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On the Trawl-Caught Cod on the West Greenland Banks in 1953

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During a trip which lasted from 27 July to 6 September 1953 a large material of otoliths and length measurements was collected by Mr. Eyjólfur Thoroddsen onboard the Icelandic trawler "Pétur Halldórsson". The trawler was mainly fishing on the Fylla Bank and all the samples presented here are from this locality. The material collected include length measurements, otoliths with length, observations on sex and maturity, and also otoliths taken from loose heads. Most of the samples are from fish which were used for salting, but there were also taken some samples of fish which were processed into fish meal.

Age Composition and Onset of Maturity.

The sexual maturity was listed in about two thousand cod which also were analysed with regard to age. At this time of the year the gonads could be described as immature or spent. The following table gives the percentages of spent fish in each age-group, together with the total number in each age-group.

Age-group	Total Number	% Spent
4	11	27
5	56	50
6	826	74
7	201	80
8	700	93
9	61	93
10	61	100

These figures may not be representative for the stock as a whole, but they clearly show that the Greenland cod becomes mature at a remarkably young age.

From the material mentioned above we have also calculated the percentages of spent fish in each 5-cm. group:

5-cm. Group	% Spent
45	17
50	37
55	61
60	61
65	79
70	91
75	95
80	100

In table 1 the age determinations are arranged with regard to age-groups and age at first spawning. The table at once reveals the fact that the major part of the catch consists of first time spawners. The age composition of these is completely dominated by the two year-classes from 1945 and 1947. The 1942

year-class, now 11 years old, is only represented by mature individuals. The greatest part of this year-class becomes mature as 8 years old and according to table 1 its average age at first spawning was 7.8 years. This is in agreement with Dr. P.M. Hansen's results. For the year-classes 1932, 34 and 36 he gives the following ages at first spawning: 8.1, 7.8, and 7.6 years.

From the second spawning class onwards there is a relatively regular decrease in number, except for the fourth spawning class, which is the result of a great spawning of the 1942 year-class as 8 years old.

The age composition found for the stock as a whole is in good agreement with the results obtained in 1952. There is a great dominance of the two year-classes 1945 and 1947. If we compare our figures from this year with the figures from Fyllas Bank in 1952 we get the following:

	1945 year-class	1946 year-class	1947 year-class
1952	35.3%	8.3%	44.5%
1953	35.9%	10.3%	39.8%

The ratio between these three year-classes is almost the same in both years. The age- and length composition of the fish from Fyllas Bank in 1952 and 1953 is shown graphically on figure 1.

Table 1.

Age Composition of Trawl-Caught Cod on Fylla Bank  
July 30th - August 15th 1953

Age Group	Age at First Spawning										Mature		Total		
	4	5	6	7	8	9	10	11	?	im- mat.	No.	%	No.	%	
3	-	-	-	-	-	-	-	-	-	1	-	-	1	0.1	
4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
5	-	8	-	-	-	-	-	-	-	1	10	8	0.5	19	1.0
6	1	5	556	-	-	-	-	-	-	6	209	562	35.6	777	39.8
7	-	1	7	160	-	-	-	-	-	3	30	168	10.6	201	10.3
8	-	2	16	72	534	-	-	-	-	29	47	624	39.5	700	35.9
9	-	-	4	11	13	25	-	-	-	4	4	53	3.4	61	3.1
10	-	-	2	14	17	5	10	-	-	13	-	48	3.0	61	3.1
11	-	1	4	24	49	10	1	1	10	-	90	5.7	100	5.1	
12	-	-	-	2	4	-	-	-	-	2	-	6	0.4	8	0.4
13	-	-	-	-	-	-	-	-	2	-	-	-	-	2	0.2
14	-	-	1	1	-	1	1	-	-	-	4	0.3	4	0.2	
15	-	-	-	-	-	-	1	-	-	-	1	0.1	1	0.1	
16	-	-	-	3	5	2	2	1	-	-	13	0.8	13	0.7	
17	-	-	1	-	-	-	-	-	-	-	1	0.1	1	0.1	
18	-	-	-	1	-	-	-	-	-	-	1	0.1	1	0.1	
Total no.	1	17	591	288	622	43	15	2	71	300	1579		1950		
%	0.1	1.1	37.4	18.2	39.4	2.7	0.9	0.1	3.6	15.4					
Spawning Classes															
	1	2	3	4	5	6	7	8	9	10	11	12			
No.	1294	103	56	69	31	9	3	3	6	3	-	2			
%	82.0	6.5	3.5	4.4	2.0	0.6	0.2	0.2	0.4	0.2	-	0.1			

The lack of fish older than 11 years is very conspicuous and in good agreement with the age composition of the Icelandic stock of cod.

The Growth Rate

In table 2 are listed the average lengths of the various year-groups on Fyllas Bank during the period July 30th to August 15th 1953.

Table 2.

Mean Lengths of the Various Age-Groups on Fylla Bank.

