



REPORT FOR SECOND ANNUAL MEETING RE
FISHERY STATISTICS IN THE CONVENTION AREA

Introduction

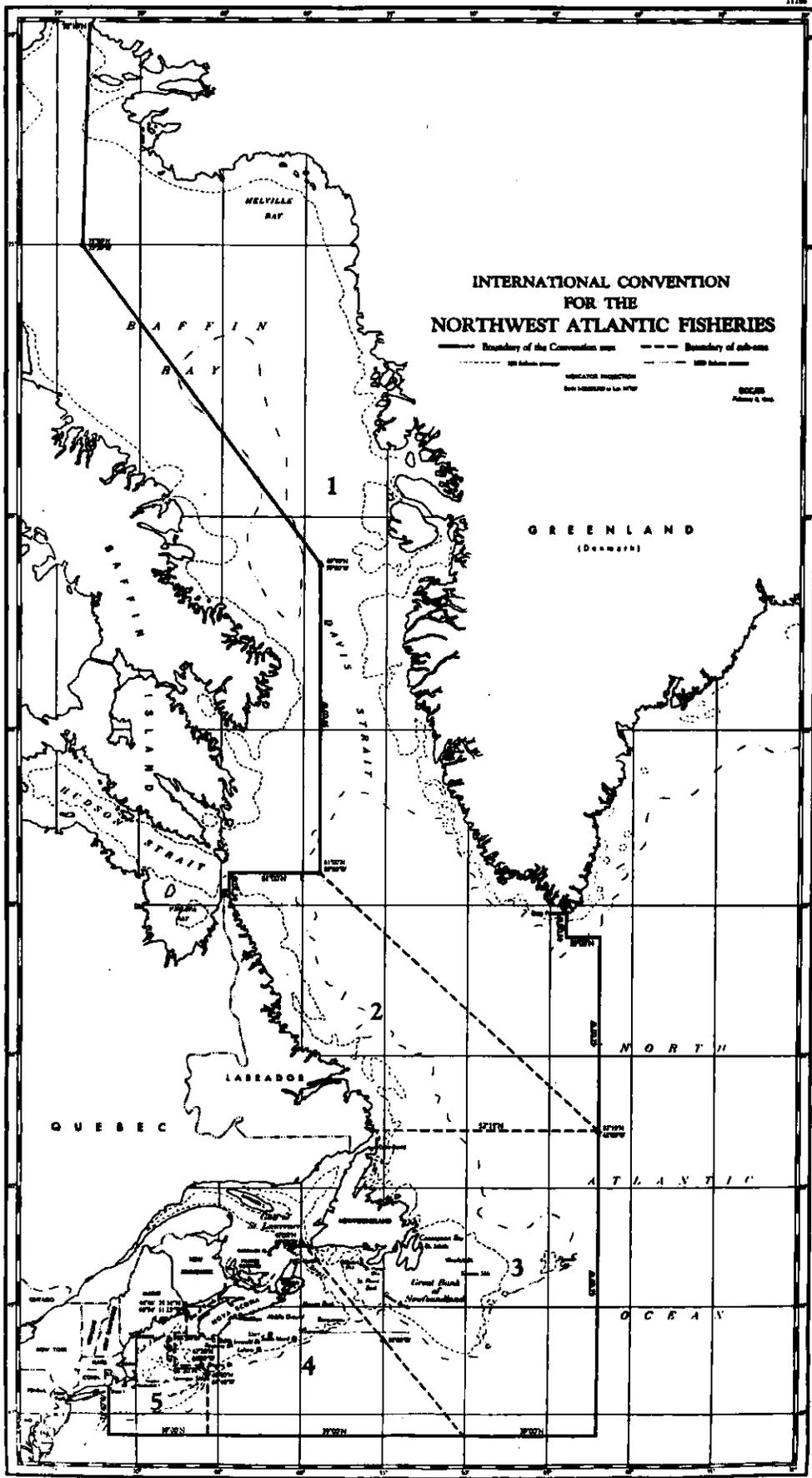
The basic statistical requirements of the Commission, adopted at the First Annual Meeting in April 1951, are as follows:

