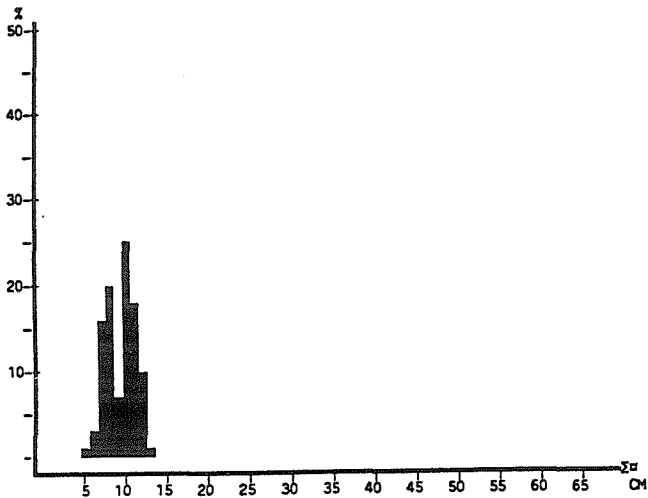


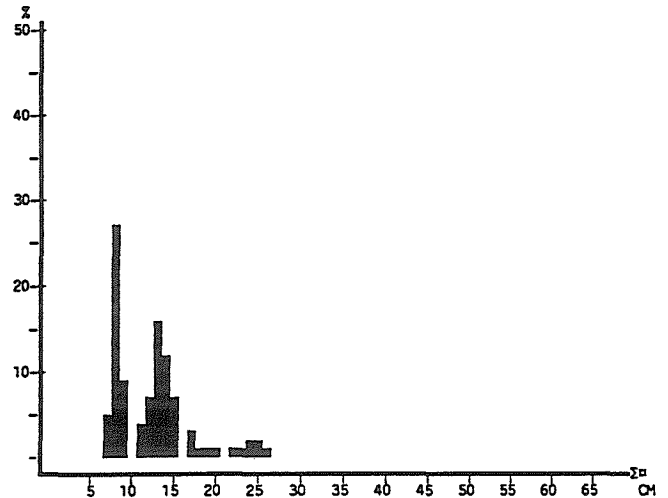
## Annex I. Processed length data by species.

FAMILY/SPECIES	STATION	LENGTHS IN SAMPLE				N	MEAN W.	COND.
		LOWEST	HIGHEST	MEAN	VARIANCE			
<b>CARANGIDAE</b>								
<i>Decapterus rhonchus</i>								
	71	24.00	35.50	30.50	20.20	6	0.4083	1.37
	73	33.00	33.00	33.00		1	0.5600	1.56
	80	22.00	27.00	24.80	2.06	15	0.2173	1.41
	85	23.00	30.00	25.81	1.16	86	0.2593	1.50
	86	23.00	29.00	26.26	3.02	23	0.2522	1.38
	90	14.00	30.00	25.20	28.40	10	0.2300	1.29
<i>Trachurus trachurus</i>								
	73	4.00	10.00	6.43	4.95	7	0.0071	2.01
	78	13.50	16.00	14.78	0.53	27	0.1148	3.53
	82	14.50	32.50	17.93	4.04	178	0.0528	0.88
	83	16.00	22.50	18.66	2.17	101	0.0584	0.88
	85	12.50	21.50	14.76	4.13	174	0.0879	2.58
	87	13.50	32.00	17.21	24.06	24	0.0750	1.14
<i>Trachurus trecae</i>								
	71	13.50	30.00	23.12	22.77	34	0.1618	1.17
	72	24.00	25.50	24.75	0.42	4	0.1875	1.23
	73	9.00	28.50	20.29	31.42	113	0.1159	1.14
	77	10.50	32.00	18.20	43.92	73	0.1110	1.29
	78	13.50	35.00	23.46	36.29	83	0.1904	1.23
	80	14.50	15.50	15.10	0.17	5	0.0360	1.04
	81	15.00	21.00	16.26	1.19	50	0.0370	0.85
	82	15.00	25.00	17.76	4.15	168	0.0506	0.87
	83	15.00	19.00	17.51	0.69	98	0.0480	0.89
	85	12.00	20.50	14.43	2.31	145	0.0848	2.73
	87	14.00	17.00	14.68	0.34	97	0.0433	1.36
	88	14.50	25.00	18.50	10.51	62	0.0839	1.21
	90	13.00	24.00	14.88	3.54	146	0.0459	1.32
<b>CLUPEIDAE</b>								
<i>Sardina pilchardus</i>								
	71	16.50	26.50	21.70	10.91	85	0.0918	0.84
	72	6.00	15.50	8.84	6.19	112	0.0576	6.55
	73	14.00	28.00	22.57	11.98	23	0.1000	0.82
	74	11.50	17.50	13.38	1.26	57	0.0202	0.83
	76	7.50	15.50	9.05	5.47	10	0.0100	1.11
<i>Sardinella aurita</i>								
	71	30.00	30.00	30.00		1	0.5000	1.85
	72	23.00	30.50	26.50	3.21	41	0.2817	1.49
	73	10.00	30.00	25.25	19.78	65	0.2731	1.57
	74	9.00	13.00	10.41	1.16	17	0.0265	2.28
	75	10.00	11.50	10.48	0.10	44	0.0132	1.14
	76	6.00	11.00	8.98	0.58	108	0.0088	1.19
	77	12.00	28.00	26.06	13.47	18	0.3444	1.86
	79	26.00	30.00	28.09	1.49	11	0.3818	1.71
	80	25.00	30.00	27.65	1.14	187	0.3636	1.71
	81	28.00	31.50	30.00	2.00	6	0.4167	1.53
	85	21.00	32.00	28.31	7.30	16	0.3688	1.59
	86	22.00	29.00	26.22	1.73	37	0.2811	1.55
	88	26.00	30.00	27.86	2.48	7	0.3571	1.64
	90	25.00	27.00	26.33	0.67	6	0.3383	1.85
	91	25.00	30.00	27.47	2.51	17	0.3529	1.69
<i>Sardinella maderensis</i>								
	72	23.50	28.50	25.86	3.98	7	0.3071	1.75
	73	22.00	27.00	24.42	1.40	62	0.2460	1.68
	74	7.00	10.00	8.33	0.26	114	0.0070	1.20
	77	24.00	24.00	24.00		5	0.2500	1.81
	79	26.50	29.00	28.00	1.17	4	0.3750	1.70
	80	23.00	27.00	25.11	1.75	35	0.2943	1.84
	81	26.00	29.00	27.75	0.97	6	0.3667	1.71
	85	24.00	29.00	26.74	1.14	54	0.3796	1.98
	86	22.00	27.00	23.90	1.52	104	0.2433	1.77
	88	23.00	28.00	25.35	1.08	20	0.2850	1.74
	90	24.00	27.00	25.41	0.92	22	0.2795	1.70
	91	23.00	30.00	25.14	3.13	21	0.2643	1.64
<b>ENGRAULIDIDAE</b>								
<i>Engraulis encrasicolus</i>								
	72	8.50	13.50	11.62	0.45	112	0.0112	0.71
	74	5.50	11.00	8.73	1.36	124	0.0040	0.57
	75	9.50	12.50	10.39	0.29	172	0.0073	0.65
	76	6.00	9.00	7.45	0.43	105	0.0027	0.64
	90	6.00	8.50	7.15	0.23	104	0.0024	0.65

