ISSN 0074-2686

INTERNATIONAL COMMISSION

FOR THE

NORTHWEST ATLANTIC FISHERIES

SAMPLING YEARBOOK

Vol. 21

for the year

1976

Dartmouth • Canada

December 1978

PREFACE

The ICNAF Sampling Yearbook has been issued annually since 1958 and has played a fundamental role in fish stock assessments carried out by the Assessments Subcommittee of STACRES. With the recent introduction of more rigorous sampling requirements and the greatly increased coverage of species and areas, the volume of sampling data has increased steadily with time. Consequently, the publication of the traditional volume of length and age frequencies and age-length keys was discontinued after Vol. 17 for 1972 and replaced by an annual listing of commercial and research sampling data contributed by member countries.

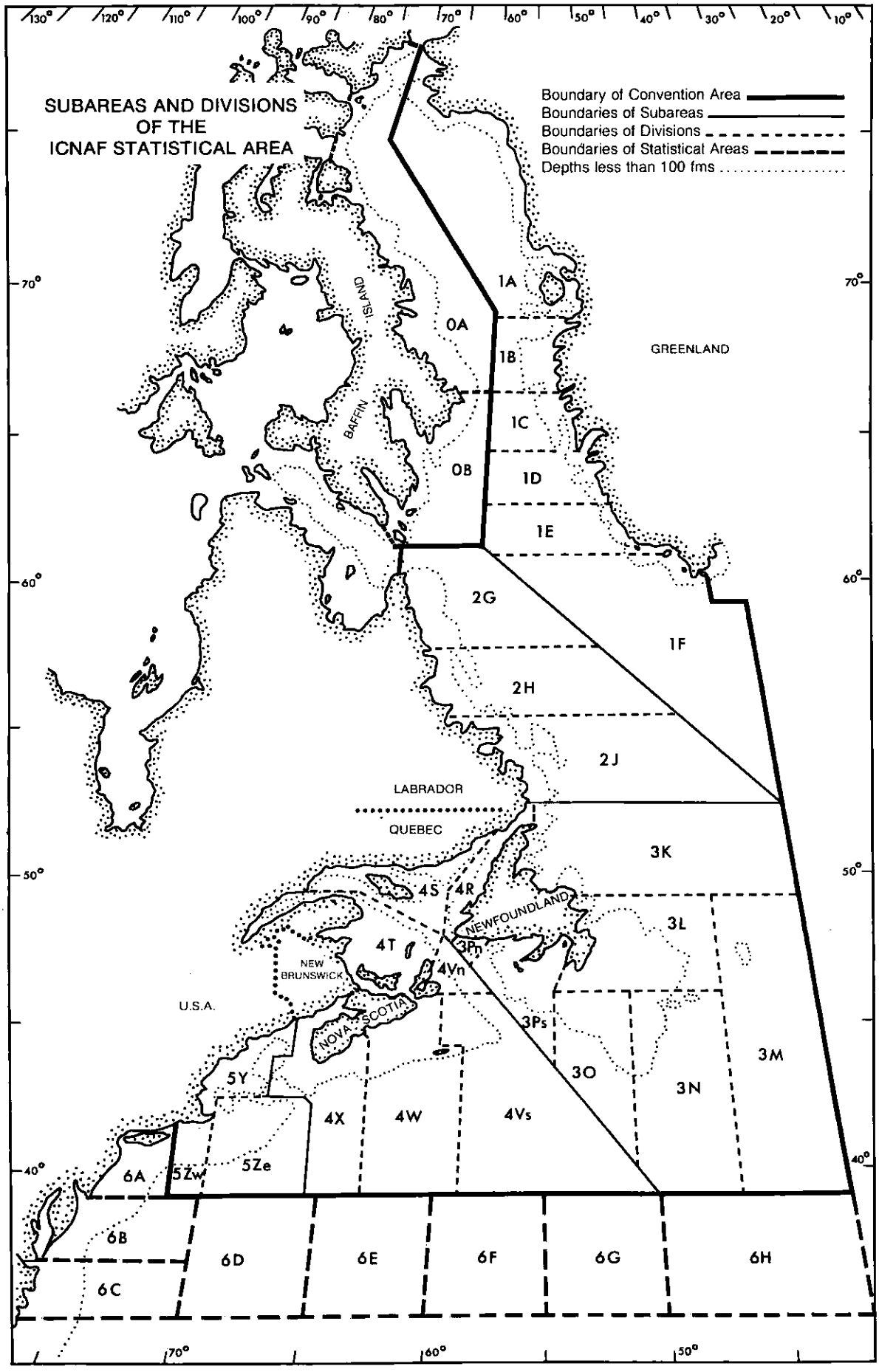
This issue of Sampling Yearbook is set out in four parts: Part 1 describes the ICNAF sampling requirements; Part 2 contains a list of countries which reported data for 1976; Part 3 contains, in a series of tables arranged by species, lists of available 1976 sampling data pertaining to commercial fisheries; and Part 4 contains a list of research sampling data for 1976.

All available commercially-oriented sampling data for 1973 onwards have been computerized to provide for the rapid retrieval of data on computer printouts to meet specific requests. Copies of length frequencies, age-length keys and computed age frequencies (where applicable) will be forwarded upon request to institutions and/or individual scientists involved in the Commission's work. All requests should specify the actual sampling data required, indicating at least the species, country and division.

The Secretariat is grateful to those countries who have contributed sampling data and to those scientists who have continued to support the Commission's need for more adequate sampling of the Northwest Atlantic fisheries with a view to providing better assessments of the stocks.

December 5, 1978

V. M. Hodder
Assistant Executive Secretary


SUBAREAS AND DIVISIONS
OF THE
ICNAF STATISTICAL AREA
Boundary of Convention Area
Boundaries of Subareas
Boundaries of Divisions
Boundaries of Statistical Areas
Depths less than 100 fms
130°
120°
110°
100°
90°
80°
70°
60°
50°
40°
30°
20°
10°
70°
60°
50°
40°
BAFFIN ISLAND
GREENLAND
LABRADOR
QUEBEC
NEWFOUNDLAND
NEW BRUNSWICK
NOVA SCOTIA
U.S.A.
0A
0B
1A
1B
1C
1D
1E
1F
2G
2H
2J
3K
3L
3M
3N
3O
3Ps
3Pn
4R
4S
4T
4Vn
4Vs
4W
4X
5Y
5Ze
5Zw
6A
6B
6C
6D
6E
6F
6G
6H

CONTENTS

PART 1

ICNAF Sampling Program

1. Introduction

In "A Fishery Research Program for the Northwest Atlantic", adopted by the Commission at its 1953 Annual Meeting (*ICNAF Annu. Proc.*, Vol. 3, page 23), the need for catch sampling is emphasized as follows: "In order to recognize the effect of fishing, it is necessary to record the lengths of the fish in adequate samples of catches, showing fish discarded and fish retained. This is considered essential for all the fisheries for the important species by all the participating countries throughout the Convention Area. The total range of fish caught can be sampled only at sea by specially trained observers. The sea sampling of the sizes retained should be supplemented by sampling of landings ashore."

At its 1956 Annual Meeting, the Commission approved the following recommendation of the Standing Committee on Research and Statistics (STACRES): "For each species sampled, each country should report to the Secretariat the sizes, ages, weights and sexes of the fish sampled by place and time of capture. The Commission should publish these statistics" (*ICNAF Annu. Proc.*, Vol. 6, page 11). The first issue of Sampling Yearbook was published in 1958, containing sampling data for the years 1955 and 1956. This was the beginning of the ICNAF sampling program.

During the years since the inception of the program, there have been many recommendations for improvements in relation to both the quantity and quality of the required data, and the need for full participation by member countries. In Volume 19 of ICNAF Sampling Yearbook, a first attempt was made to outline the present sampling requirements. The outline, along with proposed changes, was reviewed and endorsed by the Sampling and Statistics Subcommittee of STACRES in 1976 (*ICNAF Redbook* 1976, page 130).

2. Minimum Sampling Requirements

At its 1974 Annual Meeting, STACRES reviewed several aspects of the sampling program. In reiterating the necessity for all member countries to adequately sample their commercial fisheries for length and age composition of catches, the minimum sampling requirement was revised to read as follows:

"That the ICNAF sampling requirement should be specified at one sample per 1,000 tons of fish caught for each division, quarter of year, and gear. As an approximate guideline, such samples should consist of 200 fish from the entire length range for length composition and one fish per centimeter length group for age composition."

Sampling data must be "in sufficient quantity and detail to enable the calculation of the length and age composition of the commercial catches by stock area on a monthly basis" (*ICNAF Redbook* 1973, page 54). However, it is emphasized that the sampling data must be reported by division (or subdivision, where applicable) and not by stock area, in order to achieve uniformity in reporting and subsequent data-processing. Furthermore, in cases where the data for a species are required to be reported by sex, it is necessary that twice the number of specimens be collected for length and ageing in order to produce usable age-length keys.

The reported length frequency data should reflect the length composition of the catches made in each division (or subdivision) and month. Sampling should be more frequent when catches are high, and appropriate weighting should be applied to the individual samples to ensure that the monthly length frequencies represent the monthly catches.

3. Source of Sampling Data

In the past, sampling data have usually been classified as research, exploratory or commercial, depending on the type of fishing operations being undertaken at the time when the samples were collected. There has often been some confusion over the use of the terms, particularly in regard to the applicability of the various types of sampling data for assessment work, and some clarification is necessary.

a) Research. These samples are taken on true research vessels, operating independently of the commercial fishing fleet and using true research vessel fishing gear (e.g. otter trawl, with codend meshes considerably different from those in commercial trawls, or with codends lined or covered with small-meshed material irrespective of the mesh size of the codend). Because these

samples are not representative of commercial operations, they cannot be applied to the nominal catches, but are often of value for predicting future recruitment. Research samples are usually the outcome of survey programs to generate abundance and recruitment indices.

b) Commercial. Samples taken from the catches of exploratory and/or commercial fishing vessels using gear normally used for commercial fishing (in accordance with ICNAF trawl regulations, where applicable) should be classified as commercial samples. Such sampling implies that the escapement from the codend is not restricted by codend liners or topside covers or chafers and that the samples are representative of the commercial catches. These samples represent the commercial removals from the stocks and are essential for stock assessments.

In cases where samples are taken from the catches of research and/or exploratory vessels using commercial-type gears (e.g. trawls in which mesh selection is in accordance with the ICNAF mesh regulations), and where the fishing was carried out in association with commercial fishing operations, the data should be reported as "research vessel" data, with a note on the sampling form indicating the applicability of the data to commercial fishing (*ICNAF Redbook* 1977, page 67).

4. Sampling of Catches *versus* Landings

Commercial samples may be taken at sea from catches before any discarding has occurred (the term "discarding", as used here, implies fish thrown overboard and not included in the nominal catches, as opposed to fish used for fishmeal and included in the nominal catch), from catches after discarding, from landed catches at the dock or processing plant prior to discarding, or from landed catches after discarding. Thus commercial samples should be designated by type as follows:

a) Catch. The samples should be designated as catch samples, if it is fairly certain or definitely known that no discarding has occurred prior to sampling, whether the samples are taken from the catches at sea or taken from the landed catch at the dock or in the processing plant.

b) Landing. The samples should be designated as landing samples, whether they are taken at sea or in port, if it is known that discarding of small fish has occurred prior to sampling.

c) Discards. Every effort should be made to obtain representative samples of discarded fish, particularly in cases where the samples reported normally reflect the landings.

In some countries the only opportunity for sampling is of landings of fish that have been sorted into market categories (i.e. large, medium, and small). Samples taken in this way must be properly weighted (by the catch or landing for each category) and combined into a representative sample of the catch (or landings) prior to submission to ICNAF.

5. Length Sampling Data

Length measurements should always be taken of fish which are randomly sampled from the actual catches (or landings) and which are in the natural condition (round fresh fish). If the fish are measured in any other condition (e.g. gutted or dressed), necessitating the use of conversion factors, the appropriate conversion of the length measurements to those representative of "whole fresh" fish should be made before the length frequencies are reported to ICNAF.