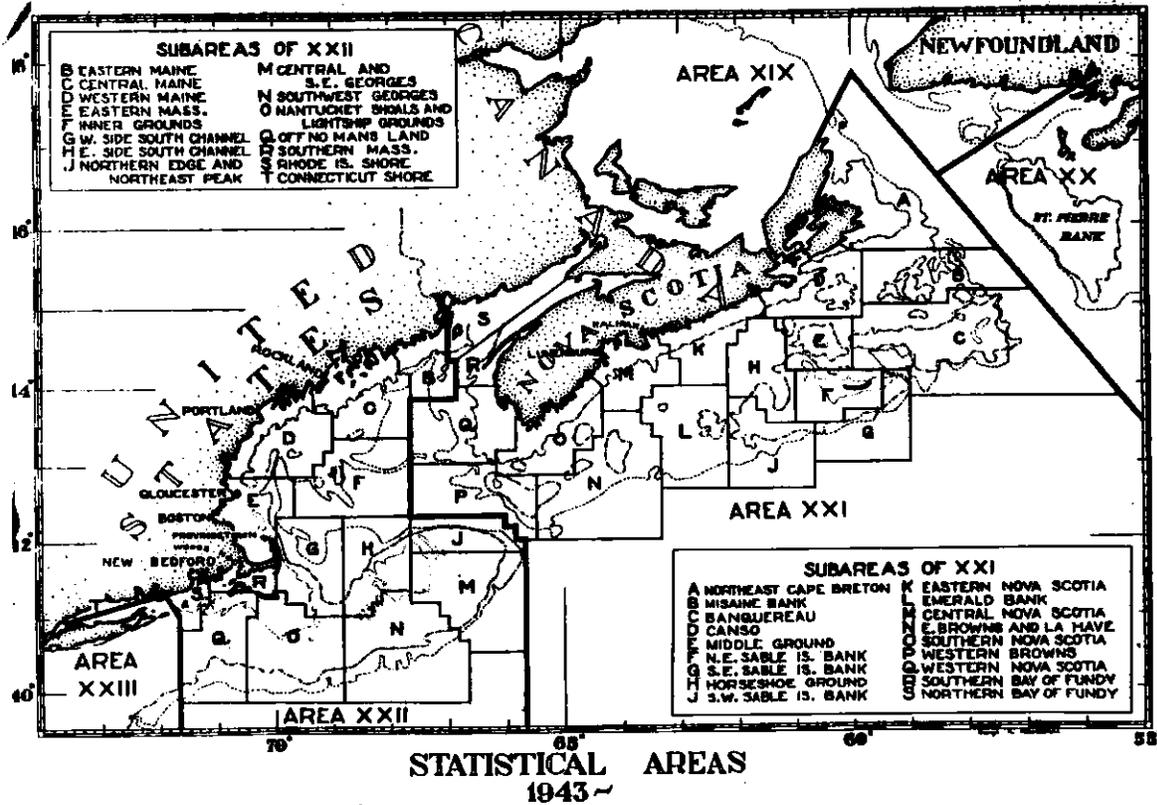
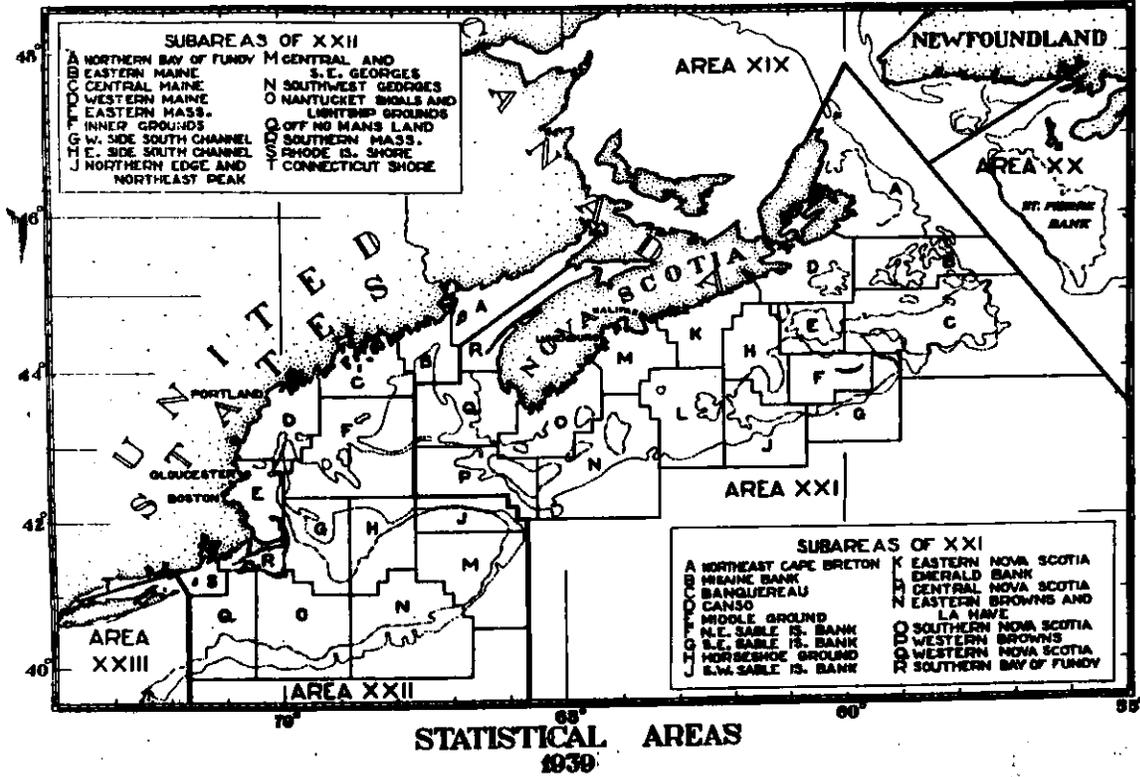
- (a) the total weights landed annually in statistical regions corresponding to the Commission's Subareas, by species for at least five principal species and by commercial size categories for those species commonly culled;
- (b) data on fishing effort expended per annum, (such as, for example, number of days absent from port by fishing vessels, number of vessel-days spent in actual fishing, etc.); and
- (c) estimates of the quantities caught but not landed, for each of the principal species.

