

**INTERNATIONAL COMMISSION**  
FOR THE  
**NORTHWEST ATLANTIC FISHERIES**



**SAMPLING YEARBOOK**

Vol. 19

for the year

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(Revised)

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## 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 1974 with notes on the data presented; Part 3 contains, in a series of tables arranged by species, lists of available 1974 sampling data pertaining to commercial fisheries; and Part 4 contains a list of research sampling data for 1974.

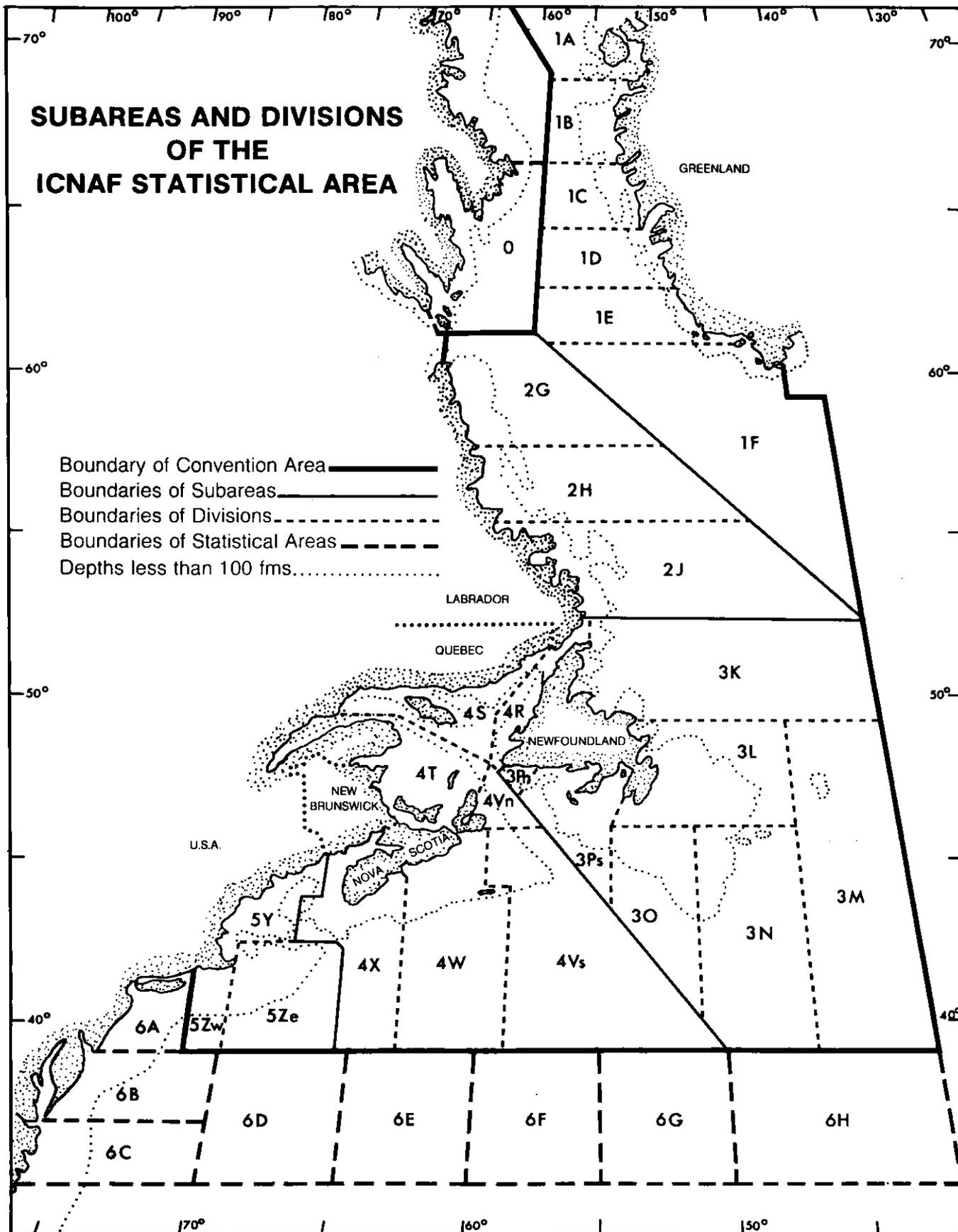
All available commercially-oriented sampling data for 1973 onwards have been computerized to provide for the rapid retrieval of data on computer printouts to meet specific requests. Copies of length frequencies, age-length keys and computed age frequencies (where applicable) will be forwarded upon request 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.

August 1978

V. M. Hodder  
Assistant Executive Secretary

NOTE. This revised edition of Sampling Yearbook Vol. 19 for the year 1974 (previously issued in February 1976), became necessary following the receipt of additional data and amendments to existing data upon preparing the material for computer-processing.



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# 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 this volume of Sampling Yearbook, a first attempt was made to outline the present sampling requirements.

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

Species	Length Group
Alewife ( <i>Alosa pseudoharengus</i> )	1 cm
Atlantic argentine ( <i>Argentina silus</i> )	1 cm
Squids ( <i>Illex</i> and <i>Loligo</i> )	1 cm
Capelin ( <i>Mallotus villosus</i> )	$\frac{1}{2}$ cm (by sex)
Sea scallops ( <i>Placopecten magellanicus</i> )	$\frac{1}{2}$ cm
Northern deepwater prawn ( <i>Pandalus borealis</i> )	1 mm (by sex)

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

- <sup>1</sup> 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.
- <sup>2</sup> 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 sub-division) 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.







## PART 2

### Notes on Sampling Data

#### 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 interpretation applied. Information on the use of conversion factors (e.g. fork length to total length) 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 many cases, the sampling data were not accompanied by suitable descriptions of procedures used, and consequently the notes given in Section 4 below are in the main derived from information given in previous issues of the Yearbook.

#### 2. Summary of Data Relevant to Commercial Fisheries

The following is a list of species and divisions for which commercially-oriented sampling data (see Part 3) were received from various countries for 1974:

Country	Species	Divisions
Bulgaria	Atlantic mackerel	- 5Zw+6
Canada (M)	Atlantic cod	- 4R, 4T, 4Vn, 4Vs, 4W, 4X, 5Ze
	Haddock	- 4W, 4X, 5Ze
	Atlantic redfish	- 4R, 4S, 4T, 4Vn, 4Vs, 4W, 4X
	Pollock	- 4W, 4X, 5Ze
	American plaice	- 4R, 4T, 4V
	Witch flounder	- 4T, 4Vn, 4Vs, 4W
	Yellowtail flounder	- 4Vs
	Winter flounder	- 4T
	White hake	- 4X
	Atlantic herring	- 4T, 4Vn, 4W, 4X, 5Y
Atlantic mackerel	- 4T, 4Vn, 4W, 4X	
Canada (N)	Atlantic cod	- 2J, 3K, 3L, 3O, 3Ps, 4R, 4Vn
	Atlantic redfish	- 3Pn, 3Ps, 4R, 4Vn, 4Vs
	American plaice	- 3K, 3L, 3N, 3O, 3Ps
	Witch flounder	- 3K, 3L, 3O
	Yellowtail flounder	- 3L, 3N, 3O
	Greenland halibut	- 3K
	Atlantic mackerel	- 3, 4R
Denmark (F)	Atlantic cod	- 1D, 1E, 4RST
Denmark (G)	Atlantic cod	- 1C, 1D, 1DE, 2J
	Greenland halibut	- 1B, 1DE
	Roundnose grenadier	- 0B, 1C
	Wolfishes	- 1D
Fed. Rep. Germany	Atlantic cod	- 2J+3K
	Atlantic herring	- 4X, 5Z
German Dem. Rep.	Atlantic cod	- 2J
	Atlantic redfish	- 2J
	Greenland halibut	- 0B, 1C
	Roundnose grenadier	- 0B, 1C, 2H
	Atlantic herring	- 5Y, 5Ze
	Atlantic mackerel	- 5+6
Japan	Atlantic redfish	- 3L, 3N, 3O, 3P, 4V
	Atlantic herring	- 5Ze
	Atlantic butterfish	- 5Ze, 5Zw, 6A, 6B, 6C

Country	Species	Divisions
	Atlantic argentine Squid - <i>Loligo</i> Squid - <i>Illex</i>	- 3P, 4V - 5Ze, 5Zw, 6A, 6B, 6C - 5Zw, 6A, 6B, 6C
Norway	Capelin	- 3L, 3N
Poland	Atlantic cod Atlantic redfish American plaice Witch flounder Greenland halibut Atlantic herring Atlantic mackerel Squid - <i>Loligo</i> Squid - <i>Illex</i>	- 2H, 2J, 3K, 3L - 2H, 2J, 3K, 3M - 2J, 3L - 2J, 3K - 2J, 3K - 5Y, 5Ze, 5Zw - 5Z, 6A, 6B - 5Ze, 5Zw, 6A - 4X, 5Ze, 6A, 6B
Romania	Silver hake Atlantic herring Atlantic mackerel Atlantic menhaden Blueback herring	- 5Ze - 5Ze - 5Ze, 6 - 5Ze, 6B - 6
Spain	Atlantic cod	- 1C, 1D, 3K, 3L, 3N, 3Ps, 4Vn, 4Vs, 4W, 5Ze
USSR	Atlantic cod Haddock Atlantic redfish Silver hake Red hake Atlantic herring Atlantic mackerel Squid - <i>Loligo</i>	- 2J, 3K, 3L, 5Z - 4W, 4X - 2J, 3K, 3M, 5Ze - 4W, 4X, 5Ze, 5Zw+6 - 5Ze, 5Zw+6 - 4V, 4WX, 5Z - 5Z, 6 - 5Z, 6
UK	Atlantic cod Haddock	- 1C, 1E, 3L, 3M, 4Vn - 4X
USA	Atlantic cod Haddock Atlantic redfish Silver hake Red hake Pollock Yellowtail flounder Scup Atlantic herring Atlantic mackerel Atlantic butterfish Squid - <i>Loligo</i> Squid - <i>Illex</i> Squids (NS) Sea scallops	- 4X, 5Y, 5Ze, 5Zw - 4X, 5Y, 5Ze - 4RST, 4V, 4W, 4X, 5Y, 5Ze - 5Y, 5Ze, 5Zw, 6A - 5Zw, 6A - 4X, 5Y, 5Ze - 5Z(E69°), 5Z(W69°) - 5Zw, 6A - 5Y(north), 5Y(south), 5Ze, 5Zw - 5Y - 5Zw, 6A - 5Ze, 5Zw, 6A - 4W, 4X, 5Y - 5Ze, 5Zw - 5Y, 5Ze, 6

