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The Spanish Shrimp Fishery on Flemish Cap (Division 3M) and Division 3L in 2007

by

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Abstract

This paper shows data about catch, effort, catch per unit effort (CPUE) and size distributions of shrimp (*Pandalus borealis*) for Spanish commercial fishery in NAFO Divisions 3M and 3L in 2007.

Material and Methods

The information concerning to the Spanish shrimp fishery was taken from data collected by UE observers on board in the Spanish vessels. Also, two Spanish scientific observers for the Spanish Scientific Program were on board during the fishing period directed to shrimp in two of the vessels, providing information about fishing activity and carrying out biological sampling (length distributions).

Results

In all vessels the gear used was a simple trawl with bar spacing sorting grates. The hauls were carried out in depths between 200 and 900 m. (Fig. 1). In 3L Division the total effort (fishing hours) was carried out in depth lesser than 400 m, mainly between 300 and 400 m. (78%), while in Division 3M the depth range was wider, (89% of the hauls were between 300 and 700m).

The annual catch according to UE observers was 188 t and 719 t in NAFO Div. 3L and 3M respectively. The Table 1 shows the catches and yields of shrimp and discards of the main caught species by month, together with the distribution of effort (number of days and hours of activity estimated).

As previous years, the shrimp catch in Division 3L was smaller than 3M and the yields (kg/h) obtained were (587 kg/h and 511 kg/h respectively).

The Table 2 shows the shrimp length distribution by Division and sex. The length distribution was weighed to the annual catches. The sex ratio in Divisions 3L and 3M were similar with 63% and 59% for males respectively.

About length distributions (Fig. 2 and Table 2), in 3L Division from the sampling carried out in March the males showed two clear modes around 16.5 and 20.5 mm. and the females at 22.5 mm. Length distributions in Division 3M in March and April showed a similar distribution with two clear modes round 14 and 18 mm. for males, and one for females around 20 mm. In October the length distribution in 3M showed the increase of the length in the modes for males at 16 and 19.5 mm. However the mode for females did not show changes and it stayed at 20 mm.

Table 1.- Estimated catches (kg), effort and CPUE (kg/h) from UE and Spanish scientific observers of the Spanish trawl fleet directed to shrimp fishery in NAFO Div. 3L and 3M in 2007.

DIVISION 3L													
SPECIES	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Northern shrimp	21216		145813				21281						188310
Lanternfish	86		593				87						766
Arctic eelpot	38		259				38						335
American plaice	26		176				26						228
Redfish	8		56				8						73
Greenland halibut	3		21				3						27
Witch flounder	3		20				3						25
Capelan	2		11				2						14
Longfin hake	1		10				1						13
Other pisces	5		32				5						42
Crustacea	1		6				1						8
Other invertebrata	0		0				0						1
Vessel numbers	1		4				1						5
Fishing days	4		19				4						27
Fishing hours	38		234				48						321
CPUE Shrimp (kg/h)	552		623				442						587
DIVISION 3M													
SPECIES	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Northern shrimp	89024	57025	177478	220388	34390	12502	31772	24839		71164			718581
Redfish	6210	3978	12381	15375	2399	872	2216	1733		4965			50129
lanternfish	492	315	981	1218	190	69	176	137		393			3971
Eelpouts	21	13	41	51	8	3	7	6		16			166
American plaice	21	13	41	51	8	3	7	6		16			166
Hakes (<i>Urophycis spp</i>)	189	121	376	467	73	26	67	53		151			1522
Greenland halibut	71	45	141	175	27	10	25	20		57			572
Witch flounder	1	0	2	2	0	0	0	0		1			6
Wolfish	18	12	36	45	7	3	6	5		14			146
Skates	30	19	60	75	12	4	11	8		24			243
Other fishes	48	31	96	119	19	7	17	13		39			389
Crustacea	1	0	1	2	0	0	0	0		1			5
Other invertebrata	1	0	1	1	0	0	0	0		0			5
Vessel numbers	3	2	4	3	1	1	2	1		1			11
Fishing days	16	9	36	21	3	1	8	7		8			90
Fishing hours	195	153	275	374	63	17	59	133		137			1407
CPUE Shrimp (kg/h)	457	372	646	589	543	735	536	187		519			511

Table 2: Shrimp length distributions ('000) by sex from Spanish catches in NAFO Divisions 3L and 3M 2007.

