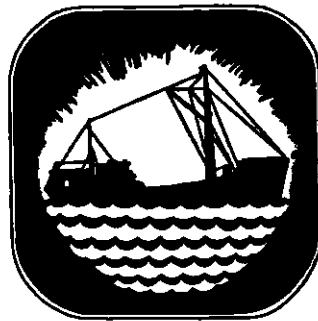


**INTERNATIONAL COMMISSION
FOR THE
NORTHWEST ATLANTIC FISHERIES**



SAMPLING YEARBOOK VOLUME 5

for the year 1960

**PART 2: REDFISH &
APPENDIX TO VOL. 5**

Edited by **B. F. CALVIN DEBAIE**

Tables prepared for printing by **Jean S. Maclellan**

**Issued from the Headquarters of the Commission
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1962

SAMPLING YEARBOOK VOLUME 5

1960

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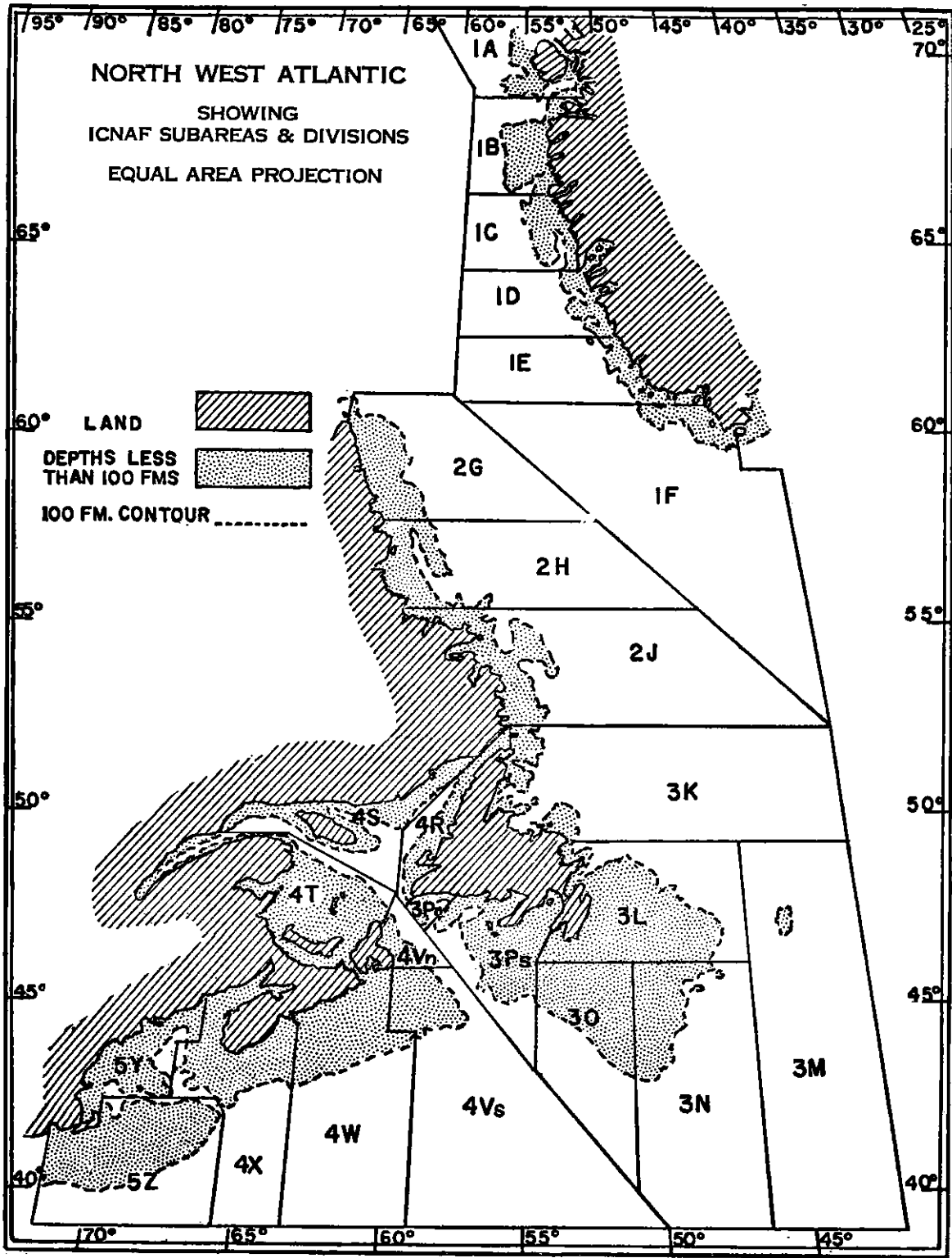
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An Equal Area Map of the ICNAF Convention Area.

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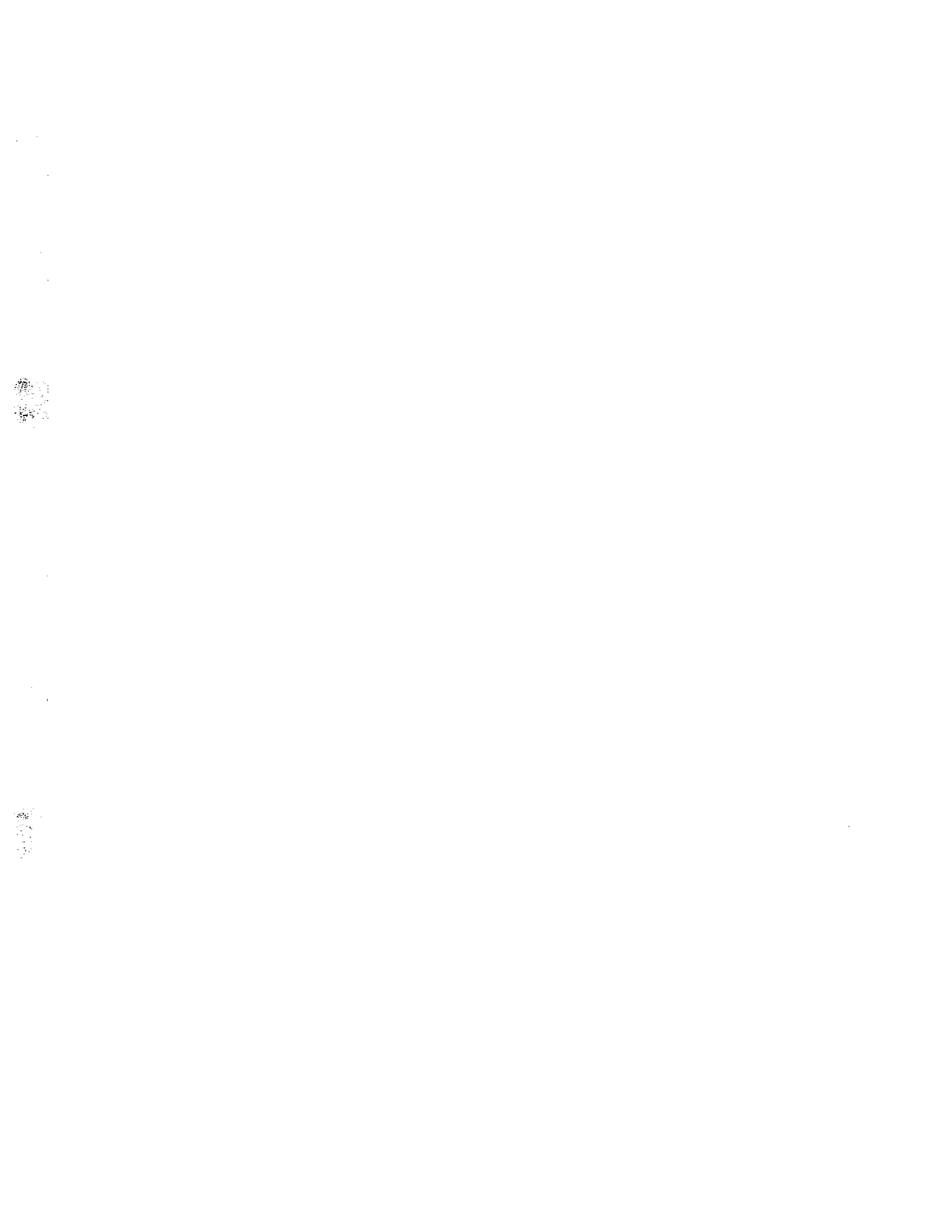
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INTRODUCTION

by B. F. Calvin DeBaie

This edition of the Sampling Yearbook, which is in two parts, summarises, as in previous years, the data on lengths, ages and weights of the cod, haddock and flounder in Part One, and redfish in Part Two, which have been collected to further the investigations of the fisheries and fish stocks of the Northwest Atlantic. In this volume tables are given of the length frequencies of samples taken in 1960 from commercial landings or catches as well as from catches of research vessels. Several countries have also submitted age frequency data and age/length tables.

Samples are taken either on shore from commercial landings or at sea from the catches of commercial or research vessels. Where the commercial vessel catch is sampled at sea, the samples are taken either before or after the discarding of small, unmarketable fish. In sampling the landings, samples are usually taken from each of the size categories in which the fish are landed, and the overall length frequency estimated by pooling the samples after weighting by the quantity of fish landed in each size category. Since sampling practices vary among countries, some further "Notes on the Sampling Data" are given on pages xi-xv.

It is the intention of the Commission that the data incorporated in the Sampling Yearbook should be readily intercomparable. To this end, the Commission recommended that the fork length recorded to the nearest centimetre be adopted as the standard measure. It further recommended that the length measurements should be reported by 3-centimetre groups for the cod, by 2-centimetre groups for the haddock and by centimetres for the redfish and flounder. Only two methods of measuring fish are now in common use in the Convention Area: the one is the standard measure noted above, which is extensively used in Subareas 2, 3, 4 and 5; the other is the total length measured to the centimetre below, which is used by a few of the countries fishing in Subarea 1. Measuring to the total length gives a greater length than the standard, but this is compensated to some extent when measuring to the centimetre below, which gives a lesser length. Because of the very small differences involved and the limited data available to establish conversion factors, no conversions to standard measure have been made.

As the order in which the tables were published in Volume 4 of the Sampling Yearbook proved temporarily satisfactory, the same sequence is maintained in this volume, but it is in two parts:

1. (a) The 1960 tables in Part One are arranged by species in the order of cod, haddock and flounder, with a separate section for each species.
- (b) Part Two contains the tables for redfish.

2. Blue pages at the beginning of each section are a guide to the tables within that section.
3. Within a species section, length frequencies are given first, followed by age frequencies and age/length frequencies or keys.

Length and age frequencies are generally given in parts per thousand but in some cases (notably the U.S. data for Subarea 5 haddock landings), as the total numbers landed. Age/length keys are given as the actual number of otoliths read, but in some cases the tables are given in frequencies per mille.

Data are frequently reported separately for the sexes and are so published.

For each length or age frequency the following data are reported if available.

Serial Numbers:	The serial numbers (as given by the scientist reporting the data) of the samples on which the frequencies are based.
Number of Samples:	The number of samples on which the frequencies are based.
Number of Fish Measured or Aged:	The total number of fish measured in all the samples on which the frequencies are based.
Mean Length (cm) or Mean Age:	The estimated mean length or age of the catches or landings represented by their frequencies.
Mean Weight (Kg):	Given as round, fresh weight unless otherwise noted.
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.

Mesh or Hook Size:	The mesh size is given in inches or millimetres and is the internal, stretched diameter of the wet, used mesh unless otherwise stated. Hook sizes are given as the code numbers by which the hooks are sold.
Range of Depths:	Given in fathoms (fm) or metres (m). For landings, the depths are given at which fishing has taken place on the trip from which the samples were taken. For catches sampled at sea, the depths are given of the individual sets from which the samples were taken.

In many cases, sampling from different depth zones, and possibly different stocks, in a division are pooled. The number of decimals in the tables is frequently greater than justified by the data. Similarly, the mean weight of the fish and the estimated number of fish landed, etc., are often given to a larger number of decimals than justified by the data or by the conversion factors used.

Weights are always recorded in metric tons round, fresh (i.e. the nominal catch), except where otherwise noted. The conversion factors used are the same as those used in the ICNAF Statistical Bulletins (see Vol. 9, 1959, page 11). The most commonly used are:

- 1.2 for cod and haddock, gutted, head on
- 3.0 for cod and haddock, green salted, landed in Europe
- 2.7 for cod and haddock, green salted, landed in North America or
Greenland

In addition to the regular sampling of the commercial and research vessel catches and landings, a number of special data have been reported and are included here: a series of samples reported by Canada to measure the quantity and sizes of cod discarded at sea (page 11, Part 1), and a table giving the weights of whole fish, the liver, the gonads, and the intestines (Portugal, page 195, Part 1).

NOTES ON THE SAMPLING DATA

Canada (Maritimes and Quebec)

Reported by W. R. Martin
 A. C. Kohler
 D. N. Fitzgerald
 A. Marcotte
 J. M. Boulanger

Commercial landings of groundfish in the provinces of Nova Scotia, New Brunswick and Prince Edward Island have been continuously sampled for size and age composition since 1945. Sampling emphasis has been placed on landings by offshore vessels at the largest groundfish ports, but has also included sampling from the inshore fleets. Length frequencies from routine sampling of the commercial catches and landings and from sampling to measure discarding are reported to the Commission. Age frequency data are not reported.

Landings are normally culled by market categories. Cod are divided into Large (Steak) and Medium (Market) sizes 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 sampled approximately in proportion to the relative numbers of each in a trip landing. When the final weighout is available, the length frequency of the landings is determined by applying weighting factors to each category. The length frequencies of the sexes are not usually given separately.

Fork length measurements are recorded to the nearest centimetre for each fish. These measurements are reported by 3-centimetre groups for cod, 2-centimetre groups for haddock and by centimetres for flounder. Mesh size is recorded as the approximate inside, stretched, wet used, measurement of an average cod-end mesh. Hook size is given by number, No. 6/0 being the smallest commercial groundfish hook, and No. 14 being the large hook used on longlines by Quebec.

Canada (Newfoundland)

Reported by A. M. Fleming
 A. W. May
 W. N. Batton
 M. O' Hanlon

Length frequencies based on sampling of the commercial landings of cod, haddock, redfish and American plaice in 1960 are reported. A few samples are given for 1959 for cod traps and jigger. The length frequencies of redfish and American plaice are given by sexes.

Length measurements are made of the fork length and recorded to the nearest centimetre. Sampling is carried out on shore, from both the offshore and in-shore fleets. The total weight of each sample is obtained, together with the total weight of the species landed from the trip sampled. By means of the weighting factor determined from these data, each sample frequency is raised to give the estimated numbers of each size in the landings sampled. These raised frequencies are then pooled to give length frequencies by month, type of gear and division, and then compiled in 3-centimetre groups.

The 4-inch mesh size recorded for traps is to be considered a minimum.

Although a range of sizes for the meshes in otter trawl is shown, it can be assumed that these represent the 4-inch mesh or equivalent as recommended by ICNAF. Some changes in hook sizes are to be noted. There has been some difficulty in obtaining actual sizes which can be recognized internationally, since many fishermen order by manufacture number. For example, the handline hooks are Mustad hooks of about 1-1/4 inches in diameter across the hook from the point to the shank and from 3-1/2 to 4-inches long. These are large hooks, much larger than the No. 15 Mustad, and are numbered 3020 and 3021. These are approximately equal to a No. 11 hook. The jigger size is listed as No. 5, is paired and is the largest hook used.

Denmark (Faroes)

Faroese investigations of commercial cod catches were undertaken and reported to the Secretariat for the first time in 1959. No material was available for publication for the year 1960.

Denmark (Greenland)

Reported by Paul M. Hansen

Samples of cod have been taken from the inshore catches of commercial and research vessels and from the offshore catches of research vessels. The samples are not pooled. Length measurements are made of the total length (end of tail lobes) and recorded to the centimetre below. Age frequencies, mean size at each age and age/length keys are also reported.

Germany

Reported by Arno Meyer

Age and length frequencies and age/length keys for the 1960 commercial landings of cod by otter trawlers are reported for the Convention Area, as well as for the Banks off East Greenland.

Length measurements are made of the total length (end of tail lobes) and recorded to the centimetre below. The length frequencies are reported to the Commission in standard 3-centimetre groups.

Where sampling of cod is carried out on shore at the market, each of the three size categories landed is sampled separately, and the final length frequency calculated by weighting each length frequency by the quantity landed in the size category and then pooling the frequencies. The cod from the commercial landings are gutted before being measured. Redfish are measured in the whole round state, except for a few large ones. Otoliths are taken according to length of fish.

Iceland

Reported by Jakob Magnusson

Individual length frequencies of redfish samples taken on two survey cruises in 1960 were reported to the Commission. A summary of these by month/division is published here. Length measurements are taken from total length to nearest centimetre. (Board is offset 0.5 cm to permit reading to nearest cm).

Norway

Length frequencies, age frequencies with mean size at each age and age/length keys are reported for cod. The samples are taken from catches made by research vessels in Divisions 1C, 1D and 1E.

Lengths are reported by the standard 3-centimetre grouping and the age frequencies and age/length keys are given by sexes.

Measurements are made of the fork length to the nearest centimetre.

Some samples for commercial bottom long-line catches are included.

Portugal

Reported by Mario J. Ruivo
and Glicinia V. Quartin

Sampling at sea of the cod catches (before discarding undersized fish) of the Portuguese otter trawlers and dory vessels has been carried out in 1960 in Subareas 1, 2, 3 and 4. Length frequencies, age frequencies (based on otoliths) with mean size at each age and age/length frequencies by sexes are included in the data reported.

Length measurements are made of the fork length recorded to the nearest centimetre. Samples are not weighted by the quantity caught; when taken on the same fishing bank at the same time, they are generally pooled.

Spain

Reported by O. Rodriguez M.

Length frequencies of the cod catches of the Spanish otter trawlers "Aliseo" and "Vendaval" collected at sea for the year 1960 are reported. Samples are taken from the commercial catch before discarding.

Length measurements are made of the fork length recorded to the nearest centimetre. Length frequencies are reported in the standard 3-centimetre groups as used by ICNAF. Samples are not weighted according to the quantity caught, but are pooled by month/divisions.

Union of Soviet Socialist Republics

Reported by Ju. Ju. Marty
V.I. Travin
E.I. Surkova
E.M. Mankevich

The length and age frequencies of cod and redfish catches are reported. Samples are taken at sea, before discarding, from the catches of exploratory and commercial otter trawlers. The data submitted has increased by ten-fold over that of the previous year.

United Kingdom

Reported by C.E. Lucas
G.C. Trout
R.J.H. Beverton

The length composition of the cod landings of the United Kingdom otter trawlers from Subarea 3 is reported. Measurements are made of the total length to the centimetre below. Samples are taken of each of the size categories into which the landings are divided; the length frequencies so obtained are then pooled, after weighting by the quantity of fish in the category from which they are taken. This was taken from "Cod Sampling on board a Factory Stern Trawler by G.C. Trout, Fisheries Research Laboratory, Lowestoft, which was converted from 5 cm to 3 cm grouping by the Secretariat. Data on length frequencies of numbers per 100 hours fishing was taken from U.K. Research Report for 1960.

United States

The length frequencies of the United States landings of cod, haddock and redfish for 1960, and the age/length frequencies of the landings of haddock for 1960/61 are included in this volume. All measurements are made of the fork length to the nearest centimetre.

Compilation of Data

(a) Cod: Subarea 5, Otter Trawlers

Reported by H.E. Murray

Each length frequency sample is weighted by the weight of the landing from which it was obtained (by market category for large, market, scrod; by total cod for mixed). The resulting length frequencies are totalled and weighted by total United States cod landings for otter trawlers by month. These numbers are in turn combined

into length frequencies for total United States otter trawl cod landings for each month. The percentage of fish for each centimetre interval is then computed, combined into 3-centimetre groups, and finally converted to parts per thousand.

(b) Haddock

Reported by J. A. McCann
F. A. Dreyer
A. C. Kohler
D. N. Fitzgerald

The length frequency samples for each month by market category are pooled and the resulting frequency weighted by the total quantity of each category landed from each unit area. The weighted numbers of fish of each category are then pooled to obtain the total length frequency for haddock for each month for each division. Ages are determined from the scales, and age/length frequencies are compiled.

Length frequencies are reported by centimetres and age/length frequencies by 3-centimetre groups.

Length frequencies of haddock by quarters are reported under the United States/Canada Co-operative Programme.

Haddock biostatistical records are reported by the "haddock year": namely, February 1st to January 31st of the following year. The haddock's birthday is taken as February 1st.

(c) Redfish

Reported by G. F. Kelly
A. M. Barker
G. M. Clarke
P. H. Chase

Samples are taken from the commercial catches of otter trawlers and are pooled without weighting.

