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SPANISH RESEARCH REPORT, 1974

by

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The total catch by Spanish otter and pair trawlers in subareas 1-5 and Statistical Area 6 in 1974 was 181,038.9 tons, representing 2,353.1 tons less than in 1973. Cod constituted the bulk of the catch (157,740.0 tons), followed by Squids (16,137 tons), capelin 4,016 tons, Haddock (1,553.2 tons) and Pollock (1,455.6 tons). Haddock and Pollock are taken as by-catch of the directed fishery of Cod, which is mainly operated by pair trawlers, and takes place in Subareas 1-5.

The directed fishery of squid is mainly operated by stern and otter trawlers, and it is developed in Subarea 5 and Statistical Area 6.

Table 1. Spanish nominal catches (metric tons) by species in the Northwest Atlantic, 1971-1974.

Species	1971	1972	1973	1974*
Cod	254,188	21,159	159,532	157,740.0
Haddock	7,876	5,594	2,300	1,553.2
Flatfishes	1,054	30	218	-
Pollock	1,378	1,013	3,247	1,455.6
Illex	3,324	4,930	4,339	6,767.0
Loligo	3,446	5,764	13,260	9,370.0
Capelin	-	-	-	4,016.0
Red Hake	-	-	-	57.3
Other Species	446	1,227	496	79.8
total	271,712	236,717	183,392	181,038.9

*Preliminary

The most important Spanish catches cod were in Stock 2J+3KL (35.48%), followed by catches in Stocks 3NO (24.30%), 4Vsw (17.36%), 3Ps (10.42%) and 5YZ (4.04%).

Table 2. Spanish nominal catches of Cod (metric tons) by Subareas, 1972-1974

Subareas	1972	1973	Stock	1974*
1	12,949	10,231	1	5,895.3
2	1,664	662	2J+3KL	55,971.6
3	157,589	105,660	3M	2,619.0
4	39,254	36,999	3Ps	16,443.6
5	6,700	5,981	4Vn+T	851.4
6	3	-	4Vs+W	27,380.4
			4X	1,640.1
			5YZ	6,374.7
total	218,159	159,533		157,740.0

* Preliminary

During 1974 cod sampling has been carried out all over the year by two observers on board two Spanish pair trawlers. Each one of the two boats of the fishing unit has 1400 HP and 594 GRT.

Subarea 1

A. STATUS OF THE FISHERIES

The fishing season extended in this Subarea from July to December being the most important catches during October and November.

Fishing activity took place mainly in Divisions 1C and 1D. Cod catches in this stock show a decrease of 4,335 tons from 1973.

B. SPECIAL RESEARCH STUDIES

Cod sampling in this stock was carried out during the months of September, November and December in Division 1C and August, September, October, November and December in Division 1D. A total of 6,498 individuals were measured and 1,309 taken for age determination.

Length frequencies and mean length of cod per month sampled and per Division are given in table 4.

The contribution of the different year classes to the fishery and the mean age per month and Division sampled are given in table 5.

More information on by-catch and other aspects of the fishing operations in this Subarea, collected by a biologist of our staff (J.R. Fuertes) during September, is available in Res. Doc. 75/?

Cod Stock 2J + 3KL

A. STATUS OF THE FISHERIES

This stock is the most important for the Spanish cod fishery. In 1974 catches were 55,971.6 tons.

The fishing activity extended in this stock all along the year, the highest catches being in May and April.

B. SPECIAL RESEARCH STUDIES

Cod sampling has been carried out during the months of April and May in Division 3K, and in March, April and May in Division 3L.

A total of 7,983 individuals were measured and 1,096 taken for age determination.

Length frequencies and mean length of cod per month sampled and per Division are given in table 6.

The contribution of the different year classes to the fishery and the mean age per month and division sampled are given in table 7.

Cod Stock 3M

A. STATUS OF THE FISHERIES

The Spanish fishery in this stock ~~was~~ was small (2,619 tons in 1974).

Fishing activity being carried out only in July.

A. SPECIAL RESEARCH STUDIES

Neither sampling or other research studies were carried out in this stock.

Divisions ~~33004~~ 3N0

A. STATUS OF THE FISHERIES

1. Cod

This stock is the second in importance for the Spanish cod fishery.

In 1974 cod catches were 38,330.7 tons. The fishing activity extended in this stock ~~some~~ all along the year, the highest catches being in June and August.

2. Capelin

This fishery was initiated this year, and the catches were carried out by two stern trawlers of 2,250 GRT each one, with a total catch of 4,016 tons. Catches are shown in table 3.