### 3. Summary of Research Vessel Sampling Data

The following is a list of species and divisions for which research vessel sampling data (see Part 4) were received from various countries for 1974:

Country	Species	Divisions
Canada (Quebec)	Atlantic cod Atlantic redfish American plaice	- 4T - 4S, 4T - 4T

Country	Species	Divisions
Denmark (G)	Atlantic redfish	- 0B, 1A, 1C, 1D
	American plaice	- 1A, 1C, 1D
	Greenland halibut	- 0B, 1A, 1B, 1C, 1D
	Greenland cod	- 1D
	Capelin	- 1C, 1D
France (SP)	Atlantic redfish	- 3Pn, 3Ps, 4R, 4Vn, 4Vs, 4W, 5Ze
	Atlantic herring	- 4Vn, 5Ze
Fed. Rep. Germany	Atlantic cod	- 2J
	Atlantic redfish	- 2J
	Polar cod	- 2J

#### 4. Notes on Sampling Data

##### a) Bulgaria

No sampling notes were submitted for 1974. However, 1973 notes indicate that fork length measurements of mackerel are taken to the nearest millimeter and grouped in 1-cm intervals, i.e. 30 cm includes lengths in the 30.0-30.9 cm range. Ages are determined from otoliths.

Data were submitted by P. Kolarov

##### b) Canada (Maritimes and Quebec)

Commercial landings in the provinces of New Brunswick, Nova Scotia and Prince Edward Island are sampled by the staff of the Biological Station, St. Andrews, N. B., in cooperation with the Conservation and Protection Branch and Fisheries Information Branch, all of which are agencies of the Fisheries and Marine Service of the Department of the Environment.

Landings of cod and haddock are normally culled by market category. Cod are divided into large (steak) and medium (market) categories at about 10 pounds fresh gutted weight. Small (scrod) cod and haddock are mainly less than 2-1/2 pounds gutted weight. Small round haddock are sometimes landed in a separate market category. These market categories are usually sampled approximately in proportion to the relative numbers of each in the landing. When the final weighout is available, the length frequency of the landing is determined by applying weighting factors to each category. Length frequencies by sex are usually given for redfish, American plaice, yellowtail flounder, witch flounder and winter flounder.

Fork length measurements for groundfish are recorded to the nearest centimeter and for mackerel to the 1/2 cm below. For herring, the greatest total length (snout to longest caudal fin rays, with the caudal fin drawn in line with the body) is measured to the 1/2 cm below. For both herring and mackerel, the length frequencies are reported to the centimeter below, i.e. fish reported as 10 cm include those in the length range of 10.0-10.9 cm. Mean lengths reported for herring and mackerel are adjusted upward by 0.5 cm. For groundfish, the length frequencies are reported in 1-cm, 2-cm, or 3-cm length groups as required.

Mesh sizes indicated are the manufacturers' specifications and hence are approximations to the actual mesh sizes. Hook size is given by number, No. 6/0 being the smallest used commercially and No. 14 being the largest used on longliners in Quebec.

The codend mesh size is not measured at the time of sampling. The port technician records only that the mesh size is large or small. Redfish samples are usually from catches made with small mesh codends, approximately 64 to 88 mm. All other species are from catches made with large mesh nets, about 120 to 140 mm.

Otolith samples for ageing are taken for the major groundfish and pelagic species, and the data are reported in the form of quarterly age-length keys. Ageing material are not collected for redfish, and, although occasional otolith samples of such species as cusk and white hake are collected, these are not aged on a routine basis.

Some research (or exploratory) sampling data were reported by the Marine Institute of Quebec. The data consist of length frequencies of catches taken in small mesh trawls (80 mm), but no notes on sampling methods were received.

Data were submitted by D. N. Fitzgerald, R. G. Halliday, J. P. Lussiaa-Berdou, D. S. Miller and W. T. Stobo.

c) Canada (Newfoundland)

Length frequencies are based on samples obtained from landings of the commercial groundfish fishery. Measurements are recorded to the nearest centimeter for fork length of cod, haddock, and redfish and for total length of flounders (American plaice, witch, yellowtail, and Greenland halibut). The measurements are made on shore before any appreciable culling has occurred in the processing plants. Samples of commercial landings indicate that some of the catch may have been thrown away at sea prior to landing, whereas samples of commercial catches indicate that no fish was thrown away before landing. The length frequencies for each month are adjusted to the weight landed by each vessel before combining into monthly frequencies and converting to numbers per mille. The usual grouping was into 1-cm, 2-cm, and 3-cm length groups as required for the various species.

The age-length keys, used to calculate the monthly age frequencies from the monthly length frequencies, in most cases represent combined quarterly stratified otolith samples from the offshore fishery by the usual definition of quarters (i.e. Jan-Mar, etc). However, for some of the gears (i.e. longline, handline, codtrap, gillnets) used in the inshore fishery during the summer period, the age-length keys are derived from a large composite sample collected from all gears combined for a given division and time period. Also, the inshore length frequencies and age-length keys have been reported by fishing season rather than by quarter, i.e. Jun-Aug, in order to allow the combination of samples over the peak inshore fishing season. The various inshore gears used in coastal waters are operated on boats less than 50 GRT. All otter trawl samples pertain to off-shore fisheries.

All mean weights are in kilograms and mean lengths in centimeters. Where sample weights were available, mean weights were calculated using these; otherwise, mean weights are estimated from length-weight relationships.

Length and age data for 1974 are reported for cod, American plaice, witch flounder, yellowtail flounder, and Greenland halibut. Length data only are reported for redfish. Otoliths are available for most of the redfish samples but the ageing has not been completed.

Data were submitted by P. Beck, G. Kean, A. T. Pinhorn and R. Wells.

d) Denmark (Faroes)

Sampling data for cod were reported for 1974, but no notes on sampling methods were received.

Data were submitted by K. Hoydal.

e) Denmark (Greenland)

All length measurements are total length to the centimeter below. Weights are given for whole, round fish. Samples other than those obtained on research vessels are supplied by local fishermen or obtained from the landings of trawlers. However, the method of having local fishermen supply samples on their own initiative is gradually being discontinued and the sampling of landings from the trawler fleet, which form a steadily increasing part of the total nominal catch by Denmark (G), is carried out by staff of the Research Institute.

The catches of trawlers are stored on board in boxes of 40-60 kg each, as head-on, gutted fish. Samples are taken, as the fish are being landed, by selecting at random a certain number of boxes. All fish in the boxes are measured, and a stratified sample of otoliths taken, normally 10 fish in each cm group where possible. Information on the total landed weight of each species by the vessel is obtained from the factory, and information on discards is obtained by interviewing the captain or other vessel personnel. The ship's log provides information on the areas fished during the trip.

Redfish, American plaice, and Greenland halibut were not measured by sex in 1974. This is mainly because these samples were obtained as research samples under conditions where higher priority is given to other species and where the limited manpower does not permit the time required for sex determination, but it is hoped that some sex-length keys will be available in the future. Some attempt was made to sex roundnose grenadier but it was found to be very difficult and many could not be categorized.

Age determination of redfish is virtually impossible, and also very difficult for Greenland halibut. For American plaice and roundnose grenadier some otoliths were sampled in 1974 but they have not yet been read. Also, ageing of these species seems difficult but a technique under development in the Rostock laboratory, GDR (for roundnose grenadier) will probably improve the situation. However, pending such possible results, for the time being our 1974 samples are reported as length samples only.

Since only limited quantities, if any, of American plaice and roundnose grenadier are landed commercially in Greenland, the only way of obtaining samples is by research vessels. For these two species it seems difficult to indicate comparison between the research samples and the commercial landings. Redfish and Greenland halibut are caught commercially. Redfish mainly as by-catch in trawl fisheries for cod and shrimp, Greenland halibut either in a directed fishery by longlines or sometimes trawl, or as a by-catch in trawl fisheries for cod and shrimp. The research samples are mainly obtained by small-meshed trawls and will, therefore, be comparable to the catch (but not landings) obtained as by-catch in the shrimp fishery but not to catches obtained by longlines or when trawling for cod or other species where the mesh size regulation applies.

