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Portuguese Biological Research on Cod in Division 3M, 1981

by

M. Lourdes Godhino

Departamento de Biologia Pesqueira e Avaliação
Instituto Nacional de Investigação das Pescas
Lisboa, Portugal

1. INTRODUCTION

The present paper summarises the biological studies carried out on cod (Gadus morhua) in Division 3M during May 1981. Samplers on board of a commercial boat were supposed to collect cod samples in May, June and July in the NAFO area but due quota problems the fishery was conducted to other species and in other subdivisions, (namely squid and silver ha ke) and only a few cod data were obtained, which are presented here.

2. BIOLOGICAL STUDIES

Biological studies on cod were carried out on board of a commercial otter trawl in Division 3M to obtain informations about length composition, growth and maturity. Seven cod samples were taken with a total of 700 fish measured, weighted and sexed and 75 pairs of otoliths collected for age determination.

2.1. Length and age composition

Length and age composition are given in Table 1, Fig 1 and show a range from 36 to 105 cm length distributed between 3 and 9 age groups, with strong predominance of age 4, corresponding to the 1977 year classe.

The 1978 year classe probably will be also a strong one. The 1973 year classe which dominated the fishery during the last years still appears in the fishery.

Mean length per age and average weight for each length group are also presented in Table 1.

2.2. Stages of maturity

All fish sampled were sexed and the development of the gonads observed according to a scale of maturity with 6 stages.

The results are presented in Table 2 and show clear dominance of the developing stage.

TABLE 1. Length and age composition of cod sampled in Division 3M, May 1981

LENGTH GROUP	LENGTH COMPOSITION PER MILLE	AGE LENGTH KEY (Number Sampled by age group and length)							AVERAGE WEIGHT	
		3	4	5	6	7	8	9	No	gr.
36	19	5							5	460
39	84	5							5	566
42	93	5							5	676
45	107	1	4						5	840
48	146		5						5	1046
51	216		5						5	1172
54	186		4						4	1338
57	70		5						5	1688
60	27		4	1					5	2034
63	10		1	1	1		1		4	2345
66	7				2	1	1		4	2720
69	7				1	1	2		4	2985
72	4				1	1	1		3	3377
75	4				1	-	2		3	5567
78	7					1	3		4	4672
81	6						3		3	5140
84	1						1		1	5320
87	-						-			
90	1						1		1	7280
93	1						1		1	7000
96	-						-			
99	1						1		1	9350
102	-									
105	1							1	1	9830
TOTAL	998	16	28	2	6	4	17	1	74	-

AGE COMPOSITION PER MILLE	217	728	8	10	7	27	1	
MEAN LENGTH PER AGE (cm)	40,6	51,3	60,9	67,7	71,2	76,7	105*	

* based on 1 fish only

TABLE 2. Stages of maturity for males and females.

	MALES	%	FEMALES	%
Immature	138	473	94	230
Developing	153	524	311	762
Pre-Spawning	1	3	1	2
Spawning	-	-	-	-
Resting	-	-	2	5
Recovering	-	-	-	-
TOTAL	292	1000	408	999

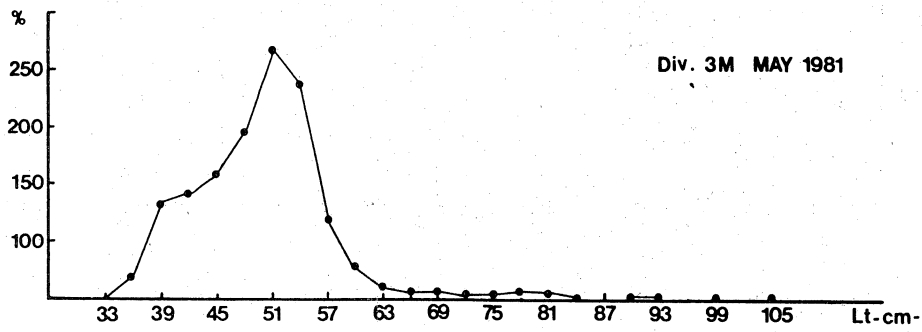


Fig. 1a. Cod length composition, Div. 3M, 1981.

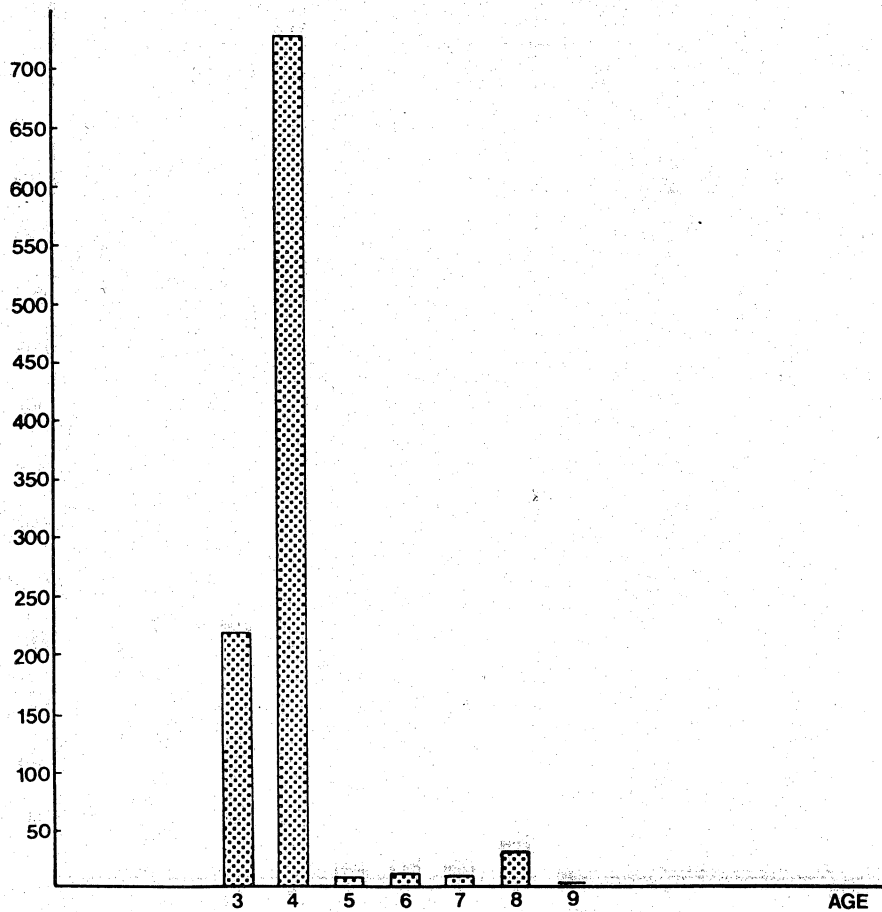


Fig. 1b. Cod age composition, Div. 3M, 1981.