Fishery Officers of the Sea Fisheries Control and Management Division of the Department of the Marine and Natural Resources. The data are processed by that Division and reports are issued through the Sea Fisheries Policy and Development Division.

1.2 The Sea Fisheries (Control of Catches) Order, 1983 implements the requirements of the EU log-book regulations.

Fishing Licensing Orders, which are made under the Sea Fisheries Acts 1959-1983, require that landings of defined pressure stocks must be notified in advance to a Sea Fishery Officer. In addition, landings of certain pressure stocks may only take place at designated ports. Pressure stock species are updated and amended as necessary and they include herring, mackerel, horse mackerel, sole, plaice and hake.

Transshipping licenses issued under the Fisheries (Control of Fishery Products) Order, 1986 require that vessels transshipping fish in Irish waters must make returns to the Department.

1.3 The Sea Fisheries Policy and Development Division of the Department of the Marine and Natural Resources is responsible for the transmission of data to the Commission (Eurostat).

## 2. Method of collecting, processing and compiling the data on catches. Landings, and average prices

2.1 The main sources of data are log sheets, landing declarations, the records of fish merchants and agents, information provided by skippers and inspections by Sea Fishery Officers.

2.2 Log sheets and landing declarations are returned by skippers to the Sea Fishery Officers in accordance with the requirements of EU regulations. Other information is compiled by Sea Fishery Officers as a result of inspections and interviews.

2.3 Under EU legislation Irish vessels landing into foreign ports are required to return logsheet operations and declarations of the trip to the vessels' home port where they are entered on computer for inclusion in the Irish statistics.

Vessels transshipping fish in Irish waters are required under the terms of their licences to make returns to the Department.

2.4 Details of areas fished are derived from log-sheets, landing declarations and interviews with skippers. Log-sheet entries are verified during boardings by the Irish Naval Service while on Sea Fishery Surveillance Patrol.

2.5 Average prices of landings are derived by Sea Fishery Officers through attendance at auctions, inspection of the records of fish merchants and agents, and liaison with BIM (the Irish Sea Fisheries Board), which is responsible for marketing of fish.

2.6 Statistics are compiled regionally by Sea Fishery Officers and transmitted to Sea Fisheries Control and Management Division in Dublin for processing and analysis. The introduction of a computerised Fish Catch Reporting System means that, from 1994 on, data have been entered onto a computer network at regional centres and transmitted electronically to Dublin.

Information on fishing activity is reported by Sea Fishery Officers monthly. In the case of certain pressure stocks, species reports may be made weekly or daily, as necessary.

### **3. Reliability and representativity of the data**

#### **Ireland**

3.1 Formal sampling techniques are not used in the collection of statistics. However some data are based on the Sea Fishery Officers' knowledge of fishing activity and information provided locally. This is particularly true of vessels of 10 meters or less in length, and in relation to non-quota crustacean and molluscan species. Nevertheless, a high degree of reliability is achieved, particularly as regards quota species, which are monitored closely by the Sea Fishery Officers.

3.2 The introduction of the computerised Fish Catch Reporting System has eliminated many of the problems that had been experienced in recording fishery statistics. If the range of species covered by the EU Logbook system was extended to cover all species, this would increase the level of accuracy in recordings of landings for non-quota species. Any changes to the log-book system should only result in a more streamlined and efficient method of information transfer from the skipper to the statistical reports

## 1. Organisation of the national system of fishery statistics

- 1.1 The organisation and collection of fishery statistics in Iceland is currently under revision by the Icelandic authorities. Data concerning catches by Icelandic vessels is gathered from two different data sources, landing declarations and declarations of purchase and disposition of raw material. The Directorate of Fisheries (DF) has collected data from landing declarations and the Fisheries Association has collected data from declarations of purchase and disposition of raw material. From 1 of January 1999 the DF will supervise data collection from both sources.
- 1.2 Data collection is based on various acts and regulations concerning fisheries management in Iceland. One of the most important regulations concerns the weighing of marine catches.
- 1.3 The Statistical Bureau of Iceland will be responsible for transmitting data to the Commission (Eurostat).

## 2. Method of collecting, processing and compiling the data on catches. Landings, and average prices

2.1-2.2 **Landing declarations.** All catches by Icelandic vessels within the exclusive fishing zone, must be landed, weighed and recorded in Iceland in accordance with Icelandic laws and regulations. Under certain conditions it is though allowed to land catches at a few foreign auction markets which have been approved by the DF.

The catch must be weighed immediately after landing. Each vessel's captain is responsible for the catch being taken directly from the vessel to a port scale for weighing. According to Icelandic law the port authorities are responsible for the correct weighing and recording of the catch. Additionally the DF employs inspectors to ensure that landed catches are weighed and recorded according to regulations.

