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Portuguese Research Report, 1982

by

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The present paper summarises the status of the fisheries and the biological information collected by portuguese observers on board of the otter trawl "Elisabeth" in Subarea 3, Divisions 3L and 3 NO, from February to May 1982, in order to obtain biological information of the main species caught.

A. Status of the fisheries

During 1982 the Portuguese Fleet conducted its fishing activities in Subareas 2 and 3. The total nominal catch in both Subareas was 14642 mt wich represent an increase of 2363 mt when compared with 1981 but still a decrease of 3716 tons in comparison to 1980.

Nominal catches by Subareas during 1980, 1981 and 1982

SUBAREAS	1980	1981	1982
2	1 819	1 502	1 550
3	14 919	10 777	13 092
TOTAL	18 358	12 279	14 642

1. SUBAREA 2.

Portuguese catches in Subarea 2 amounted to 1 550 mt and were taken in Division 2 H and 2 J.
The main species was Atlantic cod which represented 95% of the total catch obtained in this Subarea. The other species were Atlantic red fish, with 4,1% and Witch flounder with 0,6% (table bellow). The increase observed in the total catch in relation with 1981 is mainly due to Atlantic red fish catches because the Atlantic cod catch in fact decreased 25 tons, as can be seen on table bellow.

Catches in Subarea 2, 1981 and 1982

SPECIES	CATCHES MT		%	
	1981	1982	1981	1982
Atlantic cod	1 502	1 477	100	95,3
Atlantic red fish	-	64		4,1
Witch flounder	-	9		0,6
TOTAL	1 502	1 550	100,0	100,0

2. SUBAREA 3

In this Subarea the catches amounted to 13029 mt and were taken in Divisions 3K, 3L, 3M, 3N and 3O.
The main species remains the Atlantic cod which represented 68,9% of the total catches, followed by the Atlantic red fish with 14,3% (table bellow).

Catches in Subarea 3, 1981 and 1982.

SPECIES	CATCHES MT		%	
	1981	1982	1981	1982
Atlantic cod	8 325	8 977	77,2	68,9
Atlantic red fish	1 099	1 860	10,2	14,3
White hake	1 347	1 173	12,5	9,0
Yellowtail flounder	-	614	-	4,7
American place	-	420	-	3,2
Witch flounder	6	48	0,1	0,4
TOTAL	10 777	13 029	100,0	100,5

B. Special Research Studies

SUBAREA 3

1. Enviromental studies

No research studies were carried out on this suject.

2. Biological studies

2.1. Cod

Biological studies on cod were carried out in Divisions 3L and 3NO.

Catches were very poor and the samples, with one exception, corresponded to the total catches.
Samples were obtained during February, March and April as follows:

DIVISION	MONTH	MONTH	Nº OF SAMPLES	FISH MEASURED	FISH AGED
3L	MARCH	290-296	1	64	54
3L	APRIL	512-514	1	23	23
3NO	FEBRUARY	50-266	5	235	188

2.1.1. Division 3L

In Division 3L only one sample was taken each March and April, with respectively 64 and 23 fish measured.
The range of lengths and age composition (Table 1, Fig. 1 and 2) are very different between the two months which may be due to the very reduced number of data collected. The mean length for March was 52,8cm and 78,1 for April. Mean age for each month is also presented but no reference is done for mean length and mean weight for each age group because the data are very poor.

2.1.2. Division 3NO

Samples were obtained only during February and all the catches were samples. A total of 235 fish were measured.

The range of lengths is very large, from 39 to 123cm, with a small dominance of the length group 90-105cm and a predominance of the 1974 and 1975 year classes (Tab.4, Fig.3).

The mean length and mean weight for each year class is also presented as well the number of fish aged for each age group.
The stage of maturity of the gonadas was observed and 77% of the gonads were developing or pré--spawning; 11% had already spawned; 8% were resting and about 3% were imature fish.

2.2. Red fish

Samples were obtained during February, March, April and

May, in Divisions 3NO and 3L as follow:

Division	Month	Depth	Fish measured	Fish aged
3NO	February	190-222	197	55
	March	386-415	95	58
3L	March	445-720	2692	120
	April	450-710	2048	138
	May	530-606	788	85

The length composition of the catches is shown in Tab.5, Fig.4 and 5. The dominant lengths for Division 3L were 33cm for March and 29-31cm for April and May. For Division 3NO, 23-25cm were the dominante lengths.

