

SURVEYS OF FISH RESOURCES OF ANGOLA

Survey of the large-eye dentex resources

6 August - 3 September 1997

**Institute of Marine Research
Bergen, Norway**

**Institute of Fisheries Research
IIP, Luanda, Angola**

CRUISE REPORT "DR. FRIDTJOF NANSEN"

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by

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CHAPTER 1 INTRODUCTION

1.1 General objectives

The objectives of the survey, agreed upon with the Director of the Instituto de Investigação Pesqueira (IIP) of Angola and co-ordinated with the Director of Resource Management of the Ministry of Fisheries and Marine Resources of Namibia, are the following:

To map the distribution and to estimate the abundance of large-eye dentex (*Dentex macropthalmus*) in its area of distribution.

To carry out biological studies on large-eye dentex, i.e. size distributions, length-weight relationship, reproductive stages and stomach content analysis.

To collect information on catch rates and size composition of other commercially important species found in the surveyed area.

To map the general hydrographic regime by recording surface temperature on a continuous basis, and using a CTD-sonde at each trawl station all over the survey area. To monitor temperature, salinity and oxygen along standard profiles for hydrographical studies.

1.2 Participation

The scientific staff consisted of:

From IIP, Angola: Antonio BUKU, Paulo BRINCA, Enoque CANGAJÓ, Eusebio Dias DO SANTOS, Alberto FILOMENO, Kumbi KILONGO, David QUISSUNGU.

From FAO, FIRM: Merete TANDSTAD (6.08 - 24.08.97)

From IMR, Norway: Guillermo BURGOS, Svein FLOEN, Terje HAUGLAND, Tore MØRK.

1.3 Survey area

The limits of the surveyed area were established from the analysis of all previous successful bottom trawl hauls made in Angola and Namibia by the old and new R/V “Dr. Fridtjof Nansen”. This analysis showed that large-eye dentex had been recorded in the latitudinal range 5°-24 °S. However, the distribution of *D. macrophthalmus* in the area north of 7 °S and south of 22 °S was found to be very scattered and in low densities. The analysis over the depth axis showed that this species distributes from 60 to 350 m depth throughout the whole area with occasional low density aggregations found between 350 and 400 m in Northern Namibia. Therefore, in the original plan, parallels 7-22 °S and the isobaths of 60-350 m confined the survey area. The southern limit was finally changed to 20° 40’S due to time delays during the cruise.

1.4 Narrative

The surveyed area, for the purpose of reporting, has been divided in four regions: Angola north (7 °S-9 °S), Angola central (9 °S-13 °S), Angola south (13 °S-17°15’S) and Namibia north (17° 15’S-20° 40’S). The course tracks with the position of fishing and CTD stations in each of these regions are presented in Figure 1 (a-d).

The vessel left Luanda in the evening of August 6 and steamed northwards to approximately 7 °S where the bottom trawl-sampling programme started on the morning of August 7. The survey followed a systematic parallel grid with transects set 20 nautical miles (NM) apart, covering the depth range 60-350 m. Sampling locations were determined semi randomly, trying to get a proportional allocation of sampling effort to the area of depth strata. Hydrographic stations were taken in almost every trawl station. Additional hydrographic profiles were performed at standard locations.

Northern Angola area was surveyed from August 7 to 9. The area from Luanda to south of Benguela (13 °S) was covered between August 9 and 18. In the morning of August 15, the cruise track was interrupted and the vessel steamed to Luanda to disembark a member of the crew who needed medical attention. The vessel was back in position early in the morning of August 18. The region between south of Benguela and Palgrave Point in Namibia (approx. 20° 30’S) was surveyed between August 18 and September 1. On August 24, the vessel had to call in Walvis Bay to change crew and therefore the covering of the southern part of

Angola had to be interrupted and completed at the end of the cruise. The vessel arrived in Walvis Bay on September 3 after surveying a total of 2991 NM.

Weather conditions were, in general, favourable as can be appreciated from the wind field map presented in Figure 2. Wind direction changed from predominantly south - southwesterly in Angolan waters to south - southeasterly in Namibia.

1.5 Survey effort

The number of trawls hauls and CTD stations by area and depth strata are shown in Table 1.

Table 1. Number of CTD and trawl stations taken during the cruise.

Area	Bottom trawls 60-200 m	Bottom trawls 200-350 m	Trawl failure	Total no. of trawls	CTD stations	Sampling days
07°00' - 09°00'S	12	5	2	19	17	2.5
09°00' - 13°00'S	25	12	0	37	54	6.0
13°00' - 17°15'S	18	4	1	23	29	4.0
17°15' - 20°40'S	25	24	4	53	65	7.0
TOTAL	80	45	7	132	165	19.5

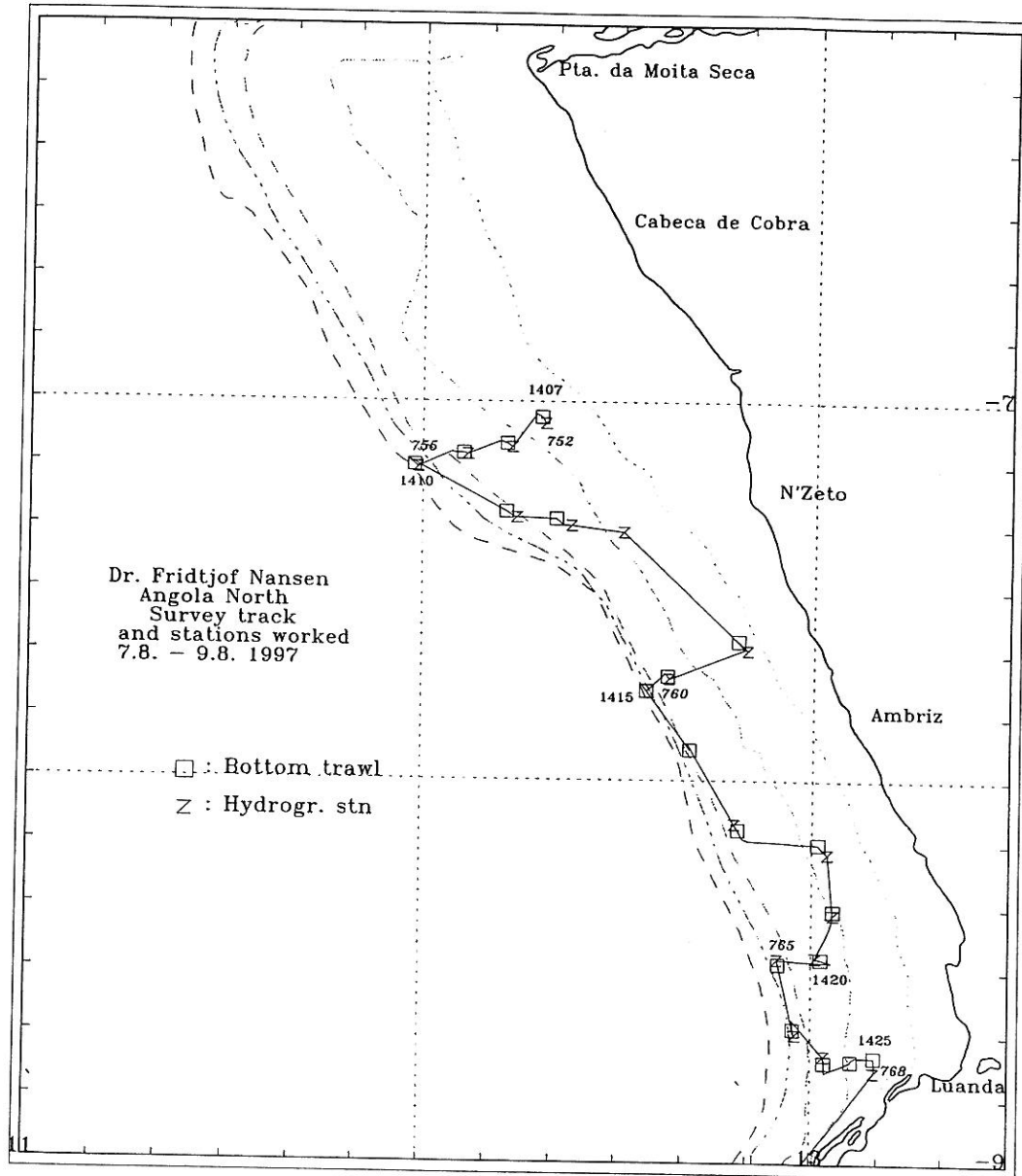


Figure 1a. Angola north (7 °S - north of N'zeto to Luanda). Course tracks, fishing stations and hydrographic stations. Depth contours at 20, 50, 100, 200 and 500 are included

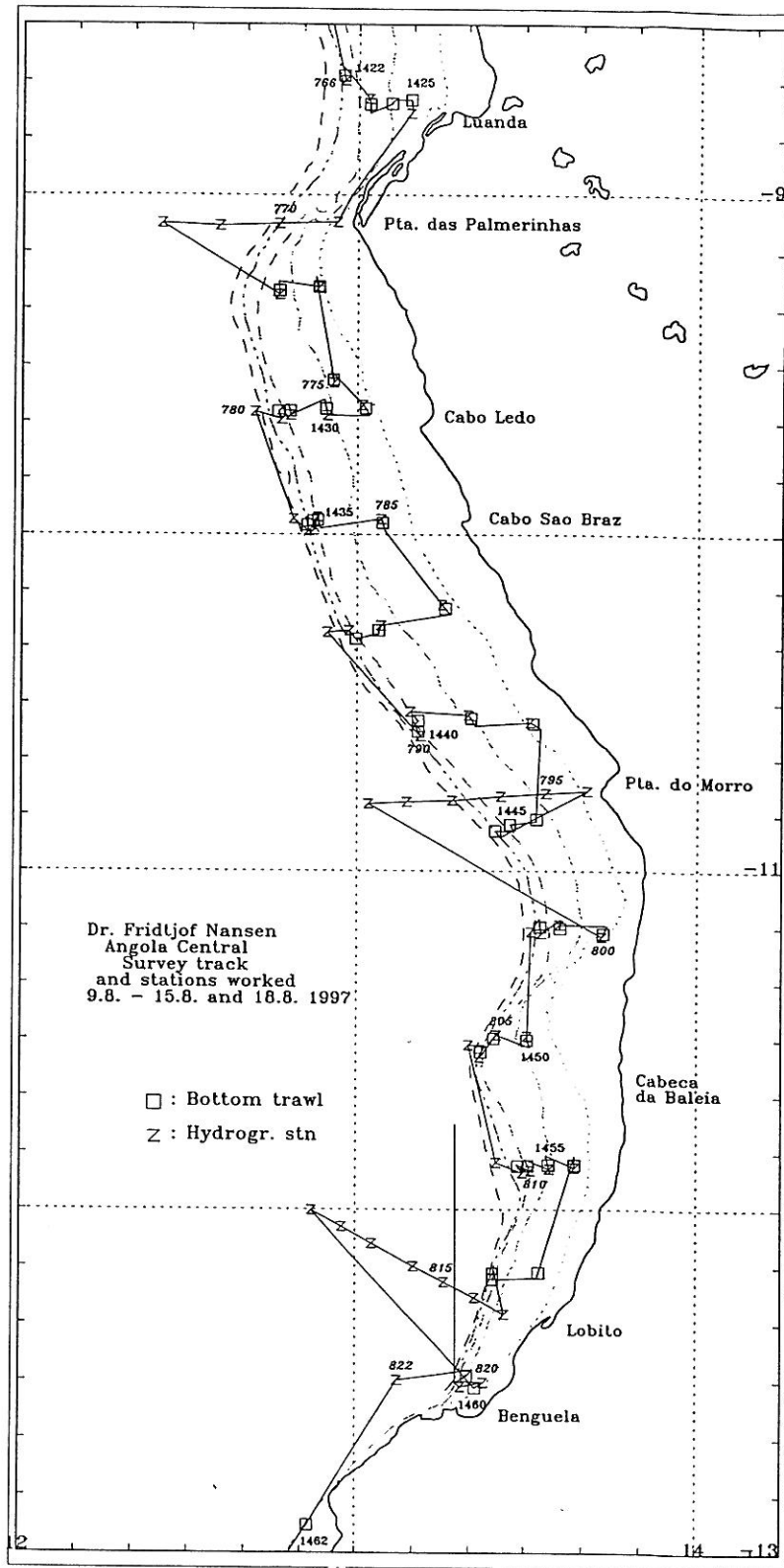


Figure 1b. Angola central (Luanda to 13 °S - south of Benguela). Course tracks, fishing stations and hydrographic stations. Depth contours as in Fig. 1a.

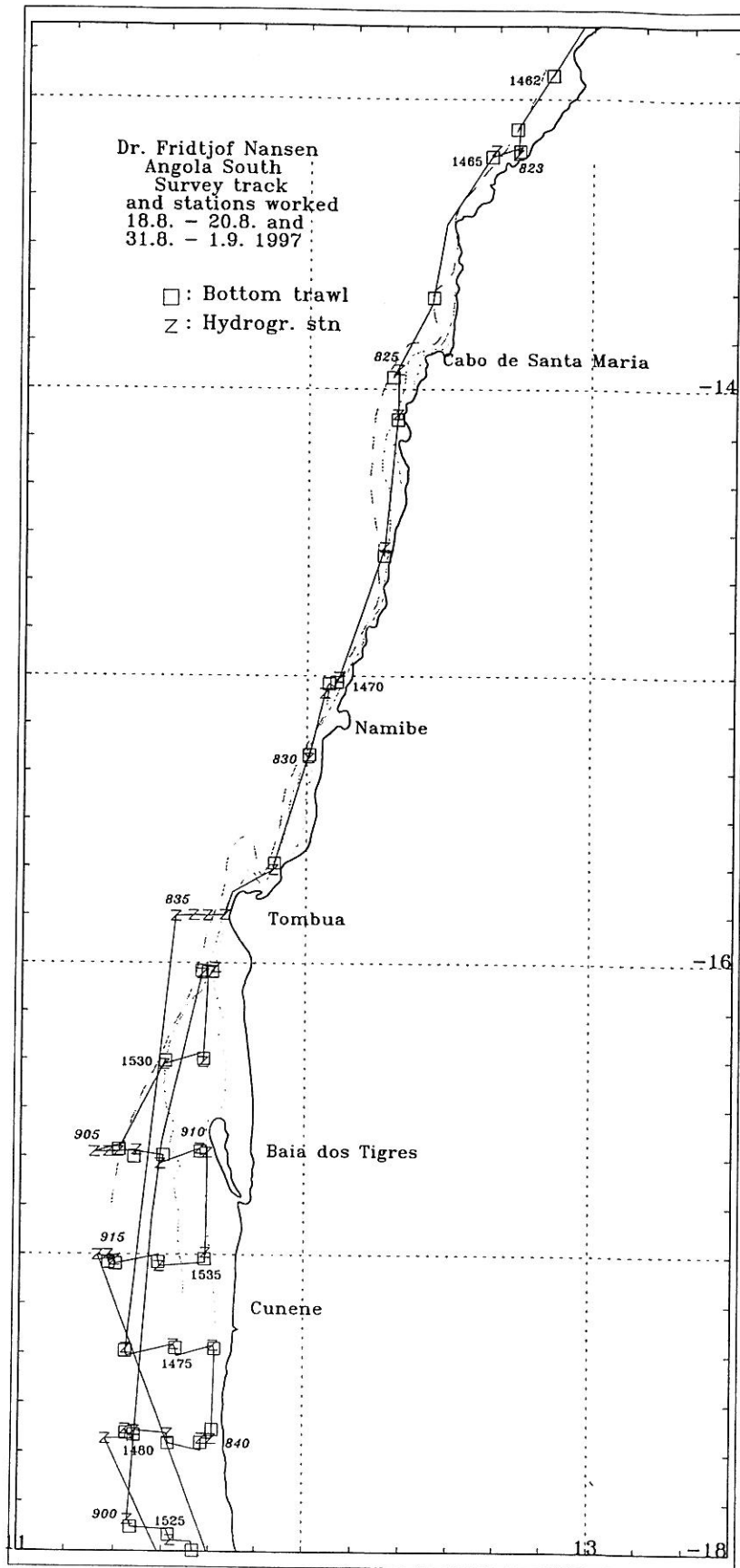


Figure 1c. Angola south (13 °S - south of Benguela to Cunene River). Course tracks, fishing stations and hydrographic stations. Depth contours 20, 50 and 100 m are included.

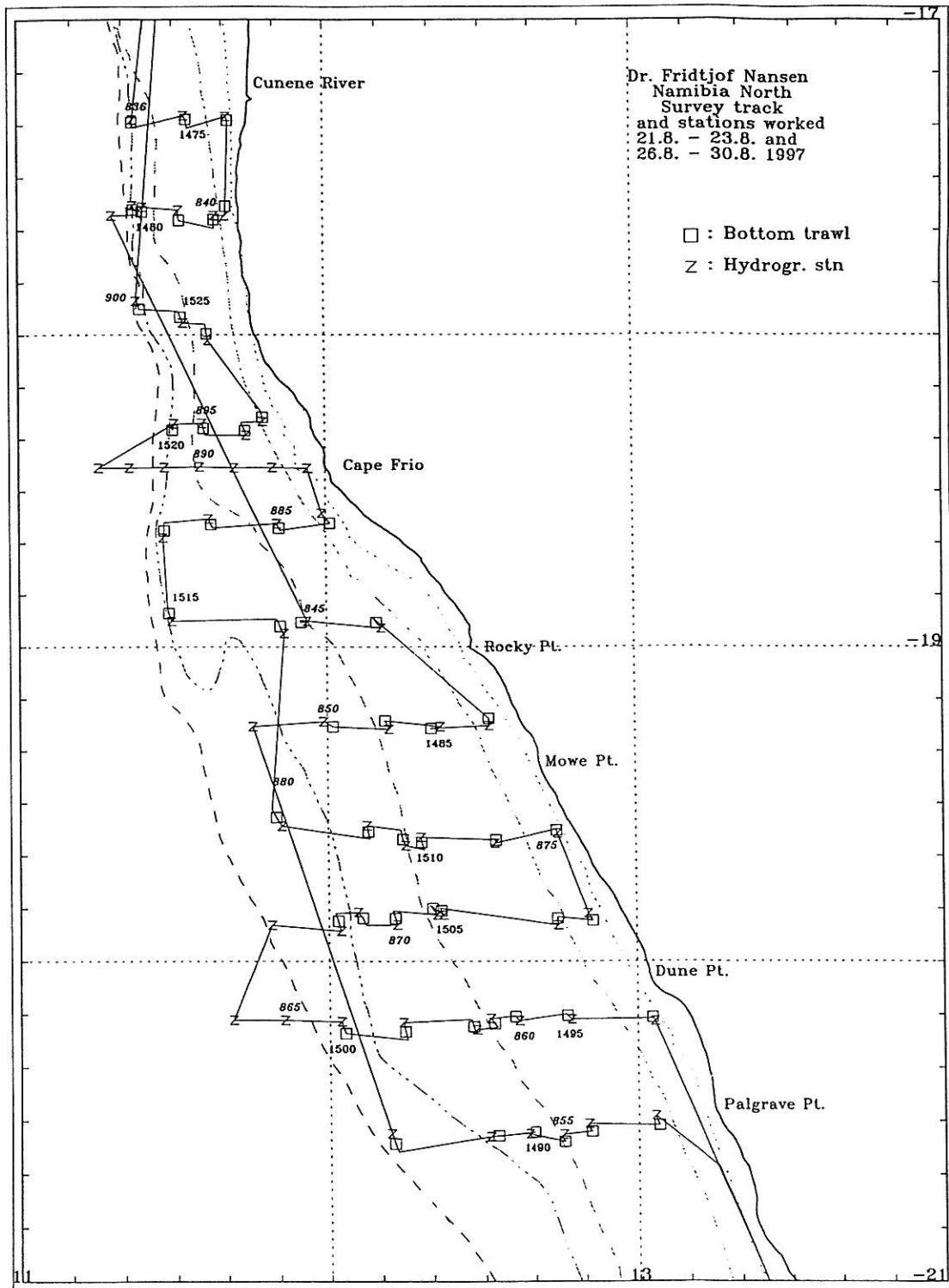


Figure 1d . Namibia north (Cunene River to 20° 40'S - south of Palgrave Pt.). Course tracks, fishing stations and hydrographic stations. . Depth contours as in Fig 1a.

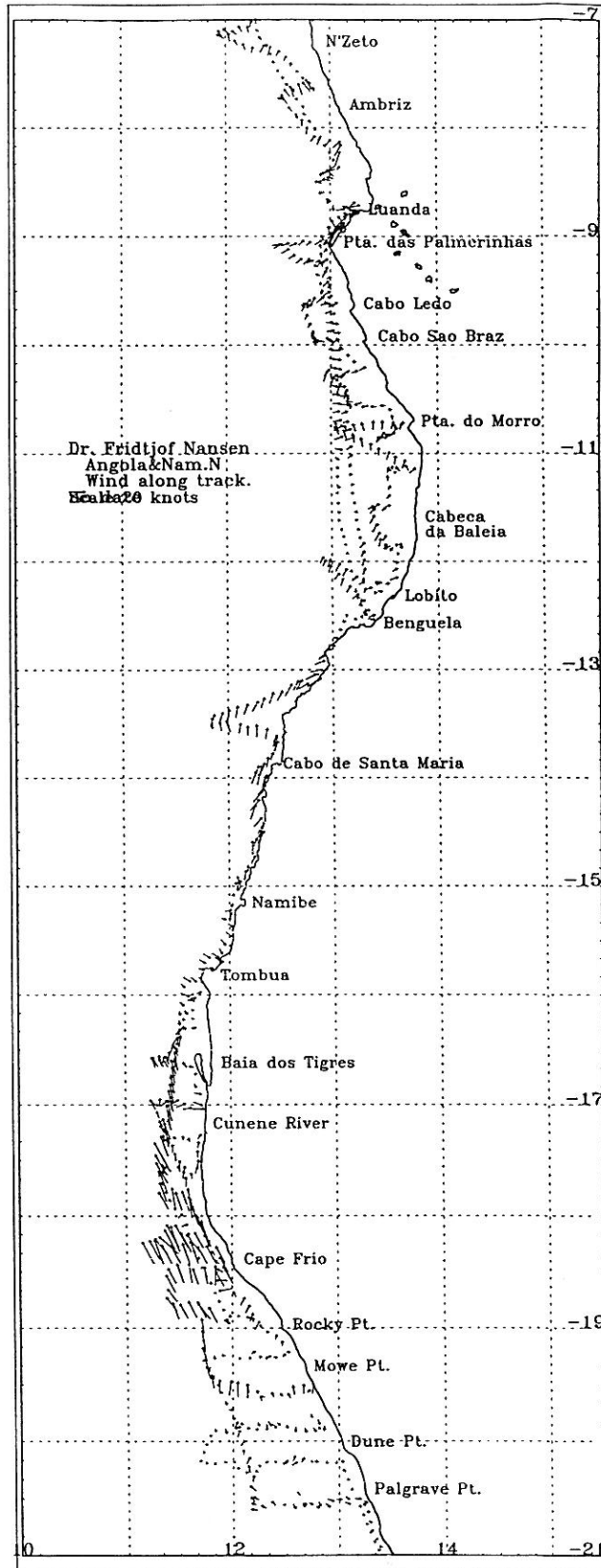


Figure 2. Wind conditions along the survey track.

CHAPTER 2 METHODS

2.1 Hydrographic sampling

A Seabird 911 + CTD probe was used to obtain vertical profiles of temperature, salinity and oxygen. Real time plotting and logging was done using the Seabird Seasave software installed on a PC. The profiles were in general taken down to a few meters above the bottom. In deep stations however, data logging was interrupted at 700 m. At each station two Niskin bottles were triggered for water samples, one near the surface and one near the bottom. In order to calibrate the oxygen and salinity sensors, water samples were analysed for dissolved oxygen using the Winkler method and salinity using a Guildline Portasal salinometer mod. 8410.

A total of 230 samples were accepted for oxygen calibration. A linear regression of the Winkler determinations on the CTD values gave the following results:

$$O_2 = O_{2\text{CTD}} * 0.944 + 0.417$$

The standard deviation of the calibration was 0.21 and the coefficient of determination of the regression was $r^2 = 0.99$.

A total of 230 salinity samples were accepted for calibration. The average difference between laboratory and CTD values was 0.001 with a standard deviation of 0.008. Therefore, CTD salinity values were corrected according to the following formula:

$$S = S_{\text{CTD}} - 0.07$$

Since the calibration values both for oxygen and salinity were obtained at the end of the cruise, the results presented in this preliminary report have not been adjusted.

Wind direction and speed, air temperature, global radiation and sea surface temperature (SST) were automatically logged every nautical mile using an Anderaa meteorological station.

Current measurements were done with a ship borne Acoustic Doppler Profiler (ADCP) from RD instruments. The ADCP was set to ping every 8 seconds, the depth cell was set to 8 m

and the number of cells to 40. As a routine data were stored on files and finally analysed by the PC software UMS (Underway Mapping System), supported by Sea Fisheries Research Institute, Cape Town, South Africa.

2.2 Fish sampling

Bottom trawl survey

The trawl survey programme was carried out using a Gisund super bottom trawl. This trawl has a headline of 31 m, a footrope of 47 m; headline height of 5-6 m and a distance between wings of about 21 m. Trawl doors are Thyborøen of 7.9 m² (See Annex IV). During trawling, a 9.5 m long rope was fastened between the wires, 130 m in front of the doors, kept a constant distance between the doors at 49-50 m. Performance of the trawl during the hauls was monitored using SCANMAR trawl sensors (trawl depth, headline height and distance between doors) which allow a better measuring of the time during which the footrope of the trawl is in contact with the bottom. The duration of the trawl haul, recorded as distance over the bottom, was measured by a GPS. Standard trawling time was 30 minutes. Trawl hauls were done only during daytime.

Conversion of catch rates into fish densities was done by the swept area method. For these calculations, it was assumed that the distance between wings was the effective fishing section and that the catchability coefficient was equal to 1. Densities of large-eye dentex were then plotted into a map and the values post-stratified according to pre-established density strata. The biomass estimate of the resulting aggregations was calculated by multiplying the mean density inside an aggregation by its area. The biomass of each reporting region was estimated by adding up the biomass of those aggregations inside the region concerned.

Biological sampling

All the catches were sampled to estimate the species composition by weight and number. Records of all the trawl stations of the survey are presented in Annex II.

In all cases, the size distribution of commercially important species was recorded using total body length measured to the nearest cm below. Size distributions of the species sampled during the cruise are shown in Annex III.

In particular, the catches of large-eye dentex were separated by sex before determining the weight and number. In most of the catches of *D. macrophthalmus* a sub sample was obtained for individual biological analysis. Data on length, weight, sex and maturity stage were recorded for each individual. When possible, data on stomach content weight, degree of fullness and prey composition were also collected. Preliminary results on the stomach content analysis are included in Annex IV.

Acoustic sampling

As a routine, an acoustic echo-integration system provided measurements of fish densities, averaged over 5 NM distances. The acoustic unit measured by this calibrated echo-integrator system is the area backscattering coefficient, S_A . Echograms were scrutinised to partition the total S_A value among main fish groups using the Bergen Echo Integrator, BEI system. The groups considered were: pelagic fish 1 (epipelagic fish, i.e. sardinellas, sardines, anchovies); pelagic fish 2 (benthopelagic fish i.e. horse mackerel, hairtails); demersal fish and mesopelagic fish-plankton. The data were stored in the BEI system for further analysis. The description of the echo sounder settings used during the cruise is shown in Annex I.

CHAPTER 3 OCEANOGRAPHIC CONDITIONS

3.1 Horizontal distribution

Maps of the sea surface temperature (SST) recorded at 5m depth in each region are shown in Figure 3 (a-d). Vertical profiles of temperature, salinity and oxygen taken at standard locations are presented in Figure 4.

Surface temperature ranged from 20-21°C in the northern part of the surveyed area to 15-16 °C in the south. Surfaced salinity varied from 35.9 psu in the north to 35.2 psu in the south. These values indicate the transition from the relatively warm water of the northern Angola region to the less saline, cold upwelled water of the Benguela current area. A change in SST characteristics can be noticed north and south of Tombua.

3.2 Vertical distribution

The vertical profiles from Pta. das Palmerinhas to Lobito show a relatively strong stratification with a thermocline located between 10 and 30 m depth. Some indication of coastal upwelling can be seen from the shoreward lifting of isotherms. No oxygen limitations were found close to the bottom in this region. The profiles from Tombua to Dune Pt. show stronger evidence of coastal upwelling, with broken stratification of the water column and the bending of salinity and temperature isolines towards shore. The presence of low oxygen levels (below 1 ml/l) on the water above sea bottom can also be observed in this sequence of transects, getting more pronounced southwards.