1944

1945

1946

1947

1948

1949

1950

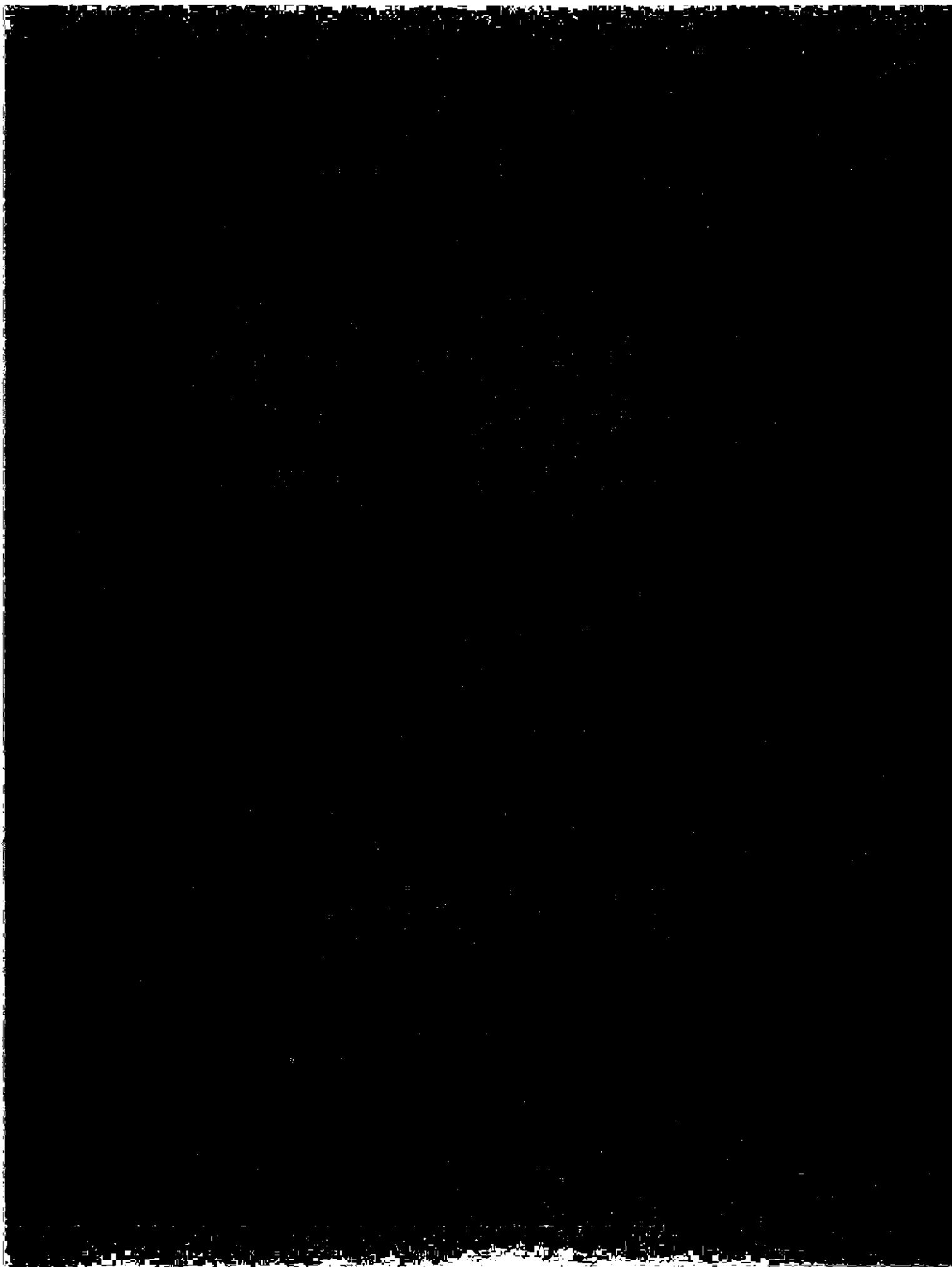


TABLE 1 CANADA (Quebec) - 1961

LENGTH FREQUENCIES - REDFISH

by J.-M. Boulanger

Commercial Landings

Vessel Type	Otter Trawlers								
Division	4S								
Month	July			August			September		
	Marinus			Marinus			Marinus		
Sex	♂	♀	Total	♂	♀	Total	♂	♀	Total
cm	FREQUENCIES in ‰								
24	-	-	-	-	1	1	-	-	-
-	-	-	-	-	-	-	-	-	-
28	3	2	5	1	-	1	1	-	1
29	-	1	1	1	1	2	-	-	-
30	2	1	3	4	2	6	1	-	1
31	7	2	9	5	4	9	8	-	8
32	31	9	40	22	8	30	27	-	27
33	50	11	61	50	10	60	64	2	66
34	73	38	111	91	25	116	90	17	107
35	73	50	123	110	33	143	115	30	145
36	72	67	139	84	50	134	87	47	134
37	41	67	108	36	44	80	55	51	106
38	17	77	94	15	71	86	16	77	93
39	8	80	88	6	110	116	7	97	104
40	8	95	103	2	96	98	2	85	87
41	8	60	68	5	60	65	-	67	67
42	1	22	23	2	36	38	-	30	30
43	1	14	15	2	10	12	-	21	21
44	1	6	7	-	2	2	-	3	3
45	-	1	1	-	1	1	-	-	-
46	-	1	1	-	-	-	-	-	-
Total ‰	396	604	1000	436	564	1000	473	527	1000
Serial Numbers									
Number of Samples			1			1			1
Number Fish Measured			1000			880			1000
Mean Length (cm)									
Mean Weight (Kg)									
Total Wt. Landed (Tons)									
Est. Number (millions)									
Mesh Size (inches) ¹⁾			3½m			3½m			3½m
Range of Depths (fm)			125-175			125-175			125-175

1) m = manila

TABLE 2 CANADA (Newfoundland) - 1960

LENGTH FREQUENCIES - REDFISH

by A.M. Fleming
M. O'Hanlon

Commercial Landings

Vessel Type	Otter Trawlers								
Vessel Tonnage Class	151-500								
Division	3L								
Month	July			October			November		
	Mentella			Mentella			Mentella		
Sex	♂ ¹	♀	Total	♂ ¹	♀	Total	♂ ¹	♀	Total
cm	FREQUENCIES in ‰								
22	-	4	4	-	-	-	-	-	-
23	17	7	24	9	-	9	10	-	10
24	31	49	80	5	2	7	-	-	-
25	52	59	111	14	10	24	5	-	5
26	42	42	84	11	11	22	-	-	-
27	35	66	101	15	29	44	5	-	5
28	24	45	69	11	37	48	24	10	34
29	11	59	70	24	34	58	15	-	15
30	17	14	31	25	25	50	5	-	5
31	31	11	42	37	43	80	49	15	64
32	21	4	25	46	36	82	34	20	54
33	42	11	53	77	23	100	89	10	99
34	42	17	59	80	35	115	143	5	148
35	49	21	70	72	15	87	143	5	148
36	49	14	63	44	13	57	118	20	138
37	14	7	21	21	11	32	74	10	84
38	7	4	11	8	28	36	24	15	39
39	4	21	25	2	35	37	5	5	10
40	-	24	24	2	36	38	5	30	35
41	-	21	21	-	26	26	-	15	15
42	-	14	14	-	17	17	-	35	35
43	-	-	-	-	16	16	-	10	10
44	-	-	-	-	5	5	-	20	20
45	-	-	-	-	5	5	-	25	25
46	-	-	-	-	3	3	-	-	-
47	-	-	-	-	2	2	-	-	-
48	-	-	-	-	-	-	-	5	5
Total ‰	488	514	1002	503	497	1000	748	255	1003
Serial Numbers									
Number of Samples		1			2			1	
Number Fish Measured	140	147	287	366	321	687	152	51	203
Mean Length (cm)		30.22			33.33			35.21	
Mean Weight (Kg)		0.38			0.61			0.76	
Total Wt. Landed (Tons)		198			210			38	
Est. Number (millions)		0.516			0.345			0.049	
Mesh Size ¹⁾		Sm			Lm&n			Sn	
Range of Depths (fm)		150			145-180			140	

¹⁾S = small; L = large; m = manila; n = nylon

(cont'd.)

TABLE 2 CANADA (Newfoundland) - 1960 LENGTH FREQUENCIES - REDFISH by A.M. Fleming
(cont'd.) M. O'Hanlon

Commercial Landings

Vessel Type	Otter Trawlers					
Vessel Tonnage Class	151-500					
Division	3N			3P South		
Month	September			September		
	Mentella			Mentella		
Sex	♂♂	♀♀	Total	♂♂	♀♀	Total
cm	FREQUENCIES in ‰					
20	5	-	5	-	-	-
21	5	-	5	-	-	-
22	54	5	59	-	-	-
23	50	27	77	-	-	-
24	108	36	144	-	-	-
25	95	54	149	7	-	7
26	81	36	117	7	-	7
27	49	32	81	7	-	7
28	27	23	50	16	-	16
29	14	45	59	13	-	13
30	27	23	50	3	-	3
31	9	41	50	10	3	13
32	-	36	36	26	7	33
33	9	23	32	75	13	88
34	-	27	27	65	20	85
35	-	18	18	71	33	104
36	5	13	18	127	39	166
37	-	5	5	88	59	147
38	-	9	9	59	71	130
39	-	14	14	13	36	49
40	-	-	-	13	46	59
41	-	-	-	3	20	23
42	-	-	-	7	19	26
43	-	-	-	-	16	16
44	-	-	-	3	7	10
Total ‰	538	467	1005	613	389	1002
Serial Numbers						
Number of Samples		1			1	
Number Fish Measured	119	103	222	188	119	307
Mean Length (cm)		27.18			36.08	
Mean weight (Kg)		0.32			0.68	
Total Wt. Landed (Tons)		202			689	
Est. Number (millions)		0.628			1.026	
Mesh Size ¹⁾		5m			5m	
Range of Depths (fm)		160			160-165	
					240-250	

¹⁾S = small; m = manila.

TABLE 3, DENMARK (Greenland) - 1960 LENGTH FREQUENCIES - REDFISH¹⁾ by Paul M. Hansen

SHRIMP TRAWL - Research Catches

Location	Godthåb Fjord									
	ID									
Month	Jan.	Feb.	Mar.	Apr.	July	Sept.	Oct.	Nov.	Dec.	
cm	FREQUENCIES in ‰									
6	-	2	1	-	-	-	-	-	-	5
7	1	3	2	-	-	-	-	-	-	1
8	24	22	9	2	12	14	8	-	-	3
9	104	119	82	70	26	14	19	12	13	13
10	33	98	46	86	134	65	35	16	26	26
11	10	20	13	22	245	127	71	48	43	43
12	15	29	15	23	69	68	71	121	99	99
13	60	55	35	45	40	23	25	56	79	79
14	106	108	60	94	43	25	25	28	32	32
15	98	125	93	137	78	65	63	52	40	40
16	58	72	70	96	76	110	123	56	55	55
17	70	76	78	78	76	96	93	73	72	72
18	111	83	91	109	59	79	71	109	60	60
19	71	63	73	84	50	88	71	69	65	65
20	30	27	30	37	28	74	98	85	60	60
21	20	15	24	18	12	31	57	85	85	85
22	38	16	13	13	5	25	27	48	45	45
23	38	13	23	16	14	20	38	16	17	17
24	20	14	19	12	10	31	16	40	13	13
25	21	13	14	11	7	17	19	28	14	14
26	19	6	14	13	2	14	11	20	10	10
27	7	4	15	5	3	3	25	4	21	21
28	7	4	13	5	2	6	11	20	14	14
29	6	2	10	4	-	-	14	8	16	16
30	4	2	5	3	-	-	-	-	19	19
31	3	1	3	4	2	-	3	-	17	17
32	5	1	10	1	-	-	3	-	11	11
33	5	1	2	2	-	-	-	-	10	10
34	4	1	9	2	-	-	3	-	11	11
35	-	-	8	1	-	-	-	-	5	5
36	1	1	19	1	-	-	-	-	7	7
37	-	1	20	-	2	-	3	-	8	8
38	-	1	24	1	-	-	-	-	6	6
39	1	-	19	1	2	-	-	-	5	5
40	1	-	13	-	-	-	-	-	6	6
>40	8	1	23	1	5	3	-	4	5	5
Total ‰	999	999	998	997	1002	998	1003	998	998	
Number Fish Measured	970	3435	861	2073	580	353	367	248	1111	
Number of Hauls	1	1	1	1	1	1	1	1	2	
Mean Length (cm)										
Range of Depths (m)										

1) These frequencies continue a series begun in 1952. The earlier data were published in the Sampling Yearbook Vols. 1 to 4.

TABLE 4 ICELAND - 1960

LENGTH FREQUENCIES - REDFISH

by J. Magnusson

OTTER TRAWL - Commercial Catches

Division	IE			K		
Month	May					
	Marinus			Mentella		
Sex	♂♂	♀♀	♂♀	♂♂	♀♀	♂♀
cm	FREQUENCIES in ‰					
<31	3	-	3	10	-	10
31	3	-	3	20	-	20
32	3	-	3	40	-	40
33	9	-	9	40	10	50
34	3	3	6	40	-	40
35	25	9	34	110	-	110
36	9	6	15	120	-	120
37	28	22	50	130	-	130
38	34	12	46	120	10	130
39	50	40	90	80	30	110
40	65	50	115	60	-	60
41	43	37	80	20	20	40
42	68	47	115	20	10	30
43	43	59	102	-	40	40
44	47	43	90	-	30	30
45	25	22	47	-	10	10
46	34	43	77	10	20	30
47	15	31	46	-	-	-
48	6	9	15	-	-	-
49	12	19	31	-	-	-
50	-	9	9	-	-	-
51	-	3	3	-	-	-
52	-	3	3	-	-	-
53	-	-	-	-	-	-
54	3	-	3	-	-	-
-	-	-	-	-	-	-
60	-	3	3	-	-	-
Total ‰	528	470	998	820	180	1000
Number of Samples						1
Number Fish Measured						
Range of Depths (fm)						

TABLE 5 ICELAND - 1960

LENGTH FREQUENCIES - REDFISH

by J. Magnusson

OTTER TRAWL - Exploratory Catches

Division	1C			2J					
Month	September			July			September		
	Marims								
Sex	♂	♀	♂♀	♂	♀	♂♀	♂	♀	♂♀
cm	FREQUENCIES in ‰								
<31	73 ¹⁾	55 ²⁾	128	19	9	28	23	13	36
31	5	4	9	9	-	9	7	7	14
32	6	6	12	-	9	9	10	7	17
33	10	4	14	-	9	9	17	13	30
34	12	15	27	-	-	-	26	7	33
35	24	16	40	19	-	19	20	20	40
36	30	20	50	19	19	38	10	10	20
37	37	40	77	9	-	9	3	10	13
38	42	37	79	-	9	9	26	10	36
39	46	40	86	19	9	28	26	10	36
40	42	40	82	19	-	19	50	17	67
41	45	29	74	-	19	19	46	26	72
42	32	31	63	19	9	28	26	20	46
43	29	29	58	19	19	38	33	17	50
44	12	22	34	19	9	28	36	13	49
45	7	15	22	28	28	56	36	17	53
46	11	10	21	-	-	-	40	13	53
47	9	6	15	28	47	75	10	40	50
48	6	10	16	19	9	28	13	17	30
49	6	4	10	19	9	28	10	23	33
50	2	6	8	9	9	18	20	23	43
51	6	2	8	9	38	47	3	26	29
52	2	1	3	-	47	47	-	20	20
53	4	2	6	9	19	28	7	13	20
54	6	2	8	9	47	56	3	13	16
55	1	4	5	-	84	84	-	23	23
56	5	3	8	-	47	47	-	13	13
57	2	2	4	-	47	47	-	20	20
58	4	1	5	-	38	38	-	13	13
59	4	4	8	-	47	47	-	7	7
60	3	5	8	9	-	9	-	3	3
61	2	1	3	-	28	28	-	3	3
62	1	2	3	-	19	19	-	7	7
63	-	2	2	-	9	9	-	7	7
>63	3	3	6	-	-	-	-	-	-
Total ‰	529	473	1002	309	692	1001	501	501	1002
Number of Samples	11			2			2		
Number Fish Measured									
Range of Depths (fm)	100-135			155-180			110-155		

1) 9 at 30; 9 at 29; 7 at 28; 12 at 27; 9 at 26; 6 at 25; 11 at 24; 5 at 23; 2 at 22; 1 at 21;
 1 at 20; 1 at 17. 2) 7 at 30; 5 at 29; 7 at 28; 8 at 27; 8 at 26; 7 at 25; 6 at 24; 4 at 23;
 1 at 22; 2 at 21.

(cont'd.)

TABLE 5 ICELAND - 1960
(cont'd.)

LENGTH FREQUENCIES - REDFISH

by J. Magnusson

OTTER TRAWL - Exploratory Catches

Division	K									
Month	June			July			September			
	Marinus									
Sex	♂♂	♀♀	♂♀	♂♂	♀♀	♂♀	♂♂	♀♀	♂♀	♂♀
cm	FREQUENCIES in ‰									
<31	10	-	10	-	-	-	8	13	21	11
31	2	2	4	-	7	7	5	5	10	3
32	2	2	4	-	-	-	7	4	11	3
33	-	-	-	7	7	14	9	8	17	8
34	12	7	19	13	-	13	14	10	24	11
35	5	4	9	-	7	7	22	9	31	19
36	14	9	23	-	-	-	21	9	30	14
37	10	12	22	7	7	14	24	13	37	14
38	9	7	16	7	-	7	21	12	33	55
39	21	17	38	20	-	20	17	19	36	28
40	15	12	27	20	-	20	18	30	48	50
41	19	22	41	13	7	20	20	28	48	58
42	17	12	29	27	-	27	25	42	67	61
43	26	10	36	53	7	60	28	31	59	78
44	28	17	45	7	7	14	26	27	53	36
45	12	17	29	27	13	40	19	12	31	53
46	26	34	60	40	13	53	24	24	48	39
47	38	29	67	54	27	81	25	27	52	75
48	34	29	63	54	13	67	26	18	44	58
49	19	29	48	60	13	73	24	16	40	61
50	26	38	64	20	27	47	21	10	31	39
51	19	17	36	47	34	81	19	17	36	42
52	15	22	37	27	33	60	15	22	37	44
53	24	43	67	34	47	81	13	19	32	47
54	19	33	52	13	54	67	10	21	31	19
55	17	34	51	7	20	27	5	21	26	22
56	5	24	29	7	40	47	1	23	24	14
57	5	24	29	-	13	13	2	18	20	11
58	-	10	10	-	20	20	1	9	10	14
59	2	10	12	-	-	-	2	7	9	6
60	-	10	10	-	7	7	1	4	5	3
61	-	4	4	-	7	7	-	1	1	3
62	-	4	4	-	7	7	-	1	1	-
63	-	2	2	-	-	-	-	1	1	3
>63	-	2	2	-	-	-	1	-	1	-
Total ‰	451	548	999	564	437	1001	474	531	1005	1002
Number of Samples		6			2			8		1
Number Fish Measured										
Range of Depths (fm)		160-170			150-164			120-170		100-135

(cont'd.)

TABLE 5 ICELAND - 1960

LENGTH FREQUENCIES - REDFISH

by J. Magnusson

(cont'd.)

OTTER TRAWL - Exploratory Catches

Division	2J								
	June			July			September		
Month	Mentella								
Sex	♂♂	♀♀	♂♀	♂♂	♀♀	♂♀	♂♂	♀♀	♂♀
cm	FREQUENCIES in ‰								
24	-	-	-	1	-	1	-	-	-
25	-	-	-	3	-	3	3	-	3
26	8	-	8	4	4	8	6	3	9
27	-	-	-	4	-	4	3	9	12
28	8	-	8	10	4	14	7	5	12
29	-	-	-	6	4	10	15	9	24
30	16	-	16	3	4	7	9	10	19
31	-	-	-	6	7	13	19	22	41
32	16	8	24	12	6	18	33	20	53
33	31	16	47	9	16	25	61	29	90
34	24	16	40	37	12	49	60	39	99
35	31	24	55	56	13	69	71	39	110
36	8	63	71	79	17	96	79	32	111
37	16	47	63	79	30	109	59	30	89
38	47	79	126	66	33	99	38	29	67
39	31	47	78	71	37	108	15	24	39
40	71	31	102	58	40	98	10	33	43
41	47	102	149	27	58	85	10	21	31
42	55	55	110	23	35	58	4	25	29
43	24	47	71	13	37	50	6	29	35
44	-	8	8	7	17	24	8	18	26
45	-	16	16	4	13	17	4	13	17
46	-	8	8	1	6	7	-	15	15
47	-	-	-	1	9	10	-	11	11
48	-	-	-	-	7	7	3	3	6
49	-	-	-	-	3	3	1	1	2
50	-	-	-	1	-	1	-	1	1
51	-	-	-	-	-	-	-	-	-
52	-	-	-	-	-	-	1	-	1
53	-	-	-	-	1	1	1	-	1
>53	-	-	-	1	1	2	1	-	1
Total ‰	433	567	1000	582	414	996	527	470	997
Number of Samples		1			7			1	
Number Fish Measured									
Range of Depths-(m)		285			155-330			125-300	

(cont'd.)

TABLE 5 ICELAND - 1960
(cont'd.)

LENGTH FREQUENCIES - REDFISH

by J. Magnusson

OTTER TRAWL - Exploratory Catches

Division	K								
Month	June			July			September		
	Mentella								
Sex	♂♂	♀♀	♂♀	♂♂	♀♀	♂♀	♂♂	♀♀	♂♀
cm	FREQUENCIES in ‰								
22	1	-	1	-	-	-	-	-	-
23	-	1	1	-	-	-	-	-	-
24	-	-	-	13	-	13	-	-	-
25	-	-	-	-	-	-	2	-	2
26	4	1	5	-	-	-	-	-	-
27	5	4	9	-	-	-	5	5	10
28	4	3	7	-	-	-	7	9	16
29	3	4	7	-	13	13	27	5	32
30	6	3	9	-	13	13	9	5	14
31	21	11	32	-	-	-	23	7	30
32	18	15	33	26	-	26	23	16	39
33	28	21	49	13	-	13	48	9	57
34	45	25	70	26	26	52	87	23	110
35	52	21	73	39	13	52	119	16	135
36	38	29	67	-	-	-	62	25	87
37	35	33	68	78	26	104	78	32	110
38	41	27	68	-	-	-	62	25	87
39	33	48	81	13	13	26	27	32	59
40	37	44	81	-	52	52	27	32	59
41	28	45	73	39	52	91	7	25	32
42	21	44	65	-	65	65	9	37	46
43	12	29	41	-	130	130	5	18	23
44	4	27	31	-	104	104	-	16	16
45	4	10	14	-	52	52	-	7	7
46	3	10	13	-	52	52	-	5	5
47	3	8	11	-	26	26	-	2	2
48	2	4	6	-	-	-	-	-	-
49	2	6	8	-	-	-	-	-	-
50	2	4	6	-	-	-	-	-	-
51	3	3	6	-	-	-	-	-	-
52	3	10	13	13	-	13	-	-	-
53	3	4	7	-	-	-	-	-	-
>53	3 ¹⁾	40 ²⁾	43	-	13	13	-	-	-
Total ‰	464	534	998	325	676	1001	652	349	1001
Number of Samples		11			2			3	
Number Fish Measured									
Range of Depths (fm)		125-300			150-164			130-240	

1) 1 at 54; 1 at 55; 1 at 65. 2) 8 at 54; 8 at 55; 7 at 56; 4 at 57; 4 at 58; 1 at 59; 4 at 60; 1 at 61; 1 at 62; 1 at 64; 1 at 65.

TABLE 6 UNION OF SOVIET SOCIALIST
REPUBLICS - 1960
OTTER TRAWLERS - Exploratory Catches

LENGTH FREQUENCIES - REDFISH

by V I. Travin

Division	IC						ID		
	April			May			April		
Month	Marinus								
Sex	♂♂	♀♀	♂♀	♂♂	♀♀	♂♀	♂♂	♀♀	♂♀
cm	FREQUENCIES in ‰								
<23	2	2	4	-	-	-	-	-	-
23	-	-	-	-	-	-	1	-	1
24	-	1	1	-	1	1	1	-	1
25	1	-	1	-	-	-	-	1	1
26	2	1	3	1	1	2	5	1	6
27	3	3	6	-	1	1	3	4	7
28	2	4	6	1	3	4	6	4	10
29	3	4	7	4	3	7	4	9	13
30	3	2	5	5	4	9	9	9	18
31	7	6	13	5	5	10	5	5	10
32	7	6	13	6	6	12	5	5	10
33	9	10	19	10	10	20	9	8	17
34	15	14	29	15	16	31	13	10	23
35	15	14	29	15	15	30	10	16	26
36	25	18	43	22	20	42	23	14	37
37	29	30	59	27	25	52	35	25	60
38	39	39	78	42	39	81	40	35	75
39	28	26	54	28	29	57	38	41	79
40	53	55	108	50	45	95	50	42	92
41	49	41	90	24	20	44	45	54	99
42	39	42	81	21	14	35	38	40	78
43	42	49	91	20	17	37	49	39	88
44	23	28	51	14	12	26	26	44	70
45	19	21	40	13	14	27	19	20	39
46	10	16	26	11	12	23	14	28	42
47	8	9	17	7	8	15	13	15	28
48	6	7	13	7	5	12	5	15	20
49	3	3	6	5	6	11	1	10	11
50	4	6	10	6	7	13	2	5	7
51	3	2	5	5	4	9	1	4	5
52	6	5	11	3	4	7	1	2	3
53	5	5	10	6	6	12	2	1	3
54	7	7	14	7	9	16	1	1	2
55	3	5	8	12	10	22	1	1	2
56	4	4	8	10	6	16	1	1	1
57 ¹⁾	2	5	7	11	12	23	1	-	1
>57 ¹⁾	17	11	28	109	87	196	7	8	15
Total ‰	493	501	994	522	476	998	483	517	1000
Number Fish Measured	2428	2472	4900	2430	2203	4633	1565	1663	3228
Mean Length (cm)	41.1	41.5	41.4	45.5	44.7	44.9	39.7	40.1	40.3
Mean Weight (Kg)	...	...	...	1.36	1.28	1.32	1.24	1.35	1.28
Number of Samples		23			19			13	
Range of Depths (fm)		80-250			77-253			88-187	

1) For breakdown, see page 32.