At the 1975 Annual Meeting, there was some discussion on the proper length to be measured for the various species, i.e. fork length and total length (*ICNAF Redbook* 1975, page 79). In the light of evidence brought forward that the method of measuring differs among countries for the different species, it was strongly emphasized that information on measuring methods be reported by countries in their annual sampling notes. In order to ensure that the measuring method is recorded for all samples, it was recommended that provision be made on the standard sampling forms for countries to report the type of length measurement appropriate to the sampling data reported on the form. The revised forms (for soliciting 1975 and subsequent sampling data) provide for the recording of the various types of length measurements as follows:

Fork length - from the tip of the snout to the apex of the V forming the fork of the tail, for species with forked tails.

Total length - from the tip of the snout to the tip of the longest lobe of the tail when the lobe is extended posteriorly in line with the body. This is sometimes referred to as greatest total length. For fishes with non-forked tails, only total length is appropriate.

Other (to be specified) - for example, mantle length for squids, upper valve greatest diameter for scallops, carapace length for shrimps, etc.

In addition to indicating the type of length measurement (as noted above), it is very important that countries provide the method of recording the measurements as follows:

Nearest cm (rounded) - measurements are recorded to the nearest centimeter (i.e. fish in the length range 29.5-30.4 cm are actually recorded as 30 cm).

Cm below (truncated) - measurements are recorded to the centimeter below (i.e. fish in the length range 30.0-30.9 cm are recorded as 30 cm).

Other (to be specified) - for example, capelin are to be measured in half-cm units, and should be recorded to the nearest half-cm or half-cm below.

6. Age Sampling Data

In order to assess the status of fish stocks by means of analytical models such as "Virtual Population" or "Cohort" analyses, realistic estimates of the age compositions of the catches are essential. The usual procedure is to collect substantial length composition data as being representative of the commercial catches of a species in a particular area over a given period of time. These data are supplemented by additional material for ageing, from which age-length keys are constructed. The representative length compositions are converted to age compositions by the application of the age-length keys to the length frequencies. These age composition estimates are then weighted by the catches to estimate the removals at age from the stock.

While the samples for length composition represent the basic sampling units, and these must be composed of fish randomly selected from the catches (or landings), samples taken to provide material for ageing may consist of fish which are randomly selected from the catches or which are selected by a stratified procedure:

a) Random sampling for age means that the sample is a random subsample of the length composition or it may be a separate small random sample of the catch taken specifically for ageing, with no attempt made to select fish by length groups.

b) Supplemented random sampling for age implies that the basic age sample was taken as in (a), but some effort is made to supplement the basic sample with fish in the upper and lower parts of the length frequency distribution in order to broaden the length spectrum of the age-length key.

c) Stratified sampling for age implies that a certain number of fish are selected from each length group represented in the catch length composition, and that the fish are selected at random within each length group.

Random age samples are the least effective of the three types, in that the number of specimens in each sample is usually only a fraction of the number of fish in the length sample, and consequently the entire range of the length groups represented by the catch length composition will rarely be covered. Thus ages cannot be properly assigned to those length groups in the length frequency where there are no ages in the corresponding length groups of the age-length key.

In contrast, stratified age samples are the most effective in that the length groups in the length frequency sample are usually also represented in the age-length key. This type of sample is also the most efficient in that the least number of fish are required to be taken for age determination.

7. Length Conversions

If the length measurements of fish taken for ageing are collected from specimens in the "round fresh" condition, the length groups in the length composition sample and those in the age-length key are directly comparable. If, on the other hand, the length composition sample consists of fish measured in the "round fresh" condition and the length measurements of the fish in the age sample are taken after the fish have been in frozen storage for a period of time, and, assuming that some shrinkage has occurred prior to measuring the frozen specimens, then the length intervals of the actual length composition data and of the age-length key are not directly comparable. The application of such an age-length key to the length composition data results in age compositions that are biased toward the higher age-groups. A very small shrinkage factor (say 3%) can result in serious bias in the calculated age compositions. It is therefore extremely important that the length measurements of fish from frozen age samples be adjusted by appropriate conversion factors to make them representative of "round fresh" fish, if the actual length samples are measured when the fish are "round fresh".

8. Weight Conversions

As in catch statistics, the weights reported in sampling data are required to be round fresh weights. Any correction factors that may be required to convert gutted or otherwise dressed fish (including freezing) may be found in "Conversion Factors: North Atlantic Species, 1970. *FAO Bull. Fish. Stat.* No. 25".

The proper application of length frequency data to obtain the length composition of the catch requires that the average weight of fish in the sample be given. This value is readily obtained if the sample weight is recorded at the time the sample is collected. If length sampling is carried out at sea where weighing may be difficult or impossible, the average weight of the reported length frequency should be calculated by applying an appropriate length-weight relationship.

Calculating the mean weight from length-weight regressions must be done with consideration for the possible bias in incorrect appplication. It is not correct to obtain the mean weight by applying the mean length of fish in the sample to a length-weight regression based on measurements of individual fish. The result will be an underestimate of the mean weight and a consequent overestimate of the number of fish in the catch. The non-linearity of the length-weight regression must be taken into account and this is done by applying a vector of weights-at-length to the length frequency.

9. Sampling by Sex

Differences in growth rate and maximum length between the male and female of many species (e.g. flatfishes, hakes, redfish, capelin) require that the sex of the sampled fish be determined. Failure to discriminate sex in these species results in unrealistic age distributions. There are two ways to proceed, the first of which is recommended when feasible:

a) Each sex should be treated as an independent sampling unit; that is, length frequency data and ageing data are collected for male and female as if they were separate species. However, the sex ratio must be reflected in the length frequency total for each sex, so that the "per mille" frequency of male and female combined total 1000. The mean length and the mean weight should always be given for each sex and not just for sexes combined.

b) In cases where sex is difficult to recognize while collecting length frequency data, the alternative is to determine the sex when the individual fish constituting the age samples are being examined. In this case, it is important that the selection of fish at each length interval be random with respect to sex, in order to ensure that the sex ratio of fish at each length interval in the sample reflects the true sex ratio of the corresponding length in the catch. The resulting age-length keys (male and female separate) should upon application to the length frequency (male and female combined) result in age frequencies of males and females that are representative of the age compositions of the catches by sex.

10. Length Intervals and Sexing Criteria

At the 1974 Annual Meeting, the Statistics and Sampling Subcommittee reviewed the length groups to be used for the reporting of length frequencies and age-length keys, for most of the species sampled in the ICNAF Area, and specified the particular species for which it is essential that the data be provided by sex (males and females separately). The following list also includes changes agreed to at the 1975 Annual Meeting:

Species	Length Group
Atlantic cod (*Gadus morhua*)	3 cm
Pollock (=Saithe) (*Pollachius virens*)	3 cm
Cusk (*Brosme brosme*)	3 cm
White hake (*Urophycis tenuis*)	3 cm
Wolffishes (*Anarhichas* sp.)	3 cm
Roundnose grenadier (*Macrourus rupestris*)	3 cm (by sex)
Haddock (*Melanogrammus aeglefinus*)	2 cm
Greenland cod (*Gadus ogac*)	2 cm
Red hake (*Urophycis chuss*)	2 cm
American plaice (*Hippoglossoides platessoides*)	2 cm (by sex)
Witch flounder (*Glyptocephalus cynoglossus*)	2 cm (by sex)
Yellowtail flounder (SA 3-4) (*Limanda ferruginea*)	2 cm (by sex)
Greenland halibut (*Reinhardtius hippoglossoides*)	2 cm (by sex)
Winter flounder (*Pseudopleuronectes americanus*)	2 cm (by sex)
Summer flounder (*Paralichthys dentatus*)	2 cm (by sex)
Redfish (*Sebastes* sp.)	1 cm (by sex)
Silver hake (*Merluccius bilinearis*)[1]	1 cm (by sex)
Yellowtail flounder (SA 5-6) (*Limanda ferruginea*)	1 cm (by sex)
Windowpane flounder (*Scophthalmus Aquosus*)	1 cm (by sex)
Atlantic herring (*Clupea harengus*)	1 cm
Atlantic mackerel (*Scomber scombrus*)[2]	1 cm
Atlantic butterfish (*Peprilus triacanthus*)	1 cm

Species	Length Group
Alewife (*Alosa pseudoharengus*)	1 cm
Atlantic argentine (*Argentina silus*)	1 cm
Squids (*Illex* and *Loligo*)	1 cm
Capelin (*Mallotus villosus*)	½ cm (by sex)
Sea scallops (*Placopecten magellanicus*)	½ cm
Northern deepwater prawn (*Pandalus borealis*)	1 mm (by sex)

Other species not listed above should initially be reported by 1-cm length groups.

[1] At the 1975 Annual Meeting, it was recommended that silver hake be reported by 1-cm length groups and also by sex, instead of by 2-cm length groups as in the past. Length frequencies not reported by sex must be supported by age-length keys for males and females separately.

[2] At the 1975 Annual Meeting, it was recommended that length frequencies and age-length keys reported for mackerel be based on measuring the fork length to the centimeter below.

11. ICNAF Sampling Forms (Rev. 01/77)

The completeness of the ICNAF data base, with regard to sampling data for the major commercial fisheries in the Northwest Atlantic, depends entirely on the extent to which member countries of ICNAF sample the catches of their fishing fleets and report these statistics to the Secretariat. As the ICNAF Sampling Program has gradually evolved over the years since its introduction in the early 1950's, various types of forms have been adopted for use by member countries in reporting their sampling data to the Secretariat. More recently, with the need for standardization to facilitate computer-processing of the data, the basic information required has been consolidated into two forms, referred to as ICNAF Sampling Form 1 and Sampling Form 2.

a) Sampling Form 1 is designed for use in reporting sampling data for species for which both length and age data are available. For each quarter of the year and for each gear, division (or subdivision) and species, a separate sheet must be used. Three columns are provided for recording the "per mille" length frequencies by month within a quarter; it is very important that the applicable length group used be indicated. The main body of the sheet is for the age-length key for the quarter, expressed as the actual numbers of fish sampled for age (not on a "per mille" basis). The bottom section of the form is for providing the "per mille" age composition in each of the three months. The box in the lower right part of the form (number of age samples making up the age-length key) must be completed.

b) Sampling Form 2 is designed for use in reporting length compositions when no age data are available. The layout is similar to Sampling Form 1 except that more columns are provided for recording length frequencies.

For species which are required to be reported by sex, if both length and age data are available for male and female separately, use separate sheets of Sampling Form 1 for reporting the data for each sex. However, the sex ratio must be reflected in the length frequency total for each sex, so that the "per mille" frequency of male and female combined total 1000. For example, if a length frequency consisted of 200 fish, of which 90 were male and 110 were female, then the frequencies recorded on the sampling sheets should total 450 for male and 550 for female, after applying the appropriate conversion factor.

If age-length keys are not normally available for certain species (e.g. squids), the monthly length frequencies (per mille) may be reported on Sampling Form 2. In the case of species required to be reported by sex, the frequencies for male and female should be recorded in adjacent columns of the same sheet and reflect the sex ratio as indicated in the preceding paragraph.

The details required below each length frequency on both Sampling Forms 1 and 2 must be as complete as possible. The "number of samples" (both length and age) and the "number of fish measured" must always be given, as these are used to assess the adequacy of sampling in relation to the minimum sampling requirements. While the mean length of fish in each length frequency can readily be calculated, the "mean weight of fish" in the length frequency is particularly important, as this is used as a weighting factor to estimate the length and age composition of the catch. This weight must, of course, be expressed as "round fresh" weight, as opposed to gutted or otherwise dressed weights. Information on "gear size" and "depth range" is often very useful in evaluating how applicable the sampling data reported are to commercial fishing operations.

