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On Methods on Presenting Data in Sampling Yearbook and Problems Encountered
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The Working Group on Sampling and Discards at the Annual Meeting held in 1961 reviewed the Sampling Yearbook for 1959 and made the following recommendation:

"that the order of breakdown should be: SPECIES, AREA, GEAR, COUNTRY, MONTH."

I will endeavour to consider this recommendation but in review should note that the present order of breakdown is by SPECIES, COUNTRY, GEAR, AREA, MONTH for both LENGTH FREQUENCIES and AGE FREQUENCIES, but with some variation in the presentation of AGE/LENGTH KEYS and AGE/LENGTH FREQUENCIES.

I understand that the purpose or objective advanced in the arguments which led to the requested change in order of breakdown was to give a similar order to the Sampling Yearbook as is found in that of the Statistical Bulletin, namely Species, Area, Gear, which prevails throughout the major tables.

The following summary for 1960 will indicate the increase in sampling data which has prevailed over 1959 (which, in itself, had proved a heavy increase over the previous year of 1958):

(L - Length frequencies; A - Age frequencies; AL - Age/Length Keys)

COD — No. of Tables Submitted

	1959				1960			
Country	L	A	AL	Total	L	A	AL	Total
Canada (Maritimes)	10			10	15			15
" (Quebec)	2			2	5			5
" (Newfoundland)	6			6	10			10
Denmark (Faroes)	2	4	3	9				
" (Greenland)	12	13	29	54	11	12	43	66
France (Met.)								
" (St.P&M)								
Germany	7	6		13	5	7	18	30
" (East)								
Iceland								
Italy								
Norway	6	5	6	17	2	6		8
Poland								
Portugal	13	5	33	51	4	4	20	28
Spain	2			2	4			4
USSR	10	3		13	7	19	19	45
UK	1			1	3			3
USA	4			4	2			2
				182				216

HADDOCK

	1959				1960			
Country	L	A	AL	Total	L	A	AL	Total
Canada (Maritimes)	10			10	10			10
" (Quebec)								
" (Newfoundland)	1			1	2			2
Denmark (Faroes)								
" (Greenland)								
France (Met.)								
" (St.P&M)								
Germany					1	1	1	3
" (East)								
Iceland								
Italy								

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HADDOCK (cont'd.)	1959				1960			
Country	L	A	AL	Total	L	A	AL	Total
Norway								
Poland								
Portugal								
Spain								
USSR								
UK								
USA	8		2	10	3		4	7
				21				22

REDFISH	1959				1960			
Country	L	A	AL	Total	L	A	AL	Total
Canada (Maritimes)								
" (Quebec)					1			1
" (Newfoundland)	2			2	2			2
Denmark (Faroes)								
" (Greenland)	3			3	1			1
France (Met.)								
" (St.P&M)								
Germany								
" (East)								
Iceland	7			7	11			11
Italy								
Norway								
Poland								
Portugal								
Spain								
USSR	7	7		14	9	34	61	104
UK								
USA	64			64	62			62
				90				181

AMERICAN PLAICE	1959				1960			
Country	L	A	AL	Total	L	A	AL	Total
Canada (Maritimes)	1			1	1			1
" (Quebec)								
" (Newfoundland)	4			4	5			5
				5				6

WITCH								
Canada (Maritimes)					1			1
" (Quebec)								
" (Newfoundland)								
				Nil				1

TOTAL ALL TABLES	298	426

The above calculations indicate a 19% increase in Tables on Cod Research, no change in Haddock Tables, 100% increase in Redfish Tables, and a negligible increase in Flounder Tables - resulting in an overall increase of 43%.

It should be noted that Vol.4 of the Sampling Yearbook (1959) has possibly reached the maximum size that the publication can attain - any larger than this would make it rather bulky and unmanageable, even if a slightly lighter grade of paper, similar to that of Vol.3 (1958), be chosen.