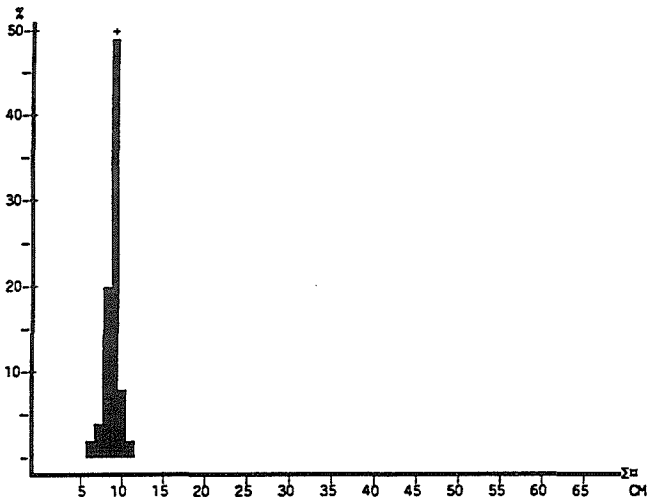
## Annex II. Pooled length distributions by main species and regions.



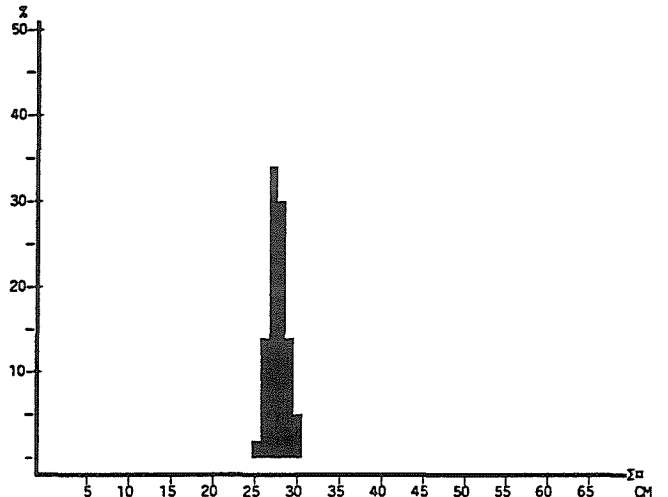
*Engraulis encrasicolus*  
Mauritania: C. Blanc-C. Timris  
Pooled sample ( equal weight ).  
MEAN LENGTH = 9.33cm N= 513  
NUMBER OF SUBSAMPLES : 4  
SAMPLES FOUND BETWEEN ST. NO. 72 AND 76.  
SAMPLES SEARCHED BETWEEN ST. NO. 72 AND 76 .



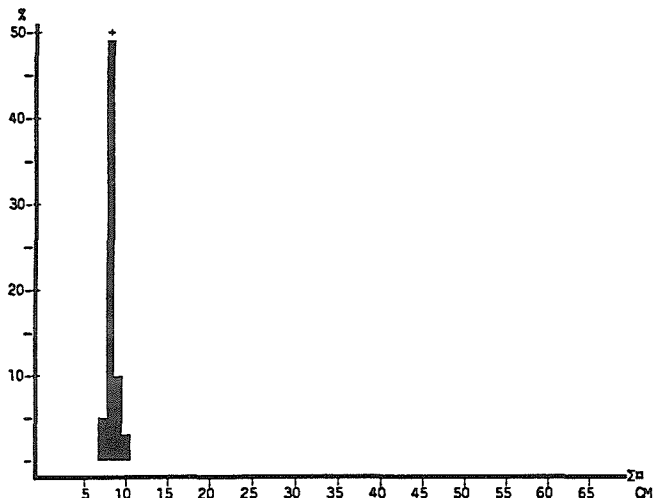
*Sardina pilchardus*  
Mauritania: C. Blanc-C. Timris  
Pooled sample ( weighted by catch ).  
MEAN LENGTH = 12.31cm N= 287  
NUMBER OF SUBSAMPLES : 5  
SAMPLES FOUND BETWEEN ST. NO. 71 AND 76.  
SAMPLES SEARCHED BETWEEN ST. NO. 71 AND 76 .



