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Extracts from Report of "Statistical News-Letter" Working Group  
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REPORT OF "STATISTICAL NEWS-LETTERS" WORKING GROUP

The Working Group met at the Fisheries Research Institute, IJmuiden, from Thursday 7th-Saturday 10th May. The following members participated:-

J. A. Gulland (Chairman)  
K. P. Anderson  
L. K. Boerema  
R. Letaconnoux  
S. Olsen  
B. B. Parrish (Rapporteur)  
D. Sahrhage.

Terms of Reference and Subject Matter

As defined in the recommendation passed by the Consultative Committee at the Council Meeting in Madrid, the main task of the Working Group was to make proposals for consideration at the 1964 Annual Meeting, concerning the types of fishery statistics and biological "Stock Record" data, especially for the demersal species, which the Council should request from member countries and publish in its Statistical News Letter series. The Group was further requested:-

- (i) to advise the Council on the need for changes in the existing boundaries between Sub-Areas, Divisions and Sub-Divisions in the ICES Statistical Area north, with special reference to Sub-divisions IVa<sub>1</sub> and IVa<sub>2</sub> ;
- (ii) to make proposals concerning the time and area breakdown which should be used by countries in reporting tagged fish liberations to ICES by the "card" scheme.

The following items of subject-matter were therefore dealt with:-

- A. Length grouping to be used in reporting and publishing Stock-Record data.
- B. The form in which length-composition data should be reported and published.
- C. Age compositions and age-length keys.
- D. Time and area breakdown of fishery statistics and Stock Record data for demersal and herring fisheries in ICES area.
- E. Adjustments to boundaries of main statistical "fishing areas".
- F. "Card" scheme for reporting tagged fish liberations.
- G. Other items.

A. Length Grouping

The Group noted that at present the following length groupings are used for different species in publishing length-composition data in the News Letters:-

Cod	)	
Haddock	)	
Saithe	)	
Hake	)	5 cm by some countries
	)	1 cm by others
Whiting	)	
Plaice	)	
Redfish	)	

Sole 1 cm

Herring 1 cm by some countries and  
1/2 cm by others.

Although there is no absolute "best" grouping interval for each species - this depending on the use to which the data are put - it was agreed that, as a reasonable working rule, the grouping interval should be about half the standard deviation of the length distributions for the different species. On this general basis, using estimates of the standard deviation of the lengths of fish of the same age, the Group proposes the following grouping intervals which should be used by all countries when reporting length-composition and age-length key data for News Letters:-

Cod	)	
Saithe	)	3 cm
Hake	)	
Haddock	)	
Plaice	)	2 cm
Whiting	)	
Sole	)	1 cm
Redfish	)	
Herring	)	1/2 cm

The above values for cod, haddock and redfish agrees with those currently used by ICNAF in publishing length-composition data in its "Sampling Year-Book", and that for herring conforms with the recommendation of the Herring Committee at its Annual Meeting in 1962 (see Reports of the North Sea Atlanto-Scandian Herring Methods Working Groups).

The Group stresses the importance of uniformity, not only in the sizes of the Grouping intervals, but also in their specification on the actual length scale. It therefore proposes that they should commence from zero and be specified in tabulations by their true mid-points on the length scale. Thus, for measurements taken to the cm below, for cod (3 cm grouping interval), haddock (2 cm grouping interval), sole (1 cm grouping interval) and herring (1/2 cm grouping interval), the mid-points would be as follows:-

Cod	1.5, 4.5, 7.5, 10.5	..... cm
Haddock	1.0, 3.0, 5.0, 7.0,	..... cm
Sole	0.5, 1.5, 2.5, 3.5,	..... cm
Herring	0.25, 0.75, 1.25, 1.75	..... cm

For measurements taken to the nearest cm, the mid-points would be 1/2 cm lower:- e.g. for cod, 1.0, 4.0, 7.0, 10.0 ..... cm.