The Executive Secretary was instructed to review the fisheries statistics for the Convention area and report at the Second Annual Meeting on the adequacy of the statistics and on the problems involved in improving them.

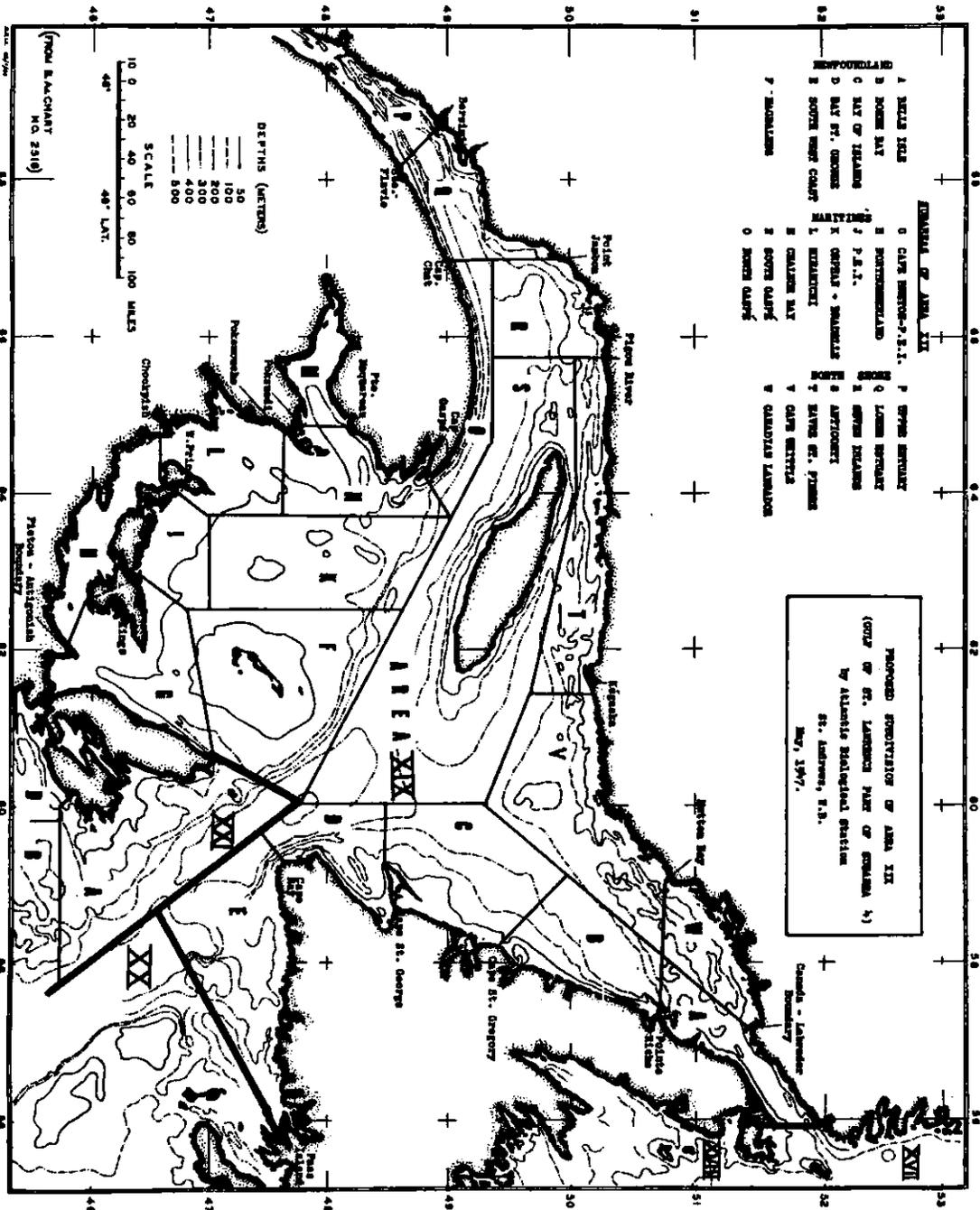
Preliminary Report

A preliminary report concerning the statistical requirements of the Commission was distributed in April, 1952 with the notice of the meeting of the Standing Committee on Research and Statistics. The general availability of the required statistics was summarized and the inadequacy of existing published statistics for the Convention area was pointed out. It was recommended that the basic statistics required by the Commission should be collected by Contracting Governments for final compilation and publication by the Commission. Such procedure would provide complete, current and equivalent statistics which, together with an understanding of the factors responsible for catch fluctuations, form the basis for predicting and controlling the catch.





- (1) Statistical subareas adopted in 1939 by North American Council on Fishery Investigation for biostatistical data.
- (2) Revision of (1) adopted in 1943 by the United States.



Summaries of Statistics for all countries fishing in the Convention Area

Another report, distributed in June 1952, presents summaries of statistics for all countries fishing in the Northwest Atlantic Convention area. These statistics have not been summarized to give an overall picture but they serve to point out the type of statistics available and the potentialities for developing an adequate long-term review which might be followed up by annual statistical summaries published by the Commission.