Table 3.

Division	30	30	30	total
Month	June	July	August	
Days on ground	13	38	6	67
Days fished	11	41	6	58
Hours fished	154	574	84	812
Catch in tons	512	2968	536	4016

B. SPECIAL RESEARCH STUDIES

In stock 3N0, cod sampling was carried out only in Division 3N during the months of June and July.

A total of 1594 individuals were measured and 216 taken for age determination.

Length frequencies and mean length of cod per month sampled and per Division are given in table 6.

The contribution of the different year classes to the fishery and the mean age per month and Division sampled are given in table 7.

Cod Stock 3Pa

A. STATUS OF THE FISHERIES

The fishing season extended in this stock all along the year, the highest catches being in March, November and December.

The catch of cod in this stock has been 16,443.6 tons against 19,951.0 tons in 1973, which implies a decrease of 3,507.4 tons.

B. SPECIAL RESEARCH STUDIES

In stock ~~3Pa~~ 3Pa, cod sampled was carried out during the month of December.

A total of 573 individuals were measured and 76 taken for age determination.

Length and age compositions are given in tables 6 and 7.

Cod Stock 4Vn+T

A. STATUS OF THE FISHERIES

Cod fishery in stock ~~4Vn+T~~ 4Vn+T is of minor importance, 3,084.6 tons in 1974.

The fishing season extended in this stock from January to May, and from October to December

B. SPECIAL RESEARCH STUDIES

Cod sampling in this stock was carried out during the months of January, February and December in Division 4Vn. A total of 4,567 individuals were measured and 483 taken for age determination.

Length frequencies and mean length of cod per month sampled and per Division are given in table 8.

The contribution of the different year classes to the fishery and the mean age per month and Division sampled are given in table 9.

Cod Stock 4Vs+W

A. STATUS OF THE FISHERIES

This stock ~~area~~ is the third in importance for the Spanish cod fishery. In 1974 cod catches were 27,380.4 tons.

The fishing activity extended in this stock ~~area~~ all along the year, the highest catches being in the months of March, and February.

The Haddock catch in the whole stock area was 693.1 tons in 1974. This species ~~is~~ ^{and} pollock (802.5 tons), ~~is~~ ^{are} taken as a by-catch of the cod fishery.

B. SPECIAL RESEARCH STUDIES

Cod sampling in this stock was carried out during the months of February, March and April in ^{Sub} Division 4Vs, and April in Division 4W. A total of 4,288 individuals were measured and 471 taken for age determination.

Length frequencies and the contribution of the different year classes to the fishery, and the mean age per month and Division sampled are given in tables 8 and 9 respectively.

Division 4X

A. STATUS OF THE FISHERIES

1. Cod

The Spanish fishery in this Division was small (1,640.1 tons in 1974).

2. Haddock

The Haddock catch in this Division was 97.2 tons.

B. SPECIAL RESEARCH STUDIES

Neither sampling or other research studies were carried out in this Division.

Subarea 5 and Statistical Area 6

A. STATUS OF THE FISHERIES

1. Cod

The Spanish catch of cod in Subarea 5 is 6,374.7 tons in 1974.

The fishing activity extended in Subarea 5 all along the year, the highest catches being in February, June and August.

Haddock catch was 762.9 tons, red hake catch was 57.3 tons and pollock catch was 653.1 tons. These species are taken as a by-catch of the cod fishery.

2. Squid

Two different squid directed fisheries take place in Subarea 5 and Statistical Area 6. The Loligo fishery takes place mainly during the months of December, January and February, but the fishing season extends from September, to April. The Illex fishery extends from April to September, with the maximum catches in May, June and July. In 1974 squid fisheries were stopped at 16,137 tons, owing to quota restrictions. In table 10 the trend of both fisheries from 1969 to 1974 is shown.

B. SPECIAL RESEARCH STUDIES

1. Cod

Cod sampling was carried out in Subdivision 5Z_e, during the months of May and June. A total of 1,243 fishes were measured and 123 taken for age determination.

Length frequencies and mean length of cod for these months are shown in table 11.

The contribution of the different year classes to the fishery and the mean age for cod in these months are shown in table 12.

2. Squid

No biological sampling was carried out in Squid fisheries.

An annalasis of the catch and effort statistics for both species was made and presented in the Fifth Special Meeting (López-Veiga and E. Labarta, Working paper nº 3), and it showed that none of those species seemed to be in a overfishing stage, although it must be said that the annalasis was limited , mainly due to the difficulties in obtaining an accurate fishing effort estimate.