Division Length (mm)	3L		3M	
	males	females	males	females
10.5			6	
11			37	
11.5			6	
12			102	
12.5			361	
13	16		991	41
13.5	42		1571	4
14	19		2785	75
14.5	27		3640	42
15	111		4992	226
15.5	250		6880	214
16	452		9505	301
16.5	529		8994	552
17	409		9431	688
17.5	526		10390	1277
18	754	5	9151	2548
18.5	1080		9921	3548
19	1660	4	9072	5281
19.5	2200	89	7366	7427
20	3104	176	5060	8629
20.5	3308	399	2621	8364
21	2658	822	1886	6970
21.5	1944	1078	777	6202
22	1150	1388	396	5418
22.5	492	1708	60	4161
23	256	1571	37	3075
23.5	55	1322	6	2364
24	32	1231		2093
24.5	22	901		1382
25		794	25	991
25.5		417		385
26		221		402
26.5		101		255
27		62		145
27.5		52		91
28				18
28.5				8
29		16		30
29.5				7
30		5		
TOTAL	21096	12360	106067	73216
Sex ratio	63%	37%	59%	41%
Catches (Kg)	188310		718581	
SOP ¹	186817		744110	
SOP factor	1.01		0.97	
Sampled Individ.	3948		12453	
Sample Numbers	11		26	

