Proposal including detailed description of the budget for 2004 (Annex 1).

Danish National Programme for collection of fisheries data for 2004

by

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Table of contents:

1. Introduction. 4
1.1 Co-operation and task sharing between Denmark and other Member States 5
1.2 National Correspondent 5
1.3 Appreciation of the level of precision 6
2. Module of evaluation of inputs: fishing capacity and fishing effort 6
2.1 C. Collection of data concerning fishing capacity 6
2.2 D. Collection of data related to fishing effort 7
3. Module of evaluation of catches and landings 8
3.1 E. Collection of data related to catches and landings 8
3.1.1 Collecting data on landings designated human consumption. 9
3.1.2 Collecting data on landings designated reduction purposes. 9
3.1.3 Collecting data on recreational fishery for salmon in the Baltic 12
3.2 Danish discard sampling 13
3.2 1 Introduction 13
3.2.2 Danish sampling effort of relevant species and areas 13
3.2.3 Quality assurance 15
3.2.4 Storage of discard data 16
3.2.5 Appreciation of the level of precision 16
3.3 F. Collection of data concerning the catches per unit effort and/or effective effort of specific commercial fleets. 17
3.4 G. Eligibility of the scientific evaluation surveys of stocks 18
3.4.1 International Bottom Trawl Survey (IBTS) 18
3.4.2 Baltic International Trawl Survey (BITS) 19
3.4.3 International acoustic herring survey in the North Sea, the Skagerrak and the Kattegat 19
3.4.4 Acoustic Survey on Pelagic Fish in the Norwegian Sea 20
3.4.5 Other priority 1 surveys. 21
3. 5 H. Biological sampling of catches: composition by age and by length and I. Other biological sampling 21
3.5.1 The Danish standard sampling scheme 22
3.5.2 The Baltic Sea. ICES Area IIIb-d 23
3.5.3 ICES AREA IIIa North and South 26
3.5.4 ICES AREA II. 30
3.5.5 ICES AREA IV - XII 31
4. Module of evaluation of the economic situation of the sector 37
4.1 J. Collection of economic data by groups of vessels ..... **Error! Bookmark not defined.**
4.1.1 Data sources ..... **Error! Bookmark not defined.**
4.1.2 Stratifying the population ..... **Error! Bookmark not defined.**
4.1.3 Selection of the sample ..... **Error! Bookmark not defined.**
4.1.4 Statistical calculation, weighing the sample **Error! Bookmark not defined.**
4.1.5 Data in the Account statistics for Fishery ... **Error! Bookmark not defined.**
4.1.6 Data for basic economic evaluation ..... **Error! Bookmark not defined.**
4.1.7 Supplementary data for improving the economic evaluation ..... **Error! Bookmark not defined.**
4.1.8 Precision level for sample statistics ..... **Error! Bookmark not defined.**
4.1.9 Time schedule for collecting and processing of economic data ..... **Error! Bookmark not defined.**
4.1.10 Submission of data ..... **Error! Bookmark not defined.**

5. Danish Fisheries Analyses Database (DFAD) 49
6. References. 49
7. Addresses and contact persons 51
8. Appendixes 52
Appendix I. Conversion factors from gutted weight to live weight. 52
Appendix II. 53
Appendix IIIa.1 55
Appendix IIIb 56
Appendix IIIc 57
Appendix IIIc.1 58
Appendix IIId 59

Danish National Programme for collection of fisheries data.

1. Introduction.

This document describes the Danish Programme for collection of data in the fisheries sector. The programme has been developed in accordance with the rules laid down in the *"Commission Regulation (EC) N^0 1639/2001 of establishing the Minimum and Extended Community Programmes for the collection of data in the fisheries sector and laying down detailed rules for the application of Council Regulation (EC) N^0 1543/2000"*, hereafter in this programme called the "Data Directive".

The programme will be conducted in close cooperation between:

- **Danish Institute for Fisheries Research**
  Danish Institute for Fisheries Research (DIFRES) is a Public Research Institution which carries out research, investigations and provides advice concerning sustainable exploitation of live marine and fresh water resources. Moreover, processing and improvement of fish products as well as quality assurance in the fish industry are important parts of the research areas of the institution.
- **Danish Directorate of Fisheries**
  Danish Directorate of Fisheries (FD) performs control and authority exercises at the commercial fisheries and the recreational and game fisheries.
- **Danish Research Institute of Food Economics**
  The Danish Research Institute of Food Economics (FOI) is a Public Research Institute. The researchers and academic staff of the Institute have backgrounds and experience in economics, agricultural and resource economics, agronomy, as well as a wide range of statistical methods and applied research tools.

The Danish Institute for Fisheries Research is acting as coordinator for the Danish Programme. A Steering Group has been established with members from all three Institutes involved in the programme. The main objective of the Steering Group is to coordinate of the work under the programme.

Primary data collected under the Danish programme will be stored in the following computerised databases:

- Vessel register. Data on fishing capacity. (FD)
- Logbook database. Data on origin of catches and on effort. (FD)
- Sales notes database. Data on quantities landed and prices. (FD)
- Species composition database. Data on species composition in landings for industrial purposes. (FD)
- Biological database. Data on discards and biological parameters. (DIFRES)

- Economic data. (FOI)

In addition to the above-mentioned databases containing primary data a database, the Danish Fisheries Analyses Database (DFAD) containing information from all databases merged and aggregated by segments is established. This database contains most of the information requested in research projects and in relation to fisheries management.

Economic data will be collected by FOI and stored in a database managed by the institute. These data are surrounded by strict confidentiality and will not in any circumstance be passed on to other persons or authorities. Each year FOI produces an analytic file on the individual level, which includes relevant data for stratification and grouping for statistical purposes. Based on the analytic file a number of statistical files will be produced and made available for external users.

All data collected under the programme are dealt with in confidence. Accesses to the data are limited to authorised staff member from the three institutes and no one outside the institutes has access to the data without permission.

1.1 Co-operation and task sharing between Denmark and other Member States

Collection of information on fishing capacity, fishing effort, economic and landings statistics are carried out entirely on a national basis. Biological information on catches, information collected by research vessels and information on discards are in most cases coordinated internationally and carried out in close cooperation with research institutes in Member States and third countries.

In 2003 DIFRES started an intense co-operation and coordination of the sampling of biological data with “Fiskeriverket” in Karlskrona, Sweden. The co-operation with Sweden has already given good results, and will be followed up with further contacts and meetings in 2004. In 2003 co-operation with Finland has taken place and will be continued in 2004. It is the plan is to establish the same kind of co-operation with Germany and United Kingdom in 2004, as vessels from these countries are landing in Denmark.

In the economic field FOI constitutes the Danish representative in the project economic Assessment of European Fisheries organized under the Concerted Actions and Thematic Networks which is committed to develop a common method or standard for evaluation of the economic situation in the Community fisheries.

1.2 National Correspondent

Denmark has assigned the Danish Institute for Fisheries Research as the National Correspondent. Contact person is until further notice:

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1.3 Appreciation of the level of precision

The information on landings by species, catch areas, fishing effort and fishing capacity will be given on level 3. All information concerning landing figures (tonnes by species) will be given as census data, which 100% coverage as all landings or all fish sold in Denmark is reported to FD. Data on capacity and effort can be given for all Danish fishing vessels.

For the biological and economical information level of precision can not be estimated at this stage as no international common standard on estimation of precision is agreed. At DIFRES a preliminary method to calculate the precision has been developed. This method will be presented and tested at an ICES-EU workshop on sampling and calculation methodology for fisheries data, to be held in Nantes (France) in January 2004.

2. Module of evaluation of inputs: fishing capacity and fishing effort

2.1 C. Collection of data concerning fishing capacity

Minimum programme:

All Danish fishing vessels with the right to undertake commercial fishery are registered in the Vessel Register of the FD. The Vessels Register is a computerised database and includes among others the following information:

- Vessel type e.g. trawler, seiner
- Vessels age (age of the hull)
- Dimensions of the vessel; GRT, length, width, draught.
- Engine power, type and age.
- Insurance value and –year.

The information in the Vessels Register is registered according to Regulation (EC) N^{o} 2930/86 and N^{o} 2090/98.

The Vessel Register is updated daily.

The information on fishing capacity is merged with other fishery dependent data and stored in the DFAD as described in Section 5.

Data on fishing capacity on an aggregated level by segments as described in Appendix III of the Data Directive can at any time be delivered on a precision level of 3 as all fishing vessels is registered. In 2004 further development of software to aggregate data into the segmentations according to the data directive. As there is no lower limit on the size of the fishing vessel for registration in the Vessel Register and all vessels are registered a 100% coverage of all Danish fishing vessels will be given. The costs for this

Extended Programme:

No data collection will be carried out within the framework of the extended programme.

2.2 D. Collection of data related to fishing effort

Minimum programme:

The base for the regulation concerning the collection of information on the catch origin is the EC-regulations on logbooks, etc. and the implementation of a control-regulation concerning the common fisheries policy and more explicit regulations of information on catches by Member States.

The set of regulations prescribes that all vessels used for commercial fishery are obliged to keep logbooks of the fishery. The only exception from these rules is vessels with a total length less than 10 m. For these vessels (less than 10 m.) a catch area declaration. A catch area declaration is made for vessels which limit its fishing activities to a single defined area (ICES Sub-division). It should be mentioned that all fishing vessels in Denmark are registered in databases in FD.

All the information is stored in the Logbook database which is a computerised database of the Danish Directorate of Fisheries and includes among others the following information:

- Vessel name, number and captain
- Departure and arrival date and time
- Gear type employed
- Fishing ground, area and square
- Registration of fishing days
- Estimated catch per species once a day at the minimum.

The information in Logbook database is registered according to the provisions of Commission Regulation (EC) No 2807/83 and No 2847/93.

It is possible to estimate the fishing effort, defined as fishing days, for vessels less than 10 m (loa) as sales slips also for these vessels are recorded. Therefore, if a sales slip is recorded for a vessel less than 10 m (loa) a fishing day can be recorded.

The information on fishing effort is merged with other fishery dependent data and stored in the DFAD as described in Section 5.

Data on fishing effort on an aggregated level by segments as described in Appendix V, Appendix VI and Appendix VIII of the Data Directive can at any time be delivered on a precision level of 2 respectively level 1 for passive gears.

Information on fuel consumption will be collected within the data collection programme according to Chapter IV in the Data Directive.

Extended Programme:

No data collection will be carried out within the framework of the extended programme.

3. Module of evaluation of catches and landings

3.1 E. Collection of data related to catches and landings

LANDINGS

Minimum programme:

According to the legislation information on sold fish and shellfish has to be reported to the Danish Directorate of Fisheries (FD).
The registration and information duty applies to the following persons and parties:

- Storage warehouses, cold storage warehouses, or other establishments receiving fish and shellfish with purpose for sale, storage, sorting, or other liking treatments before the fish is sold to first hand buyers.
- Persons or parties that as a part of their trade buy fish directly from the fishermen for sale purposes on the home-market, export including transistation, for conservation purposes or processing for later sale.
- Persons or parties receiving fish directly from the fishermen in cases where the sale has taken place before the landing of the fish.
- Fishermen selling the catch directly to the consumer, or who lands directly in a foreign country, or export including transistation, or process the fish from own landing.

Therefore, all information on sold fish and shellfish are registered and all these information are stored in the Sales Notes database which is a computerised database and includes among others the following information:

- Vessel number.
- Landing place and buyer.
- Species and size-class.
- Quality and purpose (e.g. human consumption).
- Weight in kilo and value in national currency (exchanged to DKK)

The information in the Sales Notes database is registered according to the provisions of Council Regulation (EC) No 2847/93 and No 104/2000.

It should be mentioned that all landings are recorded and there is no derogation for vessels less than 10 m (loa). This means a 100% coverage for all landings including all other countries flagged vessels landing in Denmark.

The Danish fishery can be divided into two categories: A fishery with landings only for human consumption purposes and the so-called "Industrial fishery", where all the landings are made for reduction purposes (fish meal and oil).

3.1.1 Collecting data on landings designated human consumption.

The above mentioned information in the Sales Notes database provides the background for collecting information of landings statistics made for human consumption landed by Danish fishing vessels.
Biological information of the landings is collected by use of marked sampling made by staff employed at DIFRES. The sampling is a stratified random sub-sampling of all landings. The sampling scheme is stratified on area, quarter, species and commercial sorting. All assessment relevant species are sampled according to the MP. All relevant information is recorded necessary for estimating number of individuals landed be age group and mean weight by age group. Furthermore, stratified maturity ogives are estimated based on internationally agreed maturity stages definitions.
The sampling intensity level is within the framework of the MP adjusted to the actual fishing activity level (in terms of landing) in each stratum. The adjustments are based on monthly interviews of first-hand buyers of fish and real time information from the central logbook database. All strata are sampled except strata from which only marginal landing has been recorded.

3.1.2 Collecting data on landings designated reduction purposes.

For landings made for reduction purposes only the target-species is registered. As by-catches occurs in the industrial fisheries the Sales Notes database does not contain reliable information on landings by species in these fisheries and additional information has to be collected to provide estimates of landings by species. The method and data used in estimation of landings by species is described in the following.

Sampling scheme for the industrial landings

The objectives of the Danish sampling scheme for industrial landings are:

- To collect data needed for estimation of the species composition of landings by statistical rectangle and month.

- To collect biological information on e.g. age and racial composition by species, month and area.

A number of random sub-samples are taken from the landings. The samples are sorted and weighted by species. The information registered includes e.g.:

- The vessel number.
- Landing harbour and landing date.
- Total landing in kilos.
- Total weight in grams per sample.
- Weight in grams per species.

The samples are collected and processed by FD and data are stored in the Species distribution database which is a computerised database in FD.

In addition to the above-mentioned samples, FD collects a number of samples, which are delivered to DIFRES. These samples are sorted by species and each species is length measured, weighed and selected species are aged.

The species composition of the landings is derived as follows:

The total landings for reduction purposes by month and area are calculated using the sales note database. The landings are then allocated to statistical rectangle using the relative geographical distribution from the logbook database of landings identified as have been taken for reduction purposes. The output is the total industrial landings by statistical rectangle and month.