The few exemptions from the rule that all catches must be weighed on a port scale are processing plants and fish markets so located that the catch is landed directly from the vessel into the raw material warehouses. Scale operators certified by the DF then do the weighing and reporting.

A landing receipt must be completed for all landings and signed by a certified scale operator. The landing receipt must contain information on the following: name of vessel and its registration number, port and date of landing, recipient of the catch, amount of catch by weight for each species, type of fishing gear used, amount of undersize catch, type of receipt and registration number of the transport vehicle.

The driver of a transport vehicle may not transport catch from the port of landing until he has received the weighing receipt (landing declaration).

Factory vessels that process their catch on board are required to check their yield factor at certain intervals, and keep samples thereof which are specially marked. At the end of each fishing trip the vessel sends a report to the DF containing information on the catch, processed products and the average yield during that trip. When the vessel reaches its port of landing a certified scale operator weighs in the final products. The DF then records the relevant yield factor based on the yield report and calculates the weight of the catch equivalent to gutted fish.

The ports of landing are connected to the DF through a computer system called "Lóðs", and the port authorities are responsible for transmitting data to the DF on a daily basis.

All landings data received by the DF are stored in a database. Information from the database concerning individual vessels is accessible for everybody through the Internet on the homepage of the DF ([www.fiskistofa.is](http://www.fiskistofa.is)).

**Purchasing declarations** All buyers and processors of fish are obliged to report the purchase of fish to the DF. The data collection takes to quantity of each species, value of the catch, type of landing and fishing gear used.

**Declaration on disposition of catch.** In addition to the purchasing declaration buyers/processors are obliged to send in a second declaration regarding the disposition of the raw material covered in the purchasing declaration for processing or further sale of unprocessed fish. The two forms provide a way of tracing the fish to the final processor even if it is sold several times. They also provide data on the use of raw material for different methods of processing, including human- or nonhuman consumption.

In addition to this all fish markets provide details on sales and prices. This information is used to double-check data concerning quantity and prices.

2.3 All exporters of fish as well as all vessels sailing with fish to foreign ports need special exporting registrations. In cases of fish exported in containers to the UK the agent handling the sale sends a telex to a special 'telex-mailbox' in London which is emptied and compiled by DF at least weekly. The same procedure applies when a vessel is landing fish in the UK. Information on fish landed in other countries arrives via fax. . The export licences provide a backup of sorts, i.e there is less chance of a sale going undetected. If no telex/fax with details of the sale arrives at the DF the agent concerned is contacted.

2.4 Landings are grouped by fishing area. Where statistical forms from international institutes require division of the traditional fishing area, reports on the location of vessels at specific times from the Marine Research Institute are used to divide the catch statistics. The Marine Research Institute collects these data from the vessels' logbooks.

2.5 Average prices, i.e. prices to fishermen/vessels, are calculated per month and per landing type. Each type of landing has a certain amount of catch and value in a particular month. The simple average is calculated for the month by dividing the total value by the total catch. For the total landings there is also a simple average calculated, using the total value and the total landings.

### 3. Reliability and representativity of the data

No sampling is done in the system since the data collection is complete. The discarding of catch is forbidden in Iceland, as is landing catch without it being weighed and recorded in the catch registration system. To counter this the Icelandic authorities have imposed severe penalties (fines and the withdrawal of commercial fishing permits being the most common).

The catch system is linked to the ports' accounting system and the port fee calculations are based on quantity of landed catch recorded on the catch registration system "Lóðs". Therefor the ports have a financial interest in making sure that all landed catch, whether weighed on the port scale or not, is duly recorded in the catch registration system.

The following are some of the methods that are used to correct the data:

- all statistics are processed on computer and checked systematically for errors.
- data from purchasing declarations and landing declarations are regularly compared for every vessel and amended accordingly. In addition data from fish markets is used for comparison on quantity and value of the catch reported in the purchasing declaration.
- at least four times every year information concerning landed catch for each vessel is sent to vessel operators. This information is based on data from the landing declarations. Vessel operators are encouraged to check for errors and make the necessary arrangements accordingly.

## 1. Organisation of the national system of fishery statistics

1.1 The Norwegian Directorate of Fisheries is responsible for the collection of fishery data and the production of fishery statistics. The National Statistical Institute (Statistics Norway) regularly produces statistical tables using data files supplied by the Directorate of Fisheries.

According to Norwegian law (the Raw Fish Act) the fishermen's sales organisations have the sole right to all first-hand sale of economically important species in the North Atlantic. If a vessel wishes to land its catch in a foreign port, permission must be given by the sales organisation. A sales note issued by the sales organisations is completed jointly by the fisherman and the buyer at the time of landing, and sent to the organisation for use in its sales functions. The sales note is then transferred to the Directorate of Fisheries in electronic form once or twice a week

1.2 The collection of fishery data is covered by legislation in Norway (the Saltwater Act (1983)). Violation of this act can lead to fines or, in severe circumstances, to arrest.

