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SPANISH REBEARCH REPORT, 1973

by

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The total catch by Spanish otter and pair trawlers in Subareas 1-5 and Statistical Area 6 in 1973 was 180,722 tons a decrease of 57,161 tons from 1972. Cod constituted the bulk of the catch (159,532 tons), followed by squids (14,929 tons), Pollock (3,247 tons) and Haddock (2,300 tons). Those two last species are taken as by-catch of the directed fishery of Cod, wich 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 is developed in Subarea 5 and Statistical Area 6.

Table 1. Spanish nominal catches by species in the Northwest Atlantic, 1971-73

Species	1971	1972	1973
Cod	254,188	218,159	159,532
Haddock	7,876	5,594	2,300
Flatfish	1,054	30	218
Pollock	1,378	1,013	3,247
Squids	4,197	11,860	14,929
Other species	446	1,227	496
Total	269,139	237,883	180,722

Preliminary

The most important cod fishing grounds are in Subarea 3 where 66.2 % of the cod were caught, followed by Subarea 4 (18%) Subarea 1 (6.4 %), Subarea 5 (3.8 %) and Subarea 2 (0.4 %).

Table 2. Spanish nominal catches of cod by subareas, 1971-73

Subarea	1971	1972	1973
1	22,086	12,949	10,231
2	5,612	1,664	662
3	169,458	157,589	105,660
4	49,413	39,254	36,999
5	7,619	6,700	5,981
6	-	3	-
Total	254,188	218,159	159,533

Preliminary

During 1973 cod sampling has been carried out from two pair trawlers of 666 GTR each boat.

Subarea 1

A. STATUS OF THE FISHERIES

The fishing season extended in this Subarea from June till December, being the most important catches during the months of October and November.

The main fishing activity took place mainly in Divisions 1D and 1C (53.34 % and 38,33 % respectively). The catches of cod in this subarea have shown a decrease of 2,718 tons from 1972.

B. SPECIAL RESEARCH STUDIES

Samples were taken in August for Divisions 1C and 1D, September for Divisions 1B, 1C and 1D, and in October and November for Divisions 1C and 1D. A total of 17,701 cod were measured and 2,521 taken for age determination.

Lenght frecuencies of cod and mean lenght per month sampled and per Division are given in table 3.

The contribution of the different year classes to the fishery and mean age per month and Division is given in table 4.

Subarea 2

A. STATUS OF THE FISHERIES

The Spanish fishery in this Subarea was small (662 tons in 1973 against 1,664 tons in 1972). A major part of the catches were taken in Div. 2J.

B. SPECIAL RESEARCH STUDIES

No sampling or other research studies were carried out in this Subarea.

Subarea 3

A. STATUS OF THE FISHERIES

This subarea is the most important for the Spanish cod fishery. In 1973 the catches have been 51,929 tons below the catches of 1972. This implies a 33.0% reduction.

The fishing activity extended in this Subarea all along the year, with the months of May and June having the higgest catches.

Catches by Division were 38,664 tons in Div 3L, 26,918 tons in Div. 3O, 19,951 in Subdiv 3Ps, 15,483 in Div 3N, and the remainder from Divisions 3K, 3M and Subdivision 3Pn. Only in Subdivision 3Ps the catches have been higher than in 1972 (1,451 tons increase), in all the others a substantial decrease is shown.

The Haddock catch in the Subarea was 1,178 tons against 2,399 tons in 1972.

B. SPECIAL RESEARCH STUDIES

In Subarea 3, cod sampling has been carried out during the months of April in Division 3L and Subdivision 3Ps, May in Div 3L and 3N, June in Div 3N and 3O, July in Div 3N and December in Subdiv 3Ps. A total of 12,353 cod were measured and 1,366 taken for age determination.

Lenght frecuencies and mean lenght of cod per month and Division sampled are given in table 5.

The contribution of the different year classes to the fishery and mean age per month and Division sampled are given in table 6.

During the second quarter it seems to be a very high sex segregation for mature fish, in Div 3N (deviations from 50% sex proportion at a signification level of 1%).

Subarea 4

A. STATUS OF THE FISHERIES

This Subarea is second in importance for the Spanish cod fishery. In 1973 the cod catches were 36,999 tons, that is 2,255 tons less than in 1972. Over 17,666 tons were taken in Div 4V, followed by 17,314 tons in Div 4W and 2,018 in Div 4RST.

Only Div 4V shows a strong decrease in the catches with respect of those of 1972 (10,334 tons), meanwhile Div 4RST remains about the same (282 tons less), and by other side Div 4W shows a strong increase of 10,214 tons from 1972.

The Haddock catch in this subarea was 709 tons.