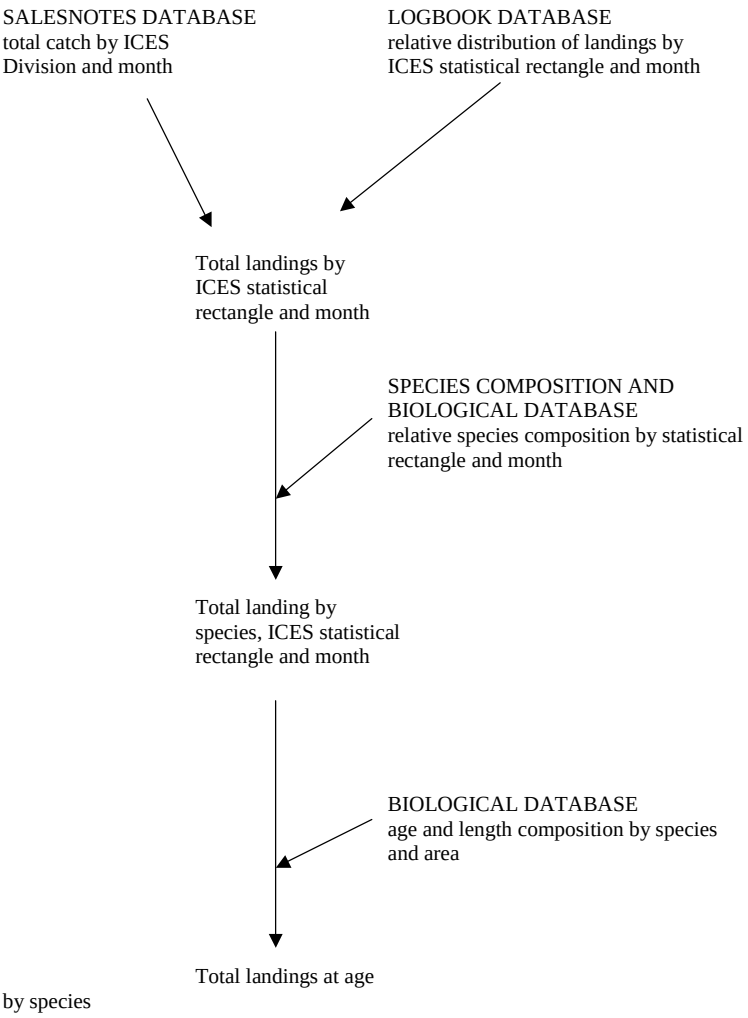
The relative species composition by statistical rectangle and month is estimated using the information in the species composition and biological databases. An average composition by rectangle is estimated as the mean of all samples from the rectangle. If more than one sample is taken from the same landing, a mean composition of the landing is calculated and treated as one sample.

After calculation of average composition by rectangle a new average composition is calculated taking into account the species composition in all neighbouring rectangles. Taking the mean species composition of the rectangle and all 8 surrounding rectangles does this.

The total landings by species, statistical rectangle and month are calculated using the estimated species composition and total landings by rectangle and month.

The estimation procedure is illustrated by the flow diagram below.

Information contained in the biological database is used to estimate the total catch in numbers at age as well as other information needed as input in the assessment of the stocks.


SALESNOTES DATABASE
total catch by ICES
Division and month
LOGBOOK DATABASE
relative distribution of landings by
ICES statistical rectangle and month
Total landings by
ICES statistical
rectangle and month
SPECIES COMPOSITION AND
BIOLOGICAL DATABASE
relative species composition by statistical
rectangle and month
Total landing by
species, ICES statistical
rectangle and month
BIOLOGICAL DATABASE
age and length composition by species
and area
Total landings at age
by species

The information on landings is merged with other fishery dependent data and store in the DFAD as described in Section 5.

Data on landings for the stocks mentioned in Appendix XII of the Data Directive will be given disaggregated as indicated in that Appendix.
Discards will be monitored for the stocks mentioned in Appendix XII of the Data Directive and by type of technique as defined in Appendix III of the Data Directive except for the stocks for which Appendix XII specifies another disaggregation rule. The information on discards will collected according to the programme described in Section H.

Information on human consumption landings will be given on a precision level 3. As human consumption species landings include all landings (census data) the precision will be better than required.

The precision of landings of target (and TAC) species in the fisheries for reduction purposes will at least be at level 2 (Lewy 1996, Lewy 1995).

As some of the species listed in Appendix XII of the Data Directive occur as by-catch in landings made for reduction purposes in scarce quantities it is not possible to decrease the error without having disproportionately high resource expenses (Lewy 1996, Lewy 1995). Thus it will not be possible when estimating the by-catch quantities per species to reach a precision level higher than 1.

The programme for collecting data related to annual estimates of discards for the stocks mentioned in Appendix XII of the Data Directive will be set up in order to achieve a precision level of 1 for the estimation of the amount of discards for the specific species.

3.1.3 Collecting data on recreational fishery for salmon in the Baltic

According to the Data Directive chapter 3.E.1.b Denmark must collect data on salmon (mentioned in Appendix XI) caught by recreational fishery in both the Baltic sea and the North sea.

In the North Sea no recreational fishing for salmon takes place.

The recreational fishery for salmon in the Danish waters is a trolling fishery east and north of Bornholm in Sub-division 25.

The fishing season starts in September and ends in the month of May. The recreational fishery is partly organized in local anglers associations (both on Bornholm and on the Island Zealand), and boat rental companies in small harbors at the coast of Bornholm. Some fishing by unorganized fishermen arranging travel and boat (transported on trailers) by themselves also takes place. A few times every year larger salmon angler fishery competitions take place.

The catches in the recreational fishery in Denmark have not been officially registered so far. For the fishing season 2004 questionnaires requiring information on both effort and catch will be distributed both to angling clubs, boat rental companies and in popular harbors.

In previous years (based on interviews) it was estimated that the total catch was approximately 3000 individuals.

On the 5th of March 2004 a questionnaire (Appendix IIIe. The appendix is given in Danish language) will be forwarded to all trolling anglers at the Island Bornholm, and besides this questionnaire DIFRES will collect information about the effort in the trolling fishery for salmon from the harbour masters and the ferry companies at Bornholm.

From this collected information we expect, in the future, to be able to give a more accurate estimation of the total salmon catches, caught by recreational fishermen.

In the latest 3 years there has been a well established co-operation between Finland, Sweden and Denmark regarding sampling of biological data from the Baltic Salmon fishery. As approximately 50% of the total Baltic Salmon landings are ending up at the Danish island Bornholm, Danish fishery technicians are collecting scale samples from both the Finish and the Swedish Salmon fishery. From 2005 it could probably also bee a possibility to collect data from the new EU member states Baltic Salmon landings in Denmark.

DISCARDS

3.2 Danish discard sampling

3.2 1 Introduction

According to the Data Directive chapter 3.E.1.b Denmark must collect discard data in order to be able to present estimates of discard rates for selected species. Collection of such data has been going on in Denmark already for some years as systematic catch sampling directed towards the estimation of discard rates was initiated in 1995 both in the North Sea, Skagerrak, Kattegat and the Baltic Sea. The sampling has been ongoing since then with 50% financial contribution from EU. Before 1995 only sporadic discard sampling has been carried out.

3.2.2 Danish sampling effort of relevant species and areas

Appendix II gives an overview of the species and areas for which discard estimates is to be made according to Article H section e). Furthermore Appendix II gives the number of samples to be taken according to Data Directive Annex XV.

The discard sampling schemes will under the observance of the yearly sampling level given in appendix II be organized in a way that sampling efforts are distributed according to the fishing intensities in the different strata. This means a relative large number of landings imply heavy sampling effort and relative smaller number of

landings implies less sampling effort. This assures that the biological data are directly applicable to the national landing statistics. As the fishery pattern in the recent years, on many occasions, changes very quickly, DIFRES employs many different information sources, to be able to reorganize the sampling effort and sampling pattern very quickly. Among these different sources are weekly reports from the FD, output from the FD database, weekly contacts to the industry and information from the logbook database.

All Danish discard sampling follows the rules laid down in national (North Sea and the Skagerrak) or international agreed sampling manuals (the Kattegat and the Baltic Sea). In these documents most relevant aspects of "at sea sampling" is covered (including: selection procedures for selecting fishing trips, description of sub-sampling procedures, recording of data, etc).

Within the overall framework given in appendix II, the sampling will be stratified on:

- ICES Division/Sub-division.
- Quarter.
- Discard pattern relevant defined fisheries.

The fisheries will be defined on gear type, mesh size and target species and reflect the discrete discard patterns in the Danish fishery. The number of samples planed in 2003 will be dimensioned according to discard information collected in 2001 but will be subject to running adjustments during 2003 according to the fishery actually realised.

Based on sampling made from 1995 to 2000 it is verified that the discard rates obtained in the Danish gillnet fishery, the fishery using hooks and the small mesh size fishery are insignificant compared to the rest of the fisheries. In total app. 25 different fisheries are identified in the Danish fishery. Taking this into account and in order to maximise the level of certainty of the overall discard estimate the sampling is concentrated to the fisheries shoving significant discard rates. Therefore, only sporadic discard sampling of the gillnet fishery, the fishery using hooks and the small mesh size fishery will be conducted.

In many cases the observer on board will have the possibility in the spare time between hauls to obtain length distributions for species not defined as mandatory according to Article H section e).

The sampling of commercial vessels will normally be done on board during normal active fishery by observers trained and employed at DIFRES. Only in fisheries where it is verified that no advantages are obtained by sampling on board (e.g. fisheries where no discards are made), in fisheries where the vessels are to small to carry an extra person or where sampling on board for various reasons are impossible to organize will discard sampling be made in harbours during landing. In such cases and when the observers are confident with the skipper and crew, the part of the catch, which normally will be discarded, will be landed separately from the normal landing part of the catch and worked up and recorded. In this case the same information are collected and recorded as if the observer has been on board.

The vessels for monitoring will more or less be randomly selected within a given fishery among a large number of vessels identified in close cooperation with the

Danish Fishermen's Organisation. In addition some considerations will be made in order to assure that different vessel sizes and various durations of the fishing trips are covered. There is no authority in Danish law, which give the possibility to enforce the observers' participation on a fishing trip. Therefore, the vessels will not be sampled randomly among all vessels performing a given fishery but only among the vessels where the skipper beforehand has agreed in having observers on board. It is the objective to include as many different vessels as possible in the sampling scheme. By the involvement of the Danish Fishermen's Organisation in the selection of vessels potential for sampling, some mutual concessions are facilitated allowing the broadest possible basis for the sampling, representing most categories of behaviour among fishermen and assuring not too biased results.

The fishery performed in different areas differs considerably in respect to duration, number of station per trip and handling of the catch. In the North Sea trips are often up to 3 weeks of duration, while trips of 1-2 days duration are common in the Kattegat and the Baltic Sea. Because of differences in the fisheries in the areas different sampling procedures are applied. If possible and advantageous all biological information from the catch will be sampled from each station.
Those are:

- Total weight of discard and landing by all species caught.
- Separate length distributions of discard and landings by all relevant species caught. If the retained catch is landing in commercial weight categories separate length frequencies are obtained.
- Otoliths and individual mean weight per cm-length group of selected species.

In addition all relevant vessel, gear and geographical information will be recorded.

If such an extensive sampling is not possible due to long trips, inadequate time between stations to work up the whole catch, only the discard part of the catch will be fully worked up (species distribution, length distribution and otoliths). In these areas traditional harbour sampling will be carried out regularly.

All data recorded in connection with the collection of discard are included in a national central database (see Section 1) holding all biological catch data collected by DIFRES.

Danish discard figures will be raised to total yearly discard by species and fishery by applying the ratio between discard and retained amount in the sampled fishing trips to the total landing. Data will be published.

3.2.3 Quality assurance

The discard data are collected in agreement and in cooperation with the Danish Fishermen's organisation. This assures a continuous and fruitful communication between the industry and the fisheries biologists and facilitates the possibility of a continuous adjustment of the sampling scheme to the actual activity and trends in the industry. At the same time a careful going through the data collected looking at the premises for the sampling, not the results, assure that the data collected are in

agreement with the reality defined as the understanding of the fishery based on discussions between in the fishermen and the biologists.

A very important spin-off from the discard sampling at sea is the opportunity to intensify the communication with the Danish Fishermen's organisations and the individual fisherman providing a natural possibility to explain and overcome the misunderstandings often existing between the fishermen and the fisheries biologists. This has already involved changes toward a more constructive and responsible attitude by the fishermen and the Fishermen's Organisation.

3.2.4 Storage of discard data

All Danish catch data sampled during discard sampling in the Kattegat and the Baltic Sea are included in the international common IBSSP database: BALTCOM. This database constitute the backbone in all international discard calculations made for the area and is essential for the further development and international co-operation concerning discard.

All countries around the Baltic Sea submit data to the database and have full access to all data collected if the data are used for scientific purposes.

It is the ambition that the database in the future besides providing age aggregated discard information, in addition shall provide the basis for central calculation of age-aggregated landings in numbers for all countries fishing in the Baltic Sea (per e.g. 1000 tons landed). The initial step is already taken by including data from harbour sampling in the database and the development of software. This will assure that the input to the assessment model used by the Baltic Fish Assessment Working Group will be calculated in a consistent and well-documented way.

From mid year 2002 an updated web-based version of the database will be introduced allowing participating countries to access all data through an Internet browser.

3.2.5 Appreciation of the level of precision

Only few initiatives have been made to meet the growing international demand for exact information of the precision level connected to various catch statistics. The EMAS project (CFP Study Project 98/075) applies bootstrapping techniques to estimate the uncertainties on marked sampling. Others (Lewy 1996, Lewy 1995) calculate uncertainties by assuming underlying distributions to the data. It is the ambition for DIFRES to use the experience obtained in the EMAS project to develop bootstrapping procedures, which as standard shall provide estimate of precision of all central biological parameters and catch statistics. The aim is to include those procedures in the standard quality assurance programs currently under development for all standard sampling and working up procedures at DIFRES.

Extended Programme:

No data collection will be carried out within the framework of the extended programme.

3.3 F. Collection of data concerning the catches per unit effort and/or effective effort of specific commercial fleets.

Minimum programme:

The collecting of data concerning the catches per unit of effort and/or effective effort of specific commercial fleets will be done following the guidelines in the Minimum Programme, as both the catch and effort data are collected in the National Programme (Section 2.2). Even though no guidelines for the minimum programme for 2004 is specified, Denmark will continue to produce CPUE data for assessment purposes as collection of catch and effort data is carried out for all Danish fishing vessels (see Section 2.2 and 3.1).

Following Danish commercial tuning fleets are produces and used in the stock assessment work:

- Cod in the Western Baltic (Sub-division 22-24).
- Danish Gillnetters.
- Danish Trawlers.
- Danish Seiners.
- Cod in the Kattegat (Division IIIa South).
- Danish trawlers 70_89 mm mesh size.
- Danish trawlers 105_120 mm mesh size.
- Danish Seiners. Data are provided but not used.
- Plaice in the Kattegat (Division IIIa South)
- Danish Gillnetters.
- Danish Trawlers.
- Danish Seiners.
- Sole in the Kattegat and the Skagerrrak (Division IIIa)
- Danish trawlers 70_89 mm mesh size.
- Danish trawlers 90_104 mm mesh size.
- Sandeel in the North Sea (Division IV)
- Norway pout in the North Sea (Division IV)
- Pandalus in the North Sea (Division IV)
- Pandalus in the Skagerrak (Division IIIa North)
- Nephrops in the North Sea (Division IV)
- Nephrops in the Skagerrak and Kattegat (Division IIIa)

Extended Programme:

No data collection will be carried out within the framework of the extended programme.

3.4 G. Eligibility of the scientific evaluation surveys of stocks

The Danish Institute for Fisheries Research command three research vessels. The R/V DANA which is a stern trawler with a loa of 78 meters. DIFRES uses R/V DANA when conducting the International Bottom Trawl Survey (IBTS), the Baltic International Trawl Survey (BITS) and the Herring Acoustic Survey (HERSUR).

One of the other Danish research vessels R/V HAVFISKEN, a 20 GRT side trawler is used at the BITS survey in the Kattegat and the Western Baltic area.

