



NAFO/ICES WG PANDALUS MEETING – OCTOBER/NOVEMBER 2006

The Spanish Shrimp Fishery on Flemish Cap (Division 3M) and Division 3L in 2005

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 2005

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 250 and 850 meters. The 80% of the effort (fishing hours) was carried out between 200 and 300 ft. (Fig. 1).

The annual catch according to UE observers was 145 tons and 725 tons 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 quarter, together with the distribution of effort (number of days and hours of activity estimated).

Although the shrimp catch in Div. 3L was much smaller, the yields (kg/h) obtained were much bigger (641 kg/h) than in Div. 3M (around 440 kg/h). The biggest yields occurred in February with 893 kg/h in Div. 3L and in April with 642 kg/h in Div. 3M.

The Table 2 show the shrimp length distribution by sexes, Divisions and months in the catches sampled during 2005. The length distributions in Div. 3L was carried out from just one sampling. This sampling was carried out in May and showed a sex-ratio around to 50%, similar to the sex-ratio founded in May on Div. 3M. The sex ratio estimated in December on 3M was very different with the preponderance of the males (88%). About length distributions (Fig. 2) in 3L Div. two modes around 17.5 mm. and 21.5 mm. were identified corresponding to males and females respectively. Length distributions for males in 3M showed a similar mode at 17.5-18 mm. and two weak modes at 21 mm. and 23 mm for females. These modal lengths would corresponded roughly with the age 3 for males (17.5-18 mm) and ages 4 and 5 for females (21 and 23 mm.).

Table 1. Estimated catches (kg), effort and CPUE (kg/h) from UE and Spanish scientific observers by months of the Spanish trawl fleet directed to shrimp fishery in NAFO Div. 3L and 3M in 2005.

DIVISION 3L													
SPECIES	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Northern shrimp	42434	77814		21633	3119								145000
Redfish	19												19
American plaice	9												9
Wolfish	9												9
Witch flounder	9												9
Skates		1											1
Other fishes	7												7
Fishing days	4	7		3	1								15
Fishing hours	79	87		51	9								226
CPUE Shrimp (kg/h)	538	893		425	334								641

DIVISION 3M													
SPECIES	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Northern shrimp	103897	204414	53886	21838	52612	71955	83292		82974	2862		47268	725000
Redfish	27				80	69	779		103				1058
Skates							132						132
Wolfish	1								5				6
Witch flounder	11												11
American plaice	15												15
Other fishes	11								542				553
Fishing days	12	21	6	2	8	9	8		17	1		9	93
Fishing hours	198	347	85	34	136	160	144		346	13		188	1651
CPUE Shrimp (kg/h)	525	589	634	642	387	450	578		240	220		251	439

Table 2: Shrimp length distributions by month and sex from Spanish catches in NAFO Div. 3L and 3M.

Divisions	3L		3M					
	May		May		Dec.		All year	
Months	males	females	males	females	males	females	males	females
Length (mm)	males	females	males	females	males	females	males	females
9.5					1320		1320	
10.5					3962		3962	
11					1091		1091	
11.5					2717		2717	
12					8953		8953	
12.5					8917		8917	
13					9140		9140	
13.5			1124		17954		19078	
14			7655		57582		65237	
14.5	3741		3372		79693		83065	
15	4988		30529		118044		148574	
15.5	11222		40996		278001		318997	
16	16209		62550		613115		675665	
16.5	39901		73718	8326	1141540	1908	1214275	11216
17	41147		118467	10665	1655604		1774863	9873
17.5	31172		138536		2060635	11235	2199089	11317
18	38575	2572	149192	8547	1864262	20529	2014475	28054
18.5	18009	14410	102520	8221	1490257	17467	1595217	23250
19	28990	9664	93280	34313	921579	30804	1020730	59246
19.5	19237	3207	64276	25911	495908	65341	560604	90832
20	20040	11132	47551	54394	311733	58338	362660	109359
20.5	14027	4676	33679	47373	110127	87178	143773	134582
21	13202	42908	64237	78722	39282	109707	101457	190491
21.5	12770	28378	24391	54270	14678	106837	35642	164534
22	4810	40078	19901	82340	8762	119995	26016	204982
22.5		21197	7091	76472	4355	127294	10887	204325
23		23690	10157	88645	7124	126913	16524	216315
23.5		6234	8447	40637	722	79225	8953	120078
24		13716	13911	64641	1421	82120	12835	149258
24.5		7481		31483		61428		92910
25		9975		59672		35116		94789
25.5		11222	6180	29493		26928	5653	56949
26		11222		58173		14664		72837
26.5		7481		17642		7188		24830
27		4988		32071		1653		33724
27.5		6234		28340		1320		29660
28		9975		22977		1542		24519
28.5		2494		9393				9393
29		4988		6063				6063
29.5		3741		1124				1124
30		3741		11429				11429
30.5						656		656
TOTAL	318040	305404	654484	620707	7102874	924797	7757358	1545504
Sex ratio	51%	49%	51%	49%	88%	12%	83%	17%
Sampled catch	3005		9728		41285		51013	
No. Hauls	1		12		33		45	
SOP ¹	3109		10624		40579		51203	
SOP factor	0.97		0.916		1.017		0.996	
Sampled Indiv.	500		629		4963		5592	
Sample Numbers	1		4		16		20	