3.3 Acoustic Doppler Current Profiler (ADCP)

Raw ADCP data selected at 34 m depth are plotted in Figure 5. Although great variability exists, both between stations and inside the same station, some general patterns seem to emerge. South-south-westerly circulation prevailed from Palgrave Pt. to Benguela over the shelf and in particular over the shelf brake. Northwesterly circulation dominated from Luanda to Benguela. Even though there is not much data north of Luanda, it seems to be a change on the circulation direction towards south south easterly.

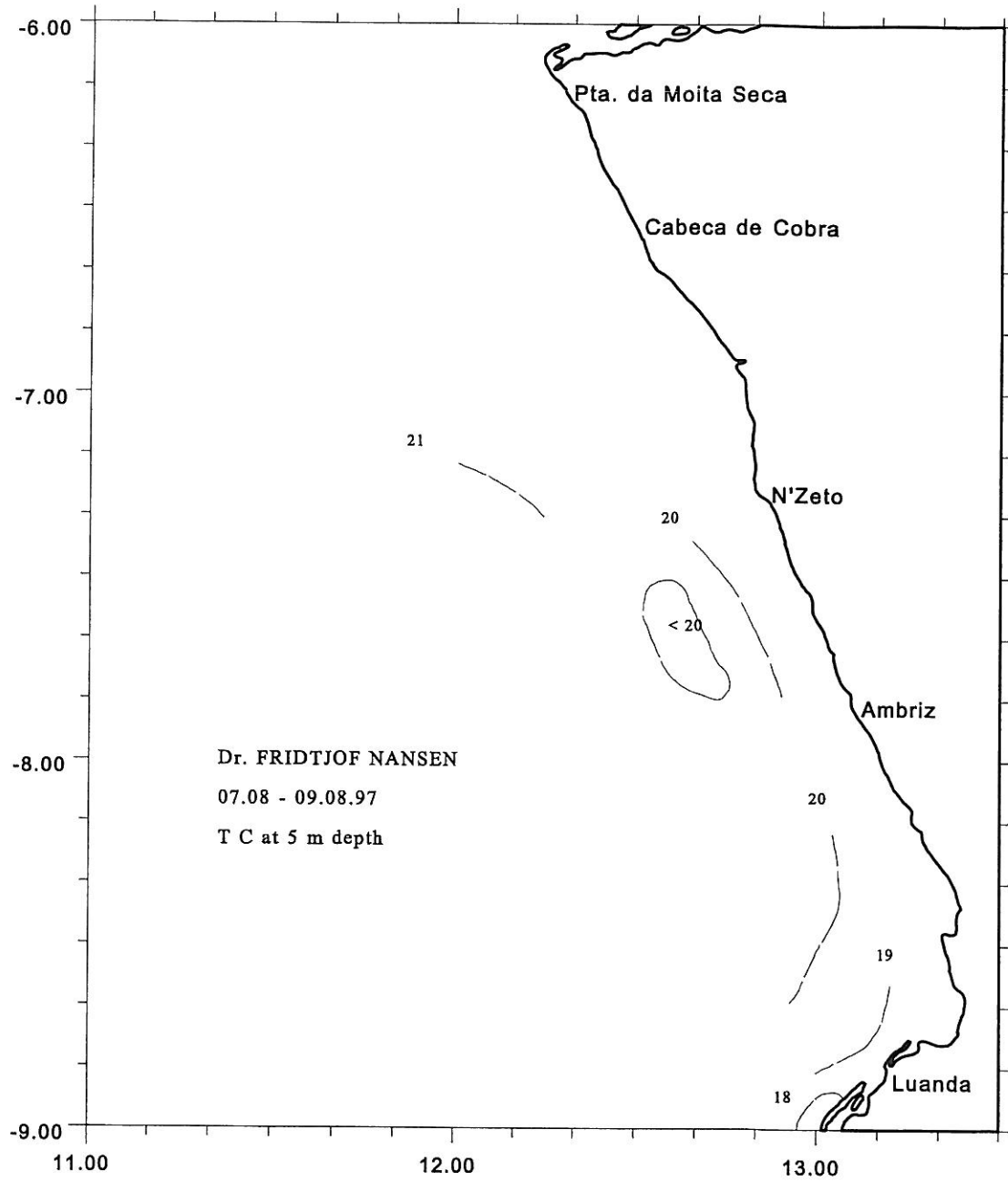


Figure 3a. Angola north (7 °S - north of N'zeto to Luanda). Distribution of surface temperature (5 m depth).

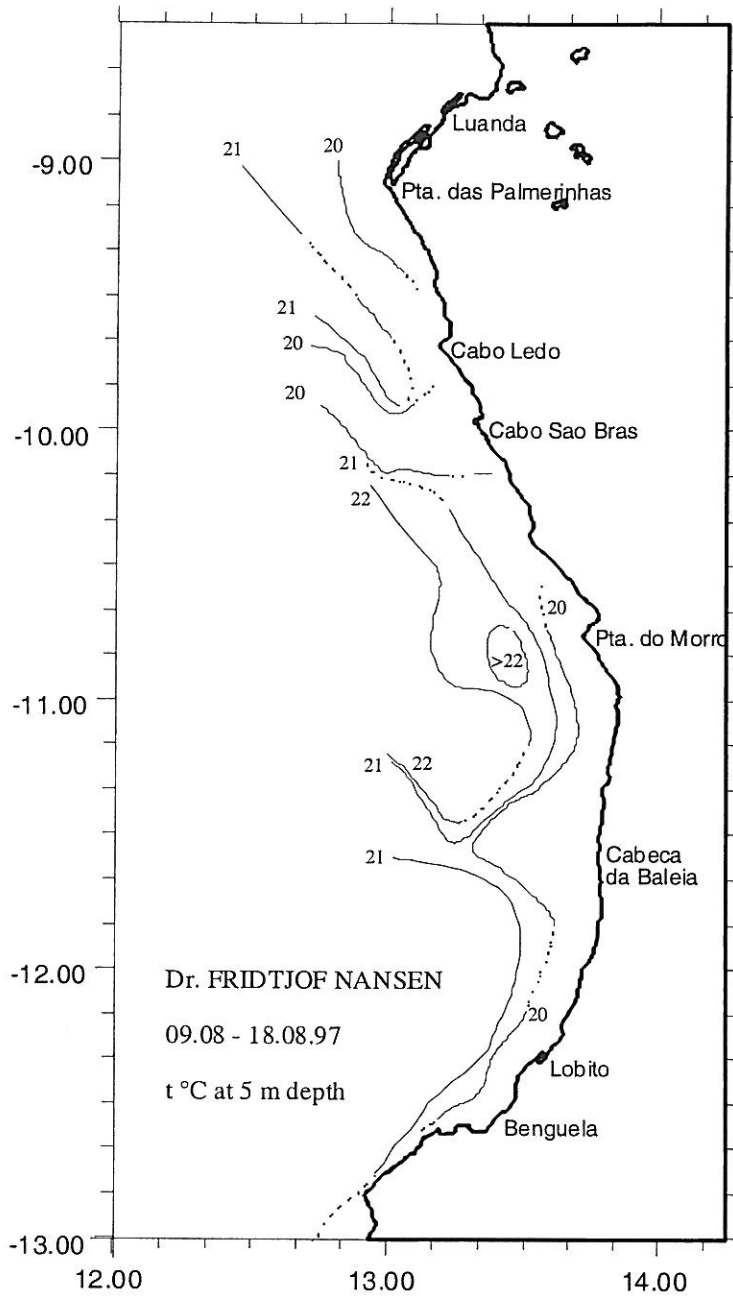


Figure 3b. Angola central (Luanda to 13 °S - south of Benguela). Distribution of sea surface temperature (5 m depth)

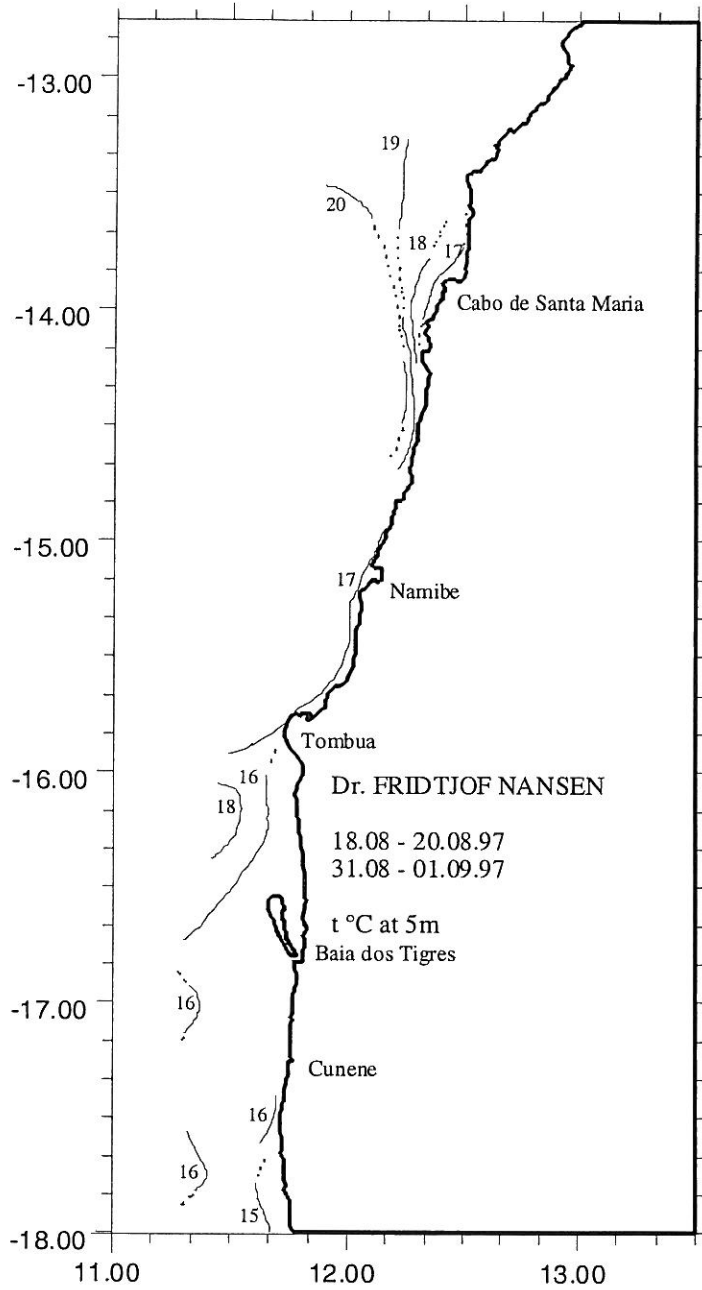


Figure 3c. Angola south (13 °S - south of Benguela to Cunene River). Distribution of sea surface temperature (5 m depth)

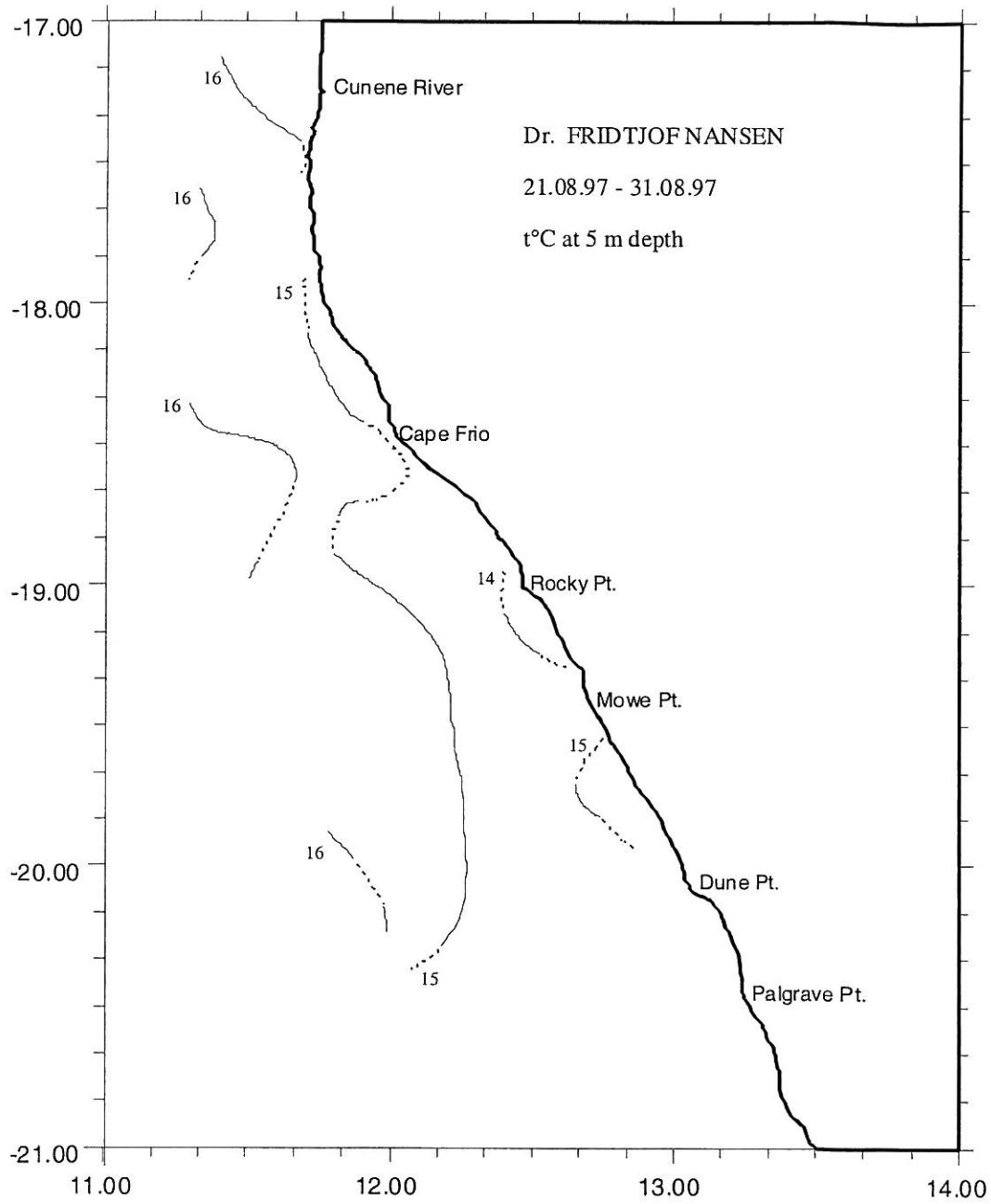


Figure 3d Namibia north (Cunene River to 20° 40'S - south of Palgrave Pt.) Distribution of sea surface temperature

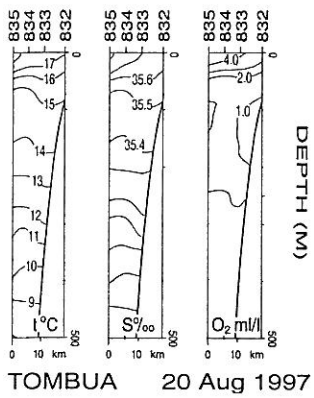
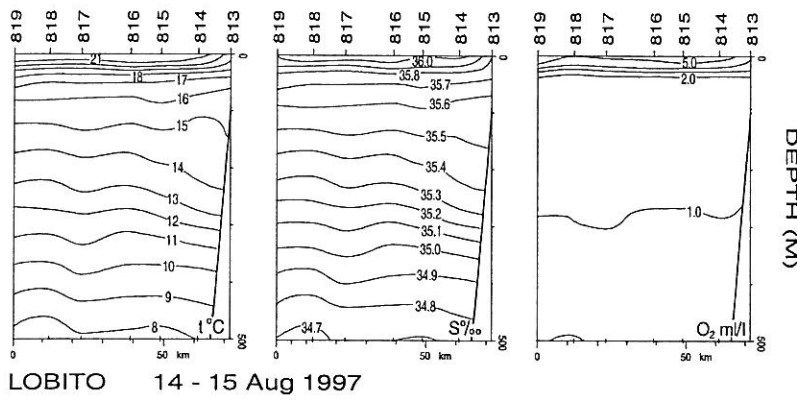
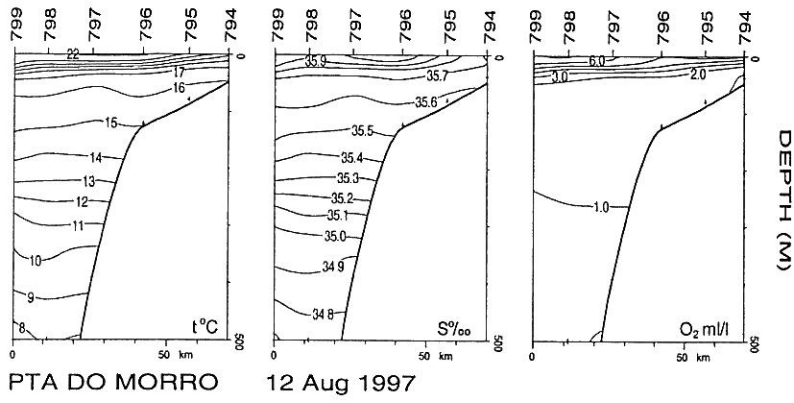
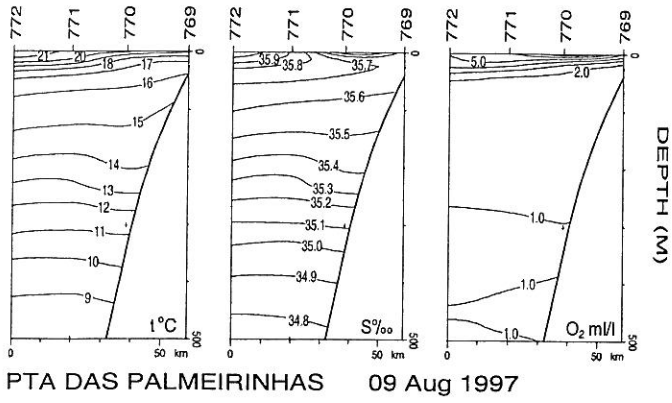


Figure 4 Temperature, salinity and oxygen in the standard profiles worked

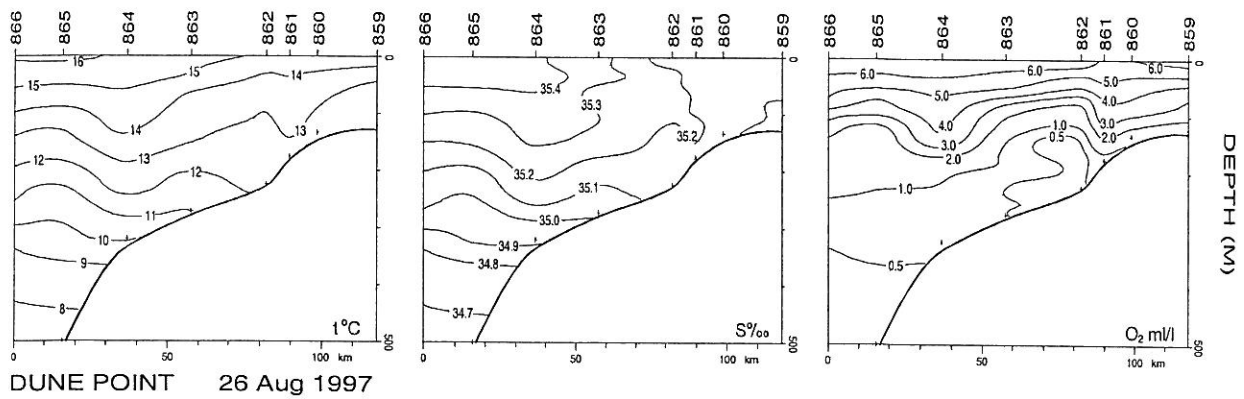
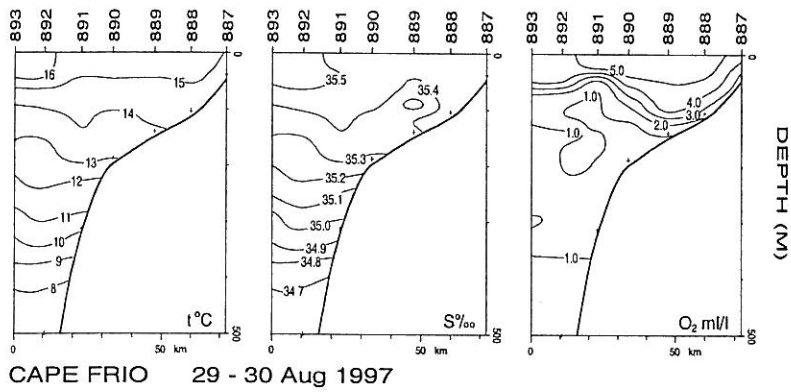
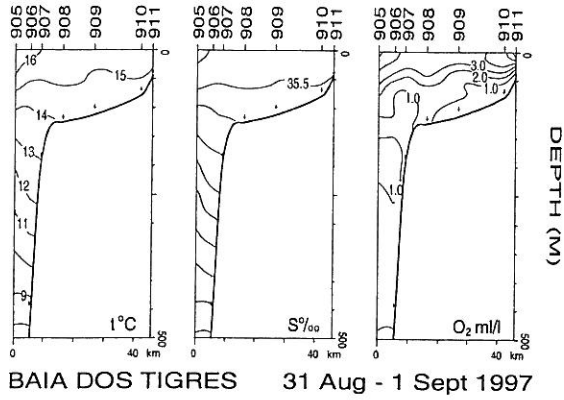


Figure 4 (cont...) Temperature, salinity and oxygen in the standard profiles worked

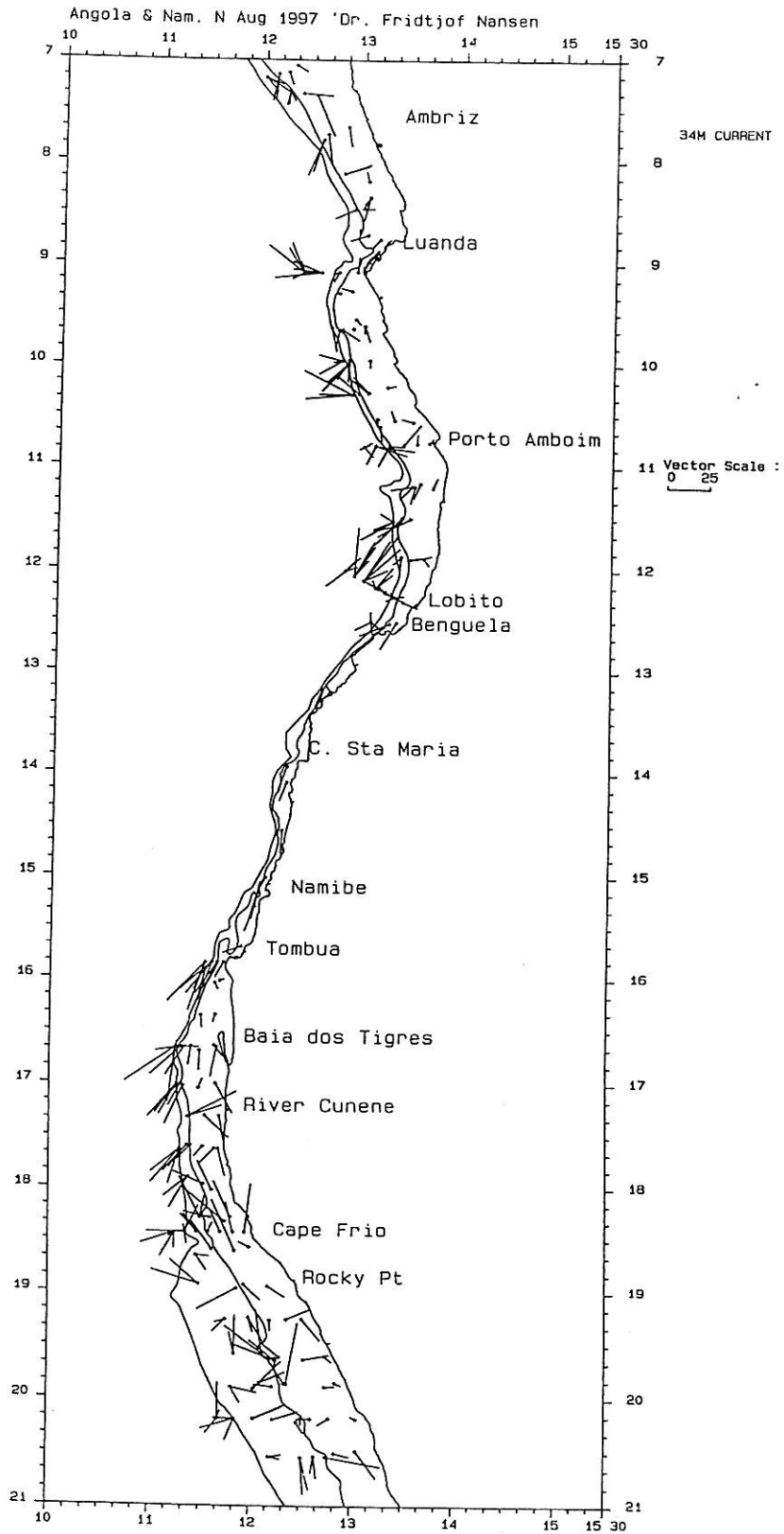


Figure 5 ADCP current measurements at 34 m depth

CHAPTER 4 TRAWL SURVEY RESULTS ON LARGE-EYE DENTEX AND OTHER COMMERCIALY IMPORTANT SPARIDS.

The spatial distribution of large-eye (*D. macrophthalmus*) in each of the four areas defined is presented in Figure 5 (a-d). Regional numerical abundance in each 1 cm size class of large-eye dentex is presented in Figure 6 (a-d).

4.1 Angola north

In the area between N'zeto and Luanda large-eye dentex was found in low densities along the whole area, with most of the catches taken between 100-200 m. The estimate of total biomass of *D. macrophthalmus* in this area was 1 800 tonnes. Fish size ranged from 20 to 34 cm total length with a mode at 25 cm (Figure 6 a). Table 2 presents the catch rates of *D. macrophthalmus* together with those of the commercially important sparids in the shelf and upper slope of this area (i.e. Angola dentex *D. angolensis*; Congo dentex *D. congoensis*; red pandora *Pagellus bellottii*; and species of the genus *Sparus*). None of the chosen sparid species was dominant in this region.

