

**NEAFC WORKING GROUP TO EXAMINE
HISTORIC CATCHES OF DEEP-SEA SPECIES
AND EFFORT DEPLOYED IN CATCHING THESE
SPECIES BY
CONTRACTING PARTIES**

**Report from the meeting held in the NEAFC
Headquarters, London, 18-21 March 2003**

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1 Introduction

In preparation for the introduction of regulatory measures for deep-sea species, it was agreed at the 21st Annual Meeting of NEAFC to establish a Working Group to compile data on landings and effort statistics. Invitations to Contracting Parties to appoint delegates were issued on 4 February 2003 (HOD 03/15). A provisional agenda was provided on 7 March.

This document is the report from the first meeting held by this Working Group in the NEAFC Headquarters 18-21 March 2003 in accordance with the agreed timetable for the introduction of regulatory measures for deep-sea species.

2 List of participants

Chair

Bergstad, Odd Aksel

NEAFC Secretariat

Hoydal, Kjartan

Neves, João

Denmark (in respect of the Faroe Islands and Greenland)

Faroe Islands

Toftum, Jens Helgi

Joensen, Símun

Greenland

Geraae, Lars

Nedergaard, Mads

EU

Patterson, Kenneth – European Commission

Becouarn, Yann – France

Casas, Mikel – Spain

Clarke, Maurice – Ireland

Gormanly, Breda – Ireland

Large, Philip - UK

Lucio, Paulino – Spain

Nolan, Conor – Ireland

Stuart, Lachlan – UK

Velasco, Borja – Spain

Rosa, Cristina - Portugal

Iceland

Steinarsson, Höskuldur

Norway

Helle, Kristin

Langedal, Gjermund

Thorvik, Thorbjørn

Poland

Kuzebski, Emil

Russian Federation

Shamray, Evgeny

Balyabo, Sergey

Latyshev, Pavel

Vinnichenko, Vladimir

3 Terms of reference

The following Terms of Reference were agreed by the 21st Annual Meeting of NEAFC:

The Working Group shall compile information on the catches of deep-sea species and deployed effort in the NEAFC Regulatory Area in the period 1980 to 2002 as well as other periods where information may be available. The information shall be reported separately by Contracting Party, by species, and if possible by ICES Statistical Rectangle otherwise by ICES Division.

Catch and effort data of the same species as those reported on in the previous paragraph within areas under national jurisdiction of each Contracting party shall also be compiled in the same format.

A database of historic catches and effort data will be constructed and made available to the Contracting Parties.

For the purpose of this request, the deep-sea species concerned will be:

Scientific name	Common name
<i>Aphanopus carbo</i>	Black scabbardfish
<i>Apristuris spp</i>	Iceland catshark
<i>Argentina silus</i>	Greater silver smelt
<i>Beryx spp.</i>	Alfonsinos
<i>Brosme brosme</i>	Tusk
<i>Centrophorus granulosus</i>	Gulper shark
<i>Centrophorus squamosus</i>	Leafscale gulper shark
<i>Centroscyllium fabricii</i>	Black dogfish
<i>Centroscymnus coelolepis</i>	Portuguese dogfish
<i>Coryphaenoides rupestris</i>	Roundnose grenadier
<i>Dalatias licha</i>	Kitefin shark
<i>Deania calceus</i>	Birdbeak dogfish
<i>Etmopterus princeps</i>	Greater lanternshark
<i>Etmopterus spinax</i>	Velvet belly
<i>Galeus melastomus</i>	Blackmouth dogfish
<i>Galeus murinus</i>	Mouse catshark
<i>Hoplostethus atlanticus</i>	Orange roughy
<i>Molva dypterigia</i>	Blue ling
<i>Molva molva</i>	Ling

<i>Pagellus bogaraveo</i>	Red Seabream
<i>Phycis spp.</i>	Forkbeards
<i>Reinhardtius hippoglossoides</i>	Greenland halibut

Contracting Parties shall, in addition, report any quantities of any other deep-sea species in excess of 10t caught in any relevant year.

The Working Group will meet 18 – 21 March and report to NEAFC.

4 Working procedure

The Working Group started its meeting at 10 a.m. on 18 March and the provisional agenda was adopted. Twenty-eight participants attended, representing all Contracting Parties. It was agreed to have two plenary meetings per day and otherwise split into two sub-groups dealing with landings and effort data, respectively. The leaders of the sub-groups were Dr Maurice Clarke (EU) and Mr Phil Large (EU).

During the first plenary meeting the Terms of Reference and concrete aims of the meeting was reviewed and debated, and it was agreed that the products from the Working Group would be a report and an electronic database containing landings and effort data from the individual countries, as far as possible satisfying the requirements for spatial and temporal resolution referred to in the Terms of Reference. Each country would provide data on the EXCEL-format outlined, and the Secretariat would subsequently assist in entering the data in an ACCESS database.

4.1 Quality and quantity of data

4.1.1 Catch

It was agreed that, for the purposes of consistency, it was necessary to report landings data (or catch data if they were consistent with landings). Discard data, if available, could be included in separate tables. Information on the source of data should always be included.

Data provided electronically by the Chair were the 1988-2001 series for deep-sea species used by ICES WGDEEP, and corresponding data for Greenland halibut used by the ICES Arctic Fisheries WG. The ICES Fisheries statistics for the years 1973-1999 were also available. From these sources annual landings by ICES Sub-area and Davison could be extracted. The challenges were to compile data for 2002, and to achieve a finer spatial resolution (ICES Statistical rectangle), and that required compilation of national data from various sources. Unfortunately cases were discovered where the ICES Fisheries statistics did not fully correspond with data brought to the WG by Contracting Parties.

