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The Spanish Shrimp Fishery on Flemish Cap (Division 3M) and Division 3L in 2006

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 2006.

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. The 76% of the effort (fishing hours) was carried out between 325 and 450 m. (180-250 fth.) (Fig. 1).

The annual catch according to UE observers was 357 t and 997 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 but the yields (kg/h) obtained were much bigger (859 kg/h and 436 kg/h respectively). The biggest yields occurred in January with 922 kg/h in Division 3L and in March with 574 kg/h in Division 3M.

The Table 2 shows the shrimp length distribution by Division and sex in the months where the catch could be sampled (January and February). The sex ratio in Divisions 3L and 3M was very different, around to 50% and 90% for males respectively.

About length distributions (Fig. 2), in 3L Division the males did not show clear modes and only three weak modes around 18, 20 and 22 mm. were identified. On the other hand the females showed a strong mode around to 24 mm. Length distributions in Division 3M in January and February showed a similar distribution with a clear and strong mode at 17.5 mm. for males and three very small and weak modes for females around 19, 21 and 22.5 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 2006.

DIVISION 3L													
SPECIES	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Northern shrimp	328973	13262	15180										357415
Redfish	252	10	12										274
Greenland halibut	252	10	12										274
American plaice	124	5	6										135
Hakes (<i>Urophycis</i> spp.)	8	0	0										9
Witch flounder	11	0	1										12
Skates	17	1	1										18
Eelpouts	119	5	6										130
Other fishes	227	9	10										247
Vessel numbers	4	1	1										4
Fishing days	71	3	6										80
Fishing hours	357	17	42										416
CPUE Shrimp (kg/h)	922	780	360										859
DIVISION 3M													
SPECIES	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Northern shrimp	46563	52294	101714	161510	51371	108575	49068	122982	12178	222843	2499	65331	996928
Redfish	182	204	398	632	201	425	192	481	48	871	10	255	3898
Greenland halibut	0	0	1	2	0	1	0	1	0	2	0	1	9
Hakes (<i>Urophycis</i> spp)	23	26	50	79	25	53	24	60	6	109	1	32	490
Skates	0	0	1	1	0	1	0	1	0	2	0	1	9
Wolfish	1	1	3	4	1	3	1	3	0	6	0	2	27
Witch flounder	0	0	0	0	0	0	0	0	0	1	0	0	3
American plaice	0	0	1	1	0	1	0	1	0	2	0	0	7
Eelpouts	1	1	3	4	1	3	1	3	0	6	0	2	25
Other fishes	18	20	40	63	20	43	19	48	5	87	1	26	391
Vessel numbers	2	1	2	3	1	2	3	1	2	4	1	1	7
Fishing days	17	16	28	41	15	23	14	33	11	74	5	34	311
Fishing hours	124	101	177	314	124	204	100	263	105	494	35	249	2289
CPUE Shrimp (kg/h)	377	518	574	514	413	531	493	468	116	451	72	263	436

Table 2: Shrimp length distributions in the months sampled by sex from Spanish catches in NAFO Divisions 3L and 3M 2006.

Division	3L		3M			
Month	January		January		February	
Length (mm)	males	females	males	females	males	females
10.5	10211				5625	
11	25215		18819		2829	
11.5	17425				21759	
12			19747		2829	
12.5	18347				575	
13			19747		6700	
13.5	10211				10527	
14			39494		37569	
14.5	62109		96879		47653	
15	108107		58313		105951	
15.5	307537		153336		286093	
16	335171		680941		775020	
16.5	564436		1441128		1615038	9932
17	1001109		2070251		2485053	22681
17.5	1404896		3163356		2769779	17475
18	2160787		2553288	68284	2256155	38637
18.5	2185181		1307963	165232	1476337	97619
19	1968220		593254	114185	945515	232917
19.5	1805483	37271	404999	93575	444971	92523
20	2133492	62517	200385	84682	148257	152212
20.5	1889813	96637	25092	50179	100414	120890
21	1906517	92965	25401	127001	17389	247934
21.5	1888737	340548		113820	2168	200393
22	2045393	794128	37185	39008	2174	237277
22.5	1771720	1252297	54329	138494		201087
23	1062450	2701822		96873		180083
23.5	750684	3480411		77107		110943
24	331126	3912390				133806
24.5	84094	3537772		77056		49016
25	22237	3073700		19747		43094
25.5		2196395		19747		16077
26		1334945		18819		1725
26.5		699760				575
27		402113				1725
27.5		190341				7900
28		204472				
28.5		45861				
29		59569				
29.5		22091				
TOTAL	25870709	24538004	12963907	1303810	13566380	2216523
Sex ratio	51%	49%	91%	9%	86%	14%
Catches	328973		46563		52294	
SOP ¹	303876		44347		50932	
SOP factor	1.08		1.05		1.03	
Sampled Indiv.	1663		341		2250	
Sample Numbers	10		2		9	