In addition to the groundfish species for which sampling data are usually reported to the Secretariat, some length and age data on capelin (*Mallotus villosus*) from research catches in Div. 1C and 1D are also submitted. Data have also been collected (but not reported to ICNAF) on the deep-sea shrimp (*Pandalus borealis*) from Div. 1C, 1D and 1E (29 samples) and queen crab (*Chionoecetes opilio*) from Div. 1A, 1C and 1D (45 samples).

Data were submitted by Sv. Aa. Horsted.

f) France (M)

No sampling notes or sampling data were received for 1974.

g) France (St. Pierre and Miquelon)

While a substantial amount of sampling data from research vessel cruises were reported for 1974, no notes on sampling methods were provided.

Data were submitted by J. P. Bertomé, D. Briand, P. DeCamps and A. Forest.

h) Federal Republic of Germany

No sampling notes were submitted with 1974 sampling data, but the 1973 notes indicate that length measurements are normally made of total length and recorded to the centimeter below. The length samples are normally collected at sea, but some samples were indicated as frozen, the shrinkage being 7 to 13 mm in the mean length (herring, Div. 5Z, September).

Data were submitted by J. Messtorff and A. Schumacher.

i) German Democratic Republic

No detailed sampling notes were submitted with 1974 sampling data, but it is indicated that herring are measured as total length and mackerel as fork length starting in 1974. Samples are usually measured at sea, but samples are sometimes collected by the ship's crews and frozen for later examination at the laboratory.

Data were submitted by W. Ranke.

j) Iceland

No fishing activity was reported in the ICNAF Area in 1974.

k) Italy

No sampling notes or sampling data were reported in 1974.

l) Japan

Samples were collected at sea from trawler catches and the specimens measured by the crew or by an inspector. Length measurements are made of the fork length to nearest millimeter for fishes with forked caudal fins and the total length for others. Mantle length is measured for squids. Redfish data have not been collected by sexes separately, but, in view of the need for this, attempts are being made to obtain measurements by sex. There are no age data for butterfish at present, but it is planned to collect materials for ageing in the near future.

Data were submitted by I. Ikeda and T. Sato.

m) Norway

Random samples of capelin were taken when the catches were delivered to the factory ship, usually one sample per day. All fish in the samples were measured and sexed. Length measurements were made of total length to the 1/2 centimeter below. A stratified sample of otoliths was taken from the length sample, normally 5 fish in each 1/2 centimeter group for each sex or all fish in the 1/2 centimeter group if there were fewer than 5 fish.

Data were submitted by Ø. Ulltang.

n) Poland

No detailed notes were submitted with the 1974 sampling data. However, it was noted that samples are taken at sea on board of factory stern trawlers by a research team, and recently there have been attempts to have members of the trawler crews do some length measuring of fish. Herring and mackerel age-length keys are based on frozen samples, but it is unclear whether this also applies to other species.

Data were submitted by M. Giedz, J. Janesz, A. Kosior, M. Lipinski, A. Paciorkowski, E. Stanek and S. Ueinski.

o) Portugal

No sampling data or notes were received for 1974.

p) Romania

No sampling notes were submitted with the 1974 sampling data.

q) Spain

No detailed notes were submitted with the 1974 sampling data. However, it is noted that samples are collected at sea on board of a trawler. Age reading is done at the laboratory, each otolith being read by 3 readers and the age accepted when 2 of the readers agree.

Data were submitted by J. B. Fuertes, E. Labarta, M. G. Larraneta, E. Lopez-Veiga, J. Touron and A. Vasquez.

r) Union of Soviet Socialist Republics

No detailed notes were submitted with the 1974 sampling data. However, it is noted that length measurements are taken at sea, and otolith ageing done at the laboratory. Some samples designated as "R" (research) are taken on research or "scouting" vessels using commercial-sized gear. Silver hake otoliths are fixed in 96% alcohol or 60% glycerine, but the otoliths of other species are kept dry.

Data were submitted by K. G. Konstantinov, A. S. Noskov and A. P. Senina.

s) United Kingdom

No notes were submitted with the 1974 sampling data. However, as indicated in previous notes, length measurements are total length to the centimeter below and grouped into the length inter-

vals required for the various species. See Sampling Yearbook Vol. 18 for additional notes.

Data were submitted by B. W. Jones and C. L. Whiting.

t) United States of America

No sampling notes were received for 1974, but it was indicated that no changes in the sampling program had been made from the program of 1973. Dockside sampling is supplemented by sampling discards at sea. Sampling of discards is concentrated on yellowtail flounder. Scallops are sampled by measuring the top valves, which are saved by the crew from the last tow of a trip.

Data were submitted by R. K. Mayo, A. M. Tibbetts, G. T. Waring, P. Wood.

1. The first part of the document discusses the importance of maintaining accurate records of all transactions and activities. It emphasizes the need for transparency and accountability in financial reporting.

2. The second part of the document outlines the various methods and techniques used to collect and analyze data. It includes a detailed description of the experimental procedures and the tools used for data collection.

3. The third part of the document presents the results of the study, including a comparison of the different methods and techniques used. It discusses the strengths and weaknesses of each method and provides a summary of the findings.

## PART 3

### List of Sampling Data for Commercial Fisheries, 1974

#### 1. Introduction

The publication of detailed sampling data in the *Sampling Yearbook* was discontinued following the issue of Vol. 19 for the year 1972. Instead, as recommended by STACRES at the 1974 Annual Meeting (ICNAF *Redbook* 1974, page 70), the Yearbook now contains a list of available data, the details of which will be made available upon request to scientists and/or research institutes involved in the Commission's work.

Tables 1 to 26 contain lists of available length and age sampling data by species, each of which is 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. Sampling data relevant to pure research vessel operations (survey data not connected with commercial fisheries) are listed in Part 4 of this issue. 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.

#### 2. Abbreviations Used

The following abbreviations are used to designate the "gear" and "type of sample" in Tables 1 to 26 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 1974.

Country	ICNAF Div.	Gear	Month	Type of sample	Length samples		Age samples				
					No.	No. meas.	No.	No. aged			
Canada (M)	4R	OTB	Feb	CL	1	334	}	1	47		
			Apr	CL	1	364		7	347		
			May	CL	6	1910					
	4T	OTB	Jan	CL	2	735	}	2	92		
			May	CL	3	700		3	117		
			Oct	CL	1	200		}	4	129	
			Nov	CL	2	500					
			Dec	CL	1	194					
		SN	Jun	CL	1	200	}	1	45		
			Aug	CL	1	200		1	36		
			Nov	CL	1	200		1	31		
		GN		May	CL	1	200	}	3	128	
				Jun	CL	2	330				
				Jul	CL	2	422				
	Aug			CL	3	600					
	4Vn	OTB	Jan	CL	4	1263	}	10	466		
			Feb	CL	3	926					
			Mar	CL	3	1026					
			May	CL	2	779					
	OTM	Feb	CL	1	314	}	3	147			
		Mar	CL	2	585						
	LL		Sep	CL	1	300	}	1	37		
			Oct	CL	1	315					
			Nov	CL	1	315				2	119
	4Vs	OTB	Jul	CL	1	297		1	55		
4W	OTB	Jan	CL	1	257	}	1	38			
		Jun	CL	1	300						
		Oct	CL	1	310				}	2	69
		Dec	CL	1	300						
LL		Nov	CL	2	427	}	3	135			
		Dec	CL	1	242						
4X	LL	Jan	CL	1	171	}	1	63			
		May	CL	1	183						
		Jun	CL	1	240				}	2	130
		Aug	CL	1	77						
		Sep	CL	1	280				}	2	100
		Oct	CL	1	287						
Nov	CL	1	266								
5Ze	LL	Jun	CL	1	116		1	41			
Canada (N)	2J	GN	Aug	CC	12	2563		11	680 <sup>1</sup>		
		FPN	Aug	CC	5	1213		11	680 <sup>1</sup>		
	3K	GN	Jul	CC	13	2628		7	950 <sup>2</sup>		
			Sep	CC	17	2728		-	488		
		LL	Jul	CC	8	1105		-	305		
		LHP	Jul	CC	6	1155		7	950 <sup>2</sup>		
		FPN	Jul	CC	7	2843		7	950 <sup>2</sup>		
	3L	OTB	Mar	CL	2	1237		-	294 <sup>3</sup>		
			Jun	CL	1	413		-	294 <sup>3</sup>		
			Jul	CL	3	1812		-	220		
	GN		Jun	CC	1	137	}	-	958 <sup>4</sup>		
			Jul	CC	1	425					
			Aug	CC	3	91					
LHP	Aug	CC	7	1665		-	958 <sup>4</sup>				

Table 1. Atlantic cod (continued)

