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Preliminary Results From the 95 Spanish Bottom Trawl Survey in the
NAFO Regulatory Area for the Divisions 3NO.

by

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A stratified-random survey was performed in NAFO Regulatory Area (Divs 3NO) in May 1995 (18th to 29th).

The survey, which covered offshore areas on the Tail of the Grand Bank, was conducted with the commercial vessel 'Playa de Mendiña' (stern trawl GRT 338 and CV 800) equipped with a 'pedreira' trawl (Figure 1) with bobbin gear (14') and 35 mm mesh size in the codend. The trawl doors used were of the type polyvalent (850 Kg.).

The haul duration was 30 minutes, at a mean tow speed of 3 knots and a total of 0.0075 miles² was considered swept per mile trawled. Trawling was performed only during daylight hours.

The survey area was stratified following the standard stratification of the area (Bishop, 1994).

Hauls were allocated to strata proportionally to their size, with a minimum of two planned hauls per stratum. Within each stratum the trawl positions were chosen at random (Doubleday, 1981).

The catch from each haul was sorted by species and weighed. Samples of American plaice, cod, yellowtail flounder, witch flounder and Greenland halibut, were measured to cm below. Biomass and abundance indices were calculated by the swept area method as described by Cochran (1977), assuming a catchability factor of 1.

A total of 77 valid hauls were taken and the results are presented in the following tables.

American plaice

Str.	Area	Hauls	S. Area	N	Weight	N * 10 ³	B. (t)
353	269	3	0.03525	2496	685.30	19049	5229.67
354	246	3	0.03525	4033	1202.80	28148	8394.01
357	164	1	0.01087	101	28.35	1524	427.73
358	225	3	0.03188	799	216.15	5639	1525.53
359	421	3	0.03450	3604	552.10	43984	6737.22
360	2783	31	0.35630	17207	3515.75	134397	27460.94
374	214	2	0.02250	85	21.15	808	201.16
375	271	2	0.02250	47	13.70	563	165.01
376	1334	15	0.17289	1030	268.60	7946	2072.49
377	100	2	0.02213	264	51.10	1193	230.91
378	139	4	0.04349	788	143.45	2519	458.49
379	106	2	0.02212	324	84.25	1553	403.73
724	124	1	0.01050	93	33.70	1098	397.98
725	105	3	0.03337	384	132.75	1207	417.70
726	72	2	0.02138	40	16.86	135	56.78
15	6573	77	0.87493			249762	54179.33
						std	8522.81

Yelowtail flounder

Str.	Area	Hauls	S. Area	N	Weight	N * 10 ³	B. (t)
353	269	3	0.03525	88	52.20	668	398.35
354	246	3	0.03525	27	16.00	188	111.66
357	164	1	0.01087	0	0.00	0	0.00
358	225	3	0.03188	0	0.00	0	0.00
359	421	3	0.03450	20	12.10	244	147.66
360	2783	31	0.35630	6898	1895.22	53879	14803.25
374	214	2	0.02250	0	0.00	0	0.00
375	271	2	0.02250	23	8.87	277	106.83
376	1334	15	0.17289	8456	1572.95	65243	12136.71
377	100	2	0.02213	0	0.00	0	0.00
378	139	4	0.04349	0	0.00	0	0.00
379	106	2	0.02212	0	0.00	0	0.00
724	124	1	0.01050	0	0.00	0	0.00
725	105	3	0.03337	0	0.00	0	0.00
726	72	2	0.02138	0	0.00	0	0.00
15	6573	77	0.87493			120500	27704.45
						std	4713.63

Witch flounder

Str.	Area	Hauls	S. Area	N	Weight	N * 10 ³	B. (t)
353	269	3	0.03525	8	8.10	61	61.81
354	246	3	0.03525	73	70.30	510	490.60
357	164	1	0.01087	1	0.30	15	4.53
358	225	3	0.03188	228	112.85	1611	796.46
359	421	3	0.03450	17	12.70	207	154.98
360	2783	31	0.35630	61	42.02	476	328.21
374	214	2	0.02250	0	0.00	0	0.00
375	271	2	0.02250	0	0.00	0	0.00
376	1334	15	0.17289	0	0.00	0	0.00
377	100	2	0.02213	0	0.00	0	0.00
378	139	4	0.04349	3	1.90	10	6.07
379	106	2	0.02212	10	3.70	48	17.73
724	124	1	0.01050	239	101.60	2819	1199.85
725	105	3	0.03337	81	34.20	254	107.61
726	72	2	0.02138	305	124.00	1027	417.59
15	6573	77	0.87493			7038	3585.44
						std	2172.36