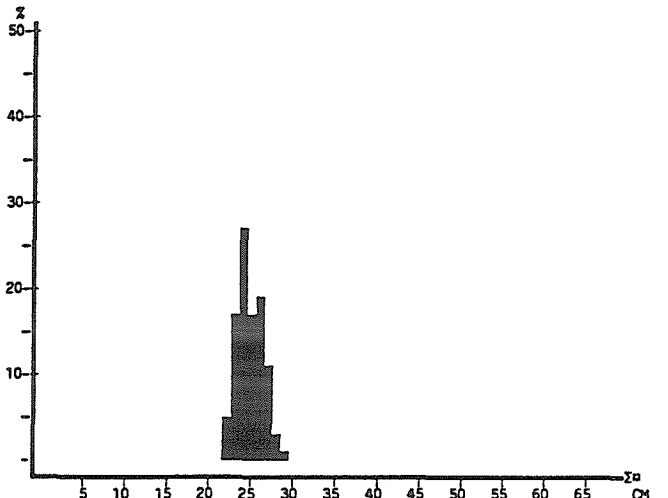
*Sardineella aurita*  
Mauritania: C. Blanc-C. Timris  
Pooled sample ( weighted by catch ).  
MEAN LENGTH = 8.83cm N= 293  
NUMBER OF SUBSAMPLES : 6  
SAMPLES FOUND BETWEEN ST. NO. 72 AND 77.  
SAMPLES SEARCHED BETWEEN ST. NO. 72 AND 77 .



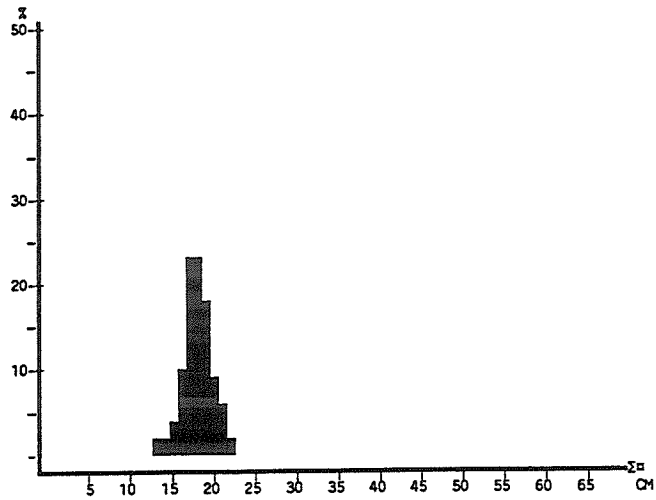
*Sardineella aurita*  
Mauritania: C. Timris-South  
Pooled sample ( weighted by catch ).  
MEAN LENGTH = 27.56cm N= 305  
NUMBER OF SUBSAMPLES : 9  
SAMPLES FOUND BETWEEN ST. NO. 77 AND 91.  
SAMPLES SEARCHED BETWEEN ST. NO. 77 AND 91 .



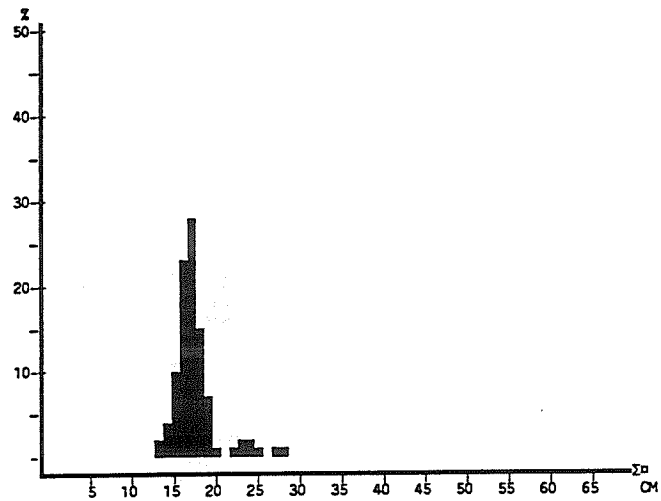
*Sardineella maderensis*  
Mauritania: C. Blanc-C. Timris  
Pooled sample ( weighted by catch ).  
MEAN LENGTH = 8.25cm N= 188  
NUMBER OF SUBSAMPLES : 4  
SAMPLES FOUND BETWEEN ST. NO. 72 AND 77.  
SAMPLES SEARCHED BETWEEN ST. NO. 72 AND 77 .



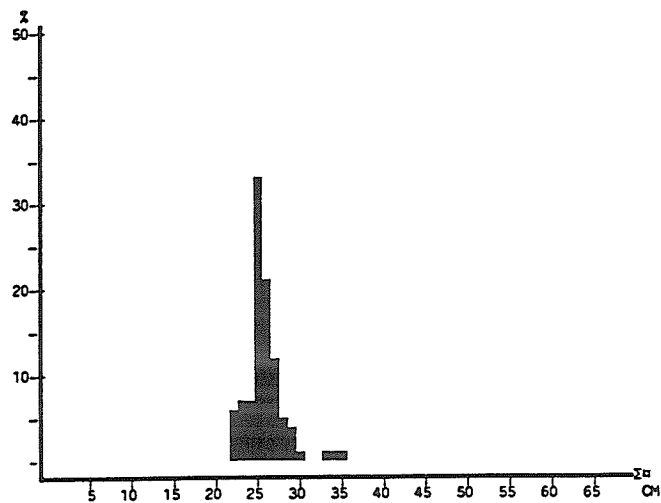
*Sardineella maderensis*  
Mauritania: C. Timris-South  
Pooled sample ( weighted by catch ).  
MEAN LENGTH = 24.76cm N= 271  
NUMBER OF SUBSAMPLES : 9  
SAMPLES FOUND BETWEEN ST. NO. 77 AND 91.  
SAMPLES SEARCHED BETWEEN ST. NO. 77 AND 91 .