Country	ICNAF Div.	Gear	Month	Type of sample	Length samples		Age samples					
					No.	No. meas.	No.	No. aged				
Canada (N)	3L	FPN	Jun	CC	4	1433	}	-	958 <sup>4</sup>			
			Jul	CC	6	2578						
			Aug	CC	6	2338						
	30	OTB	Mar	CL	1	482	}	-	178			
			3Ps	OTB	Mar	CL				1	501	
	Apr	CL			3	1804	-	372 <sup>5</sup>				
		GN	Jun	CC	7	1421	}	-	516 <sup>6</sup>			
			Jul	CC	4	676						
			LL	Sep	CC	9				3556	-	580
		FPN	Jun	CC	7	2661	}	-	516 <sup>6</sup>			
			Jul	CC	6	2686						
			4R	OTB	May	CL				1	409	}
	Jun	CL			1	457						
	Jul	CC			4	1514	2	253				
	GN	Jul	CC	20	4613	}	13	631 <sup>7</sup>				
		FPN	Jul	CC	4				1980	13	631 <sup>7</sup>	
	4Vn	OTB	Mar	CL	2	857	-	91				
-----												
Denmark (F)	1D	OTB	Jun	CL	1	101	}					
			Jun	CL	2	201						
	1E	OTB	Jun	CL	2	201	}					
	4R(+ST)	OTB	May	CL	2	202						
		OTM	May	CL	1	100						
-----												
Denmark (G)	1C	OTB	Feb	CL	1	1062	}	1	384			
	1D	OTB	Jul	CL	1	1382		}	2	917		
			Aug	CL	1	810						
			Sep	CL	1	866						
		GN	Mar	CC	1	344		}	1	311		
			LHP	Jun	RC	2					304	}
	Jul	RC		7	812							
	Aug	RC		1	89							
	Sep	RC		1	228							
	1E(+D)	OTB	Mar	CL	1	1018		}	1	288		
			Nov	CL	1	812						
Dec			CL	1	1032	1	459					
2J	OTB	Jan	CL	1	1128	1	253					
-----												
Fed. Rep. Germany	2J(+3K)	OTB	Feb	CC	23	12736		12	1726			
-----												
German Dem. Rep.	2J	OTB	Jan	CC	3	300	}	11	1104			
			Feb	CC	8	1705						
			Mar	CC	2	200						
-----												
Poland	2H	OTB	Dec	CC	1	352	}	2	220 <sup>8</sup>			
	2J	OTB	Jan	CC	15	8953				}	12	1740
			Feb	CC	13	11507						
			Dec	CC	4	1394						
	3K	OTB	Feb	CC	9	9025				}	7	1003
			Mar	CC	1	468						
	3L	OTB	Feb	CC	1	698				1	162	
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Table 1. Atlantic cod (continued)

Country	ICNAF Div.	Gear	Month	Type of sample	Length samples		Age samples		
					No.	No. meas.	No.	No. aged	
Spain	1C	PTB	Sep	CC	9	1857	}	-	242
			Nov	CC	4	993		-	196
			Dec	CC	1	258			
	1D	PTB	Aug	CC	1	214	}	-	178
			Sep	CC	3	626			
			Oct	CC	6	1217			
			Nov	CC	5	1073			
			Dec	CC	1	260			
	3K	PTB	Apr	CL	9	1993	}	-	345
			May	CL	3	785			
	3L	PTB	Mar	CL	3	712	}	-	98
			Apr	CL	8	1861			
			May	CL	12	2632			
	3N	PTB	Jun	CL	2	379	}	-	69
			Jul	CL	6	1215			
	3Ps	PTB	Dec	CC	2	573		-	74
	4Vn	PTB	Jan	CL	10	2141	}	-	260
			Feb	CL	7	1623			
			Dec	CC	4	803			
	4Vs	PTB	Jan	CL	1	266	}	-	226
Mar			CL	7	1571				
Jun			CL	7	1643	-			
4W	PTB	Jun	CL	3	798	}	-	63	
		Jun	CL	5	1161				-
USSR	2J	OTB	Feb	RC	8	1707	}	-	-
			Mar	RC	7	1400			
			May	RC	21	4276			
	3K	OTB	Feb	RC	36	7386		1	307
	3L	OTB	Mar	RC	5	1086		-	-
5Z	OTB	May	CC	1	185		-	-	
UK	1C	OTB	May	CL	1	223	}	2	48
			Jun	CL	1	248			
	1E	OTB	May	CL	1	166	}	2	39
			Jun	CL	2	480			
			Jul	CL	1	256			
	3L	OTB	Jun	CL	1	385		1	38
	3M	OTB	Jun	CL	1	219	}	1	29
Jul			CL	1	215				
Aug			CL	1	399	1			
4Vn	OTB	Aug	CL	1	165		1	45	
USA	4X	OTB	Apr	CL	1	106			
	5Y	OTB	Jan	CL	1	102			
			Oct	CL	1	101			
	5Ze	OTB	Jan	CL	3	488			
			Feb	CL	1	100			
			Apr	CL	4	428			
			May	CL	4	414			
			Jun	CL	5	431			
			Jul	CL	6	793			
Aug			CL	8	1151				
Sep	CL	6	811						

Table 1. Atlantic cod (continued)

Country	ICNAF Div.	Gear	Month	Type of sample	Length samples		Age samples	
					No.	No. meas.	No.	No. aged
USA (cont'd)	5Ze	OTB	Oct	CL	5	887		
			Nov	CL	7	487		
			Dec	CL	2	164		
	5Zw	OTB	Mar	CL	2	218		

- |   |  |   |                                       |
|---|--|---|---------------------------------------|
| 1 | Same key used for GN and FPN.          | 5 | Same key used for 1st and 2nd quarter |
| 2 | Same key used for GN, LHP and FPN.     | 6 | Same key used for GN and FPN.         |
| 3 | Same key used for 1st and 2nd quarter. | 7 | Same key used for GN and FPN.         |
| 4 | Same key used for GN, LHP and FPN.     | 8 | Same key used for Div. 2H and 2J.     |

Table 2. Haddock length and age sampling data for 1974.

Country	ICNAF Div.	Gear	Month	Type of sample	Length samples		Age samples			
					No.	No. meas.	No.	No. aged		
Canada (M)	4W	OTB	Jan	CL	1	364	1	37		
			Jul	CL	1	259	1	36		
			Nov	CL	1	200	1	34		
	4X	OTB	Jan	CL	1	292	2	81		
			Feb	CL	1	344				
			May	CL	4	1136	5	173		
			Jun	CL	1	260				
			Aug	CL	3	805				
			Sep	CL	1	215	4	115		
			Nov	CL	3	625				
			LL	LL	Jan	CL	2	298	3	101
					Feb	CL	1	194		
					Apr	CL	1	155		
	May	CL			2	290	4	132		
	Jun	CL			1	200				
	Jul	CL			1	233	2	70		
	Aug	CL			1	199				
	Oct	CL			1	200	2	79		
	Nov	CL	1	148						
5Ze	OTB	Sep	LHP	CL	1	208	1	38		
		Aug	OTB	CL	1	220	1	29		
		Oct	OTB	CL	4	834	4	114		
USSR	4W	OTB	Mar	CC	5	1000				
			Jun	CC	1	300				
	4X	OTB	Jan	CC	2	400				
			May	CC	1	100				
			Jun	CC	1	200				
			Jul	CC	1	200				
			Nov	CC	2	400				
UK	4X	OTB	Sep	CL	1	90				
USA	4X	OTB	Jan	CL	2	202	8	160		
			Mar	CL	6	613				
	5Y	OTB	Jan	CL	2	207	2	43		
			May	CL	1	47	1	20		
	5Ze	OTB	Jan	CL	2	169	4	145		
			Feb	CL	5	390				
Mar			CL	2	202					

Table 2. Haddock (continued)

Country	ICNAF Div.	Gear	Month	Type of sample	Length samples		Age samples	
					No.	No. meas.	No.	No. aged
USA	5Ze	OTB	Apr	CL	7	601	14	307
			May	CL	4	314		
			Jun	CL	5	370		
			Jul	CL	2	143		
			Aug	CL	7	553	11	240
			Sep	CL	2	227		
			Oct	CL	7	569		
			Nov	CL	2	123	16	310
			Dec	CL	8	615		

Table 3. Atlantic redfish length and age sampling data for 1974.

Country	ICNAF Div.	Gear	Month	Type of sample	Length samples		Age samples		
					No.	No. meas.	No.	No. aged	
Canada (M)	4R	OTB	May	CL	1	110/90			
			Aug	CL	1	67/133			
			Sep	CL	2	184/216			
		OTM	Jan	CL	2	217/192			
			Apr	CL	2	297/215			
			May	CL	2	186/291			
			Sep	CL	1	87/113			
		4S	OTB	Sep	CL	4			398/402
				Oct	CL	1			96/104
	Dec			CL	1	92/98			
	OTM		Jan	CL	3	287/335			
			Apr	CL	1	127/87			
			May	CL	4	470/605			
		Jun	CL	1	102/98				
	4T	OTB	Aug	CL	1	83/117			
			Jun	CL	2	205/227			
	4Vn	OTB	Jan	CL	1	111/189			
			Mar	CL	1	85/159			
			Oct	CL	2	168/232			
	4Vs	OTB	Mar	CL	2	169/259			
			Jun	CL	1	146/127			
			Jul	CL	1	123/77			
			Sep	CL	2	173/227			
4W	OTB	Jun	CL	2	253/211				
		Sep	CL	1	79/121				
4X	OTB	Aug	CL	1	114/144				
Canada (N)	3Pn	OTM	Jan	CL	1	208/276			
			Oct	CL	1	223/181			
			Nov	CL	6	1274/1479			
	3Ps	OTB	Sep	CL	2	613/616			
			Oct	CL	1	352/400			
	4R	OTB	Feb	CL	1	271/193			
			Apr	CL	2	500/416			
			May	CL	1	466/32			
			Oct	CL	2	882/1144			

Table 3. Atlantic redfish (continued)