The Terms of Reference also included a request for data by EEZs. Such data were not readily available from most CPs, and for some countries it was necessary to use sources of catch information other than the landings statistics reported to e.g. ICES. In such cases the source is specified in the data files. Where landings statistics for ICES

Statistical rectangles were available, EEZ data could be estimated. However, a special problem was the splitting of catches between EEZs and/or international waters when the borderlines intersect the rectangle. One model would be the one used by the Blue Whiting Group, but its appropriateness for deep-sea fisheries was questioned. It was decided that for the present exercise, if there is no other information, the Blue Whiting model should be attempted.

A list of species was given in the Terms of Reference, but it was recognised that this was only indicative. The requirement for reporting all catches above 10 tonnes of “any other deep-sea species in any relevant year” raised the question of what was to be regarded as deep-sea species. ICES has used 400 m depth and EU 500 m. The inclusion of tusk and ling gave an indication of which species should be included, but it was recognised that the compilation of data had to proceed without a completely clear guideline. An example of another specific problem - (relatively minor) by-catches of pelagic sharks on long lines was noted.

It continues to be difficult/impossible to compile time series of species-specific shark catches. The ICES WGDEEP has provided both aggregated and some species-specific data series for deep-sea sharks and the procedure adopted by that group was used as a guideline.

4.1.2 Effort

It was decided that effort data representing gear types/vessel type should be compiled. The most relevant gear types are trawl, longline, and gillnets, and these categories were adopted. If available, more detailed gear characteristics data were provided together with the input data.

The meeting discussed effort units, and it was clear that it would be impossible at this stage to provide consistent series using a common set of units. Aggregate power and tonnage (GT) was used for trawlers when such data were available, but the database also includes other data e.g. number of vessels, days at sea and others.

For passive gears, number of hooks and total length of nets was reported when such data were provided.

5 Landings database

5.1 General considerations

No landings data had been submitted in advance of the meeting (except by Germany, Denmark and the Netherlands who did not attend the meeting). The specification of area breakdown and species selection was not entirely clear from the Terms of Reference. This led to the unfortunate situation that not all CPs had brought the appropriate data to the Working Group, even if such data existed in national statistics. The landings data tabulated below by country may have to be revised, and/or may in

the future be possible to break down at finer spatial scales, at least for the most recent years. Some time series may also become extended when more effort is put into the compilation by national authorities.

5.2 Data by country

The following are country-specific comments to the landings statistics tables provided in Appendices to the report in the form of EXCEL workbooks.

5.2.1 Denmark (excl. Greenland and Faroe Islands)

(Appendix Tables I).

Denmark forwarded catch statistics for the period 1980-2002. The source was the Danish Directorate of Fisheries, Sales Note Register 1980-2002. All quantities are stated in tonnes live weight.

5.2.2 Faroe Islands

(Appendix Table II).

The catch/landings data covers the period from 1970 to 2002. The data from 1970 to 1999 are based on landings (sales documents), as reported to ICES. From 2000 to 2002 the source is logbook data.

The catch/landing data is reported by species and by ICES Sub-areas/divisions.

For the earlier years there are problems in splitting catch/landings data on ICES Rectangles. For the most recent years more accurate data are available from logbooks (fishing position) and can be broken down by ICES rectangles as well as EEZ and NEAFC Regulatory Area.

At this meeting the Faroe Islands were not able to provide data related to ICES rectangles. Where possible this information will be submitted at a later stage.

Compared with officially submitted data and ICES WG estimates, some minor discrepancies were observed.

5.2.3 Greenland

(Appendix Table III).

The Greenland catch and landing data covers the period 1985-2002.

Catch data from 1985 to 1994. Landings are broken down on trawlers and long-liners as well as ICES subareas and EEZ and NEAFC Regulatory Area. ICES Statistical Rectangle is not available for this period. The main species have been Greenland halibut with by-catches of roundnose grenadier and for the longliners also by-catch of ling, blue ling and tusk.

More accurate landing/catch data are available for the period 1994 to 1997.

Data from the period 1998 to 2002 are available with accuracy down to logbook information and full effort information. Concerning catch/landing data related to ICES rectangles this will have to be calculated based on the fishing position from the logbooks. This can be done at a later stage, if necessary.

Greenland vessels have only conducted fishery inside EZs in these periods and the target species have mainly been Greenland halibut with roundnose grenadier as by-catch. Catches of Greenland halibut in the period from 1985 to 1992 were catches in a mixed fishery where the main target was cod and redfish.

From 1992 the target species was Greenland halibut for both trawlers and long liners. Catches of Greenland halibut in ICES IIa were by-catches in the fishery for cod in the Barents Sea.

From 1985 to 1992 catch and landing data was entered into a SAS database and only data necessary to manage the quota uptake. Logbooks were passed on to the Greenland Institute of Natural Resources. For the period 1992 to 1997 data was processed in a Paradox (DOS) database which was not Y2K-compatible.

In 1998 a new Oracle database system was taken into service. All catch and landing data originate from logbooks, and sales information is entered. This database is linked to a newly developed vessel register. The vessel register keeps all relevant information on each fishing vessel, such as tonnage, engine power, dimensions, year of constructions, owners etc.

5.2.4 Germany

(Appendix Table IV).

Data from the German fishing fleet compiled by the Federal Agency for Food and Agriculture in cooperation with the Federal Research Agency for Fisheries in Hamburg were sent to the Secretariat in advance of the meeting.

5.2.5 France

(Appendix Table V).