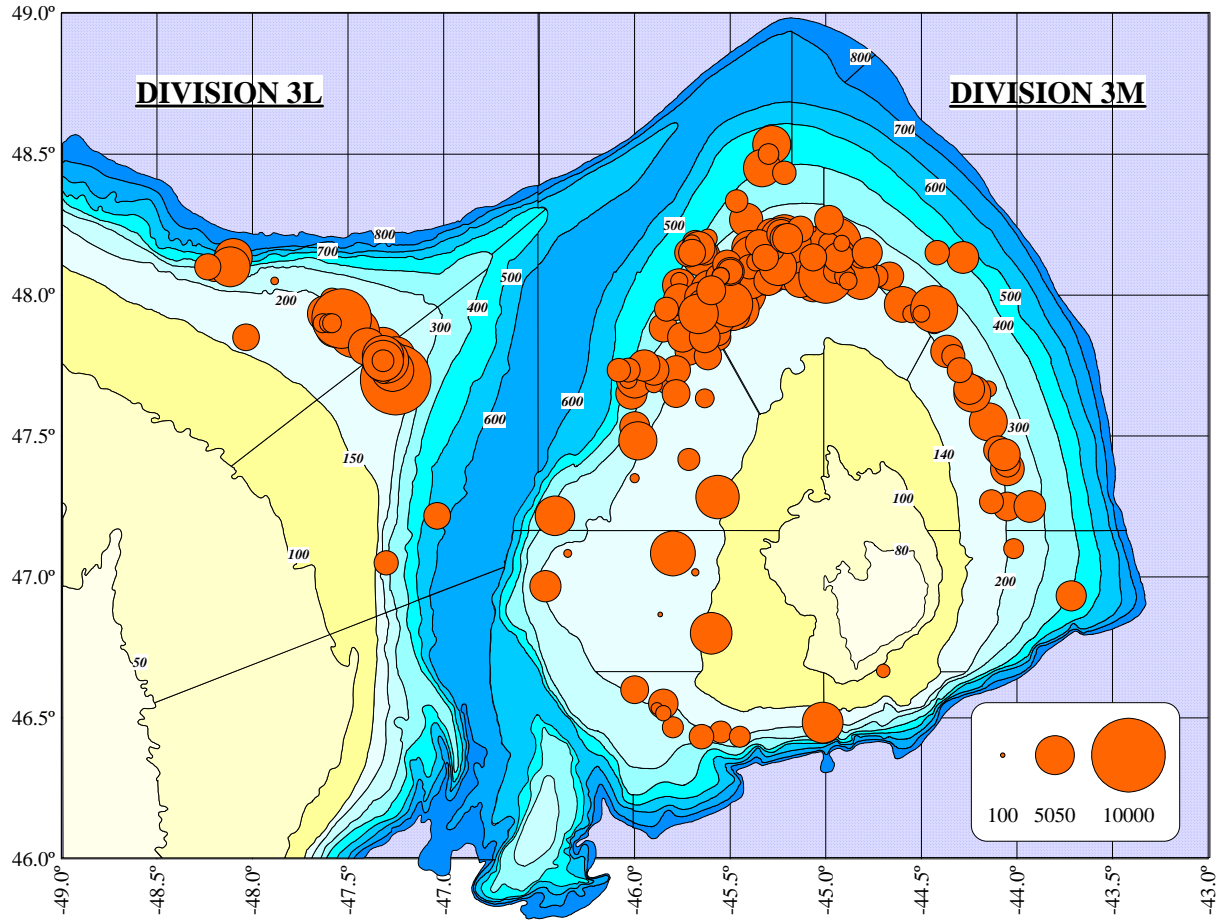


Figure 1.- Geographical location and distribution of Spanish catches (kg) in NAFO Div. 3M and 3L in 2006.