Paragraph 9 of the Raw Fish Act states that anyone owning or actively using fishing vessels and anyone receiving or selling fish from Norwegian or foreign vessels is obliged to give information to the fishery administration and the sales organisations.

Information on catches is covered by sales notes and catch logbooks. Sales note must be completed for all landings. All vessels over 10 meters are obliged to keep a catch logbook. (A more detailed description of the coverage is given under point 2.2)

1.3 The Directorate of Fisheries is responsible for transmitting data to the Commission (Eurostat).

## 2. Method of collecting, processing and compiling the data on catches. Landings, and average prices

2.1 The collection of catch data is based on two main sources: sales notes and catch logbooks.

The sales notes are filled out jointly by the fisherman and the buyer for each landing. The sales notes are sent to the sales organisations each day or once a week by electronic form. The sales organisation uses the information in these notes in their sales operations and forwards them afterwards to the Directorate of Fisheries.

All species must be recorded on the sales note. In log-books all sheets have pre-defined columns for cod, haddock, saithe, shrimps and 5 blank columns for other species.

2.2 The sales note system covers all vessels landing fish, crustaceans and molluscs in Norway.

The obligation to keep and fill out a log-book is dependent on size of the vessel, fishing gear and target species.

Vessels that must keep a logbook:

- All vessels over 21 meters in length
- Vessels having a licence to use trawls
- Vessels having a licence to catch shrimps

- Vessels without a shrimp license but are trawling for shrimps in certain fishery areas
- Vessels over 12 meters in length in certain fishery areas
- Vessels catching mussels
- Vessels operating in the fishery zone around Svalbard
- Vessels fishing under foreign fishery jurisdiction or in areas where no countries have any fishery jurisdiction (high seas)

One logbook sheet has to be filled out for each active fishing day by the skipper. An entry shall be made for each haul of the trawl. The log sheets are to be sent directly to the Directorate within one month after landing.

All vessels over 13 meters in length that are not covered under the above-mentioned points must keep a simplified version of the log-book.

Not all data from log-books are registered at the Directorate. Information in the log-book are mainly used for control and inspections (in addition to scientific uses), but information on fishery areas are often used in the cross checking against sales notes.

Log-book data that are registered in the Directorate of Fisheries include the records from the following vessels:

- Vessels using trawl and fishing for cod and other Gadiformes
- Shrimp trawlers operating in certain fishery areas
- Mussel trawlers
- Vessels operating outside the ICES area
- Vessels fishing under a joint venture scheme or on other countries quotas.

2.3 The main rule is that all Norwegian fishery vessels independent of where the catch is landed have to sell all their catch through the Norwegian sales organisations. The sales note system covers all landings in Norway and all landings by Norwegian vessels abroad for the species the sales organisation has a sole right to sell. All Norwegian vessels fishing in distant waters are obliged to send fishing log-books to the Directorate of Fisheries. Since some of these boats operate far away and seldom return to their home ports, the Directorate is in contact with the Norwegian Shipowners Federation that gives information about vessels operating in distant waters. These vessels are then contacted by the Directorate if they have not already submitted log-books. Vessels that operate through the sales organisations should apply to the sales organisations to which they belong before landing in foreign ports if the species to be landed are covered by the sales organisations' monopoly rights. The Directorate has agreements with Denmark, Scotland, Russia, Ireland, the Faroe Islands and the Netherlands on the exchange of landings data.

2.4 The sales notes contain information on fishery areas according to Norwegian maps. The codes used for fishery areas have five characters and give information on inshore or offshore catches, main area and location (rectangle).

Fishery area in log-books are given in geographical positions and are converted into main areas according to the same system as for sales note when these data are computerised at the Directorate.

In the pelagic fisheries including all fisheries for industrial use and for purse seines, where the fishery on each trip is more likely takes place within a limited area, a rectangle is registered as fishing area. For most other fisheries, especially in trawling operations, it is often problematic to limit the catch during one trip to one main area. The main rule is that the area where most of the catch was taken shall be registered as the fishery area.

Information on fishery areas in sales notes is cross-checked against information in comparable logbooks, and corrections are often done on sales notes in order to make the data as reliable as possible.

2.5 First-hand prices to the fishermen are set by auctions or by negotiations between the fishermen's organisation and the sales organisations. Prices for the same product can vary over the year. The Directorate of Fisheries receives information from the sales organisations on values and prices on the sales notes for each product landed. Average prices for one year can be calculated simply by dividing values by quantity landed for the required species or product.