B. SPECIAL RESEARCH STUDIES

Cod sampling in this subarea was carried out during the months of February for Subdiv 4Vn and 4Vs, March for Subdiv 4Vs and December for Subdiv 4Vn. A total of 4,813 cod were measured and 472 taken for age determination.

Lenght frecuencies and mean lenght of cod per month sampled and per Division are given in table 7.

Contributions of the different year classes to the fishery and mean age per month and division sampled are given in table 8.

Subarea 5 and Statistical area 6

A. STATUS OF THE FISHERIES

1. Cod

Cod fishery in subarea 5 is of minor importance, 5,981

tons in 1973 against 6,700 in 1972. The fishing activity was mainly concerned to Subdiv 5Ze with 5,542 tons, the other 439 tons were taken in Subdiv 5Zw.

The Haddock catch was 386 tons for Subdiv 5Ze.

2. Squid

Squid fishery is developed in Div 5Z and Statistical area 6. This fishery has shown an increase of 3,069 tons from 1972. A great part of the catches were taken in Div 5Z: about 2,244 tons in Subdiv 5Ze, 7,903 tons in Subdiv 5Zw. The remainder has been taken in Statistical Area 6: 1,981 tons in Subdiv 6A, 1,572 tons in subdiv 6B and 1,229 in Subdiv 6C.

B. SPECIAL RESEARCH STUDIES

1. Cod

Cod sampling has been carried out in Subdiv 5Ze during the month of February. A total of 1,492 cod were measured and 203 taken for age determination.

Lenght frecuencies and mean age of cod for this month is shown in table 7.

Contributions of the different year classes to the fishery and mean age for cod in this month is shown in table 8

2. Squid

No sampling or other research activity has been carried out for this fishery.

Table 3. Lenght composition (o/oo) of cod sampled in subarea 1 in 1973

Lenght group	month/division VIII 1C	VIII 1D	IX 1B	IX 1C	IX 1D	X 1C	X 1D	XI 1C	XI 1D
27- 29	19						2		
30- 32	101			4			3	1	1
33- 35	130			6			5	-	-
36- 38	26	4		8	2		7	2	1
39- 41	23	15		24	10	1	9	5	9
42--44	16	49	11	60	31	15	19	15	18
45- 47	45	68	34	112	57	55	42	32	29
48- 50	101	57	113	146	65	114	89	65	66
51- 53	91	75	76	149	77	143	138	118	105
54- 56	117	49	108	150	74	155	140	129	142
57- 59	110	57	79	113	68	130	116	137	129
60- 62	65	75	99	89	82	132	104	140	143
63- 65	68	51	93	51	52	83	73	86	92
66- 68	23	67	62	39	57	60	48	73	68
69- 71	32	52	65	22	61	46	39	42	49
72- 74	16	44	45	8	67	26	41	33	39
75- 77	3	39	42	5	60	18	35	19	30
78- 80	3	55	23	5	75	12	29	20	30
81- 83	-	52	45	3	48	3	16	19	18
84- 86	6	52	42	3	45	4	20	16	10
87- 89	3	40	23	1	28	2	10	15	6
90- 92		43	23	-	17	1	5	16	6
93- 95		15	8	1	11		4	7	4
96- 98		15	3		4		2	3	2
99-101		12	-		3		1	4	
102-104		8	3		3		1	2	
105-107		3			3		1	1	
108-110		-			1				
111-113		4							
total	998	1001	997	999	1001	1000	999	1000	997
n.f.measured	308	749	353	2490	3007	1374	3816	3268	2336
mean lenght	49.	66.	63.	53.	65.	57.	59.	61.	60.

Table 4. Age composition (o/oo) of cod sampled in subarea 1 in 1973

year classes	month/division VIII 1C	VIII 1D	IX 1B	IX 1C	IX 1D	X 1C	X 1D	XI 1C	XI 1D
1-1972									
2-1971	8			1		1	4	3	1
3-1970	187	12	25	97	14	33	41	28	25
4-1969	405	251	372	427	260	456	121	369	115
5-1968	286	333	211	359	352	371	592	373	618
6-1967	84	149	136	86	181	100	106	113	121
7-1966	11	110	62	13	100	29	68	59	66
8-1965	4	67	10	5	51	4	35	24	30
9-1964	5	29		5	22	-	16	7	16
10-1963		17			12	1	5	3	3
11-1962		24			9	1	4	9	2
12-1961		3			2			7	
13-1960		5			2			5	
14-1959		1			1			-	
15-1958								-	
16-1957								1	
total	990	1001	816	993	1006	996	992	1001	997
mean age	4.33	5.71	4.84	4.52	5.48	4.65	5.25	5.07	5.27