(cont'd.)

TABLE 6 UNION OF SOVIET SOCIALIST
(cont'd.) REPUBLICS - 1960
OTTER TRAWLERS - Exploratory Catches

LENGTH FREQUENCIES - REDFISH

by V.I. Travin

Division	LE					
	April			May		
Month	Marinus					
Sex	♂♂	♀♀	♂♀	♂♂	♀♀	♂♀
cm	FREQUENCIES in ‰					
<23	3	-	3	-	-	-
-	-	-	-	-	-	-
32	-	-	-	1	1	2
33	1	1	2	-	3	3
34	3	3	6	4	4	4
35	1	1	2	6	8	14
36	9	6	15	12	10	22
37	15	14	29	16	12	28
38	35	39	74	30	35	65
39	35	38	73	17	16	33
40	74	80	154	38	45	83
41	61	50	111	28	21	49
42	72	55	127	44	34	78
43	90	80	170	31	36	67
44	46	35	81	42	40	82
45	30	35	65	52	44	96
46	20	23	43	26	21	47
47	15	10	25	21	21	42
48	3	3	6	10	17	27
49	-	3	3	10	4	14
50	1	2	3	17	16	33
51	-	1	1	4	10	14
52	-	-	-	4	3	7
53	-	-	-	5	10	15
54	-	-	-	3	4	7
55	-	-	-	5	9	14
56	1	-	1	4	8	12
57	-	-	-	4	3	7
58	-	-	-	11	6	17
59	-	-	-	8	2	10
60	1	-	1	16	14	30
61	-	-	-	6	6	12
62	-	-	-	4	6	10
63	-	-	-	6	8	14
64	-	1	1	2	5	7
65	-	1	1	4	4	8
>65 ¹⁾	2	1	3	7	15	22
Total ‰	518	482	1000	498	502	1000
Number Fish Measured	455	422	877	498	502	1000
Mean Length (cm)	41.7	41.9	41.9	45.7	46.2	46.0
Mean Weight (Kg)	1.13	1.37	1.28	2.80	2.93	2.87
Number of Samples		4			4	
Range of Depths (fm)		88-192			154-220	

1) For breakdown, see page 32.

(cont'd.)

TABLE 6 UNION OF SOVIET SOCIALIST
(cont'd.) REPUBLICS - 1960
OTTER TRAWLERS - Exploratory Catches

LENGTH FREQUENCIES - REDFISH

by V.I. Travin
E.I. Surkova

Division	2H						2I		
Month	November			December			January		
	Mentella								
Sex	♂♂	♀♀	♂♀	♂♂	♀♀	♂♀	♂♂	♀♀	♂♀
cm	FREQUENCIES in ‰								
21	-	-	-	-	-	-	1	-	1
22	-	-	-	-	-	-	-	-	-
23	-	-	-	-	-	-	4	-	4
24	-	-	-	-	-	-	2	2	4
25	-	-	-	-	-	-	4	-	4
26	-	2	2	1	-	1	-	-	-
27	3	5	8	1	1	2	6	1	7
28	5	5	10	1	1	2	6	4	10
29	6	5	11	3	2	5	16	10	26
30	15	19	34	4	9	13	17	5	22
31	15	22	37	5	8	13	24	5	29
32	15	24	39	6	7	13	82	15	97
33	23	40	63	17	22	39	68	8	76
34	30	33	63	24	24	48	196	8	204
35	49	31	80	36	27	63	100	16	116
36	30	15	45	37	20	57	153	16	169
37	37	20	57	45	23	68	55	5	60
38	63	34	97	61	32	93	55	6	61
39	39	27	66	45	38	83	9	6	15
40	55	68	123	60	93	153	6	13	19
41	17	28	45	29	41	70	4	4	8
42	8	30	38	15	34	49	2	14	16
43	16	56	72	23	52	75	-	14	14
44	5	23	28	8	34	42	1	16	17
45	3	19	22	6	35	41	1	5	5
46	1	15	16	2	16	18	-	5	5
47	-	13	13	1	12	13	-	4	4
48	-	14	14	1	16	17	-	5	5
49	-	3	3	1	5	6	-	2	2
50	1	8	9	-	8	8	-	-	-
51	-	1	1	-	3	3	-	-	-
52	-	3	3	1	1	2	-	-	-
53	-	-	-	-	1	1	-	-	-
54	-	1	1	1	1	2	-	-	-
Total ‰	436	564	1000	434	566	1000	811	189	1000
Number of Samples		4			7			4	
Number Fish Measured	559	719	1278	756	991	1747	...	...	...
Number Fish of Comm. Value	...	...	...	...	...	...	684	159	843
Mean Length (cm)	36.74	38.70	37.85	38.05	40.23	39.29	34.37	37.72	34.99
Mean Weight (Kg)	0.85	1.28	1.10	...	...	...	0.71	0.94	0.77
Range of Depths (fm)		176-225			159-239			132-370	

(cont'd.)

TABLE 6. UNION OF SOVIET SOCIALIST
(cont'd.) REPUBLICS - 1960
OTTER TRAWLERS - Exploratory Catches

LENGTH FREQUENCIES - REDFISH

by V.I. Travina
E.I. Surkova

Division	2J								
	February			May			June		
Month	Mentella								
Sex	♂♂	♀♀	♂♀	♂♂	♀♀	♂♀	♂♂	♀♀	♂♀
cm	FREQUENCIES in ‰								
21	-	-	-	-	-	-	1	-	1
22	-	-	-	1	-	1	2	1	3
23	-	-	-	3	-	3	1	-	1
24	4	1	5	6	5	11	2	3	5
25	2	1	3	5	5	10	3	4	7
26	7	2	9	7	7	14	6	7	13
27	16	2	18	8	8	16	9	10	19
28	14	5	19	17	19	36	18	20	38
29	11	4	15	10	8	18	13	11	24
30	17	4	21	21	13	34	34	25	59
31	24	5	29	16	11	27	33	25	58
32	156	7	163	50	27	77	51	43	94
33	114	6	120	40	22	62	49	28	77
34	156	13	169	100	47	147	63	35	98
35	44	5	49	54	24	78	56	26	82
36	59	10	69	40	42	82	41	26	67
37	27	14	41	31	30	61	33	26	59
38	17	32	49	30	67	97	29	46	75
39	2	26	28	7	33	40	14	21	35
40	-	30	30	11	38	49	17	36	53
41	1	26	27	6	21	27	3	20	23
42	-	52	52	6	33	39	4	25	29
43	-	37	37	3	16	19	3	21	24
44	-	24	24	2	23	25	1	12	13
45	-	9	9	1	13	14	2	11	13
46	-	8	8	-	5	5	1	8	9
47	-	3	3	-	5	5	1	5	6
48	-	2	2	-	1	1	1	5	6
49	-	-	-	-	1	1	-	2	2
50	-	-	-	-	-	-	-	2	2
51	-	-	-	-	-	-	-	1	1
52	-	-	-	-	-	-	-	1	1
53	-	-	-	-	-	-	-	1	1
-	-	-	-	-	-	-	-	-	-
>55	-	-	-	-	-	-	-	1	1
Total ‰	671	328	999	475	524	999	491	508	999
Number of Samples		3			6			19	
Number Fish of Comm.									
Value	1640	800	2440	2992	3325	6317	3897	4001	7898
Mean Length (cm)	33.10	39.58	35.19	33.81	36.71	35.33	33.84	36.23	35.04
Mean Weight (Kg)	...	...	...	...	...	...	0.59	0.66	0.63
Range of Depths (fm)		180-220			176-330			98-303	

(cont'd.)

TABLE 6 UNION OF SOVIET SOCIALIST
(cont'd.) REPUBLICS - 1960
OTTER TRAWLERS - Exploratory Catches

LENGTH FREQUENCIES -- REDFISH

by V.I. Travin
E.I. Surkova

Division	21								
	October			November			December		
Month	Mentella								
Sex	♂	♀	♂♀	♂	♀	♂♀	♂	♀	♂♀
cm	FREQUENCIES in ‰								
24	-	-	-	-	1	1	-	2	2
25	-	-	-	-	2	2	2	4	6
26	9	9	18	2	6	8	3	10	13
27	-	9	9	6	19	25	10	11	21
28	9	27	36	8	22	30	10	21	31
29	-	9	9	9	20	29	9	20	29
30	-	35	35	14	40	54	18	35	53
31	18	-	18	15	20	35	17	21	38
32	9	9	18	19	18	37	20	24	44
33	9	-	9	26	30	56	49	42	91
34	9	9	18	33	23	56	52	31	83
35	70	9	79	44	36	80	81	42	123
36	70	18	88	29	22	51	58	27	85
37	70	35	105	36	30	66	58	29	87
38	35	35	70	45	43	88	42	35	77
39	44	18	62	29	31	60	22	22	44
40	35	79	114	40	69	109	21	44	65
41	9	27	36	20	31	51	4	17	21
42	-	53	53	11	23	34	3	16	19
43	27	62	89	8	43	51	2	21	23
44	-	35	35	3	18	21	-	15	15
45	18	9	27	2	18	20	-	12	12
46	18	9	27	-	7	7	-	6	6
47	-	9	9	-	8	8	-	4	4
48	-	18	18	-	9	9	1	2	3
49	-	-	-	-	3	3	-	2	2
50	-	-	-	-	5	5	-	2	2
51	-	9	9	-	2	2	-	-	-
52	-	9	9	-	1	1	-	-	-
Total ‰	459	541	1000	399	600	999	482	517	999
Number of Samples		2			9			13	
Number Fish of Comm.									
Value	52	61	113	1043	1559	2602	1982	2119	4101
Mean Length (cm)	37.27	39.11	38.27	36.03	37.07	36.72	34.90	35.68	35.33
Mean Weight (Kg)	...	...	...	...	...	...	...	...	...
Range of Depths (fm)		154-210			165-280			136-255	

(cont'd.)

TABLE 6. UNION OF SOVIET SOCIALIST
(cont'd.) REPUBLICS - 1960

LENGTH FREQUENCIES - HEDFISH

by V.I. Travin
E.I. Surkova

OTTER TRAWLERS - Exploratory Catches

Division	K								
	January			February			March		
Month	Montella								
Sex	♂♂	♀♀	♂♀	♂♂	♀♀	♂♀	♂♂	♀♀	♂♀
cm	FREQUENCIES in /∞								
22	1	1	2	-	1	1	-	-	-
23	1	2	3	-	-	-	-	2	2
24	2	6	8	5	4	9	12	6	18
25	3	5	8	3	1	4	2	1	3
26	10	10	20	5	3	8	9	3	12
27	12	12	24	10	3	13	15	4	19
28	26	23	49	26	14	40	45	16	61
29	22	19	41	20	5	25	36	14	50
30	19	14	33	20	7	27	45	20	65
31	26	17	43	30	10	40	33	8	41
32	67	33	100	99	32	131	62	19	81
33	57	28	85	66	15	81	28	5	33
34	73	35	108	100	41	141	47	14	61
35	27	23	50	37	12	49	85	25	110
36	12	37	49	30	18	48	49	14	63
37	9	41	50	14	23	37	28	16	44
38	8	65	73	9	126	135	11	21	32
39	1	52	53	1	40	41	6	33	39
40	-	43	43	-	36	36	4	84	88
41	1	55	56	-	39	39	-	36	36
42	-	44	44	-	55	55	-	67	67
43	1	34	35	-	21	21	-	25	25
44	-	11	11	-	10	10	-	7	7
45	-	7	7	-	5	5	-	24	24
46	-	1	1	-	2	2	-	8	8
47	-	3	3	-	1	1	-	7	7
48	-	-	-	-	-	-	-	4	4
Total %∞	378	621	999	475	524	999	517	483	1000
Number of Samples		6			17			9	
Number Fish Measured	1064	1716	2780	8198	9001	17199	2756	2569	5325
Mean Length (cm)	32.11	36.48	34.82	32.53	37.39	35.08	32.38	38.11	35.16
Mean Weight (Kg)	....	....	...	...	...	...	0.64	1.05	0.86
Range of Depths (m)		148-178			151-192			159-180	

(cont'd.)

TABLE 6 UNION OF SOVIET SOCIALIST
(cont'd.) REPUBLICS - 1960
OTTER TRAWLERS - Exploratory Catches

LENGTH FREQUENCIES - REDFISH

by V.I. Travin
E.I. Surkova

Division	3K								
	April			May			June		
Month	Mentella								
Sex	♂♂	♀♀	♂♀	♂♂	♀♀	♂♀	♂♂	♀♀	♂♀
cm	FREQUENCIES in ‰								
22	2	-	2	-	-	-	-	-	-
23	6	1	7	-	1	1	-	-	-
24	9	1	10	7	2	9	3	-	3
25	18	5	23	7	2	9	4	3	7
26	18	8	26	14	5	19	-	2	2
27	23	10	33	15	3	18	6	6	12
28	24	10	34	31	13	44	2	8	16
29	22	10	32	17	15	32	4	3	7
30	37	18	55	37	10	47	17	21	38
31	29	20	49	21	8	29	20	11	31
32	36	23	59	73	21	94	30	26	56
33	45	18	63	40	9	49	27	2	29
34	39	19	58	96	35	131	36	9	45
35	39	18	57	41	20	61	51	48	99
36	29	29	58	22	21	43	32	29	61
37	23	27	50	15	38	53	54	52	106
38	16	38	54	9	104	113	57	52	109
39	7	37	44	2	43	45	38	52	90
40	10	58	68	-	91	91	70	85	155
41	2	52	54	-	44	44	17	29	46
42	6	57	63	-	38	38	11	16	27
43	2	38	40	-	15	15	8	36	44
44	-	22	22	-	7	7	2	10	12
45	2	17	19	-	5	5	-	5	5
46	-	8	8	-	1	1	-	3	3
47	-	5	5	-	1	1	-	3	3
48	-	3	3	-	-	-	-	-	-
49	-	2	2	-	-	-	-	-	-
50	-	1	1	-	-	-	-	-	-
51	-	1	1	-	-	-	-	-	-
Total ‰	444	556	1000	447	552	999	489	511	1000
Number of Samples		13			3			4	
Number Fish Measured	1268	1605	2873	1873	2335	4208	454	473	927
Mean Length (cm)	32.14	37.92	35.35	32.11	37.39	35.04	36.16	37.53	36.86
Mean Weight (Kg)	0.68	1.07	1.0	...	...	...	...	...	...
Range of Depths (fm)		148-230			178-219			137-271	

(cont'd.)

TABLE 6 UNION OF SOVIET SOCIALIST
(cont'd.) REPUBLICS - 1960
OTHER TRAWLERS - Exploratory Catches

LENGTH FREQUENCIES - REDFISH

by V.I. Travin
E.I. Surkova

Division	3K								
	July			October			November		
Month	Mentella								
Sex	♂♂	♀♀	♂♀	♂♂	♀♀	♂♀	♂♂	♀♀	♂♀
cm	FREQUENCIES in ‰								
22	-	-	-	-	-	-	2	2	4
23	-	-	-	-	1	1	3	6	9
24	-	-	-	1	2	3	2	10	12
25	1	2	3	2	2	4	9	16	25
26	3	3	6	8	2	10	26	26	52
27	5	4	9	13	6	19	43	28	71
28	5	4	9	16	17	33	71	75	146
29	7	6	13	13	6	19	35	32	67
30	24	22	46	18	12	30	67	57	124
31	24	24	48	23	15	38	46	35	81
32	51	42	93	30	12	42	45	37	82
33	42	39	81	39	20	59	50	54	104
34	48	30	78	60	20	80	17	29	46
35	51	37	88	107	19	126	8	25	33
36	36	32	68	60	10	70	6	28	34
37	41	36	77	62	21	83	4	18	22
38	24	29	53	63	23	86	8	26	34
39	12	28	40	30	18	48	1	11	12
40	19	56	75	32	45	77	-	26	26
41	6	37	43	11	29	40	-	6	6
42	8	46	54	4	23	27	2	3	5
43	4	30	34	4	41	45	-	2	2
44	2	24	26	1	16	17	-	1	1
45	2	24	26	-	21	21	-	2	2
46	-	12	12	-	6	6	-	-	-
47	-	8	8	-	6	6	-	-	-
48	-	6	6	-	6	6	-	-	-
49	-	3	3	-	1	1	-	-	-
50	-	-	-	-	2	2	-	-	-
Total ‰	415	584	999	597	402	999	445	555	1000
Number of Samples		9			6			2	
Number Fish Measured	1556	2162	3718	1074	721	1795	698	866	1564
Mean Length (cm)	34.61	37.72	36.43	34.96	37.99	36.18	30.11	31.76	31.03
Mean Weight (Kg)	0.57	0.77	0.67	0.63	0.76	0.63	0.38	0.55	0.44
Range of Depths (fm)		170-234			148-181			165	

(cont'd.)

TABLE 6 UNION OF SOVIET SOCIALIST
(cont'd.) REPUBLICS - 1960

LENGTH FREQUENCIES - REDFISH

by V. I. Travin
E. I. Surkova

OTTER TRAWLERS - Exploratory Catches

Division	K			L			M		
	December			January			March		
Month	Mentella								
Sex	♂	♀	♂♀	♂	♀	♂♀	♂	♀	♂♀
cm	FREQUENCIES in ‰								
23	-	1	1	-	-	-	-	-	-
24	1	-	1	-	-	-	-	-	-
25	1	1	2	-	-	-	-	1	1
26	3	2	5	-	-	-	-	-	-
27	6	1	7	-	-	-	-	1	1
28	9	3	12	3	-	3	2	-	2
29	8	2	10	3	-	3	4	1	5
30	20	7	27	3	-	3	22	10	32
31	33	4	37	7	7	14	2	-	2
32	32	8	40	78	29	107	35	12	47
33	52	7	59	80	13	93	20	4	24
34	71	10	81	132	42	174	57	4	61
35	122	15	137	97	13	110	136	34	170
36	107	11	118	80	19	99	50	5	55
37	85	8	93	35	45	80	23	12	35
38	63	19	82	10	32	42	10	48	58
39	34	15	49	10	74	84	5	51	56
40	26	33	59	-	39	39	3	123	126
41	4	34	38	-	55	55	-	68	68
42	2	36	38	-	45	45	1	103	104
43	1	26	27	-	23	23	-	31	31
44	-	24	24	-	10	10	-	33	33
45	-	24	24	-	3	3	-	63	63
46	-	15	15	-	7	7	-	15	15
47	-	8	8	-	-	-	-	6	6
48	-	3	3	-	3	3	-	2	2
49	-	2	2	-	-	-	-	3	3
50	-	1	1	-	3	3	-	-	-
Total ‰	680	320	1000	538	462	1000	370	630	1000
Number of Samples		6			2			3	
Number Fish Measured	1974	931	2905	167	143	310	629	1069	1698
Mean Length (cm)	35.10	39.97	36.65	34.28	38.51	36.24	34.49	40.52	38.29
Mean Weight (Kg)	0.55	0.99	0.87	...	...	...	...	...	...
Range of Depths (fm)		148-192			228-292			160-266	

(cont'd.)

TABLE 6 UNION OF SOVIET SOCIALIST
(cont'd.) REPUBLICS - 1960
OTTER TRAWLERS - Exploratory Catches

LENGTH FREQUENCIES - REDFISH

by V.I. Travin
E.I. Surkova

Division	3L								
	April			June			July		
Month	Mentella								
Sex	♂♂	♀♀	♂♀	♂♂	♀♀	♂♀	♂♂	♀♀	♂♀
cm	F R E Q U E N C I E S in ‰								
22	-	-	-	-	-	-	1	-	1
23	1	1	2	-	-	-	-	1	1
24	2	1	3	-	-	-	1	1	2
25	4	1	5	-	-	-	2	-	2
26	6	3	9	-	-	-	3	3	6
27	10	5	15	2	1	3	12	4	16
28	12	7	19	6	4	10	10	6	16
29	15	10	25	5	4	9	9	5	14
30	24	14	38	10	11	21	19	14	33
31	24	11	35	9	8	17	19	18	37
32	49	15	64	19	15	34	26	24	50
33	76	15	91	37	17	54	44	26	70
34	82	16	98	54	16	70	49	30	79
35	91	22	113	94	32	126	70	41	111
36	56	29	85	75	25	100	53	36	89
37	30	35	65	59	30	89	40	40	80
38	18	48	66	42	32	74	19	45	64
39	6	49	55	20	29	49	14	37	51
40	4	70	74	22	56	78	10	65	75
41	2	40	42	9	50	59	9	42	51
42	1	31	32	6	52	58	6	45	51
43	-	31	31	6	48	54	3	35	38
44	-	14	14	2	24	26	1	18	19
45	-	9	9	-	33	33	1	20	21
46	-	6	6	-	18	18	-	10	10
47	-	3	3	-	10	10	-	8	8
48	-	1	1	-	5	5	-	2	2
49	-	-	-	-	2	2	-	2	2
50	-	-	-	-	1	1	-	1	1
Total ‰	513	487	1000	477	523	1000	421	579	1000
Number of Samples		20			14			38	
Number Fish Measured	3455	3259	6714	3266	3577	6843	7720	10613	18333
Mean Length (cm)	33.55	37.9	35.66	35.65	39.5	37.67	34.43	38.22	36.51
Mean Weight (Kg)	0.54	0.77	0.66	0.75	1.09	0.97	0.58	0.94	0.78
Range of Depths (fm)		85-252			131-252			148-206	

(cont'd.)