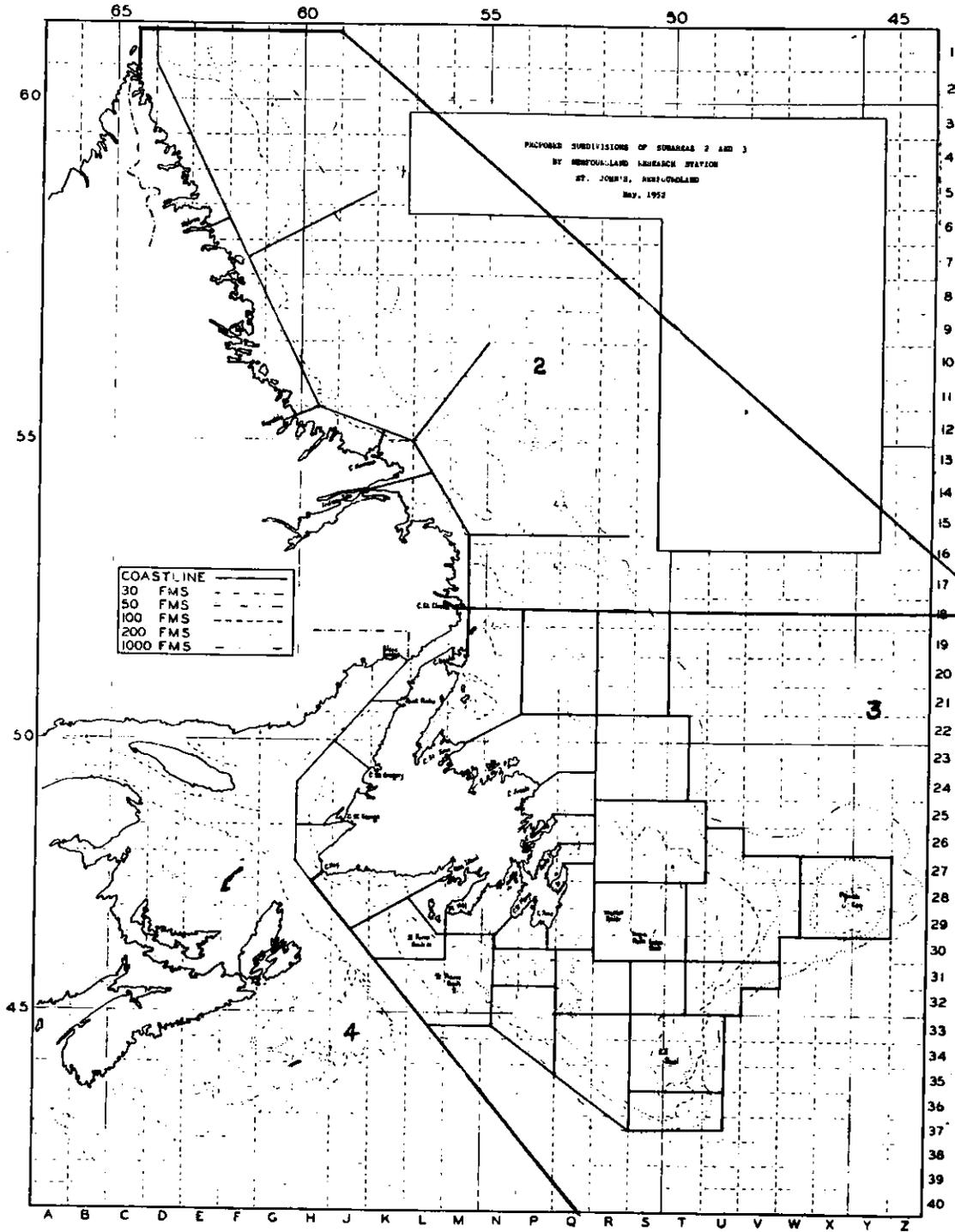
Review of Statistics available to Commission

The fisheries statisticians and biologists in all Commission countries have been most cooperative in compiling statistics for the Commission. In such cases as Italy and Spain the statistics have been compiled for the first time. In others, such as Canada and the United States, the existing statistics have been reanalysed and recompiled to meet Commission requirements. In all cases a great deal of time and effort has been allotted by individual countries to this work.

All countries fishing in the Northwest Atlantic Ocean are now able to record their total landings from the Convention area but the degree of detail and the period for which annual statistics are available varies widely among countries.

Area fished

Total catch from the whole Convention Area is now available from all countries and a considerable amount of information is available for back years. Six countries have been able to allocate landings to the Subareas from which the catches were taken but landings of salt fish in the southern group of European countries (France, Italy, Portugal and Spain) have not yet been broken down in this way. Arrangements have already



Proposed subdivisions of Subareas 2 and 3 by Newfoundland Research Station, St. John's, Newfoundland. May, 1952.

been made to improve this situation and it is expected that catch statistics will be available by Subarea for all countries fishing in the Northwest Atlantic Ocean in 1952.