2.6 Data from sales notes are sent to the Directorate from the sales organisations once or twice a week. The time lag from the date of landing to the registration in the Directorate varies from a couple of days to three weeks. For trawlers operating in distant waters the time lag can be considerably longer, even a year. In order to reduce this time lag, some vessels are obliged to report their catches directly from sea once a week.

All data are in use internally from the time of registration in the Directorate, mainly for control and management purposes. The first official statistical tables of preliminary data are published in January/February of the following year. Quality controls and corrections are carried out continuously from the day the data are received to the day of publication of final data. This can take up to two years. During this period, preliminary data are used and reported to international organisations: the final data are sent to the same organisations at the earliest possible opportunity.

### **3. Reliability and representativity of the data**

3.1 The Norwegian fishery statistics are based on complete coverage of all landings through the sales note system and catch logbooks. All species landed should be registered on sales notes even if there is no market for them. Discarding of catches is forbidden in Norway. The registration system is in a continuous process of updating and refinement. If new products are landed new codes are allocated.

None of the sources are based on samples. All statistics are processed by use of computers. Sales notes are registered by many of the buyers on computers and sent to the sales organisations via X400. The sales organisations then transfers sales notes to the Directorate in the same way. Close co-operation between the Directorate and the sales organisations is necessary in order to detect any mis-coding or other errors that might occur in the transmission of data.

The sales note system is based on Norwegian standard codes (NS9400) for all the information the authorities and the sales organisations need. The coding system is the same for all parties involved.

Figures for quantity landed are given in product weight on the sales notes. This quantity is converted into live weight by use of conversion factors in the Directorate. There are conversion factors for all products. The sales organisations are obliged to report any changes or new products introduced to the Directorate so that new conversion factors can be established.

3.2 The sales note system includes all first hand sale of marine fish, crustaceans and molluscs: it does not include aquaculture production. Figures on aquaculture must be added manually from information collected by the Directorate or Statistics Norway.

Catches from recreational fisheries are not included in the sales note system unless they are sold through the sales organisations.

Information on fish sold directly from the fishing boat to the consumer, are given on a weekly basis to one of the sales organisations on a special form issued by the sales organisation. However, such sales are not easily controlled and can be a source of black market sales. Fishermen who sell their catch in this way must be licensed by the sales organisation: the number of licences is small.

Norwegian vessels fishing under joint-venture agreements are obliged to keep a Norwegian log-book, but it can often take some time before the completed log-books are received by the Fisheries Directorate due to late submissions by the skippers.

Vessels may make landings in foreign ports outside Europe without giving notice to the sales organisations or the Directorate. Export papers can be traced but these are often not detailed enough for the registration of catches.

Situations exist where the fishermen buy their own catches. The sales note is supposed to be signed by both the fisherman and the buyer of fish. In the majority of cases the fisherman and the buyer are different persons so the information given on the sales note has two different witnesses. When the fisherman and the buyer are the same person, doubts on the correctness of the information in the sales notes can arise.

Other problems can be wrong or missing registration number of fishing vessels, gear type and fishing areas. In situations where several types of gears are used on one trip it is only possible to register one fishing area per landing.

Controls on landings have intensified during the last year, and the sales note has the status of a legal document. It is therefore very important to ensure the correctness of the information on these papers. The work is tedious and time-consuming.

## 1. Organisation of the national system of fishery statistics

1.1 The Ministry of Agriculture, Nature Management and Fisheries collects data from the EU log-books and the auctions on the quantities of the species mentioned in these log-books.

The Producers Organisation for Fish and Fishery Products collects the data on prices for the various species.

The Central Bureau of Statistics (CBS) processes the landings data from the Ministry and the Producers Organisation required to meet the obligations under Council Regulations (EEC) Nos 1382/91 and 2104/93).

The catch statistics concerning fishing activities as requested by Council Regulations (EEC) Nos 3880/91, 3881/91, 2018/93 and 2597/95 are collected and processed by the Ministry of Agriculture, Nature Management and Fishery.

1.2 There is no national legislation concerning the compilation of fishery statistics.

1.3 The Ministry of Agriculture, Nature Management and Fishery submits to the Commission (Eurostat) the data on catches and fishing activities (required by Council Regulations Nos 3880/91, 3881/91, 2018/93 and 2597/95)

The landings data are submitted to the Commission (Eurostat) by CBS.

## 2. Method of collecting, processing and compiling the data on catches. Landings, and average prices

2.1 - 2.2 The most important source of data on quantities is the so-called "VIRIS" system. This catch registration system has been set up by the Ministry of Agriculture, Nature Management and Fisheries in order to process the EU log-book forms from the fishermen. In addition to the log-book forms the Ministry also uses data from the auctions. From these two sources the data on quantities are determined. These data are related to the species for which information has to be recorded according to the EU log-book regulation. The source for the average prices is the Producers Organisation for fish and fishery products. The prices are derived from data of the auctions and are related to fish sold at the auctions.