French deep-sea fisheries are developed in the NEAFC Regulatory Area and within areas under jurisdiction of some Contracting Parties.

In France, landing of roundnose grenadier and black scabbardfish are reported separately since 1989. The landings of these two species amounted respectively to 2400 and 300 tonnes in 1989. They were first landed in noticeable quantities in 1987 but were not reported separately at that time. Deep-sea squalids were reported from 1990 and may have been discarded in large amounts before due to the lack of market. Orange roughy was first reported in 1991 and the fishery rapidly concentrated on this species and caught large quantities in 1991 and 1992, the landings declined in subsequent years. The fishery for blue ling is a much longer standing activity of French trawlers, landings started in the early 1970s and peaked at more than 14 000 t in 1985. The bulk of the French landings of deep-water species is caught by large high-seas trawlers; however, in recent years some catches from gill netters and longliners have developed.

Deep-water fisheries for mid-slope species (*Coryphaenoides rupestris*, *Centrophorus squamosus* and *Centroscymnus coelolepis-sikis*, *Aphanopus carbo*, *Hoplostethus atlanticus*).

The landings of these deep-water fishes mainly take place in three French ports: Boulogne-sur-Mer (close to the Dover strait), Concarneau and Lorient (along the south Brittany coast). Only bottom trawlers are involved in this fishery. In Boulogne-sur-Mer, the 14 high seas bottom trawlers involved in the fishery are large trawlers (50 to 55 meters long). In Lorient and Concarneau, the main part of the fleet is composed of medium high seas trawlers (30 vessels from 32 to 40 m long). The other part is composed of largest high seas trawlers (8 trawlers). About 20 trawlers land most of their catches in UK and the fish is carried to France by lorries. These catches are recorded in the fish auction market of the three above mentioned ports.

Other species of continental slope (*Molva molva*, *Beryx splendens*, *Phycis blennoides*)

In France, most of the ling catches come from the continental shelf. Ling is caught in the Channel, and the Bay of Biscay, and is not primarily considered as a deep-water species by the industry. This species is landed in almost all the French ports of the Atlantic and English Channel coast. Similarly, *Beryx splendens* and *Phycis blennoides* are landed both by the deep-water fleet and shelf trawlers.

The French catch and effort data used in stock assessments by the ICES Working Group WGDEEP are extracted from the official national database owned by the Directorate of Fisheries and Aquaculture. As all the landing of deep-water species are sold in auction markets, catch records are highly reliable.

French landings concern the period 1995-2002. These data will be presented by ICES division and sub-area and split between EEZ and the NEAFC Regulatory Area.

5.2.6 Spain

(Appendix Table VI).

Spanish data reported to this meeting concern landings (live weight).

The main Spanish directed deep-sea fisheries occur in the Hatton Bank Area (ICES Sub-area XII and Division VIb). Besides other small directed Spanish deep-sea fisheries over the last years are focused on red sea bream *Pagellus bogaraveo* in Division IXa (Gulf of Cadiz) and deep-sea sharks in ICES Sub-area VIII (Bay of Biscay).

Also relevant landings of deep-sea species have been reported since the 1980s from traditional, demersal and multispecific fisheries (hake, monkfish, megrim, Nephrops) in ICES Sub-areas VI, VII, VIII and IX. These must be considered as by-catches.

Concerning discards in Spanish deep-sea fisheries, some studies have taken place in recent years and have been reported in ICES CM 2002/ACFM:16 since the start of directed deep-sea fishery in 1996 on the Hatton Bank. For 1999 and 2000 data on deep-sea discards in ICES Sub-areas VII, VIII and Northern of Division IXa.

Spanish landing data reported to the present Working Group are from the period 1989-2002. Data are presented by year, ICES Division and statistical rectangle (when available). The usual source is the logbooks.

5.2.7 Netherlands

(Appendix Table VII).

The Netherlands provided landings data by ICES Rectangle and year for Greater argentine (*Argentina silus*).

5.2.8 Ireland

(Appendix Table VIII).

Data on landings and effort are available for the years 1995 to 2002 from the EU Logbook Scheme Database. These catch data are presented for the entire NEAFC Area. Preliminary landings data presented to the Working Group were the same as previously submitted to the ICES WGDEEP. In addition to these landings, earlier landings of various deepwater exploratory fishing trips are included. These trips were organised by the Irish Sea Fisheries Board and/or the Marine Institute.

Landings data are the declared landings as recorded in the EU logbook scheme, and are preliminary in nature at present. Effort and landings data may become available by ICES statistical rectangle at a later date.

The best estimate of Irish landings of deepwater fish species in the NEAFC Area is represented by the data presented to the ICES Working Groups, though these data are preliminary in nature. Monitoring of discards in deepwater fisheries has been carried out since 1992, and is documented in a number of reports and publications. These data are summarised in Appendix VIIIb.

5.2.9 Portugal

(Appendix Table IX).

Portuguese landings were extracted from the dataset used by ICES WGDEEP. It was not possible, at the moment, to disaggregate these data by statistical rectangle. Probably this could be done in the future for international waters (namely VIb), using a sampling from logbooks, but not for IX and X, for the most recent period.

In VIb all catches are from international waters. In IX probably most catches stem from the EU (Portugal) EEZ. Same for X where it is not possible at the moment to break down data into EEZ/international waters but, due to the size composition of the fleet from the Azores, most of the catches come from the EU EEZ off Portugal.

Portugal will submit to ICES as soon as possible new figures for sharks - CYO, GUP, GUQ - for 1990-2002 that had been underestimated in the landings.

5.2.10 United Kingdom

(Appendix Table X).