No age readings were yet done.

The stage of maturity of the gonads was observed and more than 60% of the catches samples presented the gonads in a developing stage;about 20% were imature fish.

2.3. American place

Samples were collected only in Division 3NO, during February and March, with 567 and 186 fish measured, respectively.

Neither sex nor individual weights were observed and no otoliths collected.

The length composition for the two months (1^{st} Quarter) is presented in Tab.6, Fig. 6 with a mean length of 33,6cm. The dominant lengths were 24-26cm.

2.4. Yellowtail flounder

Samples were also collected only for Division 3NO during February and March with 340 and 359 fish measured. No sex or individual weights were observed and no otoliths collected.

The length composition of the catch, presented in Tab.6 Fig. 7 shows two dominant lengths 32 and 40cm with a mean length at 36,4cm.

TABLE 1 - Length composition of cod (°/oo) for Division 3L,1982

Length interval cm	1st Quarter Division 3L °/oo	2d Quarter Division 3L °/oo
30	16	
33	-	
36	16	
39	62	
42	78	
45	156	
48	188	
51	203	43
54	31	87
57	47	43
60	31	43
63	31	-
66	-	43
69	47	-
72	-	87
75	62	-
78	16	87
81	-	174
84	16	130
87		43
90		87
93		83
96		-
99		-
102		43
105		
108		
111		
Measured fish	64	23
Mean length (mm)	528	781

TABLE 2 - Age composition of cod (°/oo) in Division 3L, 1982

AGE GROUP	YEAR CLASS	1st Quarter Division 3L °/oo	2d Quarter Division 3L °/oo
	1982		
I	1981		
II	1980		
III	1979	78	
IV	1978	657	43
V	1977	92	173
VI	1976	48	43
VII	1975	125	145
VIII	1974		419
IX	1973		44
X	1972		-
XI	1971		87
XII	1970		-
XIII	1969		-
XIV	1968		-
XV	1967		63
XVI	1966		
Aged fish		64	23
Mean Age		4.5	8.0

TABLE 3 - Length composition of cod (°/oo) for Division 3 NO, 1982

1st QUARTER	
Length interval (cm)	Total (3 NO) °/oo
30	
33	
36	
39	4
42	13
45	17
48	17
51	38
54	21
57	51
60	26
63	34
66	51
69	38
72	38
75	34
78	38
81	47
84	34
87	47
90	64
93	60
96	64
99	60
102	77
105	51
108	30
111	34
114	4
117	4
120	4
123	
126	
129	
Measured fish	235
Mean length (mm)	830

TABLE 4 - Age composition of cod (°/oo) in Division 3 NO, mean length ($\bar{L}$) and mean Weight ($\bar{W}$) for each age group, 1982

1st QUARTER					
AGE GROUP	YEAR CLASS	Div. 3 NO °/oo	$\bar{L}$ (mm)	$\bar{W}$ (gr)	AGED FISH Nº
I	1981				
II	1980				
III	1979	8	415	650	2
IV	1978	120	522	1289	28
V	1977	76	620	2100	18
VI	1976	129	688	3182	30
VII	1975	229	850	7485	43
VIII	1974	261	920	9747	43
IX	1973	78	1032	13769	13
X	1972	59	1066	13800	10
XI	1971	36	1109	16625	8
XII	1970	-	-	-	-
XIII	1969	-	-	-	-
XIV	1968	-	-	-	-
XV	1967	-	-	-	-
XVI	1966	-	-	-	-
XVII	1965	-	-	-	-
XVIII	1964	-	-	-	-
X	1963	-	-	-	-
XX	1962	-	-	-	-
XXI	1961	-	-	-	-
XXII	1960	-	-	-	-
XXIII	1959	-	-	-	-
XXIV	1958	-	-	-	-
XXV+	1957	4	1210	20000	1
Aged fish		196	196	196	196
Mean age		7,1			