INTERNATIONAL COMMISSION FOR THE NORTHWEST ATLANTIC FISHERIES

AGE/LENGTH TABLE FOR SPECIES REPORTED IN 1-CM, 2-CM OR 3-CM LENGTH GROUPS

Year:	Country:	Species:	
Quarter:	Division (or Subdivision):	Gear:	Sex (where applicable):
Research, Exploratory or Commercial Fishing:		Catches or Landings:	Structure used for Ageing:
Check method of measuring fish (✓)	Fork length ☐ Total length ☐	Mantle ☐ Other _____	To nearest cm ☐ To cm below ☐	Reported by:

Check length group used			LENGTH COMPOSITION OF CATCH PER MILLE Months in Quarter			AGE-LENGTH KEY FOR QUARTER (Number sampled by age-group and length)																	
1cm	2cm	3cm																					
1	18-	18-																					
2	20-	21-																					
3	22-	24-																					
4	24-	27-																					
5	26-	30-																					
6	28-	33-																					
7	30-	36-																					
8	32-	39-																					
9	34-	42-																					
0	36-	45-																					
1	38-	48-																					
2	40-	51-																					
3	42-	54-																					
4	44-	57-																					
5	46-	60-																					
6	48-	63-																					
7	50-	66-																					
8	52-	69-																					
9	54-	72-																					
0	56-	75-																					
1	58-	78-																					
2	60-	81-																					
3	62-	84-																					
4	64-	87-																					
5	66-	90-																					
6	68-	93-																					
7	70-	96-																					
8	72-	99-																					
9	74-	102-																					
0	76-	105-																					
1	78-	108-																					
2	80-	111-																					
3	82-	114-																					
4	84-	117-																					
5	86-	120-																					
TOTALS																							

Number of length samples
Number of fish measured in each month
Mean length of fish in each month (mm)
Mean weight of fish in each month (grams)
Range of depths in each month (meters)
Mesh or hook size (mm)

Number of age samples in quarter ☐

AGE COMPOSITION (PER MILLE)

Month \ Age																	TOTAL

Sampling Form 1 (Rev. 01/77)

INTERNATIONAL COMMISSION FOR THE NORTHWEST ATLANTIC FISHERIES

LENGTH FREQUENCIES FOR SPECIES REPORTED IN 1-CM, 2-CM OR 3-CM LENGTH GROUPS

Year:	Country:	Species:	
Quarter:	Division (or Subdivision):	Gear:	Sex (where applicable):
Research, Exploratory or Commercial Fishing:		Catches or Landings:	
Check method of measuring fish (√)	Fork length ☐ Mantle ☐ Total length ☐ Other _____	To nearest cm ☐ To cm below ☐	Reported by:

Check length group used			LENGTH COMPOSITION (PER MILLE) BY MONTH (and sex, where applicable)											
1cm	2cm	3cm												
1	18-	18-												
2	20-	21-												
3	22-	24-												
4	24-	27-												
5	26-	30-												
6	28-	33-												
7	30-	36-												
8	32-	39-												
9	34-	42-												
0	36-	45-												
1	38-	48-												
2	40-	51-												
3	42-	54-												
4	44-	57-												
5	46-	60-												
6	48-	63-												
7	50-	66-												
8	52-	69-												
9	54-	72-												
0	56-	75-												
1	58-	78-												
2	60-	81-												
3	62-	84-												
4	64-	87-												
5	66-	90-												
6	68-	93-												
7	70-	96-												
8	72-	99-												
9	74-	102-												
0	76-	105-												
1	78-	108-												
2	80-	111-												
3	82-	114-												
4	84-	117-												
5	85-	120-												
Total														
No. of samples														
No. fish meas.														
Mean length (mm)														
Mean weight (g)														
Depth range (m)														
Mesh/hook (mm)														

NOTE: If reporting frequencies by sex, use groups of 3 columns above headed 'Male', 'Females', and 'Total'.

Sampling Form 2 (Rev. 01/77)

PART 2

Summary of Sampling Data, 1976

1. Introduction

Sampling data reported to the Secretariat should be accompanied by notes on sampling procedures. These notes should contain descriptions of how the length and age samples are collected so that any limitations on the use of the data can be recognized and the correct interpretations applied. Information on the use of conversion factors and the method of determining the mean weight of fish in the samples is essential for the proper application of the data to stock assessment problems. However, in nearly all cases, the sampling data were not accompanied by suitable descriptions of the procedures used, other than those recorded on the reporting forms, such as the method of measuring (fork length, total length, etc.), the recorded measurement (nearest cm, cm below, etc.), and the type of sample (research or commercial). Such parameters, when given, form part of the sample descriptor in the sampling data base. The "Notes on Sampling Data" (e.g. see *ICNAF Samp. Yearb.* Vol. 20, pages 17-20) are not repeated in this volume, since no new information have been provided.

2. Summary of Data Relevant to Commercial Fisheries

The following is a list of species by divisions for which commercially-oriented sampling data (see Part 3) were received from the various countries for 1976:

Country	Species	Divisions
Bulgaria	Silver hake	- 4W
	Atlantic mackerel	- 5Zw, 6A, 6B, 6C
	Capelin	- 3O
Canada (M)	Atlantic cod	- 4R, 4S, 4T, 4Vn, 4Vs, 4W, 4X, 5Ze
	Haddock	- 4W, 4X, 5Ze
	Atlantic redfish	- 2J, 3L, 3M, 3N, 3Pn, 3Ps, 3P, 4R, 4S, 4T 4Vs, 4W, 4X
	Pollock	- 4Vs, 4W, 4X, 5Ze
	American plaice	- 4R, 4S, 4T, 4Vn, 4Vs, 5Ze
	Witch flounder	- 4R, 4S, 4T, 4Vn, 4Vs, 4W
	Yellowtail flounder	- 5Ze
	Winter flounder	- 4T, 4X, 5Ze
	Atlantic herring	- 4Vn, 4W, 4X
	Atlantic mackerel	- 4T, 4Vn, 4X
Canada (N)	Atlantic cod	- 2J, 3K, 3L, 3O, 3Ps, 4R, 4S
	Atlantic redfish	- 2J, 3K, 3L, 3M, 3N, 3O, 3Pn, 3Ps, 4R, 4S, 4Vn
	American plaice	- 2J, 3K, 3L, 3N, 3O, 3Ps, 4T, 4Vs
	Witch flounder	- 2J, 3K, 3L, 3N, 3O, 3Ps, 4R, 4T
	Yellowtail flounder	- 3L, 3N, 3O
	Greenland halibut	- 2J, 3K, 3L
	Atlantic mackerel	- 3K, 3L, 4R
	Capelin	- 2J, 3K, 3L, 3N, 3Ps, 4T
Cuba	Atlantic mackerel	- 5Ze
	Atlantic argentine	- 4W
	Squid-*Illex*	- 4W
Denmark (G)	Atlantic cod	- 1C, 1D, 1E, EG
	Atlantic redfish	- 1D, 1E
	American plaice	- 1D
	Striped wolffish	- 1C
	Shrimp (*Pandalus borealis*)	- 1A, 1B, 1C, 1D, 1E
France (SP)	Atlantic cod	- 4R
	Atlantic herring	- 4R, 4Vn, 4Vs, 4W
	Squid-*Illex*	- 3Ps

Country	Species	Division
Fed. Rep. Germany	Atlantic cod	- 2J, 3K
	Atlantic herring	- 5Ze
German Dem. Rep.	Greenland halibut	- 1C
	Roundnose grenadier	- 1C, 2H, 3K, 3L
	Atlantic herring	- 5Ze
	Atlantic mackerel	- 5Ze, 6A, 6B
Japan	Atlantic herring	- 4X
	Atlantic butterfish	- 5Ze, 5Zw, 6A, 6B
	Capelin	- 3N, 3O
	Squid-*Illex*	- 4V, 4W, 5Ze, 6A, 6B
	Squid-*Loligo*	- 5Ze, 5Zw, 6A, 6B
Norway	Capelin	- 3N
	Shrimp (*Pandalus borealis*)	- 1B
Poland	Atlantic cod	- 3K, 3L
	Atlantic redfish	- 2J, 3K, 3L
	Witch flounder	- 3K
	Greenland halibut	- 3K
	Atlantic herring	- 5Ze, 6B
	Atlantic mackerel	- 5Ze, 5Zw, 6A, 6B, 6C
	Squid-*Illex*	- 5Ze, 5Z, 6A
	Squid-*Loligo*	- 5Z, 6A
Portugal	Atlantic cod	- 3L, 3M
Romania	Silver hake	- 6A
	Red hake	- 6A
	Atlantic mackerel	- 5Ze, 5Zw, 6A
	Atlantic menhaden	- 6B
USSR	Atlantic cod	- 2J, 3K, 3L, 3N
	Haddock	- 4W
	Atlantic redfish	- 2J, 3K, 3L, 3M, 3O, 4W
	Silver hake	- 4W, 4X, 5Ze, 5Zw, 6
	Red hake	- 5Ze
	Greenland halibut	- 0, 2G
	Roundnose grenadier	- 0, 1C, 2G
	Atlantic herring	- 4W, 5Ze
	Atlantic mackerel	- 4VWX, 5, 6
	Atlantic butterfish	- 5Ze
	Alewife	- 4X, 5Ze, 5Zw, 6
	Atlantic argentine	- 4W, 4X
	Squid-*Illex*	- 4W, 4VWX, 5Ze
	Squid-*Loligo*	- 5
USA	Atlantic cod	- 5Ze
	Haddock	- 4X, 5Y, 5Ze
	Atlantic redfish	- 4W, 4X, 5Y, 5Ze
	Silver hake	- 5Y, 5Ze, 5Zw, 6
	Red hake	- 5Zw, 6A
	Pollock	- 5Y, 5Ze
	American plaice	- 5Y, 5Ze
	Witch flounder	- 5Y, 5Ze
	Yellowtail flounder	- 5Z(E69°), 5Z(W69°)
	Winter flounder	- 5Y, 5Ze, 5Zw, 6
	Summer flounder	- 5Ze, 5Zw, 6
	Windowpane flounder	- 5Ze
	Scup	- 6
	Atlantic herring	- 5Y, 5Z+6
	Atlantic mackerel	- 5Y
	Atlantic butterfish	- 5Zw, 6A
	Squid-*Illex*	- 5Y, 5Ze
	Squid-*Loligo*	- 5Zw, 6A

Country	Species	Division
USA (cont'd)	Squids(NS)	- 6A
	Sea scallops	- 5Y, 5Ze, 6

3. Summary of Research Vessel Sampling Data

The following summary of research vessel sampling data available at the Secretariat is a listing by country, species and division of samples tabulated by species in Part 4 (Table 29). As far as it can be ascertained, these samples pertain to pure research vessel operations, i.e. survey data not connected with commercial fishing operations.

Country	Species	Division
Cuba	Atlantic cod	- 4W
	Haddock	- 4W
	Silver hake	- 4W, 4X
	American plaice	- 4Vs
Denmark (G)	Atlantic cod	- 1D, 1E
	Atlantic redfish	- 1A, 1B, 1C, 1D, 1E
	American plaice	- 1A, 1B, 1C, 1D, 1E
	Greenland halibut	- 1A, 1B, 1C, 1D, 1E
	Greenland cod	- 1B, 1D
	Polar cod	- 1A, 1B
	Roundnose grenadier	- 1B
	Spotted wolffish	- 1A
	Striped wolffish	- 1B
France (SP)	Atlantic cod	- 2J, 3K, 3L, 3Pn, 4Vn, 4Vs
	Atlantic redfish	- 3K, 3Pn, 3Ps
	American plaice	- 3L
Fed. Rep. Germany	Atlantic cod	- 1C, 1D, 1E, 1F, 2G, 2J, 3K
German Dem. Rep.	Atlantic cod	- 2J, 3K, 3L
	Atlantic herring	- 4X, 5Y, 5Ze, 5Zw
	Atlantic mackerel	- 5Ze, 5Zw
USSR	Haddock	- 5Ze
	Silver hake	- 4W, 5Ze

PART 3

List of Sampling Data for Commercial Fisheries, 1976

1. Introduction

The publication of detailed sampling data in the Sampling Yearbook was discontinued following the issue of Vol. 17 for the year 1972. Instead, as recommended by STACRES at the 1974 Annual Meeting (*ICNAF Redbook* 1974, page 70), the Yearbook starting with Vol. 18 contains lists of available data, the details of which are made available upon request to scientists and/or research institutes involved in the Commission's work.

Tables 1 to 28 in this volume contain lists of available length and age sampling data by species, arranged by country, division, gear and month. Nearly all of these data were reported as commercial samples. However, some samples reported as "research" have been included, where the type of gear used or the gear size reported indicated that they were relevant to commercial fishing operations. Where sampling data have been reported by sex, the table entries under "Number measured" and "Number aged" indicate the numbers of males and females sampled.

Sampling data relevant to pure research vessel operations (survey data not connected with commercial fisheries) are listed in Part 4 of this issue.