UK(E+W+NI+Scot) landings data for the species defined by NEAFC for 1990-2002 have been presented. All data are disaggregated by EZ, ICES Division and ICES statistical rectangle. Data for species where annual landings are greater than 10 tonnes are incomplete and will be finalised when the complete landings data for UK(Scotland) are available. The latter were under preparation and would be sent to NEAFC during the week after the meeting.

5.2.11 Iceland

(Appendix Table XI).

The Icelandic landing data is based upon a data system run by the Directorate of Fisheries in co-operation with Icelandic harbour authorities. Harbour authorities in all Icelandic harbours with permission to weigh catches register landed catch into this system. This system, which dates back to 1992, gives the Directorate full access to all information on landed catch, updated every 24 hours. With regard to landed catch before 1992, the figures are based on a database that was kept for the Icelandic Bureau of Statistics.

Fishing logbooks provide statistics on catch positions but these are somewhat limited before 1991, as submission of logbooks was not obligatory before that time. From 1991 and onwards, the logbooks are given on haul-by-haul basis, including inter alia exact position of each haul/set, depth and effort. Prior to 1991, data is given by statistical squares.

All catches that are registered in ICES Subdivision Va are taken inside the Icelandic EEZ. As Iceland has, since 1980, not had fishing rights for Deep Sea Species in EEZs of other countries, all catches outside the Icelandic EEZ are taken in the NEAFC Regulatory Area.

The data source is the same as has been used by ICES Working Group in recent years.

In the case of missing values in the logbooks, we assume that the missing observations are distributed as the known values and therefore we raise the reported data to the actual landings.

5.2.12 Norway

(Appendix Table XII).

Two kinds of Norwegian catch data were submitted (NB: Separated on two different sheets in the EXCEL-workbook):

- Landing data by deep-sea species, quantity, ICES-division and the years 1980-2002. This catch information is based on sales notes, which in addition to being a commercial contract between seller (fisherman) and buyer (fish plants, processors), also contains a variety of information used by Norwegian fisheries management, i.a. landing data based on sales notes comprises the official Norwegian catch figures reported to ICES.

- Catch reported by Norwegian vessels at sea to the coastal states fisheries authorities. This data gives information about deep-sea species and quantity for the years 1995-2002. Moreover, the catch is specified by NEAFC Regulatory Area as well as by the zones under jurisdiction of various NEAFC Contracting Parties. This type of catch information is also consistent with the Norwegian effort data submitted to the NEAFC statistical meeting because this effort information comes from the same data source: reporting of catch and activity by Norwegian vessels at sea.

5.2.13 Poland

(Appendix Table XIII).

The Polish dataset of deep-sea species (1980-2002) based on national statistics was compiled from monthly and semi-monthly catch reports submitted by fishing vessels operators as well as logbooks collected by the Sea Fisheries Regional Inspectorate and Sea Fisheries Institute. Data has not been computerized in a databank yet.

Catches are broken down by ICES divisions. Detailed data about catches in ICES rectangles as well as discards data are not available. It is possible that some deep-sea species may fall under the category of “other, nei fish” (this may be corrected in the future if information accessible from original documents is precise enough). Since 2002, however, all deep-sea species concerned have been collected in detailed way.

A completely new IT system which is currently being developed for quota management and statistics will be fully operational from the beginning of 2004. The system will be fully harmonized with EU control and management regulation and will facilitate collection of all data required by WG that is inaccessible at the moment (such as ICES rectangles).

5.2.14 Russian Federation

(Appendix Table XIV).

USSR/Russian catch data for deep-sea species has been presented for the period 1970-2001 on monthly basis and according the ICES sub-areas. Data for 1991 is presented without monthly division (it will be given later). Data for directed fisheries of roundnose grenadier, Greenland halibut, blue ling and alfonsino are available. The rest of the species were taken as by-catch. Some technical incorrect information about USSR/Russian fishery is given in the FAO and ICES database. In the text table below is submitted some corrections for more precise assessment of deep species catch distribution.

Catches of scabbardfish and sharks were not divided by species/groups because they had been fished in small amounts as by-catch.

Additionally the blue ling and alfonsino catch data are submitted that were previously included in the “others” category in the FAO and ICES statistics.

Where possible, catch allocation by rectangles will be submitted at a later stage.

Correction of USSR/Russian deep-sea catch allocation by ICES areas

Species	Year	Reported ICES area	Allocated ICES area	Comments
Roundnose grenadier	1973	Va	XII	Roundnose grenadier fishery was not conducted in division Va according vessels' reports.
Roundnose grenadier	1974	Va	XII	
Roundnose grenadier	1975	VIIIf	XII	Deep-sea fishery is not possible in division VIIIf (shallow waters).
Roundnose grenadier	1977	IX	XII	Roundnose grenadier aggregations are absent in sub-area IX.
Alfonsino	1979	XII	X	Alfonsino aggregations are absent in sub-area XII.

6 Effort database

6.1 General aspects

An attempt was made to collate national deep-water effort data by NEAFC zone, national economic zone, ICES Division and statistical rectangle. Data availability by country and gear is summarised in Tables 6.1-3. Deep-water effort was defined as effort in which catches comprised one or more deep-water species as defined in the Terms of Reference for the Working Group.

No attempt to define effort units by gear was made before the meeting. The primary units agreed were, for trawlers, days at sea or hours fishing * kW or GT/GRT, for long-liners, days fishing * number of hooks, and, for gill netters, days fishing * total length of nets. Having agreed these units, national representatives were able to present data if available or to arrange for data to be presented shortly after the meeting. It was recognised that the latter is far from ideal. For many countries effort data were either incomplete or only available for recent years. For some countries, effort data were known to exist but were not readily accessible.