Table 5. Lenght compsition (o/oo) of cod sampled in subarea 3 in 1973

lenght group	month/division IV 3L	IV 3Ps	V 3L	V 3N	VI 3N	VI 3O	VII 3N	XII 3Ps
24- 26						9		1
27- 29	2					14		6
30- 32	3					54		31
33- 35	20	2				81		65
36- 38	37	7			3	79		97
39- 41	56	26	13	6	40	64	1	90
42- 44	91	64	83	49	119	103	17	58
45- 47	163	115	195	160	193	181	65	60
48- 50	192	152	212	183	164	157	102	69
51- 53	155	119	193	174	129	94	147	84
54- 56	107	129	115	127	92	51	136	75
57- 59	57	91	49	90	69	46	140	68
60- 62	38	80	34	62	46	15	125	73
63- 65	25	62	20	40	37	7	76	66
66- 68	14	41	18	29	18	7	58	46
69- 71	12	36	11	23	14	7	39	41
72- 74	7	28	12	15	8	4	30	28
75- 77	8	12	13	12	7	4	18	16
78- 80	5	11	8	10	10	2	15	12
81- 83	2	16	3	5	7	4	10	4
84- 86	2	7	4	4	5	4	8	4
87- 89	1	1	6	5	7	2	6	2
90- 92	1	1	4	2	8	2	1	-
93- 95	-	1	3	2	8	1	4	1
96- 98	-		2	1	2	2	-	
99-101	-		1	1	5	1	-	
102-104	1		-		1	1	-	
105-107			1		3	1	1	
108-110			1		2			
111-113			1		1			
114-116					1			
117-119					1			
120-122					1			
total	999	1001	1002	1000	1001	998	999	997
n.f.meas.	1777	893	1578	1937	1742	1621	726	2029
mean lenght	50.	55.	52.	54.	53.	46.	58.	51.

Table 6. Age composition (O/OO) of cod sampled in subarea 3 in 1973

year classes	month/division IV 3L	IV 3Ps	V 3L	V 3N	VI 3N	VI 3O	VII 3N	XII 3Ps
1-1972								
2-1971				1	7	5		200
3-1970	8	40	8	12	36	145		84
4-1969	316	350	306	395	431	441	279	156
5-1968	373	334	408	372	324	124	467	277
6-1967	154	61	161	160	131	21	103	119
7-1966	62	51	72	40	30	12	39	62
8-1965	12		17	10	8	5	5	62
9-1964	4		9	6	7		5	20
10-1963	5		9					8
11-1962			1					2
12-1961			1					1
13-1960			2					1
14-1959								
15-1958								
16-1957								
total	934	836	994	996	974	753	898	992
mean age	5.03	4.68	5.15	4.87	4.71	4.09	4.93	4.65

Table 7. Lenght composition (o/oo) of cod sampled in subareas 5 and 4 in 1973

	month/division				
lenght group	II 5Ze	II 4Vn	II 4Vs	III 4Vs	XII 4Vn
30- 32	5				
33- 35	5		1	1	
36- 38	46	6	1	7	
39- 41	155	19	27	32	
42- 44	221	58	79	84	5
45- 47	136	159	112	151	18
48- 50	54	193	157	184	52
51- 53	27	187	235	153	100
54- 56	27	157	103	130	176
57- 59	33	84	111	81	210
60- 62	32	68	30	56	180
63- 65	24	24	19	45	105
66- 68	21	26	11	25	61
69- 71	22	12	5	21	32
72- 74	21	5	4	11	26
75- 77	22	-	1	9	14
78- 80	13	-	2	3	3
81- 83	15	1	1	4	3
84- 86	16			1	4
87- 89	11			1	4
90- 92	7			-	3
93- 95	8			1	1
96- 98	13			—	1
99-101	8			-	1
102-104	15			-	
105-107	15			1	
108-110	6				
111-113	7				
114-116	6				
117-119	5				
120-122	3				
total	999	999	999	1001	999
n.f.meas	1492	823	1614	1605	771
mean lenght	55.	52.	52.	52.	59.

Table 8. Age composition (o/oo) of cod sampled in subareas 5 and 4 in 1973

	month/division				
year classes	II 5Ze	II 4Vn	II 4Vs	III 4Vs	XII 4Vn
1-1972					
2-1971	132				
3-1970	481	6	40	48	27
4-1969	207	137	287	270	163
5-1968	64	569	508	450	337
6-1967	6	81	57	78	142
7-1966	19	52	64	94	114
8-1965	-		29	41	135
9-1964	9		8	15	47
10-1963	7				12
11-1962	-				-
12-1961	-				-
13-1960	-				11
14-1959	5				
15-1958					
16-1957					
Total	930	845	993	997	988
mean age	3.49	5.04	4.94	5.07	5.90