Table 2 Angola north. Catch rates in kg/hour by swept area bottom trawl for the commercially important sparids in the shelf and slope

SHELF 50 - 200 m							
Station	Depth.	<i>D.macrophthalmus.</i>	<i>D.angolensis.</i>	<i>D.congoensis.</i>	<i>P.bellottii.</i>	Pagrus sp.	Other
1413	71		1.8	3.4	56.4		394.1
1425	82		2.4		4.0		267.7
1407	84		29.4	0.6	10.2	20.7	87.0
1418	91		21.6	0.8	60.8		498.2
1419	105		4.4		5.5		764.9
1420	114	44.8	121.0	3.6	0.8		548.1
1408	115		45.9	70.8			5234.9
1417	125	65.0	20.3	27.1	0.9	2.8	291.3
1409	134	3.7	44.1	201.2			425.5
1423	143	157.9	38.1		5.8	25.3	1265.8
1412	160	2.3	31.2				244.5
1416	184	15.4	10.6				3800.2
MEAN		24.1	30.9	25.6	12.0	4.1	1151.8

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Table 2 Angola north. Catch rates in kg/hour by swept area bottom trawl for the commercially important sparids in the shelf and slope

SHELF 50 - 200 m							
Station	Depth.	<i>D.macro-</i> <i>thalmus.</i>	<i>D.angolensis.</i>	<i>D.congoen-</i> <i>sis.</i>	<i>P.bellottii.</i>	<i>Pagrus</i> sp.	Other
1413	71		1.8	3.4	56.4		394.1
1425	82		2.4		4.0		267.7
1407	84		29.4	0.6	10.2	20.7	87.0
1418	91		21.6	0.8	60.8		498.2
1419	105		4.4		5.5		764.9
1420	114	44.8	121.0	3.6	0.8		548.1
1408	115		45.9	70.8			5234.9
1417	125	65.0	20.3	27.1	0.9	2.8	291.3
1409	134	3.7	44.1	201.2			425.5
1423	143	157.9	38.1		5.8	25.3	1265.8
1412	160	2.3	31.2				244.5
1416	184	15.4	10.6				3800.2
MEAN		24.1	30.9	25.6	12.0	4.1	1151.8

SLOPE 200 - 350 m

Station	Depth.	<i>D.macrophthalmus.</i>	<i>D.angolensis.</i>	<i>D.congoensis.</i>	<i>P.bellottii.</i>	<i>Pagrus</i> sp.	Other
1411	212	0.4	126.6				355.42
1421	277						773.2
1422	292						471.1
1415	349						880.95
1410	357						547.2
MEAN		0.08	25.32				605.57

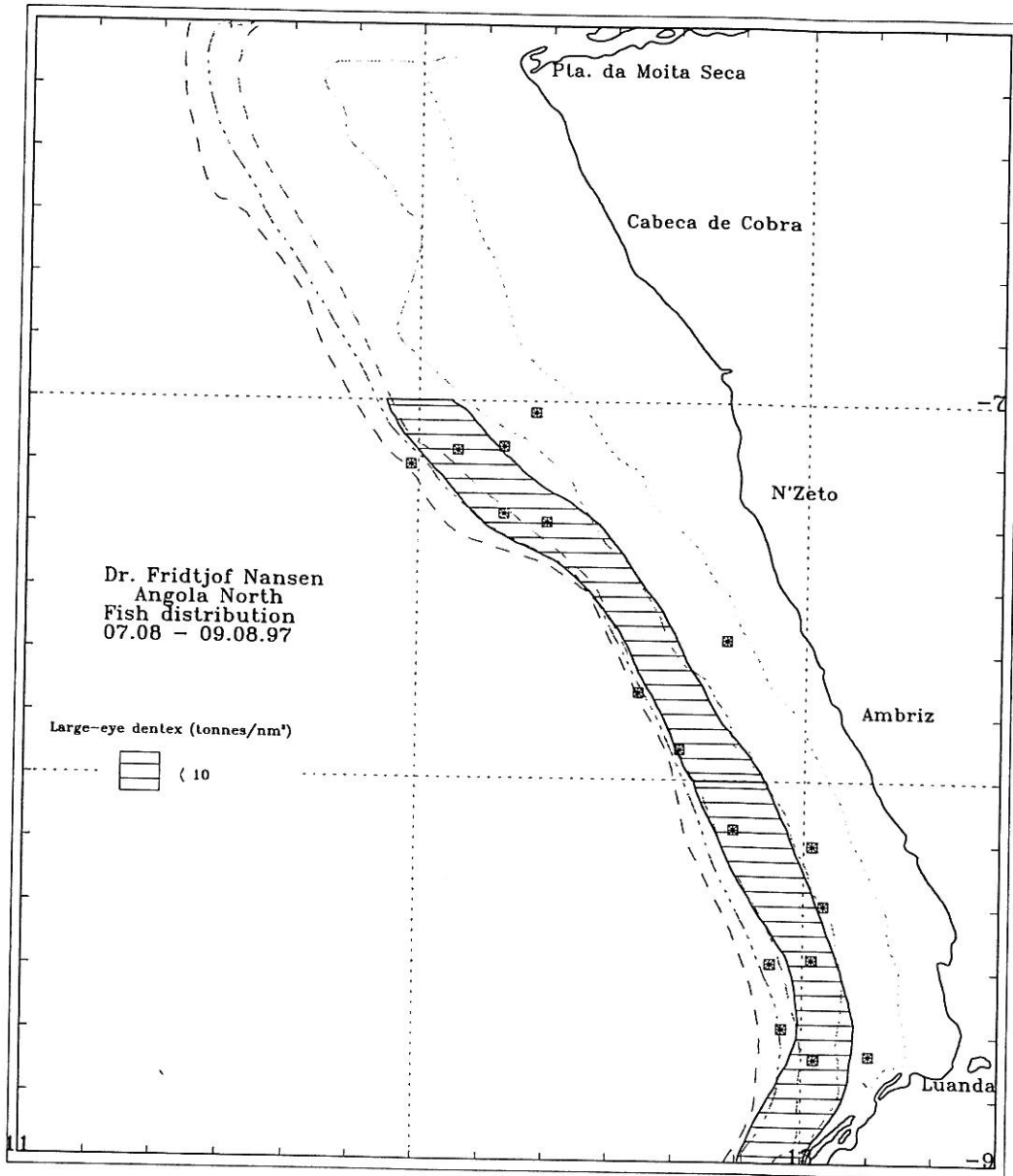


Figure 6a. Angola north (7 °S - north of N'zeto to Luanda). Distribution of large-eye dentex (*D. macrophthalmus*) Depth contours as in Fig. 1a.

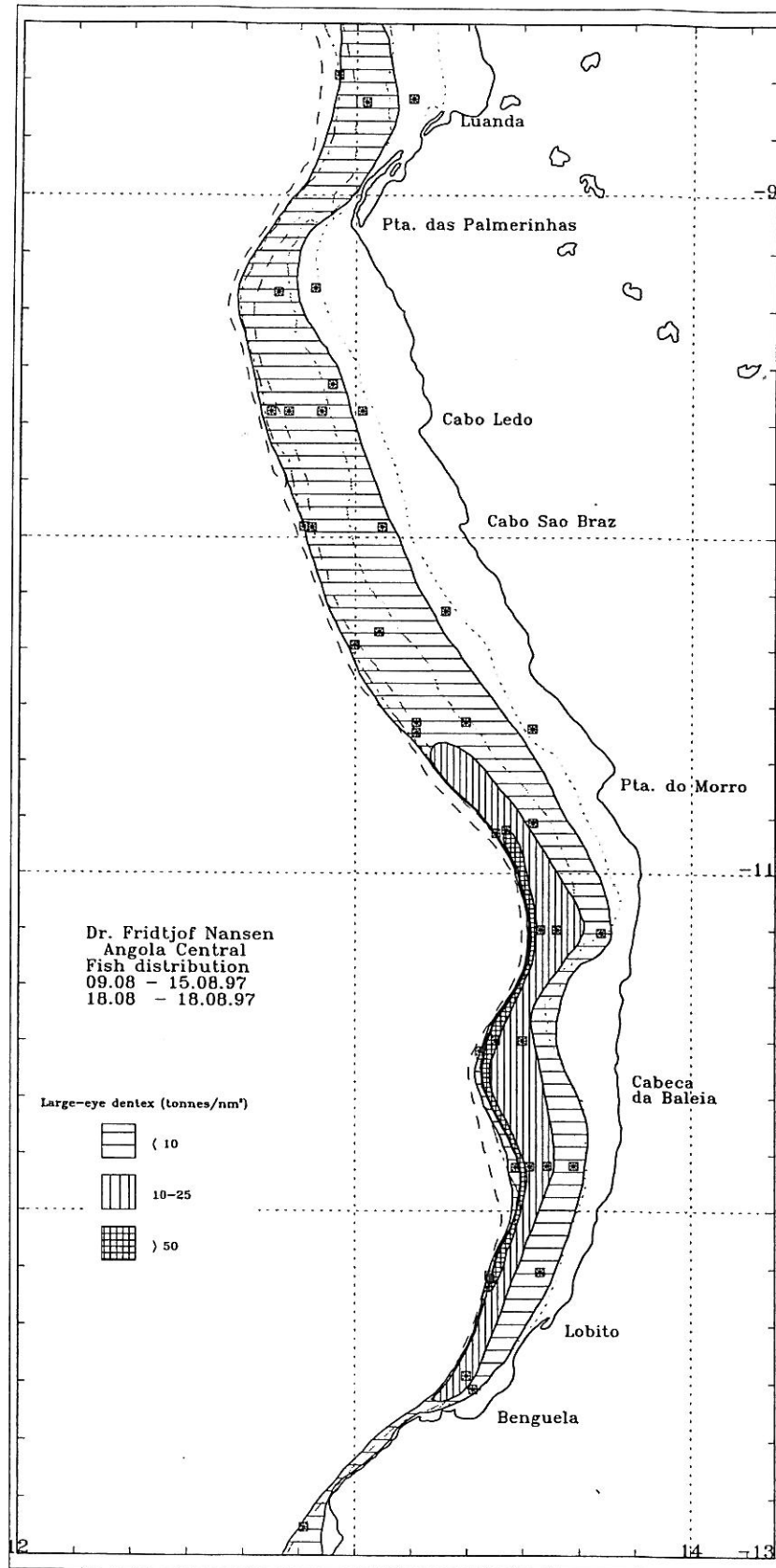


Figure 6b. Angola central (Luanda to 13 °S - south of Benguela). Distribution of large-eye dentex (*D. macrophthalmus*) Depth contours as in Fig. 1a.

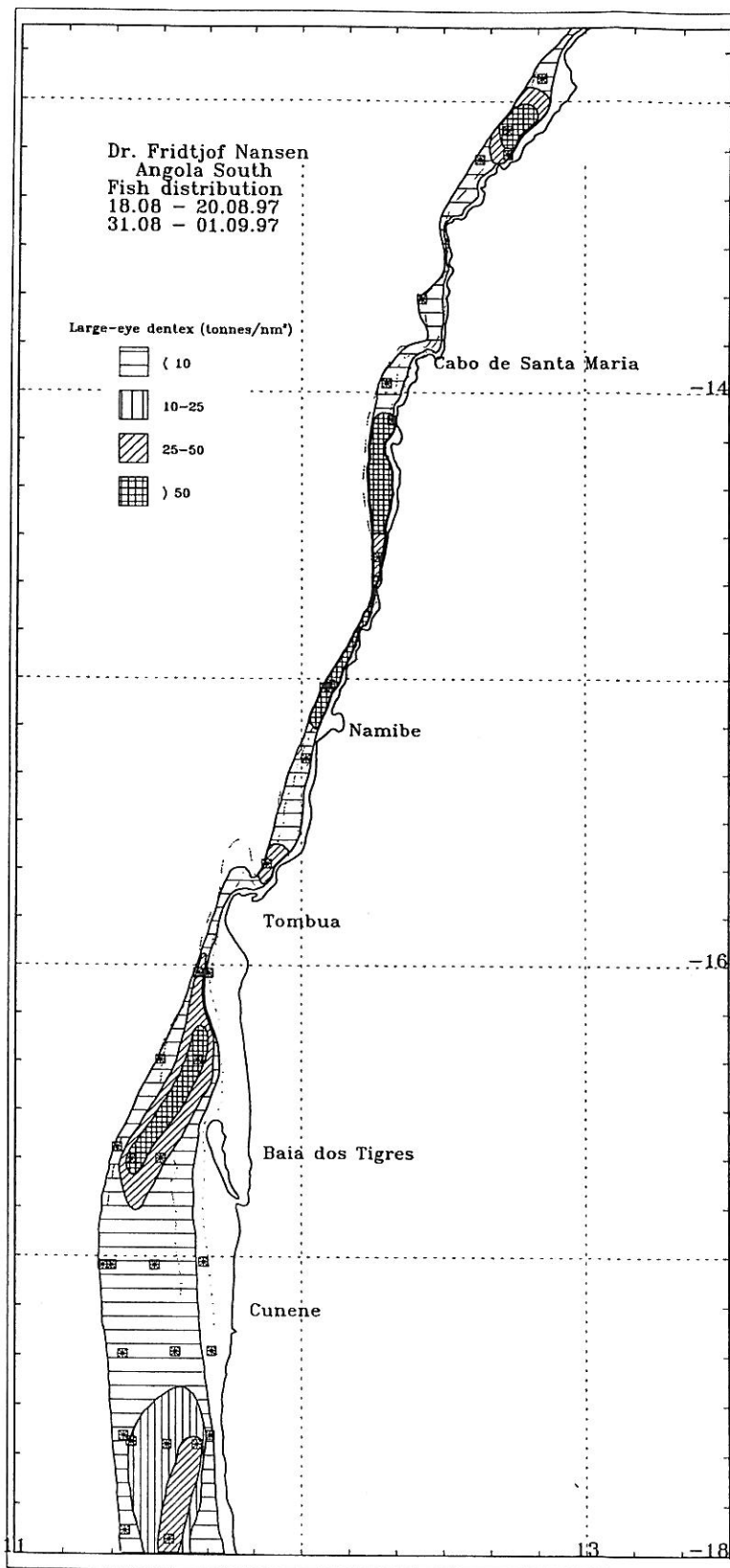


Figure 6c. Angola south (13 °S - south of Benguela to Cunene River). Distribution of large-eye dentex (*D. macrophthalmus*) Depth contours as in Fig. 1c

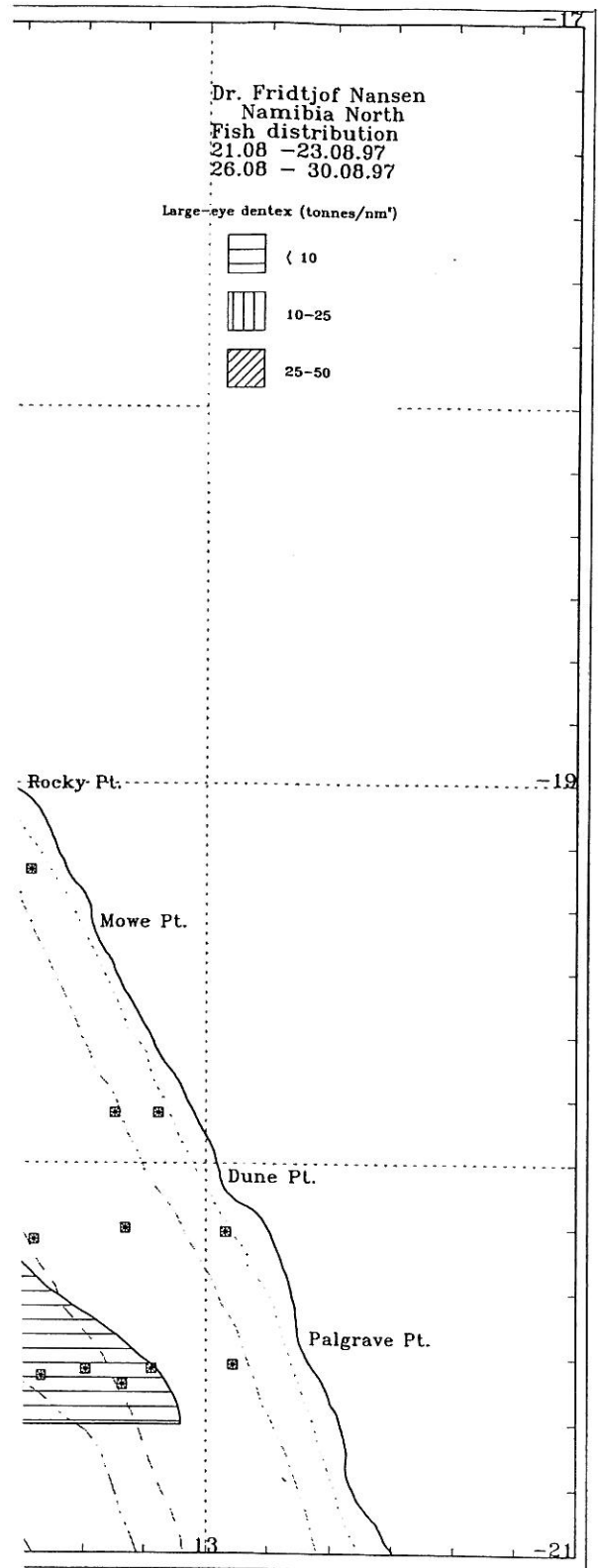
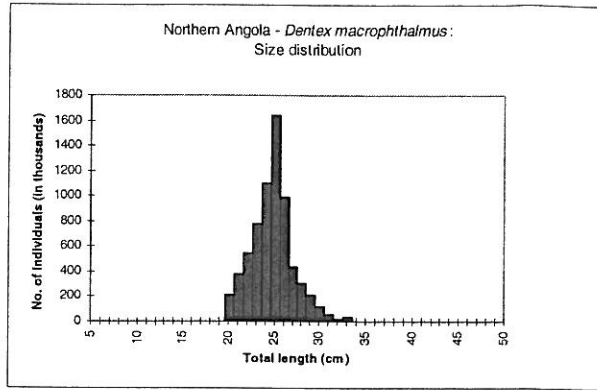
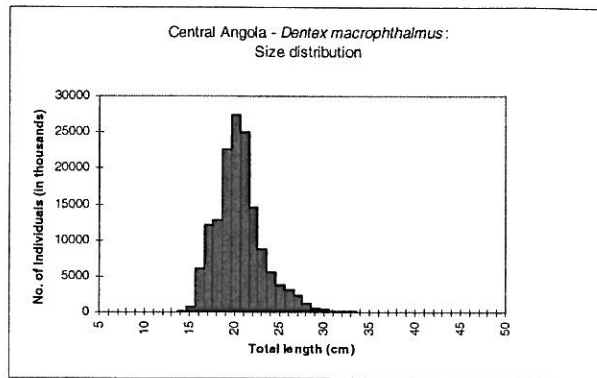


Figure 6d Namibia north (Cunene River to 20° 40'S - south of Palgrave Pt.) Distribution of large-eye dentex (*D. macrophthalmus*) Depth contours as in Fig. 1a.

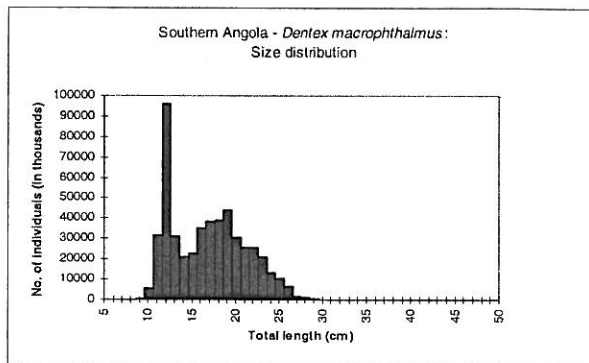
a -



b -



c -



d -

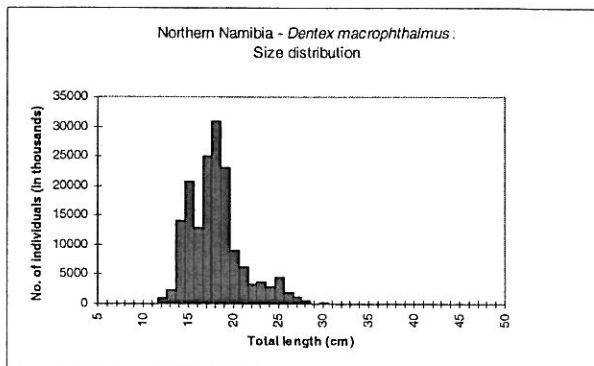


Figure 7 Size composition of the stock of large eye dentex.

4.2 Angola central

The low catch rates of large-eye dentex found in Angola north continued down to Pta. do Morro. Between this point and Benguela, catch rates of *D. macrophthalmus* increased mainly in the depth range 90 - 250 m. The estimate of total biomass of large-eye dentex in Angola central was 22 500 tonnes. Fish size ranged from 12 to 33 cm with a modal size of 20 cm (Figure 6b). Table 3 presents the catch rates of *D. macrophthalmus* together with those of the commercially important Sparids in the shelf and upper slope of Angola central.

Table 3 Angola central. Catch rates in kg/hour by swept area bottom trawl for the commercially important sparids in the shelf and slope

SHELF 50 -200 m							
Station	Depth.	<i>D.macrophthalmus.</i>	<i>D.angolensis.</i>	<i>D.congoensis.</i>	<i>P.bellottii.</i>	<i>Pagrus</i> sp.	Other
1443	49				51.2		585.7
1427	61		15.0		164.6		706.7
1460	66	187.0	0.6		18.2		650.8
1447	68	185.0			1.5		875.4
1437	69				64.8		560.5
1429	73		2.0		105.3		720.2
1456	76	113.3	4.2		76.1		2067.9
1436	82	37.8	1.3		30.4		1532.0
1457	83	96.9			21.2		817.6
1428	93	50.0	1.3		38.8		407.0
1450	95	367.7	20.5		41.9		1127.0
1461	100	876.3			19.4		1352.8
1442	102	68.1	17.0	0.8	3.4		2104.7
1455	108	477.0	114.0		22.8	34.2	2756.7
1430	110	11.0	13.6		1.5	5.4	669.9
1462	110	77.8				1.0	165.9
1444	114	24.7	15.2		1.4	1.3	217.1
1438	116	12.9	15.4	1.0	5.3	11.5	1756.3
1426	129	96.4	16.4	0.4			351.5
1448	146	628.8	12.0				572.9
1441	159	24.3	16.6				1636.3
1435	167	19.4	10.2				2641.0
1445	176	1444.5	38.3				2509.3
1431	180	13.0	22.0				1025.2
1451	191	1967.0					965.4
MEAN		271.2	13.4	0.1	26.7	2.1	1151.0

SLOPE 200-350 m							
Station	Depth.	<i>D.macrophthalmus</i> .	<i>D.angolensis</i> .	<i>D.congoensis</i> .	<i>P.bellottii</i> .	<i>Pagrus</i> sp.	Other
1440	200	223.6	15.6				655.2
1454	202	821.3	20.0				626.9
1458	202	2178.6	72.8				592.2
1439	206	44.8	10.0				1160.3
1432	219	35.8	9.6				262.4
1434	219	7.8	16.4				1685.5
1453	253	21.8					254.4
1449	254	454.8					1652.0
1459	270	116.2					808.7
1452	276	21.8					909.4
1433	291						463.9
1446	317						827.2
MEAN		327.2	12.0				824.8

Looking at Tables 2 and 3, it is possible to point out some differences in the distribution of the chosen sparids. Congo dentex, red pandora and *Pagrus sp* distributed in depth shallower than 150 m, while *D. angolensis* and *D. macrophthalmus* were the only sparids caught in the upper slope. Comparatively, *D. macrophthalmus* became a dominant species in Angola central, and Congo dentex, representative of the guineo-equatorial fish fauna, reduced their contribution to the catches of the region.

4.3 Angola south

The area extending from south of Benguela to the Cunene River is probably the most important region in the area of distribution of large-eye dentex and, at the same time, the most difficult to evaluate using a bottom trawl gear. In the area between Benguela and Tombua, characterised by a narrow shelf with irregular bottom and a very steep slope, it is difficult to find trawlable bottom conditions. Most of the cruise effort in this region was invested in searching for suitable areas. Only 10 trawl hauls were successfully carried out between Benguela and Tombua, and in average the catches of large-eye dentex were very high. The abrupt change of depth in the slope continued down to the Cunene River and therefore the depth strata deeper than 200 m was insufficiently sampled in the whole Angola South. Another important finding in this region, was the detection of dense aggregations of small juveniles with a modal size of 12 cm in the area Tombua-Baia dos Tigres. The estimate of total biomass for the region Angola south was 44 800 tonnes. Fish size ranged from 7 to 33 cm in a bimodal distribution with modes at 12 and 19 cm (Figure 6c). Table 4 presents the catch rates of the *D. macrophthalmus* together with those of the commercially important sparids in the shelf and upper slope of Angola south.

Table 4 Angola south. Catch rates in kg/hour by swept area bottom trawl for the commercially important sparids in the shelf and slope

SHELF 50 -200 m.

Station	Depth.	<i>D.macrophthalmus.</i>	<i>D.angolensis.</i>	<i>D.congoensis.</i>	<i>P.bellottii.</i>	<i>Pagrus</i> sp.	Other
1528	57	129.2			13.6		2196.4
1535	64						6634.6
1529	76	2211.8			11.0		3722.5
1472	82	1.8			3.2		4782.4
1530	88						11969.5
1468	89	2836.8			26.6		2940.4
1473	97	1403.5	28.7		95.7		1788.9
1464	100	814.4	29.3		19.5		4334.0
1536	111	209.4					507.5
1533	112	855.7			3.0		2459.3
1527	116	795.6			14.4		353.7
1467	117	4.6	11.2		9.2	8.6	1163.7
1469	121	1652.2	179.2		40.5		2740.6
1532	123	1762.6			54.0		356.9
1470	126	3240.0	22.1		19.0		2936.8
1466	128	59.1	1.5		4.2	12.0	498.7
1537	175	92.1					3360.9
1531	189	423.6					4639.5
MEAN		916.2	15.1		17.4	1.1	3188.1

SLOPE 200 - 350 m

Station	Depth.	<i>D.macrophthalmus.</i>	<i>D.angolensis.</i>	<i>D.congoensis.</i>	<i>P.bellottii.</i>	<i>Pagrus</i> sp.	Other
1463	232	1815.7					1609.5
1471	277	4602.0					2283.8
1465	314	113.3					962.7
MEAN		324.0					1737.4

In Angola south, large-eye dentex became dominant in the sparid catches. All the rest of the species of sparids were recorded in depths shallower than 150 m.

4.4 Namibia north

In Namibian waters, except for the area between 15 NM south of Cunene River and Cape Frio, *D. macrophthalmus* was found in low-density aggregations. The estimate of the total biomass of large-eye dentex in the region Namibia north was 16 000 tonnes. Fish size ranged from 11 to 37 cm with two main modes at 12 and 18 cm (Figure 6d). A relatively low proportion of individuals larger than 20 cm were recorded. Table 5 shows the catch rates of the *D. macrophthalmus* together with those of the commercially important sparids in the shelf and upper slope of Namibia north. Large-eye dentex is the only of the commercially important sparids that colonized the Benguela current system.

Table 5 Namibia north. Catch rates in kg/hour by swept area bottom trawl for the commercially important sparids in the shelf and slope

SHELF 50 - 200 m							
Station	Depth.	<i>D.macrophthalmus.</i>	<i>D.angolensis.</i>	<i>D.congoensis.</i>	<i>P.bellottii.</i>	<i>Pagrus sp.</i>	Other
1494	60						1120.7
1476	67						12161.4
1507	72						1026.3
1484	76						3474.0
1519	82	18.3					2365.8
1477	83	11.6					2776.0
1523	89						1595.5
1506	104						2516.4
1493	115						3101.6
1478	116	930.0					873.3
1483	116						4113.3
1522	129	3.5					2046.9
1485	130						1806.2
1495	130						5665.7
1475	131	19.8					1158.9
1492	149	25.9					9885.8
1524	151	183.6					1619.8
1518	156	104.7					4505.8
1505	164	8.3					2431.7
1479	169	811.9					1121.9
1497	175						3821.2
1486	179						5523.1
1521	180	737.4					921.8
1510	184	2.6					1598.2
1504	195						2100.1
1491	199						1585.9
MEAN		109.9					3112.2

SLOPE 200 - 350 m							
Station	Depth.	<i>D. macroph-</i> <i>thalmus.</i>	<i>D. angolensis.</i>	<i>D. congoen-</i> <i>sis.</i>	<i>P. bellottii.</i>	<i>Pagrus</i> sp.	Other
1511	213						155.1
1525	219	1256.8					3129.4
1482	225	6.2					3748.4
1498	226						523.0
1517	228						681.4
1503	242						188.2
1514	252						10.1
1490	260	50.8					2304.5
1512	261						23.5
1487	263						73.8
1480	264	344.9					5094.2
1499	283	1.2					226.6
1502	284	33.4					413.7
1516	286	224.8					4435.5
1489	295	50.4					3741.5
1520	299	25.8					2451.0
1474	300	30.0					2589.7
1515	312	27.0					3946.8
1526	313	55.8					3598.2
1501	319	2.0					447.9
1481	325	12.1					533.4
1500	335						518.6
1513	336	5.8					604.6
1488	366						815.1
MEAN		88.6					1677.3

A comparison of the catch rates of the main groups of demersal resources (Sparidae, Merluccidae, Carangidae, Sciaenidae and cephalopods) obtained on the shelf and upper slope of the four surveyed regions is shown in Annex V.

CHAPTER 5 CONCLUDING REMARKS

This cruise represents the first attempt to evaluate the stock of large-eye dentex covering their whole area of distribution in Angolan and Namibian waters. The result of the biomass estimation for the four surveyed regions is presented in Table 6, and the mean density and catch rate in different depth strata are shown in Table 7.

Table 6 Biomass estimates of large-eye dentex in Angola and Namibia.

Area	Biomass estimate (tonnes)
07°00' - 09°00' 'S Angola north	2 000
09°00' - 13°00' 'S Angola central	22 000
13°00' - 17°15' S Angola south	45 000
17°15' - 20°40' 'S Namibia north	16 000
TOTAL	85 000

Table 7 Mean catch rate (kg/hour) and mean density (tonnes/NM²) of large-eye dentex in the shelf and slope in Angola and Namibia.