TABLE 5 - Red fish length composition (°/oo) in Divisions 3 NO and 32, 1982

	1st Quarter		2d Quarter
Length interval (cm)	Division 2 NO	Division 3 L	Division 3 L
	°/oo	°/oo	°/oo
15			
16	3.4		
17	3.4		
18	3.4		
19	3.4		.4
20	-		.7
21	17.1		.4
22	68.5	.7	1.8
23	188.4	1.1	3.5
24	178.1	.3	10.6
25	164.4	7.1	21.5
26	89.0	8.9	35.9
27	92.5	16.4	59.6
28	44.5	23.4	71.9
29	34.2	47.9	96.6
30	27.4	85.8	109.2
31	27.4	86.6	106.4
32	3.4	98.5	82.1
33	6.8	130.1	70.1
34	3.4	92.5	59.2
35	-	107.8	61.0
36	20.6	77.7	43.0
37	10.3	64.3	41.6
38	3.4	52.1	32.8
39	3.4	39.8	26.1
40	3.4	22.7	16.2
41		10.0	13.4
42		7.8	10.2
43		7.1	8.1
44		5.6	7.4
45		2.2	3.5
46		.4	3.5
47		1.1	2.5
48		.7	-
49		.7	.7
50		1.1	.4
Measured fish	292	2691	2838
Mean length	25,5	33,8	32,1

TABLE 6 - Yellowtail flounder and American place length composition (°/oo) in Division 3 NO, 1982

	1st Quarter	
	DIVISION	3 NO
Length interval (cm)	Yellowtail flounder °/oo	American place °/oo
14		2.7
16		12.0
18	1.4	29.2
20	15.7	47.8
22	12.9	71.7
24	28.6	108.9
26	15.7	120.8
28	32.9	55.8
30	110.2	58.4
32	133.1	31.9
34	107.3	47.8
36	83.0	42.5
38	83.0	35.9
40	118.7	55.8
42	81.6	54.4
44	85.8	39.8
46	37.2	46.5
48	17.2	30.5
50	15.7	35.9
52	2.9	15.9
54	5.7	15.9
56	5.7	9.3
58	4.3	9.3
60	-	10.6
62	1.4	5.3
64		4.0
66		-
68		-
70		-
72		-
74		-
76		1.3
Measured fish	699	753
Mean length	36,4	33,6

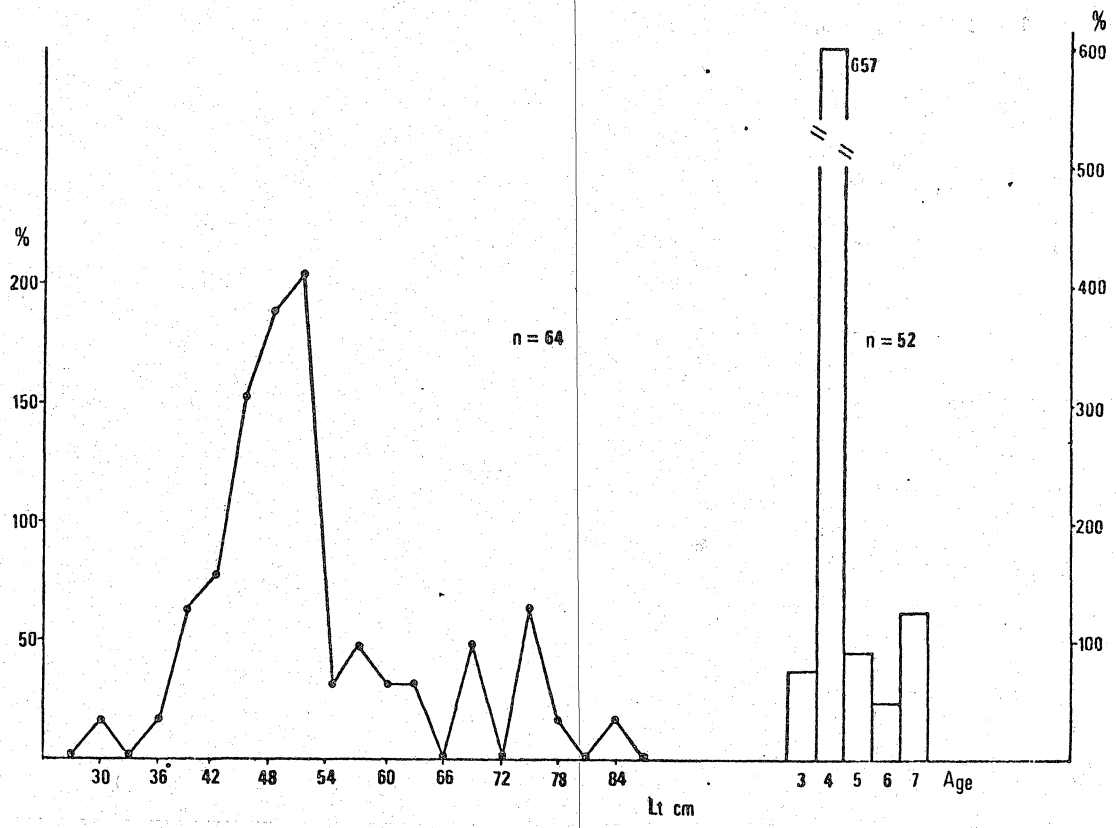

Fig. 1 - Cod length frequencies and age composition in Division 3 L, March 1982, (1st Quarter)

