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Spanish Research Report, 1985

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I-Subarea 3

A-Status of the Fisheries

Two different fisheries were conducted independently by the Spanish fleet in 1985: The traditional cod fishery of pair trawlers and the new groundfish fishery of freezers.

Pair trawl fishery of cod

Cod catches and effort data are presented in table 1. The derived catch-rate indices are presented in table 2. The fishing effort of pair trawlers of the ton-class 4 (150-500 GRT) was reduced in 1985 in relation to 1984, but the corresponding ton-class (500-1000 GRT) effort was substantially increased. On the whole, the fishing effort of pair trawlers increased 33% from 1984 to 1985.

By-catches discarded are presented in table 3.

Sampling intensity of the catch was:

Div.:	3L	3M	3N
n° samples	6	16	29
n° fishes measured	1375	3488	6625
n° otoliths aged	112	567	693

Estimations of the length and age composition of the catch in the months with samples are presented in tables 4 and 5 respectively. Figure 1 shows the age composition of the catch from 1982 to 1985.

Groundfish fishery of freezers

This fishery start in 1985 after a short period of training in 1984. Catches and effort data are presented in table 6. Length frequency of several species of the catch are presented in tables 7, 8 and 9. This information was obtained by four observers who were each on board a ship for one voyage.

Table 1. Cod catches (t) and effort (hours) of pair trawlers in 1985.

Month	3L				3M				3N			
	PTB-4		PTB-5		PTB-4		PTB-5		PTB-4		PTB-5	
	catch	f	catch	f	catch	f	catch	f	catch	f	catch	f
JAN -	1	70	164	136	2	96	53	391	0	0	0	0
FEB -	4	21	426	160	73	100	194	261	0	0	104	17
MAR -	382	619	1083	1042	171	202	123	188	406	730	863	1010
APR -	438	689	1456	1551	591	1079	580	750	204	468	251	330
MAY -	208	307	1650	1690	284	399	341	294	1012	881	497	615
JUN -	97	131	597	793	94	139	126	163	1474	1878	1024	1137
JUL -	4	32	249	347	76	150	141	199	654	431	346	506
AUG -	0	0	117	192	277	335	12	69	191	220	659	281
SEP -	0	0	338	443	105	146	49	46	1169	2400	428	418
OCT -	0	0	363	485	190	225	161	346	1194	2081	268	474
NOV -	63	189	1260	864	419	794	473	960	580	1214	165	723
DEC -	920	833	784	903	94	161	220	294	324	326	592	972
Total	2117	2891	8487	8606	2376	3826	2473	3961	7208	10629	5197	6513

Table 2. Catch rate indices for cod derived from pair trawl catches.

	1982	1983	1984	1985
3L -		1.680	1.052	1.049
3M -		0.789	1.302	1.169
3N -	0.520	0.698	1.053	0.576

Table 3. By-catches of the cod fishery. Discarded fish tons.

Div.:	3L	3M	3N	total
Haddock		55	693	748
Redfishes	150	183	194	527
American plaice	271	148	855	1274
Yellowtail flounder			10	10
Atlantic halibut		5	92	97
Wolffishes		14	68	82
Skates	134	5	199	338
Cod catches	10604	4849	12405	27858

Table 4. Length composition of PTB-5 cod catches (x 10⁻³)

Div. Month	3L MAY	3M			3N	
		APR	MAY	JUN	MAY	JUN
24-26						
27-29						
30-32						
33-35	1					2
36-38	3				1	3
39-41	8	4			7	10
42-44	43	21	7	8	31	35
45-47	126	40	15	17	45	61
48-50	178	53	42	24	59	63
51-53	161	60	48	21	62	59
54-56	144	48	46	15	47	48
57-59	95	36	27	9	23	44
60-62	81	18	15	4	17	32
63-65	75	10	9	1	12	24
66-68	46	3	4	1	10	23
69-71	26	3	3		4	19
72-74	21	7	2		6	16
75-77	7	7	1		3	15
78-80	4	11	2		2	10
81-83	2	2			1	10
84-86	1	1			1	8
87-89	1	4			1	5
90-92		4				5
93-95		1				1
96-98	1	1				2
99-101	1	1				2
102-104		1				1
105-107						1
108-110						
111-113						
114-116	1					1
117-119						
120-122						
total	1026	336	221	100	332	500
no. fishes measured	1375	1787	1477	224	2060	4565
Catch (t)	1650	580	341	126	497	1024