2.3 The data for landings in foreign ports and for transhipments are taken from the catch registration system "VIRIS".

2.4 Information on fishing area is derived from the records in the EU log-books, which are checked by surveillance.

2.5 The Producers Organisation receives data on the quantity and price of fish sold at the auctions. On the basis of these data this organisation calculates the weighted mean price of fish sold at the auctions. The price of fish which is not sold at the auctions but caught and processed by only a few (4 or 5) freezer trawlers, is determined on the basis of information submitted by the ship-owners. This concerns only a few species which are landed as frozen fish. The VAT is not included in the prices.

2.6a Council Regulation (EEC) Nos 1382/91 and 2104/93 on the landings of fishery in Member States

From "VIRIS" monthly quantities of fish landed in Dutch ports by Dutch vessels and vessels from other EU Member States are known, together with the fishing areas.

These quantities are expressed in live weights. By using conversion factors these weights are converted to landed weight. In supplying the data from "VIRIS" a distinction is made between "fresh" and "frozen" landed fish. On the basis of the equipment of the vessel landing the fish it can be determined in most of the cases whether it concerns fresh or frozen fish. As a rule the presentation form is dependent on the species and generally there is only one presentation form for each species. A few species might be landed both as fresh and frozen fish. Furthermore it is assumed that almost all landed fish is destined for human consumption.

The average prices are calculated by the Producers Organisation for landed weight, thus no conversion factors have been applied. These data are made available by the Producers Organisation within one month.

Data on quantities (from "VIRIS") are submitted to CBS a few months after the reporting month.

2.6b Council Regulations Nos 3880/91, 3881/91, 2018/93 and 2597/95.

All the catch data are recorded in the EU log-books. These data are compared with the auction data and, if necessary, corrected. The data are further completed with information obtained from inspection flights. Data for the Northeast Atlantic are submitted within six month of the end of the year. Dutch catches in other areas are very limited. Since 1995 a part of the Dutch pelagic trawler fleet has fished in African waters. Normally there is no fishing by Dutch vessels in the Northwest Atlantic.

### **3. Reliability and representativity of the data**

3.1 - 3.2 In The Netherlands no sampling is carried out for collecting and compiling the data required by the Regulations. Most of the data are taken from the "VIRIS" system. The reliability of the data is closely related to the reliability of the "VIRIS" system. By controls on vessels and checking of the auction data the reliability of the "VIRIS" system is made as high as possible.

In principal the "VIRIS" system contains the data on the species covered by the EU log-book regulation. Other species can be included, but the reliability of the returns from these species is probably lower. However, the total landings of these species are very small: they are estimated to be less than 10%. If the regulations on the EU log-books coincided with the requirements of the statistical legislation there would be little difficulty in submitting data. Of course, the above mentioned assumptions (i.e. one presentation form per species and all landed fish are destined for human consumption) may have some effect on the representativity of the data. The effect of these assumptions on the total quantity of landed fish is rather small. The prices for fresh landed fish are based on the auction prices. With the exception of herring, about 90 % of the landings of fresh fish pass through the auctions. Deep frozen fish are not sold at the auctions. The whole production line is in hands of vertically integrated companies. These companies are dealing in their own internal prices: this makes it difficult to calculate a representative price.

## 1. Organisation of the national system of fishery statistics

1.1 The Directorate-General for Fisheries and Aquaculture is the sectoral body to which responsibility has been delegated for fishery statistics by the National Statistical Institute (INE) and, as such, is responsible for all the work of collecting, processing and disseminating statistical information on the sector, in close collaboration with the INE and the other agencies of the Ministry of Agriculture and Fisheries and of the Autonomous Regions.

The following agencies are therefore participants in the fishery statistics system in Portugal:

- the INE,
- the Directorate-General for Fisheries and Aquaculture,
- the Portuguese Maritime Research Institute,
- the Inspectorate-General of Fisheries,
- the Directorate-General for Fisheries of Madeira,
- the Regional Fisheries Directorate of the Azores,
- DOCAPESCA - Portos e Lotas, SA, a publicly-owned corporation.

The Directorate-General for Fisheries is currently responsible for all the duties previously performed by the following agencies:

- the Fisheries Research and Planning Office,
- the Portuguese Canning and Fish Institute,

The Directorate-General of Fisheries and Aquaculture is therefore responsible for carrying out the following tasks for the purposes of applying the EU Regulations

- collecting the data from the ships' logbooks and corresponding landings declarations,
- collecting the monthly selling prices for landings of fish processed at sea from ship-owners,
- checking compliance with current legislation,
- inputting in the database the information on first sales of fresh and frozen fish in markets provided by DOCAPESCA and the Regional Directorates of the Azores and Madeira,
- processing and disseminating all statistical data.