Trachurus trachurus  
 Mauritania: C. Blanc-South  
 Pooled sample ( weighted by catch).  
 MEAN LENGTH = 17.95cm N= 511  
 NUMBER OF SUBSAMPLES : 6  
 SAMPLES FOUND BETWEEN ST. NO. 73 AND 87.  
 SAMPLES SEARCHED BETWEEN ST. NO. 71 AND 91 .



Trachurus trecae  
 Mauritania: C. Blanc-South  
 Pooled sample ( weighted by catch).  
 MEAN LENGTH = 17.37cm N= 1078  
 NUMBER OF SUBSAMPLES : 13  
 SAMPLES FOUND BETWEEN ST. NO. 71 AND 90.  
 SAMPLES SEARCHED BETWEEN ST. NO. 71 AND 91 .



Decapterus rhonchus  
 Mauritania: C. Blanc-South  
 Pooled sample ( weighted by catch).  
 MEAN LENGTH = 25.63cm N= 141  
 NUMBER OF SUBSAMPLES : 6  
 SAMPLES FOUND BETWEEN ST. NO. 71 AND 90.  
 SAMPLES SEARCHED BETWEEN ST. NO. 71 AND 91 .

## Annex III. Records of fishing stations.

PROJECT STATION: 71  
 DATE: 11/ 2/92 GEAR TYPE: PT No:1 POSITION: Lat N 2044 Long W 1717  
 start stop duration Purpose code: 1  
 TIME :19:23:00 19:53:00 30 (min) Area code : 2  
 LOG :5552.80 5555.00 2.20 GearCond.code:  
 FDEPTH: 14 20 Validity code: 1  
 BDEPTH: 38 39  
 Towing dir: 180 Wire out: 100 m Speed: 44 kn\*10  
 Sorted: 58 Kg Total catch: 160.07 CATCH/HOUR: 320.14

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP.NO.
	weight numbers		
Trichurus lepturus	129.80 170	40.54	
Sardina pilchardus	94.32 1034	29.46	121
Trachurus trcae	30.26 188	9.45	119
Loligo vulgaris	16.78 16	5.24	
Katsuwonus pelamis	14.86 6	4.64	
Diplodus vulgaris	14.58 28	4.55	
Decapterus rhonchus	13.48 34	4.21	120
Sardinella aurita	2.76 6	0.86	118
Pomadasyus incisus	1.38 6	0.43	
Loligo sp.	1.10 110	0.34	
Sepia officinalis hierredda	0.82 6	0.26	
Total	320.14	99.98	

PROJECT STATION: 72  
 DATE: 12/ 2/92 GEAR TYPE: PT No: POSITION: Lat N 2034 Long W 1716  
 start stop duration Purpose code: 1  
 TIME :04:55:00 05:25:00 30 (min) Area code : 2  
 LOG :5627.60 5629.30 1.70 GearCond.code:  
 FDEPTH: 10 10 Validity code:  
 BDEPTH: 37 35  
 Towing dir: 210 Wire out: 150 m Speed: 31 kn\*10  
 Sorted: 24 Kg Total catch: 24.90 CATCH/HOUR: 49.80

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP.NO.
	weight numbers		
Sardinella aurita	23.10 82	46.39	126
Sardina pilchardus	12.90 224	25.90	122
Trichurus lepturus	5.50 10	11.04	
Sardinella maderensis	4.30 14	8.63	125
Engraulis encrasicolus	2.50 224	5.02	123
Trachurus trcae	1.50 8	3.01	124
Total	49.80	99.99	

PROJECT STATION: 73  
 DATE: 12/ 2/92 GEAR TYPE: PT No:1 POSITION: Lat N 2036 Long W 1714  
 start stop duration Purpose code: 1  
 TIME :06:39:00 06:52:00 13 (min) Area code : 2  
 LOG :5637.60 5638.50 0.90 GearCond.code:  
 FDEPTH: 15 17 Validity code:  
 BDEPTH: 33 35  
 Towing dir: 210 Wire out: 70 m Speed: 40 kn\*10  
 Sorted: 71 Kg Total catch: 71.70 CATCH/HOUR: 330.92

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP.NO.
	weight numbers		
Sardinella aurita	81.92 300	24.76	131
Sardinella maderensis	70.38 286	21.27	130
Trichurus lepturus	62.77 97	18.97	
Trachurus trcae	60.46 522	18.27	129
Stromateus fiatola	22.02 28	6.65	
Diplodus cervinus cervinus	10.75 14	3.25	
Sardina pilchardus	10.62 106	3.21	127
Diplodus sargus *	5.95 9	1.80	
Decapterus rhonchus	2.58 5	0.78	128
BELONIDAE	0.92 5	0.28	
Loligo vulgaris	0.92 5	0.28	
Pomadasyus incisus	0.92 5	0.28	
Sepia officinalis hierredda	0.46 5	0.14	
Trachurus trchurus	0.23 32	0.07	132
Total	330.90	100.01	