Table 6.1. Summary of available effort data from trawlers. This table describes data that were available to the Working Group meeting, and in addition indicates data that may in due course be made available by different countries.

Country	Gear	Spatial units	Year range	Days fishing	Hrs fishing	Number of vessels	kW	GRT /GT	KW *days	GRT/GT *days	Total length of groundrope	Comments
Norway	Trawl	NEAFC Regulatory Area and EZs	1995 onwards	Yes	Yes	Yes	No	No	No	No	No	No. of vessels small in NEAFC Reg. Area
France	Trawl	NEAFC Regulatory Area, ICES Division	1995 onwards	No	No	Yes	Yes	Yes	No	No	No	Days & hours fishing may be available.
Portugal	Trawl	NEAFC Regulatory Area, also ICES Division	1998-2000	No	No	Yes	Yes	Yes	No	No	No	Data 1995-2002 but not available to meeting.
Spain	Trawl	NEAFC Regulatory Area only, by ICES Division	1998-2002 (Nov)	Yes (Days at sea)	No	Yes	Yes	Yes	Yes(?)	Yes(?)	No	
Russia	Trawl	Total only. May be possible in future to split by NEAFC, ICES Div	1970-2001	Yes	No	Yes (from 1985 onwards)	No	Yes (from 1985 onwards)	No	Yes (from 1985 onwards)	No	Directed and bycatch fisheries. Effort data available for only part of fleet.

Faroes	Trawl	NEAFC Regulatory Area, EZs, ICES Division	1980-2002	Yes	Yes (2000-2002 only)	Yes	Yes	GT only	Yes	Yes	No	Effort data not available to meeting
Greenland	Trawl	By EZs, ICES Division	1985-2002	Yes (1994-2002)	Yes	Yes	Yes	Yes	Yes	Yes	Yes (Trawl dimension from 1998 onwards)	Hrs data not available to meeting. Vessel data from 1989 onwards.
Iceland	Trawl	NEAFC Regulatory Area, EZs, ICES Division, Rectangle	1991 onwards	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No (Info. on headline available)	No effort data available to meeting, will follow in 1 week.
Poland	Trawl	NEAFC Regulatory Area, EZs, ICES Division	1980 onwards	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Effort data available for directed fisheries only. By-catch effort not available
Ireland	Trawl	NEAFC Regulatory Area, ICES Division, EEZs, Stat rectangle.	1995 onwards	No	No	Yes	Yes	Yes	No	No	No	More detailed data may follow. Effort data available for exploratory

												fishing-possibly to follow shortly
UK	Trawl	NEAFC Regulatory Area, EZ, ICES Division & rectangle	1990 onwards	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	E+W+NI data back to 1990 by Friday. Scots data and E+W+NI data (back to 1982) in 1 week

Table 6.2 Summary of available effort data from longliners. This table describes data that were available to the Working Group meeting, and in addition indicates data that may in due course be made available by different countries.

Country	Gear	Spatial units	Year range	Number of vessels	Days fishing	Number of lines	Number of hooks	Comments
Norway	Longlines	NEAFC Regulatory Area only and EZs	1995 onwards	Yes	Yes	No	Yes* (2000-2002 only).	Effort data only available for exploratory fishing-possibly to follow shortly. *Log-book data may in due course be made available for longer time series.
France	Longlines	NEAFC Regulatory Area, ICES Division	1995 onwards	Yes	No	To come	To come	Days fishing may be available.

Portugal	Longlines	NEAFC Regulatory Area and Portuguese EZ, also by ICES Division	1998-2000	Yes	No	No	No	Data 1995-2002 but not available to meeting. Data for Portuguese EZ since 1990.
Russia	Longlines	Total only. May be possible in future to split by NEAFC, ICES Div	1992-2001	Yes	Yes	No	No	Mainly bycatch fishery. Effort data only available for part of fleet.
Faroes	Longlines	By EZs and ICES Division	1980-2002	Yes	Yes	No	Yes	Effort data not available to meeting .
Greenland	Longlines	By EZs and ICES Division	1985-2002	Yes	Yes	Yes	Yes	Effort data available from 1991 onwards only. No of lines and No of hooks available from 1998 onwards.
Iceland	Longlines	NEAFC Regulatory Area, EZs, ICES Division and rectangle	1991 onwards	Yes	Yes	Yes	Yes	Effort data not available to meeting – will follow in 1 week.
Ireland	Longlines	NEAFC Regulatory Area, ICES Division	1995 onwards	Yes	Yes	Yes	Yes	Effort data available for exploratory trips.
UK	Longlines	NEAFC Regulatory Area, EZs, ICES Division & rectangle	1990 onwards	Yes	Yes	Yes	Yes	E+W+NI data back to 1990 by Friday. Scots data and E+W+NI data (back to 1982) in 1 week

Spain	Longlines	NEAFC Regulatory Area, EZs, ICES Division	1998- 2002	Yes	Yes (Days at sea)	?	?	
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Table 6.3 Summary of available effort data from gillnetters. This table describes data that were available to the Working Group meeting, and in addition indicates data that may in due course be made available by different countries.