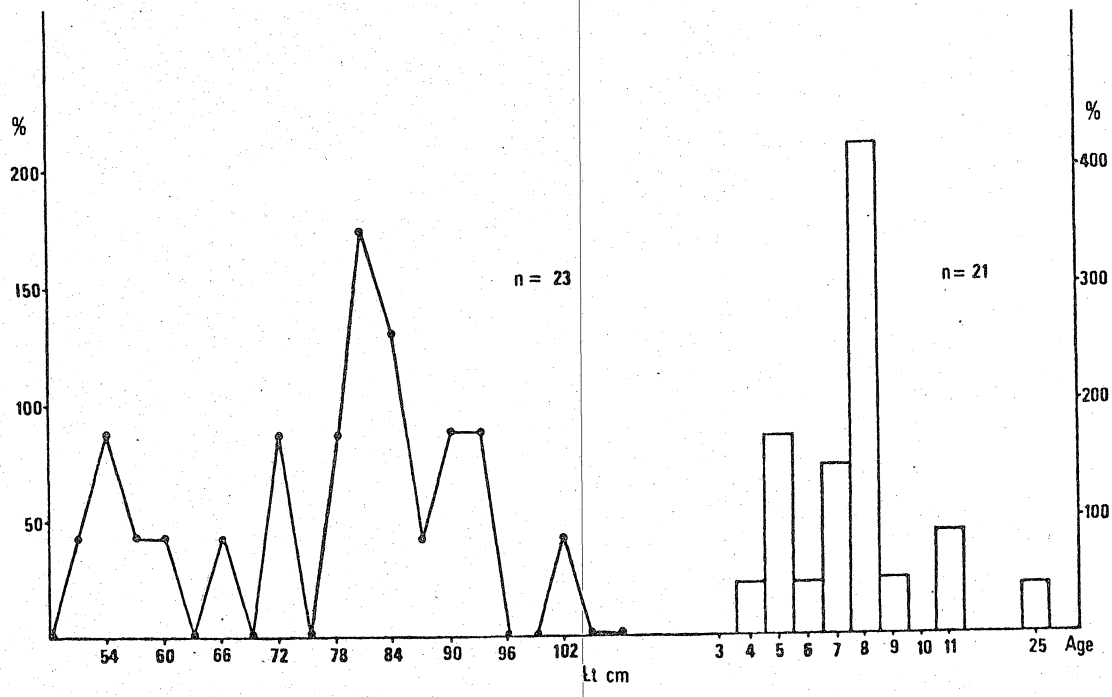

Fig. 2 - Cod length frequencies and age composition in Division 3L April 1982 (2d Quarter)