Country	ICNAF Div.	Gear	Month	Type of sample	Length samples		Age samples	
					No.	No. meas.	No.	No. aged
Canada (N)	4R	OTM	Jan	CL	1	309/172		
			Jul	CL	3	813/651		
			Sep	CL	1	237/221		
			Dec	CL	3	589/545		
	4Vn	OTB	Oct	CL	1	709/743		
	4Vs	OTM	Mar	CL	1	258/251		
German Dem. Rep.	2J	OTB	Oct	CC	4	520		
Japan	3L	OTB	Aug	CC	3	638		
	3N	OTB	May	CC	2	405		
	3O	OTB	Apr	CC	3	334		
			May	CC	1	200		
	3P	OTB	Apr	CC	2	250		
			Jul	CC	1	258		
			Aug	CC	4	760		
4V	OTB	Apr	CC	10	1036			
		Aug	CC	2	405			
Poland	2H	OTB	Dec	CC	1	415		
	2J	OTB	Jan	CC	2	1456		
			Mar	CC	1	199/226		
			Dec	CC	4	1609		
	3K	OTB	Feb	CC	1	1251		
3M	OTB	Feb	CC	2	408/481			
USSR	2J	OTB	Feb	RC	8	831/925		
	3K	OTB	Feb	RC	16	1557/1741		
			May	RC	7	534/997		
	3M	OTB	Feb	RC	34	3778/3051		
			Mar	RC	40	4485/3644		
Apr			RC	24	2412/2490			
5Ze	OTB	Mar	CC	2	400			
USA	4R(+ST)	OTB	May	CL	1	45/55		
			Jul	CL	3	186/114		
			Aug	CL	1	61/39		
			Sep	CL	2	113/87		
			Dec	CL	1	43/57		
	4V	OTB	Jun	CL	1	48/52		
	4W	OTB	Jan	CL	4	176/224		
			Feb	CL	1	40/60		
			Mar	CL	4	192/208		
			Apr	CL	8	434/360		
			May	CL	7	322/378		
			Jun	CL	4	223/177		
			Jul	CL	1	65/35		
			Sep	CL	1	55/45		
			Oct	CL	2	110/90		
			Nov	CL	2	109/91		
			Dec	CL	4	219/181		
			4X	OTB	Jan	CL	1	43/57
	Feb	CL			6	286/314		
	Apr	CL			1	39/61		
May	CL	2			75/125			
Jun	CL	2			82/118			

Table 3. Atlantic redfish (continued)

Country	ICNAF Div.	Gear	Month	Type of sample	Length samples		Age samples	
					No.	No. meas.	No.	No. aged
USA	4X	OTB	Aug	CL	2	133/67		
			Sep	CL	4	261/139		
			Oct	CL	5	282/218		
			Nov	CL	4	255/145		
			Dec	CL	2	116/84		
	5Y	OTB	Jan	CL	6	285/317		
			Feb	CL	3	125/181		
			Mar	CL	9	396/506		
			Apr	CL	8	315/485		
			May	CL	4	174/240		
			Jun	CL	6	199/401		
			Jul	CL	10	415/585		
			Aug	CL	2	90/110		
			Sep	CL	3	129/171		
			Oct	CL	1	53/47		
			Nov	CL	2	130/73		
			Dec	CL	2	99/90		
			5Ze	OTB	Feb	CL	1	54/48
	Mar	CL			5	251/244		
	Apr	CL			3	173/141		
	May	CL			2	95/105		
	Jun	CL			2	112/78		
	Jul	CL			3	153/166		
	Aug	CL			1	43/56		
	Sep	CL			3	186/113		
	Oct	CL			1	62/40		
	Nov	CL			1	58/51		
Dec	CL	1			39/61			

Table 4. Silver hake length and age sampling data for 1974.

Country	ICNAF Div.	Gear	Month	Type of sample	Length samples		Age samples							
					No.	No. meas.	No.	No. aged						
Romania	5Ze	OTB	Aug	CC	4	400	3	303						
USSR	4W	OTB	Mar	CC	73	14600	}	-	72/145					
			Apr	CC	170	34000								
			May	CC	79	15800								
			Jun	CC	54	10800								
			Jul	CC	227	46639								
			Aug	CC	106	21364								
			Sep	CC	178	35796								
			Oct	CC	70	13971								
			Nov	CC	62	12400								
			Dec	CC	27	5407								
	4X	OTB	Apr	CC	39	7800	}	-	64/179					
			May	CC	3	600								
			Jun	CC	23	4600								
			Jul	CC	94	18800								
			Aug	CC	170	34056								
			Sep	CC	47	9400								
			5Ze	OTB	Jan	CC				3	600	}	-	63/132
					Feb	CC				4	800			
Mar	CC	48			9600									
Apr	CC	18			3575									
May	CC	9			1850									
Jun	CC	85			9100									

Table 4. Silver hake (continued)

Country	ICNAF Div.	Gear	Month	Type of sample	Length samples		Age samples								
					No.	No. meas.	No.	No. aged							
USSR	5Ze	OTB	Jul	CC	60	11704	}	-	102/143						
			Aug	CC	35	7020									
			Sep	CC	24	4838									
			Oct	CC	10	1999									
			Nov	CC	43	8604									
			Dec	CC	5	1000									
	5Zw(+6)	OTB	Jan	CC	14	2800	}	-	81/192						
			Feb	CC	5	987									
			Mar	CC	5	1000									
			-----												
			USA	5Y	OTB	Jun				CL	2	96/81	}		
						Aug				CL	1	82/19			
Oct	CL	1				44/45									
Nov	CL	4				247/159									
5Ze	OTB	Jun		CL	1	56/42									
		Jul		CL	2	72/120									
		Aug		CL	4	157/258									
		Sep		CL	1	62/48									
		-----													
5Zw	OTB	Apr		CL	9	217									
		May		CL	2	28									
		Jun		CL	2	27									
		Aug		CL	2	200									
		Sep		CL	2	123									
		Oct		CL	2	212									
		Nov		CL	2	30									
		-----													
		6A		OTB	Feb	CL	1	30							

Table 5. Red hake length and age sampling data for 1974.

Country	ICNAF Div.	Gear	Month	Type of sample	Length samples		Age samples				
					No.	No. meas.	No.	No. aged			
USSR	5Ze	OTB	Mar	CC	21	4200	}	-	116		
			Apr	CC	2	400					
			Jun	CC	5	1000					
			Jul	CC	30	6096					
			Aug	CC	9	1948					
			Sep	CC	18	3634					
			Oct	CC	2	400					
			Nov	CC	1	200					
			5Zw(+6)	OTB	Jan	CC				17	3400
					Mar	CC				5	1000
	Apr	CC									
	May	CC									
	Jun	CC									
	Jul	CC									
	Aug	CC									
	(No length frequencies reported for these months)										
	Oct	CC									
Nov	CC										
Dec	CC										
-----											
USA	5Zw	OTB	Apr	CL	9	409	}				
			May	CL	2	56					
			Jun	CL	2	37					
			Aug	CL	2	246					
			Sep	CL	2	71					
			Oct	CL	2	145					
			Nov	CL	2	124					

Table 5. Red hake (continued)

Country	ICNAF Div.	Gear	Month	Type of sample	Length samples		Age samples	
					No.	No. meas.	No.	No. aged
USA	6A	OTB	Feb	CL	2	34		

Table 6. Pollock length and age sampling data for 1974.

Country	ICNAF Div.	Gear	Month	Type of sample	Length samples		Age samples			
					No.	No. meas.	No.	No. aged		
Canada (M)	4W	OTB	Apr	CL	1	258	}	2	91	
			Jun	CL	1	217		1	48	
			Aug	CL	1	309		1	39	
			Dec	CL	1	207				
	4X	OTB	Mar	CL	1	189	}	1	42	
			Apr	CL	4	694		}	7	287
			May	CL	3	586				
			Jun	CL	1	245				
			Jul	CL	1	208		}	5	226
			Aug	CL	1	230				
			Sep	CL	3	658				
			Oct	CL	3	777				
			Nov	CL	1	262		}	5	158
			Dec	CL	3	532				
5Ze	OTB	Sep	CL	3	736		2	55		
		Oct	CL	4	984		3	90		
USA	4X	OTB	Apr	CL	1	107				
			Nov	CL	1	100				
	5Y	OTB	Dec	CL	1	133				
			Feb	CL	2	210				
	5Ze	OTB	May	CL	1	100				
			Jun	CL	1	106				
			Aug	CL	1	101				
			Nov	CL	1	102				
			Dec	CL	1	94				

Table 7. American plaice length and age sampling data for 1974.

Country	ICNAF Div.	Gear	Month	Type of sample	Length samples		Age samples		
					No.	No. meas.	No.	No. aged	
Canada (M)	4R	OTB	May	CL	1	49/75	1	19/36	
	4T	OTB	Nov	CL	3	175/425	3	34/84	
	4V	OTB	Jan	CL	1	93/107	}	3	59/62
			Mar	CL	2	203/197			
			Apr	CL	3	303/288			
		May	CL	1	56/144		4	84/127	
Canada (N)	3K	GN	Jul	CL	13	560/1215	}	5	116/198
			Jul	CL	5	53/177			
	3L	OTB	Feb	CL	2	1044/1108	}	5	263/395
			Mar	CL	3	635/1022			

Table 7. American plaice (continued)

Country	ICNAF Div.	Gear	Month	Type of sample	Length samples		Age samples	
					No.	No. meas.	No.	No. aged
Canada (N)	3L	OTB	May	CL	2	826/610	2	176/139
			Jul	CL	5	713/1749	8	232/346
			Sep	CL	3	501/624		
			Oct	CL	4	446/1024		
			Dec	CL	1	165/209		
	3N	OTB	Feb	CL	2	665/1011	2	114/172
			May	CL	3	695/1169	3	164/282
			Sep	CL	3	551/510	3	165/254
			Oct	CL	2	521/581	2	103/170
	30	OTB	Mar	CL	2	383/585	2	75/129
			Jul	CL	1	277/681	1	51/97
	3Ps	OTB	Mar	CL	2	389/562	2	186/264 <sup>1</sup>
			Apr	CL	1	43/229	1	186/264 <sup>1</sup>
Sep			CL	2	191/584	2	94/187	
Poland	2J	OTB	Feb	CC	1	476		
			Mar	CC	1	898		
	3L	OTB	Feb	CC	1	762		

<sup>1</sup> Same key used for March and April samples.