The potentiality for obtaining Commission Statistics by smaller statistical unit areas is worthy of consideration. The Subareas are very large and there is much to be gained by collecting statistics by smaller fishing areas. The North American Council on Fishery Investigations accordingly adopted in 1939 a subdivision of the statistical Areas XXI and XXII (almost identical with Commission Subareas 4 and 5) for tabulation of all biostatistical data. Minor revisions of this breakdown were adopted by the United States in 1943. These unit areas are shown in the accompanying figure. Similarly Area XIX (the Gulf of St. Lawrence portion of Subarea 4) was subdivided in 1947 by the Atlantic Biological Station* as a basis for collecting adequate groundfish statistics for that area. The Newfoundland Research Station* has now proposed a breakdown of the Labrador and Newfoundland fishing grounds which conforms with knowledge of groundfish populations and distribution of fishing effort. These proposed statistical subdivisions are shown in the accompanying figures. Dr. Hansen shows a breakdown of the Greenland area into a number of districts in figure 1 of his report 'Statistics concerning the Fishery of the Greenland population in Subarea 1'. The general basis for subdividing the Convention Subareas is therefore available if it is considered to be desirable to collect statistics in greater detail than that proposed at the First Annual Meeting of the Commission. Five of the countries already collect statistics in this detail and it is possible that the others may be willing to do so.

* Fisheries Research Board of Canada

Species

Species other than cod are becoming increasingly important in commercial landings from the Convention Area. In most cases the statistics are broken down by species but there is considerable confusion with regard to the common names used. These names not only differ from one country to another but different common names may be used within a single country. The names are commonly confused with those used for groundfish of the Northeast Atlantic Ocean, particularly for species which have not been landed in great quantities. A preliminary tabulation of the common names, as referred to their scientific names, is presented but there is a need for follow-up action in order to clarify this situation. It is suggested that agreement should be reached within the Commission concerning acceptable scientific and common names for each language or country. This might be followed up by publication of illustrations of all species of interest to the Commission together with a listing of scientific and common names and biological notes concerning each.

Sizes

It is common practice to cull landings by size categories and statistics may be improved if collected in relation to sizes landed. It is important to define carefully the various size categories used in each country, in order that acceptable standard size groups may be established. The statistics must of course be related to the fishing gear because of differences in gear selectivity for size.

Conversion factors

Records of landings are not equivalent either in units of measure or condition of fish weighed out. Landed weights are recorded in pounds, hundredweights, (100 or 112 pounds), quintals,

COMMON NAMES OF GROUND FISH AS USED BY COUNTRIES FISHING NORTHWEST ATLANTIC OCEAN

	U.S.A.	Canada	Iceland	Norway	Denmark	Faroes	U.K.	France	Spain	Portugal	Italy
<u>centricus</u>	Cod	Cod	Torskur Smá- fiskur	Torsk Skrei	Torsk Kabliu	Torskur Fiskur	Cod Codling	Morue Cabill- laud	Bacalao	Bacalhau	Baccala Merluzzo
<u>gladius</u>	Haddock	Haddock	Ýsa	Hýse Kolje	Kuller	Hýsa	Haddock	Eglefin Aiglefin Ánon	Eglefino Ánon	Anão	
<u>gladius</u>	Pollock	Pollock	Ufsi	Sei	Sei Gråsej	Seidur	Saithe Coalfish Green Cod Coley Rock Salmon Scotch Hake	Colin Lieu noir Merlan noir			
<u>gladius</u>	Hake	Hake	Lilla brosma	Skjell- brosme Stein- brosme	Skael- brosme		Forkbeard Greater forkbeard Forked Hake	Petite lingue	Brótola de fango Brótola Locha	Abrotea	Mustella Fica
<u>gladius</u>			Lýr	Lýr	Lubbe Blasej		Pollack Dover Hake Margate Hake Grass Whiting	Lieu jaune Lieu Colin jaune	Abadejo Abadejo del norte	Badejo Juliana	
<u>gladius</u>	Halibut	Halibut	Lúða Heilag- fiski Flydra	Kveite	Helle- flynder	Kalvi	Halibut	Flétan	Hipogloso		
<u>gladius</u>	Cusk	Cusk	Keila	Brosme	Brosme	Brosma	Tusk Torsk Cusk	Brosme	Brosmio		
<u>gladius</u>	Green- land halibut	Green- land halibut	Grálúða Svarta- ska	Blá- kveite Svart- kveite	Helle- fisk	Svart- kalvi	Greenland halibut Halibut	Flétan noir Turbot de			

<u>lypto-</u> <u>cephalus</u> <u>synoglossus</u> <u>euronectes</u> <u>synoglossus</u>	Gray Sole	Yellow- tail Witch	Lang- lúra	Smgr- flyndre	Skaer- ising	Lálla	Witch Pole-dab Torbay sole Pole flounder	Plie Plie cyno- glosse		
<u>ppoglos-</u> <u>oides</u> <u>platessoides</u> <u>tepanopsetta</u> <u>platessoides</u>	Dab	Plaice Dab		<i>Sjap flyndre</i>		Hvassa- sprek	Rough-back Long rough dab	Balal		
<u>zichthys</u> <u>linor</u> <u>parhichas</u> <u>linor</u>		Spotted Wolf- fish		Flekk- stein- bit		Lýri	Rockfish Spotted sea-cat			
<u>parhichas</u> <u>lupus</u>	Wolf- fish Catfish	Wolf- fish Catfish	Stein- bitur	Grá- stein- bit	Havkat Kotelet- fisk	Stein- býtur	Rockfish Catfish Wolfish Seawolf	Anarrhique loup Loup de mer		
<u>parhichas</u> <u>latifrons</u>		Broad headed Wolf- fish		<i>Blá stein bit</i>		Blá- gomur	Rockfish Blue seacat	Poisson- loup		
<u>parhichas</u> <u>lenticulatus</u>										
<u>abastes</u> <u>marinus</u>	Ocean perch Redfish	Rose- fish Redfish	Karfi	Uer Ródfisk	Ródfisk	Stori kong- fiskur	Redfish Norway haddock Redbårsh Soldier	Eglevin de Norvège Chèvre Perche de Mer	Gallineta	Canta- filho