PROJECT STATION: 74  
 DATE: 12/ 2/92 GEAR TYPE: BT No:1 POSITION: Lat N 2027 Long W 1709  
 start stop duration Purpose code: 1  
 TIME :10:33:00 11:03:00 30 (min) Area code : 2  
 LOG :5671.00 5672.70 1.70 GearCond.code:  
 FDEPTH: 22 28 Validity code:  
 BDEPTH: 22 28  
 Towing dir: 175 Wire out: 100 m Speed: 34 kn\*10  
 Sorted: 34 Kg Total catch: 1092.40 CATCH/HOUR: 2184.80

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP.NO.
	weight numbers		
Engraulis encrasicolus	1740.00 431520	79.64	136
Sardinella maderensis	240.00 34200	10.98	134
Sardina pilchardus	69.00 3420	3.16	133
Pomatomus saltatrix	44.00 62	2.01	
Sardinella aurita	27.00 1020	1.24	135
Lichia amia	26.00 28	1.19	
Campogramma glycos	13.80 34	0.63	
Diplodus bellottii	12.00 120	0.55	
Decapterus rhonchus	6.00 60	0.27	
Stromateus fiatola	5.80 6	0.27	
Dicentrarchus punctatus *	0.80 2	0.04	
Sphyraena sp.	0.40 2	0.02	
Total	2184.80	100.00	

PROJECT STATION: 75  
 DATE: 12/ 2/92 GEAR TYPE: PT No:1 POSITION: Lat N 2014 Long W 1729  
 start stop duration Purpose code: 1  
 TIME :17:58:00 18:28:00 30 (min) Area code : 2  
 LOG :5737.80 5739.80 2.00 GearCond.code:  
 FDEPTH: 28 30 Validity code:  
 BDEPTH: 42 46  
 Towing dir: 270 Wire out: 150 m Speed: 40 kn\*10  
 Sorted: 63 Kg Total catch: 7000.00 CATCH/HOUR: 14000.00

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP.NO.
	weight numbers		
Engraulis encrasicolus	13270.00 1828952	94.79	137
Trichurus lepturus	597.20 1106	4.27	
Sardinella aurita	132.80 9738	0.95	138
Total	14000.00	100.01	

PROJECT STATION: 76  
 DATE: 12/ 2/92 GEAR TYPE: PT No: POSITION: Lat N 2007 Long W 1711  
 start stop duration Purpose code: 1  
 TIME :21:53:00 22:10:00 17 (min) Area code : 2  
 LOG :5767.40 5768.50 1.10 GearCond.code: 1  
 FDEPTH: 5 5 Validity code: 3  
 BDEPTH: 16 16  
 Towing dir: 180 Wire out: 100 m Speed: 35 kn\*10  
 Sorted: 12 Kg Total catch: 1324.90 CATCH/HOUR: 4676.12

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP.NO.
	weight numbers		
Sardinella aurita	2011.76 228699	43.02	140
Engraulis encrasicolus	1694.12 37059	36.23	139
Thunnus albacares	324.71 127	6.94	
Dicentrarchus punctatus *	211.76 706	4.53	
Decapterus rhonchus	105.88 353	2.26	
Sepia officinalis hierredda	105.88 353	2.26	
Pomatomus saltatrix	90.71 120	1.94	
Pomadasyus incisus	70.59 706	1.51	
Sardina pilchardus	35.29 3529	0.75	141
Trachurus trcae	17.65 353	0.38	
Stromateus fiatola	6.88 7	0.15	
Penaeus kerathurus	0.88 35	0.02	
Total	4676.11	99.99	

PROJECT STATION: 77  
 DATE: 13/ 2/92 GEAR TYPE: PT No:1 POSITION: Lat N 1954 Long W 1714  
 start stop duration Purpose code: 1  
 TIME :05:42:00 06:12:00 30 (min) Area code : 2  
 LOG :5836.50 5838.00 1.50 GearCond.code:  
 FDEPTH: 5 10 Validity code:  
 BDEPTH: 26 33  
 Towing dir: 270 Wire out: 50 m Speed: 33 kn\*10  
 Sorted: 19 Kg Total catch: 19.57 CATCH/HOUR: 39.14

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP.NO.
	weight numbers		
Trachurus trcae	16.20 14	41.39	144
Sardinella aurita	12.40 146	31.68	142
Sepia officinalis hierredda	4.80 8	12.26	
Sardinella maderensis	2.50 10	6.39	143
Loligo vulgaris	2.44 8	6.23	
Scomber japonicus	0.60 2	1.53	
Trachurus trchurus	0.20 6	0.51	
Total	39.14	99.99	

PROJECT STATION: 78  
 DATE: 13/ 2/92 GEAR TYPE: BT No:1 POSITION: Lat N 1932 Long W 1657  
 start stop duration Purpose code: 1  
 TIME :11:31:00 12:01:00 30 (min) Area code : 2  
 LOG :5888.00 5889.60 1.60 GearCond.code:  
 FDEPTH: 83 96 Validity code:  
 BDEPTH: 83 96  
 Towing dir: 270 Wire out: 400 m Speed: 32 kn\*10  
 Sorted: 43 Kg Total catch: 129.60 CATCH/HOUR: 259.20

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP.NO.
	weight numbers		
Trachurus trcae	94.80 504	36.57	145
Dentex macrophthalmus	75.00 468	28.94	
Trichurus lepturus	52.80 660	20.37	
Trachurus trchurus	18.60 162	7.18	146
Zeus faber	13.20 12	5.09	
Umbrina canariensis	1.80 6	0.69	
Scomber japonicus	1.80 6	0.69	
Scorpaena stephanica	1.20 6	0.46	
Total	259.20	99.99	