Area	Shelf	Shelf	Slope	Slope
	50-200 m mean catch/h	50-200 m mean dens.	200-350 m mean catch/h	200-350 m mean dens
07°00' - 09°00' 'S Angola north	24.10	0.798	0.08	0.002
09°00' - 13°00' 'S Angola central	271.16	8.330	327.20	10.94
13°00' - 17°15' 'S Angola south	916.24	28.700	1644.12	50.53
17°15' - 20°40' 'S Namibia north	109.91	3.340	88.62	2.60

Large-eye dentex main aggregations were found between Pta. do Morro (10° 45'S) in Angola and Cape Frio (18 25'S) in Namibia. Therefore, it is recommended to restrict the survey area in the future and spend more time in the region between Benguela and Tombua. This region, although relatively small and difficult to trawl, constitutes an important area of concentration. Large-eye dentex, like many other sparids, seem to prefer hard irregular bottoms, which in itself represent a limitation to the use of bottom trawl in stock size estimation.

Another area that should receive more attention is the region between Tombua and Cunene since the results of this cruise indicate that it is an important area for juveniles of *D. macrophthalmus*.

Previous estimates of biomass of large-eye dentex made by scientists of the ex-Soviet Union indicated a decreasing trend from levels of 200 thousand tonnes in the middle of the 60's to 70 thousand tonnes towards the end of the 70's. A further decline was detected at the beginning of the 80's when the biomass was believed to have reached about 24 thousand tonnes. No recent data are available at the moment. The results of this cruise seem to indicate that the stock size is at levels found at the end of the 70's.

It is recommended to collect fisheries information on the catches of large-eye dentex especially on fishing fleet behaviour. It would be interesting to know whether the species is the target of any fleet strata or whether the catch is the result of by-catch, for instance, in the hake fisheries. Records of catches by season and main fishing grounds of *D. macrophthalmus* would help to improve the design of future surveys on this species.

Annex I Instruments and fishing gear

The Simrad scientific echo sounder EK 500/38 kHz was used during the survey for estimation of fish density. The Bergen Echo Integrator system (BEI) logging the echogram raw data from the echo sounder, was used to scrutinise the acoustic records, and to allocate integrator data to fish species. All raw data was stored to tape, and a backup of the database of scrutinised data, stored. The details of the settings of the 38 kHz echo sounder were as follows:

Transceiver-1 menu

Transducer depth	5 or 7.5 m
Absorption coeff.	10 dB/km
Pulse length: .1ms	
Bandwidth: wide	
Max. power	2 000 W
Angle sensitivity	21.9
2-way beam angle	-21.0 dB
SV transducers gain	27.5 dB
TS transducers gain	27.6 dB
3 dB Beamwidth	6.8 deg
Along ship offset	0.00 deg
Athwardship offset	0.04 deg

Display menu

Echogram	1
Bottom range	0-100, 0-250 or 0-500
TVG	20 log R
SV Colour minimum	67 dB

Printer settings

Range	0-100, 0-250 m, 0-500 m
TVG	20 log R
Sv Colour minimum	67 dB

Bottom detection menu

Minimum level	-50 dB
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A calibration experiment using a standard copper sphere, performed at Baia dos Elefantes on the 6 of June 1997 gave the following results: SV transducer gain 27.5 and TS transducer gain 27.6.

Annex II Records of fishing stations

PROJECT STATION:1407
 DATE: 7/ 8/97 GEAR TYPE: BT No:2 POSITION:Lat S 702 Long E 1218
 start stop duration Purpose code: 3
 TIME :07:29:00 07:49:00 20 (min) Area code : 1
 LOG :8847.40 8848.40 1.00 GearCond.code:
 FDEPTH: 83 84 Validity code:
 BDEPTH: 83 84
 Towing dir: 300° Wire out: 260 m Speed: 30 kn*10
 Sorted: 49 Kg Total catch: 49.30 CATCH/HOUR: 147.90

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Epinephelus aeneus	47.10	9	31.85	
Dentex angolensis	29.40	186	19.88	3207
Sparus caeruleostictus *	20.70	15	14.00	
Dentex barnardi	12.60	30	8.52	
Pagellus bellottii	10.20	78	6.90	3206
Sepia officinalis hierredda	6.60	9	4.46	
Fistularia petimba	5.40	15	3.65	
Trichurus lepturus	5.10	3	3.45	
Raja micalletus	4.50	9	3.04	
Octopus vulgaris	2.40	3	1.62	
Centrarchops chapini	1.20	12	0.81	
Zeus faber	1.20	3	0.81	
Dentex congoensis	0.60	3	0.41	
Chelidonichthys gabonensis	0.60	3	0.41	
Priacanthus arenatus	0.30	3	0.20	
Total	147.90		100.01	

PROJECT STATION:1408
 DATE: 7/ 8/97 GEAR TYPE: BT No:2 POSITION:Lat S 707 Long E 1213
 start stop duration Purpose code: 3
 TIME :08:31:37 09:34:43 20 (min) Area code : 1
 LOG :8859.57 8860.62 1.02 GearCond.code:
 FDEPTH: 114 116 Validity code:
 BDEPTH: 114 116
 Towing dir: 295° Wire out: 360 m Speed: 30 kn*10
 Sorted: 211 Kg Total catch: 1783.86 CATCH/HOUR: 5351.58

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Umbrina canariensis	3122.28	8127	58.34	3211
Trachurus trecae	1693.44	44529	31.64	3210
Anthias anthias	162.54	606	3.04	
Epinephelus goreensis	82.50	9	1.54	
Dentex congoensis	70.80	264	1.32	3208
Boops boops	60.48	1965	1.13	
Dentex angolensis	45.90	201	0.86	3209
Erythrocles monodi	34.02	1323	0.64	
Zeus faber	30.24	39	0.57	
Chelidonichthys gabonensis	18.90	39	0.35	
Plectorhinchus mediterraneus	9.90	3	0.18	
Epinephelus aeneus	9.00	3	0.17	
Dentex canariensis	4.80	3	0.09	
Spicara alta	3.78	39	0.07	
Dentex barnardi	3.00	6	0.06	
Total	5351.58		100.00	

PROJECT STATION:1409
 DATE: 7/ 8/97 GEAR TYPE: BT No:2 POSITION:Lat S 708 Long E 1206
 start stop duration Purpose code: 3
 TIME :11:13:51 11:40:16 26 (min) Area code : 1
 LOG :8869.53 8870.88 1.35 GearCond.code:
 FDEPTH: 134 134 Validity code:
 BDEPTH: 134 134
 Towing dir: 274° Wire out: 500 m Speed: 31 kn*10
 Sorted: 93 Kg Total catch: 292.30 CATCH/HOUR: 674.54

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Trachurus trecae	212.08	4786	31.44	3212
Dentex congoensis	201.23	2483	29.83	3213
Erythrocles monodi	87.69	252	13.00	
Dentex angolensis	44.08	155	6.53	3216
Illex coindetii	40.85	757	6.06	
Umbrina canariensis	33.92	95	5.03	
Spicara alta	21.00	235	3.11	
Zeus faber	18.23	25	2.70	
CHLOROPHTHALMIDAE	5.08	5562	0.75	
Dentex macrophthalmus, male	3.00	9	0.44	3214
Boops boops	2.54	104	0.38	
Zenopsis conchifer	2.31	9	0.34	
Sepia officinalis hierredda	0.92	9	0.14	
Engraulis encrasicolus	0.92	122	0.14	
Dentex macrophthalmus, female	0.69	2	0.10	3215
Total	674.54		99.99	

PROJECT STATION:1410
 DATE: 7/ 8/97 GEAR TYPE: BT No:2 POSITION:Lat S 710 Long E 1159
 start stop duration Purpose code: 3
 TIME :13:15:10 13:45:17 30 (min) Area code : 1
 LOG :8890.44 8881.87 1.41 GearCond.code:
 FDEPTH: 356 358 Validity code:
 BDEPTH: 356 358
 Towing dir: 315° Wire out:1000 m Speed: 30 kn*10
 Sorted: 58 Kg Total catch: 273.60 CATCH/HOUR: 547.20

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Merluccius polli	287.80	1586	52.60	
Gadella maraldi	54.40	1312	9.94	
Nematocarcinus africanus	40.00	11790	7.31	
Chlorophthalmus atlanticus	37.40	580	6.83	
Hymenocephalus italicus	36.80	3126	6.73	
Laemonema laureysi	27.80	370	5.08	
Malacocephalus occidentalis	18.20	104	3.33	
Scorpaena sp.	13.60	514	2.49	
Synagrops microlepis	10.80	400	1.97	
Parapenaeus longirostris	10.20	1102	1.86	
Illex coindetii	2.80	38	0.51	
MYCTOPHIDAE	2.20	1046	0.40	
Benthodesmus tenuis	1.20	28	0.22	
Coelorinchus coelorhincus	1.20	28	0.22	
Chascanopsetta lugubris	0.80	10	0.15	
CALAPPIDAE	0.60	10	0.11	
Dibranchus atlanticus	0.60	76	0.11	
CAPROIDAE	0.40	28	0.07	
Macroparalepis macrogeneion	0.20	10	0.04	
Chaunax pictus	0.20	20	0.04	
Total	547.20		100.01	

PROJECT STATION:1411
 DATE: 7/ 8/97 GEAR TYPE: BT No:2 POSITION:Lat S 718 Long E 1213
 start stop duration Purpose code: 3
 TIME :15:55:37 16:25:19 30 (min) Area code : 1
 LOG :8899.78 8901.23 1.45 GearCond.code:
 FDEPTH: 213 211 Validity code:
 BDEPTH: 213 211
 Towing dir: 125° Wire out: 650 m Speed: 31 kn*10
 Sorted: 105 Kg Total catch: 241.21 CATCH/HOUR: 482.42

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Synagrops microlepis	151.40	8100	31.38	
Dentex angolensis	126.60	306	26.24	3218
Trachurus trecae	76.00	102	15.75	
Todaropsis eblanae	31.20	312	6.47	
Merluccius polli	30.80	244	6.38	3217
Trichurus lepturus	21.20	32	4.39	
Illex coindetii	7.40	106	1.53	
Chlorophthalmus atlanticus	5.00	562	1.04	
MYCTOPHIDAE	3.60	1140	0.75	
Pterothrissus bellocci	3.60	22	0.75	
Umbrina canariensis	3.22	4	0.67	
Zenopsis conchifer	2.40	24	0.50	
Epigonus telescopus	1.80	290	0.37	
Brotula barbata	1.80	4	0.37	
Miracorvina angolensis	1.80	10	0.37	
Bembrops heterurus	1.40	14	0.29	
Squatina oculata	1.40	4	0.29	
Parapenaeus longirostris	1.40	336	0.29	
Nezumia aequalis	1.40	46	0.29	
Spicara alta	1.00	4	0.21	
Sepia officinalis hierredda	1.00	110	0.21	
CONGRIDAE	1.00	14	0.21	
Uranoscopus cadenati	1.00	10	0.21	
Scorpaena normani	1.00	14	0.21	
Hymenocephalus italicus	1.00	82	0.21	
Trigla lyra	1.00	4	0.21	
Citharus linguatula	0.40	14	0.08	
Scomber japonicus	0.40	4	0.08	
Dibranchus atlanticus	0.40	46	0.08	
Dentex macrophthalmus, male	0.40	2	0.08	3219
Dicologlossa cuneata	0.20	10	0.04	
Peristedion cataphractum	0.20	4	0.04	
Total	482.42		99.99	

PROJECT STATION:1412
 DATE: 7/ 8/97 GEAR TYPE: BT No:2 POSITION:Lat S 719 Long E 1220
 start stop duration Purpose code: 3
 TIME :17:51:33 18:22:18 31 (min) Area code : 1
 LOG :8908.49 8910.02 1.53 GearCond.code:
 FDEPTH: 157 162 Validity code:
 BDEPTH: 157 162
 Towing dir: 140° Wire out: 480 m Speed: 30 km*10
 Sorted: 90 Kg Total catch: 143.60 CATCH/HOUR: 277.94

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP
	weight numbers		
Brotula barbata	71.23 54	25.63	
Squatina oculata	34.26 2	12.33	
Dentex angolensis	31.16 124	11.21	3221
Trachurus trecae	26.32 722	9.47	3220
Umbrina canariensis	17.03 39	6.13	
Scorpaena normani	15.48 139	5.57	
Pterothrissus belloci	15.48 403	5.57	
Raja clavata	13.94 23	5.02	
Boops boops	10.84 271	3.90	
Uranoscopus cadenati	6.19 46	2.23	
Illex coindetii	4.65 85	1.67	
Zenopsis conchifer	4.65 15	1.67	
Octopus vulgaris	3.87 15	1.39	
Todaropsis eblanae	3.10 39	1.12	
Trigla lyra	3.10 46	1.12	
CONGRIDAE	2.90 139	1.04	
Spicara alta	2.90 23	1.04	
Scyliorhinus stellaris	2.32 8	0.83	
Citharus linguatula	2.32 46	0.83	
Bembrops heterurus	2.32 23	0.83	
Dentex macrophthalmus, male	1.55 10	0.56	3222
Miracorvina angolensis	1.55 8	0.56	
Dentex macrophthalmus, female	0.77 6	0.28	3223
Total	277.93	100.00	

PROJECT STATION:1413
 DATE: 8/ 8/97 GEAR TYPE: BT No:2 POSITION:Lat S 738 Long E 1248
 start stop duration Purpose code: 3
 TIME :05:30:33 06:00:05 30 (min) Area code : 1
 LOG :8959.97 8961.52 1.54 GearCond.code:
 FDEPTH: 71 71 Validity code:
 BDEPTH: 71 71
 Towing dir: 140° Wire out: 240 m Speed: 30 km*10
 Sorted: 228 Kg Total catch: 227.83 CATCH/HOUR: 455.66

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP
	weight numbers		
Trichiurus lepturus	181.40 288	39.81	
Pagellus bellottii	56.40 438	12.38	3224
Umbrina canariensis	52.20 278	11.46	3229
Argyrosomus hololepidotus	38.00 30	8.34	
Trachurus trecae	31.60 440	6.93	3228
Alloteuthis africana	20.00 7666	4.39	
Sepia officinalis hierredda	15.60 24	3.64	
Dentex barnardi	10.00 84	2.19	3225
Stromateus fiatola	8.00 10	1.76	
Pomadasys incisus	8.00 46	1.76	
Pseudopenaeus prayensis	5.60 56	1.23	
Zeus faber	3.60 10	0.79	
Dentex congoensis	3.40 52	0.75	3226
Citharus linguatula	2.60 124	0.57	
Pseudotolithus brachygnathus	2.60 2	0.57	
Raja clavata	2.00 2	0.44	
Octopus vulgaris	2.00 2	0.44	
Raja miraletus	2.00 2	0.44	
Dentex angolensis	1.80 36	0.40	3227
Dentex canariensis	1.60 14	0.35	
Todaropsis eblanae	1.20 22	0.26	
Chelidonichthys gabonensis	1.00 14	0.22	
Fistularia petimba	0.80 2	0.18	
Dicologlossa cuneata	0.60 4	0.13	
CONGRIDAE	0.60 4	0.13	
Dentex gibbosus	0.40 2	0.09	
Lophius sp.	0.40 2	0.09	
Pterothrissus belloci	0.40 2	0.09	
Peristedion cataphractum	0.40 22	0.09	
Boops boops	0.20 10	0.04	
Priacanthus arenatus	0.20 2	0.04	
Saurida brasiliensis	0.06 4	0.01	
Total	455.66	100.01	

PROJECT STATION:1414
 DATE: 8/ 8/97 GEAR TYPE: BT No:2 POSITION:Lat S 743 Long E 1237
 start stop duration Purpose code: 3
 TIME :07:52:08 08:02:56 11 (min) Area code : 1
 LOG :8976.63 8977.25 0.61 GearCond.code: 8
 FDEPTH: 112 110 Validity code: 9
 BDEPTH: 112 110
 Towing dir: 250° Wire out: 360 m Speed: 30 km*10
 Sorted: 109 Kg Total catch: 561.20 CATCH/HOUR: 3061.09

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP
	weight numbers		
Erythrocles monodi	2094.55 14002	68.42	3230
Anthias anthias	307.64 41258	10.05	
Parapristipoma octolineatum	258.55 360	8.45	
Boops boops	189.82 12431	6.20	
Dentex barnardi	44.18 87	1.44	3231
Sparus caeruleostictus *	40.36 49	1.32	3232
Zeus faber	32.73 65	1.07	
Umbrina canariensis	32.73 65	1.07	
Scorpaena normani	22.91 33	0.75	
Trachurus trecae	19.64 164	0.64	
Atractoscion aequidens	12.00 5	0.39	
Dentex gibbosus	6.00 5	0.20	
Total	3061.11	100.00	

PROJECT STATION:1415
 DATE: 8/ 8/97 GEAR TYPE: BT No: POSITION:Lat S 746 Long E 1234
 start stop duration Purpose code: 3
 TIME :09:41:00 10:12:00 31 (min) Area code : 1
 LOG :8986.80 8988.50 1.70 GearCond.code:
 FDEPTH: 338 360 Validity code:
 BDEPTH: 338 360
 Towing dir: 334° Wire out:1050 m Speed: 30 km*10
 Sorted: 76 Kg Total catch: 455.16 CATCH/HOUR: 880.95

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP
	weight numbers		
Nematocarcinus africanus	441.87 74903	50.16	
Merluccius polli	286.84 1614	32.56	3233
Parapenaeus longirostris	90.58 11357	10.28	
Laemonema laureysi	19.74 221	2.24	
Trichiurus lepturus	18.23 81	2.07	
Merluccius kuhlii	5.46 23	0.62	
Pterothrissus belloci	4.76 35	0.54	
Gadella maraldi	4.18 174	0.47	
Chlorophthalmus atlanticus	3.95 105	0.45	
Epigonus telescopus	2.44 23	0.28	
Synagrops microlepis	1.51 116	0.17	
Hoplostethus cadenati	0.58 12	0.07	
Nezumia sp.	0.46 70	0.05	
Dibranchius atlanticus	0.23 35	0.03	
Chaunax pictus	0.12 23	0.01	
Total	880.95	100.00	

PROJECT STATION:1416
 DATE: 8/ 8/97 GEAR TYPE: BT No: POSITION:Lat S 755 Long E 1241
 start stop duration Purpose code: 3
 TIME :12:25:00 12:44:00 19 (min) Area code : 1
 LOG :9005.40 9006.40 1.00 GearCond.code:
 FDEPTH: 188 180 Validity code:
 BDEPTH: 188 180
 Towing dir: 340° Wire out: 600 m Speed: 30 km*10
 Sorted: 100 Kg Total catch: 1211.65 CATCH/HOUR: 3826.26

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP
	weight numbers		
Synagrops microlepis	3284.21 169920	85.83	
Trichiurus lepturus	193.17 117	5.05	
Merluccius polli	190.48 112	4.98	3237
Pterothrissus belloci	70.74 505	1.85	
Scorpaena angolensis	36.88 51	0.95	
Dentex macrophthalmus, female	11.21 54	0.29	3235
Dentex angolensis	10.58 41	0.28	3236
Parapenaeus longirostris	9.60 1566	0.25	
Miracorvina angolensis	7.58 51	0.20	
Zenopsis conchifer	4.55 51	0.12	
Dentex macrophthalmus, male	4.23 22	0.11	3234
Illex coindetii	3.03 51	0.08	
Total	3826.26	100.00	

PROJECT STATION:1417
 DATE: 8/ 8/97 GEAR TYPE: BT No: POSITION:Lat S 808 Long E 1249
 start stop duration Purpose code: 3
 TIME :15:08:00 15:38:00 30 (min) Area code : 1
 LOG :9023.00 9024.50 1.50 GearCond.code:
 FDEPTH: 124 126 Validity code:
 BDEPTH: 124 126
 Towing dir: 156° Wire out: 450 m Speed: 30 km*10
 Sorted: 204 Kg Total catch: 203.68 CATCH/HOUR: 407.36

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP
	weight numbers		
Trachurus trecae	188.50 718	46.27	3240
Dentex macrophthalmus, male	39.90 150	9.79	3242
Dentex congoensis	27.10 362	6.65	3241
Umbrina canariensis	25.30 88	6.21	3239
Dentex macrophthalmus, female	25.00 82	6.16	3243
Spicara alta	25.00 252	6.14	
Dentex angolensis	20.30 138	4.98	3238
Illex coindetii	10.84 192	2.66	
Zenopsis conchifer	8.18 12	2.01	
Boops boops	5.72 86	1.40	
Todaropsis eblanae	5.42 96	1.33	
Atractoscion aequidens	4.16 2	1.02	
Branchiostegus semifasciatus	3.16 6	0.78	
Raja miraletus	3.02 4	0.74	
Sparus pagrus africanus *	2.78 2	0.68	
Trigla lyra	2.12 38	0.52	
Pterothrissus belloci	2.08 14	0.51	
Erythrocles monodi	1.98 4	0.49	
Torpedo torpedo	1.54 2	0.38	
Citharus linguatula	1.26 52	0.31	
Lagocephalus laevigatus	1.04 4	0.26	
Pagellus bellottii	0.90 12	0.22	
Zeus faber	0.88 4	0.22	
Scomber japonicus	0.86 4	0.21	
Chaetodon hoefleri	0.22 2	0.05	
Total	407.36	99.99	

PROJECT STATION:1418
 DATE: 8/ 8/97 GEAR TYPE: BT No: POSITION:Lat S 810.0
 start stop duration Long E 1301
 TIME :17:07:15 17:37:00 30 (min) Purpose code: 3
 LOG :9036.67 9038.23 1.55 Area code : 1
 FDEPTH: 93 89 GearCond.code:
 BDEPTH: 93 89 Validity code:
 Towing dir: 140° Wire out: 300 m Speed: 32 kn*10

Sorted: 74 Kg Total catch: 290.70 CATCH/HOUR: 581.40

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Trachurus trecae	160.00	3368	27.52	3245
Citharus linguatula	74.40	1976	12.80	
Pagellus bellottii	60.80	754	10.46	3244
Umbrina canariensis	53.60	136	9.22	3246
Scorpaena normani	36.00	656	6.19	
Pterothrissus belloci	24.00	256	4.13	
Dentex angolensis	21.60	328	3.72	3247
Boops boops	20.80	1120	3.58	
Brotula barbata	20.80	32	3.58	
Octopus vulgaris	17.60	24	3.03	
Illex coindetii	15.20	334	2.61	
Uranoscopus cadenati	14.40	96	2.48	
Epinephelus aeneus	14.20	2	2.44	
Zeus faber	8.80	16	1.51	
Chelidonichthys capensis	8.00	80	1.38	
Trichiurus lepturus	6.40	8	1.10	
Argyrosomus hololepidotus	4.80	2	0.83	
Torpedo torpedo	4.00	8	0.69	
Dentex barnardi	4.00	24	0.69	
Zenopsis conchifer	4.00	8	0.69	
Saurida brasiliensis	2.40	56	0.41	
Sepia officinalis hierredra	2.40	24	0.41	
Dicologlossa cuneata	2.40	24	0.41	
Dentex congoensis	0.80	8	0.14	
Total	581.40		100.02	

PROJECT STATION:1421
 DATE: 9/ 8/97 GEAR TYPE: BT No: POSITION:Lat S 829
 start stop duration Long E 1255
 TIME :09:14:11 09:44:05 30 (min) Purpose code: 3
 LOG :9085.69 9087.34 1.64 Area code : 1
 FDEPTH: 271 283 GearCond.code:
 BDEPTH: 271 283 Validity code:
 Towing dir: 165° Wire out: 830 m Speed: 32 kn*10

Sorted: 97 Kg Total catch: 386.60 CATCH/HOUR: 773.20

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Trichiurus lepturus	226.40	5968	29.28	
Merluccius polli	151.20	1016	19.56	3255
Synagrops microlepis	135.20	2064	17.49	
Chlorophthalmus atlanticus	132.00	2080	17.07	
Parapenaeus longirostris	73.60	13496	9.52	
Scorpaena stephanica	12.80	88	1.66	
Zenopsis conchifer	9.60	56	1.24	
Trachurus trecae	5.60	40	0.72	
Erythrocles monodi	4.80	8	0.62	
Gadella imberbis	4.80	64	0.62	
Nezumia aequalis	3.20	8	0.41	
MYCTOPHIDAE	3.20	2016	0.41	
Illex coindetii	2.40	48	0.31	
Brotula barbata	2.40	8	0.31	
Pterothrissus belloci	1.60	8	0.21	
Bembrops heterurus	1.60	16	0.21	
Sepia officinalis hierredra	0.80	40	0.10	
Coelorinchus coelorhincus	0.80	8	0.10	
Hymenocephalus italicus	0.32	24	0.04	
CONGRIDAE	0.32	8	0.04	
Epigonus telescopus	0.32	8	0.04	
Citharus linguatula	0.24	16	0.03	
Total	773.20		99.99	

PROJECT STATION:1419
 DATE: 9/ 8/97 GEAR TYPE: BT No: POSITION:Lat S 820
 start stop duration Long E 1303
 TIME :04:51:04 05:21:04 30 (min) Purpose code: 3
 LOG :9060.40 9062.10 1.70 Area code : 1
 FDEPTH: 103 107 GearCond.code:
 BDEPTH: 103 107 Validity code:
 Towing dir: 180° Wire out: 340 m Speed: 30 kn*10

Sorted: 82 Kg Total catch: 387.41 CATCH/HOUR: 774.82

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Trachurus trecae	529.10	7862	68.29	3248
Illex coindetii	86.90	2134	11.22	
Citharus linguatula	35.20	584	4.54	
Brotula barbata	22.60	18	2.92	
Uranoscopus cadenati	14.30	100	1.85	
Umbrina canariensis	12.20	12	1.57	
Trigla lyra	12.10	78	1.56	
Dicologlossa cuneata	11.00	56	1.42	
Pterothrissus belloci	9.90	66	1.28	
Raja miraleucus	7.70	12	0.99	
Scorpaena normani	6.60	78	0.85	
Pagellus bellottii	5.50	22	0.71	
Sepia officinalis hierredra	4.40	276	0.57	
Dentex angolensis	4.40	20	0.57	3249
Zeus faber	3.30	22	0.43	
Saurida brasiliensis	2.20	352	0.28	
Parapenaeus longirostris	2.20	550	0.28	
GOBIIDAE	1.10	330	0.14	
Merluccius polli	1.10	44	0.14	
Scorpaena stephanica	1.10	22	0.14	
Bembrops heterurus	0.88	12	0.11	
Dentex gibbosus	0.80	2	0.10	
Synagrops microlepis	0.12	12	0.02	
Boops boops	0.12	12	0.02	
Total	774.82		100.00	

PROJECT STATION:1422
 DATE: 9/ 8/97 GEAR TYPE: BT No:2 POSITION:Lat S 839
 start stop duration Long E 1257
 TIME :11:27:00 11:57:00 30 (min) Purpose code: 3
 LOG :9098.60 9100.10 1.50 Area code : 1
 FDEPTH: 290 293 GearCond.code:
 BDEPTH: 290 293 Validity code:
 Towing dir: 143° Wire out: 850 m Speed: 31 kn*10

Sorted: 135 Kg Total catch: 235.55 CATCH/HOUR: 471.10

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Merluccius polli	262.32	778	55.68	3256
Trichiurus lepturus	41.48	158	8.80	
Parapenaeus atlantica	40.60	7280	8.62	
MYCTOPHIDAE	39.02	24326	8.28	
Brotula barbata	19.88	18	4.22	
Zeus faber	12.04	42	2.56	
Laemonema laureysi	11.34	106	2.41	
Pterothrissus belloci	9.70	60	2.06	
Pontinus kuhlii	7.22	70	1.53	
Epigonus telescopus	6.86	56	1.46	
Synagrops microlepis	5.36	260	1.14	
Chlorophthalmus atlanticus	5.00	108	1.06	
Hoplostethus mediterraneus	4.80	4	1.02	
Nezumia sp.	4.80	4	1.02	
Illex coindetii	2.98	78	0.63	
Bathynectes piperitus	1.20	14	0.25	
Sepia officinalis hierredra	0.98	18	0.21	
Sepia officinalis hierredra	0.18	10	0.04	
Cynoponticus ferox	0.14	4	0.03	
Total	471.10		100.00	

PROJECT STATION:1420
 DATE: 9/ 8/97 GEAR TYPE: BT No: POSITION:Lat S 828
 start stop duration Long E 1301
 TIME :07:08:18 07:38:02 30 (min) Purpose code: 3
 LOG :9072.71 9074.25 1.54 Area code : 1
 FDEPTH: 115 113 GearCond.code:
 BDEPTH: 115 113 Validity code:
 Towing dir: 110° Wire out: 350 m Speed: 32 kn*10