The smallest of the Danish Research vessels the R/V HAVKATTEN is normally only used in the very coastal areas and is not used within any of the surveys conducted within this framework of this programme.

All member states are obligated to undertake scientific research at sea to evaluate the abundance and distribution of stock independently of the data provided by the commercial fisheries in the case of stocks mentioned in of the Data Directive. The below described surveys are of priority 1 and are thus a part of the minimal program defined in the Data Directive Appendix XIV. Denmark will undertake 5 different surveys in the North Sea, the Skagerrak, the Kattegat and the Baltic Sea.

In 2004 Denmark will participate in cooperation with Germany, Ireland, the Netherlands, Sweden and UK in the ICES international coordinated survey on the Norwegian Spring Spawning Herring and blue whiting in the Norwegian Sea. It is the intention that the Danish R/V Dana will be used and that the scientific staff onboard the cruise will be a joined staff. Denmark will act as coordinator of the joined EU survey.

The surveys described in this programme are internationally co-ordinated and will remain so when the programme is implemented. The planning and co-ordination of the surveys are done in the ICES working groups connected with the surveys (IBTS Working Group, BITS Working Group, Herring Survey Planning Working Group, Planning Group on Surveys on Pelagic Fish in the Norwegian Sea).

Minimum programme:

3.4.1 International Bottom Trawl Survey (IBTS)

According to the Data Directive is this survey classified as a Priority 1 survey. The survey is undertaken twice during a year, one in the first quarter (18 days at sea) and during the third quarter (18 days at sea) and is the Danish part of the IBTS. R/V DANA is used when conducting this survey.

The purpose is to estimate abundance of commercial and non-commercial fish species by means of bottom trawling and to collect otoliths of commercial species (cod, haddock, whiting, Norway pout, saithe, herring, sprat, and mackerel) to assess abundance by age, in particular for the recruiting year classes in the North Sea, the Skagerrak and the Kattegat.

The sampling procedure and the level of precision are defined in the Manual for the International Bottom Trawl Surveys. ICES CM 2000/D:07

The survey is ICES co-ordinated and performed in collaboration with research vessels from France, Norway, England, Germany, The Netherlands, Scotland and Sweden. The survey is carried out as a bottom trawl survey deploying a GOV trawl during daylight hours as a standard aboard all research vessels involved. In addition to the trawl-surveys, a Method Isaac Kidd trawl is deployed during night hours to estimate the abundance of fish larvae, in particular herring- and sprat larvae. Hydrographical data is collected with a CTD.

Data is stored in an international database in ICES and revised before usage in the relevant ICES Working Group.

3.4.2 Baltic International Trawl Survey (BITS)

According to the Data Directive is this survey classified as a Priority 1 survey. The survey is undertaken twice during a year, in the 1st quarter (18 days at sea) and in the 4th quarter (18 days at sea) both with the research vessel R/V DANA and the smaller research vessel R/V HAVFISKEN undertakes the second part of the BITS in the sub-areas 21-23 during the same periods.

The primary purpose of the part undertaken by R/V DANA is to develop indices for recruitment and stock abundance of the Baltic cod stocks. The second part undertaken by R/V HAVFISKEN provides in addition to cod also abundance indices for flatfish.

The sampling procedure and the level of precision are defined in the Manual for the Baltic International Trawl Surveys. Addendum to ICES CM 2002/G:05

R/V DANA:
The cod population is estimated by means of establishing catch-rates in bottom-trawls in different depths and areas in the ICES subdivisions 24, 25, 26, and 28.
Data on gonadal maturity and weight of individual cod and organs is obtained to establish sex specific maturity ogives, mean weight and condition at age for cod. Hydrographical data is collected with a CTD.

R/V HAVFISKEN:
The species composition and the length distributions of all caught fish are recorded, and samples for ageing are taken of cod, plaice and sole. Hydrographical data is collected with a CTD.

Data is stored in an international database and used by relevant ICES Working Groups.

3.4.3 International acoustic herring survey in the North Sea, the Skagerrak and the Kattegat

According to the Data Directive is this survey classified as a Priority 1 survey. The survey is undertaken during the 2nd and 3rd quarter and consists of a calibration part (2 seadays) and an acoustic abundance estimate of herring stocks (12 seadays) in the North Sea, the Skagerrak, and the Kattegat.

The purpose is to provide acoustic abundance estimates of herring and sprat in the North Sea (eastern part), the Skagerrak, and the Kattegat.

The sampling procedure and the level of precision are defined in the Manual for the Herring Hydro Acoustic Surveys ICES CM 1994/H:3

The acoustic abundance estimate is done in collaboration between Denmark, Norway, Scotland, Germany, and The Netherlands. The herring are length measured and weighted aboard and sent to the laboratory in Charlottenlund for further examinations such as sex, maturity, age, and spawningtype.

Hydrographical data is collected using a CTD.

Data is stored in a database and revised before usage in the relevant ICES Working Group.

3.4.4 Acoustic Survey on Pelagic Fish in the Norwegian Sea

According to the Data Directive is this survey classified as a Priority 1 survey. The survey has never been carried out by a single EU member state. In 2004 Denmark will participate in cooperation with Germany, Ireland, the Netherlands, Sweden and UK in the ICES international coordinated survey on the Norwegian Spring Spawning Herring and blue whiting in the Norwegian Sea. It is the intention that the Danish R/V Dana will be used and that the scientific staff onboard the cruise will be a joined staff. Denmark will act as coordinator of the joined EU survey.

The survey is planed to take place in May-June in cooperation with Norway, The Faroese Islands, Island and Russia. The total survey time is undertaken on 30 days and consists of a calibration part (1-2 seadays) and an acoustic abundance estimate of herring stocks (28 seadays) inclusive the time used to steam from homeport to the survey area and back to homeport again.

The purpose is to provide acoustic abundance estimates of herring and blue whiting in the Norwegian Sea.

The survey will be conducted as specified by the Herring Survey Planning Working Group, Planning Group on Surveys on Pelagic Fish in the Norwegian Sea

Hydrographical data is collected using a CTD.

Data is stored in a database and revised before usage in the relevant ICES Working Group.

As Denmark has offered to act as coordinator, contact has been made to other member states (Germany, Ireland, the Netherlands, Sweden and UK) which have quota shares

of more than 5 % on the EU Norwegian Spring Spawning quota. In order to share the costs of running the survey a budget has been distributed. Positive response has been given from Germany, Ireland, the Netherlands and Sweden. Unfortunately no response has been given from UK. If not **all** involved member states participate in running the survey and pay its share of the costs, Denmark will ask for derogation for running the survey.

During the winter 2003-2004 contacts have been made to the above mentioned countries. UK has informed Denmark that they are not able to participate with 2 scientists at the survey. Instead agreements between DK and UK have been made and UK will pay DK 20.000 EUR for providing the staff. DK have then hired a Norwegian scientist which have significant expertise in running hydroacoustic survey in the Norwegian Sea. This arrangement should ensure that the survey result from the R/V and the Norwegian R/V G.O.Sars. Furthermore, the survey has been organized in close cooperation with Norway and in the ICES Planning Group for surveys this area.

3.4.5 Other priority 1 surveys.

Danish research vessels have never participated in other of the priority 1 surveys listed in Appendix XIV in Data Directive and therefore derogation for participating in these surveys is requested.

Extended Programme:

No data collection will be carried out within the framework of the extended programme.

3.4.6 Coordination and quality assurance.

The IBTS, BITS, Herring acoustic in the North Sea, the Skagerrak and the Kattegat as well as the Acoustic survey in the Norwegian Sea are all international coordinated surveys, which endeavour a high level of consistency in sampling procedure among participants. As a part of this, exchange of staff onboard research vessels between countries will be conducted. It is believed that this is an important contribution to the quality assurance of the survey data.

3. 5 H. Biological sampling of catches: composition by age and by length and I. Other biological sampling

The Data Directive gives the instructions that biological sampling must be performed in order to evaluate the composition in length and where appropriate in age of landings for all stocks specified in Appendix of the Data Directive and for some species also other biological samplings.

Biological samplings must be performed if the Danish TAC or total landings of a certain species exceeds thresholds defined in the Data Directive; Chapter H (1) (d) 1) and 2). Appendix III shows the landings made in Denmark by Danish flagged vessels

and by other Member States flagged vessels. Information on the Danish and the total EC TAC is given for 2003
The purpose of the biological sampling of catches is to estimate the number of fish and their mean weight at age of the landings made in Danish harbours. The sampling will be performed by segments and the data will ultimately together with data on landings made by other nations flagged fishing vessels give the basic input data when analysing the historical exploitation of the stocks and further be the foundation when carrying out assessments on the stocks.

All biological sampling data will be stored in a central database at DIFRES. Data security is ensured by common standards. Data entry is conducted at the two laboratories in Charlottenlund and in Hirtshals to a closed network. To maintain data integrity and performance of the database a data manager will maintain the database.

The tasks of the data manager are:

- Merge data sampled on research vessel to the main base.
- Compact and tune the database at regular intervals
- Perform backup of data
- Act as help-deck for user of the base
- Maintain look-up tables
- Make error checking and consistency tests on the database
- Maintain a security system, that grant users and outside partners access to data at an appropriate level

Currently the database is implemented with the software Ingress from Computer Associates on a Unix system. A new Microsoft NT system based on SQL server DFU-database will be in use from mid of 2003.

3.5.1 The Danish standard sampling scheme

Standard samples are non-size grated samples. The standard sampling procedure will be to carry out sampling on a quarterly basis by ICES division in all the main harbours where landings takes place. Samples will be collected randomly and the number of samples will reflect the fishery activity. For each stock the intended sampling level is given for Danish landings in Denmark in Appendix IIIa and IIIc. For other EC member states landings in Denmark the sampling level is given in Appendix IIIb and IIId. The sampling level is based on the average landings for 2000-2002 and as outlined in the Data Directive for landings made by both Danish - and other Member States flagged vessels landing in Denmark.

The samples are either analysed in the harbour or send to DIFRES, where all biological measures are performed. The standard measures are:

- Length
- Weight
- Age

The ageing is performed according to the standardised method.

The aggregated data are stored in the Biological database (DFUBase) at DIFRES.

Concerning the 'Other biological sampling' outlined in the Data Directive Chapter III I. (1) the parameters in Sections (1) (a) (i) and (iii) will be sampled during surveys on all species as the samples of the commercial landings either are in such condition that histological measures are impossible or that the sampling is performed on gutted fish. However, samples of herring and sprat are subject to the parameters mentioned in Sections 1 (a) (i) and (iii) as an improvement of the estimation of spawning stock biomass and recruitment to the spawning stock is of striking importance for the assessment of these stocks.

The 'Other biological sampling' outlined in the Data Directive Chapter III I. (1) (a) (ii) will be fully completed for the relevant stocks.

With reference to Appendix IIIa-d, a description of the stocks that will be a part of the Danish sampling programme is given below. Each stock is described by the following structure: The Danish landings made in Denmark and the Danish TAC is given and the fishery for the stock is shortly described. If the biological sampling of catches deviates from the standard described above, the sampling is described. If any other biological analysis is conducted, this is described.

Minimum programme:

Introduction:

The Danish sampling scheme for 2004 is based on the average Danish catches for 2000-2002. Therefore, the total sampling for 2004 can be increased or decreased depending on the Danish quotas for 2004 and the actual landings in 2004 both from Danish and other EC member states flagged vessels landings in Denmark. It should also be stressed that for some species, especially species for which recovery plans are implemented, such as for cod, the sampling levels need to be increased and sampled with a higher intensity than prescribed in the Data Directive. For these species Denmark will follow a "rule of thumb" in order to achieve an adequate sampling for assessment purposes.

3.5.2 The Baltic Sea. ICES Area IIIb-d

Sprat

The average Danish landings in 2000-2002 were 48,409 tonnes and the quota for 2003 is 27,497 tonnes which correspond to 23 % of the EC shared TAC. This obliges Denmark to sample this stock.

The Danish sprat fishery in ICES area IIIb-d is mainly landed for industrial purposes. The catches are mainly taken during the period from November to March.

Standard sampling procedure as described in 3.5.1 will be used.

The purpose of the other biological sampling is to estimate on a yearly basis the distribution of sex, maturity and fecundity per age, sex and population.

Sex and maturity stage is obtained from the individuals selected for ageing in each sample. The maturity estimates after aggregation has a CV which do not exceed 5% for the interval of 20-90% of the mature fish. The sex and maturity is determined following an international key (F. E. Alekseejev & E. I. Alekseejeva 1996).

Plaice

The average Danish landings in 2000-2002 were 2,052 tonnes and the Danish TAC for 2003 is 84 % of the EC share TAC, obliging Denmark to sample this stock.

Sampling of plaice follows the standard sampling scheme, however it is performed by the size-class stratification defined in EC standards from 1-4 and. At least one sample from each size-grade-class will be collected during the high season (summer).

This stock is not subject to other biological analysis.

Herring.

The average Danish landings of herring in 2000-2002 were 38,012 tonnes and the quota for 2003 is 18,199 tonnes corresponding to 11 % of the EC share TAC, obliging Denmark to sample this stock.

A major part of the herring catches (about 23,000 tonnes) in the Baltic is taken in Sub-division 24-32 (Sub-area IIId). The remaining part of the total Danish landings in 2001 is taken in Sub-division 22 (Sub-area IIIc) (about 10,000 tonnes) and in Sub-division 23 (Sub-area IIIb) (about 5,000 tonnes).The herring fishery takes place in all seasons, however, more intensively during periods when the cod fishery is low. The catches are only landed for human consumption purposes. The fleet is mainly smaller trawlers only part-time engaged in the herring fishery. In addition a few medium sized herring-trawlers participate in the fishery.

Standard sampling procedure as described in 3.5.1. will be used.

The purpose of the other biological sampling is to estimate on a yearly basis the distribution of sex and maturity per age and population.

Sex and maturity stage is obtained from the individuals randomly selected for ageing in each sample. The maturity estimates after aggregation has a CV, which do not exceed 5% for the interval of 20-90% of the mature fish. The sex and maturity is determined following the international 8 scale maturity key.

Cod

The average Danish landings in 2000-2002 were 25,812 tonnes and the Danish TAC for 2003 is 21,137 tonnes corresponding to 45 % of the EC share TAC, obliging Denmark to sample this stock.

The cod population in the Baltic is divided into two different stocks: The Eastern stock (Sub-divisions 25-32) and a Western stock (Sub-divisions 22-24). The sampling and data revision is made for each stock.

Also the fishery is divided into East and West of the Baltic. East of Bornholm the fishery is exclusively performed during March to August with exception of the summer-stop during June and July, and is directed towards the spawning cod population. Almost all types and sizes of vessels are engaged in the fishery and the gears used are pelagic trawl, bottom trawl, gillnet and to a lesser extent hooks. The fishery is exclusively directed towards cod and only by-catches of flounder may occur during February and March. West of Bornholm the fishery is taking place during most of the year, except for the summer-stop, depending on the TAC's. The fishery is a combined fishery with cod as a main target-species with a considerable by-catch of flatfish. It is primarily smaller vessels that participate in the fishery and the gears used are bottom trawl, Danish seine, gillnet, trapnet and hooks. However, larger foreign vessels do participate in shorter periods.