The Portuguese Maritime Research Institute is required to provide advice on the conversion factors used by the Directorate-General for Fisheries and Aquaculture in processing the data.

1.2 The collection of statistical data is covered by the following national legislation:

- Decree Law No 304/87 of 4 August 1987, updating Decree Law No 147/79 of 24 May 1979, by virtue of which fish must be sold in markets throughout the national territory;
- Order in Council No 355/92 of 20 April 1992 making it obligatory to record declarations of landings as the gross total of all species landed and the estimated weight of all species transhipped;
- the EU-wide obligation to keep fishing log-books (Regulation (EEC) No 2807/83);

1.3 The Directorate-General for Fisheries and Aquaculture is responsible for submitting the statistical data to the Commission (Eurostat).

## **2. Method of collecting, processing and compiling the data on catches. Landings, and average prices**

2.1 DOCAPESCA, a publicly-owned corporation, provides quantitative and price data on landings of fresh or frozen fish. The Directorate-General for Fisheries and Aquaculture provides the information on fish processed at sea.

2.2 DOCAPESCA compiles computer records of all landings of fresh and frozen fish, of first-hand sales of fish by species and the corresponding prices.

Subsequently (generally around one month later), DOCAPESCA also sends the Directorate-General for Fisheries and Aquaculture the information on all landings per vessel and per species for the month concerned, also on magnetic medium.

The Directorate-General for Fisheries and Aquaculture is responsible for processing and disseminating these data . Whenever possible and necessary, it consults the National Fisheries Research Institute on the most appropriate conversion factors to be used.

Quantitative data on fish processed at sea and a breakdown by species are obtained from the ships' logbooks containing the corresponding landings declarations, which each ship-owner sends to the Directorate-General for Fisheries.

The Directorate-General for Fisheries and Aquaculture asks each ship-owner directly to state the monthly average price for this type of fish.

2.3 Whenever reports of landings in foreign ports are received, the corresponding data are requested from the countries concerned. Spain has been complying with such requests.

2.4 Information on catches and corresponding fishing grounds is obtained from ships' logbooks. The Directorate-General of Fisheries and Aquaculture receives these logbooks, checks the information contained in the logs on receipt and then inputs them into the data-base.

2.5 Two different situations arise where the methodology for calculating the average price of each species of fish is concerned.

Fresh and frozen fish poses no major difficulties in view of the obligation for fish sales to take place in fish markets. The average prices are the first-sales prices.

The average prices for fish processed at sea and landed on national territory are obtained by the Directorate-General for Fisheries and Aquaculture from the owners of vessels making such landings in the form of their landings declarations.

2.6 The Directorate-General for Fisheries and Aquaculture has applied several weightings to data on fresh and frozen fish landings according of the type of fishing gear and the species concerned.

## **3. Reliability and representativity of the data**

3.1 Since fresh or refrigerated fish has first to be sold at market, all the necessary information on these landings is available.

Where fish processed on board is concerned, given that current regulations require the landing declaration to be presented, and that the data from it are cross-checked against catches (using the appropriate conversion factors), the information from this part of the landings is also considered reliable in case where there are no discrepancies.

As it is difficult to monitor transshipments and discards, information on these activities is almost not available.

3.2 FAO conversion factors are used to convert landed weight to live weight

## 1. Organisation of the national system of fishery statistics

- 1.1 The National Board of Fisheries is responsible for the official Swedish fishery statistics. The collection and processing of sales notes has been delegated to Statistics Sweden.
- 1.2 The legislation used for collecting data is issued by the National Board of Fisheries in act FIFS 1995:23 from 20 October 1995.
- 1.3 Statistics Sweden has been given the responsibility of submitting statistical reports to the Commission (Eurostat).

## 2. Method of collecting, processing and compiling the data on catches. Landings, and average prices

### 2.1

- a) Sales notes. Upon the first sale of fish, crustaceans or molluscs by fishermen, the fish auctions and other bodies must submit a copy of the sales note in a format defined in the national legislation (FIFS 1995:23) and send it to Statistics Sweden. The sales note includes information of the fisherman and the fishing vessel, date of landing and port, and weight and value of each species. The figures from the sales notes are registered by Statistics Sweden (approximately 80.000 sales notes per year) and provide basic data for the official Swedish catch statistics.
- b) Log-books. A log-book of EU format (EEC No 2807/83) shall be kept on board and updated with the latest fishing effort for all fishing vessel exceeding 10 meters in length. The same type of log-book is also used for vessels between 5 and 10 meters in length, but fishermen are not obliged to keep log-books on board. Log sheets must be submitted to the National Board of Fisheries.