2. Abbreviations Used

The following abbreviations are used to designate the "gear" and "type of sample" in Tables 1 to 28 of Part 3, and also in the listing of research samples in Part 4:

GEAR

OTB	-	Bottom otter trawl (side and stern)
OTM	-	Midwater otter trawl (side and stern)
PTB	-	Bottom pair trawl (2 boats)
PTM	-	Midwater pair trawl (2 boats)
SN	-	Seine net (Danish and Scottish seines)
SB	-	Beach seines
PS	-	Purse seines
GN	-	Gillnets (set and drift)
LL	-	Longlines (set)
LHP	-	Handlines and pole-lines
FPN	-	Uncovered pound nets
FWR	-	Weirs, barriers, fences, etc.
DRB	-	Boat dredges
NS	-	Gear not specified

TYPE OF SAMPLE

CC	-	Commercial catch
CL	-	Commercial landing
RC	-	Research catch
RL	-	Research landing

Table 1. Atlantic cod length and age sampling data for 1976.

Country	ICNAF Div.	Gear	Month	Type of sample	Length samples No.	Length samples No. meas.	Age samples No.	Age samples No. aged
Canada (M)	4R	OTB	Apr	CL	1	356		
			May	CL	3	952	6	298
			Jun	CL	2	400		
			Jul	CL	1	320	1	64
			Oct	CL	1	381	1	62
	4S	OTB	Apr	CL	1	222		
			May	CL	4	800	8	316
			Jun	CL	3	600		
			Aug	CL	1	200	1	37
		SN	Jun	CL	1	200	1	36
	4T	OTB	Jan	CL	1	346	1	48
			Apr	CL	1	287		
			May	CL	8	2129	13	568
			Jun	CL	4	800		
			Oct	CL	1	78	1	23
		SN	May	CL	2	400	5	185
			Jun	CL	3	600		
			Jul	CL	7	1451		
			Aug	CL	8	1617	18	600
			Sep	CL	3	600		
		GN	Jul	CL	4	732	7	281
			Aug	CL	3	480		
		LL	Aug	CL	1	200	1	33
		LHP	Jun	CL	2	400	2	95
			Jul	CL	4	788	8	326
			Aug	CL	4	800		
	4Vn	OTB	Jan	CL	9	2937		
			Feb	CL	3	1042	16	741
			Mar	CL	4	1286		
			Apr	CL	1	268	1	48
			Dec	CL	3	785	3	149
		GN	Jul	CL	1	200	1	43
	4Vs	OTB	Feb	CL	1	292	2	102
			Mar	CL	1	356		
	4W	LL	Mar	CL	1	234	1	60
			Jun	CL	1	230	1	35
			Jul	CL	1	300	1	43
			Oct	CL	1	251	1	32
	4X	OTB	Jan	CL	1	395	1	61
			May	CL	1	271	1	57
			Aug	CL	3	546	3	172
			Oct	CL	1	258	1	66
		GN	Aug	CL	1	95	1	38
		LL	Nov	CL	1	282	2	124
			Dec	CL	1	257		
	5Ze	OTB	Jul	CL	1	222	2	101
			Aug	CL	1	239		
		LL	Jun	CL	1	69	1	36
Canada (N)	2J	OTB	Oct	CL	1	305	1	296
		GN	Aug	CL	22	3631	12	978[1]
		LHP	Aug	CL	7	651	12	978[1]
		FPN	Jul	CL	2	267	12	978[1]
			Aug	CL	9	2526		

Table 1. Atlantic cod (continued)

Country	ICNAF Div.	Gear	Month	Type of sample	Length samples No.	Length samples No. meas.	Age samples No.	Age samples No. aged
Canada (N)	3K	OTB	Apr	CL	1	530	5	455
			May	CL	4	888		
			Nov	CL	1	160	1	148
		GN	Jun	CL	9	1016	12	590[2]
			Jul	CL	7	672		
			Aug	CL	4	433		
		LHP	Jun	CL	2	173	12	590[2]
			Jul	CL	3	698		
			Sep	CL	7	1884	11	464[3]
		FPN	Jun	CL	2	304	12	590[2]
			Jul	CL	10	2811		
			Sep	CL	6	2211	11	464[3]
	3L	OTB	Jun	CL	3	1016	3	425
			Oct	CL	1	183	2	132
			Nov	CL	1	515		
		GN	Jun	CL	2	576	38	1374[4]
			Jul	CL	14	3399		
		LHP	Jul	CL	2	747	38	1374[4]
		FPN	Jun	CL	5	1784	38	1374[4]
			Jul	CL	15	7366		
	3O	OTB	May	CL	2	465	3	304
			Jun	CL	1	504		
			Sep	CL	1	392	1	43
	3Ps	OTB	Jun	CL	2	926	2	167
			Aug	CL	2	1243	2	197
			Nov	CL	2	952	2	234
		GN	Jun	CL	7	2337	20	529[5]
			Jul	CL	2	744		
		LL	Sep	CL	7	3318	7	468
		FPN	Jun	CL	10	2603	20	529[5]
			Jul	CL	1	361		
	4R	OTB	Jan	CL	1	716	-	-
			Feb	CL	3	746		
			May	CL	5	3377	-	371
			Jun	CL	11	3510		
			Nov	CL	3	1417	-	-
		OTM	Feb	CL	1	548	-	-
		GN	Jun	CL	15	3409	-	390
	4S	OTB	Nov	CL	1	428	-	-
Denmark (G)	1C[6]	OTB	Jan	CL	1	960	1	362
			Mar	CL	1	1307		
	1D	OTB	Mar[7]	CL	1	1057	1	345
			Jun[8]	CL	2	1997	1	497[9]
			Sep	CL	1	912	1	182
			Dec	CL	1	967	1	218
		GN	May	CL	2	206	1	497[9]
		FPN	Jun	CC	2	1290	3	634
			Jul	CL	1	1127	1	219
	1E	OTB	Aug	CL	4	2603	2	673
			Oct	CL	1	1271	1	225
	EG[10]	OTB	Jun	CL	1	1051	1	479

Table 1. Atlantic cod (continued)

Country	ICNAF Div.	Gear	Month	Type of sample	Length samples No.	Length samples No. meas.	Age samples No.	Age samples No. aged
France (SP)	4R	OTB	Jan	RC	32	5216	5	993
			Feb	RC	5	993		
Fed. Rep. Germany	2J	OTB	Feb	CC	8	3432	4	949[11]
	3K	OTB	Feb	CC	4	2814	4	949[11]
Poland	3K	OTB	Feb	CC	5	7706	5	720
			Apr	CC	4	1408	-	-
	3L	OTB	Mar	CC	1	627	1	100
Portugal	3L	OTB	Sep	CC	2	279	1	91
	3M	OTB	Aug	CC	3	310	10	295
			Sep	CC	18	2148		
			Oct	CC	2	220	2	70
USSR	2J	OTB	Jan	CC	32	9320	1	305
			Feb	CC	6	2226		
	3K	OTB	Feb	CC	34	12795	1	309
	3L	OTB	Mar	CC	5	4640	-	-
	3N	OTB	Apr	CC	8	4327	-	-
USA	5Ze	OTB	Jan	CL	4	361		
			Feb	CL	4	419	-	-
			Mar	CL	3	319		
			Apr	CL	5	673		
			May	CL	7	925	-	-
			Jun	CL	4	551		
			Jul	CL	3	405		
			Aug	CL	2	207	-	-
			Sep	CL	3	370		
			Oct	CL	4	736		
			Nov	CL	4	472	-	-
			Dec	CL	1	105		

[1] Same key used for GN, LHP and FPN.
[2] Same key used for GN, LHP and FPN.
[3] Same key used for LHP and FPN.
[4] Same key used for GN, LHP and FPN.
[5] Same key used for GN and FPN.
[6] Reported from Div. 1C + 1D.
[7] Reported from Div. 1C + 1D + 1E.
[8] Reported from Div. 1D + 1E.
[9] Same key used for OTB and GN.
[10] East Greenland.
[11] Same key used for 2J and 3K.

Table 2. Haddock length and age sampling data for 1976.

Country	ICNAF Div.	Gear	Month	Type of sample	Length samples No.	Length samples No. meas	Age samples No.	Age samples No. aged
Canada (M)	4W	OTB	May	CL	1	450	1	35
			Aug	CL	1	200	1	38
			Dec	CL	1	200	1	33
		LL	Mar	CL	1	166	1	25
			Aug	CL	1	181	1	33
			Oct	CL	1	131	1	31
	4X	OTB	Jan	CL	2	633		
			Feb	CL	2	486	13	503
			Mar	CL	9	2074		

Table 2. Haddock (continued)

Country	ICNAF Div.	Gear	Month	Type of sample	Length samples No.	Length samples No. meas.	Age samples No.	Age samples No. aged
Canada (M)	4X	OTB	Apr	CL	1	248		
			May	CL	4	1190	9	319
			Jun	CL	4	1079		
			Jul	CL	3	679		
			Aug	CL	4	847	9	297
			Sep	CL	2	515		
			Oct	CL	3	641		
			Nov	CL	2	406	6	185
			Dec	CL	1	184		
		GN	Aug	CL	1	79	1	20
			Oct	CL	1	170	1	24
		LL	Jan	CL	1	219	1	39
			May	CL	1	239	2	81
			Jun	CL	1	210		
			Aug	CL	1	186	1	36
			Oct	CL	1	190	1	28
		LHP	Aug	CL	1	190	1	38
	5Ze	OTB	Jun	CL	4	927	4	147
			Aug	CL	1	226	3	110
			Sep	CL	2	391		
			Oct	CL	1	205	2	59
			Nov	CL	1	220		
USSR	4W	OTB	Apr	CC	2	400	-	-
			May	CC	1	200		
USA	4X	OTB	Mar	CL	5	381	5	90
			Apr	CL	1	71	3	51
			Jun	CL	2	139		
			Nov	CL	1	106	1	27
	5Y	OTB	Mar	CL	1	30	1	19
			Sep	CL	1	74	1	21
			Oct	CL	1	55	1	35
			Nov	CL	1	53		
	5Ze	OTB	Jan	CL	4	294		
			Feb	CL	6	460	13	275
			Mar	CL	3	211		
			Apr	CL	6	435		
			May	CL	7	665	15	283
			Jun	CL	2	114		
			Aug	CL	1	52	3	76
			Sep	CL	2	155		
			Oct	CL	1	103	1	26

Table 3. Atlantic redfish length and age sampling data for 1976.

Country	ICNAF Div.	Gear	Month	Type of sample	Length samples No.	Length samples No. meas.	Age samples No.	Age samples No. aged
Canada (M)	2J	OTB	Jul	CL	1	125/75	-	-
			Aug	CL	1	100/100		
			Nov	CL	1	94/106	-	-
	3L	OTM	Oct	CL	1	85/115	-	-

Table 3. Atlantic redfish (continued)

Country	ICNAF Div.	Gear	Month	Type of sample	Length samples No.	Length samples No. meas.	Age samples No.	Age samples No. aged
Canada (M)	3M	OTB	Jul	CL	1	150/50	-	-
			Aug	CL	2	225/175		
			Sep	CL	1	97/103		
		OTM	Aug	CL	1	108/92	-	-
	3N	OTB	Sep	CL	1	103/97	-	-
	3Pn	OTB	Jul	CL	1	161/39	-	-
			Aug	CL	1	136/64		
		OTM	May	CL	2	104/296	-	-
			Jul	CL	1	115/85	-	-
			Aug	CL	1	125/75		
	3Ps	OTB	Jun	CL	1	115/85	-	-
			Jul	CL	3	409/201	-	-
			Aug	CL	5	622/378		
		OTM	Aug	CL	1	59/141	-	-
	3P	OTB	Jul	CL	4	460/340	-	-
		OTM	Apr	CL	1	102/100	-	-
	4R(ST)	OTB	Jan	CL	2	94/107	-	-
			Feb	CL	2	252/151		
			Jun	CL	3	276/324	-	-
			Jul	CL	5	440/560	-	-
			Aug	CL	1	109/91		
			Sep	CL	2	125/275		
		OTM	Jan	CL	3	324/276	-	-
			Feb	CL	2	219/181		
	4S	OTB	Jan	CL	2	239/161	-	-
			Feb	CL	1	92/108		
			Jun	CL	6	489/711	-	-
			Jul	CL	9	776/1020	-	-
			Aug	CL	6	490/710		
			Sep	CL	4	362/438		
		OTM	Jan	CL	3	296/259	-	-
			May	CL	1	61/139	-	-
			Jul	CL	2	214/198	-	-
			Aug	CL	1	91/109		
	4T	OTB	Jun	CL	7	652/748	-	-
			Jul	CL	3	250/350	-	-
		OTM	Jun	CL	3	354/315	-	-
	4Vs	OTB	Mar	CL	2	164/236	-	-
			Jun	CL	1	101/99	-	-
	4W	OTB	Jun	CL	1	103/97	-	-
			Jul	CL	2	155/245	-	-
			Aug	CL	1	107/93		
	4X	OTB	Aug	CL	1	91/109	-	-
			Nov	CL	1	57/143	-	-
Canada (N)	2J	OTB	Oct	CL	1	845/926	-	-
			Nov	CL	1	165/165		
		OTM	Aug	CL	4	414/680	-	-
	3K	OTB	Sep	CL	1	191/172	-	-
			Nov	CL	1	136/118	-	-
		OTM	Jun	CL	2	608/523	-	-
	3L	OTB	Oct	CL	3	687/663	-	-