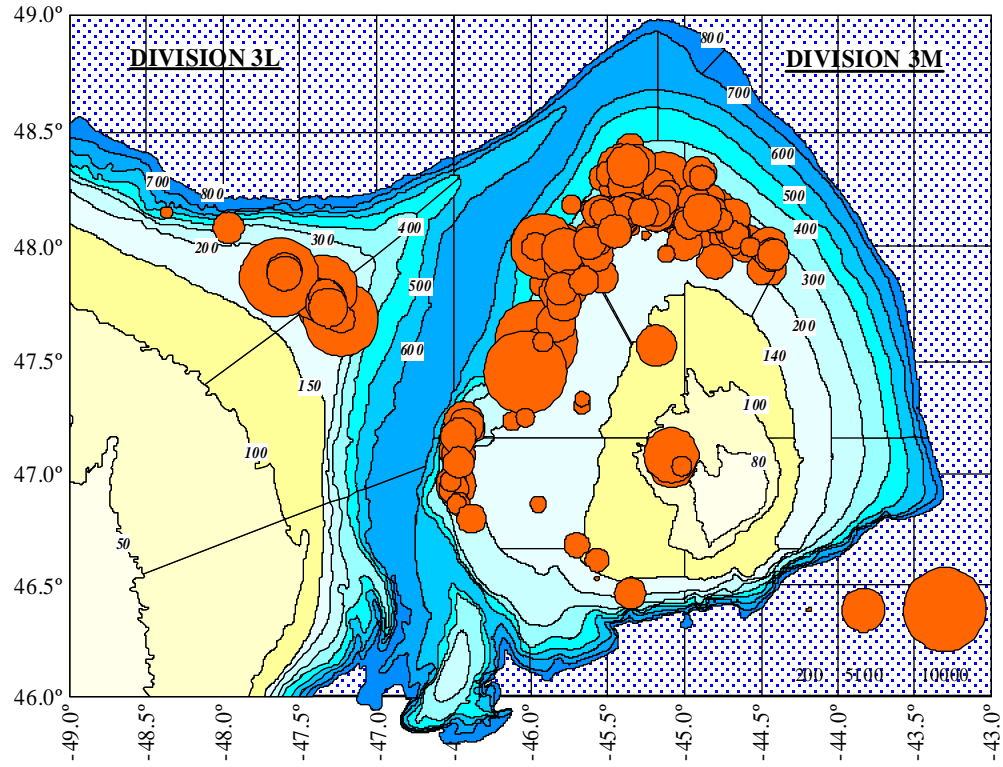


Fig. 1.- Geographical location and distribution of Spanish catches (kg) in NAFO Div. 3M and 3L in 2005.

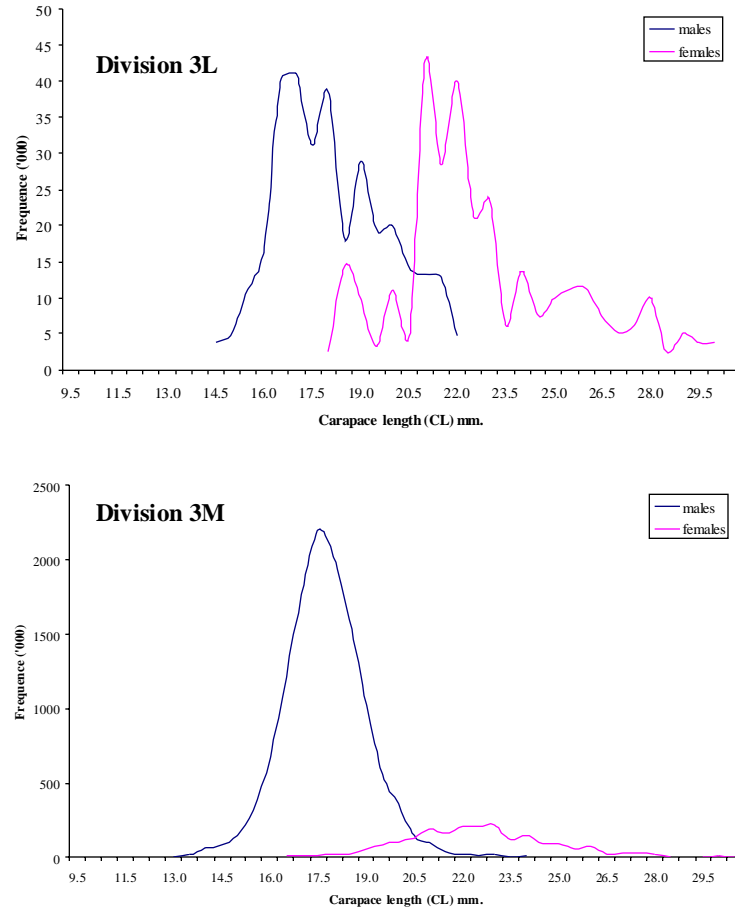


Fig. 2. Size distribution (carapace lengths) of shrimp by sex from Spanish commercial catches sampled in NAFO Div. 3L and 3M in 2005