PROJECT STATION: 79  
 DATE: 13/ 2/92 GEAR TYPE: PT No:1 POSITION: Lat N 1930 Long W 1653  
 start stop duration Purpose code: 1  
 TIME :13:41:00 14:16:00 35 (min) Area code : 2  
 LOG :5902.30 5904.70 2.40 GearCond.code: 4  
 FDEPTH: 10 20 Validity code: 4  
 BDEPTH: 55 61  
 Towing dir: 160 Wire out: 100 m Speed: 38 kn\*10  
 Sorted: 11 Kg Total catch: 11.00 CATCH/HOUR: 18.86

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP.NO.
	weight numbers		
Sardinella aurita	7.20 19	38.18	147
Sepia officinalis hierredda	5.57 175	29.53	
Sardinella maderensis	2.57 7	13.63	148
Sarda sarda	1.89 2	10.02	
Auxis thazard	1.37 2	7.26	
Remora remora	0.26 2	1.38	
Total	18.86	100.00	

PROJECT STATION: 80  
 DATE:13/ 2/92 GEAR TYPE: PT No:3 POSITION:Lat N 1915  
 start stop duration Long W 1636  
 TIME :20:28:00 20:58:00 30 (min) Purpose code: 1  
 LOG :5964.20 5966.70 2.50 Area code : 2  
 FDEPTH: 10 10 GearCond.code:  
 BDEPTH: 30 30 Validity code:  
 Towing dir: 115 Wire out: 100 m Speed: 50 kn\*10  
 Sorted: 84 Kg Total catch: 943.29 CATCH/HOUR: 1886.58

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP.NO.
weight	numbers		
Sardinella aurita	1496.00	4114	79.30
Sardinella maderensis	226.60	770	12.01
Decapterus rhonchus	71.72	330	3.80
Stromateus fiatola	37.40	44	1.98
Arius heudeloti	30.00	30	1.59
Diplodus vulgaris	13.20	22	0.70
Trichurus lepturus	4.40	44	0.23
Trachurus trecae	3.96	110	0.21
Pomadasys incisus	3.30	22	0.17
Total	1886.58	99.99	

PROJECT STATION: 85  
 DATE:15/ 2/92 GEAR TYPE: PT No:1 POSITION:Lat N 1813  
 start stop duration Long W 1622  
 TIME :04:15:00 04:45:00 30 (min) Purpose code: 1  
 LOG :6236.40 6238.60 2.20 Area code : 2  
 FDEPTH: 10 10 GearCond.code:  
 BDEPTH: 60 49 Validity code:  
 Towing dir: 90 Wire out: 50 m Speed: 43 kn\*10  
 Sorted: 126 Kg Total catch: 126.70 CATCH/HOUR: 253.40

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP.NO.
weight	numbers		
Trichurus lepturus	92.00	218	36.31
Decapterus rhonchus	44.60	172	17.60
Sardinella maderensis	41.00	108	16.18
Trachurus trachurus	35.60	348	12.08
Trachurus trecae	25.20	290	9.94
Sardinella aurita	11.80	32	4.66
Sepia officinalis hierredda	5.40	144	2.13
Auxis thazard	2.20	6	0.87
Scomber japonicus	0.60	2	0.24
Total	253.40	100.01	

PROJECT STATION: 81  
 DATE:14/ 2/92 GEAR TYPE: PT No:3 POSITION:Lat N 1903  
 start stop duration Long W 1638  
 TIME :02:58:00 03:25:00 30 (min) Purpose code: 1  
 LOG :6020.60 6022.40 1.80 Area code : 2  
 FDEPTH: 0 0 GearCond.code:  
 BDEPTH: 83 83 Validity code:  
 Towing dir: 180 Wire out: 150 m Speed: 36 kn\*10  
 Sorted: 32 Kg Total catch: 130.00 CATCH/HOUR: 260.00

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP.NO.
weight	numbers		
Trichurus lepturus	164.00	1600	63.08
Trachurus trecae	58.40	1578	22.46
Sardinella aurita	20.00	48	7.69
Sardinella maderensis	17.60	48	6.77
Total	260.00	100.00	

PROJECT STATION: 86  
 DATE:15/ 2/92 GEAR TYPE: BT No:1 POSITION:Lat N 1801  
 start stop duration Long W 1606  
 TIME :09:40:00 10:10:00 30 (min) Purpose code: 1  
 LOG :6288.10 6289.70 1.60 Area code : 2  
 FDEPTH: 12 11 GearCond.code:  
 BDEPTH: 12 11 Validity code:  
 Towing dir: 360 Wire out: 75 m Speed: 32 kn\*10  
 Sorted: 54 Kg Total catch: 219.60 CATCH/HOUR: 439.20

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP.NO.
weight	numbers		
Sardinella maderensis	202.40	832	46.08
Sardinella aurita	83.20	296	18.94
Pomadasys incisus	48.00	192	10.93
Decapterus rhonchus	46.40	184	10.56
Trichurus lepturus	18.80	56	4.28
Campogramma glaycos	17.60	32	4.01
Sphyræna sphyraena	8.80	24	2.00
Plectorhinchus mediterraneus	4.80	8	1.09
Sparus caeruleostictus	4.00	8	0.91
Pomadasys rogeri	2.80	8	0.64
Pagellus bellottii	1.60	8	0.36
Galeoides decadactylus	0.80	8	0.18
Total	439.20	99.98	

PROJECT STATION: 82  
 DATE:14/ 2/92 GEAR TYPE: BT No:1 POSITION:Lat N 1852  
 start stop duration Long W 1639  
 TIME :10:25:00 10:55:00 30 (min) Purpose code: 1  
 LOG :6082.00 6083.50 1.50 Area code : 2  
 FDEPTH: 88 100 GearCond.code:  
 BDEPTH: 88 100 Validity code:  
 Towing dir: 170 Wire out: 400 m Speed: 30 kn\*10  
 Sorted: 80 Kg Total catch: 620.52 CATCH/HOUR: 1241.04