TABLE 6 UNION OF SOVIET SOCIALIST
(cont'd.) REPUBLICS - 1960
OTTER TRAWLERS - Exploratory Catches

LENGTH FREQUENCIES - REDFISH

by V.I. Travin
E.I. Surkova

Division	3L								
	August			October			November		
Month	Mantella								
Sex	♂♂	♀♀	♂♀	♂♂	♀♀	♂♀	♂♂	♀♀	♂♀
cm	FREQUENCIES in ‰								
22	-	-	-	-	1	1	-	-	-
23	1	-	1	-	-	-	2	2	4
24	-	2	2	1	5	6	3	6	9
25	2	6	8	2	4	6	2	4	6
26	2	4	6	8	3	11	6	7	13
27	12	14	26	7	5	12	6	10	16
28	13	12	25	7	8	15	12	18	30
29	14	10	24	5	5	10	8	4	12
30	17	20	37	10	22	32	15	9	24
31	2	3	5	6	9	15	22	7	29
32	45	62	107	13	13	26	46	21	67
33	22	9	31	42	19	61	76	15	91
34	24	9	33	37	22	59	96	24	120
35	98	32	130	61	48	109	67	24	91
36	44	12	56	31	26	57	41	33	74
37	30	20	50	19	31	50	29	42	71
38	10	40	50	11	55	66	25	75	100
39	6	43	49	7	55	62	6	36	42
40	2	101	103	2	164	166	5	66	71
41	1	55	56	5	66	71	3	28	31
42	-	118	118	-	52	52	3	35	38
43	-	33	33	-	56	56	3	31	34
44	-	20	20	-	26	26	-	12	12
45	-	14	14	-	19	19	-	4	4
46	-	7	7	-	3	3	-	5	5
47	-	6	6	-	6	6	-	2	2
48	-	2	2	-	3	3	-	4	4
Total ‰	345	654	.999	274	726	1000	476	524	1000
Number of Samples		5			6			5	
Number Fish Measured	869	1641	2510	295	782	1077	2714	2986	5700
Mean Length (cm)	33.71	38.16	36.62	33.90	38.53	37.26	33.79	37.18	35.56
Mean Weight (Kg)	...	....	...	...	...	...	0.61	0.91	0.73
Range of Depths (fm)		137-233			181-211			126-134	

(cont'd.)

TABLE 6 UNION OF SOVIET SOCIALIST
(cont'd.) REPUBLICS - 1960
OTTER TRAWLERS - Exploratory Catches

LENGTH FREQUENCIES - REDFISH

by V.I. Travin
E.I. Surkova

Division	3L			3M					
Month	December			January			March		
	Mentella								
Sex	♂♂	♀♀	♂♀	♂♂	♀♀	♂♀	♂♂	♀♀	♂♀
cm	FREQUENCIES in ‰								
16	-	-	-	-	-	-	1	1	2
17	-	-	-	-	-	-	-	2	2
18	-	-	-	-	-	-	1	3	4
19	-	-	-	-	-	-	2	1	3
20	-	-	-	-	1	1	3	2	5
21	-	-	-	-	1	1	2	2	4
22	-	-	-	-	2	2	7	3	10
23	1	1	2	1	1	2	6	7	13
24	1	1	2	1	3	4	7	8	15
25	2	2	4	-	-	-	10	8	18
26	3	2	5	1	4	5	10	4	14
27	8	5	13	-	2	2	11	8	19
28	10	7	17	1	2	3	16	6	22
29	9	5	14	8	2	10	20	5	25
30	16	12	28	14	3	17	70	21	91
31	18	12	30	46	13	59	70	21	91
32	34	20	54	114	32	146	92	32	124
33	52	18	70	130	29	159	81	30	111
34	64	21	85	119	31	150	71	36	107
35	83	32	115	89	37	126	60	55	115
36	57	28	85	48	52	100	20	46	66
37	40	36	76	25	45	70	10	46	56
38	23	48	71	12	28	40	4	33	37
39	12	38	50	9	29	38	2	20	22
40	9	71	80	5	20	25	1	13	14
41	5	47	52	2	13	15	-	3	3
42	4	48	52	2	8	10	-	3	3
43	2	34	36	1	7	8	-	2	2
44	-	18	18	-	2	2	-	-	-
45	1	18	19	-	3	3	-	1	1
46	-	10	10	-	1	1	-	-	-
47	-	6	6	-	-	-	-	-	-
48	-	2	2	-	-	-	-	-	-
49	-	1	1	-	-	-	-	-	-
50	-	1	1	-	-	-	-	-	-
Total ‰	454	544	998	628	371	999	577	422	999
Number of Samples		...			8			17	
Number Fish Measured	21497	25702	47199	2591	1529	4120	2672	1962	4634
Mean Length (cm)	34.35	38.34	36.51	33.67	35.70	34.43	31.76	33.65	32.45
Mean Weight (Kg)	0.63	0.98	0.82	...	...	...	0.48	0.61	0.54
Range of Depths (fm)		...			165-265			137-252	

(cont'd.)

TABLE 6 UNION OF SOVIET SOCIALIST
(cont'd.) REPUBLICS - 1960
OTTER TRAWLERS - Exploratory Catches

LENGTH FREQUENCIES - REDFISH

by V.I.Travin
E.I.Surkova

Division	Mentella								
	April			June			July		
Month	♂♂	♀♀	♂♀	♂♂	♀♀	♂♀	♂♂	♀♀	♂♀
Sex	FREQUENCIES in ‰								
cm									
15	1	-	1	-	-	-	-	-	-
16	1	-	1	-	-	-	1	-	1
17	-	-	-	-	-	-	1	1	2
18	1	-	1	-	-	-	1	2	3
19	-	-	-	-	-	-	-	1	1
20	1	-	1	-	-	-	-	1	1
21	2	1	3	-	-	-	2	1	3
22	1	1	2	-	-	-	1	1	2
23	1	-	1	-	-	-	2	3	5
24	1	-	1	-	-	-	3	3	6
25	1	2	3	-	-	-	3	4	7
26	3	1	4	-	-	-	4	4	8
27	3	3	6	1	-	1	5	5	10
28	14	3	17	5	2	7	7	6	13
29	24	1	25	7	2	9	10	9	19
30	72	16	88	24	7	31	33	21	54
31	63	16	79	47	12	59	54	37	91
32	124	33	157	69	21	90	67	43	110
33	84	14	98	116	43	159	68	57	125
34	85	30	115	76	47	123	60	52	112
35	128	59	187	79	70	149	58	61	119
36	32	40	72	49	55	104	34	53	87
37	16	39	55	33	64	97	22	43	65
38	8	24	32	17	69	86	13	36	49
39	2	16	18	5	28	33	9	29	38
40	2	16	18	4	23	27	8	25	33
41	1	5	6	-	10	10	2	15	17
42	-	4	4	-	5	5	2	8	10
43	-	3	3	-	6	6	-	4	4
44	-	1	1	-	2	2	-	2	2
45	-	1	1	-	1	1	-	2	2
Total ‰	671	329	1000	532	467	999	470	529	999
Number of Samples		10			8			46	
Number Fish Measured	3028	1494	4522	2232	1958	4190	10113	11336	21449
Mean Length (cm)	32.67	35.08	33.47	33.68	36.03	34.78	33.03	34.55	33.84
Mean Weight (Kg)	0.51	0.64	0.56	...	...	...	0.50	0.59	0.54
Range of Depths (fm)		181-275			141-233			137-324	

(cont'd.)

TABLE 6 UNION OF SOVIET SOCIALIST
(cont'd.) REPUBLICS - 1960
OTTER TRAWLERS - Exploratory Catches

LENGTH FREQUENCIES - REDFISH

by V.I. Travina
E.I. Surkova

Division	M								
	October			November			December		
Month	Mentella								
Sex	♂♂	♀♀	♂♀	♂♂	♀♀	♂♀	♂♂	♀♀	♂♀
cm	FREQUENCIES in ‰								
<15	2	-	2	-	-	-	-	-	-
16	-	-	-	-	-	-	-	-	-
19	1	-	1	-	-	-	-	-	-
20	-	-	-	-	-	-	-	-	-
21	1	-	1	-	-	-	1	-	1
22	3	-	3	-	-	-	-	1	1
23	3	2	5	1	-	1	2	1	3
24	5	8	13	-	3	3	+	-	-
25	-	3	3	1	-	1	-	2	2
26	3	1	4	4	1	5	2	2	4
27	15	4	19	9	3	12	9	2	11
28	34	9	43	16	6	22	11	8	19
29	36	14	50	31	11	42	17	12	29
30	149	37	186	64	21	85	51	15	66
31	112	47	159	111	64	175	133	29	162
32	98	72	170	97	89	186	137	54	191
33	59	61	120	55	64	119	81	37	118
34	33	55	88	44	72	116	69	53	122
35	23	59	82	37	63	100	49	47	96
36	3	20	23	15	53	68	29	39	68
37	-	7	7	5	29	34	11	41	52
38	2	6	8	2	18	20	5	21	26
39	1	3	4	1	9	10	1	13	14
40	-	4	4	1	-	1	-	10	10
41	-	1	1	-	-	-	2	2	4
42	-	1	1	-	-	-	-	-	-
43	-	2	2	-	-	-	-	1	1
Total ‰	583	416	999	494	506	1000	610	390	1000
Number of Samples		3			3			3	
Number Fish Measured	1451	1036	2487	930	956	1886	674	430	1104
Mean Length (cm)	31.08	32.61	31.62	31.77	33.42	32.60	32.20	34.02	32.96
Mean Weight (Kg)	0.45	0.55	0.50	...	...	...	...	...	...
Range of Depths (fm)		181-275			200-263			170-316	

(cont'd.)

TABLE 6 UNION OF SOVIET SOCIALIST
(cont'd.) REPUBLICS - 1960
OTTER TRAWLERS - Exploratory Catches

LENGTH FREQUENCIES - REDFISH

by V.I. Travin
E.I. Surkova

Division	M								
Month	January			March			April		
	Mentella								
Sex	♂♂	♀♀	♂♀	♂♂	♀♀	♂♀	♂♂	♀♀	♂♀
cm	FREQUENCIES in ‰								
19	-	-	-	-	-	-	-	1	1
20	-	-	-	2	1	3	11	10	21
21	-	-	-	1	5	6	11	15	26
22	-	-	-	6	5	11	33	42	75
23	-	-	-	3	3	6	88	62	150
24	-	-	-	5	3	8	149	65	214
25	-	-	-	16	6	22	113	69	182
26	-	-	-	32	13	45	60	64	124
27	-	-	-	33	13	46	23	37	60
28	-	-	-	35	22	57	10	20	30
29	-	-	-	28	16	44	5	12	17
30	-	-	-	46	35	81	19	8	27
31	-	-	-	39	27	66	8	2	10
32	176	-	176	64	35	99	13	2	15
33	-	59	59	55	33	88	10	2	12
34	176	-	176	83	21	104	11	1	12
35	236	-	236	77	37	114	9	4	13
36	176	-	176	42	19	61	-	3	3
37	118	-	118	44	24	68	-	1	1
38	59	-	59	13	8	21	-	1	1
39	-	-	-	6	8	14	-	1	1
40	-	-	-	4	9	13	-	3	3
41	-	-	-	1	5	6	-	-	-
42	-	-	-	1	2	3	-	1	1
43	-	-	-	1	3	4	-	-	-
44	-	-	-	-	2	2	-	-	-
45	-	-	-	1	4	5	-	-	-
46	-	-	-	-	1	1	-	-	-
47	-	-	-	-	1	1	-	-	-
48	-	-	-	1	-	1	-	-	-
Total ‰	941	59	1000	639	361	1000	573	426	999
Number of Samples		1			...			2	
Number Fish Measured	16	1	17	923	520	1443	1565	1165	2730
Mean Length (cm)	34.88	33.00	34.77	32.10	32.49	32.24	25.24	25.17	25.22
Mean Weight (Kg)	...	...	...	0.53	0.69	0.61	...	...	...
Range of Depths (fm)		109-115			93-88			109-274	

(cont'd.)

TABLE 6 UNION OF SOVIET SOCIALIST
(cont'd.) REPUBLICS - 1960
OTTER TRAWLERS - Exploratory Catches

LENGTH FREQUENCIES - REDFISH

by V.I. Travin
E.I. Surkova

Division	Mentella								
	July			August			October		
Month	♂♂	♀♀	♂♀	♂♂	♀♀	♂♀	♂♂	♀♀	♂♀
Sex	FREQUENCIES in ‰								
cm									
16	1	-	1	-	-	-	-	-	-
17	1	-	1	-	-	-	-	-	-
18	-	1	1	-	-	-	-	-	-
19	-	1	1	-	-	-	-	-	-
20	8	4	12	1	1	2	-	-	-
21	3	2	5	2	2	4	-	1	1
22	12	8	20	6	9	15	5	1	6
23	9	11	20	16	16	32	6	8	14
24	10	10	20	16	22	38	12	7	19
25	17	20	37	25	26	51	16	18	34
26	29	22	51	52	25	77	26	26	52
27	29	25	54	52	38	90	40	51	91
28	21	27	48	40	33	73	39	48	87
29	12	29	41	33	29	62	26	33	59
30	26	55	81	28	40	68	30	35	65
31	16	31	47	21	29	50	39	45	84
32	21	48	69	26	34	60	38	62	100
33	23	30	53	23	24	47	28	36	64
34	27	30	57	28	25	53	24	38	62
35	32	41	73	26	25	51	23	45	68
36	18	35	53	14	24	38	22	37	59
37	16	35	51	15	22	37	10	27	37
38	12	36	48	8	29	37	5	21	26
39	6	23	29	4	16	20	4	19	23
40	4	30	34	1	23	24	6	15	21
41	1	21	22	-	16	16	2	10	12
42	1	18	19	-	20	20	1	9	10
43	-	15	15	-	14	14	-	3	3
44	-	11	11	-	10	10	-	-	-
45	-	9	9	-	6	6	-	1	1
46	-	8	8	-	4	4	-	1	1
47	-	5	5	-	-	-	-	-	-
48	-	2	2	-	-	-	-	-	-
49	-	1	1	-	-	-	-	-	-
Total ‰	355	644	999	437	562	999	402	597	999
Number of Samples		7			16			6	
Number Fish Measured	2662	4783	7445	3834	4921	8755	1182	1746	2928
Mean Length (cm)	30.37	33.67	32.50	29.54	32.50	31.21	30.55	32.10	31.47
Mean Weight (Kg)	0.63	0.88	0.77	0.69	0.94	0.84	...	...	...
Range of Depths (fm)		109-274			137-219			69-233	

(cont'd.)

TABLE 6 UNION OF SOVIET SOCIALIST
(cont'd.) REPUBLICS - 1960
OTTER TRAWLERS - Exploratory Catches

LENGTH FREQUENCIES - REDFISH

by V. I. Travin
E. I. Surkova

Division	30						30		
Month	November			December			January		
	Mentella								
Sex	♂	♀	♂♀	♂	♀	♂♀	♂	♀	♂♀
cm	FREQUENCIES in ‰								
18	1	-	1	-	-	-	-	28	28
19	1	-	-	-	-	-	-	28	28
20	1	1	2	-	-	-	28	-	28
21	4	2	6	-	-	-	-	-	-
22	9	5	14	1	1	2	-	28	28
23	14	13	27	-	-	-	-	-	-
24	24	11	35	1	-	1	-	-	-
25	50	17	67	3	1	4	28	-	28
26	58	27	85	4	3	7	166	-	166
27	71	31	102	11	11	22	55	-	55
28	56	43	99	10	21	31	28	55	83
29	36	33	69	10	4	14	111	-	111
30	22	36	58	17	25	42	166	28	194
31	25	49	74	29	16	45	55	28	83
32	26	55	81	29	29	58	28	28	56
33	13	23	36	31	10	41	-	1	-
34	9	30	39	39	15	54	28	-	28
35	20	32	52	73	27	100	-	-	-
36	12	24	36	51	27	78	-	28	28
37	14	27	41	75	36	111	-	-	-
38	5	16	21	24	34	58	28	28	56
39	1	9	10	25	21	46	-	-	-
40	1	12	13	4	49	53	-	-	-
41	-	6	6	3	49	52	-	-	-
42	-	13	13	-	70	70	-	-	-
43	-	4	4	-	21	21	-	-	-
44	-	4	4	-	20	20	-	-	-
45	-	2	2	-	36	36	-	-	-
46	-	-	-	-	13	13	-	-	-
47	-	1	1	-	11	11	-	-	-
48	-	1	1	-	7	7	-	-	-
49	-	-	-	-	3	3	-	-	-
Total ‰	472	527	999	440	560	1000	721	279	1000
Number of Samples		9			4			4	
Number Fish Measured	1619	1815	3434	416	526	942	...	...	...
Number of Fish	...	...	...	...	...	...	26	10	36
Mean Length (cm)	28.44	31.77	30.20	34.35	38.23	36.52	28.66	28.20	28.53
Mean Weight (Kg)									
Range of Depths (fm)		66-233			298-253			30-263	

(cont'd.)

TABLE 6 UNION OF SOVIET SOCIALIST
(cont'd.) REPUBLICS - 1960
OTTER TRAWLERS - Exploratory Catches

LENGTH FREQUENCIES - REDFISH

by V.I. Travin
E.I. Surkova

Division	30								
Month	February			March			April		
	Mentella								
Sex	♂	♀	♂♀	♂	♀	♂♀	♂	♀	♂♀
cm	FREQUENCIES in ‰								
16	2	-	2	1	-	1	-	-	-
17	5	-	5	1	-	1	-	-	-
18	2	2	4	2	1	3	-	-	-
19	-	-	-	2	-	2	-	-	-
20	22	-	22	7	6	13	1	1	2
21	34	-	34	17	9	26	1	2	3
22	22	7	29	39	14	53	10	6	16
23	39	2	41	53	27	80	28	16	44
24	70	-	70	57	27	84	64	38	102
25	177	10	187	108	48	156	85	34	119
26	191	12	203	89	47	136	79	51	130
27	155	12	167	68	53	121	29	106	135
28	97	10	107	32	59	91	15	217	232
29	63	17	80	20	52	72	10	98	108
30	7	12	19	13	52	65	2	93	95
31	19	7	26	1	27	28	-	7	7
32	2	2	4	3	21	24	-	3	3
33	-	-	-	2	14	16	-	2	2
34	-	-	-	1	10	11	-	1	1
35	-	-	-	1	7	8	-	-	-
36	-	-	-	1	3	4	-	-	-
37	-	-	-	-	2	2	-	-	-
38	-	-	-	-	1	1	-	-	-
39	-	-	-	-	1	1	-	-	-
Total ‰	907	93	1000	518	481	999	324	675	999
Number of Samples		1			10			6	
Number of Fish	376	39	415	1432	1329	2761	2420	5027	7447
Mean Length (cm)	25.74	27.27	25.88	25.22	27.63	26.40	25.22	27.60	26.83
Mean Weight (Kg)	...	...	...	0.26	0.36	0.31	0.26	0.33	0.30
Range of Depths (fm)		86-109			30-293			120-145	

(cont'd.)

TABLE 6 UNION OF SOVIET SOCIALIST
(cont'd.) REPUBLICS - 1960

LENGTH FREQUENCIES - REDFISH

by V.I. Travin
E.I. Surkova

OTTER TRAWLERS - Exploratory Catches

Division	30								
Month	July			August			November		
	Mentella								
Sex	♂♂	♀♀	♂♀	♂♂	♀♀	♂♀	♂♂	♀♀	♂♀
cm	FREQUENCIES in ‰								
15	-	-	-	-	1	1	-	-	-
16	-	-	-	1	2	3	-	-	-
17	-	-	-	3	3	6	-	-	-
18	-	-	-	3	4	7	-	-	-
19	-	-	-	2	3	5	-	-	-
20	-	-	-	3	6	9	-	-	-
21	-	1	1	6	10	16	-	2	2
22	1	4	5	14	16	30	5	3	8
23	10	3	13	29	33	62	21	9	30
24	16	9	25	33	35	68	26	12	38
25	55	36	91	56	38	94	40	35	75
26	37	30	67	90	41	131	98	28	126
27	82	78	160	69	50	119	56	33	89
28	33	73	106	35	61	96	64	60	124
29	16	47	63	21	48	69	24	89	113
30	25	131	156	21	68	89	27	100	127
31	7	39	46	6	45	51	15	72	87
32	10	99	109	9	47	56	11	67	78
33	3	43	46	3	30	33	5	35	40
34	4	29	33	2	16	18	1	26	27
35	2	28	30	2	16	18	4	20	24
36	1	14	15	1	8	9	1	8	9
37	3	13	16	1	5	6	-	2	2
38	1	6	7	-	2	2	-	1	1
39	1	6	7	-	1	1	-	-	-
40	-	3	3	-	-	-	-	-	-
41	-	1	1	-	-	-	-	-	-
Total ‰	307	693	1000	410	589	999	398	602	1000
Number of Samples		5			18			2	
Number of Fish	893	2005	2898	3274	4690	7964	375	566	941
Mean Length (cm)	27.33	30.14	29.28	26.14	28.17	27.34	27.05	29.69	28.64
Mean Weight (Kg)	0.38	0.49	0.45	0.20	0.30	0.26	0.38	0.54	0.49
Range of Depths (fm)		159-274			85-274			164-219	

(cont'd.)

TABLE 6 UNION OF SOVIET SOCIALIST
(cont'd.) REPUBLICS - 1960
OTTER TRAWLERS - Exploratory Catches

LENGTH FREQUENCIES - REDFISH

by V.I. Travin
E.I. Surkova

Division	3P											
Month	January			February			July			August		
	Mentella											
Sex	♂♂	♀♀	♂♀	♂♂	♀♀	♂♀	♂♂	♀♀	♂♀	♂♂	♀♀	♂♀
cm	FREQUENCIES in ‰											
12	-	-	-	-	-	-	-	-	-	1	-	1
13	-	-	-	-	-	-	-	-	-	1	-	1
14	-	-	1	1	-	-	-	-	-	2	-	2
15	-	-	-	-	-	-	-	-	-	2	-	2
16	-	-	-	-	-	-	-	-	-	1	-	1
17	-	-	-	-	-	-	-	-	-	4	-	4
18	-	-	-	-	2	2	-	-	-	3	1	4
19	-	21	21	-	6	6	-	-	-	3	-	3
20	-	-	-	16	14	30	10	7	17	5	2	7
21	-	-	-	14	30	44	7	58	65	6	4	10
22	-	-	-	16	38	54	96	75	171	7	5	12
23	21	-	21	38	28	66	54	96	150	9	7	16
24	-	21	21	36	16	52	81	101	182	13	6	19
25	-	-	-	65	53	118	89	96	185	13	8	21
26	62	21	83	89	26	115	17	61	78	19	6	25
27	21	-	21	75	39	114	27	63	90	32	7	39
28	62	62	124	81	33	114	37	-	37	40	7	47
29	-	104	104	50	20	70	-	3	3	42	9	51
30	42	21	63	66	47	113	7	-	7	36	22	58
31	104	21	125	20	24	44	-	3	3	40	28	68
32	-	21	21	14	2	16	-	3	3	47	47	94
33	83	42	125	-	10	10	-	-	-	54	59	113
34	63	83	146	-	8	8	-	3	3	50	56	106
35	-	62	62	-	12	12	-	3	3	44	61	105
36	-	21	21	-	2	2	-	-	-	31	51	82
37	-	-	-	6	-	6	-	-	-	18	29	47
38	-	21	21	2	-	2	-	-	-	6	22	28
39	-	-	-	-	-	-	-	-	-	3	13	16
40	-	-	-	2	-	2	-	-	-	1	9	10
41	-	21	21	-	-	-	-	-	-	-	5	5
42	-	-	-	-	-	-	-	-	-	-	1	1
43	-	-	-	-	-	-	-	-	-	-	1	1
44	-	-	-	-	-	-	-	-	-	-	-	-
45	-	-	-	-	-	-	-	3	3	-	-	-
Total ‰	458	542	1000	590	410	1000	425	575	1000	533	466	999
Number of Samples	2			3			1			18		
Number of Fish of Comm. Value	22	26	48	293	203	496	125	171	296	3603	3195	6798
Mean Length (cm)	30.05	31.27	30.71	26.8	26.33	26.61	24.20	24.14	24.17	30.41	33.21	31.72
Mean Weight (Kg)	...	...	...	...	...	...	...	...	...	0.37	0.57	0.48
Range of Depths (fm)	170-178			45-185			82-96			74-330		

(cont'd.)