Table 5. Age composition of PTB-5 cod catches (x 10⁻³)

Div. Month	3L MAY	3M			3N	
		APR	MAY	JUN	MAY	JUN
age						
2						
3	3				2	6
4	323	239	164	85	99	122
5	388	54	46	14	152	175
6	166	14	5	1	49	92
7	119	19	5		25	79
8	25	7	1		4	14
9	2	2			1	7
10						3
11						1
12		1				
13						1
14						
15						
total	1026	336	221	100	332	500
Catch	1650	580	341	126	497	1024

Table 6. Catches (t) and fishing effort of freezers in 1985.

	Div.:	3L	3M	3N	3O	total
Cod		34	65	797	480	1376
Redfishes		42	98	2687	630	3457
American plaice		188	15	3531	653	4387
Yellowtail flounder				2200	215	2415
Atlantic halibut			22	104	126	252
Witch flounder				3075	669	3744
Skates		521	289	5753	1501	8064
Silver hake			4	404	1160	1568
White hake		17	22	1518	920	2477
hours fishing		1367	819	36241	11481	49908

Table 7. Sample length frequency in freezers catch.

sp. Div. Month	--- Cod ---		--- White hake ---			
	---3NO---		--- 3NO ---			
	JUN	JUL	APR	JUN	JUL	DEC
18-20		4				
21-23		4				
24-26		5				
27-29		4		1		
30-32		13		1		
33-35		16	3	2		
36-38		16		8		
39-41		13	3	14	2	
42-44		5	8	21		9
45-47		14	20	32	4	21
48-50		10	20	57		25
51-53		14	26	62	4	25
54-56		17	14	73	8	39
57-59	2	10	10	68	24	42
60-62		18	8	70	33	28
63-65		18	5	105	70	40
66-68		13	8	78	81	31
69-71		20	3	94	106	25
72-74		35	1	72	118	23
75-77	1	78	4	63	107	11
78-80	1	70	2	43	95	11
81-83	1	107	2	37	64	7
84-86	5	80	1	17	33	3
87-89	11	107	2	10	23	2
90-92	12	77	6	5	11	1
93-95	15	72	1	4	15	2
96-98	9	67	1		10	1
99-101	11	51	3	1	7	2
102-104	2	32	3	2	12	2
105-107	3	28	4		14	1
108-110	2	20	1	1	3	
111-113	1	12	1		7	
114-116	1	8	1	1	3	
117-119	3	5			3	
120-122	1	6			2	
123-125		1			3	
126-128					1	
129-131		1				
132-134		1				
Samples	1	10	1	9	19	4
no. fish	81	1072	161	942	863	351
Catch (t)	181	147	254	334	285	191

Table 8. Sample length frequency in freezers catch.

sp. Div. Month	American Plaice									HAD 3NO APR
	3NO								3L	
	MAR	APR	MAY	JUN	JUL	OCT	NOV	DEC	NOV	
20-21										
22-23	3				1					
24-25	3				2					
26-27	2		3		5					
28-29	4	2	7	2	11					
30-31	9	2	22	6	27	3				
32-33	20	15	75	16	71	47	11	1	1	
34-35	47	33	127	27	129	128	45	12	14	3
36-37	40	47	229	49	248	240	82	66	28	9
38-39	73	49	255	86	372	347	129	115	20	16
40-41	94	66	328	113	437	388	155	150	19	24
42-43	113	53	363	96	401	364	166	142	19	27
44-45	88	64	326	96	403	345	128	110	12	23
46-47	121	55	322	121	393	296	163	118	10	14
48-49	118	40	302	83	352	302	153	98	6	9
50-51	85	36	259	67	270	257	133	83	5	6
52-53	67	23	206	43	185	231	108	53	3	3
54-55	32	14	156	30	130	156	96	41	2	7
56-57	28	13	141	26	104	109	76	22	1	7
58-59	13	8	115	15	71	101	43	27	1	5
60-61	16	3	77	11	50	57	32	21	1	6
62-63	11	3	42	12	35	57	22	20		2
64-65	4	2	37	1	16	29	6	4	1	1
66-67	4	3	13	3	22	27	3	5		1
68-69	1	2	4	2	4	9	7	2		2
70-71	4			1		4	3	1		1
72-73	1			1			1	1		1
74-75	1									
Samples	6	5	24	6	28	36	12	10	1	1
no. fish	1002	533	3409	907	3739	3497	1562	1092	143	167
Catch (t)	98	318	727	715	241	482	132	307	10	-