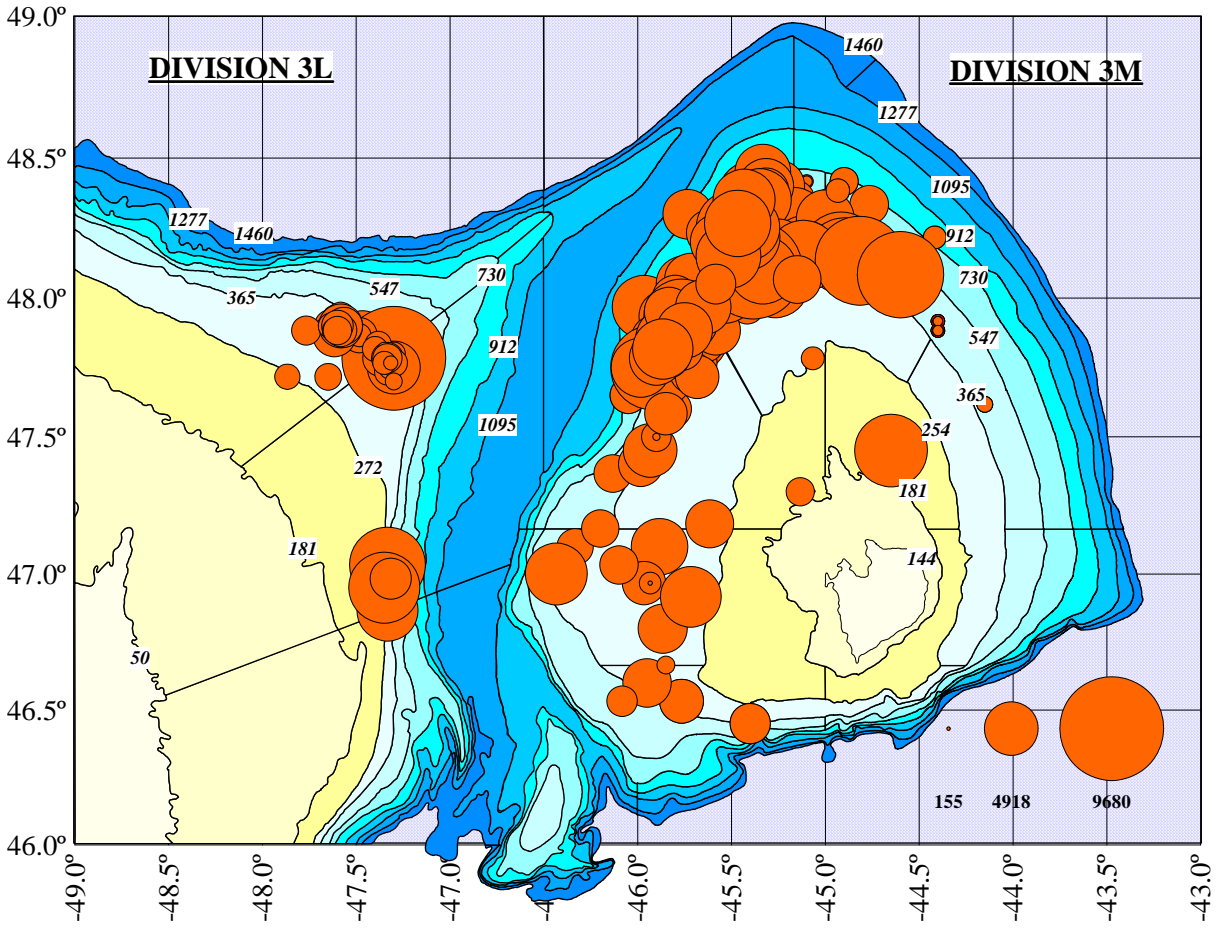


Figure 1.- Geographical location and distribution of Spanish catches (kg) in NAFO Div. 3M and 3L in 2007.

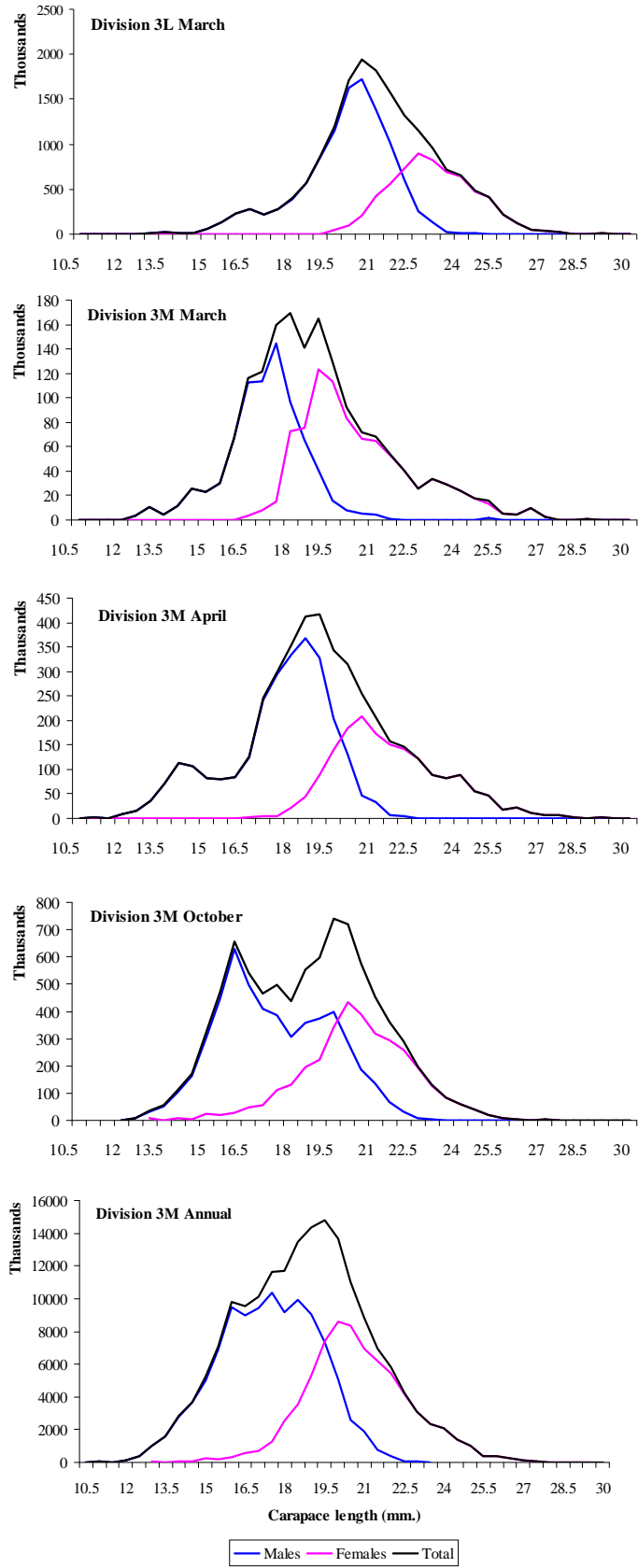


Figure 2. Size distribution (carapace lengths) of shrimp by sex from Spanish commercial catches sampled in NAFO Division 3L and 3M in 2007.