Table 4. Length composition (o/oo) of cod sampled in Subarea 1
in 1974
month/division

length group (cm)	VIII	IX		X	XI		XII	
	1D	1C	1D	1D	1C	1D	1C	1D
27- 29		1						
30- 32		3						
33- 35		12		3				
36- 38		27	8	3	1	2		
39- 41		66	8	7	4		4	
42- 44		139	34	29	14	4		
45- 47	14	191	67	53	47	10	16	
48- 50		137	64	82	67	23	74	8
51- 53	23	67	70	69	63	28	178	
54- 56	5	54	30	48	58	32	128	31
57- 59	37	48	42	45	44	26	101	31
60- 62	79	42	45	66	37	42	93	23
63- 65	70	46	73	79	40	70	109	54
66- 68	164	41	112	76	54	103	97	108
69- 71	103	22	110	85	74	166	85	131
72- 74	84	21	89	71	83	176	62	185
75- 77	89	19	67	82	81	144	35	208
78- 80	93	17	46	82	69	86	8	104
81- 83	70	12	42	49	69	41	12	81
84- 86	65	11	34	30	70	30		15
87- 89	42	8	26	18	51	11		15
90- 93	14	3	10	10	32	5		4
93- 95	14	3	8	4	19	2		4
96- 98	14	4	6	2	7			
99-101	14	1	5	3	4			
102-104		1	3		4			
105-107		2		1	1			
108-110		1	2		2			
111-113	5	1			1			
total	999	1000	1001	997	996	1001	1002	1002
n.f.meas.	214	1857	626	1217	993	1073	258	260
mean length	72.	53.	65.	65.	69.	70.	60.	72.

Table 5. Age composition (a/aa) of cod sampled in Subarea 1 in 1974

month/division

year class	VIII	IX		X	XI		XII	
	1D	1C	1D	1D	1C	1D	1C	1D
1-1973								
2-1972		1	17	1				
3-1971	24	305	157	168	107	45	103	13
4-1970	40	302	80	154	123	75	233	48
5-1969	336	259	323	106	232	86	456	70
6-1968	310	95	235	404	290	627	182	659
7-1967	170	25	112	88	123	105	27	141
8-1966	76	4	46	54	56	48	1	56
9-1965	19		9	17	44	12		14
10-1964	2		1	1	7			1
11-1963	7		3					
12-1962			2	1	4			1
13-1961				1				
14-1960	5		2					
15-1959								
total	989	991	987	995	986	998	1002	1003
mean age	5.97	4.24	5.25	5.34	5.61	5.87	4.80	6.10

Table 6. Length composition (o/oo) of cod sampled in Subarea 3 in 1974

length group (cm)	month/division							
	III	IV		V		VI	VII	XII
	3L	3L	3K	3L	3K	3N	3N	3Pa
21- 23	4	17	4	6		8	10	
24- 26	1	12	3	4		21	4	
27- 29		8	1	3		24	6	
30- 32	8	8	1	2		16	18	
33- 35	10	3	2	3	3	24	40	
36- 38	45	4	8	10	8	53	67	2
39- 41	97	25	28	36	47	50	91	5
42- 44	125	45	56	78	83	84	96	9
45- 47	125	68	129	135	140	90	83	16
48- 50	153	107	189	152	187	90	90	38
51- 53	118	139	167	144	176	79	91	19
54- 56	62	133	142	123	121	82	83	30
57- 59	81	109	96	95	96	87	81	47
60- 62	45	104	60	73	48	84	75	68
63- 65	42	68	26	46	36	77	33	129
66- 68	25	52	35	31	18	47	35	162
69- 71	14	37	19	22	20	13	36	154
72- 74	17	27	17	19	9	26	20	108
75- 77	13	20	9	11	6	21	19	84
78- 80	14	16	11	8	3	24	11	54
81- 83							3	30
84- 86							2	14
87- 89							2	12
90- 92							2	3
93- 95								10
96- 98								3
99-101								2
Total	999	1002	1003	1001	1001	1000	998	999
n.f.measur.	712	1861	1993	2632	785	379	1215	573
mean length	50.	54.	53.	52.	51.	52.	51.	67.