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP.NO.
weight	numbers		
Dentex macrophthalmus	566.00	8616	47.22
Trachurus trecae	388.10	2578	31.27
Trachurus trachurus	144.20	2730	11.62
Zeus faber	38.36	122	3.09
Raja sp.	36.82	16	2.97
Scorpaena stephanica	26.08	60	2.10
Umbra canariensis	19.94	76	1.61
Trichurus lepturus	1.94	46	0.12
Total	1241.04	100.00	

PROJECT STATION: 87  
 DATE:15/ 2/92 GEAR TYPE: BT No:1 POSITION:Lat N 1753  
 start stop duration Long W 1627  
 TIME :13:38:00 14:08:00 30 (min) Purpose code: 1  
 LOG :6321.50 6323.10 1.60 Area code : 2  
 FDEPTH: 115 96 GearCond.code:  
 BDEPTH: 115 96 Validity code:  
 Towing dir: 90 Wire out: 550 m Speed: 31 kn\*10  
 Sorted: 43 Kg Total catch: 43.50 CATCH/HOUR: 87.00

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP.NO.
weight	numbers		
Trachurus trecae	28.00	646	32.18
Dentex macrophthalmus	25.80	182	29.66
Loligo vulgaris	10.00		11.49
Zeus faber	7.60	18	8.74
Auxis thazard	5.40	14	6.21
Trachurus trachurus	3.60	48	4.14
Octopus vulgaris	3.60	8	4.14
Serranus brachilla	1.60	4	1.84
Sardinella maderensis	0.80	4	0.92
Trichurus lepturus	0.60	2	0.69
Total	87.00	100.01	

PROJECT STATION: 83  
 DATE:14/ 2/92 GEAR TYPE: BT No:1 POSITION:Lat N 1844  
 start stop duration Long W 1635  
 TIME :14:49:00 15:19:00 24 (min) Purpose code: 1  
 LOG :6119.30 6120.50 1.20 Area code : 2  
 FDEPTH: 147 148 GearCond.code:  
 BDEPTH: 147 148 Validity code:  
 Towing dir: 224 Wire out: 650 m Speed: 28 kn\*10  
 Sorted: 60 Kg Total catch: 423.60 CATCH/HOUR: 1059.00

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP.NO.
weight	numbers		
Trachurus trachurus	367.50	6293	34.70
Trachurus trecae	183.75	3890	17.35
Capros aper	157.50	2650	14.87
Dentex macrophthalmus	140.00	823	13.22
Merluccius senegalensis	71.75	263	6.78
Zeus faber	61.25	35	5.78
Octopus vulgaris	59.50	53	5.62
Scorpaena stephanica	15.75	70	1.49
Scomber japonicus	2.00	5	0.19
Total	1059.00	100.00	

PROJECT STATION: 89  
 DATE:16/ 2/92 GEAR TYPE: BT No:1 POSITION:Lat N 1626  
 start stop duration Long W 1636  
 TIME :10:16:00 10:46:00 30 (min) Purpose code: 1  
 LOG :6528.40 6529.90 1.50 Area code : 2  
 FDEPTH: 24 21 GearCond.code:  
 BDEPTH: 24 21 Validity code:  
 Towing dir: 180 Wire out: 150 m Speed: 30 kn\*10  
 Sorted: 53 Kg Total catch: 2000.00 CATCH/HOUR: 4000.00

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP.NO.
weight	numbers		
Pomadasys incisus	3680.80	29972	92.02
Selene dorsalis	116.40	76	2.91
Sparus caeruleostictus	67.60	150	1.69
Trichurus lepturus	48.80	300	1.22
Pagellus bellottii	33.80	226	0.85
Dentex macrophthalmus	22.60	76	0.57
Decapterus rhonchus	15.00	150	0.38
Trachurus trecae	11.20	224	0.28
Galeoides decadactylus	3.80	76	0.10
Total	4000.00	100.02	

PROJECT STATION: 84  
 DATE:14/ 2/92 GEAR TYPE: PT No:1 POSITION:Lat N 1822  
 start stop duration Long W 1632  
 TIME :22:53:00 23:23:00 30 (min) Purpose code: 1  
 LOG :6189.00 6190.30 1.30 Area code : 2  
 FDEPTH: 120 140 GearCond.code:  
 BDEPTH: 158 171 Validity code:  
 Towing dir: 240 Wire out: 350 m Speed: 26 kn\*10  
 Sorted: 10 Kg Total catch: 10.01 CATCH/HOUR: 20.02

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP.NO.
weight	numbers		
Trichurus lepturus	12.60	22	62.94
Merluccius senegalensis	3.40	12	16.98
MYCTOPHIDAE	1.80	500	8.99
Trachurus trachurus	1.20	6	5.99
MORONIDAE *	0.90	90	4.50
Zenopsis conchifer	0.10	2	0.50
Gephyroberyx darwini	0.00	4	
Total	20.00	99.90	



## **Annex IV Instruments and fishing gear used.**

### **ACOUSTIC INSTRUMENTS**

A SIMRAD scientific echo sounder, EK 500/38kHz, was used during the survey for estimation of fish density.

Based on a calibration experiment using a standard copper sphere in Harbour of Las Palmas on 1st February 1992, the following settings were used:

Absorption Coeff.	10 dB/km
Pulse length	Medium
Bandwidth	Wide
Max. Power	2000 W
Angle sensitivity	21.9
2-way Beam Angle	-21.0 Db
Sv Transd. Gain	27.9 dB
Ts Transd. Gain	28.0 dB
3 dB Beamwidth	6.9°
Along-ship Offset	0°
Athwart-ship	0°

### **HYDROGRAPHY**

Temperature and salinity and oxygen were sampled at standard depths with a mini CTD sonde model SD202. Surface temperature was registered by a Furuno Temperature Indicator model TI-20, and logged on PC every nautical mile sailed.