Table 3. Atlantic redfish (continued)

Country	ICNAF Div.	Gear	Month	Type of sample	Length samples No.	Length samples No. meas.	Age samples No.	Age samples No. aged
Canada (N)	3L	OTM	May	CL	1	122/122	-	-
			Jun	CL	3	849/930		
			Jul	CL	4	667/690	-	-
			Sep	CL	2	350/448		
			Oct	CL	2	609/455		
	3M	OTM	May	CL	1	142/134	-	-
			Jun	CL	1	130/139		
			Jul	CL	2	450/416		
			Aug	CL	2	464/608	-	-
			Sep	CL	1	173/172		
	3N	OTB	Sep	CL	1	277/353	-	-
	3O	OTB	May	CL	1	516/534	-	-
			Jul	CL	3	595/500	-	-
	3Pn	OTB	May	CL	1	77/199	-	-
			Jul	CL	2	278/239	-	-
		OTM	Mar	CL	1	128/296	-	-
			Apr	CL	4	611/1362	-	-
	3Ps	OTB	May	CL	1	399/420	-	-
			Jul	CL	3	507/450	-	-
			Aug	CL	1	171/114		
		OTM	Mar	CL	4	538/1077	-	-
			Apr	CL	1	281/157	-	-
	4R	OTB	Feb	CL	1	228/167	-	-
			Apr	CL	1	95/186	-	-
		OTM	Jan	CL	5	1385/487	-	-
			Feb	CL	7	2155/705		
	4S	OTB	Nov	CL	1	135/131	-	-
		OTM	Jan	CL	1	306/122	-	-
	4Vn	OTM	Apr	CL	1	95/317	-	-
Denmark (G)	1D	OTB	Aug	CC	1	403	-	-
	1E	OTB	Aug	CC	2	761	-	-
Poland	2J	OTB	Feb	CC	1	359/379	-	-
	3K	OTB	Feb	CC	4	866/1467	-	-
			Apr	CC	2	738/932	-	-
	3L	OTB	Mar	CC	5	2096/2196	-	-
USSR	2J	OTB	Jan	RC	4	595/567	-	-
			May	RC	7	1778/2212	1	128/172
			Jul	RC	9	1717/1479	1	159/93
	3K	OTB	Feb	RC	10	1728/1653	-	-
	3L	OTB	Mar	RC	17	2430/3196	-	-
	3M	OTB	Mar	RC	3	567/466	-	-
			Apr	RC	5	966/811	-	-
	3O	OTB	Apr	RC	39	4740/5650	-	-
	4W	OTB	Mar	CC	2	526	-	-
			May	CC	5	1015	-	-
USA	4W	OTB	Feb	CL	1	46/54	-	-
			Mar	CL	1	49/51		
			May	CL	1	61/39	-	-
			Sep	CL	1	58/42	-	-

Table 3. Atlantic redfish (continued)

Country	ICNAF Div.	Gear	Month	Type of sample	Length samples No.	Length samples No. meas.	Age samples No.	Age samples No. aged
USA	4X	OTB	Jan	CL	5	251/249		
			Feb	CL	2	96/104	-	-
			Mar	CL	2	78/122		
			Jun	CL	2	82/118	-	-
			Jul	CL	3	116/192		
			Aug	CL	7	363/361	-	-
			Sep	CL	4	211/220		
			Oct	CL	4	200/233	-	-
	5Y	OTB	Feb	CL	1	64/36		
			Mar	CL	10	485/515	-	-
			Apr	CL	12	545/678		
			May	CL	5	253/253	-	-
			Jun	CL	10	430/588		
			Jul	CL	10	412/598		
			Aug	CL	6	348/256	-	-
			Sep	CL	9	438/471		
			Oct	CL	4	222/172		
			Nov	CL	7	369/344	-	-
			Dec	CL	4	265/119		
	5Ze	OTB	Mar	CL	1	82/18	-	-
			Dec	CL	1	56/61	-	-

Table 4. Silver hake length and age sampling data for 1976.

Country	ICNAF Div.	Gear	Month	Type of sample	Length samples No.	Length samples No. meas.	Age samples No.	Age samples No. aged
Bulgaria	4W	OTM	Jun	CC	1	230	-	-
Romania	6A	OTM	Feb	CC	1	46/54	1	46/54
USSR	4W	OTB	Feb	CC	9	1855		
			Mar	CC	67	13520	2	81/135
			Apr	CC	136	27293		
			May	CC	166	33299	2	70/173
			Jun	CC	176	35216		
			Jul	CC	129	25720		
			Aug	CC	24	4800	2	85/184
			Dec	CC	28	5615	-	-
		OTM	May	CC	2	400		
			Jun	CC	5	1000	-	-
			Jul	CC	4	800	-	-
	4X	OTB	Apr	CC	40	7920		
			May	CC	73	14610	13	82/210
			Jun	CC	1	200		
	5Ze	OTB	Mar	CC	8	1671	-	-
			Apr	CC	173	34553	13	108/182
			Aug	CC	8	1600	8	101/231
	5Zw+6	OTB	Mar	CC	41	8411	18	104/177
		OTM	Mar	CC	4	847	-	-

Table 4. Silver hake (continued)

Country	ICNAF Div.	Gear	Month	Type of sample	Length samples No.	Length samples No. meas.	Age samples No.	Age samples No. aged
USA	5Y	OTB	Jan	CL	2	90/115		
			Feb	CL	8	365/447	-	-
			Mar	CL	5	253/299		
			Apr	CL	2	106/114	-	-
			Jul	CL	1	32/68		
			Aug	CL	2	122/97	-	-
			Sep	CL	1	27/49		
			Nov	CL	2	42/147	-	-
	5Ze	OTB	Jul	CL	5	326/272		
			Aug	CL	5	226/246	-	-
			Sep	CL	4	134/244		
			Oct	CL	1	20/74	-	-
	5Zw	OTB	Feb	CL	2	231	-	-
			Apr	CL	2	71	-	-
			Jul	CL	5	669		
			Aug	CL	11	1746	-	-
			Sep	CL	7	1435		
			Oct	CL	10	1071		
			Nov	CL	6	305	-	-
			Dec	CL	6	607		
	6	OTB	Apr	CL	5	83		
			May	CL	1	53	-	-
			Jul	CL	2	184	-	-
			Oct	CL	4	209		
			Nov	CL	2	30	-	-
			Dec	CL	4	470		

Table 5. Red hake length and age sampling data for 1976.

Country	ICNAF Div.	Gear	Month	Type of sample	Length samples No.	Length samples No. meas.	Age samples No.	Age samples No. aged
Romania	6A	OTM	Mar	CC	1	200	-	-
USSR	5Ze	OTB	Mar	CC	1	200	1	116
			Apr	CC	1	200	-	-
		OTB	Mar	RC	1	200	-	-
			Apr	RC	13	2600		
			May	RC	17	3390	10	151
			Sep	RC	18	3530	10	168
			Oct	RC	4	808		
			Dec	RC	22	4401	-	-
USA	5Zw	OTB	Jan	CL	1	454		
			Feb	CL	2	200	-	-
			Apr	CL	2	113	-	-
			Jul	CL	5	486		
			Aug	CL	11	561	-	-
			Sep	CL	7	459		
			Oct	CL	10	699		
			Nov	CL	6	1130	-	-
			Dec	CL	6	652		
	6A	OTB	Apr	CL	5	960		
			May	CL	1	36	-	-
			Jul	CL	2	105	-	-
			Oct	CL	4	172		
			Nov	CL	2	280	-	-
			Dec	CL	4	338		

Table 6. Pollock length and age sampling data for 1976.

Country	ICNAF Div.	Gear	Month	Type of sample	Length samples No.	Length samples No. meas.	Age samples No.	Age samples No. aged
Canada (M)	4Vs	OTB	Sep	CL	1	269	1	29
	4W	OTB	Apr	CL	1	285	3	136
			Jun	CL	2	430		
			Jul	CL	1	200	2	91
			Sep	CL	1	270		
			Oct	CL	1	289		
			Nov	CL	2	549	5	209
			Dec	CL	1	217		
	4X	OTB	Jan	CL	1	231		
			Feb	CL	2	364	3	127
			Mar	CL	1	211		
			Apr	CL	2	339		
			May	CL	1	248	7	250
			Jun	CL	4	1147		
			Jul	CL	3	598		
			Aug	CL	2	531	7	249
			Sep	CL	2	404		
			Oct	CL	1	207		
			Nov	CL	3	634	5	186
			Dec	CL	1	177		
		GN	Jul	CL	1	247	2	63
			Aug	CL	1	198		
	5Ze	OTB	Jun	CL	2	544	2	78
			Aug	CL	1	325	1	31
USA	5Y	OTB	Dec	CL	3	258	-	-
	5Ze	OTB	Feb	CL	1	76	-	-
			Mar	CL	1	83		
			Apr	CL	1	80	-	-

Table 7. American plaice length and age sampling data for 1976.

Country	ICNAF Div.	Gear	Month	Type of sample	Length samples No.	Length samples No. meas.	Age samples No.	Age samples No. aged
Canada (M)	4R	OTB	Jan	CL	1	7/74	1	7/44
	4S	OTB	May	CL	1	9/191	1	9/62
	4T	OTB	Apr	CL	2	98/306		
			May	CL	11	449/1729	14	160/424
			Jun	CL	1	30/170		
		SN	May	CL	4	214/586	17	214/443
			Jun	CL	13	571/2029		
			Jul	CL	5	193/807		
			Aug	CL	8	355/1311	14	154/375
			Sep	CL	1	12/188		
			Oct	CL	1	63/137	1	12/22
	4Vn	OTB	Feb	CL	1	78/122	2	35/48
			Mar	CL	2	112/293		
			Apr	CL	1	79/120	1	13/25
			Oct	CL	1	90/94	2	49/65
			Nov	CL	1	96/104		

Table 7. American plaice (continued)

Country	ICNAF Div.	Gear	Month	Type of sample	Length samples No.	Length samples No. meas.	Age samples No.	Age samples No. aged
Canada (M)	4Vn	SN	Jun	CL	3	392/138	3	84/39
			Jul	CL	2	365/35	5	163/42
			Aug	CL	3	497/103		
	4Vs	OTB	Jan	CL	1	72/128	1	15/28
			Jul	CL	1	76/124	1	16/24
	5Ze	OTB	Sep	CL	1	22/72	1	14/37
Canada (N)	2J	OTB	Oct	CL	1	680/1079	1	196/341
	3K	OTB	Nov	CL	1	279/704	1	86/187
		GN	Jul	CL	2	57/525	2	139/238
	3L	OTB	Mar	CL	4	1073/1750	4	216/368
			May	CL	3	752/751	7	247/425
			Jun	CL	4	502/1606		
			Jul	CL	2	350/355	7	221/351
			Aug	CL	2	352/447		
			Sep	CL	3	454/732		
			Oct	CL	3	253/394	4	126/212
			Nov	CL	2	298/465		
	3N	OTB	Feb	CL	3	513/661	3	138/191
			Apr	CL	3	241/561	5	167/339
			May	CL	1	301/443		
			Jun	CL	1	74/694		
			Jul	CL	2	298/306	8	304/428
			Aug	CL	3	379/325		
			Sep	CL	3	399/597		
			Oct	CL	2	414/584	2	117/179
	3O	OTB	Feb	CL	2	244/640	3	125/264
			Mar	CL	1	61/255		
			Apr	CL	1	29/121	3	119/183
			May	CL	2	434/435		
			Aug	CL	2	367/595	2	95/134
	3Ps	OTB	Feb	CL	1	157/199	3	113/167
			Mar	CL	2	298/426		
			Apr	CL	1	84/163	3	113/163
			Jun	CL	2	212/377		
			Aug	CL	1	201/361	1	84/117
			Oct	CL	1	86/122	4	173/267
			Nov	CL	1	152/188		
			Dec	CL	2	299/513		
	4T	OTB	Apr	CL	1	128/172	1	15/21
	4Vs	OTB	Jan	CL	1	320/166	1	19/26
Denmark (G)	1D	OTB	Aug	CC	1	278	-	-
USA	5Y	OTB	Apr	CL	2	136	-	-
			Jun	CL	3	207		
			Sep	CL	1	79	-	-
	5Ze	OTB	Apr	CL	3	202	-	-
			May	CL	2	166		
			Jun	CL	2	192		
			Nov	CL	1	62	-	-

Table 8. Witch flounder length and age sampling data for 1976.