The sampling of cod follows the standard sampling scheme; however it is performed by the size-grade-class stratification defined in EC standards from size-grade 1-5. In practise, at least one sample will be collected per size-grade-class and during the high season (summer) more intensive ensuring samples from each size-class.

As this stock is managed under a recovery regime, the sampling level needs to be increased in order to collect adequate data for stock assessment purposes. Therefore, if possible, it is the intensions of sampling at a higher level than prescribed in the Data Directive.

If cod appears as by-catch in samples collected from other fisheries all individuals are sampled, length measured and aged. Data are treated as for the samples of cod taken from landings designated for human consumption.

This stock is not subject to other biological analysis.

Salmon

The average Danish landings for 2000-2002 were 88,816 individuals and the Danish TAC in 2003 is 93,512 individuals corresponding to 27 % of the EC share TAC, obliging Denmark to sample this stock.

The Danish salmon fishery is combined of a longline fishery from November to March and a driftnet fishery in the remaining months of the year except from a few summer-months, where there is no fishing for salmon. However, the majority of the fishing is taking place during September, October, and January. Approximately 25 vessels participate in the salmon fishery and none of these are full-time engaged in fishing.

The sampling of salmon is following the standard sampling scheme. In practise the sampling is done from 2 auction-halls in Bornholm where all landings are made. The sampling is size-class stratified and scales are taken from all size-classes. The scales are analysed at DIFRES.

The purpose of the other biological sampling is to estimate on a yearly basis the distribution of wild and reared salmon in the total landings of salmon.

In addition, the scales of wild and reared salmon will be compared in order to determine whether this feature is a method for routine distinction between the two types of salmon.

It is recommended by DIFRES in Silkeborg, not to use DNA micro satellite-analysis to separate wild salmon from reared salmon, as this method will be much too expensive compared to the outcome of the results.

3.5.3 ICES AREA IIIa North and South

Sprat

The average Danish landings for the period 2000-2002 were 24,000 tonnes and the Danish TAC for 2003 is 33,504 tonnes corresponding to 72 % of the EC share TAC, obliging Denmark to sample this stock.

Small to medium sized trawlers using mesh sizes less than 32 mm participate in the sprat fishery. The landings are exclusively used for industrial purposes. Most catches are made during the 2nd and 4th quarter

Standard sampling procedure as described in 3.5.1. will be used.

Sex and maturity stage is obtained from the individuals selected for ageing in each sample. The maturity estimates after aggregation has a CV which does not exceed 5% for the interval of 20-90% of the mature fish. The sex and maturity is determined following an international key (F. E. Alekseejev & E. I. Alekseejeva 1996).

Hake

The average Danish landings for 2000-2002 were 311 tonnes and the Danish TAC for 2003 is 833 tonnes corresponding to 92 % of the EC share TAC, obliging Denmark to sample this stock.

Hake is caught as by-catch in the fishery from gill-net vessels using mesh sizes larger than 120 mm and as by-catch in human consumption trawl fishery. Hake is mostly landed during summer.

The sampling of hake follows the standard sampling scheme, however it is performed by the size-class stratification defined in EC standards from 1-4. At least one sample will be collected from each size grade.

This stock is not subject to other biological analysis.

Haddock

The average Danish landings for 2000-2000 were 1,890 tonnes and the Danish TAC in 2003 is 1,802 tonnes corresponding to 84 % of the EC share TAC, obliging Denmark to sample this stock.

Haddock is landed all year round and only for human consumption purposes. Trawlers using gear with a mesh-size larger than 90 mm undertakes the fishery.

The sampling of haddock follows the standard sampling scheme, however it is performed by the size-class stratification defined in EC standards from 1-3.

In cases where haddock appears as by-catch in the small meshed fishery all individuals sampled will be length measured and aged

This stock is not subject to other biological analysis.

Plaice

The average Danish landings in 2000-2002 were 7,250 tonnes in IIIa North (the Skagerrak) and 1,9806 tonnes in IIIa South (the Kattegat). The quotas for 2003 is set at 10,339 tonnes for the Skagerrak and 2,955 tonnes for the Kattegat which corresponds to 79% and 89 % respectively of the total EU quota. This obliges Denmark to sample this stock.

Plaice is caught both as a target species for smaller trawlers and gillnet vessels, and as by-catches in the nephrops and cod fishery. The catches are taken all year round and only for human consumption purposes. The gears used in the nephrops fishery is at least 70 mm and in other demersal human consumption fishery mesh-sizes larger than 90 mm.

The sampling of plaice follows the standard sampling scheme, however it is performed by the size-class stratification defined in EC standards from 1-4. At least one sample per size-grade per season will be collected.

This stock is not subject to other biological analysis.

Herring

The average Danish human consumption landings in 2000-2002 were 32,645 tonnes and the Danish TAC in 2003 is 33,379 tonnes corresponding to 48 % of the EC share

TAC, and average landings of by-catches of herring in the small meshed fishery for Div. IIIa in 2000-2002 were estimated to app. 11,100 tonnes and the by-catch ceiling for herring set for Denmark in 2003 is 17,950 tonnes. These landings and TAC's obliging Denmark to sample this stock.

The herring human consumption fishing fleet in Division IIIa consists of trawler and purse seiners using mesh sizes larger than 32mm and the landings of herring are landed for human consumption purposes. The fishery is mainly occurring during June to October. By-catches of herring the small meshed fishery occur and these landings are used for fish meal and oil production.

The herring population in this area is composed of 3 stocks, and the sampling is performed on the following categories (Article 11.1.a.ii):

a) Autumn spawners from the North Sea.
b) Spring spawners from the Western Baltic.
c) Winter spawners both from the English Channel and local populations.

All revision of data and assessment are done on these spawning types.

Standard sampling procedure as described in 3.5.1. will be used.

The purpose of the other biological sampling is to estimate on a yearly basis the distribution of sex and maturity per age and spawning stock.

Sex and maturity stages are obtained from the individuals randomly selected for ageing in each sample. The maturity estimates after aggregations have a CV which do not exceed 5% for the interval of 20-90% of the mature fish. The sex and maturity are determined following an international 8 scale maturity key. The spawning type is determined from the otoliths following an intern manual (Mosegaard, H, L.A. Worsøe, and M. Lindberg 1999)

Sandeel

The average Danish landings for 2000-2002 for fishery in Div. IIIa were 11,050 tonnes. No separated TAC is given for this area. Denmark will sample this stock.

Sandeel is caught as a target species for trawlers. The catches are taken mainly during the 2nd quarter and are used for reduction purposes. The gears used have mesh-sizes less than 16 mm.

Standard sampling procedure as described in 3.5.1. will be used.

This stock is not subject to other biological analysis.

Sole

The average Danish landings for fishery in Div. IIIa in 2000-2002 were 569 tonnes and the Danish TAC for 2003 is 291 tonnes corresponding to 84 % of the EC share TAC, obliging Denmark to sample this stock.

Sole is caught as a target species for smaller trawlers and gillnet vessels. The catches are taken during the 2nd and 3rd quarter and only for human consumption purposes. The gears used have mesh-sizes larger than 70 mm.

The sampling of sole follows the standard sampling scheme, however it is performed by the size-class stratification defined in EC standards from 1-3. At least one sample will be collected by size-grade during the high season.

This stock is not subject to other biological analysis.

Cod

The average Danish landings in 2000-2002 for the Skagerrak was 6,069 tonnes and for the Kattegat 2,478 tonnes. The Danish TAC for 2003 is 3,119 tonnes in the Skagerrak and 1,433 tonnes for the Kattegat corresponding to 83% and 62% respectively for the two areas of the EC share TAC. This obliges Denmark to sample this stock.

The cod fishery is taking place during all year and a major part of the cod fishery is done by trawlers and to a lesser extent by gillnets vessels (mainly during the winter). All gears used have a mesh size larger than 90 mm.

The sampling of cod follows the standard sampling scheme, however it is performed by the size-class stratification defined in EC standards from 1-5. At least one sample will be collected by size-grade per season. In cases where cod appears as by-catch in the small meshed fishery all individuals are sampled, length measured and aged. Data are treated as for the samples of cod taken from landings designated for human consumption.

As this stock is managed under a recovery regime, the sampling level needs to be increased in order to collect adequate data for stock assessment purposes. Therefore, if possible, it is the intensions of sampling at a higher level than prescribed in the Data Directive.

This stock is not subject to other biological analysis.

Norway lobster (Nephrops)

The average Danish landings for fishery in Div. IIIa in 2000-2002 were 3,150 tonnes and the Danish TAC in 2003 is set at 3,307 tonnes corresponding to 74 % of the EC share TAC, which obliging Denmark to sample this stock.

Nephrops is landed all year round and only for human consumption purposes. Trawlers using gear with a mesh-size larger than 70 mm undertakes the fishery.

The sampling of nephrops follows the standard sampling scheme. No size grade is used for this species.

This stock is not subject to other biological analysis.

Deep-sea shrimp (Pandalus)

The average Danish landings for fishery in the Skagerrak in 2000-2002 were 1,507 tonnes and the Danish TAC in 2003 is set at 3,523 tonnes corresponding to 65 % of the EC share TAC, which obliging Denmark to sample this stock.

Pandalus is landed all year round and only for human consumption purposes. Trawlers using gear with a mesh-size larger than 35 mm undertakes the fishery.

The sampling of pandalus follows the standard sampling scheme. No size grade is used for this species.

This stock is not subject to other biological analysis.

3.5.4 ICES AREA II.

Atlanto-Scandian Herring

The average Danish landings in 2000-2002 in Denmark were 7,541 tonnes and in third countries 20,626 tonnes. The Danish TAC for 2003 is 12,378 tonnes corresponding to 35 % of the EC share TAC, which obliging Denmark to sample this stock.

Atlanto-Scandian herring is landed during spring only for human consumption purposes. Purse seines using gear with a mesh-size between 32 and 40 mm undertakes this fishery.

As a major part of Danish landings of Atlanto-Scandian herring is taken place in Norway, an arrangement concerning sampling of these landings will tried to be set up with Norway, as a supplement to the standard sampling in Denmark.

The purpose of the other biological sampling is to estimate on a yearly basis the distribution of sex, maturity and per age.
Sex and maturity stage is obtained from the individuals selected for ageing in each sample. The maturity estimates after aggregation has a CV which do not exceed 5% for the interval of 20-90% of the mature fish. The sex and maturity is determined following an international 8 scale maturity key.

Blue whiting´

See Blue whiting in Section 3.5.5 ICES AREA IV

3.5.5 ICES AREA IV - XII

Mackerel

The average Danish landings in 2000-2002 in Div. IIIa, VI+VIId were 1,537 tonnes and 19,636 tonnes respectively. No separated TAC is given for the different areas and therefore all areas are managed together. The TAC for 2003 for the area is set at 28,398 tonnes corresponding to 75 % of EC-share. Denmark will sample this stock.

Mackerel is landed during autumn and winter only for human consumption purposes. The fishery is undertaken by trawlers and purse seiners all using gear with a mesh-size larger than 32 mm.

Standard sampling procedure as described in 3.5.1. will be used.

This stock is not subject to other biological analysis.

Saithe

The average Danish landings in 2000-2002 in Div. IIIa and the North Sea were 3,964 tonnes. No separated TAC is given for the different areas and therefore all areas are managed together. The TAC for 2003 for the whole area is set at 6,842 tonnes corresponding to 8 % of EC-share. Denmark will sample this stock.

Saithe is landed all year round only for human consumption purposes. The fishery is undertaken by trawlers and gillnet vessels all using trawls and gill nets with a mesh-size larger than 90 mm.

The sampling of saithe follows the standard sampling scheme, however it is performed by the size-class stratification defined in EC standards from 1-4. At least one sample per size grade will be collected.

This stock is not subject to other biological analysis.

Sandeel

The average Danish landings in 2000-2002 were 618,598 tonnes and the Danish TAC for 2003 is 938,517 tonnes corresponding to 94 % of the EC share TAC, which obliging Denmark to sample this stock.

Sandeel caught in the ICES area IV are landed exclusively for reduction purposes and the fishery is undertaken by trawler using bottom-trawls with mesh-sizes less than 16 mm. Sandeels are landed from early spring to late summer.

Standard sampling procedure as described in 3.5.1.

This stock is not subject to other biological analysis.

Anglerfish

The average Danish landings in 2000-2002 were 1,523 tonnes and the Danish TAC for 2003 is set at 546 tonnes corresponding to was 7,8 % of the EC share TAC. This catch level obliges Denmark to sample this stock.

Anglerfish caught in the ICES area IV are landed exclusively for human consumption purposes and most of the landings are taken as by-catch in the entire Danish demersal trawl fishery.

The sampling of anglerfish follows the standard sampling scheme, however it is performed by the size-class stratification defined in EC standards from 1-4. At least one sampler per size-grade will be collected.

The Danish sampling of this stock is due to the low Danish catch limited. It is therefore disproportionate expensive to train and maintain skills in age determination of this species.

Therefore, Denmark requests for derogation for age determination of this species. Sampling and length measurements will be carried out according to the levels described in the Data Directive.

This stock is not subject to other biological analysis.

Blue whiting

The average Danish landings for 2000-2002 in Div. IIIa, IV+VIId were 5,690 tonnes and 26,908 tonnes respectively. In other areas app. 6,300 tonnes were taken. The Danish catch levels and TAC shares obliging Denmark to sample this stock.

Blue whiting is landed all year round exclusively for reduction purposes. In the directed fishery for blue whiting trawl with a mesh size of 40 mm is used. Blue whiting is also caught as by-catch in the Norway pout fishery and in this fishery trawls with a mesh-size less than 32 mm are used.

Standard sampling procedure as described in 3.5.1.

This stock is not subject to other biological analysis.

Sprat

The average Danish landings in 2000-2002 were 175,026 tonnes and the Danish TAC for 2003 is set at 230,311 tonnes corresponding to 92 % of the EC share TAC, which obliging Denmark to sample this stock.

Trawlers using mesh-size less than 32 mm conducts this fishery and all landings of sprat are landed for reduction purposes during the period from August to March.

Standard sampling procedure as described in 3.5.1.

The purpose of the other biological sampling is to estimate on a yearly basis the distribution of sex, maturity per age. Sex and maturity stage is obtained from the individuals selected for ageing in each sample. The maturity estimates after aggregation has a CV which does not exceed 5% for the interval of 20-90% of the mature fish. The sex and maturity is determined following an international maturity key (F. E. Alekseejev & E. I. Alekseejeva 1996).

Horse mackerel

The average Danish landings in 2000-2002 were 3,811 tonnes in the areas IV and VIId and the Danish TAC for 2003 is set at 28,273 tonnes corresponding to 68 % of the EC share TAC, which obliging Denmark to sample this stock.

Most of the catches of horse mackerel are taken as by-catch in the small meshed fishery which is carried out mainly by large trawlers during winter and landed for reduction purposes.

The purpose is to estimate the number of fish and their mean weight at age of horse mackerel from ICES area IV landed in Denmark. However, a target-oriented sampling is not possible as horse mackerel only appears as by-catch in landings for reduction purposes.