Country	Gear	Spatial units	Year range	Days fishing	Number of vessels	Number of nets	Total length of nets	Comments
Norway	Gill netters	NEAFC Reg. Area and EZ	1995 onwards	Yes	Yes	No	No	No of gill netters very small in NEAFC Reg. Area
Faroese	Gill netters	Faroese EZ only	1990 onwards	Yes	Yes	Yes	Yes	Directed fishery for Greenland halibut. Data not available to meeting.
Iceland	Gill netters	NEAFC zones, EZs, ICES Division & rectangle	1991 onwards	Yes	Yes	Yes	Yes	No data available to meeting, to follow in 1 week.
Ireland	Gill netters	NEAFC zones, ICES Division	1995 onwards	No	Yes	No	No	
Spain	Gillnetters	NEAFC Regulatory	1998-2002	Yes	Yes (Days at	?	?	

		Area, EZs, ICES Division			sea)			
UK	Gill netters	NEAFC zones, EZs, ICES Division & rectangle	1990 onwards	Yes	Yes	No	Yes	E+W+NI data back to 1990 by Friday. Scots data and E+W+NI data (back to 1982) in 1 week

6.2 Data by country

6.2.1 Germany

(Appendix Table XV).

Data for the German fishing fleet compiled by the Federal Agency for Food and Agriculture in cooperation with the Federal Research Agency for Fisheries in Hamburg were sent to the Secretariat in advance of the meeting.

6.2.2 Denmark (excl. Greenland and Faroe Islands)

(Appendix Table XVI).

Denmark forwarded effort statistics. The sources of the data were the Danish Directorate of Fisheries Sales Note-, Logbook- and Vessels Register 1982-2002.

Days at sea:

Method: If a vessel has filled in a logbook where catches of deep-sea species are registered, the days at sea are calculated for that particular year by applying information from logbooks only. For each vessel stating catches of deep-sea species, the total hours per sea trip are calculated. If the vessel has catches from more than one ICES area per sea trip, the total hours are divided by the number of ICES areas. For example if a sea trip has lasted for 60 hours, and catches were of deep-sea species were taken in ICES area 3AN and 4B, results in 30 hours of fishing in each of the two areas.

Summing up, based on information from the logbooks, the actual days at sea per vessel per year is given by calculating the hours spent per vessel per year divided by 24.

If a vessel in one year does not have any logbook stating catches of deep-sea species, but only sales note which states landings of deep-sea species, the days at sea are calculated as 24 hours per date of landing. If there were landings of deep-sea species from more than one area on the same date of landing, 24hrs are divided by number of ICES areas. Summing up hours per vessel per year and dividing by 24 the days at sea are given.

Number of vessels:

Method: The vessels identified under effort statistics “days at sea” are registered per ICES area. This method leads to that one single vessel catching deep-sea species in one year in more than one ICES area is registered in more than one ICES area. This causes an overestimation of the total number of vessels engaged in the fishery per year. In Table 6.4, the actual number of vessels per year is shown.

**Table 6.4 Actual total number of Danish vessels with catches of deep-sea species
1982-2002.**

	Gillnetter	Longliner	Other	Trawlers	Total
1982	.	77	37	199	313
1983	1	86	52	246	385
1984	.	100	50	280	430
1985	.	81	7	192	280
1986	22	270	255	881	1,428
1987	71	403	264	1,149	1,887
1988	92	419	244	1,023	1,778
1989	113	369	214	1,007	1,703
1990	137	363	199	951	1,650
1991	182	365	192	903	1,642
1992	239	399	186	864	1,688
1993	261	349	273	717	1,600
1994	293	321	294	633	1,541
1995	323	320	248	658	1,549
1996	270	267	194	649	1,380
1997	254	200	154	612	1,220
1998	239	181	126	550	1,096
1999	228	166	76	520	990
2000	250	166	80	539	1,035
2001	270	158	79	518	1,025
2002	280	143	81	533	1,037

Tonnage:

Method: The vessels identified under effort statistics “days at sea” are registered per ICES area. If a vessel is not measured in GT, below 24 metres, the calculation is done by applying methods stated in the existing EC legislation for vessels below 15 metres and between 15-24 metres.

KW:

Method: The vessels identified under effort statistics “days at sea” are registered per ICES area. The KW are calculated for each vessel by applying the engines horse power multiplied by 0.7355.

6.2.3 Faroe Islands

(Appendix Table XVII).

Concerning effort employed in fisheries for deep-water species, the Faroe Islands was not able to finalise the effort data series for the meeting. The preparation of the effort data has been more time consuming than anticipated. For the earlier years, effort data are available, but not on a disaggregated level.

For the most recent years more accurate information from logbooks is available and the data can be broken down to number of vessels, information on each vessel (GT,

HP, kW) related to fishing position. To some degree it is also possible to extract number of fishing days, trawl time and number of hooks/lines/gill nets from the logbook data.

Information on effort employed in Faroese fisheries for deep-water species will be provided at a later stage

6.2.4 Greenland

(Appendix Table XVIII).

Data from the period 1998 to 2002 are available with accuracy down to logbook information and full effort information. Effort days include days of searching

These data are linked to a newly developed vessel register. The vessel register keeps all relevant information on each fishing vessel, such as tonnage, engine power, dimensions, year of construction, owners etc.

6.2.5 France

(Appendix Table XIX).

The French effort data are extracted from the official national database owned by the Directorate of Fisheries and Aquaculture. French effort data reported to the present Working Group concern the period 1995 to 2002 inclusive. The effort data comprise kilowatts, tonnage and number of vessels. These data will be presented by ICES Sub-area and Division and split between EZs and NEAFC Regulatory Area. Data about days at sea, fishing days, hours of fishing, although not available for this meeting, should be available for recent years.

Like some other delegates, the French delegate highlighted the practical difficulties created by somewhat vague Terms of Reference so the data communicated during this Working Group should be considered as provisional because some verification must be done.