sp. Div. Month	Yellowtail flounder							Witch flounder				
	3NO							3NO				
	MAR	APR	MAY	JUN	JUL	OCT	NOV	MAR	APR	OCT	NOV	DEC
12-13												
14-15	2											
16-17	1											
18-19	2											
20-21	27		3									
22-23	27		14									
24-25	32	3	12									
26-27	47	18	50	6				2				
28-29	77	41	86	10	9	4		1	2			3
30-31	205	180	126	13	26	9	30		2			3
32-33	385	432	493	41	190	49	300		3			6
34-35	453	448	483	56	366	166	885		15	6		5
36-37	611	507	455	122	486	337	1292	2	37	24	2	16
38-39	704	633	452	135	561	523	1172	7	81	70	7	39
40-41	592	416	392	122	449	491	911	14	96	147	26	82
42-43	374	295	292	72	291	323	555	25	127	274	48	161
44-45	207	123	184	54	131	164	249	23	99	405	71	241
46-47	95	48	132	22	80	75	115	38	102	433	84	316
48-49	36	21	84	11	32	43	36	57	87	366	74	289
50-51	13	9	41	4	9	16	6	46	45	307	65	324
52-53	6	2	23	2	4	5	2	44	37	209	46	159
54-55	1		3	1	1	1		28	23	102	15	81
56-57						1		16	10	57	8	22
58-59								5	1	30	1	9
60-61										13		1
62-63								1		3		
64-65										2		
66-67												
Samples	20	17	20	6	18	21	28	3	4	26	3	12
no. fish	3897	3176	3325	671	2635	2207	5553	309	767	2448	447	1757
Catch (t)	196	797	44	76	63	237	357	-	12	432	478	354

Table 9. Sample length frequency in freezers catch.

sp. Div. Month	Redfish		HKS
	— 3NO —		3NO
	APR	JUN	APR
10-			
11-		1	
12-		3	
13-			
14-		2	
15-	1	2	
16-	4	8	
17-	7	17	
18-	21	49	
19-	39	157	
20-	62	303	
21-	54	238	
22-	66	103	
23-	102	41	6
24-	163	23	14
25-	192	21	47
26-	154	15	76
27-	133	9	95
28-	71	8	107
29-	44	6	88
30-	26	6	68
31-	10	2	52
32-	4	2	33
33-	1	3	21
34-	2	3	19
35-	1		14
36-			17
37-		1	20
38-	1		24
39-			25
40-			16
41-			12
42-			12
43-			10
44-			13
45-			14
46-			11
47-			10
48-			8
49-			6
50-			6
51-			3
52-			2
53-			3
54-			3
55-			3
56-			
57-			
58-			
59-			
60-			
61-			1
Samples	7	5	5
no. fish	1158	1023	859
Catch (t)	284	272	255

Table 9 (cont.).-

sp.	Skates				3NO				
	MAR	OCT	NOV	DEC		MAR	OCT	NOV	DEC
30-					70-	11	18	5	
31-	1				71-	14	5	3	2
32-	1				72-	12	14	3	1
33-	1				73-	12	12	6	3
34-					74-	16	19	6	1
35-	1				75-	9	16	5	3
36-					76-	14	18	4	5
37-	3				77-	20	12	8	4
38-	4				78-	17	15	6	4
39-	1				79-	11	8	5	2
40-					80-	12	14	5	2
41-					81-	14	5	2	
42-	2				82-	17	13		
43-	3				83-	12	7	1	2
44-	1				84-	10	7	2	1
45-					85-	9	11	2	1
46-	1				86-	10	9	1	1
47-	2				87-	9	7	2	1
48-	2				88-	5	8		2
49-	6				89-	4	7		1
50-	7				90-	4	5	1	1
51-	9				91-	1	2		1
52-	9	1			92-	1	8		
53-	4				93-	2	1	1	
54-	9				94-	1	2		
55-	7				95-	1	1		
56-	11	1			96-				
57-	6		1		97-				1
58-	10		1		98-				
59-	16		4		99-				
60-	11	2	2		100-				
61-	16		2	1	101-			1	
62-	15	1	1	2	102-				
63-	12		1	1	103-				
64-	8			3	104-				
65-	9	2	4	2	105-				
66-	5	10	3	2					
67-	10	7	2	2					
68-	7	6	2						
69-	14	10	6	3					
					Samples	3	5	2	1
					no. fish	472	284	98	55
					Catch (t)	606	1125	534	768