TABLE 6 UNION OF SOVIET SOCIALIST
(cont'd.) REPUBLICS - 1960
OTTER TRAWLERS - Exploratory Catches

BREAKDOWN OF SEX FREQUENCIES
pages 12-13

by V.I. Travina
E.I. Surkova

Division	1C						1D		
	April			May			April		
Month	Marinus								
Sex	♂♂	♀♀	♂♀	♂♂	♀♀	♂♀	♂♂	♀♀	♂♀
58	6	3	9	16	14	30	1	1	2
59	1	1	2	16	11	27	1	1	2
60	3	2	5	28	28	56	1	1	2
61	2	2	4	13	7	20	-	1	1
62	2	1	3	7	5	12	1	-	1
63	1	1	2	9	6	15	-	-	-
64	1	-	1	8	6	14	1	-	1
65	-	1	1	5	5	10	1	1	2
66	1	-	1	3	2	5	-	-	-
67	-	-	-	1	1	2	1	-	1
68	-	-	-	1	1	2	-	1	1
69	-	-	-	1	-	1	-	1	1
70	-	-	-	1	1	2	-	1	1

Division	1E					
	April			May		
Month	Marinus					
Sex	♂♂	♀♀	♂♀	♂♂	♀♀	♂♀
66	1	-	1	-	1	1
67	-	1	1	1	4	5
68	1	-	1	2	5	7
69	-	-	-	1	3	4
70	-	-	-	1	1	2
71	-	-	-	1	-	1
72	-	-	-	-	1	1
73	-	-	-	1	-	1

TABLE 7 UNITED STATES - 1960 LENGTH FREQUENCIES - REDFISH

by G. F. Kelly, A. M. Barker
P. H. Chase and G. M. Clarke

OTTER TRAWLERS - Commercial Landings

Division	3L			3M		
Month	July			January		
Sex	♂	♀	Total	♂	♀	Total
cm	FREQUENCIES in ‰					
18	10	-	10	3	3	6
19	-	-	-	3	-	3
20	-	-	-	25	3	28
21	10	-	10	55	20	75
22	30	-	30	65	30	95
23	40	20	60	50	42	92
24	70	90	160	62	18	80
25	100	40	140	115	32	147
26	90	30	120	105	20	125
27	50	30	80	65	25	90
28	10	90	100	35	40	75
29	-	70	70	15	32	47
30	-	50	50	18	22	40
31	-	80	80	5	30	35
32	-	30	30	-	22	22
33	-	40	40	3	15	18
34	-	10	10	-	12	12
35	-	10	10	-	8	8
36	-	-	-	-	3	3
Total ‰	410	590	1000	624	377	1001
Number Fish	41	59	100	249	151	400
Number Fish Measured						

(cont'd.)

TABLE 7 UNITED STATES - 1960 LENGTH FREQUENCIES - REDFISH
(cont'd.)

by G.F. Kelly, A.M. Barker
P.H. Chase and G.M. Clarke

OTTER TRAWLERS - Commercial Landings

Division	M								
	February			March			July		
Month									
Sex	♂	♀	Total	♂	♀	Total	♂	♀	Total
cm	FREQUENCIES in %								
21	7	-	7	13	3	16	-	-	-
22	23	7	30	37	23	60	-	10	10
23	30	13	43	40	37	77	10	10	20
24	47	27	74	63	27	90	10	10	20
25	63	20	83	80	40	120	30	40	70
26	60	23	83	100	43	143	50	40	90
27	83	33	116	70	40	110	30	20	50
28	30	50	80	47	57	104	30	60	90
29	40	33	73	13	57	70	50	60	110
30	30	30	60	23	37	60	-	70	70
31	30	30	60	7	23	30	30	70	100
32	40	30	70	10	20	30	20	90	110
33	10	33	43	13	23	36	30	60	90
34	-	37	37	7	10	17	10	40	50
35	10	20	30	3	3	6	10	20	30
36	-	23	23	-	10	10	-	20	20
37	-	27	27	-	-	-	-	30	30
38	7	10	17	-	10	10	-	10	10
39	-	3	3	-	3	3	-	10	10
40	-	7	7	-	7	7	-	10	10
41	3	3	6	-	-	-	-	-	-
42	-	7	7	-	-	-	-	-	-
43	7	3	10	-	-	-	-	-	-
44	7	3	10	-	-	-	-	10	10
Total %	527	472	999	526	473	999	310	690	1000
No. of Fish	158	142	300	158	142	300	31	69	100

(cont'd.)

TABLE 7 UNITED STATES - 1960 LENGTH FREQUENCIES - REDFISH
(cont'd.)

by G.F. Kelly, A.M. Barker
P.H. Chase and G.M. Clarke

OTTER TRAWLEES - Commercial Landings

Division	M								
	August			September			October		
Month	♂	♀	Total	♂	♀	Total	♂	♀	Total
Sex	♂	♀	Total	♂	♀	Total	♂	♀	Total
cm	FREQUENCIES in ‰								
19	-	-	-	-	-	-	-	3	3
20	-	-	-	-	-	-	-	-	-
21	-	2	2	-	-	-	7	-	7
22	2	5	7	-	-	-	27	7	34
23	15	10	25	10	10	20	43	23	66
24	8	8	16	10	-	10	57	43	100
25	65	15	80	90	40	130	93	47	140
26	75	25	100	100	30	130	80	47	127
27	75	22	97	40	30	70	37	63	100
28	62	50	112	70	40	110	17	80	97
29	48	45	93	20	80	100	10	67	77
30	38	48	86	10	120	130	10	47	57
31	20	60	80	30	60	90	10	37	47
32	45	42	87	20	70	90	10	20	30
33	28	30	58	10	-	10	7	20	27
34	5	25	30	10	-	10	3	17	20
35	5	28	33	20	20	40	3	13	16
36	2	22	24	-	-	-	-	17	17
37	2	25	27	-	20	20	-	10	10
38	-	2	2	10	10	20	-	13	13
39	-	15	15	-	10	10	-	7	7
40	-	12	12	-	10	10	-	3	3
41	-	8	8	-	-	-	-	3	3
42	-	-	-	-	-	-	-	-	-
43	-	2	2	-	-	-	-	-	-
Total ‰	495	503	998	450	550	1000	414	587	1001
No. of Fish	198	202	400	45	55	100	124	176	300

(cont'd.)

TABLE 7 UNITED STATES - 1960 LENGTH FREQUENCIES - REDFISH
(cont'd.)

by G.F. Kelly, A.M. Barker
P.H. Chase and G.M. Clarke

OTHER TRAWLERS - Commercial Landings

Division	31						30		
	November			December			February		
Month	♂♂	♀♀	Total	♂♂	♀♀	Total	♂♂	♀♀	Total
Sex	♂♂	♀♀	Total	♂♂	♀♀	Total	♂♂	♀♀	Total
cm	FREQUENCIES in ‰								
18	-	-	-	-	-	-	10	-	10
19	-	-	-	-	-	-	10	-	10
20	8	-	8	-	-	-	50	10	60
21	8	8	16	10	-	10	150	20	170
22	52	8	60	30	-	30	90	40	130
23	42	45	87	80	-	80	70	80	150
24	80	62	142	90	20	110	50	40	90
25	92	38	130	90	50	140	70	10	80
26	85	38	123	100	20	120	50	-	50
27	58	48	106	30	80	110	70	20	90
28	22	42	64	40	40	80	30	20	50
29	15	78	93	10	80	90	20	10	30
30	12	35	47	10	50	60	10	10	20
31	12	38	50	-	20	20	20	-	20
32	5	22	27	-	30	30	-	20	20
33	-	5	5	-	30	30	-	-	-
34	2	10	12	-	30	30	-	10	10
35	-	12	12	-	40	40	-	10	10
36	-	8	8	-	20	20	-	-	-
37	-	2	2	-	-	-	-	-	-
38	-	2	2	-	-	-	-	-	-
39	2	2	4	-	-	-	-	-	-
Total ‰	495	503	998	490	510	1000	700	300	1000
No. of Fish	199	201	400	49	51	100	70	30	100

(cont'd.)

TABLE 7 UNITED STATES - 1960 LENGTH FREQUENCIES - REDFISH by G J Kelly, A M Barker
(cont'd.) P H Chase and G M Clarke
OTTER TRAWLERS - Commercial Landings

Division	30								
	April			May			June		
Month	♂♂	♀♀	Total	♂♂	♀♀	Total	♂♂	♀♀	Total
Sex	♂♂	♀♀	Total	♂♂	♀♀	Total	♂♂	♀♀	Total
cm	FREQUENCIES in ‰								
19	-	-	-	-	-	-	10	-	10
20	-	-	-	-	-	-	10	3	13
21	20	-	20	10	5	15	12	3	15
22	10	40	50	50	15	65	30	10	40
23	80	10	90	15	30	45	62	18	80
24	40	50	90	55	35	90	70	35	105
25	170	80	250	130	60	190	168	35	203
26	150	30	180	100	40	140	85	42	127
27	80	50	130	40	105	145	60	52	112
28	30	100	130	10	125	135	15	100	115
29	-	50	50	-	70	70	5	45	50
30	-	10	10	5	50	55	8	52	60
31	-	-	-	-	35	35	3	30	33
32	-	-	-	-	5	5	-	20	20
33	-	-	-	-	10	10	-	10	10
34	-	-	-	-	-	-	-	5	5
35	-	-	-	-	-	-	-	3	3
Total ‰	580	420	1000	415	585	1000	538	463	1001
No. of Fish	58	42	100	83	117	200	215	185	400

(cont'd.)

TABLE 7 UNITED STATES - 1960 LENGTH FREQUENCIES - REDFISH
(cont'd.)

by G.F. Kelly, A.M. Barker
P.H. Chase and G.M. Clarke

OTTER TRAWLERS - Commercial Landings

Division	30						31		
	July			August			July		
Sex	♂	♀	Total	♂	♀	Total	♂	♀	Total
cm	FREQUENCIES in ‰								
22	20	10	30	-	-	-	-	-	-
23	10	10	20	-	-	-	-	-	-
24	40	10	50	20	-	20	5	-	5
25	20	10	30	80	-	80	25	-	25
26	40	70	110	50	-	50	60	-	60
27	70	60	130	70	-	70	60	5	65
28	20	70	90	70	-	70	70	10	80
29	20	90	110	10	-	10	65	35	100
30	-	100	100	10	10	20	20	25	45
31	-	90	90	20	30	50	15	105	120
32	-	80	80	10	50	60	10	130	140
33	-	60	60	50	60	110	-	115	115
34	-	50	50	50	60	110	5	80	85
35	-	40	40	40	70	110	-	80	80
36	-	10	10	10	70	80	-	65	65
37	-	-	-	-	90	90	-	10	10
38	-	-	-	-	20	20	-	5	5
39	-	-	-	10	20	30	-	-	-
40	-	-	-	-	10	10	-	-	-
41	-	-	-	-	-	-	-	-	-
42	-	-	-	-	10	10	-	-	-
Total ‰	240	760	1000	500	500	1000	335	665	1000
No. of Fish	24	76	100	50	50	100	67	133	200

(cont'd.)

TABLE 7 UNITED STATES - 1960 LENGTH FREQUENCIES - REDFISH
(cont'd.)

by G.F. Kelly, A.M. Barker
P.H. Chase and G.M. Clarke

OTTER TRAWLERS - Commercial Landings

Division	3P			4R			4S		
	August			June			June		
Month	♂♂	♀♀	Total	♂♂	♀♀	Total	♂♂	♀♀	Total
Sex	♂♂	♀♀	Total	♂♂	♀♀	Total	♂♂	♀♀	Total
cm	F R E Q U E N C I E S in ‰								
19	-	-	-	5	-	5	-	-	-
20	-	-	-	-	-	-	-	-	-
21	-	-	-	10	10	20	-	-	-
22	-	-	-	-	-	-	-	-	-
23	10	3	13	10	5	15	-	-	-
24	3	7	10	15	10	25	-	-	-
25	7	-	7	5	5	10	-	-	-
26	37	7	44	45	25	70	-	-	-
27	27	7	34	40	20	60	-	-	-
28	63	17	80	70	40	110	30	-	30
29	47	33	80	35	20	55	20	-	20
30	10	30	40	40	70	110	50	20	70
31	23	40	63	30	45	75	50	40	90
32	27	107	134	85	50	135	90	40	130
33	33	67	100	50	50	100	60	140	200
34	33	113	146	10	45	55	40	110	150
35	13	67	80	15	35	50	20	80	100
36	10	33	43	10	25	35	10	70	80
37	17	37	54	10	20	30	10	30	40
38	20	10	30	-	5	5	-	50	50
39	3	20	23	-	10	10	-	10	10
40	-	17	17	-	10	10	-	20	20
41	-	-	-	-	10	10	-	10	10
42	-	-	-	-	5	5	-	-	-
43	-	3	3	-	-	-	-	-	-
Total ‰	383	618	1001	485	515	1000	380	620	1000
No. of Fish	115	185	300	97	103	200	38	62	100

(cont'd.)

TABLE 7 UNITED STATES - 1960 LENGTH FREQUENCIES - REDFISH
(cont'd.)

by G.F. Kelly, A.M. Barker
P.H. Chase and G.M. Clarke

OTTER TRAWLERS - Commercial Landings

Division	4S			4W					
	September			May			June		
Sex	♂	♀	Total	♂	♀	Total	♂	♀	Total
cm	FREQUENCIES in %								
14	-	-	-	-	-	-	1	-	1
15	-	-	-	-	-	-	-	-	-
16	-	-	-	-	-	-	1	-	1
17	-	-	-	1	-	1	-	1	1
18	-	-	-	1	1	2	2	-	2
19	10	-	10	2	-	2	2	5	7
20	-	-	-	5	8	13	4	2	6
21	-	-	-	13	3	16	8	9	17
22	-	-	-	20	9	29	20	14	34
23	-	20	20	37	27	64	29	21	50
24	10	20	30	48	27	75	41	18	59
25	60	-	60	70	37	107	68	20	88
26	90	30	120	70	37	107	78	38	116
27	80	20	100	79	48	127	62	44	106
28	50	110	160	46	59	105	55	56	111
29	70	110	180	41	63	104	18	66	84
30	10	70	80	26	44	72	18	45	63
31	-	30	30	17	44	61	18	38	56
32	10	50	60	7	36	43	9	48	67
33	-	70	70	3	21	24	10	31	41
34	10	30	40	-	20	20	2	21	23
35	-	10	10	1	12	13	2	21	23
36	-	30	30	-	7	7	-	18	18
37	-	-	-	-	6	6	4	15	19
38	-	-	-	-	1	1	-	6	6
39	-	-	-	-	-	-	-	2	2
40	-	-	-	-	-	-	-	2	2
41	-	-	-	-	-	-	-	1	1
42	-	-	-	-	-	-	-	-	-
43	-	-	-	-	-	-	-	1	1
44	-	-	-	-	-	-	-	-	-
45	-	-	-	-	1	1	-	-	-
Total %	400	600	1000	489	511	1000	452	543	995
No. of Fish	40	60	100	489	511	1000	363	437	800

(cont'd.)

TABLE 7 UNITED STATES - 1960 LENGTH FREQUENCIES - REDFISH
(cont'd.)

by G.F. Kelly, A.M. Barker
P.H. Chase and G.M. Clarke

OTTER TRAWLERS - Commercial Landings

Division	47								
	July			August			September		
Month	♂	♀	Total	♂	♀	Total	♂	♀	Total
Sex	♂	♀	Total	♂	♀	Total	♂	♀	Total
cm	FREQUENCIES in ‰								
12	-	-	-	1	-	1	-	-	-
-	-	-	-	-	-	-	-	-	-
17	-	-	-	3	-	3	-	-	-
18	-	-	-	6	-	6	-	-	-
19	1	1	2	10	7	17	-	-	-
20	1	-	1	9	10	19	-	-	-
21	8	6	14	16	9	25	2	2	4
22	10	2	12	19	24	43	2	5	7
23	26	4	30	44	19	63	25	5	30
24	62	25	87	80	20	100	48	22	70
25	95	24	119	93	24	117	68	30	98
26	88	54	142	67	47	114	110	25	135
27	70	48	118	59	27	86	70	50	120
28	38	48	86	31	40	71	65	45	110
29	32	44	76	36	50	86	42	60	102
30	28	34	62	16	44	60	18	32	50
31	25	34	59	9	43	52	22	38	60
32	12	39	51	7	31	38	8	48	56
33	11	22	33	1	26	27	12	38	50
34	1	19	20	3	10	13	5	42	47
35	1	25	26	-	23	23	-	15	15
36	1	15	16	1	13	14	-	10	10
37	1	15	16	-	13	13	-	10	10
38	-	15	15	-	3	3	-	2	2
39	-	2	2	-	1	1	-	5	5
40	-	-	-	-	1	1	-	-	-
41	1	4	5	-	1	1	-	2	2
42	1	-	1	-	-	-	-	-	-
43	-	-	-	-	-	-	2	-	2
44	-	-	-	1	-	1	-	2	2
45	-	-	-	-	-	-	2	-	2
46	-	4	4	-	-	-	2	-	2
47	-	-	-	-	-	-	-	2	2
48	-	-	-	-	-	-	-	-	-
49	-	-	-	-	-	-	-	-	-
50	-	-	-	-	-	-	-	2	2
-	-	-	-	-	-	-	-	-	-
54	-	-	-	-	1	1	-	-	-
Total ‰	513	484	997	512	487	999	503	492	995
No. of Fish	413	487	800	358	342	700	202	198	400

(cont'd.)

TABLE 7 UNITED STATES - 1960 LENGTH FREQUENCIES - REDFISH

by G.F. Kelly, A.M. Barker
P.H. Chase and G.M. Clarke

(cont'd.)

OTTER TRAWLERS - Commercial Landings

Division	47						48		
	October			December			January		
Month	68	99	Total	68	99	Total	68	99	Total
Sex	68	99	Total	68	99	Total	68	99	Total
cm	FREQUENCIES in ‰								
15	-	-	-	-	-	-	3	-	3
16	-	-	-	-	-	-	3	-	3
17	-	-	-	-	-	-	3	3	6
18	-	-	-	-	-	-	7	10	17
19	-	-	-	-	-	-	27	20	47
20	-	-	-	-	-	-	63	37	100
21	-	10	10	-	-	-	60	83	143
22	17	-	17	-	-	-	93	90	183
23	10	-	10	10	-	10	110	47	157
24	47	10	57	10	-	10	37	70	107
25	87	30	117	50	10	60	17	80	97
26	110	40	150	60	20	80	3	67	70
27	67	60	127	100	-	100	-	27	27
28	43	77	120	80	20	100	-	17	17
29	20	83	103	40	30	70	-	13	13
30	17	70	87	40	30	70	-	7	7
31	13	37	50	40	10	50	-	3	3
32	-	47	47	20	100	120	-	-	-
33	-	33	33	30	70	100	-	-	-
34	-	33	33	10	50	60	-	-	-
35	3	30	33	20	50	70	-	-	-
36	-	-	-	10	30	40	-	-	-
37	-	3	3	-	40	40	-	-	-
38	-	3	3	-	10	10	-	-	-
39	-	-	-	-	10	10	-	-	-
Total ‰	434	566	1000	520	480	1000	426	574	1000
No. of Fish	130	170	300	52	48	100	128	172	300

(cont'd.)

TABLE 7 UNITED STATES - 1960 LENGTH FREQUENCIES - REDFISH
(cont'd.)

by G.F. Kelly, A.M. Barker
P.H. Chase and G.M. Clarke

OTTER TRAWLERS - Commercial Landings

Division	4th								
	February			March			April		
Month	68'	99'	Total	68'	99'	Total	68'	99'	Total
Sex	68'	99'	Total	68'	99'	Total	68'	99'	Total
cm	FREQUENCIES in ‰								
15	-	-	-	-	-	-	3	-	3
16	-	-	-	-	-	-	3	-	3
17	-	-	-	-	2	2	17	7	24
18	-	-	-	6	1	7	23	7	30
19	-	-	-	15	2	17	37	23	60
20	-	10	10	24	9	33	47	37	84
21	-	-	-	38	26	64	80	43	123
22	30	20	50	64	34	98	137	50	187
23	60	60	120	104	55	159	97	77	174
24	50	20	70	75	51	126	57	53	110
25	50	40	90	51	58	109	13	60	73
26	50	30	80	46	51	97	3	33	36
27	60	30	90	28	36	64	7	53	60
28	50	50	100	26	31	57	-	17	17
29	20	70	90	9	31	40	-	7	7
30	10	40	50	2	35	37	-	7	7
31	-	70	70	6	26	32	-	-	-
32	-	110	110	-	18	18	-	-	-
33	-	30	30	-	18	18	-	-	-
34	-	30	30	-	11	11	-	3	3
35	-	-	-	-	8	8	-	-	-
36	-	10	10	-	2	2	-	-	-
Total ‰	380	620	1000	494	505	999	524	477	1001
No. of Fish	38	62	100	395	405	800	157	143	300

(cont'd.)

TABLE 7 UNITED STATES - 1960 LENGTH FREQUENCIES - REDFISH
(cont'd.)

by G F Kelly, A M Barker
P H Chase and G M Clarke

OTTER TRAWLERS - Commercial Landings

Division	4W								
	May			August			September		
Month	♂	♀	Total	♂	♀	Total	♂	♀	Total
Sex	♂	♀	Total	♂	♀	Total	♂	♀	Total
cm	FREQUENCIES in ‰								
15	-	-	-	3	-	3	-	-	-
16	-	-	-	3	-	3	-	-	-
17	-	-	-	10	-	10	-	-	-
18	6	4	10	7	-	7	-	-	-
19	20	18	38	10	7	17	-	-	-
20	34	18	52	37	30	67	20	30	50
21	54	44	98	63	23	86	90	20	110
22	112	50	162	110	43	153	50	50	100
23	118	74	192	127	43	170	150	110	260
24	68	60	128	87	60	147	70	80	150
25	48	36	84	40	60	100	60	80	140
26	30	52	82	13	60	73	10	40	50
27	4	38	42	7	63	70	-	40	40
28	4	40	44	3	43	46	-	40	40
29	-	28	28	3	20	23	-	50	50
30	2	20	22	-	10	10	-	10	10
31	-	4	4	-	13	13	-	-	-
32	-	4	4	-	-	-	-	-	-
33	-	2	2	-	-	-	-	-	-
34	-	6	6	-	-	-	-	-	-
35	-	2	2	-	-	-	-	-	-
Total ‰	500	500	1000	523	475	998	450	550	1000
No. of Fish	250	250	500	157	143	300	45	55	100

(cont'd.)