Country	ICNAF Div.	Gear	Month	Type of sample	Length samples No.	Length samples No. meas.	Age samples No.	Age samples No. aged
Canada (M)	4R	OTB	Jan	CL	1	121/79	1	32/31
	4S	OTB	Feb	CL	2	179/205	4	92/93
			Mar	CL	2	182/220		
			Apr	CL	1	114/99	3	51/77
			May	CL	2	137/263		
	4T	OTB	Apr	CL	1	146/54	4	87/98
			May	CL	3	294/291		
		SN	Jun	CL	1	53/147	1	10/20
	4Vn	OTB	Apr	CL	1	80/120	1	16/16
			Nov	CL	1	121/79	1	28/26
		SN	Jun	CL	3	440/160	3	74/44
			Jul	CL	4	664/136	6	160/63
			Aug	CL	2	356/44		
	4Vs	SN	AUg	CL	1	134/66	1	25/16
	4W	SN	May	CL	1	150/50	1	12/12
			Nov	CL	1	76/124	1	13/17
Canada (N)	2J	OTB	Oct	CL	1	93/98	1	57/68
	3K	OTB	Sep	CL	1	230/79	1	33/33
			Nov	CL	1	239/205	2	213/200
			Dec	CL	1	117/66		
		GN	Jul	CL	6	306/851	11	155/207
			Aug	CL	5	191/814		
	3L	OTB	Aug	CL	1	140/225	3	147/133
			Sep	CL	2	663/260		
		GN	May	CL	1	16/56	1	16/57
			Jul	CL	2	95/304	3	71/111
			Aug	CL	1	91/124		
	3N	OTB	Mar	CL	1	346/443	1	81/100
			Apr	CL	1	179/177	1	19/22
			Sep	CL	1	225/231	1	38/44
			Oct	CL	1	240/268	2	103/81
			Nov	CL	1	163/170		
	3O	OTB	Feb	CL	2	631/667	3	206/234
			Mar	CL	1	159/201		
			Apr	CL	1	113/160	2	51/78
			Jun	CL	1	150/400		
			Oct	CL	1	79/169	3	91/108
			Nov	CL	2	356/297		
	3Ps	OTB	Jun	CL	1	663/491	1	170/173
	4R	OTB	Feb	CL	3	825/1062	3	239/299
	4T	OTB	Apr	CL	1	193/239	1	14/24
Poland	3K	OTB	Feb	CC	2	647/817	2	107/112
			Apr	CC	3	1324/1793	3	113/171
USA	5Y	OTB	Apr	CL	1	65	-	-
			May	CL	1	57		
			Jun	CL	1	58		
			Jul	CL	2	124	-	-
			Aug	CL	2	110		
			Sep	CL	1	60		
	5Ze	OTB	Mar	CL	4	131	-	-
			Apr	CL	2	160	-	-

Table 9. Yellowtail flounder length and age sampling data for 1976.

Country	ICNAF Div.	Gear	Month	Type of sample	Length samples No.	Length samples No. meas.	Age samples No.	Age samples No. aged
Canada (M)	5Ze	OTB	Sep	CL	1	64/28	-	-
Canada (N)	3L	OTB	Mar	CL	1	232/177	8	293/367[1]
			Aug	CL	1	245/212	5	245/315[2]
			Oct	CL	1	159/82	5	118/141[3]
	3N	OTB	Mar	CL	4	1095/1118	8	293/367[1]
			May	CL	4	1271/1121	5	210/260[4]
			Aug	CL	1	244/265	5	245/315[2]
			Sep	CL	3	749/1157		
			Oct	CL	1	262/174	5	118/141[3]
			Nov	CL	2	272/438		
	3O	OTB	Mar	CL	3	1010/666	8	293/367[1]
			May	CL	1	206/134	5	210/260[4]
			Oct	CL	1	172/221	5	118/141[3]
USA	5Z(E69°)	OTB	Jan	CL	6	303/468		
			Feb	CL	3	167/178	22	495/497
			Mar	CL	2	156/98		
			Apr	CL	5	430/323		
			May	CL	4	278/143	16	341/382
			Jun	CL	12	909/652		
			Jul	CL	9	489/773		
			Aug	CL	9	350/772	27	560/679
			Sep	CL	6	221/379		
			Oct	CL	3	232/160		
			Nov	CL	8	359/538	24	575/600
			Dec	CL	1	14/93		
	5Z(W69°)	OTB	Jan	CL	3	190/197		
			Feb	CL	4	304/247	23	354/385
			Mar	CL	4	215/233		
			Apr	CL	4	303/185	8	154/155
			May	CL	1	57/41		
			Jul	CL	1	64/85		
			Aug	CL	1	114/78	21	444/450
			Sep	CL	1	43/61		
			Oct	CL	1	35/68		
			Nov	CL	1	57/59	18	442/460
			Dec	CL	1	18/69		

[1] Same age-length key used for 3L, 3N and 3O.
[2] Same age-length key used for 3L and 3N.
[3] Same age-length key used for 3L, 3N and 3O.
[4] Same age-length key used for 3N and 3O.

Table 10. Greenland halibut length and age sampling data for 1976.

Country	ICNAF Div.	Gear	Month	Type of sample	Length samples No.	Length samples No. meas.	Age samples No.	Age samples No. aged
Canada (N)	2J	OTB	Oct	CL	1	642/935	1	328/464
	3K	OTB	Nov	CL	1	483/512	1	179/246
		GN	Jul	CL	4	310/519	7	237/280
			Aug	CL	3	226/342		
	3L	GN	May	CL	2	358/441	2	101/94
			Jun	CL	2	330/389	6	99/181
			Jul	CL	1	126/253		
			Aug	CL	3	358/321		
German Dem. Rep.	1C	OTB	Nov	CC	1	182	-	-
			Dec	CC	3	756		
Poland	3K	OTB	Mar	CC	2	1181/1408	-	-
			Apr	CC	4	2240/2902	-	-
USSR	SA 0	OTB	Aug	RC		7534/6223	-	-
			Sep	RC		2939/2309		
	2G	OTB	Aug	RC	18	1041/1403	-	-
			Sep	RC	31	1107/1351		

Table 11. Winter flounder length and age sampling data for 1976.

Country	ICNAF Div.	Gear	Month	Type of sample	Length samples No.	Length samples No. meas.	Age samples No.	Age samples No. aged
Canada (M)	4T	OTB	Jun	CL	4	360/440	4	68/81
			Jul	CL	2	101/299	3	54/61
			Aug	CL	1	93/107		
	4X	OTB	Jul	CL	3	210/299	11	186/252
			Aug	CL	8	745/838		
	5Ze	OTB	Aug	CL	1	65/81	1	31/31
USA	5Y	OTB	Mar	CL	2	231	-	-
			Dec	CL	1	127	-	-
	5Ze	OTB	Jan	CL	5	315		
			Feb	CL	1	26	-	-
			Mar	CL	5	334		
			Apr	CL	6	375	-	-
			May	CL	6	371		
			Jul	CL	9	640		
			Aug	CL	8	442	-	-
			Sep	CL	10	637		
			Nov	CL	8	507	-	-
	5Zw	OTB	Aug	CL	1	95	-	-
	6	OTB	Mar	CL	1	149	-	-
			Apr	CL	2	193	-	-
			May	CL	1	57		
			Jul	CL	1	143	-	-
			Aug	CL	1	74		
			Oct	CL	1	117	-	-
			Nov	CL	1	150		

Table 12. Summer flounder length and age sampling data for 1976.

Country	ICNAF Div.	Gear	Month	Type of sample	Length samples No.	Length samples No. meas.	Age samples No.	Age samples No. aged
USA	5Ze	OTB	Apr	CL	4	290	-	-
			Oct	CL	2	151	-	-
	5Zw	OTB	Jan	CL	7	603	-	-
			Mar	CL	4	259		
			Apr	CL	2	123		
			May	CL	5	487	-	-
			Jun	CL	9	668		
			Jul	CL	4	351		
			Aug	CL	1	61	-	-
			Sep	CL	4	204		
			Nov	CL	3	211	-	-
	6	OTB	Jan	CL	4	348	-	-
			Feb	CL	14	1383		
			Mar	CL	4	399		
			Sep	CL	4	307	-	-
			Oct	CL	4	233	-	-

Table 13. Windowpane flounder length and age sampling data for 1976.

Country	ICNAF Div.	Gear	Month	Type of sample	Length samples No.	Length samples No. meas.	Age samples No.	Age samples No. aged
USA	5Ze	OTB	Jan	CL	4	85/461	-	-
			Feb	CL	4	27/458		
			Mar	CL	4	20/454		
			Apr	CL	2	14/242	-	-
			May	CL	1	56/80		
			Jul	CL	1	0/131	-	-
			Aug	CL	1	0/135		
			Nov	CL	4	36/405		

Table 14. Roundnose grenadier length and age sampling data for 1976.

Country	ICNAF Div.	Gear	Month	Type of sample	Length samples No.	Length samples No. meas.	Age samples No.	Age samples No. aged
German Dem. Rep.	1C	OTB	Nov	CC	1	203/107	1	101/53
	2H	OTB	Oct	CC	1	77/73	1	42/45
	3K	OTB	Feb	RC	4	457/344	2	172/123
	3L	OTB	Feb	RC	1	170/130	1	55/51
USSR	SA 0	OTB	Aug	CC	68	8824/4688	-	-
			Sep	CC	31	2896/1218		
	1C	OTB	Jul	CC	33	5621/4021	-	-
			Aug	CC	19	2353/1077		
			Sep	CC	42	4961/1911		
			Oct	CC		4611/1591		
	2G	OTB	Jul	CC		949/573	-	-
			Aug	CC	15	2493/1472		
			Sep	CC	31	3330/2084		
		OTM	Jul	CC	11	2097/1334	-	-

Table 15. Scup length and age sampling data for 1976.

Country	ICNAF Div.	Gear	Month	Type of sample	Length samples No.	Length samples No. meas.	Age samples No.	Age samples No. aged
USSR	6	OTM	Jan	CC	1	200	-	-

Table 16. Striped wolffish length and age sampling data for 1976.

Country	ICNAF Div.	Gear	Month	Type of sample	Length samples No.	Length samples No. meas.	Age samples No.	Age samples No. aged
Denmark (G)	1C	OTB	Aug	CL	1	362		

Table 17. Atlantic herring length and age sampling data for 1976.