MINISTRY OF AGRICULTURE AND FISHERIES **NOTES.**
FORM D (British 1st class landings)

Name of Vessel		CODE	Day of landing		CODE
Registered Letter and No.			Month .. .	Year .. .	
Class of Vessel			Port		
Method of Propulsion			Vessel No.		
Method of Capture			Serial No.		
Region			Particulars of fishing grounds		
Rectangle			Latitude		
No. of hauls	Area swept (sq. miles)		Longitude		
No. of hours fishing			Bearings		
No. of voyages			Class code		
No. of days absent			TOTALS		
Class code			TOTALS		
Total value of catch	CODE	1	2	3	TOTALS
\$	↓	WEEKS	HEADLINGS	QUITS	Cwt.
Bream	1-01-0				
Brill	Large ... 1-02-1				
	Small ... 1-02-3				
	Unsorted 1-02-4				
Codfish	1-03-0				
Cod	Large ... 1-04-1				
	Medium 1-04-2				
	Small ... 1-04-3				
	Unsorted 1-04-4				
Conger Eels	1-05-0				
Dabs, Long Rough	1-06-0				
Dabs, other	1-06-0				
Dogfish	1-07-0				
Dory	1-08-0				
Flounders or Flukes	1-10-0				
Gurnards and Latchets	1-11-0				
Haddock	Large ... 1-12-1				
	Medium 1-12-2				
	Small ... 1-12-3				
	Unsorted 1-12-4				
Hake	Large ... 1-13-1				
	Medium 1-13-2				
	Small ... 1-13-3				
	Unsorted 1-13-4				
Halibut	Large ... 1-14-1				
	Medium 1-14-2				
	Small ... 1-14-3				
	Unsorted 1-14-4				
Lemon Sole	Large ... 1-15-1				
	Small ... 1-15-3				
	Unsorted 1-15-4				
Ling	1-16-0				
Carried forward .. out.					

Form 721 F.M.

over

		CODE	1	2	3	TOTALS
		↓	WEEKS	HEADLINGS	QUITS	Cwt.
			Cwt.	Cwt.	Cwt.	Cwt.
Brought forward ..						
Mergins	Large ... 1-17-1					
	Small ... 1-17-3					
	Unsorted 1-17-4					
Monks or Anglers	1-18-0					
Mullet, Red	1-19-0					
Plaice	Large ... 1-20-1					
	Medium 1-20-2					
	Small ... 1-20-3					
	Unsorted 1-20-4					
Pollack	1-21-0					
Redfish	1-22-0					
Saithe (Coalfish)	1-23-0					
Skates and Rays	1-24-0			(Wings)		
Sole	Large ... 1-25-1					
	Medium 1-25-2					
	Small ... 1-25-3					
	Unsorted 1-25-4					
Tusk (Tusk)	1-26-0					
Turbot	Large ... 1-27-1					
	Small ... 1-27-3					
	Unsorted 1-27-4					
Whiting	1-28-0					
Witches	Large ... 1-29-1					
	Small ... 1-29-3					
	Unsorted 1-29-4					
	Livers	1-30-0				
Ross	1-31-0					
All other (see 1-32-0)	1-32-0					
Total Demersal						
Herrings	2-51-0					
Mackerel	2-52-0					
Total Wet Fish						

Base Wreckers (H) 1946 (1) 1946 (2) 1946 (3) 1946 (4) 1946 (5) 1946 (6) 1946 (7) 1946 (8) 1946 (9) 1946 (10) 1946 (11) 1946 (12) 1946 (13) 1946 (14) 1946 (15) 1946 (16) 1946 (17) 1946 (18) 1946 (19) 1946 (20) 1946 (21) 1946 (22) 1946 (23) 1946 (24) 1946 (25) 1946 (26) 1946 (27) 1946 (28) 1946 (29) 1946 (30) 1946 (31) 1946 (32) 1946 (33) 1946 (34) 1946 (35) 1946 (36) 1946 (37) 1946 (38) 1946 (39) 1946 (40) 1946 (41) 1946 (42) 1946 (43) 1946 (44) 1946 (45) 1946 (46) 1946 (47) 1946 (48) 1946 (49) 1946 (50) 1946 (51) 1946 (52) 1946 (53) 1946 (54) 1946 (55) 1946 (56) 1946 (57) 1946 (58) 1946 (59) 1946 (60) 1946 (61) 1946 (62) 1946 (63) 1946 (64) 1946 (65) 1946 (66) 1946 (67) 1946 (68) 1946 (69) 1946 (70) 1946 (71) 1946 (72) 1946 (73) 1946 (74) 1946 (75) 1946 (76) 1946 (77) 1946 (78) 1946 (79) 1946 (80) 1946 (81) 1946 (82) 1946 (83) 1946 (84) 1946 (85) 1946 (86) 1946 (87) 1946 (88) 1946 (89) 1946 (90) 1946 (91) 1946 (92) 1946 (93) 1946 (94) 1946 (95) 1946 (96) 1946 (97) 1946 (98) 1946 (99) 1946 (100)