TABLE 7 UNITED STATES - 1960 LENGTH FREQUENCIES - REDFISH
(cont'd.)

by G.F. Kelly, A.M. Barker
P.H. Chase and G.M. Clarke

OTTER TRAWLERS - Commercial Landings

Division	4W						4X		
Month	October			November			January		
Sex	♂	♀	Total	♂	♀	Total	♂	♀	Total
cm	FREQUENCIES in ‰								
14	-	-	-	1	-	1	-	-	-
15	-	-	-	3	-	3	5	5	10
16	5	-	5	6	1	7	10	-	10
17	-	-	-	7	3	10	-	-	-
18	5	-	5	13	13	26	5	-	5
19	25	5	30	30	21	51	20	5	25
20	50	50	100	77	36	113	35	25	60
21	50	60	110	79	36	115	65	20	85
22	130	45	175	103	50	153	115	30	145
23	105	65	170	76	61	137	135	65	200
24	85	95	180	46	80	126	75	80	155
25	45	85	130	17	73	90	25	75	100
26	-	45	45	7	64	71	10	70	80
27	-	30	30	1	49	50	-	45	45
28	-	10	10	-	34	34	5	25	30
29	-	10	10	-	11	11	-	30	30
30	-	-	-	-	-	-	-	10	10
31	-	-	-	-	1	1	-	-	-
32	-	-	-	-	-	-	-	5	5
33	-	-	-	-	-	-	-	-	-
34	-	-	-	-	-	-	-	5	5
Total ‰	500	500	1000	466	533	999	505	495	1000
No. of Fish	100	100	200	326	374	700	101	99	200

(cont'd.)

TABLE 7 UNITED STATES - 1960 LENGTH FREQUENCIES - REDFISH
(cont'd.)

by G.F. Kelly, A.M. Barker
P.H. Chase and G.M. Clarke

OTTER TRAWLERS - Commercial Landings

Division	4X								
	March			April			May		
Month	♂♂	♀♀	Total	♂♂	♀♀	Total	♂♂	♀♀	Total
Sex	♂♂	♀♀	Total	♂♂	♀♀	Total	♂♂	♀♀	Total
cm	FREQUENCIES in ‰								
16	3	3	6	2	-	2	2	2	4
17	7	-	7	5	5	10	3	-	3
18	7	3	10	18	7	25	5	-	5
19	20	13	33	40	20	60	13	5	18
20	60	30	90	72	45	117	20	20	40
21	123	47	170	80	55	135	68	17	85
22	77	57	134	115	52	167	72	47	119
23	113	77	190	52	80	132	105	57	162
24	40	73	113	47	65	112	83	60	143
25	13	80	93	12	55	67	40	55	95
26	10	70	80	7	45	52	25	67	92
27	-	27	27	2	50	52	20	60	80
28	-	20	20	-	20	20	8	50	58
29	-	20	20	-	30	30	2	17	19
30	-	3	3	-	18	18	-	18	18
31	-	3	3	-	3	3	-	28	28
32	-	-	-	-	-	-	-	13	13
33	-	-	-	-	-	-	-	7	7
34	-	-	-	-	-	-	-	10	10
35	-	-	-	-	-	-	-	2	2
Total ‰	473	526	999	452	550	1002	466	535	1001
No. of Fish	142	158	300	270	330	600	280	320	600

(cont'd.)

TABLE 7 UNITED STATES - 1960 LENGTH FREQUENCIES - REDFISH
(cont'd.)

by G.F. Kelly, A.M. Barker
P.H. Chase and G.M. Clarke

OTTER TRAWLERS - Commercial Landings

Division	4X								
	June			July			August		
Month	♂♂	♀♀	Total	♂♂	♀♀	Total	♂♂	♀♀	Total
Sex	FREQUENCIES in ‰								
cm									
14	-	1	1	-	-	-	-	-	-
15	2	1	3	-	-	-	-	-	-
16	7	1	8	-	-	-	-	-	-
17	3	2	5	-	-	-	-	-	-
18	8	5	13	-	-	-	-	-	-
19	14	9	23	-	-	-	-	-	-
20	31	30	61	-	-	-	-	2	2
21	72	39	111	1	-	1	3	2	5
22	67	55	122	14	8	22	5	6	11
23	87	62	149	12	6	18	12	11	23
24	77	67	144	21	7	28	28	6	34
25	44	62	106	22	13	35	34	18	52
26	36	63	99	47	19	66	40	23	63
27	12	33	45	63	25	88	57	38	95
28	8	28	36	102	25	127	68	45	113
29	1	21	22	77	57	134	82	71	153
30	2	11	13	44	61	105	55	54	109
31	-	19	19	30	73	103	29	57	86
32	-	9	9	7	72	79	8	52	60
33	-	5	5	-	76	76	2	57	59
34	-	2	2	-	80	80	-	68	68
35	-	1	1	-	25	25	2	32	34
36	-	1	1	1	8	9	2	20	22
37	-	-	-	-	1	1	-	12	12
38	-	-	-	-	1	1	-	2	2
Total ‰	471	527	998	441	557	998	427	576	1003
No. of Fish	566	634	1200	321	404	725	276	374	650

(cont'd.)

TABLE 7 UNITED STATES - 1960 LENGTH FREQUENCIES - REDFISH
(cont'd.)

by G.F.Kelly, A.M.Barker
P.H.Chase and G.M.Clarke

OTTER TRAWLERS - Commercial Landings

Division	4X								
	October			November			December		
Month	♂♂	♀♀	Total	♂♂	♀♀	Total	♂♂	♀♀	Total
Sex	FREQUENCIES in ‰								
cm									
17	2	-	2	2	2	4	-	-	-
18	12	-	12	-	-	-	-	-	-
19	12	12	24	8	4	12	-	-	-
20	45	18	63	12	6	18	-	-	-
21	70	48	118	44	4	48	-	-	-
22	102	52	154	68	24	92	-	-	-
23	100	65	165	58	26	84	-	-	-
24	65	88	153	42	56	98	-	20	20
25	42	70	112	34	48	82	30	-	30
26	20	65	85	16	38	54	40	10	50
27	5	35	40	2	28	30	70	40	110
28	-	35	35	2	28	30	80	20	100
29	-	20	20	18	16	34	80	60	140
30	-	8	8	24	24	48	30	50	80
31	-	2	2	18	18	36	40	100	140
32	-	5	5	28	14	42	10	120	130
33	-	-	-	2	32	34	20	70	90
34	-	-	-	4	30	34	-	50	50
35	-	-	-	2	60	62	-	30	30
36	-	-	-	2	50	52	-	10	10
37	-	-	-	-	32	32	-	10	10
38	-	-	-	-	38	38	-	10	10
39	-	-	-	-	22	22	-	-	-
40	-	-	-	-	10	10	-	-	-
41	-	-	-	-	2	2	-	-	-
42	-	-	-	-	2	2	-	-	-
Total ‰	475	523	998	386	614	1000	400	600	1000
No. of Fish	191	209	400	193	307	500	40	60	100

(cont'd.)

TABLE 7 UNITED STATES - 1960 LENGTH FREQUENCIES - REDFISH
(cont'd.)

by G.F. Kelly, A.M. Barker
P.H. Chase and G.M. Clarke

OTTER TRAWLERS - Commercial Landings

Division	5Y								
	January			February			March		
Month	♂	♀	Total	♂	♀	Total	♂	♀	Total
Sex	♂	♀	Total	♂	♀	Total	♂	♀	Total
cm	FREQUENCIES in ‰								
13	-	-	-	-	3	3	-	2	2
14	-	-	-	-	-	-	2	-	2
15	2	-	2	3	3	6	2	2	4
16	-	-	-	3	-	3	10	10	20
17	-	-	-	10	10	20	16	16	32
18	8	-	8	17	13	30	26	6	32
19	8	-	8	20	13	33	22	26	48
20	12	6	18	23	17	40	40	30	70
21	24	12	36	63	27	90	38	36	74
22	22	12	34	53	37	90	40	48	88
23	62	20	82	57	27	84	54	20	74
24	70	34	104	60	33	93	70	42	112
25	50	38	88	70	40	110	32	40	72
26	68	32	100	37	33	70	44	26	70
27	60	38	98	57	20	77	64	16	80
28	68	46	114	23	10	33	38	18	56
29	46	40	86	30	27	57	32	18	50
30	24	46	70	20	17	37	2	16	18
31	14	50	64	3	20	23	4	30	34
32	-	34	34	7	17	24	2	24	26
33	-	20	20	-	23	23	-	14	14
34	-	18	18	-	23	23	-	12	12
35	-	10	10	-	10	10	-	4	4
36	-	4	4	-	3	3	-	2	2
37	-	2	2	-	7	7	-	4	4
38	-	-	-	-	10	10	-	-	-
Total ‰	538	462	1000	556	443	999	538	462	1000
No. of Fish	269	231	500	167	133	300	269	231	500

(cont'd.)

TABLE 7 UNITED STATES - 1960 LENGTH FREQUENCIES - REDFISH
(cont'd.)

by G.F. Kelly, A.M. Barker
P.H. Chase and G.M. Clarke

OTTER TRAWLERS - Commercial Landings

Division	5Y								
	April			May			June		
Month	♂♂	♀♀	Total	♂♂	♀♀	Total	♂♂	♀♀	Total
Sex	♂♂	♀♀	Total	♂♂	♀♀	Total	♂♂	♀♀	Total
cm	FREQUENCIES in ‰								
13	1	-	1	-	2	2	-	-	-
14	6	2	8	-	-	-	-	-	-
15	8	6	14	-	-	-	-	-	-
16	20	9	29	-	-	-	-	-	-
17	13	20	33	5	5	10	3	-	3
18	37	21	58	-	-	-	10	-	10
19	30	39	69	12	12	24	3	-	3
20	57	41	98	15	20	35	17	13	30
21	32	44	76	45	22	67	3	10	13
22	34	27	61	60	18	78	7	13	20
23	43	27	70	50	35	85	20	17	37
24	47	28	75	95	35	130	20	30	50
25	37	27	64	68	35	103	20	7	27
26	28	33	61	80	50	130	20	27	47
27	46	24	70	60	50	110	47	23	70
28	42	26	68	35	30	65	47	13	60
29	26	20	46	20	32	52	83	33	116
30	11	17	28	10	32	42	63	43	106
31	4	17	21	5	18	23	57	73	130
32	-	18	18	-	10	10	33	60	93
33	1	12	13	-	8	8	3	40	43
34	-	13	13	4	8	8	3	50	53
35	-	4	4	-	12	12	3	20	23
36	-	1	1	-	2	2	-	20	20
37	-	2	2	-	2	2	-	27	27
38	-	-	-	-	-	-	-	7	7
39	-	-	-	-	-	-	-	7	7
40	-	-	-	-	-	-	-	-	-
41	-	-	-	-	-	-	-	3	3
Total ‰	523	478	1001	560	438	998	462	536	998
No. of Fish	470	430	900	224	176	400	139	161	300

(cont'd.)

TABLE 7 UNITED STATES - 1960 LENGTH FREQUENCIES - REDFISH
(cont'd.)

by G.F.Kelly, A.M.Barker
P.H.Chase and G.M.Clarke

OTTER TRAWLERS - Commercial Landings

Division	5Y								
	July			August			September		
Month	♂	♀	Total	♂	♀	Total	♂	♀	Total
Sex	♂	♀	Total	♂	♀	Total	♂	♀	Total
cm	FREQUENCIES in %								
17	2	-	2	2	4	6	-	-	-
18	-	2	2	2	2	4	-	-	-
19	2	-	2	8	6	14	-	-	-
20	6	2	8	12	16	28	-	-	-
21	6	12	18	18	14	32	-	-	-
22	10	6	16	30	32	62	20	-	20
23	16	20	36	40	26	66	40	-	40
24	28	22	50	50	32	82	40	50	90
25	30	24	54	52	34	86	70	40	110
26	66	24	90	66	20	86	90	80	170
27	80	36	116	54	30	84	100	60	160
28	64	38	102	62	28	90	60	10	70
29	58	46	104	52	28	80	40	40	80
30	30	64	94	18	28	46	20	50	70
31	2	50	52	10	30	40	30	80	110
32	2	74	76	-	38	38	20	30	50
33	-	58	58	4	42	46	-	-	-
34	-	46	46	2	42	44	-	10	10
35	-	40	40	-	40	40	-	10	10
36	-	14	14	-	16	16	-	10	10
37	-	12	12	-	10	10	-	-	-
38	-	4	4	-	-	-	-	-	-
39	-	4	4	-	-	-	-	-	-
Total %	402	598	1000	482	518	1000	530	470	1000
No. of Fish	201	299	500	241	259	500	53	47	100

(cont'd.)

TABLE 7 UNITED STATES - 1960 LENGTH FREQUENCIES - REDFISH
(cont'd.)

by G.F.Kelly, A.M.Barker
P.H.Chase and G.M.Clarke

OTTER TRAWLERS - Commercial Landings

Division	5Y								
	October			November			December		
Month	38'	39'	Total	38'	39'	Total	38'	39'	Total
Sex	38'	39'	Total	38'	39'	Total	38'	39'	Total
cm	FREQUENCIES in ‰								
17	2	-	2	-	-	-	-	-	-
18	-	-	-	2	-	2	-	-	-
19	-	-	-	-	-	-	-	-	-
20	2	2	4	5	5	10	-	-	-
21	5	8	13	3	8	11	-	-	-
22	7	12	19	8	17	25	-	-	-
23	28	23	51	10	12	22	20	-	20
24	42	20	62	10	12	22	50	10	60
25	70	32	102	15	8	23	50	-	50
26	65	32	97	10	10	20	80	-	80
27	65	43	108	35	15	50	110	40	150
28	63	35	98	47	20	67	100	30	130
29	48	58	106	68	20	88	160	30	190
30	38	58	96	63	40	103	40	30	70
31	23	57	80	43	38	81	10	140	150
32	2	47	49	28	70	98	-	50	50
33	-	53	53	23	67	90	10	10	20
34	2	32	34	5	47	52	-	30	30
35	2	20	22	3	57	60	-	-	-
36	-	3	3	-	52	52	-	-	-
37	-	2	2	-	50	50	-	-	-
38	-	-	-	2	40	42	-	-	-
39	-	-	-	2	18	20	-	-	-
40	-	-	-	-	7	7	-	-	-
41	-	-	-	-	5	5	-	-	-
Total ‰	464	537	1001	382	618	1000	630	370	1000
No. of Fish	278	322	600	230	370	600	63	37	100

(cont'd.)

TABLE 7 UNITED STATES - 1960 LENGTH FREQUENCIES - REDFISH
(cont'd.)

by G.F.Kelly, A.M.Barker
P.H.Chase and G.M.Clarke

OTTER TRAWLERS - Commercial Landings

Division	Σ								
	March			May			June		
Month	♂♂	♀♀	Total	♂♂	♀♀	Total	♂♂	♀♀	Total
Sex	♂♂	♀♀	Total	♂♂	♀♀	Total	♂♂	♀♀	Total
cm	F R E Q U E N C I E S in ‰								
17	-	-	-	-	-	-	5	-	5
18	-	10	10	-	-	-	-	-	-
19	-	-	-	-	-	-	-	-	-
20	40	-	40	-	-	-	-	5	5
21	40	50	90	-	-	-	10	-	10
22	90	50	140	-	-	-	5	15	20
23	50	10	60	-	-	-	20	5	25
24	90	50	140	20	15	35	20	25	45
25	50	40	90	35	5	40	40	20	60
26	10	50	60	40	10	50	35	20	55
27	20	60	80	30	15	45	30	20	50
28	100	30	130	55	5	60	60	60	120
29	20	-	20	105	25	130	85	30	115
30	40	20	60	105	35	140	50	20	70
31	20	-	20	65	35	100	20	35	55
32	-	10	10	5	25	30	5	70	75
33	-	10	10	-	55	55	-	25	25
34	-	10	10	-	50	50	-	95	95
35	-	20	20	-	55	55	-	65	65
36	-	10	10	-	75	75	-	40	40
37	-	-	-	-	60	60	5	40	45
38	-	-	-	-	45	45	-	15	15
39	-	-	-	-	20	20	-	5	5
40	-	-	-	-	10	10	-	-	-
Total ‰	570	430	1000	460	540	1000	390	610	1000
No. of Fish	57	43	100	92	108	200	78	122	200

TABLE 8 UNION OF SOVIET SOCIALIST REPUBLICS - 1960

AGE FREQUENCIES - HEDWISH

by V. I. Trevin

Division	IC		ID		IE	
	May	April	May	April	May	April
Sex	♂	♀	♂	♀	♂	♀
Year-Class	FREQUENCIES in %					
>1947	38	48	86	-	-	-
1947	4	5	9	-	-	-
1946	25	6	31	-	-	-
>1945	65	75	140	18	25	43
1945	27	42	69	35	13	48
1944	66	28	94	26	67	93
1943	43	41	84	135	153	288
>1942	-	-	-	-	-	-
1942	60	30	90	153	73	226
1941	43	30	73	56	41	97
1940	30	54	84	51	63	114
1939	13	16	29	11	32	43
1938	7	14	21	11	1	12
1937	4	7	11	13	11	24
1936	1	5	6	6	1	7
>1936	-	-	-	3	2	5
1935	1	-	1	-	-	-
1934	1	2	3	-	-	-
>1934	162	132	294	-	-	-
1933	-	-	-	-	-	-
1932	-	-	-	-	-	-
1931	-	-	-	-	-	-
1930	-	-	-	-	-	-
1929	-	-	-	-	-	-
<1929>	-	-	-	-	-	-
Total %	523	476	999	518	482	1000
Number of Samples	79	1	150	112	73	185
Number of Fish	17.9	18.5	18.1	18.1	18.0	18.1
Mean Age	1.36	1.28	1.32	1.13	1.37	1.28
Mean Weight (kg)	88-187					
Range of Depths (fm)	77-253					
	498	502	1000	154	220	1000

1) For breakdown, see page 66. (cont'd.)

TABLE 8 UNION OF SOVIET SOCIALIST REPUBLICS - 1960 AGE FREQUENCIES - REDFISH by sexes by V.I. Travin E.I. Surkova
(cont'd.)
OTTER TRAWLERS - Exploratory Catches with mean length at each age

Division		21						21					
Month		November						January					
		Mentella											
Year-Class	Age	%oo Frequency			Mean Length			%oo Frequency			Mean Length		
		♂♂	♀♀	Tot.	♂♂	♀♀	Tot.	♂♂	♀♀	Tot.	♂♂	♀♀	Tot.
>1951	<9	-	-	-	-	-	-	1	-	1	-	-	-
1951	9	21	-	21	28.25	-	28.25	1	-	1	23.00	-	23.00
1950	10	5	5	10	29.0	35.0	32.0	3	5	8	23.00	29.00	27.00
1949	11	16	11	27	31.0	33.5	32.2	25	5	30	29.35	29.00	29.29
1948	12	11	21	32	33.5	34.75	34.17	91	15	106	32.28	32.30	32.29
1947	13	37	21	58	34.71	35.0	35.36	90	42	132	33.18	32.49	33.01
1946	14	21	53	74	37.5	37.5	37.5	117	18	135	34.61	36.26	34.83
1945	15	42	43	85	38.12	40.25	39.19	109	9	118	34.06	35.71	34.16
1944	16	91	64	155	38.47	40.91	39.48	97	6	103	35.23	40.12	35.46
1943	17	48	64	112	39.44	42.91	41.43	140	31	171	35.77	38.96	36.29
1942	18	37	53	90	40.29	42.4	41.53	91	15	106	35.34	42.42	36.29
1941	19	27	53	80	41.0	45.8	44.2	36	14	50	36.36	43.18	38.14
1940	20	27	37	64	41.8	45.57	44.0	-	5	5	-	44.00	44.00
1939	21	11	59	70	42.0	44.63	44.23	6	15	21	38.00	44.70	43.18
<1939	>21	-	-	-	-	-	-	4	9	13	-	-	-
1938	22	21	48	69	41.75	47.67	45.84	-	-	-	-	-	-
1937	23	5	16	21	40.0	-	46.0	-	-	-	-	-	-
1936	24	-	16	16	-	49.67	50.33	-	-	-	-	-	-
1935	25	-	5	5	-	52.0	52.0	-	-	-	-	-	-
1934	26	-	11	11	-	50.0	50.0	-	-	-	-	-	-
Total %oo		420	580	1000				811	189	1000			
Number of Samples								1					
Number of Fish		79	109	188				152	52	204			
Mean Age		16.07	17.85	17.10				15.2	15.5	15.3			
Mean Weight (Kg)		0.85	1.25	1.08				.711	.939	.769			
Range of Depths (fm)								132-270					

(cont'd.)

TABLE 8 UNION OF SOVIET SOCIALIST REPUBLICS - 1960
 (cont'd.) AGE FREQUENCIES - REDFISH by sexes
 OTTER TRAWLERS - Exploratory Catches with mean length at each age by V.I. Travin
 E.I. Surkova

Division		2J						3K					
Month		June						March					
		Mentella											
Year-Class	Age	% Frequency			Mean Length			% Frequency			Mean Length		
		♂	♀	Tot.	♂	♀	Tot.	♂	♀	Tot.	♂	♀	Tot.
>1951	<9	8	8	16	-	-	-	-	-	-	-	-	-
1951	9	12	6	18	30.49	32.38	31.14	-	-	-	-	-	-
1950	10	84	62	146	30.36	29.94	30.11	-	-	-	-	-	-
>1949	<11	-	-	-	-	-	-	22	16	38	25.18	25.06	25.13
1949	11	103	62	165	32.19	31.75	31.88	36	1	37	27.84	34.0	28.0
1948	12	71	64	135	34.04	33.67	33.86	65	14	79	29.17	29.0	29.14
1947	13	74	56	130	34.53	35.39	34.89	69	42	111	30.81	30.24	30.6
1946	14	41	106	147	35.13	38.51	36.74	49	25	74	32.41	31.36	32.05
1945	15	33	32	65	36.41	37.92	37.17	55	32	87	33.51	36.53	34.52
1944	16	18	40	58	38.94	41.88	40.97	47	37	84	33.55	36.0	34.63
1943	17	26	22	48	38.89	42.19	40.36	43	43	86	34.39	38.67	36.53
1942	18	13	18	31	40.68	43.13	41.95	49	52	101	35.04	40.27	37.73
1941	19	4	15	19	43.42	44.88	44.53	33	74	107	35.82	40.78	39.25
1940	20	1	-	1	44.00	-	44.00	37	55	92	36.62	41.47	39.52
1939	21	1	-	1	45.00	-	45.00	2	35	37	34.0	42.65	42.19
<1939	>21	3	17	20	-	-	-	-	-	-	-	-	-
1938	22	-	-	-	-	-	-	10	24	34	36.0	42.71	40.73
1937	23	-	-	-	-	-	-	-	11	11	-	41.82	41.82
1936	24	-	-	-	-	-	-	-	14	14	-	45.14	45.14
1935	25	-	-	-	-	-	-	-	4	4	-	42.0	42.0
1934	26	-	-	-	-	-	-	-	4	4	-	45.0	45.0
Total %		492	508	1000				517	483	1000			
Number of Samples				1						1			
Number of Fish		98	93	191				120	160	280			
Mean Age		12.6	13.4	12.9				15.08	17.67	16.33			
Mean Weight (Kg)		.594	.663	.627				0.63	1.05	0.87			
Range of Depths (fm)				198-303						184-175			

(cont'd.)