Country	ICNAF Div.	Gear	Month	Type of sample	Length samples No.	Length samples No. meas.	Age samples No.	Age samples No. aged
Canada (M)	4Vn	PS	Nov	CC	30	6503	-	-
			Dec	CC	33	4977		
	4W	OTM	Jan	CC	6	1562	7	368
			Feb	CC	1	211		
			Dec	CC	1	100	1	39
		PS	Jan	CC	58	13499	78	3895
			Feb	CC	20	4213		
			Dec	CC	18	2864	18	1078
	4X	SB	Jun	CC	5	781	2	71
			Jul	CC	1	169	16	619
			Aug	CC	7	1073		
			Sep	CC	9	1377		
			Oct	CC	2	455	3	142
			Nov	CC	1	207		
		PS	Jan	CC	4	1286	15	593
			Feb	CC	9	2434		
			Mar	CC	2	580		
			Apr	CC	4	625	35	1684
			May	CC	2	408		
			Jun	CC	36	6367		
			Jul	CC	39	6016	109	4918
			Aug	CC	41	5723		
			Sep	CC	33	5817		
			Oct	CC	4	831	7	305
			Nov	CC	3	347		
		GN	Apr	CC	1	187	27	808
			May	CC	3	611		
			Jun	CC	29	4510		
			Jul	CC	2	211	13	436
			Aug	CC	7	1063		
			Sep	CC	4	669		
		FPN	May	CC	1	217	4	220
			Jun	CC	3	568		
			Jul	CC	1	101	1	43

Table 17. Atlantic herring (continued)

Country	ICNAF Div.	Gear	Month	Type of sample	Length samples No.	Length samples No. meas.	Age samples No.	Age samples No. aged
Canada (M)	4X	FWR	May	CC	15	3057	57	3010
			Jun	CC	43	6637		
			Jul	CC	57	8259		
			Aug	CC	33	4251	92	3213
			Sep	CC	15	1950		
			Oct	CC	5	940		
			Nov	CC	2	289	7	244
France (SP)	4R	OTB	Jan	RC	11	595	-	-
	4Vn	OTB	Mar	RC	7	1793	-	-
	4Vs	OTB	Mar	RC	9	2422	-	-
	4W	OTB	Mar	RC	1	490	-	-
Fed. Rep. Germany	5Ze	OTB	Mar	RC	8	1587	4	378
		OTM	Jul	CC	1	90		
			Aug	CC	9	890	17	1452
			Sep	CC	8	753		
German Dem. Rep.	5Ze	OTM	Sep	CC	25	6120	15	1377
			Oct	CC	4	859	2	200
Japan	4X	OTB	Sep	CC	1	102	-	-
Poland	5Ze	OTB	May	CC	2	793	2	194
		OTM	Sep	CC	3	605	2	128
			Oct	CC	6	1346	6	398
	6B	OTM	Feb	CC	1	549	1	100
USSR	4W	OTB	Apr	CC	5	1020	18	396
			May	CC	21	4200		
		OTB	Apr	RC	2	408	-	-
		PS	Apr	RC	1	200	-	-
	5Ze	OTB	May	RC	1	200	-	-
		PS	Aug	RC	4	800	12	114
			Sep	RC	10	2000		
			Oct	RC	2	400	-	-
USA	5Y(N)	NS	May	CC	7	678	43	756
			Jun	CC	59	5444		
			Jul	CC	58	5597		
			Aug	CC	33	2995	98	1852
			Sep	CC	39	3709		
			Oct	CC	23	2173		
			Nov	CC	11	1037	31	655
			Dec	CC	1	100		
	5Y(S)	NS	Jan	CC	7	838		
			Feb	CC	4	398	23	550
			Mar	CC	23	1442		
			Apr	CC	4	113		
			May	CC	1	73	5	284
			Jul	CC	5	100		
			Aug	CC	9	941	23	468
			Sep	CC	9	824		
			Oct	CC	6	596		
			Nov	CC	9	674	15	318
	5Z+6	NS	Jan	CC	3	287	4	120
			Mar	CC	1	34		

Table 18. Atlantic mackerel length and age sampling data for 1976.

Country	ICNAF Div.	Gear	Month	Type of sample	Length samples No.	Length samples No. meas.	Age samples No.	Age samples No. aged
Bulgaria	5Zw	OTM	Jan	CC	1	200	-	-
	6A	OTM	Jan	CC	6	1100	-	-
			Feb	CC	4	800		
	6B	OTM	Jan	CC	4	799	-	-
			Feb	CC	7	1400		
	6C	OTM	Jan	CC	1	200	-	-
Canada (M)	4T	PS	Jul	CC	5	843	5	1505
			Dec	CC	1	33	1	33
		GN	May	CC	1	115	17	549
			Jun	CC	1	2265		
			Jul	CC	1	210	1	32
		LHP	Jul	CC	1	204	6	199
			Aug	CC	6	972		
		FPN	Jul	CC	1	105	1	31
	4Vn	LHP	Aug	CC	1	41	1	41
			Nov	CC	3	138	3	138
		FPN	Jun	CC	13	1416	13	421
	4X	GN	May	CC	2	403	3	111
			Jun	CC	2	389		
			Sep	CC	2	201	-	-
			Oct	CC	3	334	1	35
		FPN	May	CC	7	1475	7	279
			Jun	CC	2	314		
			Jul	CC	8	818		
			Aug	CC	11	1416	25	766
			Sep	CC	9	1152		
			Oct	CC	4	404	3	100
		FWR	Jun	CC	1	125	1	56
Canada (N)	3K	GN	Aug	CL	1	99	5	269
			Sep	CL	4	170		
			Oct	CL	1	50	3	150
			Nov	CL	2	100		
		LHP	Dec	CL	3	125	3	125
		FPN	Jul	CL	1	45	7	295
			Aug	CL	3	90		
			Sep	CL	3	160		
			Oct	CL	1	50	1	50
	3L	SB	Oct	CL	2	100	2	100
		PS	Sep	CL	6	202	6	192
			Oct	CL	8	529	8	529
		FPN	Jul	CL	4	200	4	200
	4R	FPN	Jul	CL	3	105	3	105
			Oct	CL	1	50	1	50
Cuba	5Ze	OTB	Apr	CC	3	1740	-	-
German Dem. Rep.	5Ze	OTM	Oct	CC	4	790	3	295
	6A	OTM	Apr	CC	30	10032	3	152
	6B	OTM	Feb	CC	10	3937	6	397
			Apr	CC	17	6240	3	153

Table 18. Atlantic mackerel (continued)

Country	ICNAF Div.	Gear	Month	Type of sample	Length samples No.	Length samples No. meas.	Age samples No.	Age samples No. aged
Poland	5Ze	OTB	May	CC	2	499	2	131
			Nov	CC	5	1579	3	301
		OTM	Feb	CC	3	2692	6	600
			Mar	CC	3	3201		
			Apr	CC	3	1334	5	497
			May	CC	2	1194		
			Oct	CC	3	640	3	300
			Nov	CC	1	569		
	5Zw	OTB	May	CC	2	486	2	183
		OTM	Mar	CC	1	1055	1	101
			Dec	CC	3	406	3	249
	6A	OTM	Jan	CC	5	5200	7	700
			Feb	CC	2	2809		
			Dec	CC	5	615	5	404
	6B	OTM	Jan	CC	12	13946	11	1097
			Feb	CC	2	2440		
			Dec	CC	2	310	2	150
	6C	OTM	Jan	CC	2	1940	2	201
Romania	5Ze	OTM	Feb	CC	7	600	3	307
			Mar	CC	4	300		
	5Zw	OTM	Feb	CC	1	300	1	103
	6A	OTM	Jan	CC	6	800	6	310
USSR	4VWX	OTB	May	CC	26	5199	7	213
			Jun	CC	1	200		
			Jul	CC	1	200	-	-
			Aug	CC	1	200		
		OTB	Jul	RC	1	200	-	-
	5	OTB	Jan	CC	30	6001	5	225
			Feb	CC	147	29485		
			Mar	CC	96	19313		
		OTB	Apr	RC	5	1013	-	-
			May	RC	17	3425		
	6	OTM	Jan	CC	41	8226	3	130
			Feb	CC	4	841		
USA	5Y	PTB	Nov	CL	2	242	1	31
		PS	Nov	CL	2	205	-	-
		FPN	Jun	CL	1	100	1	36
			Jul	CL	2	203	4	117
			Aug	CL	2	200		

Table 19. Atlantic menhaden length and age sampling data for 1976.

Country	ICNAF Div.	Gear	Month	Type of sample	Length samples No.	Length samples No. meas.	Age samples No.	Age samples No. aged
Romania	6B	OTM	Jan	CC	1	200	1	200

Table 20. Atlantic butterfish length and age sampling data for 1976.

Country	ICNAF Div.	Gear	Month	Type of sample	Length samples No.	Length samples No. meas.	Age samples No.	Age samples No. aged
Japan	5Ze	OTB	Jan	CC	1	203	-	-
	5Zw	OTB	Jan	CC	2	395	-	-
	6A	OTB	Mar	CC	1	193	-	-
	6B	OTB	Apr	CC	1	174	-	-
USSR	5Ze	OTB	Sep	RC	1	196	-	-
USA	5Zw	OTB	Jan	CL	2	200	-	-
			Aug	CL	1	104	-	-
			Sep	CL	1	97		
	6A	OTB	Feb	CL	1	100	-	-
			Mar	CL	1	100		

Table 21. Alewife length and age sampling data for 1976

Country	ICNAF Div.	Gear	Month	Type of sample	Length samples No.	Length samples No. meas.	Age samples No.	Age samples No. aged
USSR	4X	OTB	May	CC	1	200	-	-
	5Ze	OTB	Dec	RC	1	200	-	-
	5Zw	OTM	Jan	CC	1	200	-	-
	6	OTM	Jan	CC	2	400	-	-

Table 22. Atlantic argentine length and age sampling data for 1976.

Country	ICNAF Div.	Gear	Month	Type of sample	Length samples No.	Length samples No. meas.	Age samples No.	Age samples No. aged
Cuba	4W	OTB	Jul	RC	1	123	-	-
USSR	4W	OTB	Jun	CC	5	1020	-	-
	4X	OTB	May	CC	3	600	3	208
			Jun	CC	1	200		
			Jul	CC	2	400	-	-
		OTM	Mar	CC	7	1400	-	-

Table 23. Capelin length and age sampling data for 1976.

Country	ICNAF Div.	Gear	Month	Type of sample	Length samples No.	Length samples No. meas.	Age samples No.	Age samples No. aged
Bulgaria	3O	OTM	Jun	CL	5	1000	-	-
Canada (N)	2J	OTM	Nov	RC	1	27/22	1	27/22
	3K	OTM	Oct	RC	5	140/110	5	140/110
	3L	OTB	Mar	RC	7	174/176	7	174/177
			Apr	RC	8	328/77	9	366/86
			May	RC	1	38/12		
		OTM	Mar	RC	3	82/68	3	82/68
		SB	Jun	CL	2	95/0	2	95/0
		FPN	Jul	CL	1	43/0	1	43/0
		MIS	Jun	RC	23	1095/55	23	1095/55
			Jul	RC	13	598/41	13	598/41
	3N	OTB	Jun	RC	3	63/87	3	63/87
		OTM	Jun	RC	27	277/1073	27	277/1073
	3Ps	OTB	May	RC	9	216/234	9	217/235
		OTM	May	RC	1	17/33	1	17/33
		SB	Jun	CL	19	890/60	19	890/60
		MIS	Jun	CL	1	49/0	1	49/0
	4T	PS	May	CL	3	116/34	3	116/34
Japan	3N	OTB	Jun	CC	10	882	-	-
			Jul	CC	32	3721	-	-
	3O	OTB	Jun	CC	1	49	-	-
Norway	3N	PS	Jun	CC	25	1442/917	9	368/196
			Jul	CC	4	338/131	2	87/20

Table 24. Short-finned squid (*Illex*) length and age sampling data for 1976.