Returning now to the problem concerning the publishing of Vol.5 of the Sampling Yearbook (1960), with its greatly increased number of data, there are two approaches:

(1) The publication of all data received. This means that Vol.5 would have to be divided into two parts, separately bound - the first including, possibly, Cod, Haddock and Flounder - the second made up entirely of Redfish. It is too early at this writing to state an exact division, but a better idea of this will be known when the Cod, Haddock and Flounder data have been finally assembled and typed on

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stencils. This is based on the assumption that there is to be no change in the present 8 1/2" x 11" dimensions of the publication. Some few objections have been voiced against increasing the dimensions to 8 1/2" x 14" in view of the fact that the Secretariat has been adhering strictly to a standard size publication.

(2) The elimination, from the Sampling Yearbook, of certain of the data now being submitted. In my opening remarks I stated that the purpose or objective, as I understood it, for changing the order of breakdown in the Sampling Yearbook, was to give it an order similar to that of the Statistical Bulletin. This would imply that the Sampling Yearbook is being specifically destined for use in conjunction with the Statistical Bulletin - that it is to become a sort of Statistical Supplement or Statistical Working Key for population frequency studies - and that anything of a purely scientific nature could be considered superfluous to such a publication. It is here that I suggest the elimination of the Age/Length Keys and Age/Length Frequencies from the Sampling Yearbook, because it would appear that these tables are more scientific than statistical, in nature. In retracting, I could foresee, under present circumstances, the Sampling Yearbook containing such other scientific data as: relationship between scale ring count and body length; vertebral number in relation to fish length and sex; fish length/otolith length relationship; etc. And yet, this might be the very sort of information that we should find in a Sampling Yearbook. I leave this for the committee to decide but with the note that 73 of the 298 Tables submitted in 1959 were Age/Length Keys and Frequencies, requiring 66 of the 213 pages of the publication. About 166 of the 426 Tables submitted in 1960 were Age/Length Keys and Frequencies, requiring approximately 150 pages of the 1960 Sampling Yearbook.

This whole problem of volume of data may be solved by control and regulation, through the assigning of specific data which should be submitted by each participant. This would mean the assigning of particular study areas and problems to particular participants for sampling. We could never hope to publish data from all countries for all the divisions in the ICNAF Area by gear types because we would again return to the point at large - volume. However, files could be maintained at the Secretariat for those data which may not be currently required, but which could be made available if and when the need arose.

This could apply also to Age/Length Keys and Frequencies if it were decided that they not be published. I agree that this is not the most satisfactory way of maintaining data for historical purposes in research but it does serve as an alternative method.

This brings us back to my original point concerning the recommended order of breakdown. The increased volume of material received for editing, assembling and typing, the variety of the forms on which it has been received, and a complete changeover of the statistical staff at the Secretariat has not been very conducive in getting out the Sampling Yearbook (Vol.5, 1960) in the order recommended by the Working Group on Sampling and Discards at their last meeting. Nevertheless we are moving ahead with the assembling and typing of ALL data received - on the assumption that, for this publication only, everything must be published even though the volume has to be in two separately bound parts.

I have for the convenience of this committee drafted up specimen tables from the 1959 data showing Length Frequencies for Cod in Division 3L and Age Frequencies for Cod in 1D in the order of breakdown recommended. There was no need to do this for Age/Length Keys or Frequencies since one page is required for each form submitted, except that the pages would, of course, appear in the order recommended. These draft tabulations have brought many minor problems to light which should be reviewed and decided upon by the working committee. Only "Pages One and Two" of each of these tables have been reproduced as an appendix to this report. Each table would consist of some four to fourteen pages.

Length-Frequency Table

Possibly the major problem confronting this issue concerns the length (top to bottom) of the table. A check through the 1959 Sampling Yearbook reveals that the lowest cm grouping for cod starts at the "15-17" range, and the highest cm grouping ends at the "141-143" range. This would require at least 48 line readings, including the > (greater than) and less than (<) readings which frequently occur (the individual readings would be allocated to their proper groupings). Using the format of our current publication, there is provision for only 35 line readings. I should point out that the 48 line readings would possibly be the maximum that could occur in this instance; and if our "specimen" table on length frequencies could be used as a guide there would be only 3 or 4 line items which would have to be eliminated from the table to be reported as footnotes in another