The Group recognized that, in order to achieve uniformity between the length compositions and age-length keys supplied by member countries, it is necessary to take report and report their length measurements in the same way for each species (but not necessarily in the same way for all species). At present, some species are measured sometimes to the cm below and at other times to the nearest cm. There may also be differences in the actual length measure used, e.g. total length or fork length. The Group therefore proposes that Committees should give further detailed consideration to the possibility of standardising the methods of length measurement and of establishing the type of measurements which should be taken for different species. However, it recognizes that difficulties often arise within countries in changing from one system of measurement to another. Therefore, in the event of uniformity of procedure not being possible, all countries supplying length data for publication in the New Letters should provide footnotes indicating which system of measurement has been used (i.e. cm below, nearest cm, fork length, total length, etc.).

## B. Reporting of Length-Composition Data

The Length-composition data published hitherto in the "Statistical News Letters" fall into two main categories, as follows:

- (a) Those obtained from comprehensive market sampling programmes for a fishery.
- (b) Ad-hoc sampling of commercial catches or landings, research vessels, etc.

The Group considers that though, for assessment purposes in particular, the first of these is the more valuable, data from both of these sources are valuable and should continue to be reported, but it proposes that countries, when supplying data, should specify to which category the data belong. It also proposes that data from source (a) should, if possible, be expressed as the length composition of the total landings of that species for the particular gear, area and time interval (see Section D.). They should also be accompanied by the following additional information:-

- (1) No. of ships sampled
- (2) No. or weight of fish measured
- (3) Total number or weight of fish landed by the fishery for the particular gear, area and time period
- (4) The fishing effort expended by the particular fishery.

On the other hand, for data from source (b), the length compositions should be on a "per-mille" basis, and should be accompanied by the following additional information:-

- (1) Source (e.g. Research ship, commercial ship, etc.)
- (2) Gear used and its mesh size (trawl or seine)
- (3) Number or weight of fish measured
- (4) Number or weight of fish caught.

## C. Age Composition and Age-Length Keys

### (a) Comparability of age-readings

The Group recognized that a first essential in publishing routine age data in the "Statistical News Letters" is a good level of agreement between the age-readings for a species, between the reporting countries. While, for some species, e.g. herring and sole, and to a lesser extent, whiting and coalfish, this has been achieved and confirmed by comparative studies between countries, for others agreement is known to be poor - e.g. redfish - or has not been thoroughly investigated - e.g. cod, haddock, plaice and hake. Therefore in view of the importance of achieving the highest possible level of agreement in age-reading, the Group proposes that ICES Committees should consider the instigation of new or extension of existing, comparative age-reading studies. The importance of continuing these studies even after good agreement is achieved, for the benefit of the new workers is also stressed. For the purposes, a regular otolith and / or scale exchange programme, as is currently being undertaken by ICNAF, would seem most appropriate for method of procedure. However, the importance, where necessary, of age-readings - as recently arranged by ICNAF for cod is also stressed.

The Group considers that, until the age-reading difficulties for redfish have been overcome, and a higher level of agreement in age-readings between countries has been achieved, age data for this species should not be published in the Statistical News Letters.

(b) Reporting and Publishing of age data

The form in which age data should be reported to ICES and published in the Statistical News Letters was considered from the points of both scientific usefulness and cost. The Group agreed that while the publication of age-composition directly has undoubted advantages in terms of space and cost, the presentation of the data in the form of age-length keys has a number of advantages in terms of scientific usefulness. Therefore, it proposes that age-data for each species published in the Statistical News Letters should be in the form of age-length keys, for appropriate area and time subdivision (see Section D). This applies whether the data are collected as part of a comprehensive market sampling programme for length and age, or as ad hoc sampling of commercial or research vessel catches. Further, so as to avoid unnecessary duplication of data in the publication, it proposes that, especially for comprehensive market sampling programmes, the age-length key and length-composition data (as specified in Section B) should where possible, be combined in the same tables. The outline of such a table is given on the top of page 4.