Country	ICNAF Div.	Gear	Month	Type of sample	Length samples No.	Length samples No. meas.	Age samples No.	Age samples No. aged
Cuba	4W	OTB	Jul	RC	2	301	-	-
France (SP)	3Ps	LHP	Jul	CC	1	71	-	-
			Aug	CC	1	125		
Japan	4V	OTB	Aug	CC	3	302	-	-
			Sep	CC	1	98		
	4W	OTB	Jul	CC	2	200	-	-
			Aug	CC	1	101		
	5Ze	OTB	Jan	CC	5	599	-	-
	6A	OTB	Apr	CC	1	209	-	-
			Jun	CC	1	81		
	6B	OTB	Feb	CC	2	200	-	-
			Mar	CC	4	398		
			Jun	CC	20	1835	-	-
			Jul	CC	30	2193	-	-

Table 24. Short-finned squid (*Illex*) (continued)

Country	ICNAF Div.	Gear	Month	Type of sample	Length samples No.	Length samples No. meas.	Age samples No.	Age samples No. aged
Poland	5Ze	OTM	Jun	CC	2	539	-	-
			Jul	CC	2	411	-	-
			Aug	CC	1	178		
	5Z	OTB	May	RC	1	7351	-	-
	6A	OTB	May	RC	4	4781	-	-
USSR	4W	OTB	Jul	RC	35	7033	-	-
	4VWX	OTB	Apr	CC	6	1200	-	-
			May	CC	67	13400		
			Jun	CC	157	31402		
			Jul	CC	151	30200	-	-
			Aug	CC	21	4200		
		OTB	May	RC	20	4004	-	-
			Jun	RC	23	4600		
		OTM	May	CC	8	1610	-	-
			Jun	CC	19	3800		
			Jul	CC	28	5600	-	-
			Aug	CC	50	10000		
	5Ze	OTB	Aug	CC	2	400	-	-
		OTB	Apr	RC	3	651	-	-
			May	RC	19	3802		
			Aug	RC	1	200	-	-
			Sep	RC	2	388		
		OTM	Aug	CC	5	1000	-	-
USA	5Y	OTB	Sep	CL	1	41	-	-
			Oct	CL	1	55	-	-
	5Ze	OTB	Aug	CL	1	70	-	-

Table 25. Long-finned squid (*Loligo*) length and age sampling data for 1976.

Country	ICNAF Div.	Gear	Month	Type of sample	Length samples No.	Length samples No. meas.	Age samples No.	Age samples No. aged
Japan	5Ze	OTB	Jan	CC	7	931	-	-
	5Zw	OTB	Feb	CC	1	173	-	-
	6A	OTB	Jan	CC	3	412	-	-
			Feb	CC	4	714		
			Mar	CC	3	670		
			Apr	CC	1	198	-	-
	6B	OTB	Feb	CC	1	246	-	-
			Mar	CC	3	593		
			Apr	CC	1	201	-	-
Poland	5Z	OTB	May	RC	3	3740	-	-
	6A	OTB	May	RC	4	7681	-	-
USSR	5	OTB	Mar	CC	1	200	-	-
		OTB	Mar	RC	6	1200	-	-
			Apr	RC	4	821	-	-
		OTM	Feb	CC	1	227	-	-

Table 25. Long-finned squid (*Loligo*) (continued)

Country	ICNAF Div.	Gear	Month	Type of sample	Length samples No.	Length samples No. meas.	Age samples No.	Age samples No. aged
USA	5Zw	OTB	Jan	CL	1	50	-	-
			Apr	CL	1	46		
			May	CL	4	661	-	-
			Jun	CL	2	419		
			Aug	CL	1	101		
			Sep	CL	1	100	-	-
	6A	OTB	Feb	CL	1	102		
			Mar	CL	2	102	-	-
		FPN	May	CL	1	70	-	-

Table 26. Squid (NS) length and age sampling data for 1976.

Country	ICNAF Div.	Gear	Month	Type of sample	Length samples No.	Length samples No. meas.	Age samples No.	Age samples No. meas.
USA	6A	OTB	Jan	CL	1	50		
			Feb	CL	1	50	-	-

Table 27. Sea scallops length and age sampling data for 1976.

Country	ICNAF Div.	Gear	Month	Type of sample	Length samples No.	Length samples No. meas.	Age samples No.	Age samples No. aged
USA	5Y	DRB	Mar	CL	2	559		
			Apr	CL	1	401		
			Dec	CL	1	363		
	5Ze	DRB	Apr	CL	2	333		
			May	CL	1	783		
			Nov	CL	4	1254		
			Dec	CL	9	2728		
	6	OTB	Jul	CL	1	533		
			Aug	CL	3	772		
			Sep	CL	2	1142		
			Oct	CL	1	489		
		DRB	Feb	CL	2	1029		
			Apr	CL	6	2389		
			May	CL	6	2544		
			Jun	CL	8	4044		
			Jul	CL	4	1608		
			Aug	CL	5	1730		
			Sep	CL	10	4860		
			Oct	CL	3	1180		

Table 28. Northern deepwater prawn (*Pandalus borealis*) length sampling data for 1976.

Country	ICNAF Div.	Gear	Month	Type of sample	Length samples No.	Length samples No. meas.	Age samples No.	Age samples No. aged
Denmark (G)[1]	1A	OTB	Jul	RC	2	711[2]		
	1B	OTB	Jun	RC	6	3402[3]		
			Jul	RC	6	4598[3]		
			Jul	RC	38	9039[2]		
			Oct	RC	1	619[3]		
	1C	OTB	Jan	RC	1	591[3]		
			Apr	RC	1	595[3]		
			Jun	RC	2	1094[3]		
			Jul	RC	1	290[2]		
	1D	OTB	Jan	RC	1	541[3]		
			Jun	RC	1	723[3]		
	1E	OTB	Feb	RC	1	607[3]		
			May	RC	1	1005[3]		
			Jun	RC	2	2543[3]		
Norway	1B	OTB	Jul	CC	9	2313		
			Aug	CC	1	219		

[1] All samples on file as individual samples, each with frequencies for UR = males and females without developed roe or eggs, HR = females with developed head roe, and BR = berried females.
[2] Chartered trawler *Sisimiut* (42 mm mesh).
[3] Research vessel *Adolf Jensen* (40 mm mesh).

PART 4

Sampling Data from Research Vessel Surveys, 1976

The following table contains a list of research samples reported by certain countries for 1976. All of these data were reported as research vessel samples, as indicated by the abbreviation "RC" under the heading "Type of Sample". The samples were reported as taken from catches retained in small-meshed codends or codends with small-mesh liners. In the case of some species (e.g. herring and mackerel) which are normally caught commercially with small-meshed trawls, most of the research samples are listed in the previous section. The abbreviations for gears are defined on page 19 of this volume.

Table 29. Research sampling data for 1976.

SPECIES Country	ICNAF Div.	Gear	Month	Type of sample	Length samples No.	 No. meas.	Age samples No.	 No. aged
ATLANTIC COD								
Cuba	4W	OTB	Jul	RC	1	87	-	-
Denmark (G)	1D	OTB	Jan	RC	1	280	1	146
			Apr	RC	1	378	4	341
			Jun	RC	3	248		
		GN	Oct	RC	10	126	10	126
		LHP	Aug	RC	2	238	4	115
	1E	OTB	Feb	RC	1	564	1	157
			Jun	RC	1	110	1	110
			Sep	RC	1	108	1	108
			Nov	RC	1	372	1	211
France (SP)	2J	OTB	Feb	RC	14	4056	-	-
	3K	OTB	Feb	RC	27	2419	-	-
	3L	OTB	Feb	RC	25	6344	1	287
	3Pn	OTB	Mar	RC	13	4672	-	-
	4Vn	OTB	Mar	RC	4	1763	-	-
	4Vs	OTB	Mar	RC	4	542	-	-
Fed. Rep. Germany	1C	OTB	Nov	RC	7	473	5	329
	1D	OTB	Nov	RC	8	2458	3	284
	1E	OTB	Nov	RC	2	490	-	504
	1F	OTB	Nov	RC	10	2637	4	280
	2G[1]	OTB	Nov	RC	9	263	8	165
	2J	OTB	Nov	RC	40	2040	43	832
	3K	OTB	Oct	RC	16	346	24	398
German Dem. Rep.	2J	OTB	Feb	RC	3	3042	2	603
	3K	OTB	Feb	RC	16	10159	8	2389
	3L	OTB	Feb	RC	2	193	1	80

Table 29. Research (continued)

SPECIES Country	ICNAF Div.	Gear	Month	Type of sample	Length samples No.	 No. meas.	Age samples No.	 No. aged
HADDOCK								
Cuba	4W	OTB	Jul	RC	3	373		
USSR	5Ze	OTB	May	RC	1	200		
			Sep	RC	1	210		
ATLANTIC REDFISH								
Denmark (G)	1A	OTB	May	RC	9	3002		
			Jul	RC	8	3688		
	1B	OTB	Jun	RC	10	4705		
			Jul	RC	53	19248		
			Oct	RC	21	7065		
		OTM	Jun	RC	1	422		
			Jul	RC	1	203		
	1C	OTB	Jan	RC	1	417		
			Apr	RC	1	303		
			Jun	RC	1	177		
			Nov	RC	1	387		
	1D	OTB	Jan	RC	1	678		
			Apr	RC	1	379		
			Jun	RC	2	387		
			Sep	RC	1	307		
			Oct	RC	1	1310		
			Nov	RC	1	1300		
	1E	OTB	Feb	RC	1	512		
			Jun	RC	1	236		
			Sep	RC	1	281		
			Nov	RC	1	287		
France (SP)	3K	OTB	Feb	RC	3	458		
	3Pn	OTB	Mar	RC	2	682		
	3Ps	OTB	Mar	RC	5	1861		
SILVER HAKE								
Cuba	4W	OTB	Jul	RC	3	460		
	4X	OTB	Jul	RC	1	81		
USSR	4W	OTB	Mar	RC	24	4878		
			Apr	RC	25	5118		
			May	RC	15	3018		
			Jun	RC	18	3600		
			Sep	RC	4	803		
	5Ze	OTB	Mar	RC	20	4000		
			Apr	RC	67	13454		
			May	RC	37	7466		
			Dec	RC	17	3409		
AMERICAN PLAICE								
Cuba	4Vs	OTB	Jul	RC	1	70		
Denmark (G)	1A	OTB	May	RC	9	217		
			Jul	RC	9	208		
	1B	OTB	Jun	RC	10	2841		
			Jul	RC	48	2000		
			Oct	RC	30	1387		

Table 29. Research (continued)

SPECIES Country	ICNAF Div.	Gear	Month	Type of sample	Length samples No.	 No. meas.	Age samples No.	 No. aged
Denmark (G)	1C	OTB	Jan	RC	1	1333		
			Apr	RC	1	995		
			Jun	RC	1	2483		
			Nov	RC	1	324		
	1D	OTB	Jan	RC	1	440		
			Apr	RC	1	1084		
			Jun	RC	3	655		
			Sep	RC	1	298		
			Oct	RC	1	424		
			Dec	RC	1	642		
	1E	OTB	Feb	RC	1	408		
			May	RC	1	487		
			Jun	RC	1	339		
			Sep	RC	1	585		
			Nov	RC	1	785		
France (SP)	3L	OTB	Feb	RC	9	2178		
GREENLAND HALIBUT								
Denmark (G)	1A	OTB	May	RC	9	2393		
			Jul	RC	8	4698		
	1B	OTB	Jun	RC	11	313		
			Jul	RC	52	3194		
			Oct	RC	29	813		
		OTM	Jul	RC	1	139		
	1C	OTB	Apr	RC	1	99		
	1D	OTB	Jan	RC	1	156		
			Oct	RC	1	144		
			Dec	RC	1	120		
	1E	OTB	Feb	RC	1	83		
			Nov	RC	1	75		
GREENLAND COD								
Denmark (G)	1B	OTB	Jun	RC	3	66		
	1D	OTB	Feb	RC	1	74		
			Dec	RC	1	61		
		GN	Nov	RC	6	192		
		LHP	Aug	RC	1	56	1	56
POLAR COD								
Denmark (G)	1A	OTB	Jul	RC	7	971		
	1B	OTB	Jul	RC	2	82		
		OTM	Jul	RC	1	128		
ROUNDNOSE GRENADIER								
Denmark (G)	1B	OTB	Jul	RC	1	127		
SPOTTED WOLFFISH								
Denmark (G)	1A	LL	Sep	RC	1	74		

Table 29. Research (continued)

SPECIES Country	ICNAF Div.	Gear	Month	Type of sample	Length samples No.	Length samples No. meas.	Age samples No.	Age samples No. aged
STRIPED WOLFFISH								
Denmark (G)	1B	OTB	Jun	RC	7	128		
ATLANTIC HERRING								
German Dem. Rep.	4X	OTB	Mar	RC	1	77	1	51
	5Y	OTB	Mar	RC	4	700	2	195
	5Ze	OTB	Mar	RC	11	217	4	138
	5Zw	OTB	Mar	RC	5	300	3	207
ATLANTIC MACKEREL								
German Dem. Rep.	5Ze	OTB	Mar	RC	11	1042	4	168
	5Zw	OTB	Mar	RC	5	85	1	39

[1] Reported from Div. 2G+2H.