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section of the publication. However we should not brush over this situation lightly because the 3 cm groupings narrow the range - the 2 cm grouping for haddock will widen the scope somewhat, while the 1 cm readings for redfish definitely bring out the problem concerning the length of the table. This is currently being overcome by having the information on sample data for that particular table reported in another section of the book for that particular country. This may pose a bit of a problem to the reader when he finds a great number of these sample data information tables appearing for several countries at the end of each section which, under this new scheme, might be the case. The user of the tables would be required to check through these sample data in order to line up the relevant information. My point is that, initially, we are trying to bring all data (for a particular species, for a particular division, by gears,) into closer proximity, yet, in so doing, appear to be broadening the diversifications. Some thought has been given to have the longer tables running crosswise and occupying two pages. There would not be too much difficulty in lining up the two pages with allowance for binding, but there would be considerable unused space and possibly some blank pages throughout the publication. It would be much better to have the double pages of the table in a continuous form on opposite pages than to have the table on the same sheet with pages back to back. These are the sacrifices we have to make for convenience and facility of use. When reduction is possible, tables will be photographed on stencils so as to keep as much uniformity throughout the book as is feasible. There is one disadvantage against reduced prints by photography and that is, that it makes for inconsistent sized print throughout the publication. This, of course, brings up the case of reporting frequencies greater than (>) or less than (<) a particular length. This appears as a break in the orderliness and continuity of the table, and therefore it would be preferable to have these frequencies given for all length groups.

The form on which length frequencies are requested requires that "Gear" and "Vessel Type and Tonnage Class" be reported, but it should be noted that in the year 1959 only two countries (and then not in all instances) stated the tonnage of the vessel. This causes me to wonder if Tonnage Class is really an essential part of the research or is it that "Gear" should be the deciding factor. We further request that they state whether or not it is "Catches" or "Landings", which is all right in itself if "Catches" imply "Before Discard" and "Landings" imply "After Discard" - but is this really the case? Does it mean anything if it is reported that this sample is the result of "Catches or Landings" or that a catch was "measured at Sea", or that these are "Sea and Wharf Comparisons", when in reality all we are really concerned with is measurements before and after discarding? Possibly this whole thing should be made to read "Before or After Discard". There is still another amplification which might be necessary: does the fact that a particular type of fishing in a particular division is "Inshore" or "Offshore" carry any meaning?

On reviewing "Division" we find, in addition to the authentic classifications of Division, such others as: Subarea 1, 4W, 4V, East Greenland and Ungava. The first three could be shown at the end of the applicable divisions, while the latter two could precede the specific divisions of Subarea 1.

The term "Research, Exploratory or Commercial Fishing" has little meaning of its own if we are unable to associate the objective of effort and type of gear with mesh or hook size. It is generally assumed that trawler fishing, when classed as Exploratory, is usually carried out with a trawl of similar nature and mesh size to that of the Commercial fishery. Since I have been unable to find such a definition outlined in any report or on file in the Secretariat, I would suggest that some effort be made to define these terms in order to promote uniform reporting by the participating countries. In order that this suggestion may be more readily realized, I have endeavoured to define these words to conform with my own way of thinking, which will serve as a starting point for this committee. (It may be that we could do with only two of these terms.)

"Commercial - That type of legal and regulated fishery, having financial gain as its object, which is carried out in an orderly and specified manner in some area which may have been previously determined through some form of research or exploratory endeavour.

Exploratory - That type of legal and regulated fishery, which endeavours to search out in an organized and prospective manner those areas which may prove financially suitable for the commercial fishery, coming as the result of some scientific research or the abundance of previous commercial catches.

Research - That type of legal but non-regulatory fishery, having as its objective a systematic investigation of some phenomenon or series of phenomena by the experimental method which may ultimately be used for the promotion and/or regulation of the industry."

There may be some disagreement as to whether or not length frequencies should be reported

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by "Months" or by "Quarters", but it seems quite reasonable to continue reporting by months due to the fact that if we report by quarters, commencing with February as the birth month, the last quarter would be of little use until after the Statistical Bulletin has been published for the following year, which would then indicate the landings for the month of January.