Sorted: 179 Kg Total catch: 359.17 CATCH/HOUR: 718.34

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Trachurus trecae	317.80	4524	44.24	3251
Dentex angolensis	121.00	382	16.84	3250
Umbrina canariensis	67.60	212	9.41	
Erythrocles monodi	66.80	96	9.30	
Atractoscion aequidens	46.00	18	6.40	
Dentex macrophthalmus, male	29.00	98	4.04	3254
Dentex macrophthalmus, female	15.80	46	2.20	3253
Illex coindetii	14.60	536	2.03	
Zeus faber	9.60	8	1.34	
Scorpaena normani	5.20	8	0.72	
Boops boops	5.20	168	0.72	
Chaetodon hoefleri	4.40	36	0.61	
Dentex congoensis	3.60	26	0.50	3252
Spicara alta	3.40	40	0.47	
Dentex barnardi	3.00	8	0.42	
Trigla lyra	2.20	22	0.31	
Citharus linguatula	1.40	36	0.19	
Pterothrissus belloci	0.80	8	0.11	
Pagellus bellottii	0.80	8	0.11	
Saurida brasiliensis	0.14	52	0.02	
Total	718.34		99.98	

PROJECT STATION:1423
 DATE: 9/ 8/97 GEAR TYPE: BT No: POSITION:Lat S 844
 start stop duration Long E 1302
 TIME :13:25:45 13:55:42 30 (min) Purpose code: 3
 LOG :9109.60 9111.10 1.50 Area code : 1
 FDEPTH: 143 143 GearCond.code:
 BDEPTH: 143 143 Validity code:
 Towing dir: 180° Wire out: 450 m Speed: 31 kn*10

Sorted: 165 Kg Total catch: 746.44 CATCH/HOUR: 1492.88

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Synagrops microlepis	867.10	40098	58.08	
Trichiurus lepturus	151.76	618	10.17	
Dentex macrophthalmus, male	82.34	336	5.52	3258
Dentex macrophthalmus, female	75.56	274	5.06	3259
Zenopsis conchifer	72.88	116	4.88	
Dentex angolensis	38.10	160	2.55	3257
Octopus vulgaris	30.54	20	2.05	
Sparus pagrus africanus *	25.32	38	1.70	
Pterothrissus belloci	22.04	136	1.48	
Chelidonichthys gabonensis	20.10	116	1.35	
Spicara alta	18.36	116	1.23	
Brotula barbata	15.66	20	1.05	
Parapenaeus longirostris	15.28	2706	1.02	
Miracoxvina angolensis	14.70	78	0.98	
Umbrina canariensis	12.96	38	0.87	
Trachurus trecae	11.02	20	0.74	
Todaropsis eblanae	7.16	96	0.48	
Pagellus bellottii	5.80	20	0.39	
Zeus faber	4.06	20	0.27	
Illex coindetii	1.36	38	0.09	
Chlorophthalmus atlanticus	0.78	78	0.05	
Total	1492.88		100.01	

PROJECT STATION:1424
 DATE: 9/ 8/97 GEAR TYPE: BT No: POSITION:Lat S 843 Long E 1306
 start stop duration
 TIME :14:50:00 14:55:00 5 (min) Purpose code: 3
 LOG :9116.40 9116.61 0.21 Area code : 1
 FDEPTH: 102 102 GearCond.code: 9
 BDEPTH: 102 102 Validity code: 9
 Towing dir: 360° Wire out: 320 m Speed: 30 kn*10

Sorted: Kg Total catch: CATCH/HOUR:

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP
N O C A T C H	weight numbers		
Total	0.00		

PROJECT STATION:1425
 DATE: 9/ 8/97 GEAR TYPE: BT No: POSITION:Lat S 1310 Long E 1310
 start stop duration
 TIME :16:07:00 16:37:00 30 (min) Purpose code: 3
 LOG :9126.30 9127.80 1.50 Area code : 1
 FDEPTH: 83 81 GearCond.code: 9
 BDEPTH: 83 81 Validity code: 9
 Towing dir: 180° Wire out: 280 m Speed: 3 kn*10

Sorted: 3 Kg Total catch: 137.03 CATCH/HOUR: 274.06

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP
	weight numbers		
Trachurus trecae	72.00	26.27	3260
Trichiurus lepturus	56.60	20.65	
Pterothrissus belloci	52.00	18.97	
Atractoscion aequidens	16.40	5.98	
Brotula barbata	15.60	5.69	
Umbrina canariensis	11.40	4.16	
Sepia officinalis hierredda	8.40	3.07	
Synagrops microlepis	5.00	1.82	
Zeus faber	5.00	1.82	
Octopus vulgaris	4.40	1.61	
Epinephelus sp.	4.40	1.61	
Pagellus bellottii	4.00	1.46	3263
Dentex barnardi	3.20	1.17	
Dentex angolensis	2.40	0.88	3262
Torpedo torpedo	1.40	0.51	
Trigla lyra	1.40	0.51	
Pseudotolithus typus	1.40	0.51	
Lophius sp.	1.00	0.36	
Illex coindetii	1.00	0.36	
Raja miraletus	1.00	0.36	
Miracorvina angolensis	1.00	0.36	
Brachydeuterus auritus	0.80	0.29	
Citharus linguatula	0.80	0.29	
Chaetodon hoefleri	0.60	0.22	
Merluccius polli	0.60	0.22	3261
Saurida brasiliensis	0.60	0.22	
Parapenaeus longirostris	0.40	0.15	
Branchiostegus semifasciatus	0.40	0.15	
GOBIIDAE	0.40	0.15	
Stromateus fiatola	0.20	0.07	
Todaropsis eblanae	0.20	0.07	
Dicologlossa hexophthalma	0.06	0.02	
Total	274.06	99.98	

PROJECT STATION:1426
 DATE:10/ 8/97 GEAR TYPE: BT No:2 POSITION:Lat S 917 Long E 1246
 start stop duration
 TIME :04:46:55 05:16:28 30 (min) Purpose code: 3
 LOG :9215.56 9217.20 1.70 Area code : 1
 FDEPTH: 129 129 GearCond.code: 9
 BDEPTH: 129 129 Validity code: 9
 Towing dir: 90° Wire out: 400 m Speed: 34 kn*10

Sorted: 232 Kg Total catch: 232.35 CATCH/HOUR: 464.70

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP
	weight numbers		
Pterothrissus belloci	87.80	18.89	
Umbrina canariensis	75.40	16.23	
Dentex macropthalmus, male	60.40	13.00	3265
Trichiurus lepturus	43.40	9.34	
Chelidonichthys gabonensis	36.00	7.75	
Dentex macropthalmus, female	36.00	7.75	3266
Boops boops	22.40	4.82	
Scorpaena normani	20.00	4.30	
Dentex angolensis	16.40	3.53	3264
Brotula barbata	14.40	3.10	
Trachurus trecae	13.00	2.80	
Saurida brasiliensis	7.00	1.51	
Sardinella maderensis	6.40	1.38	
Citharus linguatula	5.80	1.25	
Uranoscopus cadenati	5.60	1.21	
Zeus faber	2.40	0.52	
Branchiostegus semifasciatus	2.40	0.52	
Raja miraletus	1.80	0.39	
Zenopsis conchifer	1.40	0.30	
Parapenaeus longirostris	1.40	0.30	
Sepia officinalis hierredda	1.00	0.22	
Synagrops microlepis	1.00	0.22	
Peristedion cataphractum	0.80	0.17	
Bembrops heterurus	0.80	0.17	
Scorpaena stephanica	0.60	0.13	
Dentex congoensis	0.40	0.09	
Dicologlossa hexophthalma	0.20	0.04	
Chaceon maritae	0.20	0.04	
Lophius vaillanti	0.20	0.04	
GOBIIDAE	0.10	0.02	
Total	464.70	100.03	

PROJECT STATION:1427
 DATE:10/ 8/97 GEAR TYPE: BT No:2 POSITION:Lat S 916 Long E 1253
 start stop duration
 TIME :06:56:34 07:26:16 30 (min) Purpose code: 3
 LOG :9227.74 9229.55 1.78 Area code : 1
 FDEPTH: 60 62 GearCond.code: 9
 BDEPTH: 60 62 Validity code: 9
 Towing dir: 350° Wire out: 220 m Speed: 30 kn*10

Sorted: 176 Kg Total catch: 443.17 CATCH/HOUR: 886.34

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP
	weight numbers		
Umbrina canariensis	226.00	512	25.50 3267
Pagellus bellottii	164.60	378	18.57 3268
Trichiurus lepturus	110.80	294	12.50
Brachydeuterus auritus	93.60	476	10.56
Selene dorsalis	78.00	182	8.80
Sardinella maderensis	23.40	78	2.64
Scorpaena stephanica	19.00	226	2.14
Chelidonichthys capensis	18.20	70	2.05
Citharus linguatula	18.00	372	2.03
Argyrosomus angolensis	15.00	94	1.69 3269
Argyrosomus hololepidotus	13.80	14	1.56
Pteroscion peli	13.80	112	1.56
Sepia officinalis hierredda	13.00	34	1.47
Trachurus trecae	10.40	26	1.17
Dentex barnardi	9.60	44	1.08
Penaeus notialis	8.60	242	0.97
Epinephelus aeneus	8.60	18	0.97
Chaetodon hoefleri	8.60	52	0.97
Stromateus fiatola	7.80	8	0.88
Galeoides decadactylus	7.00	8	0.79
Pentheroscion mbizi	7.00	8	0.79
Raja clavata	4.40	8	0.50
Zeus faber	3.40	8	0.38
Trigla lyra	1.74	8	0.20
Trachurus trecae, juvenile	0.86	1524	0.10
Bembrops heterurus	0.80	8	0.09
Dicologlossa hexophthalma	0.34	8	0.04
Total	886.34	100.00	

PROJECT STATION:1428
 DATE:10/ 8/97 GEAR TYPE: BT No:2 POSITION:Lat S 933 Long E 1256
 start stop duration
 TIME :09:52:47 10:22:22 30 (min) Purpose code: 3
 LOG :9250.69 9252.34 1.65 Area code : 1
 FDEPTH: 94 92 GearCond.code: 9
 BDEPTH: 94 92 Validity code: 9
 Towing dir: 130° Wire out: 310 m Speed: 32 kn*10

Sorted: 158 Kg Total catch: 248.58 CATCH/HOUR: 497.16

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP
	weight numbers		
Synagrops microlepis	89.36	37908	17.97
Brotula barbata	42.40	46	8.53 3273
Pagellus bellottii	38.84	222	7.81 3272
Trichiurus lepturus	37.40	80	7.52
Dentex macropthalmus, female	37.20	128	7.48 3275
Trachurus trecae	34.20	696	6.88
Umbrina canariensis	29.80	48	5.99
Epinephelus gorensis	29.20	8	5.87
Dasyatis marmorata	26.40	4	5.31
Scorpaena angolensis	22.08	116	4.44
Branchiostegus semifasciatus	17.04	16	3.43
Pterothrissus belloci	14.68	64	2.95
Boops boops	13.08	728	2.63
Dentex macropthalmus, male	12.80	36	2.57 3274
Shrimps, small, non comm.	11.60	4288	2.33
Atractoscion aequidens	7.60	4	1.53
Merluccius polli	6.56	632	1.32
Citharus linguatula	6.16	100	1.24
Zeus faber	4.92	8	0.99
Octopus vulgaris	3.80	4	0.76
Lagocephalus laevis	2.60	4	0.52
Chelidonichthys gabonensis	1.80	12	0.42
Torpedo torpedo	1.60	4	0.32
Raja miraletus	1.48	4	0.30
Dentex angolensis	1.32	8	0.27 3271
Chaetodon hoefleri	1.28	16	0.26
Pontinus accraensis	0.84	4	0.17
Dentex gibbosus	0.84	2	0.17 3270
Total	497.16	99.98	

PROJECT STATION:1429
 DATE:10/ 8/97 GEAR TYPE: BT No:2 POSITION:Lat S 938 Long E 1301
 start stop duration
 TIME :11:48:00 12:18:00 30 (min) Purpose code: 3
 LOG :9262.60 9264.00 1.49 Area code : 1
 FDEPTH: 73 72 GearCond.code: 9
 BDEPTH: 73 72 Validity code: 9
 Towing dir: 160° Wire out: 280 m Speed: 30 kn*10

Sorted: 134 Kg Total catch: 413.74 CATCH/HOUR: 827.48

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP
	weight numbers		
Selene dorsalis	289.28	636	34.96
Umbrina canariensis	123.98	390	14.98
Pagellus bellottii	105.30	362	12.73 3276
Trachurus trecae	75.14	5158	9.08
Cynoponticus ferox	50.82	10	6.14
Argyrosomus hololepidotus	41.32	20	4.99
Alloteuthis sp.	34.30	7286	4.15
Trichiurus lepturus	28.02	48	3.39
Atractoscion aequidens	27.46	10	3.32
Boops boops	21.56	1768	2.61
Dentex canariensis	10.72	90	1.30
Pomadasyx incisus	5.60	20	0.68
Raja miraletus	5.22	10	0.63
Branchiostegus semifasciatus	4.18	20	0.51
Chaetodon hoefleri	2.56	20	0.31
Dentex angolensis	2.02	20	0.24
Total	827.48	100.02	

PROJECT STATION:1430
 DATE:10/ 8/97 GEAR TYPE: BT No:2 POSITION:Lat S 938
 start stop duration Long E 1254
 TIME :13:42:00 14:12:00 30 (min) Purpose code: 3
 LOG :9273.50 9275.20 1.70 Area code : 1
 FDEPTH: 111 108 GearCond.code:
 BDEPTH: 111 108 Validity code:
 Towing dir: 345° Wire out: 360 m Speed: 31 kn*10
 Sorted: 84 Kg Total catch: 350.77 CATCH/HOUR: 701.54

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP
	weight numbers		
Trachurus trecae	313.50 11904	44.69	
Synagrops microlepis	123.02 10622	17.54	
Umbrina canariensis	96.90 172	13.81	
Boops boops	47.88 1510	6.82	
Trichiurus lepturus	22.80 38	3.25	
Todaropsis eblanae	15.30 304	2.18	
Dentex angolensis	13.62 80	1.94	3277
Uranoscopus albesca	7.12 48	1.01	
Merluccius polli	6.94 286	0.99	
Dentex macrophthalmus, female	6.38 28	0.91	3279
Illex coindetii	6.28 134	0.90	
Squatina oculata	5.98 10	0.85	
Branchiostegus semifasciatus	5.80 10	0.83	
Sparus pagrus africanus *	5.42 10	0.77	
Zenopsis conchifer	4.94 20	0.70	
Pterothrissus belloci	4.94 20	0.70	
Dentex macrophthalmus, male	4.66 16	0.66	3278
Saurida brasiliensis	2.48 142	0.35	
Scorpaena normani	2.38 20	0.34	
Monolele microstoma	2.28 58	0.32	
Pagellus bellottii	1.54 16	0.22	
Bembrops heterurus	0.96 10	0.14	
Dentex canariensis	0.42 2	0.06	
Total	701.54	99.98	

PROJECT STATION:1433
 DATE:11/ 8/97 GEAR TYPE: BT No:2 POSITION:Lat S 958
 start stop duration Long E 1251
 TIME :04:47:55 05:17:28 30 (min) Purpose code: 3
 LOG :9339.65 9341.13 1.47 Area code : 1
 FDEPTH: 294 288 GearCond.code:
 BDEPTH: 294 288 Validity code:
 Towing dir: 90° Wire out: 900 m Speed: 10 kn*10
 Sorted: 48 Kg Total catch: 231.96 CATCH/HOUR: 463.92

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP
	weight numbers		
Chlorophthalmus atlanticus	340.80 6188	73.46	
Merluccius polli	21.60 72	4.66	
MYCTOPHIDAE	10.80 9234	2.33	
Parapenaeus longirostris	9.60 1752	2.07	
Scorpaena normani	9.60 96	2.07	
Nematocarcinus africanus	8.40 3276	1.81	
Laemonema laureysi	8.40 96	1.81	
Squalus megalops	7.60 2	1.64	
Hoplostethus mediterraneus	7.40 6	1.60	
Hyperoglyphe moselii	7.20 12	1.55	
Brotula barbata	4.40 6	0.95	
Todaropsis eblanae	3.60 24	0.78	
Coelorinchus coelorhincus	3.60 24	0.78	
Pterothrissus belloci	3.60 24	0.78	
Gadella imberbis	3.60 132	0.78	
Bembrops heterurus	3.20 12	0.69	
Epigonus telescopus	3.20 24	0.69	
Raja clavata	2.80 2	0.60	
Peristedion cataphractum	2.40 60	0.52	
Dicologlossa cuneata	0.80 12	0.17	
Hoplostethus cadenati	0.80 12	0.17	
CONGRIDAE	0.40 24	0.09	
Nezumia aequalis	0.12 12	0.03	
Total	463.92	100.03	

PROJECT STATION:1431
 DATE:10/ 8/97 GEAR TYPE: BT No:2 POSITION:Lat S 938
 start stop duration Long E 1248
 TIME :15:37:00 16:07:00 30 (min) Purpose code: 3
 LOG :9284.36 9285.80 1.44 Area code : 1
 FDEPTH: 183 177 GearCond.code:
 BDEPTH: 183 177 Validity code:
 Towing dir: 340° Wire out: 600 m Speed: 30 kn*10
 Sorted: 92 Kg Total catch: 530.08 CATCH/HOUR: 1060.16

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP
	weight numbers		
Synagrops microlepis	490.60 32026	46.28	
Merluccius polli	192.80 2250	18.19	3282
Pterothrissus belloci	105.00 630	9.90	
Parapenaeus longirostris	84.40 13996	7.96	
Brotula barbata	30.00 46	2.83	
Chlorophthalmus atlanticus	27.00 2508	2.55	
MYCTOPHIDAE	24.00 5920	2.26	
Dentex angolensis	22.00 78	2.08	3283
Squatina oculata	14.30 2	1.35	
Zenopsis conchifer	9.00 166	0.85	
Scorpaena normani	9.00 76	0.85	
Torpedo torpedo	9.00 16	0.85	
Bembrops heterurus	7.60 90	0.72	
Citharus linguatula	7.60 316	0.72	
Dentex macrophthalmus, female	7.20 44	0.68	3280
Dentex macrophthalmus, male	5.80 22	0.55	3281
Uranoscopus cadenati	4.60 16	0.43	
Todaropsis eblanae	4.60 106	0.43	
Spicara alta	4.60 16	0.43	
Sepia officinalis hierredda	0.46 16	0.04	
CONGRIDAE	0.30 16	0.03	
Trachurus trecae	0.30 16	0.03	
Total	1060.16	100.01	

PROJECT STATION:1434
 DATE:11/ 8/97 GEAR TYPE: BT No:2 POSITION:Lat S 958
 start stop duration Long E 1252
 TIME :00:00:00 00:00:00 30 (min) Purpose code: 3
 LOG :9344.48 9346.09 1.60 Area code : 1
 FDEPTH: 217 220 GearCond.code:
 BDEPTH: 217 220 Validity code:
 Towing dir: 90° Wire out: 670 m Speed: 35 kn*10
 Sorted: 97 Kg Total catch: 854.84 CATCH/HOUR: 1709.68

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP
	weight numbers		
Parapenaeus longirostris	499.40 78542	29.21	
Trachurus trecae	314.60 616	18.40	3290
Bembrops heterurus	200.64 484	11.74	
Merluccius polli	173.80 1276	10.17	3291
Synagrops microlepis	169.40 11388	9.91	
Chlorophthalmus atlanticus	105.60 2640	6.18	
Pterothrissus belloci	59.40 352	3.47	
Trichiurus lepturus	48.40 132	2.83	
CONGRIDAE	33.00 132	1.93	
Zenopsis conchifer	33.00 286	1.93	
Squatina aculeata	16.60 2	0.97	
Dentex angolensis	16.40 40	0.96	3289
Uranoscopus cadenati	15.40 110	0.90	
Dentex macrophthalmus, female	7.80 30	0.46	3288
Citharus linguatula	4.40 220	0.26	
Sepia officinalis hierredda	4.40 198	0.26	
Miracorvina angolensis	2.60 2	0.15	
Malacocephalus laevis	2.20 22	0.13	
Illex coindetii	1.32 22	0.08	
Coelorinchus coelorhincus	0.88 22	0.05	
Nezumia aequalis	0.44 22	0.03	
Total	1709.68	100.02	

PROJECT STATION:1432
 DATE:10/ 8/97 GEAR TYPE: BT No:2 POSITION:Lat S 938
 start stop duration Long E 1245
 TIME :17:30:00 18:00:00 30 (min) Purpose code: 3
 LOG :9296.40 9297.90 1.50 Area code : 1
 FDEPTH: 217 221 GearCond.code:
 BDEPTH: 217 221 Validity code:
 Towing dir: 270° Wire out: 670 m Speed: 30 kn*10
 Sorted: 55 Kg Total catch: 153.88 CATCH/HOUR: 307.76

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP
	weight numbers		
Merluccius polli	104.80 1192	34.05	3284
Synagrops microlepis	80.00 4752	25.99	
Dentex macrophthalmus, female	31.80 160	10.33	3286
Pterothrissus belloci	26.40 152	8.58	
Zeus faber	11.20 80	3.64	
Dentex angolensis	9.60 26	3.12	3285
Uranoscopus cadenati	8.80 56	2.86	
Parapenaeus longirostris	8.00 1312	2.60	
Chlorophthalmus atlanticus	4.00 248	1.30	
Peristedion cataphractum	4.00 96	1.30	
Bembrops heterurus	4.00 32	1.30	
Dentex macrophthalmus, male	3.96 22	1.29	3287
CONGRIDAE	3.20 112	1.04	
MYCTOPHIDAE	2.40 752	0.78	
Todaropsis eblanae	2.40 24	0.78	
Illex coindetii	1.60 24	0.52	
Citharus linguatula	0.80 32	0.26	
Pterothrissus belloci	0.80 24	0.26	
Total	307.76	100.00	

PROJECT STATION:1435
 DATE:11/ 8/97 GEAR TYPE: BT No:2 POSITION:Lat S 957
 start stop duration Long E 1253
 TIME :08:14:50 09:18:40 30 (min) Purpose code: 3
 LOG :9352.61 9354.21 1.56 Area code : 1
 FDEPTH: 166 167 GearCond.code:
 BDEPTH: 166 167 Validity code:
 Towing dir: 150° Wire out: 500 m Speed: 32 kn*10
 Sorted: 125 Kg Total catch: 1335.10 CATCH/HOUR: 2670.20

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP
	weight numbers		
Merluccius polli	1311.40 3060	49.11	3294
Trachurus trecae	481.40 984	18.03	3295
Synagrops microlepis	420.20 44228	15.74	
Zenopsis conchifer	242.00 1648	9.06	
Chlorophthalmus atlanticus	45.20 52	1.69	
Pterothrissus belloci	40.40 1142	1.51	
Umbrina canariensis	34.60 266	1.30	
Brotula barbata	21.20 26	0.79	
Dentex macrophthalmus, female	14.00 14	0.52	
Dentex angolensis	12.00 52	0.45	3292
Dentex macrophthalmus, male	10.20 34	0.38	3296
Squatina oculata	10.20 2	0.38	
Dentex macrophthalmus, male	7.40 44	0.28	3293
Uranoscopus cadenati	5.40 26	0.20	
Malacocephalus occidentalis	5.40 212	0.20	
Todaropsis eblanae	5.40 52	0.20	
Illex coindetii	1.40 26	0.05	
Parapenaeus longirostris	1.00 158	0.04	
Nezumia aequalis	1.00 26	0.04	
Citharus linguatula	0.80 26	0.03	
Total	2670.60	100.00	

PROJECT STATION:1436
 DATE:11/ 8/97 GEAR TYPE: BT No:2 POSITION:Lat S 958 Long E 1305
 start stop duration
 TIME :10:23:00 10:53:00 30 (min) Purpose code: 3
 LOG :9367.60 9369.10 1.50 Area code : 1
 FDEPTH: 82 82 GearCond.code:
 BDEPTH: 82 82 Validity code:
 Towing dir: 150° Wire out: 260 m Speed: 30 kn*10

Sorted: 110 Kg Total catch: 800.79 CATCH/HOUR: 1601.58

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP
	weight numbers		
Trachurus trecae	741.40 1676	46.29	3298
Trachurus trecae, juvenile	304.70 10934	19.02	3297
Trichiurus lepturus	193.60 550	12.09	
Umbrina canariensis	63.14 286	3.94	
Atractoscion aequidens	46.20 22	2.88	
Octopus vulgaris	43.78 22	2.73	
Synagrops microlepis	37.40 2794	2.34	
Dentex macrophthalmus, female	33.40 106	2.09	3301
Pagellus bellottii	30.40 254	1.90	3299
Pistularia petimba	20.46 22	1.28	
Zeus faber	15.84 44	0.99	
Raja miraletus	15.18 22	0.95	
Pseudupeneus prayensis	12.54 110	0.78	
epinephelus alexandrinus *	9.90 22	0.62	
Dentex canariensis	9.22 54	0.58	
Torpedo torpedo	6.16 22	0.38	
Dentex macrophthalmus, male	4.40 16	0.27	3300
Dentex gibbosus	3.72 12	0.23	
Merluccius polli	3.08 66	0.19	
Citharus linguatula	2.20 66	0.14	
Boops boops	1.98 44	0.12	
Sepia officinalis hierredda	1.54 22	0.10	
Dentex angolensis	1.34 16	0.08	
Total	1601.58	99.99	

PROJECT STATION:1439
 DATE:11/ 8/97 GEAR TYPE: BT No:2 POSITION:Lat S 1019 Long E 1300
 start stop duration
 TIME :16:20:00 16:50:00 30 (min) Purpose code: 3
 LOG :9408.30 9409.70 1.40 Area code : 1
 FDEPTH: 199 212 GearCond.code:
 BDEPTH: 199 212 Validity code:
 Towing dir: 340° Wire out: 620 m Speed: 30 kn*10

Sorted: 96 Kg Total catch: 607.53 CATCH/HOUR: 1215.06

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP
	weight numbers		
Parapenaeus longirostris	333.20 56366	27.42	
Synagrops microlepis	224.40 12822	18.47	
Merluccius polli	212.50 2432	17.49	3312
Chlorophthalmus atlanticus	91.80 4506	7.56	
Umbrina canariensis	83.30 102	6.86	
Pterothrissus bellocci	49.30 392	4.06	
Dentex macrophthalmus, female	39.40 158	3.24	3310
Trichiurus lepturus	32.30 68	2.66	
Zenopsis conchifer	28.90 374	2.38	
Bembrops heterurus	27.20 358	2.24	
Brotula barbata	20.40 34	1.68	
MYCTOPHIDAE	15.30 4514	1.26	
Trachurus trecae	11.90 642	0.98	
Dentex angolensis	10.00 28	0.82	3313
Uranoscopus cadenati	8.50 68	0.70	
Todaropsis eblanae	6.80 68	0.56	
Dentex macrophthalmus, male	5.40 26	0.44	3311
CONGRIDAE	3.40 18	0.28	
Sepia officinalis hierredda	3.40 136	0.28	
Citharus linguatula	3.40 204	0.28	
Nezumia aequalis	3.40 136	0.28	
Malacocephalus occidentalis	0.86 18	0.07	
Total	1215.06	100.01	

PROJECT STATION:1437
 DATE:11/ 8/97 GEAR TYPE: BT No:2 POSITION:Lat S 1013 Long E 1316
 start stop duration
 TIME :13:03:00 13:33:00 30 (min) Purpose code: 3
 LOG :9386.92 9388.24 1.30 Area code : 1
 FDEPTH: 69 68 GearCond.code:
 BDEPTH: 69 68 Validity code:
 Towing dir: 150° Wire out: 250 m Speed: 31 kn*10

Sorted: 102 Kg Total catch: 312.66 CATCH/HOUR: 625.32

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP
	weight numbers		
Trichiurus lepturus	322.20 5680	51.53	
Trachurus trecae	116.10 1602	18.57	3304
Pagellus bellottii	64.80 516	10.36	3302
Raja miraletus	19.08 46	3.05	
Dentex canariensis	18.90 110	3.02	
Octopus vulgaris	12.88 18	2.06	
Umbrina canariensis	12.34 90	1.97	
Stromateus fiatola	8.64 10	1.38	
Merluccius polli	8.02 828	1.28	
Zeus faber	7.74 10	1.24	
Sepia officinalis hierredda	6.76 18	1.08	
Atractoscion aequidens	5.76 10	0.92	
Miracorrina angolensis	5.58 28	0.89	
Chaetodon hoefleri	4.24 36	0.68	
Trachurus trecae, juvenile	3.96 486	0.63	3303
Citharus linguatula	2.62 64	0.42	
Chelidonichthys capensis	2.26 10	0.36	
Penaeus notialis	1.44 28	0.23	
Todaropsis eblanae	1.18 10	0.19	
Synagrops microlepis	0.82 208	0.13	
Total	625.32	99.99	