- 2.2 All commercial buyers of fish must submit sales notes within 48 hours of the sales. The most important fish auctions submit data daily to Statistics Sweden. Other buyers of fish submit sales notes on paper, but the use of diskettes has increased rapidly in the last year. For landings in Denmark, Statistics Sweden receives information from the Danish Ministry of Fisheries on a weekly basis.

For fishing vessels exceeding 10 meters in length, the fishermen must submit the log sheets within 48 hours of each landing of catch. When the vessels are landing in foreign ports, copies of the log sheets are often sent in advance by fax. For vessels under 10 meters in length, log sheets are submitted after one calendar month of fishing.

- 2.3 For landings in Denmark, Statistics Sweden receives information from the Danish Ministry of Fisheries every week. An agreement on the exchange of landings information with the authorities in Norway has also been established. For landings in other ports or for transshipments the skippers are obliged to send the landing declaration/transshipment declaration to the National Board of Fisheries.
- 2.4 The log-sheets contain the geographical information for each fishing effort (i.e. trawl haul or net settings) in latitude and longitude. The sales notes that are the basis of the Swedish fishery statistics are compiled with the log sheets at the National Board of Fisheries in order to tune the figures from the logbooks and the sales notes on an aggregated level for each month. The method splits the data for certain species in the sales notes according to log-book information on fishing area. However, the

development of a system for matching individual log sheets with corresponding sales notes has started.

2.5 The calculation of average prices is based on the information in the sales notes.

2.6 Sales notes are processed by Statistics Sweden daily and transferred electronically (encrypted) on a weekly basis to the National Board of Fisheries for compiling with the log sheets that are processed on a daily basis. A report for control purposes is compiled every week. The time lag in the two data sources is analysed in order to enable a prompt delivery of information.

### **3. Reliability and representativity of the data**

3.1 Sampling techniques are not used in the collection of data for the official fishery statistics. All commercial landings of fish as well as landings from non-commercial fisheries sold through authorised buyers are covered by the sales note system.

3.2 The statistical system in Sweden is under development in order to fully implement the EU regulations. The experiences so far is that the EU format of the log-book does not fit the coastal fisheries that operates on a daily basis with small vessels using different gears. A change to a special journal for this fishery is planned to be introduced in 1998.

The experience so far in the development of a system for cross-checking of the information given on log sheets and sales notes give some doubts concerning the reliability of data. Collaboration with the Danish authorities has also started in order to examine the data and correct systematically short comings.

A special problem is the determination of species in the industrial fisheries. A EU-programme with sampling procedures at the harbours is being assessed in order to give advice for the future.

## 1. Organisation of the national system of fishery statistics

1.1 Fishery statistics are mostly collected by officers in the Sea Fisheries Inspectorate and processed by officials of the various UK Fisheries Departments, namely the Ministry of Agriculture, Fisheries and Food (for England and Wales), the Scottish Office Agriculture and Fisheries Department, the Department of Agriculture for Northern Ireland and Departments in Jersey, Guernsey and the Isle of Man.

1.2 The legislation used includes:

- (i) the EU fisheries legislation requiring the keeping of log-books and the provision of landing declarations.
- (ii) general powers under the Sea Fisheries (Conservation) Act 1967 under which Ministers granting a license can require the master, owner or charterer of the vessel named in the license to provide him with such statistical information as he may direct. These powers have been widened in the Sea Fish (Conservation) Act 1992 to allow for the collection of such information and in such format.

1.3 The Ministry of Agriculture, Fisheries and Food (MAFF) mostly collates the information compiled by the UK Departments and submits a combined return to the Commission (Eurostat).

## 2. Method of collecting, processing and compiling the data on catches. Landings, and average prices

2.1 Where possible, information is collected for all landings. The sources of information include log-books, landing declarations, sales notes and personal contact with fishermen and merchants. For vessels of 10 meters overall length and below, information is collected from log sheets and landing declarations voluntarily supplied by fishermen. Assessments of landings are derived from market sources and from correspondents located in the ports.

2.2 Information from log sheets and landing declarations, together with supplementary data supplied voluntarily by the industry on sales notes for non-TAC catches and on the value of landings are captured by port staff on the computing systems of the respective Departments.

2.3 UK vessels which make landings at foreign ports are required under EU legislation to dispatch copies of log sheets and landing declarations covering the trip to the vessel's home port within 48 hours of landing. When these data are received at the home port, they are captured on the systems used for UK landings.

2.4 Details of the areas fished are taken from log-books and codes for ICES divisions and statistical rectangles are keyed into the port micro-computers. In sectors where a log-book is not provided, e.g. on one-day trips by vessels of overall length 17 meters and under or non-quota species the information on areas fished is based on interview or knowledge of the vessel's area of operation. Where a vessel fishes in more than one area in a single trip, the total amounts for the trip of each species, as given in the sales notes and landing declarations are allocated to the areas in proportion to the estimated quantities of the species taken from each area, as recorded in the log-book

2.5 Average prices are derived using the presentation codes of the landings and the average values and quantities landed.