In the Information on Sample Data given at the bottom of each series of length frequencies, we note a great many items to be completed for each sample. In the majority of cases "Mean Length (cm)" and "Mean Weight (Kg)" are not given by the reporting countries. In some instances, and when time permits, the Secretariat makes an effort to fill in some of these gaps. As you will note, there are a great many cases in which this has not been done. It would mean a great deal to the users of this data if these means were given, and it is with this thought in mind that I would suggest that each country make every effort to report such calculations. "Mean Weight (Kg)" is applied to "Total Weight Landed (tons)" in order to arrive at "Estimated Number Landed (millions)". These are defined in the Introduction to the Sampling Yearbook, Vol. 4, for the year 1959, as follows:

Total Wt. Landed (Tons): The total commercial landings reported in the ICNAF Statistical Bulletin for the month/division, gear and country to which the frequencies refer.

Estimated No. (Millions): This figure is calculated by dividing the total weight landed by the mean weight.

It should be noted that the "total weight landed (tons)" is to be the same as that reported in the ICNAF Statistical Bulletin (or the same as that which has been reported to the Secretariat since the Sampling Yearbook is usually published much earlier than the Statistical Bulletin). The figure for "Estimated Number Landed" is rounded off to "Estimated Number Landed (millions)" at the Secretariat. As with "mean length" and "mean weight", there are also a great many cases in which the "Total Weight" and "Estimated Nos." are not reported on the form. It would certainly facilitate matters if we could have the contributing countries fill in these gaps.

Possibly one of the requested items which offers an opportunity for more variety than any of the others is that of "Mesh or Hook Size". If it is "mesh", it is reported in inches or millimeters, which may also be followed by the letters M, N, P, T, C or D (indicating manila, nylon, perlon, terylene, cotton or drilene), and it may be further clarified by the fact that it is "New Dry Measure". If it is to be "hook", the size is shown and this (on the basis of the number given) is sufficient for the editor to understand that this is hook size and not mesh size. (The type of gear used confirms this assumption.) This must be the same sort of reasoning done by all biologists who use these tables, I am sure. Some thought has been given to the idea of spelling out each and every one of these items, "mesh size (mm)" or "mesh size (Inches)" or "Hook Size (No.)", but I wonder if it is really necessary to use up additional and valuable space for this purpose or further to inconvenience the reader by continually referring to footnotes. The Secretariat could easily convert inches to millimeters (or vice versa) if it be the wish of the Committee - "Range of Depths (fm)" could also be converted to meters (or vice versa) on the same principle.

Although "sex" has not been indicated on the attached "specimen" table for length frequencies for cod, it would however be provided for in the case of Redfish where length frequencies are generally reported by sex.

This particular length frequency table for cod for 3L would require at least four pages in the Sampling Yearbook.

Age-Frequency Table

The length of this table will not pose any problem since there are not too many samples with individual species over age 25; there are a few redfish with ages at 28, 29 and 33 years, with one extreme at 37. It would not involve too many footnotes to complete the reporting of these few exceptions. There is, of course, some reporting of greater than (>) or less than (<) a particular age, which causes a break in the orderliness and continuity of the table, and it would be preferable to have these frequencies given for all ages - it is true, of course, that this is not always possible.

That which has been said about length frequencies in the earlier part of this paper will also apply in general to age frequencies. There is, however, one further point concerning the reporting of the mean lengths of the various age frequencies and that concerns the number of

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decimal places to which these lengths are carried. These have been published as received from the contributor, but it should be noted that if each of these lengths were "rounded off" to the nearest cm, it would be a saving of some two to three spaces in a great many instances - with a total saving of 164 spaces in this particular Age Frequency Table for Cod for 1D, which could be used for reporting an additional six months of Age Frequencies and Mean Lengths (requiring 1 1/2 pages). The point to decide here is whether or not we require these mean lengths to 1 or 2 decimal places, or is it sufficient to round them off to the nearest whole centimetre. (This has been illustrated in the attached "specimen" tables).