This stock is not subject to other biological analysis.

Hake

The average Danish landings in 2000-2002 were 618 tonnes and the Danish TAC for 2003 is set at 610 tonnes corresponding to 58 % of the EC share TAC, which obliging Denmark to sample this stock…

Hake is caught as by-catch by demersal trawlers and by gill-net vessels using mesh sizes larger than 120 mm. Hake is mainly landed during summer.

The sampling of hake follows the standard sampling scheme, however it is performed by the size-class stratification defined in EC standards from 1-4. At least one sample per size-grade will be collected.

This stock is not subject to other biological analysis.

Norway lobster (Nephrops)

The average Danish landings in 2000-2002 were 1,913 tonnes (including catches in Norwegian zone) and the Danish TAC (EC zone) in 2003 is set at 869 tonnes

corresponding to 5 % of the EC share TAC, which obliging Denmark to sample this stock. Even though the Danish TAC of the EC is 5%, Denmark will sample landings taken in the North Sea of this species.

Nephrops is landed all year round and only for human consumption purposes. Trawlers using gear with a mesh-size larger than 70 mm undertakes the fishery.

The sampling of nephrops follows the standard sampling scheme. No size grade is used for this species.

This stock is not subject to other biological analysis.

Deep-sea shrimp (Pandalus)

The average Danish landings in 2000-2002 were 1,742 tonnes (including catches in Norwegian zone) and the Danish TAC (EC zone) in 2003 is set at 4,526 tonnes corresponding to 76 % of the EC share TAC, which obliging Denmark to sample this stock.

Pandalus is landed all year round and only for human consumption purposes. Trawlers using gear with a mesh-size larger than 35 mm undertakes the fishery.

The sampling of pandalus follows the standard sampling scheme. No size grade is used for this species.

This stock is not subject to other biological analysis.

Turbot

The average Danish landings in 2000-2002 were 547 tonnes and the Danish TAC for 2003 is set at 899 tonnes corresponding to 16 % of the EC share TAC, which obliging Denmark to sample this stock. It should be mentioned that for the turbot TAC, brill is included.

Turbot is caught as by-catch in the fishery from vessels using either gill-net vessels or bottom trawls. Turbot is mainly landed during spring and summer by gill-net vessels using mesh-sizes larger than 200mm.

The sampling of turbot follows the standard sampling scheme, however it is performed by the size-class stratification defined in EC standards from 1-4. At least one sample per size-grade will be collected.

This stock is not subject to other biological analysis.

Plaice.

The average Danish landings in 2000-2002 were 12,088 tonnes and the Danish TAC for 2003 is set at 13,856 tonnes corresponding to 20 % of the EC share TAC, which obliging Denmark to sample this stock.

The fishery for plaice is carried out by a variety of vessel types: trawlers, gill netters, Danish seiners and beam-trawlers. All gears are having mesh-sizes larger than 120 mm. Plaice is landed all year round.

The sampling of plaice follows the standard sampling scheme, however it is performed by the size-class stratification defined in EC standards from 1-4. At least one sample per size-grade will be collected per season.

This stock is not subject to other biological analysis.

Lemon sole

The average Danish landings in 2000-2002 were 1,335 tonnes and the Danish TAC for 2003 is set at 1,232 tonnes corresponding to 15 % of the EC share TAC, which obliging Denmark to sample this stock.

The fishery for lemon sole is carried out by a variety of vessel types: trawlers, gill netters, Danish seiners and beam-trawlers. The landings are made all year round.

The sampling of lemon sole follows the standard sampling scheme, however it is performed by the size-class stratification defined in EC standards from 1-2. At least one sample per size-grade will be collected.

This stock is not subject to other biological analysis.

Herring

The average Danish landings in 2000-2002 were 38,186 tonnes and the Danish TAC for 2003 is set at 64,026 tonnes corresponding to 22 % of the EC share TAC. A by-catch ceiling for herring for 2003 is set at 33,504 tonnes and the mean landings for the period 2000-2002 were 20,067 tonnes. This obliges Denmark to sample this stock.
The herring fishing fleet in ICES area IV consists of purse seiners and trawlers both using mesh-sizes larger than 32mm and the herring is landed for human consumption purposes. The fishery is mainly occurring during October to May. By-catches of herring taken in the small meshed fishery for sandeel, sprat and Norway pout is estimated in 2002 to 22,059 tonnes.

Standard sampling procedure as described in 3.5.1.

The purpose of the other biological sampling is to estimate on a yearly basis the distribution of sex, maturity per age and stock and in addition, to determine the spawningtype of the individual herring.

Sex and maturity stage is obtained from the individuals randomly selected for ageing in each sample. The maturity estimates after aggregation has a CV which do not exceed 5% for the interval of 20-90% of the mature fish. The sex and maturity is determined following an international key. The spawningtype is determined from the otoliths following an intern manual (Mosegaard, H, L.A. Worsøe, and M. Lindberg 1999)

Norway pout

The average Danish landings in 2000-2002 in Div. IIIa and IV were 95,822 tonnes and the Danish TAC for 2003 is set at 220,340 tonnes corresponding to 99 % of the EC share TAC, which obliging Denmark to sample this stock.

Norway pout is mainly during autumn and winter. All the landing are made by demersal trawlers and used for reduction purposes.

Standard sampling procedure as described in 3.5.1.

This stock is not subject to other biological analysis.

Cod

The average Danish landings in 2000-2002 were 10,090 tonnes and the Danish TAC for 2003 is set at 4,635 tonnes corresponding to 20 % of the EC share TAC, which obliging Denmark to sample this stock.

The cod fishery is carried out during all seasons. The landings of cod are made by demersal trawler, gill netters and Danish seiners. All gears used have a mesh size larger than 120 mm.

The sampling of cod follows the standard sampling scheme, however it is performed by the size-class stratification defined in EC standards from 1-5. At least one sample per size-grade will be collected per season and fishery.

However, as the cod fishery is heavily regulated at the present, the sampling aim may not be realistic, though it will be attempted completed. From the samples 50 individuals are length measured and 25 of these aged, both selected on a random basis.

As recovery plan for this stock is in force, the sampling level needs to be increased in order to collect adequate data for stock assessment purposes. Therefore, sampling will be carried out at higher level than prescribed in the Data Directive.

In cases where cod appears as by-catch in the small meshed fishery all individuals are sampled, length measured and aged. Data are treated as for the samples of cod taken from landings designated for human consumption.

This stock is not subject to other biological analysis.

Haddock

The average Danish landings for 2000-2000 were 3,045 tonnes and the Danish TAC in 2003 is 2,881 tonnes corresponding to 5 % of the EC share TAC, obliging Denmark to sample this stock.

Haddock is landed all year round and only for human consumption purposes. Trawlers using gear with a mesh-size larger than 120 mm undertakes the fishery.

The sampling of haddock follows the standard sampling scheme, however it is performed by the size-class stratification defined in EC standards from 1-3.

In cases where haddock appears as by-catch in the small meshed fishery all individuals sampled will be length measured and aged

This stock is not subject to other biological analysis.

Sole

The average Danish landings for fishery in Div. IV and VIId in 2000-2002 were 594 tonnes and the Danish TAC for 2003 is 604 tonnes corresponding to 3.8 % of the EC share TAC. As the Danish TAC share is lover than 5% of the EU TAC, Denmark will not sample this stock.

Sole is caught as a target species for smaller trawlers and gillnet vessels. The catches are taken mostly during the 2nd quarter and only for human consumption purposes. The gears used have mesh-sizes larger than 70 mm.

Extended Programme:

No data collection according to the provisions in the Data Directive Chapter H. Biological sampling of catches: composition by age and by length, and in Chapter I. Other biological samplings will be carried out within the framework of the extended programme.

3.6 Other EC-members states landing in Denmark.

Sampling of landings in Danish harbours by other EC-members will be conducted by Denmark. The sampling principles and frequency will be as for national landings. An overview of estimates of foreign average landings for 2000-2002 is given in Appendix IIIc.1 and IIId.

4. Module of evaluation of the economic situation of the sector

4. Module of evaluation of the economic situation of the sector

4.1 J. Collection of economic data by groups of vessels

4.1.1 Data sources

The Danish programme for section J covering the information for the Community Programme, as defined in appendix XVII and XVIII, will be completed by two sources of data. The first being register data from the administrative and statistical registers of the Danish Directorate of Fisheries (FD) and secondly by sample statistics compiled at the Danish Research Institute of Food Economics (FOI).

The administrative and statistical registers in FD are the basic source to information about the Danish fishery. The registers relevant to the collection of economic information for groups of vessels are: the Register of Fishing Vessels, the Register of Fishermen/Vessel Owners, the Sales Note Register and the Logbook Register. These registers are fully comprehensive in the sense that all fishery related activities are registered for all individuals, which means that statistical analysis based on the registers can cover all activities in the fishery and on the first-hand market for fish, when that is required (e.g. the official catch statistics).

For economic data like cost and earnings, which are not subject to administrative control by the authorities there is no need to build a comprehensive register. Instead it is more cost efficient to use a statistical sample. FOI obtains each year an extract from the FD registers containing information on all active vessels for the year before. This extract is used to analyse and stratify the population of fishing units before the sample for the year is drawn.

4.1.2 Stratifying the population

The population comprises all commercial fishermen and fishing firms with a yearly sale of fish above a fixed minimum measured as SCV (see below). The threshold value, which is updated every year proportional to changes in the price of fish, was EUR 29,450 in 2002. The aggregated value of the neglected small-scale fishery is only about 1% of the total fishery, whereupon the population in the statistics covers about 99% of the total output in the Danish fishery.

Before drawing the sample the population is stratified according to economic size, vessel segment, product combination, and region. The stratification by economic size is based on the total Standard Catch Value (SCV) for the fishing firm/vessel, which is the weighted sum of the production of that vessel, where the catch of each species (live weight quantities) has been weighted by the average live weight price of that species. The population is divided into 11 economic size groups.

From the year 2001 the categorisation of the population by vessel segments has been according to the length groups and type of fishing technique stipulated in appendix III of Regulation (EC) No 1639/2001. For national purposes the length group 12 to 24

metres has been divided into 3 subgroups. The total number of segments used for categorising the Danish fishery is then 25, which means that the resulting stratification matrix has 25*11 cells.

Basic segmentation of vessels in the Danish fishing fleet 2001 into 25 groups (min. programme)

Fishing technique	< 12m	12-14.9m	15-17.9m	18-23.9m	24-39.9m	>= 40m	All vessels
Fixed net/traps	84						84
Gill netters	314	90	52	34			490
Trawlers *	37	180	129	113	* 137	* 33	629
Purse seiners						11	11
Danish seiners		22	27	48			97
Beamtrawlers					11		11
Polyvalent	44	42	8	9	4		107
Shrimpers							23
Musseldredgers							65
All vessel categories	479	334	216	204	152	44	1517

Note: Shrimpers and Musseldredgers are not divided among length groups.
* Trawlers 24-39.9m and trawlers >=40m are split up into two groups (industrial fishery and other fishery).

4.1.3 Selection of the sample

In a stratified random sampling the precision of the estimate for the population depends on the allocation of the sample on the strata. The optimal allocation is reached when the size of the sample in a stratum is proportional with the dispersion of the variable in that stratum. This means that the bigger fraction should be selected from the strata of big size firms.

The process of selecting the sample for the account statistics is initiated by calculating the optimal selection fraction when estimating total SCV for the economic size groups. Then the selection percentages are set for the column total (all vessel segments) and the number of units to be drawn in each cell to give the best possible fit for total SCV for each vessel segment is calculated.

The number of fishing firms to be drawn in each cell is then randomly selected among the firms available for selection. In 2001 the population numbered 1515 fishing units, but only 521 of these units were available for selection as it is voluntary to participate in the statistics. 333 units were selected for the sample in 2001. The selection cannot be considered a genuine random selection, when a part of the stratum is not open for selection. But it gives a far better sample than it would, having selected a sample from the total population and maybe due to voluntarily participation only getting a respond from 50% of the sample.

Even though participating in the sampling programmes is voluntary, this applies only to the situation before the sample is drawn. After the sample has been drawn, the accountants must report the account for those of their clients, who have been selected for that year. Every year before the sample is drawn, each accountant signs a contract with the institute in which their clients available for selection that year are listed.

Nevertheless due to specific reasons (death, accident, retirement, or excessive delay by the accountant), it is necessary to find substitutes for about 4% of the selected accounts. The substitutes are of course chosen to match the categorisation criteria of the cancelled accounts.

The 11 economic size groups are used to fine tune the sample selection process. Subsequent only 5 groups are used in the weighting procedure and in the final statistics. The table below shows the number of accounts selected, but here aggregated from vessel segments to length groups.

Population and sample by length groups and economic size class 2001

		-------- Yearly landings measured as SCV, Mio. DKK ---------					
Vessel-Length groups		Under 0.35	0.35-0.79	0.80-1.49	1.5-2.99	3.00 and more	All vessels
Vessels less than 12 metre	Number in population	270	170	42	1	-	483
	Number in sample	26	25	7	1	-	59
Vessels 12 to 14,9 metre	Number in population	35	135	149	14	-	333
	Number in sample	4	21	23	4	-	52
Vessels 15 to 17,9 metre	Number in population	2	25	121	67	2	217
	Number in sample	-	3	24	22	2	51
Vessels 18 to 23,9 metre	Number in population	2	9	58	109	22	200
	Number in sample	-	1	12	38	11	62
Vessels 24 to 39,9 metre	Number in population	-	-	3	28	122	153
	Number in sample	-	-	1	10	49	60
Vessels over 40 metre	Number in population	-	-	-	-	43	43
	Number in sample	-	-	-	-	26	26
Special fisheries	Number in population	-	8	65	7	6	86
	Number in sample	-	2	17	2	2	23
All length groups	Number in population	309	347	438	226	195	1,515
	Number in sample	30	52	84	77	90	333
	Sample size	10%	15%	19%	34%	46%	22%

4.1.4 Statistical calculation, weighing the sample

Based on the population database it is relatively straightforward to calculate the total SCV as well as the average SCV per firm for each cell in the stratification matrix. These results are used as restrictions in a quadratic goal-programming model when calculating the statistical weight for each individual account in the sample.

Both the units in the population as well as the structure of the weighting procedure have now been rebuilt to enable calculation of statistics by vessel units.

4.1.5 Data in the Account statistics for Fishery

In order to ensure an adequate data quality the institute does not rely on a simple questionnaire. The coherent structure of economic data makes it necessary to be able to validate all variables for an individual economic agent both in detail and consistently combined with other variables. The best way to do that is by setting up a balanced account. Therefore FOI has constructed a harmonized accounting form for fishery, which ensures that the data is broken down to meet the requirements of the

Account Statistic for Fishery as well as the specifications in appendix XVII and XVIII of Regulation (EC) No 1639/2001.

The reported accounts are entered into a database, where the data in each individual account is thoroughly tested for a vast number of properties and relevant comparisons. Any inconsistence disclosed by the test programme has to be addressed in collaboration with the reporting accountant and solved before the account is approved for statistical use.