6.2.6 Spain

(Appendix Table XX).

The Spanish effort data are extracted from the database of the General Secretary of Maritime Fishery.

In relation to the directed deep-sea fisheries in Hatton Bank, the effort data are available on the basis of ICES Sub-area and days at sea as effort units for the period 1998 to November 2002.

For the artisanal long-liner fleet targeted on red seabream in the Gulf of Cadiz, effort data are provided for the period 1989-2002.

Finally, concerning the effort data of the métiers with by-catches of deep-sea species in ICES Sub-area VI, VII, VIII and IX, it must be emphasised the difficulties in the standardising of effort in an adequate way (trawlers, fixed gears, seasonality of deep-

sea catches, restrictions in the quota for the target species, etc.) devoted to the deep-sea by-catches.

6.2.7 Ireland

(Appendix Table XXI).

Data on effort are available for years 1995 to 2002 from the EU Logbook Scheme Database. These catch data are presented for the entire NEAFC Area. Effort data in KWs are available by ICES Division, though more detailed information is becoming available.

6.2.8 United Kingdom

(Appendix Table XXII).

UK(E+W+NI) effort data for the species defined by NEAFC, for 1990-2002, have been presented. All data are disaggregated by EZ, ICES Division and ICES statistical rectangle, and comprise, for trawlers, number of vessels, days fished, hours fished, KW*days and GT*days, for long-lines, number of vessels, days fished, number of hooks and number of hooks*days, and for gill netters, number of vessels, days fished, total length of nets and total length of nets* days.. Effort data for species where annual landings are greater than 10 tonnes are incomplete and will be finalised when landings and effort data for UK(Scotland) are available. A description of the format of UK(Scotland) effort data will be provided when these data are sent to NEAFC, next week.

6.2.9 Portugal

Relative to fishing effort the only available data concerns fishing capacity (Kw and GRT) transmitted to the Commission as foreseen in the Reg.(EC) n 2347/2002. This data could be separated by fishing gear and division (VIb, XIVb, IX and X) but not by statistical rectangle.

Concerning fishing activity 330 days at sea/vessel/year were used for long distance fisheries (VIb and XIV) and 261 days at sea/vessel/year for longliners in IX. But the real value for activity has not yet been estimated.

Portugal is not able to provide information about the number of longlines or the number of hooks or the size of the trawls nets.

6.2.10 Iceland

(Appendix Table XXIII).

The source of the Icelandic effort data is fishing logbooks. These have been used as a source for scientific purpose since around 1970 but were not obligatory until 1991. This makes data on effort concerning Deep Sea Species catches before that time somewhat limited. Until 1999, only The Marine Research Institute had access to logbook data and therefore the data have almost entirely been used by for scientific purposes only.

The effort data that was to be submitted at this meeting did not take KW and GRT/GT into account. This data can be attained and therefore Iceland will revise its effort data

and submit it on the proposed format to the NEAFC secretariat in the week of 24 - 28 March. Iceland can submit all the relevant information.

In future, logbook data will be collected in the same manner as has been done since 1991, that is on a haul-by-haul basis where exact position will be given for each haul/set. For trawl information on trawling time (when the trawl is at trawling depth until the haul ends), along with information on depth which Iceland considers a very important parameter to be recorded. For long-line and nets, same information as for the trawl will be collected except where effort is given as number of lines and number of hooks on each line.

6.2.11 Norway

(Appendix Table XXIV).

For the purpose of the this meeting Norway has prepared effort data based on the parameters “number of vessels” and “fishing days.” This data is broken down by NEAFC-Regulatory area as well as by the national zones of Contracting Parties. In addition the parameters “number of vessels” and “fishing days” are split by vessel category, i.e. long liners and trawlers. Reporting of activity by vessels at sea to the fisheries authorities is the main source of information; however for the Norwegian EEZ, the Jan Mayen zone, and the EU EEZ the information is based on sales notes.

Existing data, but not available for the meeting, include tonnage (GRT and GT), horsepower (HP) and kilowatts (kW), number of hooks for long-liners and number of nets for gill netters. To collect and record these data would require much work, however numbers of hooks for longliners in the NEAFC Regulatory Area could be available soon.

For trawlers it might be possible after some time to specify number of days and number of hours based on log books. HP or kW have never been applied as regulatory measures in Norwegian fisheries regulations. Consequently, a possible introduction of HP or kW would presuppose a thorough discussion among Norwegian managers concerning the strength, weaknesses etc. of these parameters. Also number of hooks and nets have thus far been recorded in logbooks for scientific purposes.

Number of nets would not be an appropriate effort indicator for modern gill netters, because the length of nets differs much between fisheries and countries. An alternative and a more relevant effort parameter would be the total length of nets.

6.2.12 Poland

(Appendix Table XXV).

Data accessible during WG meeting are based on Sea Fisheries Institute statistics collected from monthly or semi-monthly reports submitted by fishing vessels operators as well as logbooks and other reports submitted to Sea Fisheries Regional Inspectorate. The most detailed existing level of aggregation was a month, so in some cases (when a vessel was catching deep-sea and other species in the same month and area) it was not possible to distinguish fishing days (as well as hours) directed on deep-sea species or to count days in which deep-sea species appeared. This probably maybe improved by referring to original documents and this is reasonable to do for

years where catches were significant (unavailable fishing days and hours data in most cases are in years where catches of deep-sea species were negligible).

Effort data are available by ICES Division. Similarly as in landings data, it is not possible to split the effort into ICES statistical rectangles. Some information on effort maybe omitted due to reporting of less important species under “other, nei fish” category (it maybe corrected in the future), this concerns data before 2002. Technical characteristics, as well as number of vessels engaged in deep-water fisheries, have been provided.