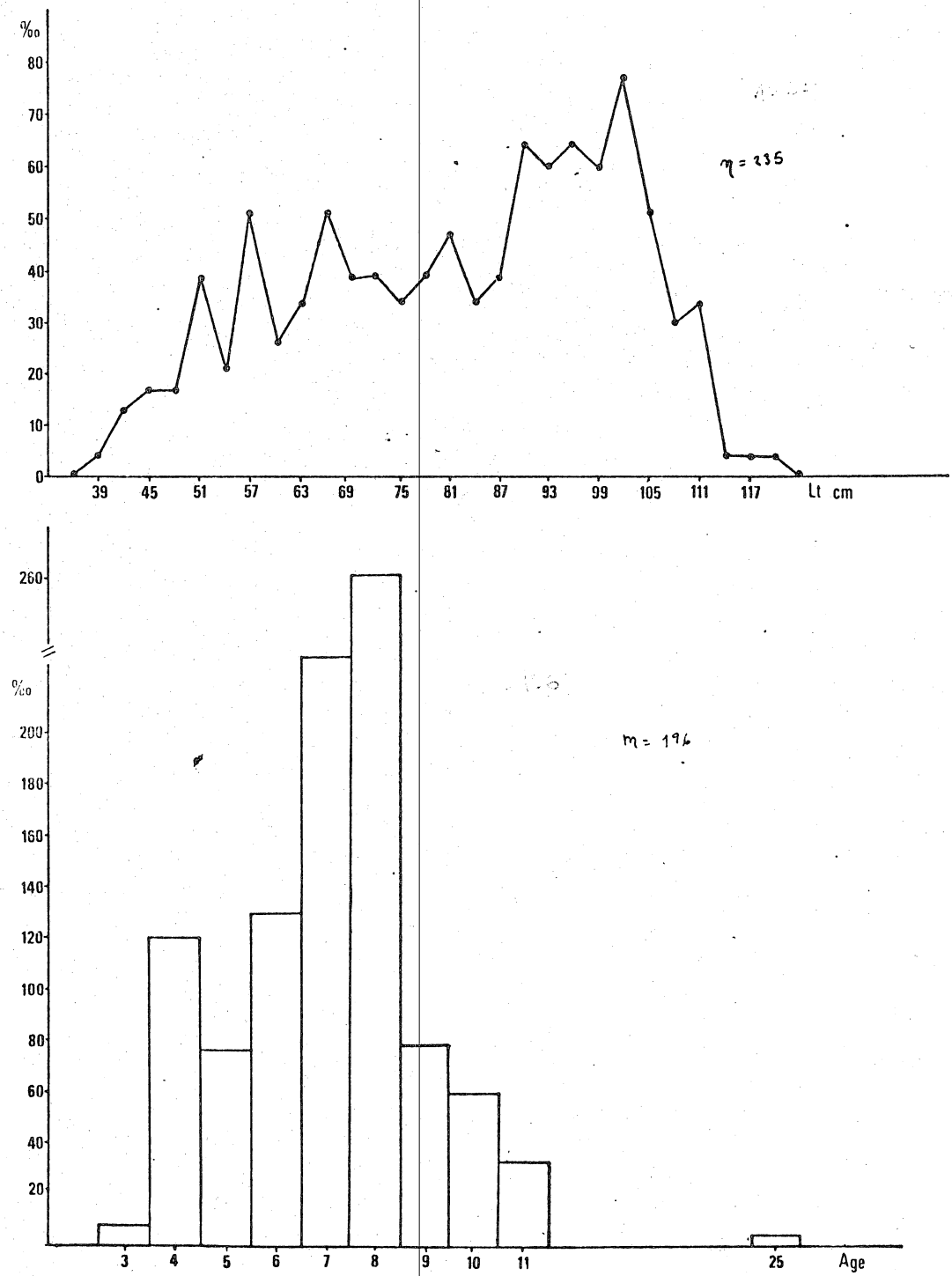

Fig. 3 - Cod length frequencies and age composition in Division 3 NO, February 1982