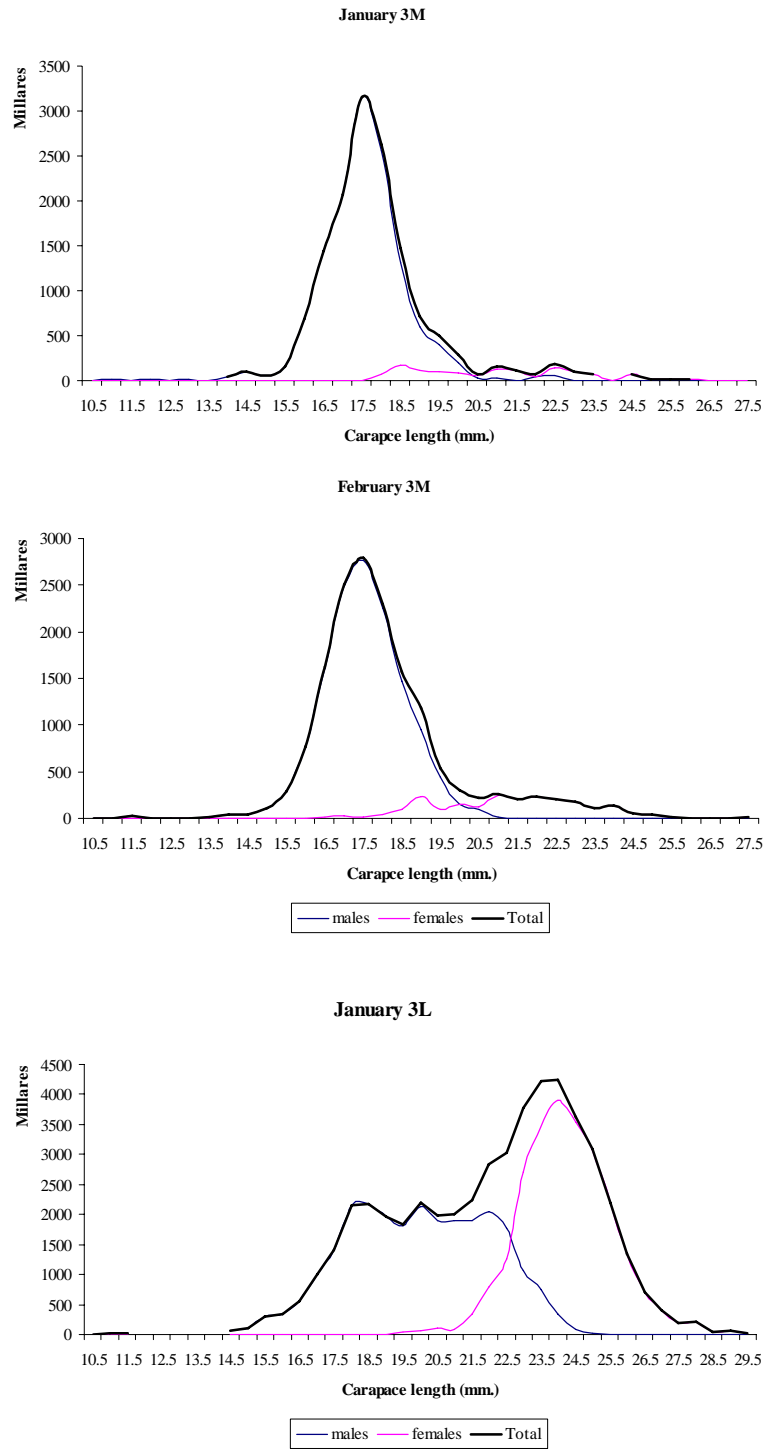


Figure. 2.- Size distribution (carapace lengths) of shrimp by sex from Spanish commercial catches sampled in NAFO Division 3L and 3M in 2006.