Table 8. Witch flounder length and age sampling data for 1974.

Country	ICNAF Div.	Gear	Month	Type of sample	Length samples		Age samples	
					No.	No. meas.	No.	No. aged
Canada (M)	4T	OTB	May	CL	1	67/147	1	25/43
	4Vn	OTB	Jan	CL	1	81/119	3	48/63
			Mar	CL	2	165/235		
	4Vs	OTB	Mar	CL	3	235/365	3	48/71
			Apr	CL	1	89/111	1	18/24
	4W	SN	Apr	CL	1	112/90	1	14/13
Sep			CL	1	68/132	1	14/18	
Canada (N)	3K	GN	Jul	CL	18	682/1625	3	117/158
	3L	OTB	Oct	CL	3	767/713	3	124/126
			GN	Aug	CL	1	64/170	-
	30	OTB	Mar	CL	3	474/557	-	161/202
Poland	2J	OTB	Feb	CC	2	1028		
			Mar	CC	1	852		
	3K	OTB	Feb	CC	2	1018		
			Mar	CC	5	3549		

Table 9. Yellowtail flounder length and age sampling data for 1974.

Country	ICNAF Div.	Gear	Month	Type of sample	Length samples		Age samples	
					No.	No. meas.	No.	No. aged
Canada (M)	4Vs	OTB	May	CL	1	48/100	1	11/17

Table 9. Yellowtail flounder (continued)

Country	ICNAF Div.	Gear	Month	Type of sample	Length samples		Age samples		
					No.	No. meas.	No.	No. aged	
Canada (N)	3L	OTB	Feb	CL	1	488/502	2	132/137 <sup>1</sup>	
			Jun	CL	1	255/289	2	132/137 <sup>1</sup>	
			Nov	CL	1	75/84	-	-	
	3N	OTB	May	CL	3	755/624	}	3	171/202
			Jun	CL	1	284/271			
			Sep	CL	1	238/275			
			Nov	CL	1	46/330			
	30	OTB	Mar	CL	1	311/225	1	36/46	
	USA	5Z(E69°)	OTB	Jan	CL	5	185/281		
				Feb	CL	5	237/318		
Mar				CL	5	238/255			
Apr				CL	7	449/337			
May				CL	5	334/174			
Jun				CL	7	444/282			
Jul				CL	12	558/700			
Aug				CL	8	351/515			
Sep				CL	9	295/639			
Oct				CL	10	457/686			
Nov				CL	5	233/261			
Dec				CL	9	507/528			
5Z(W69°)		OTB	Jan	CL	4	216/237			
			Feb	CL	7	458/468			
			Mar	CL	3	141/199			
			Apr	CL	6	504/317			
			May	CL	4	277/187			
			Jun	CL	1	29/66			
			Jul	CL	6	343/514			
			Aug	CL	8	549/606			
			Sep	CL	2	138/134			
			Oct	CL	9	587/656			
			Nov	CL	3	207/229			
			Dec	CL	7	461/479			

<sup>1</sup> Same key used for Feb. and June samples.

Table 10. Greenland halibut length and age sampling data for 1974.

Country	ICNAF Div.	Gear	Month	Type of sample	Length samples		Age samples	
					No.	No. meas.	No.	No. aged
Canada (N)	3K	GN	Jul	CC	8	448/648	2	69/81
Denmark (G)	1B	OTB	Nov	CC	1	1087		
	1D(+E)	OTB	Mar	CC	1	757		
German Dem. Rep.	0B	OTB	Sep	RC	2	313		
	1C	OTB	Sep	RC	2	488	1	52/52
Poland	2J	OTB	Jan	CC	1	353		
			Feb	CC	1	342		
			Mar	CC	1	262		
			Apr	CC	4	4167		
	3K	OTB	Apr	CC	1	1591		

Table 11. Winter flounder length and age sampling data for 1974.

Country	ICNAF Div.	Gear	Month	Type of sample	Length samples		Age samples	
					No.	No. meas.	No.	No. aged
Canada (M)	4T	OTB	Oct	CL	2	170/230	3	44/62
			Nov	CL	1	75/125		

Table 12. Roundnose grenadier length and age sampling data for 1974.

Country	ICNAF Div.	Gear	Month	Type of sample	Length samples		Age samples	
					No.	No. meas.	No.	No. aged
Denmark (G)	0B	OTB	Jul	RC	2	113		
	1C	OTB	Jul	RC	5	254		
German Dem. Rep.	0B	OTB	Sep	RC	5	2647	-	-
	1C	OTB	Sep	RC	13	7008	-	-
	0B(+1C)	OTB	Oct	CC	2	136/64	2	80/44
	2H	OTB	Oct Nov	CC CC	24 8	3838/2871 1355/1234	8	240/205

Table 13. Scup length and age sampling data for 1974.

Country	ICNAF Div.	Gear	Month	Type of sample	Length samples		Age samples	
					No.	No. meas.	No.	No. aged
USA	5Zw	OTB	Oct	CL	2	154		
			Nov	CL	3	284		
	6A	FPN	Apr	CL	3	497		
			May	CL	1	187		
			Nov	CL	1	71		
	LHP	Aug	CL	2	181			
		Sep	CL	1	65			
FPN	Aug	CL	1	146				

Table 14. White hake length and age sampling data for 1974.

Country	ICNAF Div.	Gear	Month	Type of sample	Length samples		Age samples	
					No.	No. meas.	No.	No. aged
Canada (M)	4X	LL	May	CL	1	275	1	60

Table 15. Wolffishes length and age sampling data for 1974.

Country	ICNAF Div.	Gear	Month	Type of sample	Length samples		Age samples	
					No.	No. meas.	No.	No. aged
Denmark (G)	1D	OTB	Jul	CL	1	291 (striped)		
	1D	OTB	Jul	CL	1	127 (spotted)		

Table 16. Atlantic herring length and age sampling data for 1974.

Country	ICNAF Div.	Gear	Month	Type of sample	Length samples		Age samples				
					No.	No. meas.	No.	No. aged			
Canada (M)	4T	PS(OTM)	May	CC	2	308	}	-	-		
			Jul	CC	5	746		-	-		
			Aug	CC	15	1965		-	-		
			Sep	CC	22	2502		-	-		
			Oct	CC	8	1857		-	-		
		Nov	CC	2	468	-		-			
		GN	May	CC	25	3175		-	-		
			Jun	CC	4	362		-	-		
			Jul	CC	1	225		-	-		
			Aug	CC	3	320		-	-		
	4Vn	FPN	May	CC	8	1627	-	-			
			PS(OTM)	Jan	CC	1	206	1	45		
		May		CC	1	79	}	2	179		
		Jun		CC	1	100					
		Nov		CC	37	8399					
		Dec		CC	32	7876					
		GN	Jun	CC	3	253	4	199			
			4W	PS	Jan	CC	60	8326	}	78	3125
					Feb	CC	64	9642			
		Jun		CC	1	66	-	-			
		Dec		CC	3	601	3	118			
		FPN	Jun	CC	1	122	1	32			
			Jul	CC	10	1991	6	259			
		4X(NS)	PS	May	CC	1	66	}	33	1473	
				Jun	CC	43	7804				
				Jul	CC	48	9042				
				Aug	CC	37	7747				
				Sep	CC	5	1319				
	Oct			CC	7	1445					
	GN			May	CC	4	695				}
	Jun	CC	6	940							
	Jul	CC	5	602							
	Aug	CC	9	1557							
Sep	CC	1	321								
FWR	May	CC	17	2787	}	31	1460				
	Jun	CC	14	2464							
	Jul	CC	8	1527							
	Aug	CC	1	251							
	Sep	CC	1	227							
4X(NB)	PS	Jan	CC	25	6021	}	30	1208			
		Feb	CC	12	4292						
		Mar	CC	6	1395						
		Apr	CC	19	4461						
		May	CC	1	224						
		Sep	CC	15	1953				17	805	
						10	390				

Table 16. Atlantic herring (continued)