Greenland halibut

Str.	Area	Hauls	S. Area	N	Weight	N * 10 ³	B. (t)
353	269	3	0.03525	0	0.00	0	0.00
354	246	3	0.03525	184	12.6	1284	87.93
357	164	1	0.01087	35	9.15	528	138.05
358	225	3	0.03188	273	72.25	1927	509.92
359	421	3	0.03450	32	3.20	390	39.05
360	2783	31	0.35630	14	2.55	110	19.92
374	214	2	0.02250	0	0.00	0	0.00
375	271	2	0.02250	0	0.00	0	0.00
376	1334	15	0.17289	0	0.00	0	0.00
377	100	2	0.02213	12	1.60	54	7.23
378	139	4	0.04349	247	35.40	789	113.14
379	106	2	0.02212	273	60.95	1308	292.08
724	124	1	0.01050	176	91.00	2076	1074.67
725	105	3	0.03337	291	51.42	916	161.80
726	72	2	0.02138	334	112.20	1123	377.85
15	6573	77	0.87493			10506	2821.63
						std	1759.68

Cod

Str.	Area	Hauls	S. Area	N	Weight	N * 10 ³	B. (t)
353	269	3	0.03525	0	0.00	0	0.00
354	246	3	0.03525	2	1.80	14	12.56
357	164	1	0.01087	6	7.15	91	107.87
358	225	3	0.03188	739	814.05	5214	5745.33
359	421	3	0.03450	0	0.00	0	0.00
360	2783	31	0.35630	44	16.22	344	126.69
374	214	2	0.02250	1	0.25	10	2.38
375	271	2	0.02250	0	0.00	0	0.00
376	1334	15	0.17289	5	5.66	39	43.67
377	100	2	0.02213	0	0.00	0	0.00
378	139	4	0.04349	140	61.99	447	198.13
379	106	2	0.02212	241	106.50	1155	510.35
724	124	1	0.01050	0	0.00	0	0.00
725	105	3	0.03337	217	142.80	684	449.33
726	72	2	0.02138	1	1.00	3	3.37
15	6573	77	0.87493			8001	7199.69
						std	5148.10

DISTRIBUCION DE TALLAS			
ESPECIE: 157 American plaice			
Length	MALE	FEMALE	INDET.
12	41797	22454	80070
14	81316	438284	123377
16	360484	769672	7981
18	2079460	2390884	0
20	9022785	7974474	0
22	23583046	18197554	0
24	24879532	20707432	0
26	19938580	16870340	0
28	12214047	15947963	0
30	7147902	13610724	0
32	4400697	11744487	0
34	2919075	8735016	0
36	1885081	5635053	0
38	1000975	4491428	0
40	547848	3119254	0
42	480531	2732344	0
44	132156	1435041	0
46	79504	1305103	0
48	7981	947862	0
50	7981	483305	0
52	0	446702	0
54	0	216017	0
56	0	100445	0
58	0	166169	0
60	0	92916	0
62	0	90294	0
64	0	60347	0
66	0	25793	0
68	0	0	0
70	0	17577	0
TOTAL	110790784	138774944	211428
NºInd	6652	6614	9
Samples	77		
Total catch	6966		
CAPTURA L.	6966	- Muestra de 5	
LANCES TO	84		

ESPECIE: 1: Greenland halibut			
Length	MALE	FEMALE	INDET.
10	0	0	5668
12	22671	101084	281517
14	61878	226711	147362
16	51010	175701	39674
18	146894	300392	0
20	243224	504388	0
22	221043	441552	0
24	138005	214886	0
26	443088	457910	0
28	368552	820483	0
30	331387	856567	0
32	522072	621963	0
34	240714	709062	0
36	220246	525256	0
38	107279	331684	0
40	59555	182669	0
42	38991	132827	0
44	5668	111314	0
46	5668	60029	0
48	9218	24105	0
50	0	49168	0
52	0	14886	0
54	0	0	0
56	0	9218	0
58	0	5668	0
60	0	0	0
62	0	14886	0
TOTAL	3233163	6892389	474221
NºInd	510	1047	84
samples	23		
Total catch	452		
CAPTURA L.	450	<i>L. Huestreados</i>	
LANCES TO	84		