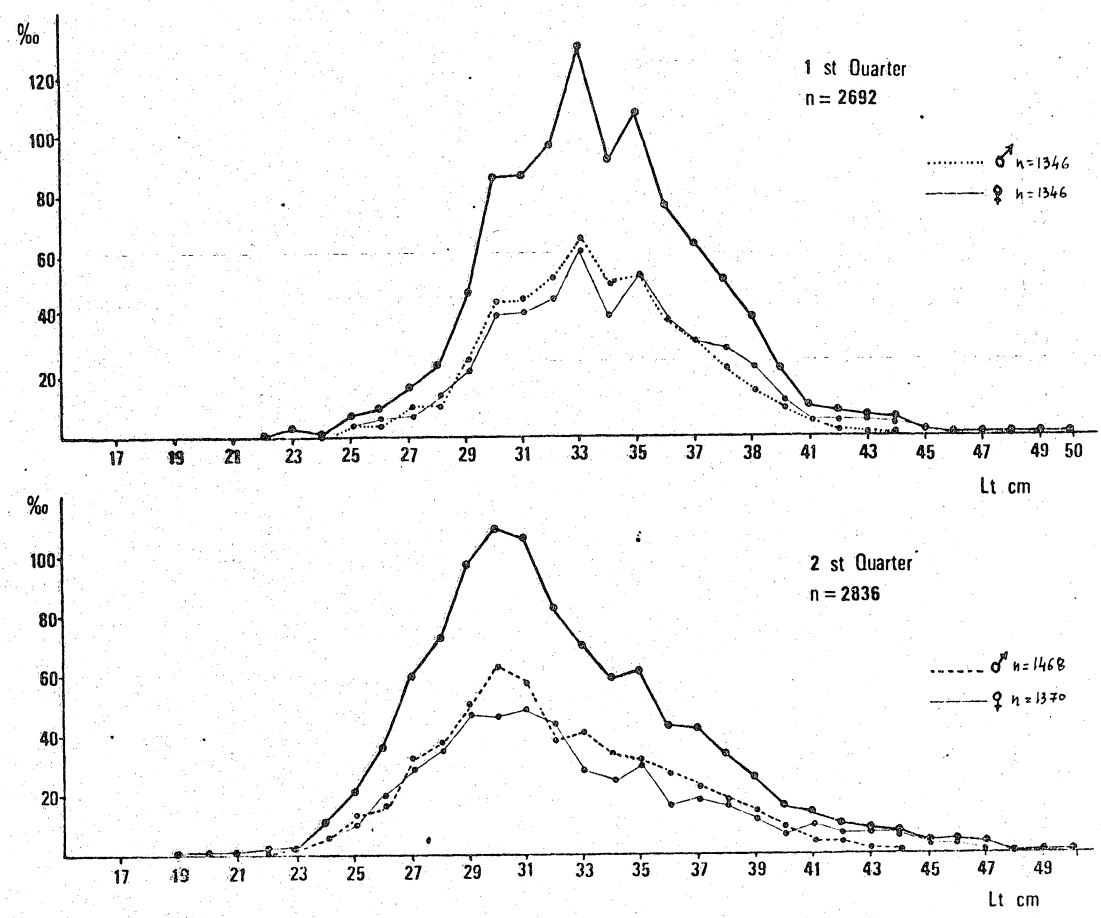

Fig. 4 - Red fish lengths frequencies. Division 3L, 1st and 2d Division 1982

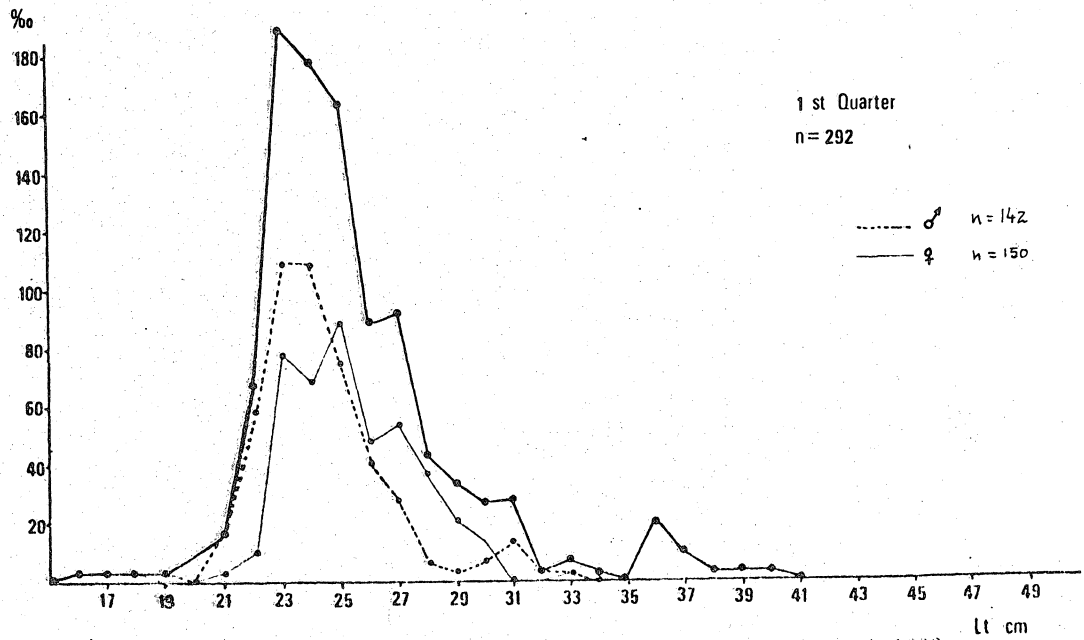

Fig. 5 - Red fish length frequencies. Div. 3 NO, February and March 1982