Country	ICNAF Div.	Gear	Month	Type of sample	Length samples		Age samples	
					No.	No. meas.	No.	No. aged
Canada (M) (cont'd)	4X(NB)	PS	Oct	CC	8	1247	18	859
			Nov	CC	10	1329		
			Dec	CC	18	2350		
		FWR	Apr	CC	2	411	29	1000
			May	CC	24	4191		
			Jun	CC	16	2689		
	Jul		CC	38	4887			
	Aug		CC	62	7271			
	Sep		CC	28	3802			
	5Y	PS	Oct	CC	13	1731	14	769
			Nov	CC	3	605		
			Aug	CC	2	251		
5Y		PS	Sep	CC	3	548	5	172
			Aug	CC	2	251		
			Sep	CC	3	548		
Fed. Rep. Germany	4X	OTM	Mar	RC	4	1100	2	201
	5Z	OTM	Mar	RC	28	4847	8	792
			Apr	RC	6	1331	2	205
	5Z	OTM	Sep	CC	49	13844	17	1689
			Oct	CC	6	2502	-	-
German Dem. Rep.	5Y	OTM	Aug	CC	3	536	2	201
	5Ze	OTM	Aug	CC	21	5036	32	2633
			Sep	CC	24	6043		
Japan	5Ze	OTB	Sep	CC	10	1781		
			Oct	CC	14	2190		
Poland	5Y	OTM	Jul	CC	1	679	2	201
			Aug	CC	2	702		
	5Ze	OTM	May	CC	6	1720	-	2645
			Jun	CC	13	5532		
			Jul	CC	6	4198		
			Aug	CC	12	12009		
			Sep	CC	36	6109		
			Oct	CC	19	6109		
	5Zw	OTM	May	CC	1	309	-	200
			Jun	CC	2	489		
Romania	5Ze	OTM	Jul	CC	2	200	3	300
			Aug	CC	2	200		
USSR	4V	PS	May	CC	4	800	-	-
	4W(+X)	OTB	May	CC	3	600	-	-
			Jul	CC	2	400	-	-
			Sep	CC	21	4246	-	-
			Oct	CC	9	1930	-	-
			May	CC	1	200	-	-
	5Z	OTB	Jun	CC	3	600	-	-
			Jan	CC	1	200	-	405
	Feb	CC	8	1600				
	Mar	CC	20	4000				
	Apr	CC	15	3000				
	May	CC	5	1001				
	Sep	CC	25	4969				
	Oct	CC	37	7410				
Nov	CC	3	600	-	258			

Table 16. Atlantic herring (continued)

Country	ICNAF Div.	Gear	Month	Type of sample	Length samples		Age samples			
					No.	No. meas.	No.	No. aged		
USSR	5Z	PS	Mar	CC	4	800	}	-	-	
			May	CC	1	200		-	-	
			Jun	CC	2	400		-	-	
USA	5Y(N)	(NS)	Jan	CC	1	41	}	1	15	
			Jun	CC	8	1154		6	363	
			Jul	CC	32	2445		}	62	1259
			Aug	CC	30	2211				
			Sep	CC	38	2399				
			Oct	CC	44	3706		}	43	976
			Nov	CC	13	998				
			Dec	CC	2	80				
	Feb	CC	5	370	}	15	373			
	Mar	CC	7	359						
	Apr	CC	11	341				}	21	441
	May	CC	4	304						
	Jul	CC	1	69				}	1	17
	Oct	CC	4	400						
	Nov	CC	7	507						
	Dec	CC	5	457						
		5Ze	OTB	Oct	CC	1	103		-	-
	5Zw	OTB	Mar	CL	8	491		10	328	

Table 17. Atlantic mackerel length and age sampling data for 1974.

Country	ICNAF Div	Gear	Month	Type of sample	Length samples		Age samples			
					No.	No. meas.	No.	No. aged		
Bulgaria	5Zw(+6)	OTM	Jan	CL	1	663	}	6	1360	
			Feb	CL	1	444				
			Mar	CL	4	1230				
			Apr	CL	2	492				
			May	CL	2	478				
Canada (M)	4T	PS	Jul	CC	13	1941	}	8	269 <sup>1</sup>	
			Sep	CC	4	547				
		GN	Jun	CC	1	97	}	1	43	
	Jul		CC	2	221					
	Aug		CC	1	101					
		LHP	Sep	CC	2	205	}	8	269 <sup>1</sup>	
			PS	Sep	CC	2				353
		Oct		CC	4	741				
		Nov		CC	4	587				
		LHP	Sep	CC	2	320	}	3	132 <sup>2</sup>	
			FPN	Jun	CC	1				118
		Jul		CC	3	426	}	3	132 <sup>2</sup>	
		4W	GN	Jun	CC	1				103
				Jun	CC	2	168			
				Jul	CC	2	371			
		4X	OTB	May	CC	1	201	}	11	437 <sup>3</sup>
				GN	May	CC	6			
			Jun	CC	6	1177		11	437 <sup>3</sup>	

Table 17. Atlantic mackerel (continued)

Country	ICNAF Div.	Gear	Month	Type of sample	Length samples		Age samples		
					No.	No. meas.	No.	No. aged	
Canada (M)	4X	FPN	May	CC	2	216	}	11	437 <sup>3</sup>
			Jun	CC	3	571			
			Aug	CC	2	299			
			Sep	CC	6	1317			
			Oct	CC	3	527			
			Aug	FWR	CC	1	210	-	-
Canada (N)	3	SB	Jul	CL	1	25	}	1	25
			Sep	CL	3	150			
		GN	Jul	CL	3	125	}	14	500
			Aug	CL	11	375			
			Dec	CL	4	140			
		FPN	Jul	CL	4	140	}	26	1205
			Aug	CL	17	825			
			Sep	CL	5	250			
			Oct	CL	1	50			
		4R	FPN	Jul	CL	3	125	}	7
Aug	CL			4	200				
German Dem. Rep.	5(+6)	OTM	Jan	CC	11	3930	}	3	250
			Mar	CC	5	1990			
			Apr	CC	17	8072			
			Nov	CC	7	1299			
			Dec	CC	6	1891			
Poland	5Z	OTB	Sep	RC	1	412	}	1	89
			Oct	RC	2	1850			
		OTM	Jan	CC	3	1156	}	29	2814
			Mar	CC	2	570			
			Apr	CC	3	1064			
			May	CC	5	1572			
	Jun		CC	22	7587				
	Jul		CC	6	1682				
	Aug	CC	4	1034	}	10	992		
	6A	OTM	Jan	CC				6	1956
			Feb	CC	1	415			
			Mar	CC	2	474			
			Apr	CC	5	1452			
6B	OTM	Feb	CC	1	423	}	1	103	
		Apr	CC	1	176				1
Romania	5Ze	OTM	Jun	CC	5	500	}	2	201
			Jul	CC	3	300			
			Aug	CC	2	200			
	6	OTM	Jan	CC	6	606	}	7	651
			Feb	CC	15	1479			
			Mar	CC	3	325			
			Apr	CC	2	225			
USSR	5Z	OTB	Jan	CC	28	5600	}	-	321 <sup>4</sup>
			Feb	CC	23	4600			
			Mar	CC	38	7600			
			Apr	CC	43	8563			
			May	CC	17	3400			
			Jun	CC	8	1600			
			Jul	CC	24	4840			
			Aug	CC	2	400			

Table 17. Atlantic mackerel (continued)

Country	ICNAF Div.	Gear	Month	Type of sample	Length samples		Age samples	
					No.	No. meas.	No.	No. aged
	6	OTB	Jan	CC	11	2200	-	321 <sup>4</sup>
			Feb	CC	29	5800		
			Mar	CC	28	5600		
USA	5Y	PS	Aug	CC	1	100		
		FPN	Jun	CL	1	100		
			Jul	CL	1	100		

<sup>1</sup> Same key used for PS, GN and LHP.

<sup>2</sup> Same key used for PS, LHP and FPN.

<sup>3</sup> Same key used for OTB, GN and FPN.

<sup>4</sup> Same key used for Div. 5Z and 6.

Table 18. Atlantic butterfish length and age sampling data for 1974.

Country	ICNAF Div.	Gear	Month	Type of sample	Length samples		Age samples	
					No.	No. meas.	No.	No. aged
Japan	5Ze	OTB	Mar	CC	4	750		
			Jun	CC	5	505		
			Dec	CC	2	310		
	5Zw	OTB	Jan	CC	3	90		
			Feb	CC	3	593		
			Mar	CC	2	423		
			May	CC	1	198		
	6A	OTB	Jan	CC	3	90		
			Feb	CC	3	90		
			Mar	CC	8	1547		
			Apr	CC	3	577		
			May	CC	1	99		
			Jul	CC	4	496		
			Nov	CC	1	103		
	6B	OTB	Feb	CC	3	90		
			Mar	CC	2	330		
			Apr	CC	7	985		
			Aug	CC	4	387		
			Sep	CC	1	98		
	6C	OTB	Nov	CC	1	98		
			Sep	CC	2	434		
Oct			CC	1	89			
			Nov	CC	1	125		
USA	5Zw	OTB	Jun	CL	1	510		
			Aug	CL	1	29		
			Sep	CL	1	202		
			Oct	CL	2	223		
			Nov	CL	1	364		
	6A	OTB	Dec	CL	1	110		

Table 19. Atlantic menhaden length and age sampling data for 1974.

Country	ICNAF Div.	Gear	Month	Type of sample	Length samples		Age samples	
					No.	No. meas.	No.	No. aged
Romania	5Ze	OTM	Jul	CC	2	200	-	-
	6B	OTM	Feb	CC	2	200	2	200

Table 20. Atlantic argentine length and age sampling data for 1974.

Country	ICNAF Div.	Gear	Month	Type of sample	Length samples		Age samples	
					No.	No. meas.	No.	No. aged
Japan	3P	OTB	Apr	CC	2	220		
			Aug	CC	1	198		
	4V	OTB	Apr	CC	11	1160		

Table 21. Blueback herring length and age sampling data for 1974.

Country	ICNAF Div.	Gear	Month	Type of sample	Length samples		Age samples	
					No.	No. meas.	No.	No. aged
Romania	6	OTM	Feb	CC	8	803	2	203
			Mar	CC	2	200		

Table 22. Capelin length and age sampling data for 1974.