TABLE 8 UNION OF SOVIET SOCIALIST REPUBLICS - 1960 AGE FREQUENCIES - REDFISH by V.I.Travin
(cont'd.) by sexes E.I.Surkova
OTTER TRAWLERS - Exploratory Catches with mean length at each age

Division		3K											
Month		April						July					
		Mentella											
Year-Class	Age	%oo Frequency			Mean Length			%oo Frequency			Mean Length		
		♂♂	♀♀	Tot.	♂♂	♀♀	Tot.	♂♂	♀♀	Tot.	♂♂	♀♀	Tot.
>1951	<9	-	-	-	-	-	-	1	13	14	25.00	26.77	26.64
1951	9	-	-	-	-	-	-	-	2	2	-	29.0	29.0
1950	10	-	-	-	-	-	-	11	11	22	27.27	31.09	29.18
>1949	<11	76	83	159	25.48	28.67	27.15	-	-	-	-	-	-
1949	11	33	6	39	29.94	33.0	30.41	28	19	47	30.25	31.37	30.70
1948	12	79	11	90	30.26	32.54	30.54	69	54	123	32.55	32.41	32.49
1947	13	56	57	113	31.86	34.26	33.07	70	62	132	33.16	33.05	33.32
1946	14	49	42	91	33.40	35.59	34.42	62	62	124	34.45	34.77	34.61
1945	15	47	21	68	35.72	39.0	36.74	54	84	138	35.42	37.17	36.48
1944	16	43	37	80	35.47	39.60	37.38	41	52	93	36.59	39.29	38.10
1943	17	6	69	75	37.0	39.68	39.47	29	56	85	37.79	40.27	39.42
1942	18	12	40	52	36.5	40.22	39.36	24	41	65	39.59	41.29	40.66
1941	19	-	49	49	-	41.82	41.81	16	24	40	38.75	42.67	41.10
1940	20	21	51	72	36.14	41.30	39.79	6	14	20	41.5	43.07	42.06
1939	21	20	38	58	41.0	42.45	41.95	4	15	19	40.5	43.66	43.00
1938	22	-	25	25	-	43.60	43.60	-	34	34	-	43.59	43.59
1937	23	2	15	17	45.0	42.40	42.71	-	26	26	-	43.58	43.58
1936	24	-	2	2	-	47.0	47.0	-	2	2	-	48.0	48.0
1935	25	-	2	2	-	49.0	49.0	-	-	-	-	-	-
1934	26	-	2	2	-	41.0	41.0	-	7	7	-	44.71	44.71
1933	27	-	1	1	-	47.0	47.0	-	3	3	-	45.0	45.0
<1933	>27	-	5	5	-	49.0	49.0	-	3	3	-	49.0	49.0
Total %oo		444	556	1000				415	584	999			
Number of Samples		1						1					
Number of Fish		23	149	172				145	146	291			
Mean Age		13.72	16.3	15.15				14.34	15.99	15.28			
Mean Weight (Kg)		0.63	1.07	1.01				0.57	0.77	0.67			
Range of Depths (fm)		216-189						219-239					

(cont'd.)

TABLE 8 UNION OF SOVIET SOCIALIST
(cont'd.) REPUBLICS - 1960
OTTER TRAWLERS - Exploratory Catches

AGE FREQUENCIES - REDFISH
by sexes
with mean length at each age

by V.I. Travin
E.I. Surkova

Division		K											
Month		October						November					
		Mentella											
Year-Class	Age	%oo Frequency			Mean Length			%oo Frequency			Mean Length		
		♂♂	♀♀	Tot.	♂♂	♀♀	Tot.	♂♂	♀♀	Tot.	♂♂	♀♀	Tot.
>1952	<8	3	1	4	24.66	23.0	24.25	-	2	2	-	22.0	22.0
1952	8	12	5	17	26.33	23.8	25.88	7	3	10	23.0	25.0	23.6
1951	9	31	32	63	29.19	29.47	29.33	12	43	55	27.66	27.79	27.76
1950	10	60	27	87	32.56	30.74	32.0	42	43	85	26.45	26.65	26.55
1949	11	90	38	128	34.1	33.21	33.84	46	52	98	28.32	28.65	28.5
1948	12	98	30	128	34.25	33.44	34.06	111	120	231	29.04	30.41	29.75
1947	13	121	30	151	35.0	36.57	35.31	57	106	163	30.63	31.44	31.16
1946	14	92	39	131	37.09	39.87	37.92	90	44	134	30.85	33.25	31.64
1945	15	36	50	86	39.14	40.04	39.66	55	61	116	33.02	33.82	33.44
1944	16	33	12	45	39.03	38.92	39.0	6	20	26	36.0	37.5	37.15
1943	17	20	37	57	40.65	41.46	41.17	10	17	27	36.6	39.06	38.15
1942	18	1	35	36	44.0	42.29	42.33	9	7	16	38.77	37.43	38.18
1941	19	-	40	40	-	43.85	43.85	-	21	21	-	39.66	39.66
1940	20	-	9	9	-	46.33	46.33	-	6	6	-	42.66	42.66
1939	21	-	8	8	-	43.25	43.25	-	-	-	-	-	-
1938	22	-	-	-	-	-	-	-	5	5	-	40.8	40.8
1937	23	-	-	-	-	-	-	-	-	-	-	-	-
1936	24	-	6	6	-	48.0	48.0	-	5	5	-	40.0	40.0
<1936	>24	-	3	3	-	49.66	49.66	-	-	-	-	-	-
Total %oo		597	402	999				445	555	1000			
Number of Samples		1						1					
Number of Fish		154	131	285				75	122	197			
Mean Age		12.48	14.55	13.31				12.75	13.08	12.94			
Mean Weight (Kg)		0.63	0.76	0.69				0.34	0.56	0.49			
Range of Depths (fm)		175-170						159					

(cont'd.)

TABLE 8 UNION OF SOVIET SOCIALIST
(cont'd.) REPUBLICS - 1960
OTTER TRAWLERS - Exploratory Catches

AGE FREQUENCIES - REDFISH
by sexes
with mean length at each age

by V.I. Travin
E.I. Surkova

Division		3K						3L					
Month		December						April					
		Mentella											
Year- Class	Age	%oo Frequency			Mean Length			%oo Frequency			Mean Length		
		♂♂	♀♀	Tot.	♂♂	♀♀	Tot.	♂♂	♀♀	Tot.	♂♂	♀♀	Tot.
1952	8	3	5	8	25.0	26.8	26.12	-	-	-	-	-	-
1951	9	20	5	25	27.95	28.6	28.08	-	-	-	-	-	-
1950	10	3	4	7	32.0	30.25	31.0	-	-	-	-	-	-
1949	11	24	5	29	32.12	32.6	32.20	-	-	-	-	-	-
>1948	<12	-	-	-	-	-	-	13	11	24	25.15	25.91	25.50
1948	12	71	18	89	33.69	33.28	33.60	45	24	69	30.4	30.16	30.30
1947	13	77	21	98	32.61	34.23	32.96	34	21	55	30.26	30.66	30.41
1946	14	60	30	90	33.87	37.3	35.01	99	23	122	32.85	35.13	33.28
1945	15	67	27	94	34.12	39.04	35.53	70	11	81	32.76	30.36	32.43
1944	16	80	35	115	35.59	40.68	37.13	83	37	120	35.12	37.05	35.71
1943	17	51	19	70	35.31	40.68	36.77	44	72	116	34.70	36.94	36.09
1942	18	142	37	179	37.40	41.67	38.28	52	81	133	35.27	38.12	37.01
1941	19	81	30	111	37.82	43.16	39.99	29	91	120	35.07	40.33	39.06
1940	20	-	37	37	-	42.51	43.51	37	44	81	36.86	40.52	38.85
1939	21	1	21	22	43.0	44.0	43.95	4	45	49	40.75	41.75	41.67
1938	22	-	6	6	-	42.33	42.33	3	10	13	40.33	44.03	43.46
1937	23	-	9	9	-	44.67	44.67	-	4	4	-	45.5	45.5
1936	24	-	2	2	-	47.0	47.0	-	4	4	-	45.5	45.5
1935	25	-	4	4	-	45.0	45.0	-	8	8	-	44.37	44.37
<1935	>25	-	5	5	-	48.4	48.4	-	1	1	-	48.0	48.0
Total %oo		680	320	1000	/			513	487	1000	33.55	37.9	35.68
Number of Samples		1						1					
Number of Fish		79	201	280				56			74	130	
Mean Age		15.38	16.91	15.87				15.62			17.72	16.64	
Mean Weight (Kg)		0.56	0.96	0.86				0.54			0.88	0.73	
Range of Depths (fm)		192			177-195								

(cont'd.)

TABLE 8 UNION OF SOVIET SOCIALIST
(cont'd.) REPUBLICS - 1960
OTTER TRAWLERS - Exploratory Catches

AGE FREQUENCIES - REDFISH
by sexes
with mean length at each age

by V.I. Travin
E.I. Surkova

Division		3L											
Month		June			July								
		Mentella											
Year- Class	Age	%oo Frequency			Mean Length			%oo Frequency			Mean Length		
		♂♂	♀♀	Tot.	♂♂	♀♀	Tot.	♂♂	♀♀	Tot.	♂♂	♀♀	Tot.
>1951	<9	-	-	-	-	-	-	2	2	4	23.0	23.5	23.25
1951	9	-	-	-	-	-	-	3	1	4	27.0	26.0	26.75
1950	10	-	-	-	-	-	-	17	16	33	31.59	30.12	30.88
>1949	<11	8	20	28	27.75	29.25	28.82	-	-	-	-	-	-
1949	11	17	32	49	33.05	32.78	32.88	14	28	42	28.77	31.28	30.35
1948	12	41	28	69	32.43	34.42	33.25	61	23	84	31.38	31.78	31.49
1947	13	65	12	77	33.5	34.41	33.65	63	69	132	34.16	34.26	34.23
1946	14	64	36	100	35.5	36.08	35.71	84	53	137	34.83	36.64	35.53
1945	15	68	55	123	36.0	38.29	37.02	69	92	161	35.35	38.29	37.03
1944	16	82	43	125	35.21	39.23	37.06	45	60	105	35.80	38.35	37.25
1943	17	52	48	100	37.38	40.56	38.91	39	70	109	37.87	40.16	39.34
1942	18	28	48	76	38.75	40.62	39.93	16	60	76	37.47	40.66	40.0
1941	19	21	46	67	38.57	42.21	41.07	8	41	49	38.87	41.36	40.95
1940	20	23	49	72	38.13	43.04	41.47	-	23	23	-	41.17	41.17
1939	21	2	44	46	42.5	42.77	42.76	-	6	6	-	41.33	41.33
1938	22	5	28	33	41.2	42.85	42.61	-	10	10	-	42.6	42.6
1937	23	1	20	21	43.0	44.25	44.19	-	5	5	-	46.0	46.0
1936	24	-	9	9	-	45.55	45.55	-	2	2	-	44.0	44.0
1935	25	-	2	2	-	45.0	45.0	-	5	5	-	45.0	45.0
<1935	>25	-	-	-	-	-	-	-	13	13	-	47.7	47.7
1934	26	-	1	1	-	48.0	48.0	-	-	-	-	-	-
1933	27	-	1	1	-	47.0	47.0	-	-	-	-	-	-
1932	28	-	1	1	-	47.0	47.0	-	-	-	-	-	-
Total %oo		477	523	1000	36.65	39.5	37.67	421	579	1000	34.43	38.22	36.51
Number of Samples		2			1								
Number of Fish		148	321	469	115 156 271								
Mean Age		15.21	17.09	16.19	14.13 15.94 15.18								
Mean Weight (Kg)		0.76	1.09	0.98	0.58 0.96 0.79								
Range of Depths (fm)		60-240			177-196								

(cont'd.)

TABLE 8 UNION OF SOVIET SOCIALIST
(cont'd.) REPUBLICS - 1960

AGE FREQUENCIES - REDFISH
by sexes

by V. J. Travin
E. I. Surkova

OTTER TRAWLERS - Exploratory Catches

with mean length at each age

Division		♂						♀					
Month		November						March					
		Mantella											
Year- Class	Age	%oo Frequency			Mean Length			%oo Frequency			Mean Length		
		♂	♀	Tot.	♂	♀	Tot.	♂	♀	Tot.	♂	♀	Tot.
>1952	<8	-	-	-	-	-	-	22	21	43	21.33	20.57	20.88
1952	8	-	-	-	-	-	-	1	4	5	24.0	24.0	24.0
1951	9	-	-	-	-	-	-	16	14	30	25.25	24.86	25.08
>1950	<10	19	29	48	25.58	25.58	25.58	-	-	-	-	-	-
1950	10	10	41	51	34.6	30.09	30.98	36	4	40	27.84	-	28.25
1949	11	34	24	58	30.88	31.66	31.38	47	18	65	31.37	31.78	31.48
1948	12	50	29	79	32.08	33.31	32.53	72	46	118	32.14	31.87	31.89
1947	13	97	20	117	33.16	36.20	33.68	86	56	142	31.81	32.41	32.04
1946	14	55	79	134	34.13	38.66	36.86	109	82	191	32.42	33.7	33.18
1945	15	86	49	135	35.43	36.95	35.98	68	35	103	33.06	35.37	33.85
1944	16	70	64	134	34.84	39.87	37.24	60	39	99	33.05	36.61	34.59
1943	17	28	70	98	35.71	39.04	38.09	40	41	81	34.45	36.76	35.61
1942	18	11	34	45	36.27	38.26	37.77	17	29	46	35.06	37.52	36.61
1941	19	9	26	35	38.67	42.46	41.44	3	15	18	35.5	38.13	37.95
1940	20	7	24	31	-	41.12	40.38	-	6	6	-	38.39	38.5
1939	21	-	11	11	-	40.0	40.0	-	3	3	-	37.66	37.66
1938	22	-	-	-	-	-	-	-	3	3	-	39.67	39.67
1937	23	-	9	9	-	41.0	41.0	-	-	-	-	-	-
<1937	>23	-	15	15	-	46.4	46.4	-	6	6	-	42.84	42.84
Total %oo		476	524	1000	33.79	37.18	35.56	577	422	999			
Number of Samples								2					
Number of Fish		79	54	133				313	241	554			
Mean Age		14.01	15.23	14.65				13.36	14.26	13.74			
Mean Weight (Kg)		0.59	0.91	0.79				0.48	0.64	0.55			
Range of Depths (fm)		60-160						187-217					

(cont'd.)

TABLE 8 UNION OF SOVIET SOCIALIST
(cont'd.) REPUBLICS - 1960
OTTER TRAWLERS - Exploratory Catches

AGE FREQUENCIES - REDFISH
by sexes
with mean length at each age

by V.I. Travin
E.I. Surkova

Division		M											
Month		April						July					
		Mantella											
Year-Class	Age	% Frequency			Mean Length			% Frequency			Mean Length		
		♂	♀	Tot.	♂	♀	Tot.	♂	♀	Tot.	♂	♀	Tot.
>1951	<9	13	5	18	21.76	24.05	22.33	14	26	40	22.00	23.65	23.07
1951	9	4	3	7	28.00	27.00	27.57	26	10	36	28.96	29.8	29.33
1950	10	22	18	40	32.55	32.77	33.02	7	43	50	30.57	30.14	30.4
1949	11	124	19	143	31.33	30.89	31.54	68	50	118	31.52	31.94	31.7
1948	12	108	49	157	32.00	33.51	32.47	77	52	129	32.26	33.44	32.74
1947	13	136	69	205	33.39	33.59	33.45	83	65	148	32.75	34.34	33.18
1946	14	117	72	189	33.22	36.08	34.26	58	77	135	33.98	34.87	34.51
1945	15	74	33	107	33.80	36.64	34.67	62	60	122	34.86	35.8	35.32
1944	16	37	15	52	34.62	36.87	35.26	35	53	88	35.55	33.13	36.89
1943	17	11	19	30	33.36	39.58	37.44	20	34	54	37.77	37.59	37.66
1942	18	20	13	33	33.95	37.0	35.15	13	19	32	37.6	39.11	38.72
1941	19	-	12	12	-	40.56	40.91	5	7	12	38.4	39.00	38.25
<1941	>19	5	2	7	39.08	44.5	41.14	-	-	-	-	-	-
1940	20	-	-	-	-	-	-	-	8	8	-	38.00	38.00
1939	21	-	-	-	-	-	-	-	7	7	-	39.71	39.71
1938	22	-	-	-	-	-	-	-	2	2	-	38.00	38.00
<1938	>22	-	-	-	-	-	-	2	16	18	42.00	42.87	42.78
Total %		671	329	1000				470	529	999			
Number of Samples		1						1					
Number of Fish		163	87	250				137	143	280			
Mean Age		13.08	13.71	13.28				13.15	13.89	13.54			
Mean Weight (Kg)		0.51	0.65	0.56				0.50	0.59	0.55			
Range of Depths (m)		200-261						95					

(cont'd.)

TABLE 8 UNION OF SOVIET SOCIALIST REPUBLICS - 1960
 (cont'd.) OTTER TRAWLERS - Exploratory Catches

AGE FREQUENCIES - REDFISH
 by sexes
 with mean length at each age

by V.I. Travin
 E.I. Surkova

Division		M						F					
Month		October						March					
		Mentalla											
Year-Class	Age	%oo Frequency			Mean Length			%oo Frequency			Mean Length		
		♂♂	♀♀	Tot.	♂♂	♀♀	Tot.	♂♂	♀♀	Tot.	♂♂	♀♀	Tot.
>1952	<8	4	14	18	-	24.21	23.69	-	-	-	-	-	-
1952	8	11	-	11	26.45	-	26.45	-	-	-	-	-	-
1951	9	59	8	67	31.4	28.5	31.19	-	6	6	-	27.0	27.0
1950	10	148	92	240	29.88	31.13	30.36	57	23	80	31.7	32.5	31.92
1949	11	136	104	240	30.56	32.76	31.48	104	46	150	32.11	33.5	32.53
1948	12	149	92	241	31.84	32.95	32.28	149	104	253	33.15	34.11	33.54
1947	13	61	65	126	31.82	33.99	33.12	93	104	197	34.56	34.55	34.56
1946	14	9	20	29	31.11	34.1	33.21	46	86	132	34.37	36.33	35.65
1945	15	-	11	11	-	35.91	35.99	34	34	68	35.67	36.67	36.16
1944	16	-	5	5	-	37.8	37.8	6	40	46	37.0	39.14	38.87
1943	17	-	1	1	-	39.0	39.0	11	17	28	43.5	43.66	43.6
1942	18	-	1	1	-	41.00	41.0	-	6	6	-	39.0	39.0
1941	19	-	3	3	-	42.66	42.66	11	17	28	43.5	43.66	43.6
<1941	>19	6	-	6	37.17	-	37.17	-	-	-	-	-	-
1940	20	-	-	-	-	-	-	-	-	-	-	-	-
1939	21	-	-	-	-	-	-	-	6	6	-	40.0	40.0
Total %oo		583	416	999				511	489	1000			
Number of Samples		1						1					
Number of Fish		111	106	217				89	85	174			
Mean Age		11.06	11.53	11.26				12.44	13.48	12.95			
Mean Weight (Kg)		0.45	0.55	0.50				0.54	0.68	0.61			
Range of Depths (fm)		255						252-382					

(cont'd.)

TABLE 8 UNION OF SOVIET SOCIALIST
(cont'd.) REPUBLICS - 1960
OTTER TRAWLERS - Exploratory Catches

AGE FREQUENCIES - REDFISH
by sexes
with mean length at each age

by V.I. Travin
E.I. Surkova

Division		38											
Month		July					August						
		Mentella											
Year- Class	Age	%oo Frequency			Mean Length			%oo Frequency			Mean Length		
		♂	♀	Tot.	♂	♀	Tot.	♂	♀	Tot.	♂	♀	Tot.
1953	7	4	4	8	23.0	24.0	23.5	-	-	-	-	-	-
1952	8	4	16	20	26.0	26.0	26.0	-	4	4	-	27.0	27.0
1951	9	16	45	61	25.25	28.0	27.27	8	8	16	26.5	30.5	28.5
1950	10	24	37	61	27.0	28.0	27.6	16	29	45	27.0	28.14	27.72
1949	11	33	28	61	31.0	29.71	30.4	21	49	70	32.8	30.25	31.0
1948	12	41	41	82	31.7	32.3	32.0	24	29	53	33.83	31.57	32.61
1947	13	45	33	78	33.0	31.25	32.26	41	78	119	32.3	33.16	32.86
1946	14	73	49	122	34.55	36.16	35.2	73	66	139	34.17	35.81	34.94
1945	15	41	61	102	35.3	38.8	37.4	53	73	126	34.85	36.72	35.94
1944	16	20	77	97	34.4	39.21	38.33	29	57	86	35.86	39.5	38.28
1943	17	41	69	110	34.9	40.76	38.59	21	102	123	35.2	38.84	38.23
1942	18	20	45	65	36.2	41.45	40.00	16	69	85	25.75	41.29	40.24
1941	19	8	57	65	38.5	42.07	41.75	-	69	69	-	42.06	42.06
1940	20	4	28	32	42.0	43.57	43.62	4	29	33	39.0	41.57	41.25
1939	21	-	24	24	-	41.67	41.67	-	24	24	-	43.5	41.50
1938	22	-	4	4	-	46.0	46.0	-	-	-	-	-	-
1937	23	-	8	8	-	45.0	45.0	-	8	8	-	42.0	42.0
Total %oo		374	626	1000	/			306	694	1000	/		
Number of Samples		1						1					
Number of Fish		92	154	246				75	170	245			
Mean Age		13.72	15.02	14.53				14.02	15.52	15.07			
Mean Weight (Kg)		0.59	0.89	0.78				0.67	0.95	0.86			
Range of Depths (fm)		259-275			165-219								

(cont'd.)

TABLE 8 UNION OF SOVIET SOCIALIST REPUBLICS - 1960 AGE FREQUENCIES - REDFISH by V.I. Travin
 (cont'd.) by sexes E.I. Surkova
 OTTER TRAWLS - Exploratory Catches with mean length at each age

Division		30											
Month		March						April					
		Mentella											
Year- Class	Age	%oo Frequency			Mean Length			%oo Frequency			Mean Length		
		♂♂	♀♀	Tot.	♂♂	♀♀	Tot.	♂♂	♀♀	Tot.	♂♂	♀♀	Tot.
1954	6	-	-	-	-	-	-	4	-	4	19.0	-	19.0
1953	7	3	-	3	22.00	-	22.00	20	12	32	22.4	22.67	22.5
1952	8	31	17	48	21.89	22.6	22.14	37	28	65	23.33	22.43	22.93
1951	9	42	24	66	23.91	25.29	24.42	81	65	146	24.25	25.19	24.48
1950	10	110	59	169	25.22	26.35	25.61	110	126	236	24.81	26.48	25.56
1949	11	138	66	204	25.92	27.84	26.56	69	152	221	25.70	27.73	27.09
1948	12	121	80	201	26.48	28.30	27.21	53	138	191	25.46	27.91	27.23
1947	13	56	79	135	24.12	28.46	27.9	8	57	65	27.00	29.15	28.97
1946	14	14	59	73	27.75	30.59	30.05	-	24	24	-	29.33	29.33
1945	15	10	49	59	27.67	30.85	30.3	-	4	4	-	30.00	30.0
1944	16	7	28	35	29.00	32.5	31.8	-	8	8	-	30.5	31.0
1943	17	7	-	7	21.00	-	21.00	-	4	4	-	23.0	23.0
Total %oo		539	461	1000				382	618	1000			
Number of Samples		1						1					
Number of Fish		154	132	286				94	152	246			
Mean Age		11.17	12.29	11.68				9.92	11.03	10.60			
Mean Weight (Kg)		0.26	0.36	0.31				0.26	0.33	0.34			
Range of Depths (fm)		100-290						129					

(cont'd.)