It has been decided to eliminate the "footnotes" which cross-refer to other tables since these will no longer be required. We will automatically know that if we are dealing with Age Frequencies for Cod in Division 1D for Otter Trawl for Denmark (Faroes) for the month of May, that it would also appear (if there were a corresponding table) under Length Frequencies for Cod in Division 1D, for Otter Trawl, for Denmark (Faroes) for the month of May. It does not really help the task of locating a particular cod age frequency sample very much to say that the Age Frequencies of this Length Frequency table are given in Table 31, which may cover some 14 pages in the Yearbook.

A question that keeps creeping back into my mind is with reference to the number of fish that can be aged without any "question marks", which have so frequently occurred in the Cod and Halibut Otolith Reading Programmes carried out by the Commission, such as: 8 or 9, 8-9, 8?, 8-12. How are such "doubts" indicated in these Age Frequency Tables?

This table on Age Frequencies for Cod for 1D would require some 14 pages of the Sampling Yearbook (each page allows for 92 spaces across with 50 line items). The Year-Class and Sample Data would have to be repeated on each page; there would be such other innovations as: "Age Frequencies - Cod - 1D - 1959" appearing on one line, the word SEX being deleted, with the symbols ♂♂ ♀♀ and word TOTAL being on the same line as "YEAR CLASS" and "AGE"; the elimination of CROSS REFERENCES to tables on other frequency distributions; the contributors of the various samples listed by country in the Introduction to the Yearbook only (and not for each individual sample submitted); and the use of abbreviations for many words in Sample Data. These changes have been suggested to save time and space, so valuable to the efficient publication of these data.

Some General Recommendations

1. In order to cut down on the volume and number of tables to be published, each country should make every effort to combine its sample data from same divisions, for same species, gear and month into one table or column. This should go so far as to consider the widening and combining of depth ranges somewhat.

2. Under the new scheme, the assembling and typing of the Yearbook cannot be commenced until all countries have made their submissions - therefore countries which are unable to submit their data at an early date should at least advise the Secretariat of the species and divisions from which they propose to submit samples. This would enable us to go ahead with those divisions which have been fully submitted.

   Under the present system we are able to edit and proceed with the assembling and typing of data as soon as it has been received from each individual country. The assembling and typing of this data is a long process. (It required some four months for Vol.4 by a typist who had some three years experience with the Commission's statistical section).

   It has been the policy of the Secretariat to make this Yearbook available before each Annual Meeting - it would be a pity to have to sacrifice the timeliness of the publication because of a few delinquent submissions.

3. It is requested that all sample data be submitted by Species, by Division, by Gear. The reporting country must submit only ONE SPECIES from ONE DIVISION for a SPECIFIC GEAR on each form. These should be reported on the standardized forms provided by the ICNAF Secretariat. This will facilitate and ease the assembling of data into the order of breakdown recommended.