The economic information collected and processed for account statistics forms together with the extract from the FD registers the basis for reporting data on the economic situation for the vessel groups.

4.1.6 Data for basic economic evaluation

Minimum Programme

1. Statistics based on register data:

- Vessel data. The physical data for the vessels are verified according to the FD register of fishing vessels, that is the Number in population, gross tonnage (GT), engine power (kW), and age of vessel.

- Effort. Vessel activity measured as days at sea according to the FD register of logbooks.

- Prices. Quarterly data on prices will be prepared using statistical files produced by FD based on the sales note register.

2. Sample statistics:

- Income / turnover: Value of production by species.

- Production costs: Labour costs, fuel, repair and maintenance, other operational costs.

- Fixed costs: Depreciation calculated individually by a fixed percentage for each type of fishery asset based on expected lifetime.

- Financial position: Own capital / borrowed capital.

- Invested capital: Replacement value of fishery assets at the beginning of the year. Insured values could also be included, but must be considered second best to the book value (replacement value).

- Employment: Calculated number of employed (part time / full time).

4.1.7 Supplementary data for improving the economic evaluation

Extended programme

Some of the entries in appendix XVIII of the Commission Regulation may call for specific pilot studies in order to access the possibilities to fulfil the requirements. For instance regional differentiation of costs by ICES subdivisions is not easily accomplished when many vessels have fishing trips in several subdivisions.

Another area where it may be necessary to carry out a more elaborate distinction is in the detailed disaggregation of vessels (appendix IV), where calculations based on number of days performing a specific type of fishing technique may be implemented. The type of fishing technique is not fully identical with the vessel type based grouping in fleet segments, though there may be a high degree of correlation between fleet segment and use of gear type.

1. Statistics based on register data:

- Prices. Monthly data on prices prepared using statistical files produced by FD based on the sales note register.

- Production. Nominal catch in tonnes per species. Seasonal (monthly) data and by stock (ICES area) information could possible be prepared using the statistical files from FD.

2. Sample statistics:

- Production. Nominal catch in tonnes per species. Seasonal (monthly) data and by stock (ICES area) data is not considered to be comprehensive for the account forms. But the register-based statistics could complement the account statistics in this respect.

- Income/revenue/turnover. Subsidies separated from other income from fishery.

- Production costs. Further break down of operational costs into subgroups.

- Invested capital. Break down into type of fishery assets, for instance vessel (hull), engines and winches, electronic equipment, fishing gear, sheds/gear house, trucks or vans etc.

- Effort. The data for vessel activity are verified according to the FD register of logbooks. That is the number of days at sea and use of gear for each vessel.

- Employment: Separately calculated for the owner, partners, hired skippers and crew.

4.1.8 Precision level for sample statistics

The precision level or the uncertainty on the results cannot be calculated by approximation to a distribution function, because it is not possible to carry out a random sampling. The element of voluntary participation has the result, that only a part of each stratum is available for selection. The most important task for improving the precision level is to increase the willingness among the fishermen to participate in the selection population. The institute will follow up on last year’s achievement on

increasing the number of fishermen to participate in the statistics, by selective enquiries to recruit fishermen in the strata where the participation needs improvement.

The institute will work on establishing an approximate measure for precision derived from ad hoc methods. At present the number of firms in the sample is about 330 and the remuneration to the fisherman's accountant is 376 EUR per reported account. It may be necessary to increase the number of accounts in order to meet the required precision for all fleet segments.

4.1.9 Time schedule for collecting and processing of economic data

The yearly routine for producing the statistics for evaluation of the economic situation of the fishery is scheduled at completing the data by the end of October.

Schedule of the process for collecting and processing of economic data

January/February	Preparing revisions for improving the statistic Meeting in Working Group with economic consultants from the Fishermen's Organisation and Fishery accountants Make ready the spreadsheet template for the year
February/March	Extracts from FD's register data are delivered Construction of the population file for the year Combining population with catalogue of firms available for selection Stratifying and selection of sample Updating/revising instructions for accounting forms for reporting
April	Submitting contracts to accountants including a list of clients selected for the years statistic and clients available for selection of substitutes. Preparing spreadsheet with template of the accounting form including data for last years end balance for repeated accounting firms
May/June	Make ready the database test system Deadline for reporting accounts is June 30th
July/August	Arranging and testing 330 accounts individually for approval
September	Calculation of weights to produce the statistics Building of the SAS-files for analysis Producing statistical tables for Account Statistics and the AER report
October	Writing and publishing the Account Statistics for Fishery Publishing spreadsheets on the homepage Reporting economic data to the Commission.
November/December	Preparing/analysing data to the publication Economic Situation of the Danish Fishery

4.1.10 Submission of data

All information required in the minimum programme is specified in the FOI accounting forms for fishery. In possible co-operation with other Member States all statistical information will be aggregated to the harmonized variables as specified in the appendix to the Commission Regulation. Data will for each group of vessels (fleet segments) be prepared as totals and average per vessel.

4.2. K. Collection of data concerning the processing industry.

Data on the processing industry will be obtained from a specific pilot study as described in the "Danish National Program for collection of Fisheries Data 2002". Results and conclusions will be presented by 31 October 2003.

The aim for the pilot study is to examine the possibilities for collecting and processing of data for the processing industry. The pilot study should provide the foundation for collection of yearly data that makes it possible to evaluate the economic situation in the processing industry as a whole, as well as for special lines of business of the sector compiled at both different products and geographical regions.

Project description of the collection of data concerning the processing industry.

1. Examination and investigation of the existing collection of data by Statistics Denmark, the Directorate of Fisheries, and other relevant Authorities.
2. Examine the need for collection of complementary data.
3. On the basis of the investigations, if it's possible and there is a need for it, work out a plan for collecting more data on the processing industry in Denmark.
4. Collection, evaluation and adaptation of complementary data.
5. Evaluation and reporting to the Commission.

Flowchart of study phases

	2002	**2003**	**2003**	**2004**	**2004**	**2005**	**2005**	**2006**
Pilot study investigating method and strategy for data collection	**X**							
Examining of existing data		**X**						
Collection and processing of existing data			**X**					
Carry out investigation for collection of complementary data				**X**				
Collection and test of data					**X**			
Collection and processing of yearly data series						**X**		
Test and evaluation of data							**X**	
Reporting to the Commission								**X**

4.2.1 Data sources

In this study data from Statistics Denmark's Industrial Commodity-, Account- and Raw Materiel Statistics, EU-Trade and Trade with non-EU countries will be used. The purpose of this study is to investigate data from these statistics, and find out if they can provide the needed data to comply with the demands, that are listed in the Commission regulation (EC) No 1639/2001 of 25 July 2001 appendix XIX.

This investigation will include data from NACE groups

NACE 15.20.10 – Fish processing and preservation
NACE 15.20.20 – Smoking, curing and salting of fish etc.
NACE 15.20.30 – Fish meal factories

4.2.2 Further development of collection processing industry data.

The data from the Industrial Commodity Statistics have been examined to disclose the possibility to define homogenous lines of business in the sense of input of raw material and output of commodities from the existing line of business in the Danish fish processing industry (NACE 15.20.10-30). The purpose of creating these new groups of firms is to provide yearly time series data of the processing industry, which reflect the physical and economic data from the primary sector.

FOI has examined the composition of commodities from each firm in the processing industry for the years 2000 and 2001. This investigation has provided the background for dividing the firms into 11 lines of business on the basis of the firm's commodity production (Annex 1). From these 11 lines of business it will probably be possible to evaluate the supply of raw materiel going in to the processing industry from the Danish marked and from abroad. The 11 lines of business also reflect the most important species in the Danish primary sector, and if there is a change in the supply of raw material, it will probably reflect on these groups.

The study of the Industrial Commodity Statistics for 2000 represent 78 firms with a total turnover of approximately EUR 1.4 billion, which covers 99.8% of the total turnover for the Danish fish processing industry (NACE 15.20.10-30). The study of the Industrial Commodity Statistics for 2001 represent 74 firms with a total turnover of approximately EUR 1.6 billion, which covers 99.8% of the total turnover.

The Account Statistics for the year 2000 represent 135 firms, and had a total turnover of approximately EUR 1.5 billion.

It will be examined how many alternative products there are produced inside the branch groups NACE 15.20.10-30. If the percentage of other products than fish products is low, the "purity" inside the branches is high. For the present the study of the "purity" of the processing industry suggest, that the "purity" is very high.

On the basis of the new 11 lines of business the data from the Industrial Commodity-, Account- and Raw Materiel Statistics, EU-Trade and Trade with non-EU countries will be distributed as shown in annex 1. From the previous investigations FOI expect, that the existing data provided by Statistics Denmark will cover most of the needed data to comply with the demands listed in Commission regulation (EC) No 1639/2001 of 25 July 2001 appendix XIX.

The on going investigations of the 11 new lines of business will focus on the need for collection of complementary data. When the existing data is collected it will be examined if there is a need for collection of complementary data. As an example it will be disclosed if there is a need for a larger spot test covering the Raw Material Statistics. At present only firms with more than 50 employees are covered in the Raw Material Statistics.

If there is a need for complementary data, FOI will work out a plan in collaboration with Statistics Denmark to collect and process the needed data.

4.2.3. Collection, test and processing of yearly data series (2004-2005).

When all data is collected to comply with the demands listed in Commission regulation (EC) No 1639/2001 of 25 July 2001, appendix XIX, FOI will test the data.

It will also be examined, how the collected data can comply with the extended program.

One of the things that will be investigated is on which regional level data will be available. In the extended program the geographical region level is 3 (nomenclature of territorial units for statistical purposes, NUTS 3), but it will probably not be possible for the new 11 lines of business, because the population is so small, that there can be problems referring to confidentiality of the data given by the industry.

FOI will also look at the impact, including the social and the economic impact, on the processing industry of measures taken on behalf of the common fisheries policy.

4.2.4 Evaluation and reporting to the Commission (2005-2006).

When the data is tested and has found is final form, FOI will in collaboration with Statistics Denmark work out a plan for delivery of yearly data.

Data from the year 2004 will hopefully be the first year of the data series of the processing industry, where all the needed data are included.

FOI will evaluate the processed data series and work out the final report to the Commission.

4.2.5. Data for the basic economic evaluation

Minimum programme

- **Raw material**

The data collection will concentrate on examining the existing data collected by Statistics Denmark in Commodity Sales Statistics.

- **Income**
- **Prices / product**

Calculation of total income and per product income in the processing industry.

The starting point for this investigation will be the balance on price per product in Statistics Denmark Commodity Statistics, where every single product is specified by it's key in Combined Nomenclature. For all products the amount sold is given in tonnes and the corresponding value in 1,000 DKK.

- **Production costs**
- **Fixed costs**
- **Financial position**
- **Investment**
- **Employment**

The collection of the following data: production costs, fixed costs, financial position, investment and employment is described together because the foundation on which the data is collected is the same. The data is collected by Statistics Denmark in Accounts Statistics.

The key point is to investigate the existing data collected by Statistics Denmark for the use of an analysis of the Danish fish processing industry.

FOI will analyse the relevant data collected in Statistics Denmark's Commodity Statistics and Accounts Statistics for a description of the Danish fish processing industry, and evaluate the possibilities to provide new data for special types of commodities and branches.

Going through these data it will be examined in which case the data can be used directly or in which case it will be necessary to work out new data.

In the process of collecting data concerning the Danish fish processing industry there can be problems referring to confidentiality of the data given by the industry.

- **Capacity utilisation**

Capacity utilisation is not estimated for the Danish fish processing industry at present. To estimate capacity utilisation FOI will have to look at the parameters, that describe the capacity in the Danish processing industry. The study of capacity utilisation will be accomplished in collaboration among the relevant institutions and organisations to give the best possible evaluation to measure the capacity, and which parameters that best can describe the capacity in the Danish processing industry.

4.2.6. Supplementary data for improving the economic evaluation

Extended programme

To comply with the extended programme FOI will have to finish the pilot studies in order to disclose missing data and evaluate the possibilities to provide this data. On this basis FOI will make an evaluation and a description of the project to fulfil the extended programme. This will not be completed before the data collection for the minimum program has been launched, which means that the project description will be specified in the program for 2006.

- **Precision level**

It is for the time being, probably possible to divide the firms in the processing industry (NACE 15.20.10-30) on geographical region level 3 (nomenclature of territorial units for statistical purposes, NUTS 3), but it will probably not be possible for the new 11 lines of business, because the population is so small, that there can be problems referring to confidentiality of the data given by the industry. FOI will look into this problem, and *examine* the possibilities for another slightly aggregated version of geographical subdivisions, so the overall sensitivity of the sector, including the social and economic impact on the processing industry located in different regions, can be evaluated.

5. Danish Fisheries Analyses Database (DFAD)

As mentioned in Section 1 all data collected according to the provisions concerning logbooks, sales notes and registration of fishing vessels and the primary data collected under the Danish programme will all be stored in the following computerised databases:

- Vessel register. Data on fishing capacity. (FD)
- Logbook database. Data on origin of catches and on effort. (FD)
- Sales notes database. Data on quantities landed and prices. (FD)
- Species composition database. Data on species composition in landings for industrial purposes. (FD)
- Biological database. Data on discards and biological parameters. (DIFRES)
- Economic data. (FOI)

In order, for the three involved institutes, to use the same primary data on capacity, effort, and geographical distribution of the origin of the landings a common database will be produced every year, the Danish Fisheries Analyses Database (DFAD). This database is a database where data from the register on Danish fishing vessels, data from the Danish logbooks and the catch area declarations database together with data from the Danish sales notes database are merged. It is therefore possible to gain the possibility of categorise each landing in one fleet segment, in one fishery etc. This database contains most of the information requested in research projects and in relation to fisheries management. The DFAD is quarterly and yearly updated.

It will, at a later stage, be possible to merge DFAD with information from the Biological database and the Economic database.

The design and development of the database is made in a co-operation between the three above mentioned institutes.

6. International coordination and cooperation.

Denmark has for a number of years been the key-player in international coordination and cooperation of the data collection in the Baltic Sea. This cooperation have been further developed and will continue. Within the ICES Planning Group for Commercial Catch, Discard and Biological Sampling (PGCCDBS) Denmark have been very active and well in carrying out the joint EU Acoustic Survey in the Norwegian Sea.

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8. Appendixes

Appendix I. Conversion factors from gutted weight to live weight.

GUTTED, WITH HEAD:

COD	1.18
HADDOCK	1.18
WHITING	1.18
HAKE	1.18
LING	1.18
SAITHE	1.18
POLLACK	1.18
PLAICE	1.05
SOLE	1.05
EUROPEAN FLOUNDER	1.05
DAB	1.05
TURBOT	1.05
BRILL	1.05
LEMON SOLE	1.05
WITCH FLOUNDER	1.05
ATLANTIC HALIBUT	1.05
PORBEAGLE	1.33
PICKED DOGFISH	1.33
SALMON	1.10

GUTTED, WITHOUT HEAD:

COD	1.60
MONK	2.72

TAIL:

NORWAY LOBSTER	3.33

Appendix II.

Calculation of Danish discard sampling effort by species and area. Sampling frequency as specified in 1639/2001.