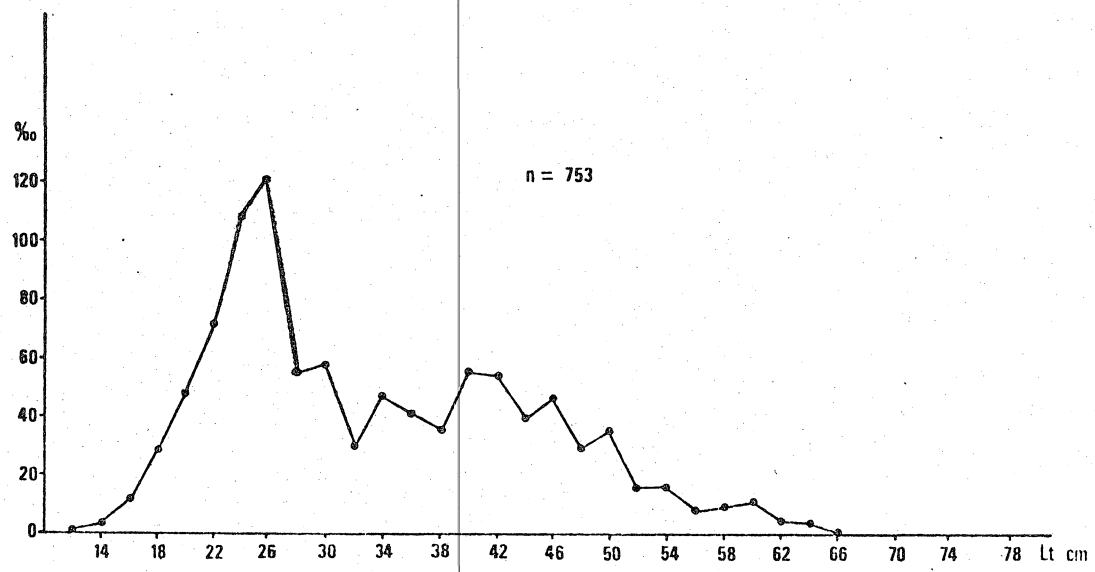

Fig.6 - American place length frequencies in Division 3 NO, 1st Quarter 1982.

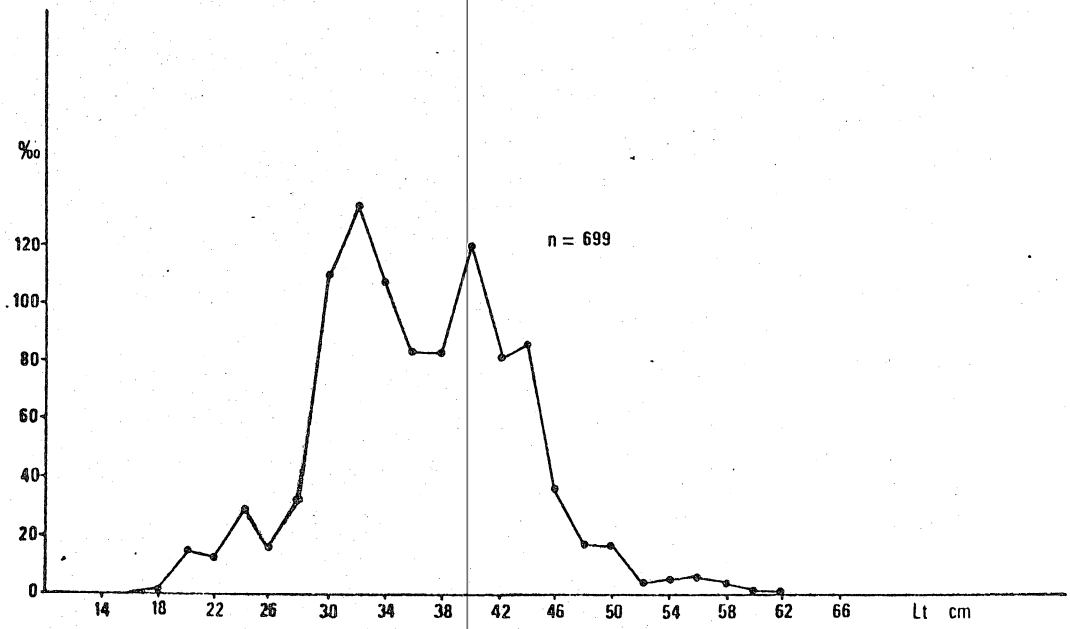

Fig.7-Yellowtail flounder length frequencies in Division 3 NO, 1st Quarter 1982.