Year-class	Age	♀ ♀		♂ ♂	
		No.	cm.	No.	cm.
1950	3	1	60.0	-	-
1949	4	4	49.0	7	47.4
1948	5	28	54.8	28	54.3
1947	6	397	63.7	429	62.9
1946	7	99	68.9	102	67.1
1945	8	365	75.7	335	73.3
1944	9	27	76.4	34	74.9
1943	10	29	80.1	32	75.2
1942	11	32	79.9	68	77.9
1941	12	5	81.0	3	80.3
1940	13	1	81.0	1	78.0
1939	14	4	82.0	-	-
1938	15	1	82.0	-	-
1937	16	6	83.5	7	82.0
1936	17	1	85.0	-	-
1935	18	1	85.0	-	-

According to these figures the average growth of the 1947 year-class in the period October 1952 to August 1953 was 8.4 cm. The figures for the year-classes 1946 and 1945 are 4.7 cm. and 2.8 cm. respectively.

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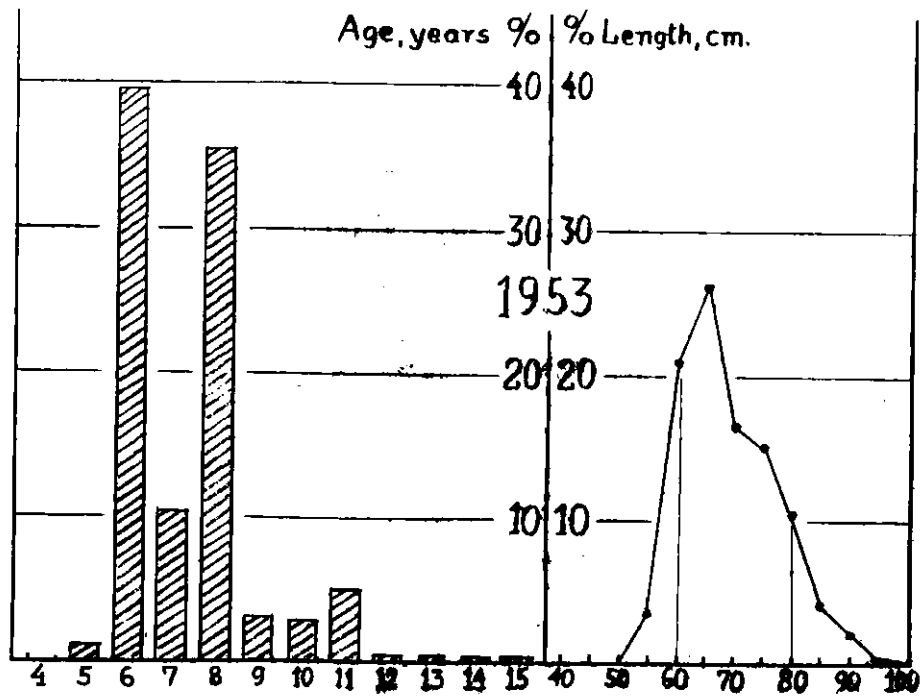
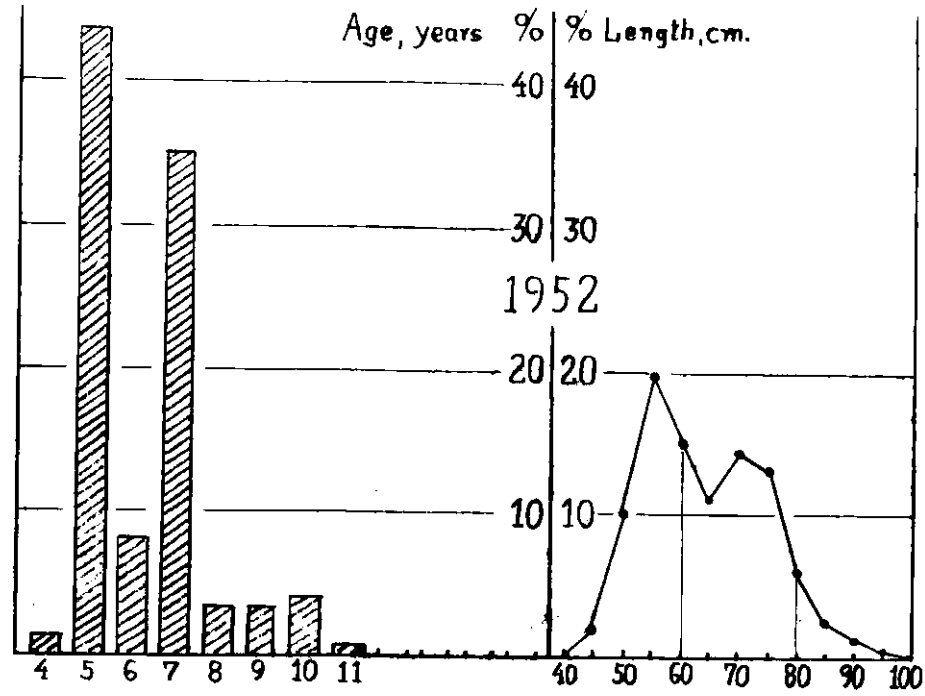


Figure 1. Age- and length distribution of trawl-caught cod from Fylla Bank in 1952 and 1953.