					Beforehand estimates			Sampling frequency rules[1)]				Sampling frequency			
Species	Area (*)	DK landings in DK in 2002 (tonnes)	Discard percentage of landing	Estimated discard in 2002 (tonnes)	Discard rates (weight)	Discard rates. (numbers)	Yearly discard sampling required (Y/N)	Length measurement	Sampling Age readings	Number of individuals length measured pr. sample	Number of fish aged pr. sample	Number of length samples to be sampled	Number of individuals to be measured	Number of samples to be aged	Number of fish to be aged
Anglerfish	IV, VIId	1,497	0	0	<10%	<20%	N	1:200	1:200	25	25				
Atlanto-Scandian Herring	IIa, V	6,625	0	0	<10%	<20%	N	1:1000	1:1000	50	25				
Blue whiting	IIIaN	10,292	0	0	<10%	<20%	N	1:1000	1:1000	50	50				
Blue whiting	IV, VIId	16,272	0	0	<10%	<20%	N	1:1000	1:1000	50	50				
Blue whiting	I-IX, XII, XIV	3,078	0	0	<10%	<20%	N	1:1000	1:1000	50	25				
Brill	IV, VIId	48	8	4	<10%	<20%	N	1:200	1:200	25	25				
Cod	IIIaN	5,511	15	827	>10%	>20%	Y	1:100	1:100	50	25	8	413	8	207
Cod	IIIaS	1,751	22	385	>10%	>20%	Y	1:100	1:100	50	50	4	193	4	193
Cod	IIIb-d	20,904	12	2508	>10%	>20%	Y	1:200	1:200	50	25	13	627	13	314
Cod	IV, VIId	8,658	12	1039	>10%	>20%	Y	1:200	1:200	50	25	5	260	5	130
Haddock	IIIaN	3,352	14	469	>10%	>20%	Y	1:100	1:100	50	50	5	235	5	235
Haddock	IV, VIId	5,096	20	1019	>10%	>20%	Y	1:200	1:200	50	25	5	255	5	127
Hake	IIIaN	398	9	36	<10%	<20%	N	1:100	1:100	50	50				
Herring	IIIaS	7,631	2	153	<10%	<20%	N	1:1000	1:1000	100	100				
Herring	IIIaN	24,190	3	726	<10%	<20%	N	1:1000	1:1000	100	100				
Herring	IIIb-c	6,375	2	128	<10%	<20%	N	1:1000	1:1000	100	25				
Herring	IIId	11,824	5	591	<10%	<20%	N	1:1000	1:1000	100	50				
Herring	IV, VIId	42,234	5	2112	<10%	<20%	N	1:1000	1:1000	50	25				
Horse mackerel	IV, VIId	907	5	45	<10%	<20%	N	1:1000	1:1000	100	25				
Horse mackerel	IIa, V, VI, VII, VIII, IX	9,374	5	469	<10%	<20%	N	1:1000	1:1000	50	25				
Lemon sole	IV, VIId	1,666	8	133	<10%	<20%	N	1:200	1:200	25	25				
Mackerel	IIIaN	899	1	9	<10%	<20%	N	1:500	1:500	100	100				
Mackerel	IV, VIId	18,812	1	188	<10%	<20%	N	1:1000	1:1000	50	25				
Norway lobster	IIIaS (Funcional unit)	1,223	42	514	>10%	>20%	Y	1:100		200	0	5	1027	0	0
Norway lobster	IIIaN (Funcional unit)	2,051	38	779	>10%	>20%	Y	1:100		200	0	8	1559	0	0
Norway lobster	IV, (Funcional unit)	2,127	15	319	>10%	<20%	Y	1:50	1:1000	400	50	6	2552	0	16
Norway pout	IIIaN	2,568	0	0	<10%	<20%	N	1:1000	1:1000	50	50				
Norway pout	IV	69,160	0	0	<10%	<20%	N	1:2000	1:2000	50	50				
Plaice	IIIaS	1,803	25	451	>10%	>20%	Y	1:100	1:100	50	50	5	225	5	225
Plaice	IIIaN	6,461	27	1744	>10%	>20%	Y	1:100	1:100	50	50	17	872	17	872
Plaice	IIIb-d	2,148	21	451	>10%	>20%	Y	1:100	1:100	50	50	5	226	5	226
Plaice	IV	11,668	8	933	<10%	>20%	Y	1:500	1:500	50	25	2	93	2	47
Saithe	IIIaN	2,447	40	979	>10%	>20%	Y	1:100	1:100	50	50	10	489	10	489
Saithe	IV, VIId	2,993	20	599	>10%	<20%	Y	1:200	1:200	50	25	3	150	3	75
Salmon (in numbers)	IIIb-d	76,122	0	0	<10%	<20%	N	1:100	1:100	50	50				
Sandeel	IIIaN	27,822	0	0	<10%	<20%	N	1:1000	1:1000	50	50				
Sandeel	IV	623,511	0	0	<10%	<20%	N	1:2000	1:2000	50	50				
Shrimp (Pandalid)	IIIaN	1,702	0	0	<10%	<20%	N	1:100		400	0				
Shrimp	IV	1,530	0	0	<10%	<20%	N	1:500		100	0				
Sole	IIIaS	339	24	86	>10%	>20%	Y	1:50	1:50	100	100	2	172	2	172
Sole	IIIaN	177	3	5	<10%	>20%	Y	1:50	1:50	50	50	0	5	0	5
Sole	IV	580	5	29	<10%	<20%	N	1:200	1:200	50	25				
Sprat	IIIaS	22,260	0	0	<10%	<20%	N	1:1000	1:1000	100	50				
Sprat	IIIaN	3,268	0	0	<10%	<20%	N	1:1000	1:1000	100	50				
Sprat	IIIb-d	41,485	0	0	<10%	<20%	N	1:2000	1:2000	100	50				
Sprat	IV, VIId	164,308	0	0	<10%	<20%	N	1:1000	1:1000	100	100				
Turbot	IV, VIId	753	7	53	<10%	<20%	N	1:200	1:200	25	25				

Appendix IIIa

Appendix IIIa. Calculation of Danish sampling effort by species and area based on Danish landings made in Danish habours.

Species	Area (*)	Total EU TAC in 2003	Danish TAC in 2003	Danish TAC in %	DK landings in DK in 2000-2002 (tonnes) Avrg.
Anglerfish	IV, VIId	7,000	546	7.8	1,523
Atlanto-Scandian Herring	IIa, V (landed in DK)				7,541
Atlanto-Scandian Herring	IIa, V (landed in NW)	35,500	12,378	34.9	20,626
Blue whiting	IIIaN				5,690
Blue whiting	IV, VIId	134,931	29,064	21.5	26,908
Blue whiting	I-IX, XII, XIV	61,415	8,540	13.9	6,312
Brill (*1)	IV, VIId				64
Cod	IIIaN	3,773	3,119	82.7	6,069
Cod	IIIaS	2,323	1,433	61.7	2,478
Cod	IIIb-d	47,125	21,137	44.9	25,812
Cod	IV, VIId	22,659	4,635	20.5	10,090
Haddock	IIIaN	2,143	1,802	84.1	1,890
Haddock	IV, VIId	56,849	2,881	5.1	3,045
Hake	IIIaN	904	833	92.1	311
Herring	IIIaS				7,692
Herring	IIIaN	68,830	33,379	48.5	24,292
Herring	IIIb-c				15,425
Herring	IIId	74,770	8,227	11.0	22,587
Herring	IV, VIId	284,000	64,026	22.5	38,186
Horse mackerel	IV, VIId	41,667	28,273	67.9	3,811
Horse mackerel	IIa, V, VI, VII, VIII, IX	185,000	11,796	6.4	15,687
Lemon sole (*2)	IV, VIId	8,262	1,232	14.9	1,335
Mackerel	IIIaN				1,537
Mackerel	IV, VIId	37,976	28,398	74.8	19,636
Norway lobster	IIIaS (Funcional unit)				1,375
Norway lobster	IIIaN (Funcional unit)	4,500	3,307	73.5	1,777
Norway lobster	IV, (Funcional unit)	16,623	869	5.2	1,913
Norway pout	IIIaN				9,981
Norway pout	IV	223,000	220,340	98.8	82,801
Plaice	IIIaS				1,839
Plaice	IIIaN	16,334	13,294	81.4	7,393
Plaice	IIIb-d	3,200	2,697	84.3	2,052
Plaice	IV	69,282	13,856	20.0	12,088
Saithe	IIIaN				1,441
Saithe	IV, VIId	79,200	6,842	8.6	2,825
Salmon (in numbers)	IIIb-d	346,918	93,512	27.0	83,816
Sandeel	IIIaN				20,651
Sandeel	IV	994,000	938,517	94.4	607,014
Shrimp (Pandalid)	IIIaN	5,420	3,523	65.0	1,507
Shrimp	IV	5,920	4,526	76.5	1,742
Sole	IIIaS				332
Sole	IIIaN	347	291	83.9	243
Sole	IV	15,850	604	3.8	600
Sprat	IIIaS				21,437
Sprat	IIIaN	46,250	33,504	72.4	5,589
Sprat	IIIb-d	122,468	27,497	22.5	48,409
Sprat	IV, VIId	249,600	230,311	92.3	175,026
Turbot (*1)	IV, VIId	5,738	899	15.7	547

(*) According to Commission Regulation (EC) No 1639/2001 (Appendix XV -section H)

(*1) The TAC for brill are included in the common TAC for turbot and brill.

(*2) The TAC for witch flounder are included in the common TAC for lemon sole and witch flounder.

Appendix IIIa.1

Appendix IIIa.1. Danish landings made in Danish habours in 2000, 2001 and 2002. (for calculation of average landings for appendis IIIa)

Species	Area (*)	DK landings in DK in 2000 (tonnes)	DK landings in DK in 2001 (tonnes)	DK landings in DK in 2002 (tonnes)
Anglerfish	IV, VIId	1,314	1,758	1,497
Atlanto-Scandian Herring	IIa, V, (landed in DK)	8,709	7,288	6,625
Atlanto-Scandian Herring	IIa, V (landed in NW)	26,387	16,504	18,986
Blue whiting	IIIaN	4,849	1,929	10,292
Blue whiting	IV, VIId	34,182	30,271	16,272
Blue whiting	I-IX, XII, XIV	1,019	14,839	3,078
Brill (*1)	IV, VIId	87	57	48
Cod	IIIaN	7,656	5,041	5,511
Cod	IIIaS	3,275	2,407	1,751
Cod	IIIb-d	31,070	25,462	20,904
Cod	IV, VIId	12,798	8,814	8,658
Haddock	IIIaN	985	1,334	3,352
Haddock	IV, VIId	1,648	2,390	5,096
Hake	IIIaN	231	303	398
Herring	IIIaS	8,022	7,424	7,631
Herring	IIIaN	23,327	25,359	24,190
Herring	IIIb-c	17,869	22,032	6,375
Herring	IIId	31,670	24,266	11,824
Herring	IV, VIId	35,413	36,910	42,234
Horse mackerel	IV, VIId	8,323	2,203	907
Horse mackerel	IIa, V, VI, VII, VIII, IX	16,532	21,156	9,374
Lemon sole (*2)	IV, VIId	1,156	1,184	1,666
Mackerel	IIIaN	1,887	1,826	899
Mackerel	IV, VIId	20,668	19,428	18,812
Norway lobster	IIIaS (Funcional unit)	1,449	1,452	1,223
Norway lobster	IIIaN (Funcional unit)	1,867	1,414	2,051
Norway lobster	IV, (Funcional unit)	1,705	1,907	2,127
Norway pout	IIIaN	14,508	12,867	2,568
Norway pout	IV	133,489	45,754	69,160
Plaice	IIIaS	1,645	2,069	1,803
Plaice	IIIaN	6,679	9,039	6,461
Plaice	IIIb-d	2,153	1,854	2,148
Plaice	IV	12,535	12,061	11,668
Saithe	IIIaN	832	1,043	2,447
Saithe	IV, VIId	3,121	2,361	2,993
Salmon (in numbers)	IIIb-d	84,938	90,388	76,122
Sandeel	IIIaN	15,340	18,792	27,822
Sandeel	IV	550,640	646,892	623,511
Shrimp (Pandalid)	IIIaN	1,740	1,078	1,702
Shrimp	IV	1,831	1,864	1,530
Sole	IIIaS	400	236	359
Sole	IIIaN	288	263	177
Sole	IV	610	611	580
Sprat	IIIaS	16,647	25,403	22,260
Sprat	IIIaN	5,152	8,347	3,268
Sprat	IIIb-d	52,501	51,242	41,485
Sprat	IV, VIId	191,192	169,577	164,308
Turbot (*1)	IV, VIId	431	457	753

(*) According to Commission Regulation (EC) No 1639/2001 (Appendix XV -section H)

(*1) The TAC for brill are included in the common TAC for turbot and brill.

(*2) The TAC for witch flounder are included in the common TAC for lemon sole and witch flounder.

Appendix IIIb

Appendix IIIb. Calculation of Danish sampling effort by species and area based on Danish landings made in Danish habours in 2000-2002.

Species	Area (*)	Sampling Length measure-ment (1 sample per…… tonnes)	Sampling Age readings (1 sample per….. tonnes)	Number of fish measu-red pr. sample	Number of fish aged pr. sample	Estimated Number of samples from DK landings 2000-2002	Estimated Number of fish measured	Estimated Number of fish aged
Anglerfish	IV, VIId	200	200	25	25	8	200	200
Atlanto-Scandian Herring	IIa, V (landed in DK)	1000	1000	50	25	8	400	200
Atlanto-Scandian Herring	IIa, V (landed in NW)	1000	1000	50	25	21	1050	525
Blue whiting	IIIaN	1000	1000	50	50	6	300	300
Blue whiting	IV, VIId	1000	1000	50	50	27	1350	1350
Blue whiting	I-IX, XII, XIV	1000	1000	50	25	6	300	150
Brill	IV, VIId	200	200	25	25	0	0	0
Cod (*1)	IIIaN	100	100	50	25	122	6100	3050
Cod (*1)	IIIaS	100	100	50	50	50	2500	2500
Cod (*1)	IIIb-d	200	200	50	25	258	12900	6450
Cod (*1)	IV, VIId	200	200	50	25	100	5000	2500
Haddock	IIIaN	100	100	50	50	19	950	950
Haddock	IV, VIId	200	200	50	25	15	750	375
Hake	IIIaN	100	100	50	50	3	150	150
Herring	IIIaS	1000	1000	100	100	8	800	800
Herring	IIIaN	1000	1000	100	100	24	2400	2400
Herring	IIIb-c	1000	1000	100	50	15	1500	750
Herring	IIId	1000	1000	100	100	23	2300	2300
Herring	IV, VIId	1000	1000	50	25	38	1900	950
Horse mackerel	IV, VIId	1000	1000	100	25	4	400	100
Horse mackerel	IIa, V, VI, VII, VIII, IX	1000	1000	50	25	16	800	400
Lemon sole	IV, VIId	200	200	25	25	7	175	175
Mackerel	IIIaN	500	500	100	100	3	300	300
Mackerel	IV, VIId	1000	1000	50	25	20	1000	500
Norway lobster	IIIaS (Funcional unit)	100		200		14	2800	0
Norway lobster	IIIaN (Funcional unit)	100		200		18	3600	0
Norway lobster	IV, (Funcional unit)	50		400		38	15200	0
Norway pout	IIIaN	1000	1000	50	50	10	500	500
Norway pout	IV	2000	2000	50	50	41	2050	2050
Plaice	IIIaS	100	100	50	50	18	900	900
Plaice	IIIaN	100	100	50	50	74	3700	3700
Plaice	IIIb-d	100	100	50	50	21	1050	1050
Plaice	IV	500	500	50	25	24	1200	600
Saithe	IIIaN	100	100	50	50	14	700	700
Saithe	IV, VIId	200	200	50	25	14	700	350
Salmon (in numbers)	IIIb-d	20000	20000	50	50	4	200	200
Sandeel	IIIaN	1000	1000	50	50	21	1050	1050
Sandeel	IV	2000	2000	50	50	304	15200	15200
Shrimp (Pandalid)	IIIaN	100		400		15	6000	0
Shrimp	IV,	500		100		3	300	0
Sole	IIIaS	50	50	100	100	7	700	700
Sole	IIIaN	50	50	50	50	5	250	250
Sole	IV	200	200	50	25	3	150	75
Sprat	IIIaS	1000	1000	100	50	21	2100	1050
Sprat	IIIaN	1000	1000	100	100	6	600	600
Sprat	IIIb-d	2000	2000	100	50	24	2400	1200
Sprat	IV, VIId	2000	2000	50	50	88	4400	4400
Turbot	IV, VIId	200	200	25	25	3	75	75

Appendix IIIc

Appendix IIIc. Calculation of Danish sampling effort by species and area based on landings made in Danish habours by other EU member states.