2.6 The Sea Fisheries Inspectorate at port offices carry out manual checks on the information provided. These include a check between log-book information and that given in the sales notes or observed as landed. The data are then entered by staff at government offices at the ports on to micro-computers. The records are transmitted over-night to the central computer systems where further checks are carried out on the data before they are reflected on the main landings databases.

The main delay is in obtaining full documentation from fishermen. For individually recorded landings into the UK, most data is reflected on central systems within 1-2 weeks of the date of landing. Information on landings by vessels of 10 meters in length and under in the form of summary records may be compiled either weekly or monthly. Some information on non-TAC shell fishing is derived on an annual basis and firm figures may not be available until some 6 months after the year to which they relate.

### **3. Reliability and representativity of the data**

3.1 The collection system for all vessels over 10 meters in length attempts a complete coverage of all main fishing activity. For the stocks subject to TACs and quotas and for vessels over 17 meters in length, there is a legal requirement to provide documentation, and unless the information supplied is amended as a result of being queried or is legally challenged and the challenge is sustained, this forms the basis for the statistics. There are no systematic sampling systems. However, assessments based on local knowledge are used to estimate uptake of some fishing activity by vessels 10 meters and under in length for some shell fishing. The reliability of the statistics is dependent upon the veracity of the documentation provided by fishermen. There are systems of surveillance using sightings by aircraft and by fisheries protection vessels and the resulting information is employed in checking the data.

3.2 The two main concerns are: mis-recording area of capture and unrecorded landings. There are reasons to believe that the former is a greater problem than the latter, particularly where vessels are fishing in rectangles on the boundary between areas.

## **Annex 1:**

### **Bibliography of EEA legislation on the submission of catch and landing statistics.**

**Council Regulation (EEC) No. 1382/91 of 21 May 1991 on the submission of data on the landings of fishery products in Member States. *Official Journal of the European Communities L133 of 28 May 1991, p1.***

**Council Regulation (EEC) No. 2104/93 of 22 July 1993 amending Regulation (EEC) No. 1382/91 on the submission of data on the landings of fishery products in Member States. *Official Journal of the European Communities L191 of 31 July 1993, p1.***

**Council Regulation (EEC) No. 3880/91 of 17 December 1991 on the submission of nominal catch statistics by Member States fishing in the north-east Atlantic. *Official Journal of the European Communities L365 of 31 December 1991, p1.***

**Council Regulation (EEC) No. 3881/91 of 17 December 1991 on the submission of nominal catch statistics by Member States fishing in the Northwest Atlantic. *Official Journal of the European Communities L365 of 31 December 1991, p19.***

**Council Regulation (EEC) No. 2018/93 of 30 June 1993 on the submission of catch and activity statistics by Member States fishing in the Northwest Atlantic. *Official Journal of the European Communities L186 of 28 July 1993, p1.***

**Council Regulation (EC) No. 2597/95 of 23 October 1995 on the submission of nominal catch statistics by Member States fishing in certain areas other than those of the North Atlantic. *Official Journal of the European Communities L270 of 13 November 1995, p1.***

## **Annex 2:**

### **Format proposed by Eurostat for the reports of the national systems of fishery statistics**

These reports are required under the terms of Council Regulation (EEC) no. 1382/91(modified by Council Regulation (EEC) no. 2104/93), Council Regulation (EEC) no. 3880/91, Council Regulation (EEC) no. 2018/93 (which replaced Council Regulation (EEC) no. 3881/91) and Council Regulation (EC) no. 2597/95.

#### **1. Organisation of the national system of fishery statistics**

- 1.1 Authorities responsible for the collection and processing of the data and their respective responsibilities.
- 1.2 National legislation on the collection of fishery statistics.
- 1.3 Unit responsible for the transmission of data to Eurostat.

#### **2. Method of collecting, processing and compiling the data on catches, landings and average prices**

- 2.1 For each type of data the source should be indicated.
- 2.2 A description of the methods used to collect the data (e.g. log-books, landing declarations, interviews) for each component of the national fishing fleet.
- 2.3 For catch statistics, a description of the method used to collect data for landings in foreign ports and for transshipments.
- 2.4 Methods used to attribute the fishing area in catch statistics.
- 2.5 Method used to calculate the average prices.
- 2.6 Description of processing and compilation of the data together with an indication of the delays involved.

#### **3. Reliability and representativity of the data**

- 3.1 If sampling techniques are used for some elements of the data, a description of the methods, an estimate of the level of use of such methods and an estimate of the reliability of such methods.
- 3.2 Short-comings of the national systems with an indication as to the possibility of over-coming them.