APPENDIX A

TABLE 10 LENGTH FREQUENCIES (3 CM) - COD - 3L - (1959) Page 1

Gear	Otter Trawl (Offshore) Commercial		Otter Trawl (Offshore) Exploratory					
Landings/Catches	Landings	Catches	Catches					
Country	Canada(Nfld)	Spain	Germany		USSR			
Month	June	June	Sept.		Jan.	Feb.	June	July
*<30	-	-	-	-	-	3	-	175
30-32	-	9	-	-	-	6	2	39
33-35	-	5	6	-	-	9	4	38
36-38	-	16	-	-	-	18	10	40
39-41	6	34	6	-	-	23	19	47
42-44	23	29	12	5	-	34	35	62
45-47	45	56	25	10	-	31	99	50
48-50	57	86	25	21	-	29	130	44
51-53	57	71	37	21	2	87	182	53
54-56	68	115	68	10	6	97	150	60
57-59	79	76	93	10	13	117	86	74
60-62	108	124	143	16	23	120	67	80
63-65	97	119	106	26	29	121	57	83
66-68	102	65	87	46	45	62	41	42
69-71	94	65	44	46	60	59	37	34
72-74	61	29	87	26	89	52	29	17
75-77	49	29	44	52	125	31	14	13
78-80	27	31	12	46	143	21	7	11
81-83	18	9	44	31	117	22	-	7
84-86	17	10	31	62	108	18	2	6
87-89	16	6	12	36	91	11	5	5
90-92	14	4	-	72	63	4	4	4
93-95	10	3	25	103	49	1	4	4
96-98	9	1	25	93	15	4	4	2
99-101	11	3	25	77	12	6	4	3
*>101	-	-	-	-	10	12	5	7
102-104	8	-	12	57	-	-	-	-
105-107	7	-	-	46	-	-	-	-
108-110	7	-	6	16	-	-	-	-
111-113	4	-	19	31	-	-	-	-
114-116	1	-	-	16	-	-	-	-
*>116	6	-	6	25	-	-	-	-
Total °/oo	1001	998	1000	1000	1000	998	1000	1000
Serial Nos.			M20,24 46,49	M16,27, 36,42,73				
No. of Samples	4	17	4	5				
No. Fish Measured	1029	3149	161	194	295	594	347	793
Mean Length (cm)	65.90		69.3	87.6	79.80	61.60	56.00	49.30
Mean Weight (Kg)	2.90							
Total Wt Landed (Tons)	713	1647						
Estimated No. Landed	.246							
Mesh or Hook Size	4 man. 2)	160 1)	110 3)	110 4)				
Range of Depths (fm)	37-85	110-280 3)	110-165	>165				

*For breakdown, and footnotes, see Notes to Table 10 on p——

APPENDIX B

TABLE 10 LENGTH FREQUENCIES (3 CM) - COD - 3L - (1959) Page 2

Gear	Dory Vessel(Offshore) Commercial	Longline (Inshore) Commercial				Line Trawl (Inshore) Commercial	
Landings/Catches	Catches before Discarding	Landings				Landings	
Country	Portugal	Canada (Newfoundland)				Canada (Nfld)	
Month	October	June	July	August	Sept.	Sept.	Oct.
*<30	-	-	-	-	-	-	-
30-32	-	-	-	-	-	-	-
33-35	2	-	-	-	-	-	-
36-38	2	1	-	-	-	-	-
39-41	28	3	-	1	-	3	6
42-44	44	8	1	1	-	12	18
45-47	31	12	3	5	-	19	35
48-50	60	30	6	8	4	33	42
51-53	60	42	6	16	24	52	55
54-56	78	89	24	50	20	66	101
57-59	104	84	54	73	55	109	132
60-62	82	141	129	116	136	123	92
63-65	134	177	177	157	158	135	107
66-68	100	120	169	140	196	123	104
69-71	68	88	122	121	149	90	89
72-74	88	62	91	82	71	79	65
75-77	44	51	59	52	51	33	42
78-80	32	37	35	30	50	29	29
81-83	15	15	34	39	13	22	16
84-86	4	13	26	28	13	29	7
87-89	8	8	11	16	6	19	17
90-92	6	5	10	19	23	6	11
93-95	-	5	15	15	6	6	10
96-98	4	4	9	13	6	3	7
99-101	-	2	5	9	10	5	8
*>101	-	-	-	-	-	-	-
102-104	-	2	2	4	6	2	4
105-107	-	1	3	3	5	1	2
108-110	-	1	4	3	-	2	2
111-113	-	1	1	1	-	-	1
114-116	-	1	3	1	-	-	-
*>116	2	1	2	1	-	1	-
Total /oo	996	1004	1001	1004	1002	1002	1002
Serial Nos.	33,44						
No. of Samples	2	7	7	10	3	10	7
No. Fish Measured	500	1410	970	1113	420	1100	700
Mean Length (cm)		64.90	69.47	69.16	68.64	65.35	64.21
Mean Weight (Kg)		2.18	2.44	2.60	2.54	2.19	2.17
Tot.Wt.Landed(T)							
Est. No. Landed							
Mesh/Hook Size	14 1/2 [5]	#17 [5]	#17 [5]	#17 [5]	#17 [5]	#14 [5]	#14 [5]
Depth Range (fm)	20	140-150	150	140-150	140-150	20-45	25-45