Country	ICNAF Div.	Gear	Month	Type of sample	Length samples		Age samples	
					No.	No. meas.	No.	No. aged
Norway	3L	PS	May	CC	7	384/340	12	317/360
			Jun	CC	5	237/306		
	3N	OTB	Jun	CC	8	453/306	8	192/191
			Jul	CC	10	858/285	10	317/225

Table 23. Long-finned squid (*Loligo*) length and age sampling data for 1974.

Country	ICNAF Div.	Gear	Month	Type of sample	Length samples		Age samples	
					No.	No. meas.	No.	No. aged
Japan	5Ze	OTB	Jan	CC	3	605		
			Mar	CC	9	2125		
			Dec	CC	10	1239		
	5Zw	OTB	Feb	CC	2	342		
			Mar	CC	14	2853		
			Apr	CC	1	97		
	6A	OTB	Jan	CC	5	150		
			Feb	CC	6	347		
		OTB	Mar	CC	5	1110		
			Apr	CC	2	404		
			Nov	CC	2	191		
			Dec	CC	1	103		
	6B	OTB	Feb	CC	2	340		
			Mar	CC	5	1000		
			Apr	CC	15	2830		
			May	CC	1	104		
			Jul	CC	3	299		
			Aug	CC	2	409		
			Sep	CC	9	633		

Table 23. Long-finned squid (*Loligo*) (continued)

Country	ICNAF Div.	Gear	Month	Type of sample	Length samples		Age samples	
					No.	No. meas.	No.	No. aged
Japan	6B	OTB	Oct	CC	1	204		
			Nov	CC	4	715		
			Dec	CC	1	115		
	6C	OTB	Sep	CC	4	659		
			Oct	CC	3	447		
			Nov	CC	4	458		
-----								
Poland	5Ze	OTB	Jun	RC	1	107		
			Jul	RC	1	74		
	5Zw	OTB	Sep	RC	21	3997		
	6A	OTB	Oct	RC	10	1997		
-----								
USSR	5Z	OTB	Jan	CC	17	3500		
			Feb	CC	2	400		
			Mar	CC	1	200		
			Apr	CC	3	650		
			May	CC	2	400		
	6	OTB	Jan	CC	1	200		
			Apr	CC	2	400		
			-----					
USA	5Ze	OTB	Oct	CL	1	88		
	5Zw	OTB	Jul	CL	1	118		
			Oct	CL	2	417		
	6A	OTB	Apr	CL	1	100		
			Jun	CL	1	187		
			Jul	CL	1	133		
			Nov	CL	1	45		

Table 24. Short-finned squid (*Illex*) length and age sampling data for 1974.

Country	ICNAF Div.	Gear	Month	Type of sample	Length samples		Age samples	
					No.	No. meas.	No.	No. aged
Japan	5Zw	OTB	Mar	CC	3	550		
			6A	OTB	Mar	CC	4	770
	Apr	CC	9		1750			
	Jun	CC	9		905			
	Jul	CC	3		280			
	Aug	CC	3		403			
	Sep	CC	2		181			
	6B	OTB	Feb	CC	2	350		
			Mar	CC	3	600		
			Apr	CC	14	2620		
			Jul	CC	1	186		
			Aug	CC	3	586		
			Sep	CC	10	1583		
			6C	OTB	Sep	CC	2	402
	-----							
Poland	4X	OTB	Sep	RC	6	1115		
	5Ze	OTB	Jun	CC	20	3901		
			Jul	CC	12	2408		
			Sep	RC	9	1840		
Oct			RC	4	762			

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

Country	ICNAF Div.	Gear	Month	Type of sample	Length samples		Age samples	
					No.	No. meas.	No.	No. aged
Poland	6A	OTB	Sep	RC	11	2175		
	6B	OTB	Sep	RC	3	492		
-----								
USA	4W	OTB	Sep	CL	1	50		
	4X	OTB	Aug	CL	2	99		
	5Y	OTB	Sep	CL	1	81		
			Oct	CL	1	50		
		FPN	Jul	CL	1	50		

Table 25. Squid (*NS*) length and age sampling data for 1974.

Country	ICNAF Div.	Gear	Month	Type of sample	Length samples		Age samples	
					No.	No. meas.	No.	No. aged
USA	5Ze	OTB	May	CL	1	97		
	5Zw	OTB	Apr	CL	1	100		
		FPN	Apr	CL	1	51		

Table 26. Sea scallops length and age sampling data for 1974.

Country	ICNAF Div.	Gear	Month	Type of sample	Length samples		Age samples	
					No.	No. meas.	No.	No. aged
USA	5Y	DRB	Jan	CL	1	478		
			Apr	CL	2	503		
			May	CL	1	712		
	5Ze	DRB	Jan	CL	6	1784		
			Feb	CL	2	662		
			Mar	CL	4	1365		
			Apr	CL	7	1844		
			Aug	CL	5	1841		
			Sep	CL	2	559		
			Oct	CL	2	466		
			Nov	CL	2	357		
			Dec	CL	2	516		
			6	DRB	May	CL	2	1325
	Jun	CL			2	889		
	Jul	CL			2	1227		
	Aug	CL			6	2377		
	Sep	CL			1	279		
	Oct	CL			3	1728		
	Nov	CL			2	556		
	Dec	CL	2	835				



## PART 4

### Sampling Data from Research Vessel Surveys, 1974

The following table contains a list of available sampling data from research vessel surveys conducted in the ICNAF Area by certain countries in 1974. 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-meshed liners. In the case of some species (e.g. herring and mackerel) which are normally caught commercially with small-meshed trawls, both research and commercial sampling data are listed in the previous section. The abbreviations for gears are defined on page 23.

Table 27. Research sampling data for 1974.

SPECIES Country	ICNAF Div.	Gear	Month	Type of sample	Length samples		Age samples	
					No.	No. meas.	No.	No. aged
<u>ATLANTIC COD</u>								
Canada (Q)	4T	OTB	Aug	RC	29	1462	-	-
Fed. Rep. Germany 2J		OTB	Nov	RC	15	416	33	932
			Dec	RC	21	697		
<u>ATLANTIC REDFISH</u>								
Canada (Q)	4S	OTB	Aug	RC	11	2213		
	4T	OTB	Aug	RC	13	4175		
Denmark (G)	0B	OTB	Aug	RC	2	671		
			Aug	RC	2	111		
	1A	OTB	Sep	RC	11	1415		
			Jan	RC	1	186		
			Apr	RC	2	129		
	1C	OTB	Dec	RC	2	94		
			Jan	RC	3	1205		
			Jun	RC	5	2564		
Jul			RC	3	2704			
1D	OTB	Nov	RC	3	1091			
		Dec	RC	1	135			
France (SP)	3Pn	OTB	Jan	RC	4	1176		
			Jan	RC	1	226		
	3Ps	OTB	Feb	RC	8	2209		
			Mar	RC	2	290		
			Jan	RC	12	3354		
	4R	OTB	Nov	RC	11	3493		
			Feb	RC	3	786		
	4Vn	OTB	Mar	RC	3	759		
			Feb	RC	11	3590		
	4Vs	OTB	Mar	RC	9	2291		
Mar			RC	6	1151			
4W	OTB	Mar	RC	6	1151			
5Ze	OTM	Oct	RC	2	331			
Fed. Rep. Germany 2J		OTB	Nov	RC	9	1673/1365	2	124/128

Table 27. Research (continued)

SPECIES Country	ICNAF Div.	Gear	Month	Type of sample	Length samples		Age samples	
					No.	No. meas.	No.	No. aged
<u>AMERICAN PLAICE</u>								
Canada (Q)	4T	OTB	Aug	RC	24	6117		
Denmark (G)	1A	OTB	Sep	RC	6	186		
			Jan	RC	2	2445		
			Apr	RC	2	1304		
			Jun	RC	1	905		
	1D	OTB	Dec	RC	2	298		
			Jan	RC	3	2793		
			Mar	RC	1	391		
			Jun	RC	6	685		
			Jul	RC	5	1181		
			Nov	RC	3	1957		
Dec	RC	1	219					
<u>GREENLAND HALIBUT</u>								
Denmark (G)	0B	OTB	Jul	RC	3	177		
			Aug	RC	4	1496		
	1A	OTB	Sep	RC	11	933		
			Jul	RC	1	250		
	1B	OTB	Jul	RC	1	250		
	1C	OTB	Jul	RC	4	82		
	1D	OTB	Jan	RC	3	223		
			Mar	RC	1	401		
			Jun	RC	5	272		
			Jul	RC	5	166		
Nov			RC	3	495			
Dec	RC	1	83					
<u>GREENLAND COD</u>								
Denmark (G)	1D	OTB	Mar	RC	1	122		
			Nov	RC	3	183		
<u>POLAR COD</u>								
Fed. Rep. Germany	2J	OTB	Nov	RC	3	936		
<u>ATLANTIC HERRING</u>								
France (SP)	4Vn	OTB	Mar	RC	5	2649	-	-
	5Ze	OTB	Sep	RC	15	3672	2	202
			Oct	RC	7	1723	-	-
<u>CAPELIN</u>								
Denmark (G)	1C	OTM	Mar	RC	-	653 <sup>1</sup>		
	1D	OTM	May	RC	-	240		
			Jun	RC	-	70 <sup>1</sup>		
			Jul	RC	-	225 <sup>1</sup>		
			Aug	RC	-	300 <sup>1</sup>		
			Oct	RC	-	200 <sup>1</sup>		
			Dec	RC	-	1095 <sup>1</sup>		

<sup>1</sup> Includes samples listed by sex.