Trip record for each landing of 1st Class fishing Vessels in United Kingdom.

kilograms and metric tons and the fish landed may be either green salted, round fresh, head-on gutted fresh, head-off gutted fresh or frozen fillets. In the compilation of statistics for the Commission it is important to state clearly the units of measure used and the condition of the fish landed. It is also important to carry out a thorough investigation of the relationship between the various conditions of landed weights in order that accurate conversion factors may be developed for use in reducing all statistics to a common basis for analysis and publication. It is recommended that the Commission should adopt a standard unit of measure and a standard condition of fish in which commission statistics should be tabulated. It is suggested that Metric Tons - Round Fresh Weight would conform with F.A.O. practice and would satisfy Commission requirements.

Fishing Effort

Statistics of fishing effort are important when considered in relation to statistics of landings. They form the basis for calculation of catch per unit of effort which is related to fish abundance. Such indices of abundance are of primary importance to the Commission for it is of interest to maintain abundance at a level which will permit the maximum catch with a minimum expenditure of fishing effort.

The fishing methods used in the Convention area include gill netting, trapping, hand lining, line trawling, pair trawling and most important of all, otter trawling or dragging. There is great variation in the size of craft used. Otter trawlers, for example, vary in size from less than 50 to more than 1500 gross tons, and line fishermen may operate from small shore boats or from large 50-dory schooners. The great variety of sizes and types of fishing craft must be considered in the calculation of indices of abundance. It would be convenient

Type..... Port.....
Name of Vessel..... Port letters + No.
Owners Agents
Date Built.....Steel or Wood.....Builders
Length Breadth Depth Gross.....
in ft...... in ft. in ft...... Tonnage Net.....
W/T R/T Type D/F Echo Sounder Type
Dynamo K.W.Volts.....Normal no. in crew
Fuel Coal Oil Diesel Petrol Petrol-paraffin
Particulars of motor-engine
.....H.P.

Note. Strike out what does not apply

This type of information is collected in U.K. for each 1st Class fishing vessel. Such an Annual register of fishing craft is required to supplement statistics obtained from trip records.

to adjust the fishing power of all types and sizes of vessel to a standard unit of fishing power and thereby permit the calculation of total effort associated with total catch from any unit area. The British have proposed for the North Sea a Steam-trawler-ton hour as a standard unit of fishing effort (gross tonnage of steam trawler x hours fishing). Fishing effort by any other method could be converted to some such standard as this if suitable conversion factors could be established. The standard practice in the United States is to use a standard group of trawlers as a basis for calculating abundance indices. Some acceptable scheme for classifying and standardizing fishing effort should be developed by the Commission. For the present it is recommended that an inventory of fishing craft should be recorded. Individual boat registry cards of the type shown in the accompanying figure would serve to form the basis for development of a satisfactory statistical system for recording effort in standard units. There may be sufficient data available in such countries as the United States to establish certain standard units with suitable conversion factors.

Various indices of fishing effort are recorded in fisheries statistics. These include days absent from port, days fished, hours fished, man-days or -hours fished, dory days or hours, lines fished and trap days. Some of the statistics reports submitted to the Commission have included measures of fishing effort but these data are far from complete. Effort statistics are available in much greater detail in many of the countries concerned and it is recommended that the Commission should explore fully all sources of information in order to compile the best long-term indices of abundance for the most important species caught in the Convention Area. In Spain, for example, the Acting Executive Secretary learned that the fishing company

PYSBE has detailed records of all individual trips to the fishing banks extending back to 1933. Such sources of information can provide a great deal of knowledge concerning long-term trends in the fisheries of the Convention Area. The Commission would profit from a thorough study of effort statistics now available and from the collection of more detailed effort statistics in countries where they are not already recorded. It is suggested that this work may be most effectively initiated by arranging for an extended trip by the Commission Statistician to Western Europe in the autumn of 1952.

Good indices of abundance may be established through the development of adequate sampling techniques. Effort statistics are difficult to collect completely and in detail but accurate, detailed statistics for only part of the total fleet will provide valuable catch-per-unit-effort data. A great deal of effort may be saved by exploring suitable sampling techniques and it is recommended that the Standing Committee on Research and Statistics should explore this field in order that the Commission may have adequate statistics without unnecessary work.

Individual Trip Reports

The compilation of Commission statistics depends for success on the collection of individual trip reports for all vessels fishing in the International waters of the Convention Area. Each trip report should give detailed information on area fished, fishing effort and catch. Such basic records may then be analysed by each country to meet both local requirements and those of the Commission.