PROJECT STATION:1440
 DATE:12/ 8/97 GEAR TYPE: BT No:2 POSITION:Lat S 1035 Long E 1311
 start stop duration
 TIME :04:45:50 05:15:41 30 (min) Purpose code: 3
 LOG :9453.16 9454.59 1.41 Area code : 1
 FDEPTH: 205 195 GearCond.code:
 BDEPTH: 205 195 Validity code:
 Towing dir: 85° Wire out: 610 m Speed: 28 kn*10

Sorted: 84 Kg Total catch: 447.20 CATCH/HOUR: 894.40

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP
	weight numbers		
Dentex macrophthalmus, female	188.00 936	21.02	3315
Chlorophthalmus atlanticus	187.20 6336	20.93	
Trachurus trecae	117.60 1806	13.15	3314
Synagrops microlepis	74.40 3880	8.32	
Parapenaeus longirostris	60.00 11640	6.71	
Spicara alta	37.20 168	4.16	
Dentex macrophthalmus, male	35.60 208	3.98	3316
Epigonus telescopus	27.60 336	3.09	
Umbrina canariensis	22.80 36	2.55	
Hoplostethus mediterraneus	21.60 60	2.42	
Zenopsis conchifer	15.60 192	1.74	
Bembrops heterurus	15.60 180	1.74	
Dentex angolensis	15.60 48	1.74	
Merluccius polli	12.00 108	1.34	
Scorpaena normani	12.00 108	1.34	
Erythrocles monodi	9.60 12	1.07	
Brotula barbata	9.60 24	1.07	
Trichiurus lepturus	7.20 48	0.81	
Todaropsis eblanae	4.80 36	0.54	
Pterothrissus bellocci	3.60 24	0.40	
CONGRIDAE	3.60 24	0.40	
Sepia sp.	3.60 60	0.40	
MYCTOPHIDAE	3.60 1188	0.40	
Illex coindetii	2.40 24	0.27	
Uranoscopus cadenati	2.40 36	0.27	
Citharus linguatula	1.20 24	0.13	
Total	894.40	99.99	

PROJECT STATION:1438
 DATE:11/ 8/97 GEAR TYPE: BT No:2 POSITION:Lat S 1017 Long E 1304
 start stop duration
 TIME :15:57:30 16:15:30 18 (min) Purpose code: 3
 LOG :9402.40 9403.00 0.60 Area code : 1
 FDEPTH: 115 117 GearCond.code:
 BDEPTH: 115 117 Validity code:
 Towing dir: 170° Wire out: 350 m Speed: 30 kn*10

Sorted: 77 Kg Total catch: 540.72 CATCH/HOUR: 1802.40

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP
	weight numbers		
Trachurus trecae	1452.00 44217	80.56	3305
Umbrina canariensis	70.13 187	3.89	
Raja miraletus	55.73 53	3.09	
Trichiurus lepturus	45.60 80	2.53	
Boops boops	42.93 1573	2.38	
Lagocephalus laevigatus	40.80 53	2.26	
Zeus faber	19.47 27	1.08	
Dentex angolensis	15.43 97	0.86	3306
Sparus auriga *	11.47 27	0.64	
Lagocephalus laevigatus	10.13 27	0.56	
Zenopsis conchifer	9.87 27	0.55	
Dentex macrophthalmus, male	6.53 37	0.36	3308
Dentex macrophthalmus, female	6.37 33	0.35	3309
Pagellus bellottii	5.30 77	0.29	3307
Chelidonichthys gabonensis	3.47 27	0.19	
Todaropsis eblanae	3.20 27	0.18	
Illex coindetii	1.60 53	0.09	
Spicara alta	1.33 53	0.07	
Dentex congolensis	1.03 10	0.06	
Total	1802.39	99.99	

PROJECT STATION:1441
 DATE:12/ 8/97 GEAR TYPE: BT No:2 POSITION:Lat S 1033 Long E 1311
 start stop duration
 TIME :05:55:49 06:25:20 30 (min) Purpose code: 3
 LOG :9457.82 9457.82 Area code : 1
 FDEPTH: 160 158 GearCond.code:
 BDEPTH: 160 158 Validity code:
 Towing dir: 335° Wire out: 590 m Speed: 30 kn*10

Sorted: 89 Kg Total catch: 838.62 CATCH/HOUR: 1677.24

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP
	weight numbers		
Trachurus trecae	1016.40 12584	60.60	3320
Synagrops microlepis	261.60 17910	15.60	
Zenopsis conchifer	84.00 528	5.01	
Merluccius polli	64.80 936	3.86	3319
Brotula barbata	52.80 68	3.15	
Todaropsis eblanae	36.00 288	2.15	
Chlorophthalmus atlanticus	31.20 2352	1.86	
Uranoscopus cadenati	16.80 96	1.00	
Dentex angolensis	16.58 60	0.99	3321
Dentex macrophthalmus, male	14.94 54	0.89	3317
Raja miraletus	14.40 24	0.86	
Torpedo torpedo	9.60 24	0.57	
Bembrops heterurus	9.60 96	0.57	
Trichiurus lepturus	9.60 24	0.57	
Dentex macrophthalmus, female	9.40 58	0.56	3318
Pterothrissus bellocci	7.20 72	0.43	
Parapenaeus longirostris	7.20 1416	0.43	
Citharus linguatula	4.80 288	0.29	
Scorpaena normani	4.80 24	0.29	
Peristedion cataphractum	2.40 48	0.14	
Sepia officinalis hierredda	1.68 48	0.10	
CONGRIDAE	1.44 24	0.09	
Total	1677.24	100.01	

PROJECT STATION:1442
 DATE:12/ 8/97 GEAR TYPE: BT No:2 POSITION:Lat S 1033 Long E 1320
 start stop duration
 TIME :08:43:39 09:13:26 30 (min) Purpose code: 3
 LOG :9471.94 9473.50 1.55 Area code : 1
 FDEPTH: 100 103 GearCond.code:
 BDEPTH: 100 103 Validity code:
 Towing dir: 160° Wire out: 320 m Speed: 32 kn*10
 Sorted: 123 Kg Total catch: 1096.98 CATCH/HOUR: 2193.96

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Trachurus trecae	1709.10	42728	77.90	3322
Epinephelus guaza ?	221.40	28	10.09	
Dentex macrophthalmus, female	45.30	190	2.06	3325
Zeus faber	32.40	54	1.48	
Branchiostegus semifasciatus	27.00	28	1.23	
Sarda sarda	27.00	28	1.23	
Dentex macrophthalmus, male	22.80	126	1.04	3326
Ephippion guttifer	21.60	54	0.98	
Zenopsis conchifer	18.90	162	0.86	
Dentex angolensis	17.00	86	0.77	3323
Raja miraletus	16.20	28	0.74	
Umrina canariensis	16.20	54	0.74	
Todaropsis eblanae	5.40	108	0.25	
Pagellus bellottii	3.40	26	0.15	3324
Trigla lyra	2.70	28	0.12	
Boops boops	2.70	54	0.12	
Merluccius polli	2.70	28	0.12	
Peristedion cataphractum	1.36	28	0.06	
Dentex congoensis	0.80	8	0.04	
Total	2193.96		99.98	

PROJECT STATION:1445
 DATE:12/ 8/97 GEAR TYPE: BT No:2 POSITION:Lat S 1052 Long E 1327
 start stop duration
 TIME :14:25:49 14:55:42 30 (min) Purpose code: 3
 LOG :9513.20 9514.70 1.50 Area code : 1
 FDEPTH: 171 181 GearCond.code:
 BDEPTH: 171 181 Validity code:
 Towing dir: 171° Wire out: 520 m Speed: 30 kn*10
 Sorted: 203 Kg Total catch: 1996.05 CATCH/HOUR: 3992.10

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Trachurus trecae	1012.84	5566	25.37	3336
Dentex macrophthalmus, male	726.28	4852	18.19	3338
Dentex macrophthalmus, female	718.22	4248	17.99	3337
Trichiurus lepturus	420.86	3678	10.54	
Synagrops microlepis	406.12	29146	10.17	
Chlorophthalmus atlanticus	345.14	17346	8.65	
Merluccius polli	144.54	1338	3.62	3334
Zenopsis conchifer	90.08	1180	2.26	
Dentex angolensis	38.34	118	0.96	3335
Brotula barbata	24.98	20	0.63	
Todaropsis eblanae	16.72	176	0.42	
Umrina canariensis	14.36	98	0.36	
Parapenaeus longirostris	11.40	1672	0.29	
Umrina canariensis	6.68	20	0.17	
Monolene microstoma	6.30	294	0.16	
Uranoscopus albesca	4.32	20	0.11	
Pontinus acraensis	2.56	20	0.06	
Bembrops heterurus	2.36	20	0.06	
Total	3992.10		100.01	

PROJECT STATION:1443
 DATE:12/ 8/97 GEAR TYPE: BT No:2 POSITION:Lat S 1034 Long E 1332
 start stop duration
 TIME :10:40:52 11:11:08 30 (min) Purpose code: 3
 LOG :9484.38 9485.98 1.56 Area code : 1
 FDEPTH: 50 48 GearCond.code:
 BDEPTH: 50 48 Validity code:
 Towing dir: 135° Wire out: 170 m Speed: 31 kn*10
 Sorted: 97 Kg Total catch: 318.43 CATCH/HOUR: 636.86

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Trichiurus lepturus	217.80	2286	34.20	
Trachurus trecae	162.90	2610	25.58	3327
Pagellus bellottii	51.20	284	8.04	3328
Brachydeuterus auritus	44.46	244	6.98	
GOBIDAE	35.82	27936	5.62	
Sepia officinalis hierredda	26.92	18	4.23	
Umrina canariensis	25.74	54	4.04	
Raja miraletus	17.46	28	2.74	
Pseudolithus typus	16.74	18	2.63	
Dentex canariensis	13.12	110	2.06	3329
Pomadasyus incisus	7.20	64	1.13	
Octopus vulgaris	5.04	10	0.79	
Cynoglossus canariensis	4.50	18	0.71	
Citharus linguatula	2.52	100	0.40	
Dentex barnardi	1.90	10	0.30	
Miracorvina angolensis	1.72	10	0.27	
Merluccius polli	1.36	136	0.21	
Penaus notialis	0.46	10	0.07	
Total	636.86		100.00	

PROJECT STATION:1446
 DATE:12/ 8/97 GEAR TYPE: BT No:2 POSITION:Lat S 1053 Long E 1325
 start stop duration
 TIME :15:58:22 16:28:12 30 (min) Purpose code: 3
 LOG :9521.66 9523.11 1.45 Area code : 1
 FDEPTH: 317 317 GearCond.code:
 BDEPTH: 317 317 Validity code:
 Towing dir: 145° Wire out: 950 m Speed: 30 kn*10
 Sorted: 69 Kg Total catch: 413.58 CATCH/HOUR: 827.16

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Merluccius polli	450.00	2884	54.40	3339
Scorpaena stephanica	109.20	264	13.20	
Parapenaeus longirostris	93.60	14976	11.32	
Trichiurus lepturus	50.40	432	6.09	
Laemonema laureysi	44.40	730	5.37	
Gadella imberbis	13.20	672	1.60	
Hoplostethus mediterraneus	12.00	12	1.45	
Zenopsis conchifer	10.80	36	1.31	
Hoplostethus cadenati	7.20	228	0.87	
Pterothrissus belloci	6.00	24	0.73	
Trachurus trecae	4.80	12	0.58	
MYCTOPHIDAE	4.80	3648	0.58	
Todaropsis eblanae	3.60	36	0.44	
GALATHEIDAE *	3.60	744	0.44	
Malacocephalus occidentalis	2.40	12	0.29	
Synagrops microlepis	1.56	132	0.19	
Peristedion cataphractum	1.56	324	0.19	
Illex coindetii	1.20	12	0.15	
Lophius vaillanti	1.20	2	0.15	
Chlorophthalmus atlanticus	1.20	72	0.15	
Chaceon maritae	1.20	12	0.15	
Epigonus telescopus	0.96	12	0.12	
Citharus linguatula	0.48	12	0.06	
Chaunax pictus	0.48	12	0.06	
CONGRIDAE	0.36	12	0.04	
Sepia sp.	0.36	12	0.04	
Hymenocephalus italicus	0.36	144	0.04	
Nezumia aequalis	0.24	12	0.03	
Total	827.16		100.04	

PROJECT STATION:1444
 DATE:12/ 8/97 GEAR TYPE: BT No:2 POSITION:Lat S 1051 Long E 1332
 start stop duration
 TIME :13:18:22 13:27:45 9 (min) Purpose code: 3
 LOG :9505.38 9505.81 0.43 Area code : 1
 FDEPTH: 114 113 GearCond.code:
 BDEPTH: 114 113 Validity code:
 Towing dir: 180° Wire out: 340 m Speed: 30 kn*10
 Sorted: 39 Kg Total catch: 38.97 CATCH/HOUR: 259.80

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Trachurus trecae	145.00	2487	55.81	3331
Dentex angolensis	15.20	100	5.85	3330
Dentex macrophthalmus, female	14.00	73	5.39	3333
Branchiostegus semifasciatus	13.80	13	5.31	
Zeus faber	13.33	40	5.13	
Dentex macrophthalmus, male	10.73	53	4.13	3332
Boops boops	7.40	87	2.85	
Brotula barbata	6.00	13	2.31	
Raja miraletus	4.87	7	1.87	
Chelidonichthys gabonensis	4.73	40	1.82	
Octopus vulgaris	3.80	7	1.46	
Trichiurus lepturus	3.52	20	1.36	
Citharus linguatula	3.47	47	1.34	
Brachydeuterus auritus	3.13	13	1.20	
Scorpaena angolensis	2.80	7	1.08	
Todaropsis eblanae	2.53	53	0.97	
Perulibatrachus rosignoli	1.47	7	0.57	
Pagellus bellottii	1.40	7	0.54	
Sparus pagrus africanus *	1.33	7	0.51	
Monolene microstoma	1.27	40	0.49	
Total	259.79		99.99	

PROJECT STATION:1447
 DATE:13/ 8/97 GEAR TYPE: BT No:2 POSITION:Lat S 1111 Long E 1344
 start stop duration
 TIME :04:51:11 05:21:43 30 (min) Purpose code: 3
 LOG :9629.87 9631.47 1.60 Area code : 1
 FDEPTH: 68 67 GearCond.code:
 BDEPTH: 68 67 Validity code:
 Towing dir: 270° Wire out: 230 m Speed: 32 kn*10
 Sorted: 77 Kg Total catch: 530.96 CATCH/HOUR: 1061.92

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Pterothrissus bellocci	394.50	4004	37.15	
Trachurus trecae	235.50	4156	22.18	3343
Dentex macrophthalmus, male	143.00	620	13.47	3340
Brotula barbata	70.50	720	6.64	
Parapenaeus longirostris	58.06	29508	5.47	
Dentex macrophthalmus, female	42.00	190	3.96	3341
Synagrops microlepis	15.00	1380	1.41	
Raja miraletus	14.56	30	1.37	
Citharus linguatula	12.00	466	1.13	
Sepia officinalis hierredda	9.00	76	0.85	
Octopus vulgaris	7.50	16	0.71	
Dicologlossa cuneata	7.50	46	0.71	
Dentex barnardi	7.50	30	0.71	
Sufflogobius bibarbatus	4.50	480	0.42	
GOBIDAE	4.50	510	0.42	
Trichiurus lepturus	4.50	300	0.42	
Merluccius polli	4.50	496	0.42	3342
Scorpaena stephanica	4.50	46	0.42	
Bembrops greyi	3.60	90	0.34	
Umbrina canariensis	3.00	60	0.28	
Chelidonichthys capensis	3.00	16	0.28	
Anthias anthias	1.50	16	0.14	
Pagellus bellottii	1.50	16	0.14	
Penaeus notialis	1.50	60	0.14	
Chaetodon hoeferi	1.50	16	0.14	
Branchiostegus semifasciatus	1.50	16	0.14	
Zeus faber	1.50	30	0.14	
Pentheroscion mbizi	1.50	16	0.14	
Cynoponticus ferox	1.50	16	0.14	
Uranoscopus cadenati	0.30	16	0.03	
Peristedion cataphractum	0.30	46	0.03	
Chaceon maritae	0.30	16	0.03	
Chaunax pictus	0.30	16	0.03	
Total	1061.92		100.00	

PROJECT STATION:1448
 DATE:13/ 8/97 GEAR TYPE: BT No:2 POSITION:Lat S 1110 Long E 1336
 start stop duration
 TIME :07:09:39 07:39:16 30 (min) Purpose code: 3
 LOG :9643.64 9645.27 1.62 Area code : 1
 FDEPTH: 147 144 GearCond.code:
 BDEPTH: 147 144 Validity code:
 Towing dir: 350° Wire out: 450 m Speed: 32 kn*10
 Sorted: 101 Kg Total catch: 606.84 CATCH/HOUR: 1213.68

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Dentex macrophthalmus, female	345.60	1896	28.48	3344
Dentex macrophthalmus, male	283.20	1668	23.33	3345
Merluccius polli	139.20	1428	11.47	3346
Trachurus trecae	128.40	1272	10.58	3347
Parapenaeus longirostris	124.80	27768	10.28	
Synagrops microlepis	67.20	4256	5.54	
Pterothrissus bellocci	39.60	192	3.26	
Brotula barbata	24.00	24	1.98	
Uranoscopus cadenati	18.00	60	1.48	
Dentex angolensis	12.00	48	0.99	
Trigla lyra	9.60	60	0.79	
Zenopsis conchifer	7.20	84	0.59	
Scorpaena normani	4.80	48	0.40	
Trichiurus lepturus	3.60	12	0.30	
Citharus linguatula	2.40	48	0.20	
Todaropsis eblanae	1.20	12	0.10	
GOBIDAE	1.20	156	0.10	
Laemonema laureysi	1.20	36	0.10	
CONGRIDAE	0.24	12	0.02	
Sepia officinalis hierredda	0.24	24	0.02	
Total	1213.68		100.01	

PROJECT STATION:1449
 DATE:13/ 8/97 GEAR TYPE: BT No:2 POSITION:Lat S 1110 Long E 1333
 start stop duration
 TIME :08:53:48 09:23:52 30 (min) Purpose code: 3
 LOG :9652.84 9654.42 1.60 Area code : 1
 FDEPTH: 251 256 GearCond.code:
 BDEPTH: 251 256 Validity code:
 Towing dir: 270° Wire out: 780 m Speed: 32 kn*10
 Sorted: 126 Kg Total catch: 1053.40 CATCH/HOUR: 2106.80

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Merluccius polli	1130.00	7250	53.64	3350
Dentex macrophthalmus, female	312.00	1488	14.81	3348
Chlorophthalmus atlanticus	204.00	3324	9.68	
Trachurus trecae	158.00	380	7.50	3351
Dentex macrophthalmus, male	142.80	600	6.78	3349
Zenopsis conchifer	40.00	260	1.90	
Pterothrissus bellocci	32.00	220	1.52	
Trichiurus lepturus	24.00	160	1.14	
Parapenaeus longirostris	15.00	2740	0.85	
Mystriophis rostellatus	12.80	40	0.61	
Centrophorus granulosus	11.60	2	0.55	
Synagrops microlepis	10.00	800	0.47	
MYCTOPHIDAE	6.00	1560	0.28	
Illex coindetii	2.00	20	0.09	
CONGRIDAE	0.80	20	0.04	
GALATHEIDAE *	0.80	180	0.04	
Sepia officinalis hierredda	0.80	40	0.04	
Scorpaena normani	0.80	20	0.04	
Nezumia aequalis	0.40	60	0.02	
Total	2106.80		100.00	

PROJECT STATION:1450
 DATE:13/ 8/97 GEAR TYPE: BT No:2 POSITION:Lat S 1130 Long E 1330
 start stop duration
 TIME :12:27:45 12:57:23 30 (min) Purpose code: 3
 LOG :9678.42 9679.87 1.45 Area code : 1
 FDEPTH: 95 95 GearCond.code:
 BDEPTH: 95 95 Validity code:
 Towing dir: 170° Wire out: 310 m Speed: 30 kn*10
 Sorted: 162 Kg Total catch: 778.52 CATCH/HOUR: 1557.04

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Trachurus trecae	720.00	2080	46.24	3354
Dentex macrophthalmus, female	271.20	1622	17.42	3356
Synagrops microlepis	142.08	12796	9.13	
Dentex macrophthalmus, male	96.48	854	6.20	3355
Trichiurus lepturus	67.00	326	4.30	
Zeus faber	47.14	250	3.03	
Umbrina canariensis	42.72	124	2.74	
Pagellus bellottii	41.86	230	2.69	3353
Pterothrissus bellocci	31.48	202	2.02	
Dentex angolensis	20.54	116	1.32	3352
Octopus vulgaris	14.88	10	0.96	
Sepia officinalis hierredda	14.40	58	0.92	
Brotula barbata	12.38	20	0.80	
Citharus linguatula	9.12	124	0.59	
Chelidonichthys sp.	7.10	58	0.46	
Pontinus accraensis	5.96	38	0.38	
Parapristipoma octolineatum	3.08	10	0.20	
Todaropsis eblanae	3.08	48	0.20	
Perulibrachrus rossignoli	2.98	10	0.19	
Zenopsis conchifer	1.64	10	0.11	
Illex coindetii	1.24	48	0.08	
Merluccius polli	0.68	28	0.04	
Total	1557.04		100.02	

PROJECT STATION:1451
 DATE:13/ 8/97 GEAR TYPE: BT No:2 POSITION:Lat S 1130 Long E 1325
 start stop duration
 TIME :14:42:00 15:02:00 20 (min) Purpose code: 3
 LOG :9693.11 9694.25 1.14 Area code : 1
 FDEPTH: 189 192 GearCond.code:
 BDEPTH: 189 192 Validity code:
 Towing dir: 200° Wire out: 600 m Speed: 31 kn*10
 Sorted: 126 Kg Total catch: 977.45 CATCH/HOUR: 2932.35

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Dentex macrophthalmus, female	1233.42	7254	42.06	3359
Dentex macrophthalmus, male	733.53	4092	25.02	3358
Pterothrissus bellocci	345.27	2466	11.77	
Merluccius polli	198.33	2001	6.76	3357
Synagrops microlepis	147.63	10278	5.03	
Brotula barbata	47.43	69	1.62	
Parapenaeus longirostris	45.81	9255	1.56	
MYCTOPHIDAE	39.06	24297	1.33	
Chlorophthalmus atlanticus	27.45	1302	0.94	
Trachurus trecae	27.45	93	0.94	
Scorpaena normani	26.28	141	0.90	
Trichiurus lepturus	20.94	93	0.71	
Raja miraletus	20.46	24	0.70	
Zenopsis conchifer	7.68	93	0.26	
Umbrina canariensis	7.20	24	0.25	
Todaropsis eblanae	4.41	48	0.15	
Total	2932.35		100.00	

PROJECT STATION:1452
 DATE:13/ 8/97 GEAR TYPE: BT No:2 POSITION:Lat S 1132 Long E 1322
 start stop duration
 TIME :16:08:00 16:38:00 30 (min) Purpose code: 3
 LOG :9699.14 9700.44 1.50 Area code : 1
 FDEPTH: 279 273 GearCond.code:
 BDEPTH: 279 273 Validity code:
 Towing dir: 30° Wire out: 880 m Speed: 30 kn*10
 Sorted: 76 Kg Total catch: 465.62 CATCH/HOUR: 931.24

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Hoplostethus mediterraneus	421.40	420	45.25	
Pterothrissus bellocci	243.60	1610	26.16	
Trichiurus lepturus	71.40	616	7.67	
Parapenaeus longirostris	40.60	7924	4.36	
Merluccius polli	37.80	252	4.06	
Atractoscion aequidens	29.40	14	3.16	
Brotula barbata	19.60	56	2.10	
Dentex macrophthalmus, female	19.60	86	2.10	3360
Chlorophthalmus atlanticus	12.60	350	1.35	
Trachurus trecae	8.40	28	0.90	
MYCTOPHIDAE	8.40	28	0.90	
Synagrops microlepis	5.60	4872	0.60	
Epigonus telescopus	4.20	322	0.45	
Malacocephalus occidentalis	4.20	56	0.45	
Dentex macrophthalmus, male	2.80	14	0.30	
Illex coindetii	2.20	14	0.24	3361
Zeus faber	1.40	14	0.15	
Scorpaena normani	1.40	14	0.15	
Nezumia aequalis	1.40	126	0.15	
Lophius vaillanti	0.56	14	0.06	
Dicologlossa cuneata	0.56	14	0.06	
Citharus linguatula	0.28	14	0.03	
Peristedion cataphractum	0.28	14	0.03	
Laemonema laureysi	0.28	14	0.03	
Hymenocephalus italicus	0.14	56	0.02	
Sepia sp.	0.14	14	0.02	
Total	931.24		100.00	

PROJECT STATION:1453
 DATE:14/ 8/97 GEAR TYPE: BT No:2 POSITION:Lat S 1152
 start stop duration Long E 1329
 TIME :04:51:10 04:59:18 8 (min) Purpose code: 3
 LOG :9745.48 9745.87 0.39 Area code : 1
 FDEPTH: 252 253 GearCond.code:
 BDEPTH: 252 253 Validity code:
 Towing dir: 330° Wire out: 780 m Speed: 30 kn*10
 Sorted: 37 Kg Total catch: 36.82 CATCH/HOUR: 276.15

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Chlorophthalmus atlanticus	105.75	2430	38.29	
Merluccius polli	36.00	210	13.04	3364
Synagrops microlepis	22.50	1635	8.15	
Dentex macrophthalmus, female	18.75	98	6.79	3362
Parapenaeus longirostris	16.50	5280	5.98	
Trichiurus lepturus	13.50	68	4.89	
Pterothrissus belloci	13.50	83	4.89	
Hoplostethus mediterraneus	12.00	15	4.35	
Scorpaena normani	7.50	68	2.72	
Brotula barbata	7.50	15	2.72	
Zenopsis conchifer	6.75	30	2.44	
CONGRIDAE	3.00	60	1.09	
Dentex macrophthalmus, male	3.00	23	1.09	3363
Laemonema laureysi	3.00	30	1.09	
Todaropsis eblanae	2.25	23	0.81	
Illex coindetii	0.75	8	0.27	
Coelorinchus coelorhincus	0.75	8	0.27	
Bembrops heterurus	0.75	8	0.27	
Trachurus trecae	0.75	8	0.27	
Citharus linguatula	0.75	30	0.27	
MYCTOPHIDAE	0.30	128	0.11	
Hymenocephalus italicus	0.23	23	0.08	
Sepia officinalis hierredda	0.23	8	0.08	
Scyllorhinus stellaris	0.08	8	0.03	
Peristedion cataphractum	0.08	15	0.03	
Total	276.17		100.02	

PROJECT STATION:1454
 DATE:14/ 8/97 GEAR TYPE: BT No:2 POSITION:Lat S 1152
 start stop duration Long E 1331
 TIME :06:02:07 06:29:13 27 (min) Purpose code: 3
 LOG :9751.61 9752.94 1.30 Area code : 1
 FDEPTH: 201 202 GearCond.code:
 BDEPTH: 201 202 Validity code:
 Towing dir: 330° Wire out: 620 m Speed: 29 kn*10
 Sorted: 110 Kg Total catch: 660.72 CATCH/HOUR: 1468.27

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Dentex macrophthalmus, male	466.67	2898	31.78	3366
Dentex macrophthalmus, female	354.67	2471	24.16	3367
Merluccius polli	264.00	1000	17.98	3365
Synagrops microlepis	201.33	12202	13.71	
Trachurus trecae	53.33	173	3.63	
Parapenaeus longirostris	33.33	8333	2.27	
Pterothrissus belloci	29.33	400	2.00	
Dentex angolensis	20.00	53	1.36	
Trichiurus lepturus	14.67	107	1.00	
Zenopsis conchifer	12.00	67	0.82	
Todaropsis eblanae	5.33	40	0.36	
Chlorophthalmus atlanticus	4.00	240	0.27	
Illex coindetii	2.67	27	0.18	
Brotula barbata	1.33	13	0.09	
Nezumia aequalis	1.33	40	0.09	
Citharus linguatula	1.33	67	0.09	
Fentheroscion mbi21	1.33	13	0.09	
Sepia officinalis hierredda	0.93	80	0.06	
Hymenocephalus italicus	0.53	40	0.04	
GOBIIDAE	0.13	13	0.01	
Total	1468.24		99.99	