Table 7. Age composition (o/oo) of cod sampled in Subarea 3 in 1974

year class	month/division							
	<u>III</u>	<u>IV</u>		<u>V</u>		<u>VI</u>	<u>VII</u>	<u>XII</u>
	<u>3L</u>	<u>3L</u>	<u>3K</u>	<u>3L</u>	<u>3K</u>	<u>3N</u>	<u>3N</u>	<u>3Pa</u>
1-1973								
2-1972			3		5			
3-1971	10	4		6				21
4-1970	22	43	53	68	77	186	69	41
5-1969	323	219	171	266	195	101	273	47
6-1968	431	481	364	478	356	397	247	176
7-1967	151	120	222	93	215	111	93	104
8-1966	21	73	37	62	26	41	41	187
9-1965		8	16	5	8		6	190
10-1964		3	7	3	5	22	19	99
11-1963							7	
12-1962		2	1	1			7	
13-1961			6		6			
total	958	953	989	982	987	858	762	865
mean age	5.79	6.0	6.41	5.83	6.21	5.78	5.91	7.45

Table 8. Length composition (o/oo) of cod sampled in Subarea 4 in 1974

length group (cm)	month/division						
	I		II	III	VI		XII
	4Vn	4Vs	4Vn	4Vs	4Vs	4W	4Vn
21- 23	2			10	11		
24- 26	2	4		6	9	1	
27- 29		4		4	4	1	
30- 32	5		1	4	1	11	
33- 35				3	2	14	
36- 38				10	11	25	
39- 41	6		17	38	51	48	2
42- 44	17	15	54	62	117	110	7
45- 47	41	19	63	94	144	148	14
48- 50	90	26	120	134	156	157	27
51- 53	148	124	163	139	147	154	55
54- 56	185	226	179	130	111	122	68
57- 59	201	211	157	113	78	80	132
60- 62	126	184	107	89	51	50	182
63- 65	92	83	59	59	30	19	172
66- 68	40	64	36	36	23	15	153
69- 71	24	19	18	22	19	23	80
72- 74	12	8	21	21	14	9	55
75- 77	6	8	6	13	10	6	27
78- 80	3	8	2	11	12	8	11
81- 83							7
84- 86							2
87- 89							2
90- 92							
93- 95							
96- 98							1
total	1000	1003	1003	998	1001	1001	997
n.f. meas.	2141	266	1623	1571	1643	798	803
mean length	56.	57.	55.	53.	51.	50.	62.

Table 9. Age composition (o/oo) of cod sampled in Subarea 4 in 1974

year class	I		II	III	VI		XII
	4Vn	4Vs	4Vn	4Vs	4Vs	4W	4Vn
1-1973							
2-1972	1		2				
3-1971	3		9		36	41	4
4-1970	36	13	69	84	302	272	71
5-1969	231	161	270	257	341	466	154
6-1968	406	589	377	434	161	83	312
7-1967	123	184	115	148	92	16	337
8-1966	100	33	82	33	20		89
9-1965	46	10	39	14			18
10-1964	35	2	26	2			
11-1963	5		6				4
12-1962	1	1	1	2			
13-1961	2		1				
14-1960	2		1				
total	991	993	998	974	952	878	989
mean age	6.35	6.11	6.11	5.85	5.03	4.73	6.28

Table 10. Evolution of the Spanish Squid fishery 1969-1974

Year	1969	1970	1971	1972	1973	1974
<u>Loligo</u> : total catch (tons)	494	3,012	3,446	5,764	13,260	9,370
<u>Illex</u> : total catch (tons)	44	1,594	3,324	4,930	4,339	6,767
Number of Vessel	3	13	13	19	33	39
Total GRT	1,667	6,300	9,001	10,821	22,816	27,250
GRT/Vessel	555.7	484.6	692.4	569.5	691.4	705.1

Table 11. Length composition (o/oo) of cod sampled in Subarea 5 in 1974

month/division		
length group (cm)	V	VI
	52e	52e
21-23	12	6
24-26		2
27-29		4
30-32		2
33-35		
36-38		3
39-41		14
42-44	37	81
45-47	134	165
48-50	220	149
51-53	85	134
54-56	122	87
57-59	183	103
60-62	110	96
63-65	37	58
66-68	24	29
69-71	37	28
72-74		17
75-77		13
78-80		9
81-83		
total	1001	1000
n.f. meas.	82	1161
mean length	53.	53.

Table 12. Age composition (o/oo) of cod sampled in Subarea 5
in 1974

month/division

<u>Year</u> <u>class</u>	<u>V</u> <u>52e</u>	<u>VI</u> <u>52e</u>
1-1973		
2-1972	69	95
3-1971	452	431
4-1970	410	363
5-1969	14	19
6-1968	43	48
7-1967		
8-1966		
9-1965		
10-1964		
11-1963		
12-1962		
13-1961		
14-1960		
<hr/>	<hr/>	<hr/>
total	988	956
mean age	3.50	3.47
<hr/>	<hr/>	<hr/>