In the accompanying figures some of the basic fisheries-statistics forms used in Canada, Spain, United Kingdom and United States are shown. Either one or two forms may be used but fundamentally information must be obtained from the Captain concerning fishing operations and from the buyer concerning weighed-out

landings. Both log-record and interview systems are used to record fishing operations.

At the request of two of the southern European countries a suggested statistical form was drawn up as a guide for developing their statistics in the form required by the Commission. The suggested form is shown in the accompanying figure. Italy, Portugal and Spain are now collecting their basic statistics along this general pattern. The Spanish-statistics form which was adopted during the current year is shown in the statistical report 'Spanish Fishing in the Northwest Atlantic Ocean Results of 1951 Campaign'. The use of some such form encourages uniformity and completeness of statistics but should not be mandatory. It might be improved and made available to countries who may request assistance of this kind.

Time Factor

Fishing trips to the Convention Area vary in length from one day to six months. It is accordingly most convenient to compile statistics annually rather than by months or seasons.

If statistics are to be collected in greater detail relative to area fished, as suggested in the pertinent section above, then the time unit of one year should be reduced to a smaller unit of a season or month. This is necessitated by the extensive seasonal movements of groundfish within each Subarea.

It is most important that uniform records are kept over a long-term period of years in order that changes in the fishery may be recognized.

Catch not landed

In addition to fish landed there are large quantities of fish which are caught but not landed. It is important to the Commission to obtain information on the total quantities of fish taken by fishing. The catch not landed can be best measured by

SUGGESTED TYPE OF TRIP RECORD REQUIRED
AS BASIS FOR ICNAF STATISTICS

Name or
No. of
Vessel Gross Tonnage Port of Landing Country

No. of
Trip Sailing Date Landing Date Days absent from port Year 19..

NORTHWEST ATLANTIC AREA

OTHER

	<u>Greenland</u> I	<u>Labrador</u> II	<u>Newfoundland</u> III	<u>Nova Scotia</u> IV	
Days fished
Banks
Depths
Estimated Catch					
Cod
Haddock
Pollock
Hake
Halibut
.....
Caught but not landed

Remarks:

Signed:
 Captain

FISH LANDED

	<u>Green Salted</u>	<u>Frozen Fillets</u>	<u>Fresh Head off Guttled</u>	<u>Fresh Head on Guttled</u>	<u>Fresh Round</u>
Cod					
Large
Medium
Small
Haddock
Pollock
Hake
Halibut
.....
.....

Remarks:

Signed:
 Owner

- Note: (1) Please record units used; Metric Tons, Pounds, etc., Meters, Fathoms, etc.
(2) Give weights in terms of fish as landed.
(3) Poor quality landed fish should be included in totals.

sending observers to sea and some of the countries have made observations of fish wastage by this method. The work is very time consuming and difficult. The United States now has two observers employed for this work in order to obtain continuous measurements at sea and the Canadian-East-Coast Biological Stations are making observations throughout the year. Adequate measurement of catches not landed will depend on a greater number of trips to sea by trained observers than has been carried out to date.

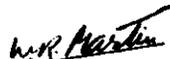
Sampling at sea should be supplemented by records from fishing captains of their assessment of fish discarded at sea. The relationship between measurements and captains' estimates will form the basis for arriving at the most effective method for obtaining useful catch-not-landed statistics.

Summary of Recommendations

1. In order to have complete, current and equivalent statistics of fishing in the Convention Area the basic statistics should be collected by each country and submitted promptly for final compilation and publication by the Commission.
2. Consideration should be given to the desirability of subdividing the Subareas into smaller unit areas for tabulation of all biostatistical data. Proposals for such subdivision have been partially developed.
3. Agreement should be reached concerning acceptable scientific and common names. Publication of illustrations and other information concerning each of the commercially important species would serve to correct much of the present confusion in tabulating statistics by species.
4. Definition of size categories commonly culled and establishment of acceptable standard size groups are desirable.

5. Standard units of measure and condition of fish should be adopted for recording Commission statistics. Metric Tons and Round Fresh Weight are suggested. Accurate conversion factors must be developed in order that quantities landed may be readily converted to Commission standards.
6. An inventory of fishing craft based on boat registry cards should be recorded annually for each country.
7. The Commission would profit from a thorough study of effort statistics now available and from the collection of more detailed effort statistics in countries where they are not already available. It is suggested that this work may be most effectively initiated by arranging for an extended trip by the Commission statistician to western Europe in the autumn of 1952.
8. Sampling techniques may be developed which will save work and still provide the Commission with adequate indices of abundance.
9. Improved statistics for the Convention Area will depend largely on the development of a system of individual trip reports for all vessels. The Commission secretariat should offer assistance with the establishment of this system whenever requested.
10. Annual statistics should be broken down by seasons or months if it is decided that statistics are required in greater detail than by Subareas.
11. Standardized statistics must be collected and compiled over a long-term period of years to be of value to the Commission.
12. Adequate sampling of the catch which is not landed depends on observations at sea by trained technicians. These measurements should be supplemented with estimates by fishing captains concerning fish discarded at sea.

June 1952.


W.R. Martin,
Acting Executive Secretary.