PROJECT STATION:1455
 DATE:14/ 8/97 GEAR TYPE: BT No:2 POSITION:Lat S 1152
 start stop duration Long E 1334
 TIME :08:21:40 08:51:55 30 (min) Purpose code: 3
 LOG :9763.98 9764.73 1.73 Area code : 1
 FDEPTH: 107 109 GearCond.code:
 BDEPTH: 107 109 Validity code:
 Towing dir: 350° Wire out: 320 m Speed: 14 kn*10
 Sorted: 88 Kg Total catch: 1702.35 CATCH/HOUR: 3404.70

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Trachurus trecae	2536.50	57856	74.50	3368
Dentex macrophthalmus, female	239.32	1562	7.03	3370
Dentex macrophthalmus, male	237.68	1774	6.98	3371
Dentex angolensis	114.00	628	3.35	3369
Scomber japonicus	57.00	172	1.67	
Atractoscion aequidens	51.30	58	1.51	
Branchiostegus semifasciatus	39.90	58	1.17	
Umbrina canariensis	39.90	58	1.17	
Sparus pagrus africanus *	34.20	58	1.00	
Pagellus bellottii	22.80	58	0.67	
Dentex gibbosus	17.10	58	0.50	
Squatina oculata	11.80	2	0.35	
Torpedo torpedo	3.20	2	0.09	
Total	3404.70		99.99	

PROJECT STATION:1456
 DATE:14/ 8/97 GEAR TYPE: BT No:2 POSITION:Lat S 1152
 start stop duration Long E 1339
 TIME :10:18:46 10:48:05 30 (min) Purpose code: 3
 LOG :9774.65 9776.28 1.62 Area code : 1
 FDEPTH: 75 77 GearCond.code:
 BDEPTH: 75 77 Validity code:
 Towing dir: 180° Wire out: 260 m Speed: 32 kn*10
 Sorted: 173 Kg Total catch: 1130.77 CATCH/HOUR: 2261.54

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Trachurus trecae	1920.00	6688	84.90	3374
Pagellus bellottii	76.10	642	3.36	3378
Raja miraletus	60.16	64	2.66	
Dentex macrophthalmus, male	58.56	452	2.59	3375
Dentex macrophthalmus, female	54.74	424	2.42	3376
Boops boops	39.36	352	1.74	
Chaetodon hoeferli	15.04	96	0.67	
Dentex canariensis	13.78	102	0.61	3372
Dentex gibbosus	10.00	102	0.44	3377
Pseudupeneus prayensis	7.04	32	0.31	
Dentex angolensis	4.20	54	0.19	3373
Citharus linguatula	2.56	32	0.11	
Total	2261.54		100.00	

PROJECT STATION:1457
 DATE:14/ 8/97 GEAR TYPE: BT No:2 POSITION:Lat S 1211
 start stop duration Long E 1333
 TIME :13:14:29 13:34:10 20 (min) Purpose code: 3
 LOG :9798.86 9799.91 1.00 Area code : 1
 FDEPTH: 83 83 GearCond.code:
 BDEPTH: 83 83 Validity code:
 Towing dir: 200° Wire out: 280 m Speed: 30 kn*10
 Sorted: 76 Kg Total catch: 311.89 CATCH/HOUR: 935.67

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Trachurus trecae	430.80	1656	46.04	3381
Trachurus trecae, juvenile	266.40	2856	28.47	3382
Atractoscion aequidens	48.96	48	5.23	
Dentex macrophthalmus, female	48.45	417	5.18	3384
Dentex macrophthalmus, male	48.45	438	5.18	3383
Pagellus bellottii	21.15	153	2.26	3385
Sepia officinalis hierredda	16.08	24	1.72	
Torpedo torpedo	14.40	24	1.54	
Chaetodon hoeferli	9.84	48	1.05	
Chelidonichthys gabonensis	8.64	72	0.92	
Dentex barnardi	7.53	27	0.80	3379
Lagocephalus laevigatus	6.72	24	0.72	
Boops boops	5.52	24	0.59	
Dentex gibbosus	2.73	9	0.29	3380
Total	935.67		99.99	

PROJECT STATION:1458
 DATE:14/ 8/97 GEAR TYPE: BT No:2 POSITION:Lat S 1212
 start stop duration Long E 1324
 TIME :15:22:47 15:52:13 30 (min) Purpose code: 3
 LOG :9815.01 9816.49 1.50 Area code : 1
 FDEPTH: 202 201 GearCond.code:
 BDEPTH: 202 201 Validity code:
 Towing dir: 18° Wire out: 660 m Speed: 30 kn*10
 Sorted: 125 Kg Total catch: 1421.81 CATCH/HOUR: 2843.62

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Dentex macrophthalmus, female	1742.96	11456	61.29	3388
Dentex macrophthalmus, male	435.62	2498	15.32	3389
Merluccius polli	144.52	1116	5.08	3387
Synagrops microlepis	110.16	5770	3.87	
Parapenaeus longirostris	72.84	160	2.56	3386
Umbrina canariensis	68.96	14882	2.43	
Dentex angolensis	63.28	136	2.23	
Pterothrissus belloci	43.24	274	1.52	
Trichiurus lepturus	39.60	182	1.39	
Torpedo torpedo	23.44	46	0.82	
Chlorophthalmus atlanticus	21.40	978	0.75	
Brotula barbata	20.02	46	0.70	
Trachurus trecae	18.90	92	0.66	
Todaropsis eblanae	8.64	68	0.30	
Zenopsis conchifer	8.20	92	0.29	
Epigonus sp.	7.28	92	0.26	
Miracorvina angolensis	6.14	22	0.22	
Nezumia sp.	4.32	182	0.15	
Sepia sp.	3.18	182	0.11	
MYCTOPHIDAE	0.92	274	0.03	
Total	2843.62		99.98	

PROJECT STATION:1459
 DATE:14/ 8/97 GEAR TYPE: BT No:2 POSITION:Lat S 1211 Long E 1324
 start stop duration
 TIME :16:39:49 16:54:42 15 (min) Purpose code: 3
 LOG :9820.54 9821.29 0.80 Area code : 1
 FDEPTH: 267 273 GearCond.code:
 BDEPTH: 267 273 Validity code:
 Towing dir: 16° Wire out: 800 m Speed: 32 kn*10
 Sorted: 66 Kg Total catch: 231.20 CATCH/HOUR: 924.80

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP
	weight numbers		
Hoplostethus mediterraneus	499.80 784	54.04	
Parapenaeus longirostris	119.00 17376	12.87	
Dentex macrophthalmus, female	116.20 380	12.56	3390
Epigonus telescopus	58.80 632	6.36	
Trichiurus lepturus	49.00 464	5.30	
Scorpaena normani	14.84 72	1.60	
Brotula barbata	12.60 16	1.36	
Todaropsis eblanae	11.20 84	1.21	
Merluccius polli	11.20 100	1.21	
MYCTOPHIDAE	8.40 3444	0.91	
Laemonema laureysi	7.00 212	0.76	
Sepia officinalis hierredda	5.60 324	0.61	
Synagrops microlepis	4.20 324	0.45	
CONGRIDAE	2.80 28	0.30	
Illex coindetii	1.40 16	0.15	
Malacocephalus occidentalis	1.40 28	0.15	
Dicologlossa cuneata	0.44 16	0.05	
Nezumia aequalis	0.44 16	0.05	
Hymenocephalus italicus	0.44 56	0.05	
Chlorophthalmus atlanticus	0.16 16	0.02	
Total	924.92	100.01	

PROJECT STATION:1460
 DATE:15/ 8/97 GEAR TYPE: BT No:2 POSITION:Lat S 1231 Long E 1321
 start stop duration
 TIME :05:29:10 05:59:04 30 (min) Purpose code: 3
 LOG :9914.96 9916.50 1.60 Area code : 1
 FDEPTH: 68 64 GearCond.code:
 BDEPTH: 68 64 Validity code:
 Towing dir: 270° Wire out: 260 m Speed: 32 kn*10
 Sorted: 99 Kg Total catch: 428.26 CATCH/HOUR: 856.52

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP
	weight numbers		
Trachurus trecae	427.90 10882	49.96	3393
Dentex macrophthalmus, male	107.26 870	12.52	3395
Dentex macrophthalmus, female	79.76 628	9.31	3394
Umbrina canariensis	62.70 132	7.32	
Boops boops	36.30 286	4.24	
Atractoscion aequidens	34.10 44	3.98	
Pterothrissus bellocci	31.90 242	3.72	
Pagellus bellottii	18.16 170	2.12	3392
Raja clavata	9.90 12	1.16	
Chaetodon hoeferi	7.70 44	0.90	
Brotula barbata	7.70 22	0.90	
Dentex barnardi	7.70 34	0.90	
Octopus vulgaris	6.60 2	0.77	
Hoplostethus mediterraneus	6.60 12	0.77	
Torpedo torpedo	3.30 12	0.39	
Merluccius polli	3.30 232	0.39	3391
Alloteuthis africana	2.20 660	0.26	
Bembrops greyi	1.10 12	0.13	
Trichiurus lepturus	1.10 12	0.13	
Dentex angolensis	0.56 6	0.07	
GOBIIDAE	0.34 56	0.04	
Sufflogobius bibarbatus	0.22 12	0.03	
Synagrops microlepis	0.12 44	0.01	
Total	856.52	100.02	

PROJECT STATION:1461
 DATE:18/ 8/97 GEAR TYPE: BT No:2 POSITION:Lat S 1229 Long E 1320
 start stop duration
 TIME :05:27:00 05:53:00 26 (min) Purpose code: 3
 LOG :420.10 421.67 1.57 Area code : 1
 FDEPTH: 100 100 GearCond.code:
 BDEPTH: 100 100 Validity code:
 Towing dir: 45° Wire out: 330 m Speed: 32 kn*10
 Sorted: 104 Kg Total catch: 974.43 CATCH/HOUR: 2248.68

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP
	weight numbers		
Trachurus trecae	833.24 3925	37.05	3396
Dentex macrophthalmus, male	516.74 5220	22.98	3398
Pterothrissus bellocci	396.16 3198	17.62	
Dentex macrophthalmus, female	359.56 3803	15.99	3399
Merluccius polli	40.92 1205	1.82	3397
Synagrops microlepis	23.68 2412	1.05	
Umbrina canariensis	23.68 150	1.05	
Pagellus bellottii	19.38 150	0.86	
Scorpaena normani	12.92 129	0.57	
Uranoscopus polli	6.46 44	0.29	
Citharus linguatula	4.32 85	0.19	
Trichiurus lepturus	4.32 44	0.19	
Lophius vaillanti	4.32 21	0.19	
Illex coindetii	2.15 21	0.10	
Trigla lyra	0.42 21	0.02	
Sepia officinalis hierredda	0.21 44	0.01	
Total	2248.48	99.98	

PROJECT STATION:1462
 DATE:18/ 8/97 GEAR TYPE: BT No:2 POSITION:Lat S 1255 Long E 1251
 start stop duration
 TIME :11:44:00 12:11:00 27 (min) Purpose code: 3
 LOG :472.67 474.15 1.48 Area code : 1
 FDEPTH: 106 114 GearCond.code:
 BDEPTH: 106 114 Validity code:
 Towing dir: 30° Wire out: 340 m Speed: 30 kn*10
 Sorted: 110 Kg Total catch: 110.09 CATCH/HOUR: 244.64

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP
	weight numbers		
Trachurus trecae	143.22 520	58.54	3401
Dentex macrophthalmus, male	39.56 420	16.17	3403
Dentex macrophthalmus, female	38.22 382	15.62	3402
Todaropsis eblanae	9.36 149	3.83	
Merluccius polli	4.98 44	2.04	3400
Octopus vulgaris	2.04 4	0.83	
Illex coindetii	1.73 27	0.71	
Pterothrissus bellocci	1.42 13	0.58	
Zeus faber	1.16 4	0.47	
Sparus pagrus africanus *	0.98 2	0.40	
Chelidonichthys lucerna	0.87 7	0.36	
Monolene microstoma	0.67 20	0.27	
Pontinus kuhlii	0.31 2	0.13	
Umbrina canariensis	0.13 2	0.05	
Total	244.65	100.00	

PROJECT STATION:1463
 DATE:18/ 8/97 GEAR TYPE: BT No:2 POSITION:Lat S 1306 Long E 1244
 start stop duration
 TIME :14:26:00 14:53:20 27 (min) Purpose code: 3
 LOG :493.50 494.80 1.31 Area code : 1
 FDEPTH: 227 236 GearCond.code:
 BDEPTH: 227 236 Validity code:
 Towing dir: 35° Wire out: 720 m Speed: 30 kn*10
 Sorted: 126 Kg Total catch: 1541.33 CATCH/HOUR: 3425.18

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP
	weight numbers		
Dentex macrophthalmus, female	1492.60 8973	43.58	3405
Pterothrissus bellocci	548.53 4444	16.01	
Merluccius polli	332.11 1933	9.70	3407
Dentex macrophthalmus, male	323.13 1998	9.43	3404
Atractoscion aequidens	182.44 109	5.33	
Zenopsis conchifer	136.11 462	3.97	
Chlorophthalmus atlanticus	111.33 2864	3.25	
Trachurus trecae	65.07 164	1.90	
Parapenaeus longirostris	62.07 8227	1.81	3406
Brotula barbata	41.93 56	1.22	
Synagrops microlepis	32.67 1471	0.95	
Bembrops heterurus	22.60 191	0.66	
Pentheroscion mbizi	18.78 56	0.55	
MYCTOPHIDAE	17.42 4944	0.51	
Pontinus accraensis	7.89 56	0.23	
Todaropsis eblanae	7.89 82	0.23	
Coelorinchus acanthiger	6.27 273	0.18	
Nezumia sp.	5.71 300	0.17	
Sepia elegans	4.09 136	0.12	
Dicologlossa cuneata	3.27 109	0.10	
Trichiurus lepturus	3.27 27	0.10	
Total	3425.18	100.00	

PROJECT STATION:1464
 DATE:18/ 8/97 GEAR TYPE: BT No:2 POSITION:Lat S 1311 Long E 1244
 start stop duration
 TIME :16:14:00 16:30:00 16 (min) Purpose code: 3
 LOG :503.35 504.28 0.93 Area code : 1
 FDEPTH: 99 101 GearCond.code:
 BDEPTH: 99 101 Validity code:
 Towing dir: 25° Wire out: 320 m Speed: 30 kn*10
 Sorted: 160 Kg Total catch: 1385.90 CATCH/HOUR: 5197.13

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP
	weight numbers		
Trachurus trecae	3657.68 22016	70.38	3408
Umbrina canariensis	490.95 2138	9.45	3409
Dentex macrophthalmus, male	469.80 3544	9.04	3411
Dentex macrophthalmus, female	344.63 2408	6.63	3410
Sepia officinalis hierredda	55.28 34	1.06	
Zeus faber	32.51 34	0.63	
Dentex angolensis	29.25 161	0.56	
Atractoscion aequidens	26.03 34	0.50	
Branchiostegus semifasciatus	22.76 34	0.44	
Pagellus bellottii	19.50 131	0.38	
Pterothrissus bellocci	16.28 131	0.31	
Todaropsis eblanae	9.75 64	0.19	
Chaetodon hoeferi	6.49 34	0.12	
Trigla lyra	6.49 34	0.12	
Boops boops	6.49 34	0.12	
Zenopsis conchifer	3.26 34	0.06	
Total	5197.15	99.99	

PROJECT STATION:1465
 DATE:18/ 8/97 GEAR TYPE: BT No:2 POSITION:Lat S 1312
 start stop duration Long E 1238
 TIME :17:51:00 18:16:00 25 (min) Purpose code: 3
 LOG : 514.59 515.94 1.30 Area code : 1
 FDEPTH: 302 325 GearCond.code:
 BDEPTH: 302 325 Validity code:
 Towing dir: 30° Wire out: 930 m Speed: 31 kn*10

Sorted: 104 Kg Total catch: 448.32 CATCH/HOUR: 1075.97

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Merluccius polli	504.00	1291	46.84	3414
Laemonema laureysi	149.40	2357	13.89	
Dentex macrophthalmus, female	99.70	396	9.27	3412
Pterothrissus bellocci	93.60	595	8.70	
Leptocharias smithii	41.40	55	3.85	
Chlorophthalmus atlanticus	32.40	811	3.01	
Aristeus varidens	32.40	4730	3.01	
Scyliorhinus stellaris	27.00	216	2.51	
Priacanthus arenatus	18.00	72	1.67	
Dentex macrophthalmus, male	13.58	55	1.26	3413
Scorpaena angolensis	12.60	19	1.17	
Malacocephalus occidentalis	12.60	127	1.17	
Epigonus telescopus	12.60	163	1.17	
Hyperoglyphe moselii	9.36	2	0.87	
Plesiopeneus edwardsianus	7.20	1692	0.67	
Zenopsis conchifer	3.60	36	0.33	
Lophius vaillanti	1.80	55	0.17	
Todaropsis eblanae	1.80	19	0.17	
Gadella imberbis	1.27	36	0.12	
MYCTOPHIDAE	0.72	504	0.07	
Nezumia aequalis	0.55	36	0.05	
CONGRIDAE	0.19	19	0.02	
Peristedion cataphractum	0.19	19	0.02	
Total		1075.96	100.01	

PROJECT STATION:1466
 DATE:19/ 8/97 GEAR TYPE: BT No:2 POSITION:Lat S 1341
 start stop duration Long E 1226
 TIME :05:52:00 06:12:00 20 (min) Purpose code: 3
 LOG : 623.13 624.23 1.08 Area code : 1
 FDEPTH: 129 127 GearCond.code:
 BDEPTH: 129 127 Validity code:
 Towing dir: 270° Wire out: 420 m Speed: 32 kn*10

Sorted: 192 Kg Total catch: 191.84 CATCH/HOUR: 575.52

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Trachurus trecae	461.40	1869	80.17	3417
Dentex macrophthalmus, male	30.00	246	5.21	3415
Dentex macrophthalmus, female	29.10	201	5.06	3416
Sparus pagrus africanus *	12.00	24	2.09	
Todaropsis eblanae	8.40	111	1.46	
Atractoscion aequidens	6.60	3	1.15	
Spondyliosoma cantharus	6.30	9	1.09	
Anthias anthias	5.40	60	0.94	
Pagellus bellottii	4.20	24	0.73	
Scorpaena angolensis	2.40	6	0.42	
Scyliorhinus stellaris	2.10	21	0.36	
Dentex angolensis	1.50	9	0.26	
Priacanthus arenatus	1.20	3	0.21	
Erythrocles monodi	1.20	3	0.21	
Illex coindetii	1.20	21	0.21	
Dentex gibbosus	0.90	3	0.16	
Aulopus cadenati	0.90	6	0.16	
Lophius vaillanti	0.60	3	0.10	
CONGRIDAE	0.12	3	0.02	
Total		575.52	100.01	

PROJECT STATION:1467
 DATE:19/ 8/97 GEAR TYPE: BT No:2 POSITION:Lat S 1358
 start stop duration Long E 1218
 TIME :08:42:00 09:12:00 30 (min) Purpose code: 3
 LOG : 647.03 648.72 1.69 Area code : 1
 FDEPTH: 118 115 GearCond.code:
 BDEPTH: 118 115 Validity code:
 Towing dir: 45° Wire out: 370 m Speed: 34 kn*10

Sorted: 148 Kg Total catch: 598.64 CATCH/HOUR: 1197.28

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Trachurus trecae	956.40	4392	79.88	3422
Spondyliosoma cantharus	98.40	144	8.22	
Atractoscion aequidens	24.60	16	2.05	
Dentex gibbosus	20.60	44	1.72	3420
Myliobatis aquila	20.40	2	1.70	
Dentex barnardi	17.40	54	1.45	
Zeus faber	13.20	12	1.10	
Dentex angolensis	11.20	42	0.94	3421
Pagellus bellottii	9.20	34	0.77	
Sparus pagrus africanus *	8.60	10	0.72	
Scorpaena angolensis	6.00	12	0.50	
Todaropsis eblanae	4.80	36	0.40	
Dentex macrophthalmus, male	3.56	14	0.30	3418
Chelidonichthys capensis	1.20	12	0.10	
Dentex macrophthalmus, female	1.00	4	0.08	3419
Illex coindetii	0.72	36	0.06	
Total		1197.28	99.99	

PROJECT STATION:1468
 DATE:19/ 8/97 GEAR TYPE: BT No:2 POSITION:Lat S 1406
 start stop duration Long E 1219
 TIME :11:52:00 12:12:00 20 (min) Purpose code: 3
 LOG : 673.05 674.14 1.08 Area code : 1
 FDEPTH: 88 89 GearCond.code:
 BDEPTH: 88 89 Validity code:
 Towing dir: 17° Wire out: 280 m Speed: 30 kn*10

Sorted: 157 Kg Total catch: 1934.62 CATCH/HOUR: 5803.86

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Umbrina canariensis	1897.20	11016	32.69	
Dentex macrophthalmus, female	1462.68	7920	25.20	3426
Trachurus trecae	1374.12	7560	23.68	3425
Trachurus trecae	428.40	1872	7.38	3424
Atractoscion aequidens	212.40	252	3.66	
Dentex gibbosus	206.22	135	1.50	
Dentex barnardi	87.12	324	3.55	
Boops boops	51.48	288	0.89	3423
Branchiostegus semifasciatus	50.04	36	0.86	
Pagellus bellottii	26.64	108	0.46	
Trachurus capensis	7.56	36	0.13	
Total		5803.86	100.00	

PROJECT STATION:1469
 DATE:19/ 8/97 GEAR TYPE: BT No:2 POSITION:Lat S 1435
 start stop duration Long E 1216
 TIME :16:07:00 16:29:00 22 (min) Purpose code: 3
 LOG : 711.70 712.99 1.29 Area code : 1
 FDEPTH: 120 121 GearCond.code:
 BDEPTH: 120 121 Validity code:
 Towing dir: 10° Wire out: 360 m Speed: 30 kn*10

Sorted: 160 Kg Total catch: 1691.23 CATCH/HOUR: 4612.45

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Trachurus trecae	2382.11	37964	51.65	3429
Dentex macrophthalmus, male	1104.63	9025	23.95	3428
Dentex macrophthalmus, female	547.53	5476	11.87	3427
Dentex angolensis	179.24	521	3.89	3431
Atractoscion aequidens	164.78	145	3.57	
Dentex barnardi	89.62	115	1.94	
Pagellus bellottii	40.47	289	0.88	3430
Umbrina canariensis	37.58	202	0.81	
Zeus faber	34.69	57	0.75	
Chelidonichthys gabonensis	31.80	57	0.69	
Total		4612.45	100.00	

PROJECT STATION:1470
 DATE:20/ 8/97 GEAR TYPE: BT No:2 POSITION:Lat S 1501
 start stop duration Long E 1206
 TIME :05:54:39 06:13:18 19 (min) Purpose code: 3
 LOG : 773.89 774.94 1.04 Area code : 1
 FDEPTH: 124 127 GearCond.code:
 BDEPTH: 124 127 Validity code:
 Towing dir: 210° Wire out: 7811 m Speed: 150 kn*10

Sorted: 197 Kg Total catch: 1969.00 CATCH/HOUR: 6217.90

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Dentex macrophthalmus, male	1746.95	15881	28.10	1432
Dentex macrophthalmus, female	1493.05	12231	24.01	1433
Trachurus capensis	1089.47	5315	17.52	1434
Atractoscion aequidens	792.63	600	12.75	1436
Synagrops microlepis	600.00	15856	9.65	
Squalus megalops	126.32	221	2.03	
Trachurus trecae	75.79	789	1.22	1435
Umbrina canariensis	56.84	221	0.91	
Raja clavata	53.68	32	0.86	
Pterothrissus bellocci	25.26	221	0.41	
Erythrocles monodi	25.26	63	0.41	
Raja miraletus	22.11	32	0.36	
Dentex angolensis	22.11	63	0.36	
Trichiurus lepturus	18.95	63	0.30	
Pagellus bellottii	18.95	126	0.30	
Spicara alta	18.95	95	0.30	
Spondyliosoma cantharus	15.79	32	0.25	
Dentex canariensis	15.79	32	0.25	
Total		6217.90	99.99	

PROJECT STATION:1471
 DATE:20/ 8/97 GEAR TYPE: BT No:2 POSITION:Lat S 1502
 start stop duration Long E 1205
 TIME :07:34:35 07:44:57 10 (min) Purpose code: 3
 LOG : 781.14 781.73 0.57 Area code : 1
 FDEPTH: 271 283 GearCond.code:
 BDEPTH: 271 283 Validity code:
 Towing dir: 210° Wire out: 870 m Speed: 30 kn*10
 Sorted: 171 Kg Total catch: 1147.63 CATCH/HOUR: 6885.78

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP
	weight numbers		
Dentex macrophthalmus, female	2946.00 14442	42.78	3437
Dentex macrophthalmus, male	1656.00 8604	24.05	3438
Merluccius polli	714.00 4884	10.37	3440
Squalus megalops	399.00 366	5.79	
Zenopsis conchifer	304.50 420	4.42	
Chlorophthalmus atlanticus	294.00 7044	4.27	
Squatina oculata	162.60 30	2.36	
Atractoscion aequidens	105.00 60	1.52	3439
Miracorvina angolensis	97.14 54	1.41	
Pterothrissus belloci	57.78 420	0.84	
Trigla lyra	47.28 366	0.69	
Trichiurus lepturus	21.00 108	0.30	
Trachurus capensis	21.00 54	0.30	
MYCTOPHIDAE	15.78 3096	0.23	
Parapeneus longirostris	15.78 1998	0.23	
Epigonus telescopus	12.60 210	0.18	
Peristedion cataphractum	5.28 108	0.08	
Synagrops microlepis	5.28 684	0.08	
Hoplostethus sp.	2.64 54	0.04	
Hymenocephalus italicus	1.56 54	0.02	
Laemonema laureysi	1.56 54	0.02	
Total	6885.78	99.98	

PROJECT STATION:1474
 DATE:21/ 8/97 GEAR TYPE: BT No:2 POSITION:Lat S 1720
 start stop duration Long E 1122
 TIME :05:26:00 05:46:00 20 (min) Purpose code: 3
 LOG : 987.58 988.61 1.03 Area code : 1
 FDEPTH: 304 295 GearCond.code:
 BDEPTH: 304 295 Validity code:
 Towing dir: 175° Wire out: 860 m Speed: 30 kn*10
 Sorted: 133 Kg Total catch: 873.24 CATCH/HOUR: 2619.72

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP
	weight numbers		
Merluccius capensis	1894.20 12420	72.31	3458
Scorpaena normani	270.90 5418	10.34	
Laemonema laureysi	119.70 3741	4.57	
Nezumia aequalis	88.20 2382	3.37	
Lophius vaillanti	63.00 42	2.40	
Synagrops microlepis	58.80 4158	2.24	
Atractoscion aequidens	54.60 21	2.08	
Dentex macrophthalmus, female	20.40 102	0.78	3456
Pterothrissus belloci	12.60 63	0.48	
Dentex macrophthalmus, male	9.60 54	0.37	3457
Chaceon maritae	8.40 336	0.32	
Chlorophthalmus atlanticus	4.20 189	0.16	
Trachurus trecae	4.20 84	0.16	
Nematocarcinus africanus	2.10 1323	0.08	
Scorpaena brasiliensis	2.10 147	0.08	
Sufflogobius bibarbatus	2.10 336	0.08	
Parapeneus longirostris	2.10 273	0.08	
Malacocephalus occidentalis	1.47 42	0.06	
GALATHEIDAE *	0.84 189	0.03	
Hymenocephalus italicus	0.21 42	0.01	
Total	2619.72	100.00	

PROJECT STATION:1472
 DATE:20/ 8/97 GEAR TYPE: BT No:2 POSITION:Lat S 1517
 start stop duration Long E 1201
 TIME :09:59:00 10:19:00 20 (min) Purpose code: 3
 LOG : 799.43 800.51 1.10 Area code : 1
 FDEPTH: 78 85 GearCond.code:
 BDEPTH: 78 85 Validity code:
 Towing dir: 17° Wire out: 250 m Speed: 32 kn*10
 Sorted: 183 Kg Total catch: 1595.77 CATCH/HOUR: 4787.31