More sophisticated effort analysis will be possible from the beginning of 2004 when the present IT system will be replaced by a new one which will enable the gathering of all daily effort information in conjunction with detailed technical parameters of vessels.

6.2.13 Russian Federation

Fishing effort definition is rather difficult because deep-water species are taken mainly as a by-catch in other fisheries.

Parameters such as engine power, number of hours and hooks, length of groundrope cannot be submitted at this time. Number of fishing days are presented as total for directed and non-target fishery. Number of vessels reflected only part of the vessels that had catches of deep-water species. Due to a large number of vessels it is very difficult to define their gross tonnage which is why average tonnage by types of vessels for gross tonnage calculation has been used.

Efforts data may in the future be available for the NEAFC Regulatory Area, EZs, and ICES areas and rectangles, but this will take a considerable amount of time to collate.

7 Comments

Few countries could fully satisfy the request for provision of landings data either at the finest geographical resolution, nor split by EEZs. With some more time and dedicated effort it appears feasible to derive such data, at least for recent years.

It will be obvious from the effort data series presented that it was impossible to compile a consistent set of effort data using a common unit such as aggregate power or tonnage. Thus in many cases the tables include simpler data such as number of vessels and fishing days. It will be a challenge for the future to derive data using a common set of units for the different gear types. The tables provided really only reflect a first attempt to compile existing data, i.e. data available at the time of the meeting.

Few countries were able to provide effort data at the geographical resolution of ICES Statistical Rectangles, and even providing data on ICES Sub-areas and Divisions, and EEZs proved difficult during the course of the meeting. Most countries considered it feasible to compile data at these higher spatial resolution in due course, but that would

require further national efforts. For the most recent years most countries would also be able to provide data split by ICES Rectangles.

The data presented comprised effort from directed deep-water fisheries and effort from other fisheries where deep-water species are a by-catch. If management of effort rather than catches (TACs) is a goal, then an attempt to define 'directed' and 'by-catch' effort will be required. A very loose attempt was made to flag these effort types in summary tables. A more robust approach was considered beyond the scope of this meeting.

It should be noted that more detailed effort data, such as total length of groundrope in trawl fisheries, are rarely available. The use of effort measures of this type are essential if the effect of technological creep on effort management measures is to be minimised.

8 Conclusions

- The Working Group attempted to compile landings data for the NEAFC Convention Area, split by ICES Sub-areas and Divisions, national EEZs and the NEAFC Regulatory Area. The data available are given in a set of worksheets, and essential information on data sources and quality is given in the text or on the files.
- Some landings data by ICES Statistical Rectangle was also available, primarily for the most recent years. The dataset at this spatial resolution is far from complete.
- The definition of deep-sea species given in the Terms of Reference was somewhat vague and that caused uncertainty with regards to what species to include. This may have resulted in some, but probably not major, inconsistencies.
- It continues to be impossible to provide consistent series of species-specific landings data for sharks.
- It was discovered that the landings data provided to the Working Group were in some cases inconsistent with the ICES Fisheries Statistics (Statlant data, 1973-1999). The basic national data would need to be investigated to clarify why such inconsistencies exist.
- It was felt that better progress with the collation of effort data could have been made if the units of effort had been specified in the Terms of Reference. The units used by the Working Group are provisional and the Group would welcome further comment and guidance from scientists attending the NEAFC Technical Meeting later in March. It is particularly important that effort units for future data collection are specified and agreed by all Contracting Parties.
- Effort data for trawlers, longliners and gillnetters were compiled as far as possible for the same geographical areas as used for landings data, but a consistent dataset using a common set of effort measures could not yet be provided with the data at hand.
- Many delegates expressed that, with time and additional national effort, some of the landings and effort data series could be improved significantly.
- If it is decided that the Working Group should meet again in the near future, the mandate of the group should include precise expressions of the data needs

and templates for data entry. Greater emphasis on intersessional work and deadlines for contributions in advance of a meeting would be required.

- Interaction with the Working Group on Technical Regulation Measures should clarify in greater detail what additional data are required to achieve a better basis for alternative regulatory measures proposed.

9 Submission of data after the meeting

Some delegations indicated that it would be possible to submit revised or new datasets in the week following the meeting, i.e. prior to the meeting of the Working Group on Technical Regulations. Recognising that there would be no opportunity to revise the text of the report, it was decided to accept revised datasets for landings or effort. Such contributions should be submitted to the NEAFC Secretary for inclusion in the set of workbooks already produced at the meeting.

10 Future meetings

The Working Group did not plan any future meetings, but recognised that the process towards implementation of regulations might require both further data collation and discussions of relevant data collection requirements. This might require the Working Group to meet at a later stage.

11 List of appendices

The appendices are electronic versions of landings and effort tables, and are available on the visitor drive of the NEAFC HQ.

Landings:

Appendix Table I. Denmark (Excl. Faroe Islands and Greenland)

Appendix Table II. Faroe Islands.

Appendix Table III. Greenland.

Appendix Table IV. Germany.

Appendix Table V. France.

Appendix Table VI. Spain.

Appendix Table VII. Netherlands.

Appendix Table VIII. Ireland.

Appendix Table IX. Portugal.

Appendix Table X. United Kingdom.

Appendix Table XI. Iceland.

Appendix Table XII. Norway.

Appendix Table XIII. Poland

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Effort:

Appendix Table XV. Germany

Appendix Table XVI. Denmark (Excl. Faroe Islands and Greenland)

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