Species	Area (*)	Total EU TAC in 2003	Other EU member states landings in DK in 2000-2002 (tonnes) Avrg.
Anglerfish	IV, VIId	7,000	141
Atlanto-Scandian Herring	IIa, V	35,500	3,295
Blue whiting	IIIaN		2,626
Blue whiting	IV, VIId	134,931	167
Blue whiting	I-IX, XII, XIV	61,415	22,016
Brill (*1)	IV, VIId		2
Cod	IIIaN	3,773	360
Cod	IIIaS	2,323	151
Cod	IIIb-d	47,125	2,768
Cod	IV, VIId	22,659	2,286
Haddock	IIIaN	2,143	266
Haddock	IV, VIId	56,849	1,108
Hake	IIIaN	904	8
Herring	IIIaS		1,536
Herring	IIIaN	68,830	16,702
Herring	IIIb-c		2,924
Herring	IIId	74,770	37,142
Herring	IV, VIId	284,000	7,460
Horse mackerel	IV, VIId	41,667	129
Horse mackerel	IIa, V, VI, VII, VIII, IX	185,000	18
Lemon sole (*2)	IV, VIId	8,262	122
Mackerel	IIIaN		412
Mackerel	IV, VIId	37,976	5,827
Mackerel	II, IIIa, IV, V, VI, VII,VIII, IX	310,808	7,822
Norway lobster	IIIaS (Funcional unit)		11
Norway lobster	IIIaN (Funcional unit)	4,500	22
Norway lobster	IV, (Funcional unit)	16,623	34
Norway pout	IIIaN		-
Norway pout	IV	223,000	-
Plaice	IIIaS		13
Plaice	IIIaN	16,334	21
Plaice	IIIb-d	3,200	9
Plaice	IV	69,282	1,193
Saithe	IIIaN		237
Saithe	IV, VIId	79,200	6,857
Salmon (in numbers)	IIIb-d	346,918	33,533
Sandeel	IIIaN		4,785
Sandeel	IV	994,000	34,759
Shrimp (Pandalid)	IIIaN	5,420	1
Shrimp	IV	5,920	3
Sole	IIIaS		8
Sole	IIIaN	347	0
Sole	IV	15,850	30
Sprat	IIIaS		248
Sprat	IIIaN	46,250	716
Sprat	IIIb-d	122,468	45,220
Sprat	IV, VIId	249,600	415
Turbot (*1)	IV, VIId	5,738	39

(*) According to Commission Regulation (EC) No 1639/2001 (Appendix XV -section H)
(*1) The TAC for brill are included in the common TAC for turbot and brill.

Appendix IIIc.1

Appendix IIIc.1 Calculation of Danish sampling effort by species and area based on landings made in Danish habours by other EU member states. (for calculation of average landings for appendix IIIc)

Species	Area (*)	Other EU member states landings in DK in 2000 (tonnes)	Other EU member states landings in DK in 2001 (tonnes)	Other EU member states landings in DK in 2002 (tonnes)
Anglerfish	IV, VIId	154	103	167
Atlanto-Scandian Herring	IIa, V	6,460	2,013	1,413
Blue whiting	IIIaN	768	563	6,546
Blue whiting	IV, VIId	288	11	203
Blue whiting	I-IX, XII, XIV	25,154	24,448	16,447
Brill (*1)	IV, VIId	2	3	2
Cod	IIIaN	369	357	355
Cod	IIIaS	156	197	99
Cod	IIIb-d	2,155	4,238	1,911
Cod	IV, VIId	1,963	2,055	2,839
Haddock	IIIaN	192	218	388
Haddock	IV, VIId	945	1,298	1,080
Hake	IIIaN	6	8	10
Herring	IIIaS	461	3,266	881
Herring	IIIaN	20,574	16,905	12,626
Herring	IIIb-c	4,121	641	4,011
Herring	IIId	53,279	42,265	15,881
Herring	IV, VIId	8,849	6,738	6,793
Horse mackerel	IV, VIId	138	31	217
Horse mackerel	IIa, V, VI, VII, VIII, IX	14	6	34
Lemon sole (*2)	IV, VIId	133	91	142
Mackerel	IIIaN	624	407	204
Mackerel	IV, VIId	6,872	4,997	5,613
Mackerel	II, IIIa, IV, V, VI, VII,VIII, IX	7,915	7,211	8,341
Norway lobster	IIIaS (Funcional unit)	16	9	9
Norway lobster	IIIaN (Funcional unit)	22	15	28
Norway lobster	IV, (Funcional unit)	57	29	16
Norway pout	IIIaN	-	-	-
Norway pout	IV	-	-	-
Plaice	IIIaS	21	8	9
Plaice	IIIaN	17	9	36
Plaice	IIIb-d	2	6	18
Plaice	IV	1,039	1,051	1,489
Saithe	IIIaN	238	218	256
Saithe	IV, VIId	5,759	5,070	9,742
Salmon (in numbers)	IIIb-d	47,600	29,400	23,600
Sandeel	IIIaN	233	1,813	12,308
Sandeel	IV	33,856	35,297	35,124
Shrimp (Pandalid)	IIIaN	-	-	2
Shrimp	IV	-	-	10
Sole	IIIaS	9	2	13
Sole	IIIaN	1	-	-
Sole	IV	19	21	50
Sprat	IIIaS	47	698	-
Sprat	IIIaN	732	1,417	-
Sprat	IIIb-d	52,960	41,276	41,423
Sprat	IV, VIId	-	1,245	-
Turbot (*1)	IV, VIId	30	36	52

(*) According to Commission Regulation (EC) No 1639/2001 (Appendix XV -section H)

(*1) The TAC for brill are included in the common TAC for turbot and brill.

(*2) The TAC for witch flounder are included in the common TAC for lemon sole and witch flounder.

Appendix IIId

Appendix IIId. Calculation of Danish sampling effort by species and area based on other EU member states landings in Denmark.

Species	Area (*)	Sampling Length measure-ment (1 sample per….. tonnes)	Sampling Age readings (1 sample per…. tonnes)	Number of fish measu-red pr. sample	Number of fish aged pr. sample	Estimated Number of samples from other member states landings in DK 2000-2002	Estimated Number of fish measured	Estimated Number of fish aged
Anglerfish	IV, VIId	200	200	25	25	1	25	25
Atlanto-Scandian Herring	IIa, V	1000	1000	50	25	3	150	75
Blue whiting	IIIaN	1000	1000	50	50	3	150	150
Blue whiting	IV, VIId	1000	1000	50	50	-	-	-
Blue whiting	I-IX, XII, XIV	1000	1000	50	25	22	1,100	550
Brill (*1)	IV, VIId	200	200	25	25	-	-	-
Cod (*2)	IIIaN	100	100	50	25	8	400	200
Cod (*2)	IIIaS	100	100	50	50	4	200	200
Cod (*2)	IIIb-d	200	200	50	25	28	1,400	700
Cod (*2)	IV, VIId	200	200	50	25	22	1,100	550
Haddock	IIIaN	100	100	50	50	3	150	150
Haddock	IV, VIId	200	200	50	25	6	300	150
Hake	IIIaN	100	100	50	50	-	-	-
Herring	IIIaS	1000	1000	100	100	2	200	200
Herring	IIIaN	1000	1000	100	100	17	1,700	1,700
Herring	IIIb-c	1000	1000	100	50	3	300	150
Herring	IIId	1000	1000	100	100	37	3,700	3,700
Herring	IV, VIId	1000	1000	50	25	7	350	175
Horse mackerel	IV, VIId	1000	1000	100	25	-	-	-
Horse mackerel	IIa, V, VI, VII, VIII, IX	1000	1000	50	25	-	-	-
Lemon sole (*3)	IV, VIId	200	200	25	25	1	25	25
Mackerel	IIIaN	500	500	100	100	1	100	100
Mackerel	IV, VIId	1000	1000	50	25	6	300	150
Mackerel	II, IIIa, IV, V, VI, VII, VIII, IX	1000	1000	50	25	8	400	200
Norway lobster	IIIaS (Funcional unit)	100		200		-	-	-
Norway lobster	IIIaN (Funcional unit)	100		200		-	-	-
Norway lobster	IV, (Funcional unit)	50		400		1	400	-
Norway pout	IIIaN	1000	1000	50	50	-	-	-
Norway pout	IV	2000	2000	50	50	-	-	-
Plaice	IIIaS	100	100	50	50	-	-	-
Plaice	IIIaN	100	100	50	50	-	-	-
Plaice	IIIb-d	100	100	50	50	-	-	-
Plaice	IV	500	500	50	25	2	100	50
Saithe	IIIaN	100	100	50	50	2	100	100
Saithe	IV, VIId	200	200	50	25	34	1,700	850
Salmon (in numbers)	IIIb-d	20000	20000	50	50	2	100	100
Sandeel	IIIaN	1000	1000	50	50	5	250	250
Sandeel	IV	2000	2000	50	50	17	850	850
Shrimp (Pandalid)	IIIaN	100		400		-	-	-
Shrimp	IV	500		100		-	-	-
Sole	IIIaS	50	50	100	100	-	-	-
Sole	IIIaN	50	50	50	50	-	-	-
Sole	IV	200	200	50	25	-	-	-
Sprat	IIIaS	1000	1000	100	50	-	-	-
Sprat	IIIaN	1000	1000	100	100	1	100	100
Sprat	IIIb-d	2000	2000	100	50	23	2,300	1,150
Sprat	IV, VIId	2000	2000	50	50	-	-	-
Turbot (*1)	IV, VIId	200	200	25	25	-	-	-

(*) According to Commission Regulation (EC) No 1639/2001 (Appendix XV -section H)

(*1) The TAC for brill are included in the common TAC for turbot and brill.

(*2) Extended sampling are in calculated on occassion of the low level of cod stocks in IV, IIIa, IIId

(*3) The TAC for witch flounder are included in the common TAC for lemon sole and witch flounder.

Appendix IIIe

Appendix IIIe Questionnaire for Salmon catches in the recreational fishery.

Spørgeskema
TROLLINGFISKERI EFTER LAKS
2003

1. **Båd.**
   Trollingfiskede du i 2003 fra egen båd?
   π Ja π Nej
   Trollingfiskede du i 2003 fra lejet båd?
   π Ja π Nej

2. **Besvares kun hvis du fiskede fra egen båd eller lejet båd (ja i et af spørgsmålene 1 eller 2).**
   a) Bådens længde.
   π 4 – 4,9 m π 5 – 5,9 m π 6 – 6,9 m π 7- 7,9 m π > 8 m

   b) Motorkraft.
   π 20 - 49 hk π 50 - 74 hk π 75 - 99 hk π 100 - 125 hk π > 125 hk

   c) Bådens hjemhavn:……..

   d) hvis du kørte båden på trailer til fiskeriet skriv da hvilken havn eller hvilke havne oftest gik ud fra? Rangordn fra 1 (mest hyppigt) til 3 (mindst hyppigt).

   1……

   2…….

   3…….

   π Kørte aldrig båden på trailer til fiskeri

3. **Antal personer.**
   Hvor mange personer fiskede du oftest sammen med?
   π alene
   π med ……. pers.

4. **Antal stænger.**
   Hvor mange stænger anvendte du oftest samtidig i 2003?

   Jeg har i gennemsnit anvendt …….. stykker trollingstænger

5. **Anvendte du normalt downrigger, planerboard eller sideparavaner ved dit fiskeri?**
   Downrigger π Ja π Nej

Sideparavane π Ja π Nej

6. Fiskeområde.

Rangordn fra 1 (mest hyppigt) til 3 (mindst hyppigt) – hvis du har fisket i flere områder - de områder hvor du fiskede mest i 2003.

π Nord for Bornholm π Syd for Bornholm
π Nordøst for Bornholm π Sydvest for Bornholm
π Øst for Bornholm π Vest for Bornholm
π Sydøst for Bornholm π Nordvest for Bornholm
π Andre steder (skriv hvor).....

8. Antal dage

Skriv det totale antal dage du har trollingfisket hver måned i 2003.

Måned	Antal dage	Måned	Antal dage	Måned	Antal dage
Jan		Maj		Sep	
Feb		Jun		Okt	
Mar		Jul		Nov	
Apr		Aug		Dec	

9. Antal timer.

Skriv det gennemsnitlige antal trolling-timer per fiskedag i 2003.

Jeg har trollingfisket gennemsnitligt ca …….. timer/fiskedag.

Mine længste ture var ca……. ..timer/fiskedag.

Mine korteste ture var ca……timer/fiskedag.

10. Fangst i 2003.

Anfør kun egen fangst

	Antal fisk	**Antal kg (urenset)**	**Tungeste fisk i kg**
Laks			
Havørred			
Torsk			
Andet (skriv art)			

11. Fangst af laksefisk under mindstemålet (60 cm for laks, 40 cm for havørred).

Hvor mange fisk under mindstemålet fangede og genudsatte du i 2003?

Antal laks ca …….. Antal havørred ca……..

12. Kommentarer:

Navn..... Oplysninger om Navn og Adresse registreres
Adresse..... ikke elektronisk. De anvendes udelukkende til
Telefon..... kontakt for eventuelle opklarende spørgsmål.
E-mail.....

Tak for din indsats.
Skemaet bedes returneret til

Danmarks Fiskeriundersøgelser
Vejlsøvaj 39
8600 Silkeborg
Att.Stig Pedersen
Eventuelle spørgsmål om dette skema kan rettes til Stig Pedersen tlf. 89213100 mail. sp@dfu.min.dk