### **FISHING GEAR**

Bottom trawl: High opening shrimp and fish trawl with net headline 31m (floatline), foot-rope 47m, gear with 12 cm diameter roller disks, 40 m sweeps, estimated headline height 6m and distance between wings during towing 18-20m. This gear was also used for some of the mid-water trawls.

Pelagic trawl: Swedish type mid-water trawl with a vertical opening of 20-25m.

Cod ends of trawls with fine meshed inner lining.

### **DATA PROCESSING**

The biological and acoustic data were stored into and analyzed by the Nansen Survey Information System, NAN-SIS.

## Annex V Biomass estimates by length-groups

Table A1 Biomass of sardine by length-groups.		
Length cm	C.Blanc-C.Timiris tonnes	n*10E6
6	2	1
7	137	53
8	1045	272
9	481	87
10	0	0
11	368	37
12	954	74
13	2696	164
14	2463	120
15	1709	68
16	31	1
17	1206	33
18	926	14
19	316	6
20	491	8
21	213	3
22	816	10
23	1026	11
24	2438	24
25	2996	26
26	1213	9
27		0
28		0
Sum	21397	1184

Table A2 Biomass of anchovy by length-groups.		
Length cm	C.Blanc-C.Timiris tonnes	n*10E6
5	164	212
6	1871	1397
7	13956	6562
8	26611	8383
9	13013	2879
10	65100	10500
11	63938	7748
12	46721	4361
13	4614	339
14		
15		
16		
17		
SUM	235986	42381



Table A3 Biomass of round sardinella by length-groups.						
Length cm	C.Blanc-C.Timiris		South of C. Timiris		Total	
	tonnes	n*10E6	tonnes	n*10E6	tonnes	n*10E6
6	67	19			67	19
7	212	39			212	39
8	1760	215			1760	215
9	8451	725			8451	725
10	7978	499			7978	499
11	2405	113			2405	113
12	533	19			533	19
13	291	8			291	8
14	0	0			0	0
15	0	0			0	0
16	0	0			0	0
17	0	0			0	0
18	0	0			0	0
19	0	0			0	0
20	1058	8			1058	8
21	1225	8	1416	10	2641	18
22	1408	8	1628	10	3036	18
23	7508	39	0	0	7508	39
24	12186	55	4931	22	17117	77
25	61295	245	26275	105	87570	350
26	79019	281	161212	573	240231	854
27	47716	152	298890	949	346606	1101
28	56120	160	293076	834	349196	994
29	44075	113	159077	408	203152	521
30	20231	47	90806	210	111037	257
31			19735	41	19735	41
32			5009	10	5009	10
Sum	353538	2753	1062055	3172	1415593	5925

Table A4 Biomass of flat sardinella by length-groups.						
Length cm	C.Blanc-C.Timiris		South of C. Timiris		Total	
	tonnes	n*10E6	tonnes	n*10E6	tonnes	n*10E6
6						
7	384	66			384	66
8	8857	1018			8857	1018
9	1631	132			1631	132
10	559	33			559	33
11	0	0			0	0
12	0	0			0	0
13	0	0			0	0
14	0	0			0	0
15	0	0			0	0
16	0	0			0	0
17	0	0			0	0
18	0	0			0	0
19	0	0			0	0
20	0	0			0	0
21	0	0			0	0
22	1861	10	10719	59	12580	69
23	38270	185	35724	173	73994	358
24	56527	241	60883	259	117410	500
25	55154	208	62917	237	118071	445
26	32556	109	72247	242	104803	351
27	11006	33	53251	159	64257	192
28	8439	23	32227	86	40666	109
29			5626	14	5626	14
30			2265	5	2265	5
31						
Sum	215244	2058	335859	1234	551103	3292

Table A5 Atlantic horse mackerel. Biomass in weight and numbers by length-groups.

Length cm	tonnes	n*10E6
4	1	1
5	1	1
6	2	1
7	0	0
8	0	0
9	8	1
10	12	1
11	0	0
12	20	1
13	405	22
14	505	22
15	1476	51
16	4762	137
17	13234	317
18	15307	309
19	14371	246
20	8196	121
21	6716	85
22	2819	31
23	0	0
24	318	3
25	0	0
26	405	3
27	0	0
28	0	0
29	0	0
30	0	0
31	0	0
32	754	3
Sum	69315	1357

Table A6 Cunene horse mackerel. Biomass in weight and numbers by length-groups.

Length cm	tonnes	n*10E6
9	24	3
10	0	0
11	22	2
12	113	7
13	576	26
14	1933	70
15	5363	159
16	15432	377
17	22856	465
18	14617	251
19	7303	106
20	1179	15
21	607	7
22	2268	21
23	4783	39
24	4529	33
25	2815	18
26	1152	7
27	1935	10
28	2158	10
29	799	3
30	885	3
31	488	2
32	537	2
33	589	2
Sum	92961	1636

Table A7 False scad. Biomass in weight and numbers by length-groups.

Length cm	tonnes	n*10E6
14	21	1
15	0	0
16	0	0
17	38	1
18	0	0
19	0	0
20	0	0
21	0	0
22	1179	11
23	1649	14
24	1821	13
25	9693	62
26	7112	40
27	4621	23
28	2263	10
29	1955	8
30	361	1
31	0	0
32	0	0
33	1029	3
34	600	2
35	655	2
Sum	32994	191