*For breakdown and footnotes, see Notes to Table 10 on p—

APPENDIX C

TABLE 31 (METHOD A) AGE FREQUENCIES - COD - 1D (1959)

Species										
Division										
Gear		Otter Trawler (Commercial)								
Tonnage		955			—					
Landings or Catches		Catches			Catches before Discarding					
Country		Denmark (Faroes)			Portugal					
Month		May			April					
°/oo Frequency and Mean Length		°/oo Frequency			°/oo Frequency			Mean Length		
Sex		♂♂	♀♀	Total	♂♂	♀♀	Total	♂♂	♀♀	Total
Year-Class	Age									
1957	2	-	-	-	-	-	-	-	-	-
1956	3	-	-	-	5	-	5	43.0	-	43.0
1955	4	5	22	27	25	30	55	46.8	47.7	47.3
1954	5	20	10	30	30	65	95	55.2	57.8	56.5
1953	6	298	332	630	337	281	618	64.3	63.3	63.8
1952	7	65	89	154	96	96	192	69.8	69.1	69.5
1951	8	12	45	57	20	-	20	71.3	-	71.3
1950	9	12	57	69	10	5	15	75.5	62.0	68.7
1949	10	10	-	10	-	-	-	-	-	-
1948	11	-	2	2	-	-	-	-	-	-
1947	12	5	12	17	-	-	-	-	-	-
<1947	>12	-	-	-	-	-	-	-	-	-
1946	13	-	-	-	-	-	-	-	-	-
1945	14	-	-	-	-	-	-	-	-	-
<1945	>14	-	-	-	-	-	-	-	-	-
1944	15	-	-	-	-	-	-	-	-	-
1943	16	-	-	-	-	-	-	-	-	-
1942	17	-	-	-	-	-	-	-	-	-
1941	18	-	-	-	-	-	-	-	-	-
1940	19	-	-	-	-	-	-	-	-	-
1939	20	-	2	2	-	-	-	-	-	-
1938	21	-	-	-	-	-	-	-	-	-
1937	22	-	-	-	-	-	-	-	-	-
1936	23	-	-	-	-	-	-	-	-	-
1935	24	-	-	-	-	-	-	-	-	-
1934	25	-	-	-	-	-	-	-	-	-
Total °/oo		427	571	998	523	477	1000			
Serial Numbers							1,2			
Number of Samples				2			2			
Number of Fish Aged		172	231	403			199			
Mean Age							6.5			
Mean Weight (Kg)										
Total Weight Landed (tons)										
Estimated No. Landed										
Mesh Size (mm)							117			
Hook Size (No.)										
Range of Depths (fm)				35-210			33-36			
Cross Reference (Length Frequencies			Table ?			Table ?				
Cross Reference (Age/Length Keys			Table ?							
Cross Reference (Age/Length Freq.						Table ?				