TABLE 8 UNION OF SOVIET SOCIALIST REPUBLICS - 1961 AGE FREQUENCIES - REDFISH by sexes by V. I. Travin E. I. Surkova
(cont'd.) OTTER TRAWLERS - Exploratory Catches with mean length at each age

Division		30						3P					
Month		July						August					
		Mentella											
Year-Class	Age	%oo Frequency			Mean Length			%oo Frequency			Mean Length		
		♂♂	♀♀	Tot.	♂♂	♀♀	Tot.	♂♂	♀♀	Tot.	♂♂	♀♀	Tot.
1953	7	7	-	7	24.5	-	24.5	-	-	-	-	-	-
1952	8	18	21	49	26.6	27.0	26.82	7	-	7	24.5	-	24.5
1951	9	64	53	117	26.28	26.53	26.39	22	11	33	27.67	29.67	28.33
1950	10	92	142	234	26.42	28.35	27.59	54	47	101	28.4	30.69	29.46
1949	11	103	146	249	27.48	29.88	28.89	94	69	163	29.27	31.84	30.36
1948	12	36	133	169	27.1	30.27	29.6	102	94	196	29.96	32.88	31.37
1947	13	11	110	121	28.67	30.90	30.71	69	91	160	20.68	34.28	32.73
1946	14	11	36	47	32.67	32.6	32.62	43	105	148	31.83	34.96	34.05
1945	15	-	14	14	-	30.5	30.5	14	69	83	31.75	35.79	35.09
1944	16	-	3	3	-	30.0	30.0	11	36	47	33.33	36.6	35.85
1943	17	-	-	-	-	-	-	4	18	22	31.00	36.0	35.17
1942	18	-	-	-	-	-	-	-	22	22	-	39.17	39.17
1941	19	-	-	-	-	-	-	-	11	11	-	37.67	37.67
1940	20	-	-	-	-	-	-	-	7	7	-	39.0	39.0
Total %oo		342	658	1000	/			420	580	1000	/		
Number of Samples			1						1				
Number of Fish		96	185	281				116	160	276			
Mean Age		10.38	11.33	11.01				11.91	13.4	12.78			
Mean Weight (Kg)		0.38	0.47	0.44				0.37	0.57	0.49			
Range of Depths (fm)		164-220											

Breakdown of >31 age frequencies appearing on page 54:

Division		1E		
Month		May		
		Marinus		
Year-Class	Age	♂♂	♀♀	♂♀
		FREQUENCIES in %oo		
1928	32	7	10	17
1927	33	2	2	4
1926	34	2	5	7
1925	35	2	3	5
<1925	>35	2	3	5

AGE/LENGTH KEYS AND FREQUENCIES (REDFISH)

In accordance with a recommendation made by the Research and Statistics Committee at their annual meeting in 1962, Age/Length Keys and Frequencies will not be published but are to be deposited in the Secretariat and made available to Member Countries on request. The following Age/Length Keys and Frequencies are now on file in the Secretariat:

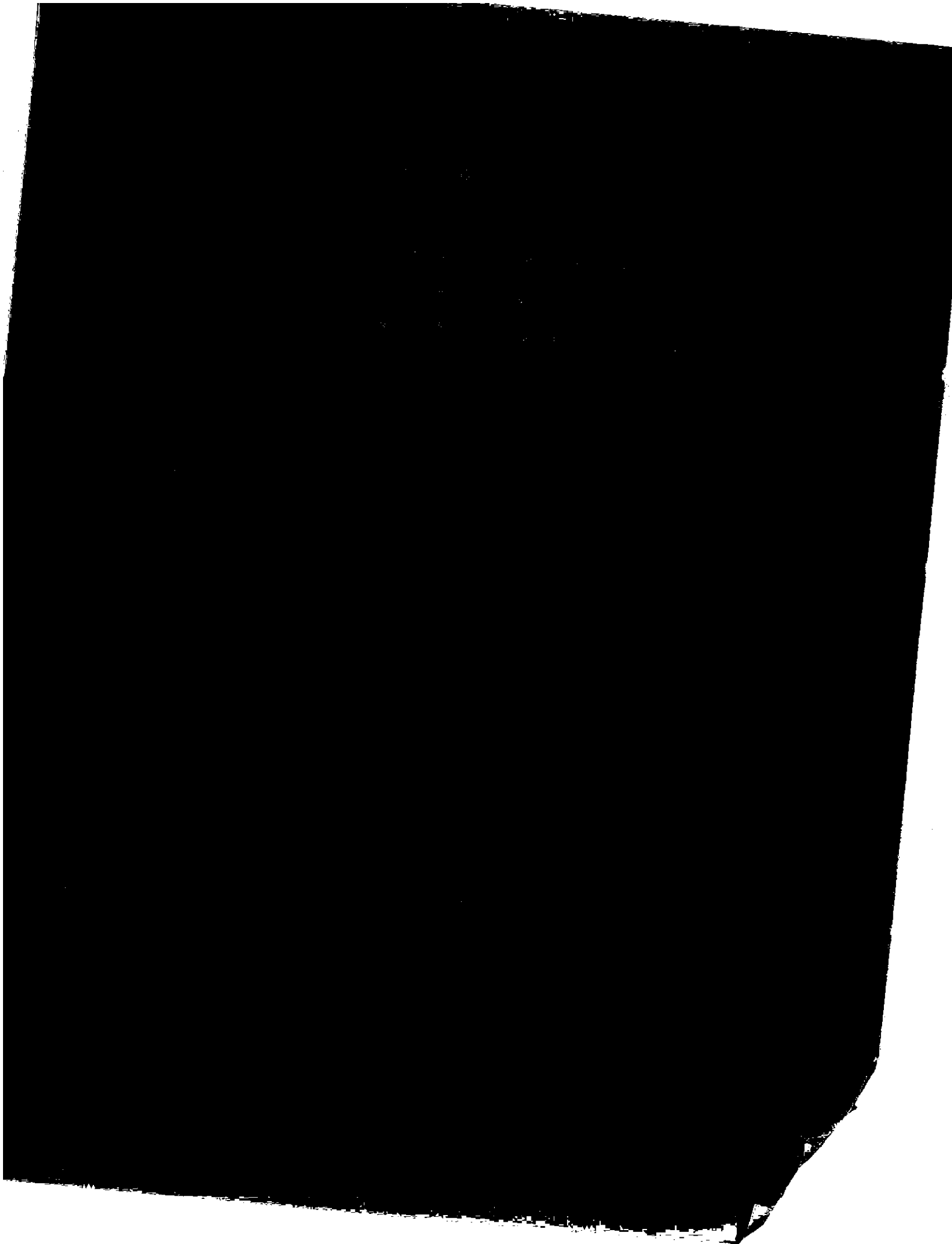
TABLE 9 U.S.S.R. 1960

Sebastes mentella (♂ ♀)Otter Trawl (Exploratory)

Division	Depth (fm)	Months
2H	-	November
2I	-	January; June
3K	-	March; April; July; October; November; December
3L	-	April; June; July; November
3M	-	March; April; July; October
3N	-	March; July; August
3O	167-178	August
3P	164-231	November
3Q	-	March; April; July; August; November
3R	-	August

SECTION 101

1. The first part of the document contains a list of names and addresses of the persons who have been appointed as members of the committee.



APPENDIX

1. Corrections to Sampling Yearbook Vol. 5 for the year 1960

Part I : Cod - Haddock-Flounder

Delete "Table 49 Canada (Newfoundland) - 1960 - Length Frequencies - American Plaice"
pages 218-222 (incl.) and insert Revised Table 49 which follows on page 73

2. Corrections to Sampling Yearbook Vol. 5 for the year 1960

Part I : Cod-Haddock-Flounder

Table 7 : Canada (Newfoundland) - Length Frequencies - Cod

(a) Page 14 - Cod Trap - Inshore

3L - June	Change mean weight now reading 1.14 to read 1.37
3L - July	" " " " " 1.29 " " 1.55
3L - August	" " " " " 1.81 " " 2.17

(b) Page 15 - Line Trawl - Inshore

3L - Sept.	Change mean weight now reading 2.07 to read 2.48
Ps- May	" " " " " 2.06 " " 2.47
Ps- July	" " " " " 1.96 " " 2.35
Ps- Sept.	" " " " " 2.32 " " 2.78

(c) Page 15 - Handline - Inshore

3L - June	Change mean weight now reading 1.38 to read 1.66
3L - July	" " " " " 1.59 " " 1.91
3L - Sept.	" " " " " 1.96 " " 2.35

(d) Page 16 - Longline - Inshore

3L - July	Change mean weight now reading 2.91 to read 3.49
3L - Sept.	" " " " " 1.96 " " 2.35

(e) Page 16 - Jigger - Inshore

3L - June	Change mean weight now reading 0.97 to read 1.16
3L - July	" " " " " 1.36 " " 1.63
Ps- May	" " " " " 0.87 " " 1.04
Ps- July	" " " " " 1.49 " " 1.79

3. Corrections to Sampling Yearbook Vol. 4 for the year 1959
 Table 4 : Canada (Newfoundland) - Length Frequencies - Cod

(a) Page 10 - Cod Trap - Inshore

3L - June	Change mean weight now reading	0.97	to read	1.16
3L - July	" " " " "	1.43	" "	1.72
3L - August	" " " " "	1.43	" "	1.72
3Pn- July	" " " " "	1.47	" "	1.76

(b) Page 11 - Line Trawl - Inshore

3L - Sept.	Change mean weight now reading	2.19	to read	2.63
3L - Oct.	" " " " "	2.17	" "	2.60
3Pn- April	" " " " "	2.03	" "	2.44
3Pn- August	" " " " "	1.95	" "	2.34

(c) Page 12 - Handline - Inshore

3L - June	Change mean weight now reading	1.56	to read	1.87
3L - July	" " " " "	1.64	" "	1.97
3L - August	" " " " "	2.05	" "	2.46
3L - Sept.	" " " " "	1.90	" "	2.28

(d) Page 12-13 - Longline - Inshore

3L - June	Change mean weight now reading	2.18	to read	2.62
3L - July	" " " " "	2.44	" "	2.93
3L - August	" " " " "	2.60	" "	3.12
3L - Sept.	" " " " "	2.54	" "	3.05
3Pn- April	" " " " "	2.91	" "	3.49

(e) Page 13 - Jigger - Inshore

3L - June	Change mean weight now reading	1.41	to read	1.69
3L - July	" " " " "	1.69	" "	2.03
3L - August	" " " " "	1.65	" "	1.98
3L - Sept.	" " " " "	1.56	" "	1.87
3Pn- July	" " " " "	1.17	" "	1.40
3Pn- August	" " " " "	1.41	" "	1.69

TABLE 49 (REVISED) CANADA (Nfld.) - 1960 LENGTH FREQUENCIES - AM. PLAICE by A.M.Fleming
M. O'Hanlon

Commercial Landings

Vessel Type	Otter Trawlers								
Vessel Tonnage Class	151-500								
Division	3L								
Month	April			May			June		
Sex	♂	♀	Total	♂	♀	Total	♂	♀	Total
2-cm group	FREQUENCIES in ‰								
20-21	-	-	-	0	0	1	-	-	-
26-27	-	-	-	1	-	1	1	1	2
28-29	-	-	-	3	1	4	1	-	1
30-31	7	10	17	7	3	10	4	1	5
32-33	33	7	40	21	5	26	16	7	23
34-35	62	16	78	35	10	45	51	18	69
36-37	89	20	109	69	26	95	78	35	113
38-39	72	33	105	106	39	145	91	63	154
40-41	118	26	144	92	49	141	74	53	127
42-43	95	46	141	96	60	156	65	60	125
44-45	95	36	131	60	44	104	38	56	94
46-47	69	20	89	30	43	73	22	62	84
48-49	3	23	26	9	47	56	13	47	60
50-51	3	26	29	1	42	43	5	48	53
52-53	-	16	16	1	44	45	1	35	36
54-55	-	26	26	-	27	27	-	31	31
56-57	-	20	20	-	15	15	-	16	16
58-59	-	20	20	-	6	6	-	5	5
60-61	-	10	10	-	6	6	-	3	3
62-63	-	-	-	-	3	3	-	2	2
Total ‰	646	355	1001	531	470	1002	460	543	1003
Serial Numbers			1			6			4
Number of Samples			1			6			4
Number Fish Measured	197	108	305	911	784	1695	501	585	1086
Mean Length (cm)			42.18			42.67			42.50
Mean Weight (Kg)			0.71			0.72			0.73
Total Wt. Landed (Tons)			654			1333			1885
Est. Number (millions)			0.913			1.857			2.592
Mesh Size ⁽¹⁾			Lm			Lm&n			Lm&n
Range of Depths (fm)			48-60			48-80			55-87

1) L = large; m = manilla; n = nylon (Mesh sizes vary from 3 7/8" to 4 3/4")

(cont' d.)

TABLE 49 (REVISED) CANADA (Nfld.) - 1960 LENGTH FREQUENCIES - AM. PLAICE by A.M.Fleming
M. O'Hanlon

Commercial Landings		Otter Trawlers									
Vessel Type	Vessel Tonnage Class	151-500									
Division	Month	July			August			September			
Sex	2-cm group	66	99	Total	66	99	Total	00	00	Total	
FREQUENCIES in %											
12-13				1							
14-15			1	1							
16-17		1	1	2							
18-19		2	5	7							
20-21		2	4	6							
22-23		3	2	5							
24-25		2	3	5							
26-27		12	4	16				1	1	2	
28-29		12	8	20				2	1	3	
30-31		14	7	21				3	4	7	
32-33		12	1	13				4	5	9	
34-35		10	23	33	1	3	4	6	2	8	
36-37		17	12	29	9	5	14	4	4	8	
38-39		25	10	35	26	19	45	15	8	23	
40-41		33	13	46	20	24	44	17	15	32	
42-43		25	24	49	64	32	96	29	16	45	
44-45		54	31	85	59	38	97	42	29	71	
46-47		41	46	87	99	38	137	46	41	87	
48-49		30	56	86	66	59	125	49	51	100	
50-51		13	81	94	60	63	123	45	45	90	
52-53		4	83	87	24	67	91	24	51	75	
54-55		1	104	105	7	82	89	12	69	81	
56-57			63	63	1	55	56	9	90	99	
58-59			44	44		34	34		68	68	
60-61			31	31		16	16		75	75	
62-63			12	12		16	16		34	34	
64-65			3	3		7	7		29	29	
66-67			8	8		5	5		18	18	
68-69			6	6		1	1		12	12	
70-71									6	6	
Total %		313	687	1000	436	567	1003	308	693	1001	
Serial Numbers					1		1				
Number of Samples								5		5	
Number Fish Measured				4				3		3	
Mean Length (cm)	276	598	874	333	435	768	310	504	814	4	
Mean Weight (Kg)			45.08			44.80			46.14		
Total Wt. Landed (Tons)			1.03			0.90			1.11		
Est. Number (millions)			1327			1148			890		
Mesh Size (I)			1.293			1.292			0.797		
Range of Depths (fm)			Lm			Lmkn			Lm		
			80-92			50-93			25-50		
									90-100		

L=large; m=manilla; n=nylon (Mesh sizes vary from 3 7/8" to 4 3/4")

(cont'd.)

TABLE 49 (REVISED) CANADA (Nfld.) - 1960 LENGTH FREQUENCIES - AM. PLAICE by A.M.Fleming
M.O'Hanlon

Commercial Landings									
Vessel Type	Otter Trawlers								
Vessel Tonnage Class	151-500								
Division	3L								
Month	October			November			December		
Sex	06'	99	Total	06'	99	Total	06'	99	Total
2-cm group	FREQUENCIES in ‰								
14-15	-	-	-	-	3	3	-	-	-
22-23	-	4	4	3	-	3	-	-	-
24-25	-	11	11	-	-	-	-	-	-
26-27	8	8	16	-	3	3	-	4	4
28-29	11	19	30	-	3	3	-	2	2
30-31	11	8	19	-	-	-	-	2	2
32-33	11	11	22	3	3	6	6	19	25
34-35	49	30	79	9	3	12	18	13	31
36-37	38	45	83	36	10	46	51	17	68
38-39	49	60	109	43	51	94	73	39	112
40-41	60	71	131	103	66	169	93	55	148
42-43	87	60	147	64	46	110	96	37	133
44-45	26	49	75	59	77	136	65	55	120
46-47	38	87	125	7	79	86	57	56	113
48-49	15	56	71	13	67	80	28	63	91
50-51	-	15	15	-	61	61	9	57	66
52-53	-	30	30	-	29	29	1	29	30
54-55	-	11	11	-	28	28	-	26	26
56-57	-	8	8	-	37	37	-	8	8
58-59	-	4	4	-	35	35	-	6	6
60-61	-	4	4	-	17	17	-	3	3
62-63	-	4	4	-	17	17	-	4	4
64-65	-	-	-	-	19	19	-	5	5
66-67	-	4	4	-	7	7	-	1	1
68-69	-	-	-	-	-	-	-	1	1
Total ‰	403	599	1002	340	661	1001	497	502	999
Serial Numbers									
Number of Samples			1			2			2
Number Fish Measured	107	159	266	106	232	338	318	342	660
Mean Length (cm)			41.29			45.60			43.64
Mean Weight (Kg)			0.74			1.13			0.86
Total Wt. Landed(Tons)			2138			269			1219
Est. Number (millions)			2.866			0.237			1.422
Mesh Size (1)			Lm			Lm			Lm
Range of Depths (fm)			39-42			38-45			50-108
						110-140			

1) L=large; m=manilla; n=nylon (Mesh sizes vary from 3 7/8" to 4 3/4")

(cont'd)

TABLE 49 (REVISED) CANADA (Nfld.) - 1960 LENGTH FREQUENCIES - AM. PLAICE by A.M.Fleming
M. O'Hanlon

Commercial Landings		Otter Trawlers								
Vessel Type	151-500									
Vessel Tonnage Class	N									
Division	January			September			October			
Month	oo	oo	Total	oo	oo	Total	oo	oo	Total	
Sex	FREQUENCIES in %									
2-cm group										
26-27	-	-	-	-	1	1	-	-	-	
28-29	-	-	-	-	-	-	-	-	-	
30-31	-	-	-	-	-	-	-	-	-	
32-33	7	4	11	3	3	6	8	4	12	
34-35	11	22	33	35	13	48	12	15	27	
36-37	51	61	112	56	33	89	46	15	61	
38-39	76	76	152	88	31	119	50	35	85	
40-41	68	44	112	87	21	108	69	15	84	
42-43	51	61	112	94	30	124	69	12	81	
44-45	40	36	76	73	27	100	96	31	127	
46-47	44	65	109	79	25	104	115	39	154	
48-49	11	51	62	36	36	72	76	39	115	
50-51	11	54	65	19	43	62	31	58	89	
52-53	7	40	47	3	46	49	4	39	43	
54-55	4	29	33	2	37	39	4	39	43	
56-57	-	29	29	-	32	32	-	50	50	
58-59	-	11	11	-	24	24	-	12	12	
60-61	-	22	22	-	10	10	-	8	8	
62-63	-	15	15	-	8	8	-	4	4	
66-67	-	-	-	-	2	2	-	4	4	
Total %/oo	381	620	1001	575	425	1000	580	423	1003	
Serial Numbers										
Number of Samples	1			3			1			
Number Fish Measured	105	171	276	400	336	736	151	109	260	
Mean Length (cm)	42.15			42.61			41.77			
Mean Weight (Kg)	0.78			0.82			0.85			
Total Wt. Landed(Tons)	215			594			559			
Est. Number (millions)	0.274			0.724			0.658			
Mesh Size (l)	Ln			Ln			Ln			
Range of Depths (fm)	48-60			45-117			48-80			

1) L=large; m=manilla; n=nylon; d=drilene
(Mesh sizes vary from 3 7/8" to 4 3/4")

(cont'd)

TABLE 49 (REVISED) CANADA (Nfld.) - 1960 LENGTH FREQUENCIES - AM. PLAICE by A.M.Fleming
M. O'Hanlon

Commercial Landings									
Vessel Type	Otter Trawlers								
Vessel Tonnage Class	151-500								
Division	3N						3D		
Month	November			December			November		
Sex	oo	oo	Total	oo	oo	Total	oo	oo	Total
2-cm group	F R E Q U E N C I E S in /oo								
22-23	-	-	-	3	-	3	-	-	-
24-25	-	1	1	-	-	-	-	-	-
26-27	-	-	-	-	-	-	6	-	6
28-29	2	1	3	-	6	6	-	6	6
30-31	6	2	8	10	6	16	6	6	12
32-33	22	11	33	23	3	26	6	12	18
34-35	32	20	52	26	29	55	12	6	18
36-37	41	24	65	39	10	49	55	12	67
38-39	59	26	85	64	13	77	43	37	80
40-41	92	35	127	103	26	129	74	43	117
42-43	101	28	129	109	16	125	111	61	172
44-45	73	40	113	93	29	122	80	61	141
46-47	60	43	103	90	35	125	74	49	123
48-49	37	54	91	42	39	81	25	49	74
50-51	10	49	59	6	35	41	-	38	18
52-53	-	45	45	3	55	58	-	55	55
54-55	-	35	35	3	32	35	-	43	43
56-57	-	20	20	-	23	23	-	31	31
58-59	-	17	17	-	19	19	-	12	12
60-61	-	5	5	-	10	10	-	-	-
62-63	-	8	8	-	-	-	-	-	-
64-65	-	2	2	-	-	-	-	6	6
72-73	-	1	1	-	-	-	-	-	-
Total %oo	535	467	1002	614	386	1000	492	507	999
Serial Numbers			6			1			1
Number of Samples			6			1			1
Number Fish Measured	673	600	1273	191	120	311	80	83	163
Mean Length (cm)			44.04			43.97			44.07
Mean Weight (Kg)			0.90			0.91			0.93
Total Wt. Landed(Tons)			648			459			46
Est. Number (millions)			0.723			0.503			0.049
Mesh Size (1)			Lm&n			Lm			Lm
Range of Depths (fm)			32-70			38-62			42

1) L=large; m=manilla; n=nylon; d=drilene
(Mesh sizes vary from 3 7/8" to 4 3/4")