Age Year	1	2	3	4	5.....10	No. of age-readings	No. of fish in total landings
	1964	1963	1962	.....	1955		
Length Class							
1.5							
4.5	Figures in the age-length key to be the <u>actual number of ages read - not the percentage</u>						
.							
.							
.							
19.5 etc.							
Age Comp. per mille							TOTAL
No. of fish in TOTAL LANDINGS							

As indicated for length compositions, the following additional information referring to the data in each table should be supplied:-

- (1) No. of ships sampled
- (2) No. of weight of fish measured in sampling programme
- (3) Total No. of weight of fish landed in the fishery
- (4) Fishing effort (hours fishing etc.) .

In the case of ad hoc sampling, the table would be the same general form as that specified above, except that (1) in the column on the right-hand side of the table, the per mille length composition would be given instead of the length composition of the total landings; (2) the row giving age composition of the total landings would be omitted; (3) the additional information to be supplied would be the number of fish measured.

The Group agreed that in reporting age data for a species, whether as age-composition or age-length keys, it is very desirable for all countries to adopt the same age reference. It is therefore proposed that all countries should adopt a standard age reference. A "fixed" birthday date of 1st of January for all species is suggested. The year-class, to which the age-reading refers, should also be reported.

The Group also recognized that, because many countries supply routine Stock Record data to both ICES and ICNAF, there is a need for the greatest possible uniformity in the measurement and reporting procedure for the two organizations. Therefore, it strongly recommends that a joint meeting of ICES and ICNAF scientists be held in the near future to consider ways of achieving greater uniformity in these procedures, with special reference to length measurements.

The Group also discussed briefly the sampling work involved in collecting age and length data. It is clear that there are many problems occurring in this work such as the best time and place to take samples (research ship, on board commercial vessels, on the market, etc.). the best size of sample to take and sampling for age-length keys. The Group therefore recommends that the proposed meeting should also discuss these problems.

#### D. Time and Area Breakdown of Fishery Statistics and Stock Record Data

##### 1. All Species other than herring

##### Division Va (Iceland) and Sub-Area XIV (E. Greenland)

##### (1) Fishery Statistics

At present, detailed statistics of catch and fishing effort of the main demersal fisheries at Iceland and E. Greenland (i. e. cod, haddock, coalfish, redfish and plaice) are collected by Iceland, England and Scotland on a standard statistical rectangle (1° longitude by 1/2° latitude) basis, while Germany collects them on a somewhat larger area breakdown by fishing grounds. The Working Group proposes that all countries should, if possible, report their catch and effort statistics for these species for publication in Statistical News Letters by statistical rectangle and month, but where this is not possible, they should do so: on a fishing ground basis, (e. g. Germany), the boundaries between the chosen areas being made to coincide with boundaries between the standard statistical rectangles.

##### (2) Stock Record Data

##### Length Compositions

These should be reported for each species (cod, haddock, coalfish, redfish, plaice) by calendar quarters and Sub-Area (i. e. Iceland and E. Greenland)

##### Age-Length Keys

These should be reported for each species (except redfish) by calendar quarter for each Sub-Area separately.

##### "Card" System for Reporting Tagged Fish Liberations

The Working Group agreed that a prompt, general circulation between countries of summary information on the liberation of tagged fish was of major importance and should be continued. However, it questions whether the ICNAF "card" scheme recently adopted by ICES is the quickest and most economical method of procedure. By this method, laboratories have to first prepare the summary card and send them for duplication to the ICES Secretariat. Because of inevitable delays in the despatch of cards, in postal delivery and duplication, the summary data are usually received by countries more than a month after the liberations were made, by which time a number of tagged fish have been reported. The Working Group considers that the information would be received more promptly and at less total cost if it was distributed directly to all countries by the laboratories undertaking the work. This could be either in the form of the post cards, as in the present scheme or as duplicated lists. It therefore proposes that consideration should be given to changing from the "card" to a direct national reporting system, whereby each laboratory circulates summaries of its tag

liberations to countries immediately following the completion of each tagging experiment, the time and area groupings used in compiling the summaries being left to the discretion of the laboratory concerned. A list of the addresses to which summaries should be sent should be supplied to all laboratories by the ICES Secretariat.