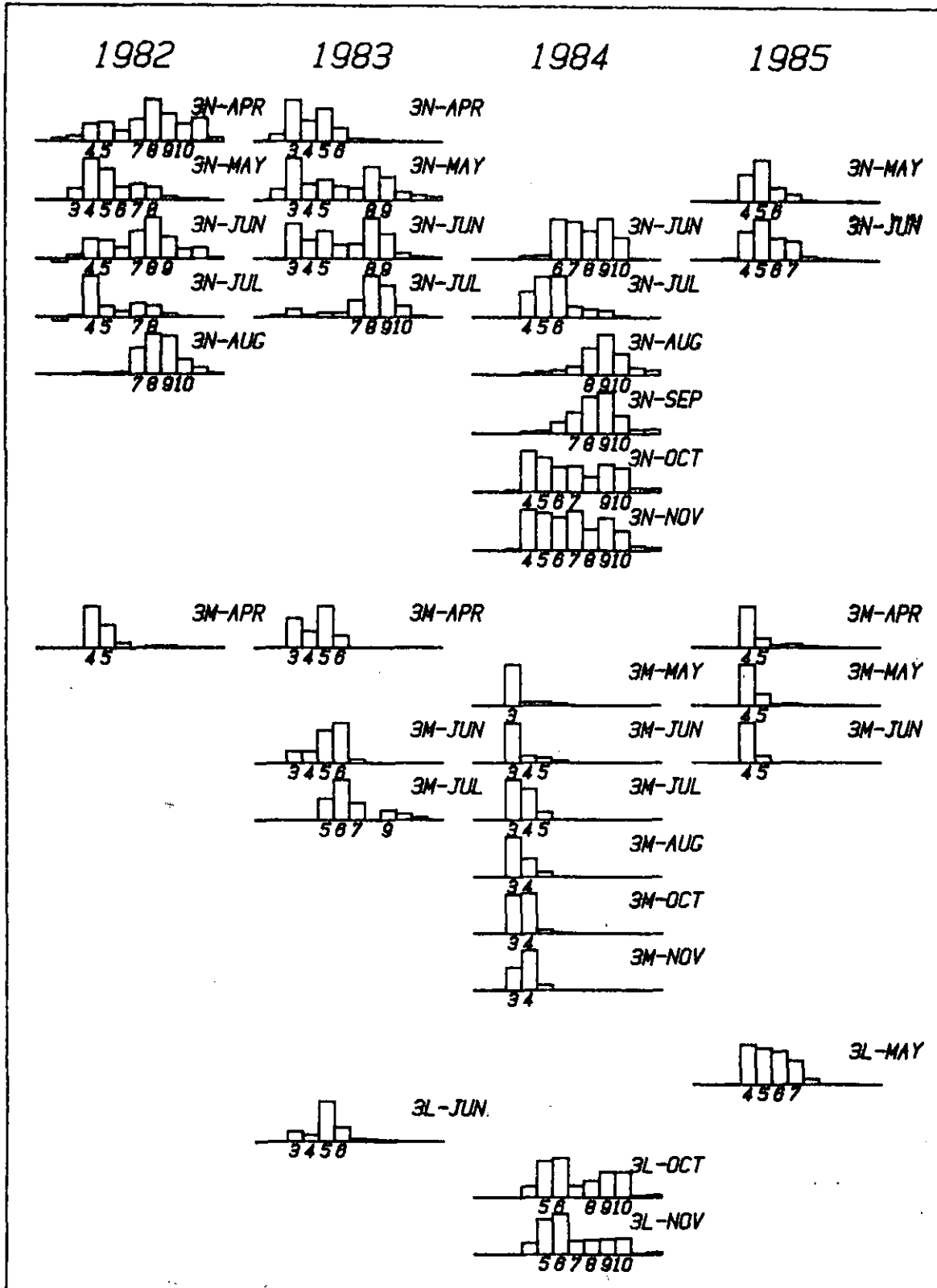


Fig. 1. Age distribution of pair trawl cod catches.