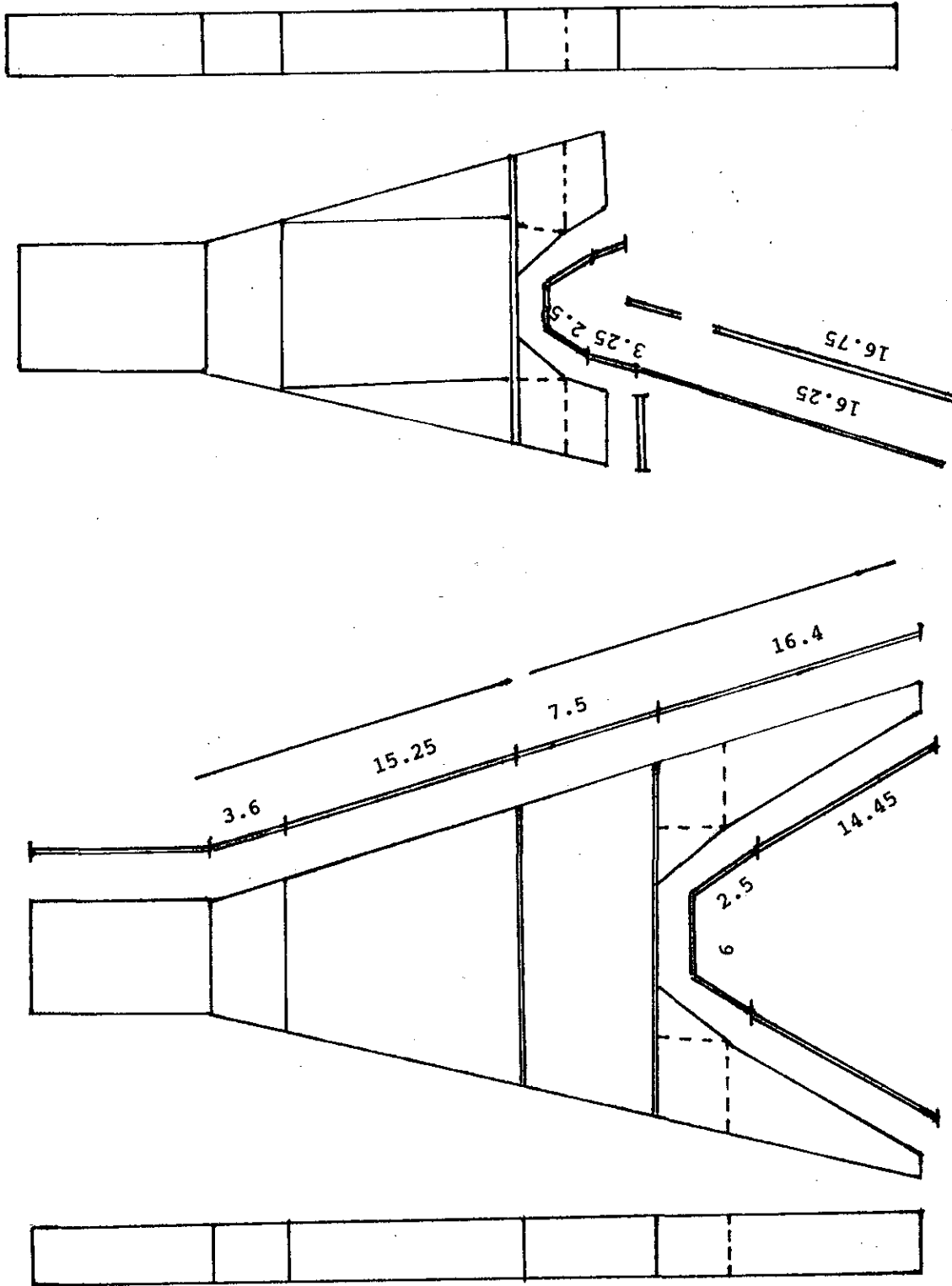
ESPECIE: 167 Yellowtail flounder			
Length	MALE	FEMALE	INDET.
8	0	0	38137
10	0	0	95214
12	21493	180377	490160
14	799292	591637	997955
16	1852167	3247872	246815
18	2859434	3808519	31826
20	3778642	4035234	0
22	6647628	8583400	0
24	7516849	9523809	0
26	3950420	4114483	0
28	4844558	4573329	0
30	4838401	6858521	0
32	3197374	8581920	0
34	2528708	6005997	0
36	1295757	3537082	0
38	932158	2739940	0
40	736945	1820894	0
42	111455	1133700	0
44	7839	895115	0
46	7839	143222	0
48	0	340089	0
50	0	48228	0
52	0	84588	0
54	0	7839	0
58	0	7855	0
TOTAL	46120952	72651664	1900107
NºInd	1878	3003	81
samples	43		
Total catch	3557		
CAPTURA L.	3528	L. Huertales	
LANCES TO	84		

ESPECIE: 155 witch flounder			
Length	MALE	FEMALE	INDET.
20	6982	0	0
22	6982	0	0
24	13824	6982	0
28	19480	34811	0
28	6982	47308	0
30	34811	88194	0
32	93189	124565	0
34	348118	352808	0
36	607205	409779	0
38	539137	541641	0
40	391390	511713	0
42	228839	667025	0
44	193664	397637	0
46	136185	339278	0
48	62512	278121	0
50	41773	207771	0
52	0	180427	0
54	6982	73168	0
56	0	80453	0
58	0	20808	0
60	0	0	0
62	0	6982	0
TOTAL	2737855	4329529	0
NºInd	338	519	0
samples s.	35		
Total catch	512		
CAPTURA L.	505	Multheadol	
LANCES TO	84		

ESPECIE: 1 58 cod		
Length	N° IND.	
9	52193	
12	28998	
15	57992	
18	5799	
21	117849	
24	387874	
27	324810	
30	380333	
33	351577	
36	449840	
39	492016	
42	725985	
45	1095192	
48	872443	
51	923287	
54	779738	
57	475257	
60	377799	
63	138293	
66	11598	
69	30901	
72	36701	
TOTAL	8096253	
N°Ind	807	
samples i.	27	
Total catch	1157	
CAPTURA L.	1148	<i>Muestreadis</i>
LANCES TO	84	

References

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Foot rope 17.7
Hand rope 39.9

Fig 1.