APPENDIX D

TABLE 31 (METHOD B) AGE FREQUENCIES - COD - 1D (1959) Page 1

Gear	Otter Trawler (Commercial)														
Tonnage	955			—											
Landings/Catches	Catches			Catches before Discarding											
Country	Denmark (Faroes)			Portugal											
Month	May			April						May					
	‰ Frequency			‰ Frequency			Mean Length			‰ Frequency			Mean Length		
Year-Class / Age	♂	♀	Tot.	♂	♀	Tot.	♂	♀	Total	♂	♀	Tot.	♂	♀	Tot.
1957 2	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
1956 3	–	–	–	5	–	5	43	–	43	–	–	–	–	–	–
1955 4	5	22	27	25	30	55	47	48	47	10	10	20	47	46	47
1954 5	20	10	30	30	65	95	55	58	57	35	50	85	55	58	56
1953 6	298	332	630	337	281	618	64	63	64	362	266	628	64	65	64
1952 7	65	89	154	96	96	192	70	69	70	76	55	131	69	72	71
1951 8	12	45	57	20	–	20	71	–	71	15	50	65	72	74	73
1950 9	12	57	69	10	5	15	76	62	69	15	30	45	74	76	75
1949 10	10	–	10	–	–	–	–	–	–	5	–	5	75	–	75
1948 11	–	2	2	–	–	–	–	–	–	–	5	5	–	71	71
1947 12	5	12	17	–	–	–	–	–	–	15	–	15	70	–	70
<1947 >12	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
1946 13	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
1945 14	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
<1945 >14	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
1944 15	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
1943 16	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
1942 17	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
1941 18	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
1940 19	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
1939 20	–	2	2	–	–	–	–	–	–	–	–	–	–	–	–
1938 21	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
1937 22	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
1936 23	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
1935 24	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
1934 25	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Total ‰	427	571	998	523	477	1000				533	466	999			
Serial Nos.						1,2						4,5			
No. of Samples			2			2						2			
No. of Fish Aged	172	231	403			199						199			
Mean Age						6.5						5.9			
Mean Weight (Kg)															
Tot.Wt.Landed (T)															
Est. No. Landed															
Mesh/Hook Size						117						117			
Depth Range (fm)			35-210			33-36						33-35			

APPENDIX E

TABLE 31 (METHOD B) AGE FREQUENCIES - COD - ID (1959) Page 2

Gear	Otter Trawler (Commercial)						Otter Trawler (Exploratory)					
Tonnage	—						—					
Landings/Catches	Landings						Catches					
Country	Germany								USSR			
Month	March		April		May		December		April	May	August	Sept.
Year-Class / Age	°/oo	Mean Length	°/oo	Mean Length	°/oo	Mean Length	°/oo	Mean Length	°/oo	°/oo	°/oo	°/oo
1957 2	-	-	-	-	-	-	-	-	3	-	2	-
1956 3	-	-	-	-	-	-	33	-	98	20	164	-
1955 4	2	-	3	-	-	-	91	-	132	45	160	23
1954 5	212	55	15	-	10	-	140	-	274	253	138	140
1953 6	710	61	785	62	438	64	511	71	412	494	270	328
1952 7	29	-	87	-	198	68	62	-	61	108	62	140
1951 8	16	-	46	-	83	-	32	-	11	32	63	97
1950 9	16	-	19	-	121	76	64	-	8	23	34	100
1949 10	1	-	12	-	7	-	10	-	-	12	15	78
1948 11	3	-	5	-	8	-	-	-	-	7	36	29
1947 12	4	-	13	-	61	-	52	-	-	5	26	39
<1947 >12	-	-	-	-	-	-	5	-	-	-	-	-
1946 13	2	-	4	-	13	-	-	-	-	-	13	13
1945 14	1	-	6	-	22	-	-	-	-	2	15	10
<1945 >14	4	-	5	-	39	-	-	-	-	-	-	-
1944 15	-	-	-	-	-	-	-	-	-	-	-	-
1943 16	-	-	-	-	-	-	-	-	-	-	2	3
1942 17	-	-	-	-	-	-	-	-	-	-	-	-
1941 18	-	-	-	-	-	-	-	-	-	-	-	-
1940 19	-	-	-	-	-	-	-	-	-	-	-	-
1939 20	-	-	-	-	-	-	-	-	-	-	-	-
1938 21	-	-	-	-	-	-	-	-	-	-	-	-
1937 22	-	-	-	-	-	-	-	-	-	-	-	-
1936 23	-	-	-	-	-	-	-	-	-	-	-	-
1935 24	-	-	-	-	-	-	-	-	-	-	-	-
1934 25	-	-	-	-	-	-	-	-	-	-	-	-
Total °/oo	1000		1000		1000		1000		999	1001	1000	1000
Serial Nos.	21,22		30		35		K-37					
No. of Samples	2		1		1		1					
No. of Fish Aged	419		174		186		86		890	601	503	308
Mean Age												
Mean Weight (Kg)									1.99	2.70	2.79	4.03
Tot. Wt. Landed (T)												
Est. No. Landed												
Mesh/Hook Size	110		110		110		110					
Depth Range (fm)							44					