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP
	weight numbers		
Trachurus trecae	2247.54 19203	46.95	3445
Atractoscion aequidens	1607.40 1437	33.58	3446
Scomber japonicus	860.10 4116	17.97	3444
Dentex barnardi	28.80 123	0.60	3443
Raja clavata	28.47 27	0.59	
Spondyllosoma cantharus	5.04 12	0.11	
Lithognathus mormyrus	3.69 18	0.08	
Pagellus bellottii	3.15 18	0.07	3441
Dentex macrophthalmus, male	1.77 9	0.04	3442
Dentex gibbosus	1.35 6	0.03	
Total	4787.31	100.02	

PROJECT STATION:1475
 DATE:21/ 8/97 GEAR TYPE: BT No:2 POSITION:Lat S 1719
 start stop duration Long E 1133
 TIME :07:16:00 07:46:00 30 (min) Purpose code: 3
 LOG : 999.79 1001.48 1.69 Area code : 1
 FDEPTH: 131 131 GearCond.code:
 BDEPTH: 131 131 Validity code:
 Towing dir: 175° Wire out: 390 m Speed: 34 kn*10
 Sorted: 112 Kg Total catch: 589.33 CATCH/HOUR: 1178.66

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP
	weight numbers		
Trachurus capensis	1119.26 32052	94.96	3459
Dentex macrophthalmus, male	13.40 286	1.14	3460
Austroglossus microlepis	11.34 306	0.96	
Merluccius capensis	11.34 170	0.96	
B I V A L V E S	7.94 216	0.67	
Dentex macrophthalmus, female	6.40 104	0.54	3461
Bathynectes piperitus	3.40 102	0.29	
Sepia officinalis hierredada	2.26 12	0.19	
Monochirus sp.	1.16 148	0.10	
Brotula barbata	1.14 12	0.10	
Scorpaena normani	0.46 12	0.04	
Scorpaena angolensis	0.22 12	0.02	
Pterothrissus belloci	0.22 12	0.02	
GALATHEIDAE *	0.12 56	0.01	
Total	1178.66	100.00	

PROJECT STATION:1473
 DATE:20/ 8/97 GEAR TYPE: BT No:2 POSITION:Lat S 1539
 start stop duration Long E 1153
 TIME :13:53:15 14:10:29 17 (min) Purpose code: 3
 LOG : 840.30 841.18 0.88 Area code : 1
 FDEPTH: 100 93 GearCond.code:
 BDEPTH: 100 93 Validity code:
 Towing dir: 270° Wire out: 320 m Speed: 30 kn*10
 Sorted: 130 Kg Total catch: 939.76 CATCH/HOUR: 3316.80

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP
	weight numbers		
Trachurus trecae	743.33 13306	22.41	3452
Dentex macrophthalmus, female	739.24 6064	22.29	3454
Dentex macrophthalmus, male	664.27 5580	20.03	3455
Trachurus capensis	428.61 5936	12.92	3451
Atractoscion aequidens	219.56 332	6.62	3448
Pagellus bellottii	95.72 512	2.89	3450
Umbrina canariensis	89.29 434	2.69	
Etrumeus whiteheadi	74.47 1151	2.25	3447
Squatina oculata	73.20 25	2.21	
Spondyllosoma cantharus	63.99 180	1.93	
Lithognathus mormyrus	36.07 102	1.09	
Dentex barnardi	35.82 127	1.08	3453
Dentex angolensis	28.66 282	0.86	3449
Zeus faber	14.08 25	0.42	
Scomber japonicus	10.48 53	0.32	
Total	3316.79	100.01	

PROJECT STATION:1476
 DATE:21/ 8/97 GEAR TYPE: BT No:2 POSITION:Lat S 1719
 start stop duration Long E 1141
 TIME :08:57:00 09:09:00 12 (min) Purpose code: 3
 LOG :1010.80 1011.40 0.60 Area code : 1
 FDEPTH: 66 67 GearCond.code:
 BDEPTH: 66 67 Validity code:
 Towing dir: 180° Wire out: 210 m Speed: 34 kn*10
 Sorted: 120 Kg Total catch: 2432.28 CATCH/HOUR: 12161.40

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP
	weight numbers		
Trachurus capensis	11557.60 313230	95.04	3462
Myliobatis aquila	233.80 100	1.92	
Merluccius paradoxus	223.65 4065	1.84	3463
Chelidonichthys capensis	111.80 305	0.92	
Umbrina canariensis	30.50 305	0.25	
Austroglossus microlepis	4.05 100	0.03	
Total	12161.40	100.00	

PROJECT STATION:1477
 DATE:21/ 8/97 GEAR TYPE: BT No:2 POSITION:Lat S 1736
 start stop duration Long E 1141
 TIME :10:45:00 11:05:00 20 (min) Purpose code: 3
 LOG :1027.16 1028.37 1.21 Area code : 1
 FDEPTH: 82 84 GearCond.code:
 BDEPTH: 82 84 Validity code:
 Towing dir: 180° Wire out: 240 m Speed: 30 kn*10
 Sorted: 113 Kg Total catch: 929.20 CATCH/HOUR: 2787.60

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP
	weight numbers		
Trachurus capensis	2364.87 84201	84.84	3465
Merluccius capensis	223.98 3912	8.03	3464
Myliobatis aquila	107.16 24	3.84	
Todarodes sagittatus	29.94 51	1.07	
Chelidonichthys capensis	29.70 99	1.07	
Galeichthys feliceps	11.88 75	0.41	
Chelidonichthys lucerna	8.43 51	0.30	
Dentex macrophthalmus, male	7.68 249	0.28	3467
Dentex macrophthalmus, female	3.96 150	0.14	3466
Aequorea aequorea	0.00		
Total	2787.60	100.00	

PROJECT STATION:1478
 DATE:21/ 8/97 GEAR TYPE: BT No:2 POSITION:Lat S 1738 Long E 1138
 start stop duration
 TIME :12:10:00 12:40:00 30 (min) Purpose code: 3
 LOG :1032.41 1034.09 1.68 Area code : 1
 FDEPTH: 114 117 GearCond.code:
 BDEPTH: 114 117 Validity code:
 Towing dir: 175° Wire out: 360 m Speed: 30 kn*10
 Sorted: 116 Kg Total catch: 901.65 CATCH/HOUR: 1803.30

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP
	weight numbers		
Trachurus capensis	534.76 15996	29.65	3469
Dentex macrophthalmus, female	528.86 9904	29.33	3470
Dentex macrophthalmus, male	401.14 7812	22.24	3471
Merluccius capensis	230.96 1334	12.81	3468
Chelidonichthys capensis	48.98 140	2.72	
Venus sp.	31.62 16	1.75	
Callorhinchus capensis	14.26 16	0.79	
Galeichthys feliceps	5.90 32	0.33	
Dicologlossa cuneata	4.96 108	0.28	
Pterothrissus belloci	1.86 32	0.10	
Total	1803.30	100.00	

PROJECT STATION:1479
 DATE:21/ 8/97 GEAR TYPE: BT No:2 POSITION:Lat S 1738 Long E 1131
 start stop duration
 TIME :13:38:00 14:02:00 24 (min) Purpose code: 3
 LOG :1041.98 1043.38 1.40 Area code : 1
 FDEPTH: 169 169 GearCond.code:
 BDEPTH: 169 169 Validity code:
 Towing dir: 355° Wire out: 530 m Speed: 30 kn*10
 Sorted: 106 Kg Total catch: 773.51 CATCH/HOUR: 1933.78

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP
	weight numbers		
Trachurus capensis	555.00 9543	28.70	3472
Dentex macrophthalmus, female	549.75 6150	28.43	3475
Dentex macrophthalmus, male	262.13 2870	13.56	3476
Callorhinchus capensis	218.45 133	11.30	
Merluccius capensis	185.61 1678	9.60	3473
Merluccius capensis	54.38 133	2.81	3474
Pterothrissus belloci	54.20 1013	2.80	
Synagrops microlepis	24.00 1958	1.24	
Chelidonichthys capensis	15.00 20	0.78	
Mustelus mustelus	8.13 3	0.42	
Chlorophthalmus atlanticus	3.75 263	0.19	
Trigla lyra	2.25 20	0.12	
Dicologlossa cuneata	1.13 20	0.06	
Total	1933.80	100.01	

PROJECT STATION:1480
 DATE:21/ 8/97 GEAR TYPE: BT No:2 POSITION:Lat S 1737 Long E 1124
 start stop duration
 TIME :15:39:00 16:04:00 25 (min) Purpose code: 3
 LOG :1053.33 1054.65 1.32 Area code : 1
 FDEPTH: 258 269 GearCond.code:
 BDEPTH: 258 269 Validity code:
 Towing dir: 180° Wire out: 780 m Speed: 30 kn*10
 Sorted: 177 Kg Total catch: 2266.30 CATCH/HOUR: 5439.12

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP
	weight numbers		
Merluccius capensis	3941.38 24919	72.46	3480
Scorpaena angolensis	481.90 9010	8.86	
Dentex macrophthalmus, female	230.95 1325	4.25	3477
Trachurus capensis	227.86 1231	4.19	3479
Squalus megalops	141.65 492	2.60	
Dentex macrophthalmus, male	113.93 617	2.09	3478
Pterothrissus belloci	95.45 586	1.75	
Trigla lyra	70.82 338	1.30	
Atractoscion aequidens	58.51 31	1.08	
Synagrops microlepis	40.03 2525	0.74	
Nezumia aequalis	15.41 461	0.28	
Callinectes sp.	12.31 1015	0.23	
CALAPPIDAE	3.07 31	0.06	
Chlorophthalmus atlanticus	3.07 122	0.06	
Bathynectes piperitus	1.85 154	0.03	
Hymenocephalus italicus	0.62 31	0.01	
GALATHEIDAE *	0.31 31	0.01	
Total	5439.12	100.00	

PROJECT STATION:1481
 DATE:21/ 8/97 GEAR TYPE: BT No:2 POSITION:Lat S 1736 Long E 1122
 start stop duration
 TIME :17:39:00 17:59:00 20 (min) Purpose code: 3
 LOG :1062.30 1063.30 1.00 Area code : 1
 FDEPTH: 325 325 GearCond.code:
 BDEPTH: 325 325 Validity code:
 Towing dir: 175° Wire out: 990 m Speed: 30 kn*10
 Sorted: 52 Kg Total catch: 181.83 CATCH/HOUR: 545.49

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP
	weight numbers		
Helicolenus dactylopterus	306.60 5679	56.21	
Merluccius capensis	145.95 201	26.76	
Laemonema laureysi	30.45 660	5.58	
Nezumia aequalis	25.20 699	4.62	
Dentex macrophthalmus, female	8.31 33	1.52	3481
Scylliochinus capensis	6.30 75	1.15	
Malacocephalus laevis	6.30 159	1.15	
Solenocera africana	4.20 3192	0.77	
Trachurus capensis	4.20 33	0.77	
Dentex macrophthalmus, male	3.78 21	0.69	3482
Sufflogobius bibarbatu	2.10 285	0.38	
MYCTOPHIDAE	1.05 777	0.19	
Bathynectes piperitus	1.05 12	0.19	
Total	545.49	99.98	

PROJECT STATION:1482
 DATE:22/ 8/97 GEAR TYPE: BT No:2 POSITION:Lat S 1855 Long E 1155
 start stop duration
 TIME :05:27:04 05:37:04 10 (min) Purpose code: 3
 LOG :1160.55 1161.04 0.47 Area code : 1
 FDEPTH: 226 224 GearCond.code:
 BDEPTH: 226 224 Validity code:
 Towing dir: 335° Wire out: 680 m Speed: 3 kn*10
 Sorted: 61 Kg Total catch: 625.77 CATCH/HOUR: 3754.62

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP
	weight numbers		
Merluccius capensis	1875.78 26598	49.96	3483
Trachurus capensis	1869.60 27924	49.79	3484
Dentex macrophthalmus, female	6.18 60	0.16	
Helicolenus dactylopterus	3.06 60	0.08	
Aequorea aequorea	0.00 105024		
Chrysaora sp.	0.00 3690		
Total	3754.62	99.99	

PROJECT STATION:1483
 DATE:22/ 8/97 GEAR TYPE: BT No:2 POSITION:Lat S 1855 Long E 1210
 start stop duration
 TIME :07:40:56 08:00:47 20 (min) Purpose code: 3
 LOG :1179.23 1180.33 1.09 Area code : 1
 FDEPTH: 116 116 GearCond.code:
 BDEPTH: 116 116 Validity code:
 Towing dir: 325° Wire out: 350 m Speed: 3 kn*10
 Sorted: 129 Kg Total catch: 1371.09 CATCH/HOUR: 4113.27

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP
	weight numbers		
Argyrosomus hololepidotus	1498.08 543	36.42	
Merluccius capensis	1386.03 20256	33.70	3486
Trachurus capensis	1139.55 24390	27.70	3485
Chelidonichthys capensis	57.60 159	1.40	
Illex coindetii	32.01 255	0.78	
J E L L Y F I S H	0.00 7107		
Total	4113.27	100.00	

PROJECT STATION:1484
 DATE:22/ 8/97 GEAR TYPE: BT No:2 POSITION:Lat S 1914 Long E 1231
 start stop duration
 TIME :10:55:29 11:12:47 17 (min) Purpose code: 3
 LOG :1210.64 1211.62 0.96 Area code : 1
 FDEPTH: 75 77 GearCond.code:
 BDEPTH: 75 77 Validity code:
 Towing dir: 180° Wire out: 210 m Speed: 3 kn*10
 Sorted: 33 Kg Total catch: 984.30 CATCH/HOUR: 3474.00

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP
	weight numbers		
Trachurus capensis	3441.18 107679	99.06	3487
Merluccius capensis	32.82 318	0.94	
J E L L Y F I S H	0.00 1694		
Total	3474.00	100.00	

PROJECT STATION:1485
 DATE:22/ 8/97 GEAR TYPE: BT No:2 POSITION:Lat S 1916 Long E 1220
 start stop duration
 TIME :12:51:00 13:12:11 21 (min) Purpose code: 3
 LOG :1226.13 1227.36 1.18 Area code : 1
 FDEPTH: 132 127 GearCond.code:
 BDEPTH: 132 127 Validity code:
 Towing dir: 90° Wire out: 410 m Speed: 30 kn*10
 Sorted: 26 Kg Total catch: 632.16 CATCH/HOUR: 1806.17

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP
	weight numbers		
Trachurus capensis	1416.00 27566	78.40	3489
Merluccius capensis	390.17 6583	21.60	3488
J E L L Y F I S H	0.00 2880		
Total	1806.17	100.00	

PROJECT STATION:1486
 DATE:22/ 8/97 GEAR TYPE: BT No:2 POSITION:Lat S 1914 Long E 1211
 start stop duration
 TIME :15:38:33 16:04:08 27 (min) Purpose code: 3
 LOG :1241.11 1242.50 1.40 Area code : 1
 FDEPTH: 180 178 GearCond.code:
 BDEPTH: 180 178 Validity code:
 Towing dir: 150° Wire out: 630 m Speed: 30 kn*10
 Sorted: 29 Kg Total catch: 2485.40 CATCH/HOUR: 5523.11

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP
	weight numbers		
Trachurus capensis	4231.11 78389	76.61	3491
Merluccius capensis	1292.00 28711	23.39	3490
J E L L Y F I S H	0.00 5667		
Total	5523.11	100.00	

PROJECT STATION:1487
 DATE:22/ 8/97 GEAR TYPE: BT No:2 POSITION:Lat S 1915
 start stop duration Long E 1201
 TIME :17:33:00 18:00:00 27 (min) Purpose code: 3
 LOG :1253.50 1254.97 1.47 Area code : 1
 FDEPTH: 261 265 GearCond.code:
 BDEPTH: 261 265 Validity code:
 Towing dir: 270° Wire out: 790 m Speed: 32 kn*10
 Sorted: 33 Kg Total catch: 33.20 CATCH/HOUR: 73.78

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Merluccius capensis	65.33	344	88.55	3492
GOBIIDAE	8.22	2604	11.14	
Todaropsis eblanae	0.22	7	0.30	
Aequorea aequorea	0.00	193		
Chrysaora sp.	0.00	564		
Total	73.77		99.99	

PROJECT STATION:1488
 DATE:23/ 8/97 GEAR TYPE: BT No:2 POSITION:Lat S 2034
 start stop duration Long E 1213
 TIME :05:02:00 05:32:00 30 (min) Purpose code: 3
 LOG :1363.00 1364.59 1.59 Area code : 1
 FDEPTH: 361 371 GearCond.code:
 BDEPTH: 361 371 Validity code:
 Towing dir: 160° Wire out:1100 m Speed: 30 kn*10
 Sorted: 74 Kg Total catch: 407.56 CATCH/HOUR: 815.12

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Helicolenus dactylopterus	282.70	4092	34.68	
Merluccius capensis	250.80	430	30.77	3496
Chlorophthalmus atlanticus	130.90	6234	16.06	
Lophius vomerinus	34.10	22	4.18	
Plesionika sp.	30.80	19096	3.78	
Hoplostethus mediterraneus	29.70	2046	3.64	
Centrolophus niger	22.00	12	2.70	
Malacocephalus occidentalis	12.10	528	1.48	
Genypterus capensis	9.90	12	1.21	
Laemonema laureysi	3.10	110	0.40	
Illex coindetii	2.20	12	0.27	
Scyllorhinus capensis	2.20	22	0.27	
Solenocera africana	2.20	770	0.27	
MYCTOPHIDAE	1.10	264	0.13	
CONGRIDAE	0.56	12	0.07	
GOBIIDAE	0.34	210	0.04	
Epigonus telescopus	0.22	22	0.03	
Total	815.12		99.98	

PROJECT STATION:1489
 DATE:23/ 8/97 GEAR TYPE: BT No:2 POSITION:Lat S 2033
 start stop duration Long E 1233
 TIME :07:50:00 08:00:00 10 (min) Purpose code: 3
 LOG :1383.89 1384.39 0.50 Area code : 1
 FDEPTH: 296 294 GearCond.code:
 BDEPTH: 296 294 Validity code:
 Towing dir: 80° Wire out: 900 m Speed: 30 kn*10
 Sorted: 65 Kg Total catch: 631.99 CATCH/HOUR: 3791.94

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Merluccius capensis	3702.60	22080	97.64	3499
Dentex macrophthalmus, female	27.00	108	0.71	3497
Dentex macrophthalmus, male	23.40	84	0.62	3498
Coelorhynchus coelorhinc. polli	13.20	132	0.35	
Pterothrissus bellocci	13.20	66	0.35	
Synagrops microlepis	3.96	462	0.10	
Sufflogobius bibarbatus	3.96	528	0.10	
Chlorophthalmus atlanticus	2.64	330	0.07	
MYCTOPHIDAE	1.98	264	0.05	
Aequorea aequorea	0.00	80784		
Chrysaora sp.	0.00	990		
Total	3791.94		99.99	

PROJECT STATION:1490
 DATE:23/ 8/97 GEAR TYPE: BT No:2 POSITION:Lat S 2032
 start stop duration Long E 1240
 TIME :09:23:00 09:38:00 15 (min) Purpose code: 3
 LOG :1394.80 1395.74 0.94 Area code : 1
 FDEPTH: 256 264 GearCond.code:
 BDEPTH: 256 264 Validity code:
 Towing dir: 280° Wire out: 720 m Speed: 34 kn*10
 Sorted: 48 Kg Total catch: 588.83 CATCH/HOUR: 2355.32

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Merluccius capensis	1822.44	15524	77.38	3503
Trachurus capensis	470.32	2808	19.97	3502
Dentex macrophthalmus, female	31.20	108	1.32	3500
Dentex macrophthalmus, male	19.60	72	0.83	3501
Sufflogobius bibarbatus	6.52	720	0.28	
Synagrops microlepis	3.28	260	0.14	
Chlorophthalmus atlanticus	1.96	64	0.08	
Aequorea aequorea	0.00	117512		
Chrysaora sp.	0.00	132		
Total	2355.32		100.00	

PROJECT STATION:1491
 DATE:23/ 8/97 GEAR TYPE: BT No:2 POSITION:Lat S 2034
 start stop duration Long E 1246
 TIME :11:10:00 11:28:00 18 (min) Purpose code: 3
 LOG :1406.31 1407.23 0.92 Area code : 1
 FDEPTH: 198 199 GearCond.code:
 BDEPTH: 198 199 Validity code:
 Towing dir: 322° Wire out: 600 m Speed: 30 kn*10
 Sorted: 49 Kg Total catch: 475.77 CATCH/HOUR: 1585.90

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Trachurus capensis	1269.33	9280	80.04	3504
Merluccius capensis	210.13	2293	13.25	3505
Thyrssites atun	67.50	43	4.26	
Squalus megalops	32.53	53	2.05	
Bathynectes piperitus	2.67	107	0.17	
Pterothrissus bellocci	2.13	53	0.13	
Synagrops microlepis	1.60	53	0.10	
Aequorea aequorea	0.00	72053		
Chrysaora sp.	0.00	213		
Total	1585.89		100.00	

PROJECT STATION:1492
 DATE:23/ 8/97 GEAR TYPE: BT No:2 POSITION:Lat S 2032
 start stop duration Long E 1251
 TIME :12:44:00 13:00:00 16 (min) Purpose code: 3
 LOG :1416.00 1416.92 0.92 Area code : 1
 FDEPTH: 149 149 GearCond.code:
 BDEPTH: 149 149 Validity code:
 Towing dir: 315° Wire out: 450 m Speed: 30 kn*10
 Sorted: 99 Kg Total catch: 2643.10 CATCH/HOUR: 9911.63

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Trachurus capensis	8073.26	71704	81.45	3506
Merluccius capensis	1413.64	21071	14.26	3507
Thyrssites atun	349.39	323	3.53	
Etrumeus whiteheadi	49.46	1076	0.50	
Dentex macrophthalmus, female	13.76	56	0.14	3509
Dentex macrophthalmus, male	12.11	53	0.12	3508
Aequorea aequorea	0.00	1076		
Total	9911.62		100.00	

PROJECT STATION:1493
 DATE:23/ 8/97 GEAR TYPE: BT No:2 POSITION:Lat S 2031
 start stop duration Long E 1304
 TIME :14:48:00 15:13:00 25 (min) Purpose code: 3
 LOG :1432.55 1433.87 1.32 Area code : 1
 FDEPTH: 115 115 GearCond.code:
 BDEPTH: 115 115 Validity code:
 Towing dir: 90° Wire out: 360 m Speed: 30 kn*10
 Sorted: 111 Kg Total catch: 1292.33 CATCH/HOUR: 1101.59

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Trachurus capensis	1668.79	23016	53.80	3511
Merluccius capensis	667.80	4649	21.53	3510
Thyrssites atun	254.81	252	8.22	
Myliobatis aquila	246.41	29	7.94	
Mustelus mustelus	151.20	29	4.87	
Callorhynchus capensis	53.21	29	1.72	
Chelidionichthys capensis	29.69	113	0.96	
Sardinops ocellatus	16.25	223	0.52	
Pterothrissus bellocci	5.59	84	0.18	
Etrumeus whiteheadi	5.04	113	0.16	
Sufflogobius bibarbatus	2.81	449	0.09	
Aequorea aequorea	0.00	3864		
Chrysaora sp.	0.00	113		
Total	3101.60		99.99	

PROJECT STATION:1494
 DATE:26/ 8/97 GEAR TYPE: BT No:2 POSITION:Lat S 2011
 start stop duration Long E 1303
 TIME :05:35:50 05:42:11 7 (min) Purpose code: 3
 LOG :1815.47 1815.72 0.30 Area code : 1
 FDEPTH: 60 60 GearCond.code:
 BDEPTH: 60 60 Validity code:
 Towing dir: 160° Wire out: 240 m Speed: 30 kn*10
 Sorted: 34 Kg Total catch: 130.75 CATCH/HOUR: 1120.71

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Merluccius capensis	504.00	10637	44.97	3512
Venus sp.	318.00	178071	28.37	
Galeichthys feliceps	120.00	480	10.71	
Mustelus mustelus	75.43	9	6.73	
Argyrosomus hololepidotus	34.29	9	1.06	
Dicologlossa cuneata	24.00	240	2.14	
Trachurus capensis	24.00	900	2.14	3513
Chelidionichthys capensis	15.00	26	1.34	
Illex coindetii	3.00	26	0.27	
Sardinops ocellatus	3.00	26	0.27	
Aequorea aequorea	0.00	146		
Chrysaora sp.	0.00	4106		
Total	1120.72		100.00	

PROJECT STATION:1495
 DATE:26/ 8/97 GEAR TYPE: BT No:2 POSITION:Lat S 2010 Long E 1247
 start stop duration
 TIME :08:05:27 08:14:07 9 (min) Purpose code: 3
 LOG :1832.45 1832.87 0.41 Area code : 1
 FDEPTH: 130 130 GearCond.code:
 BDEPTH: 130 130 Validity code:
 Towing dir: 340° Wire out: 400 m Speed: 30 kn*10
 Sorted: 126 Kg Total catch: 849.85 CATCH/HOUR: 5665.67

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Merluccius capensis	3710.00	78907	65.48	3514
Trachurus capensis	1710.00	19740	30.18	3515
Callorhynchus capensis	100.00	47	1.77	
Myliobatis aquila	48.67	13	0.86	
Schedophilus pemarko	46.67	7	0.82	
Lophius vomerinus	25.33	47	0.45	
Venus sp.	20.00	4847	0.35	
Sufflogobius bibarbatatus	5.00	847	0.09	
Aequorea aequorea	0.00	12800		
Chrysaora sp.	0.00	1600		
Total	5665.67		100.00	

PROJECT STATION:1499
 DATE:26/ 8/97 GEAR TYPE: BT No: POSITION:Lat S 2013 Long E 1215
 start stop duration
 TIME :15:05:21 16:35:00 30 (min) Purpose code: 3
 LOG :1876.31 1877.92 1.59 Area code : 1
 FDEPTH: 282 283 GearCond.code:
 BDEPTH: 282 283 Validity code:
 Towing dir: 170° Wire out: 830 m Speed: 31 kn*10
 Sorted: 36 Kg Total catch: 113.90 CATCH/HOUR: 227.80

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Merluccius capensis	200.40	1208	87.97	3522
Neoharriotta pinnata	13.80	12	6.06	
Pterothrissus belloci	11.40	300	5.00	
Dentex macrophthalms, female	1.20	6	0.53	
Sufflogobius bibarbatatus	0.60	36	0.26	
Synagrops microlepis	0.40	150	0.18	
Aequorea aequorea	0.00	402		
Chrysaora sp.	0.00	738		
Total	227.80		100.00	

PROJECT STATION:1496
 DATE:26/ 8/97 GEAR TYPE: BT No:2 POSITION:Lat S 2010 Long E 1236
 start stop duration
 TIME :09:42:33 09:46:08 4 (min) Purpose code: 3
 LOG :1843.54 1843.69 0.20 Area code : 1
 FDEPTH: 150 150 GearCond.code:
 BDEPTH: 150 150 Validity code: 9
 Towing dir: 330° Wire out: 450 m Speed: 30 kn*10
 Sorted: 34 Kg Total catch: 233.75 CATCH/HOUR: 3506.25

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Merluccius capensis	2919.00	45930	83.25	3516
Trachurus capensis	388.50	5040	11.08	3517
Chelidonichthys capensis	136.50	210	3.89	
Squalus megalops	42.00	105	1.20	
Lepidopus caudatus	10.50	105	0.30	
Dentex macrophthalms, female	3.45	15	0.10	
Sufflogobius bibarbatatus	3.15	525	0.09	
Todaropsis eblanae	3.15	105	0.09	
Aequorea aequorea	0.00	116425		
Chrysaora sp.	0.00	1260		
Total	3506.25		100.00	

PROJECT STATION:1500
 DATE:26/ 8/97 GEAR TYPE: BT No: POSITION:Lat S 2013 Long E 1203
 start stop duration
 TIME :18:26:00 18:56:00 30 (min) Purpose code: 3
 LOG :1891.57 1893.19 1.59 Area code : 1
 FDEPTH: 334 336 GearCond.code:
 BDEPTH: 334 336 Validity code:
 Towing dir: 270° Wire out:1000 m Speed: 36 kn*10
 Sorted: 73 Kg Total catch: 259.28 CATCH/HOUR: 518.56

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Helicolenus dactylopterus	195.20	4130	37.64	
Merluccius capensis	189.20	538	36.49	3523
Chlorophthalmus atlanticus	107.20	5204	20.67	
Hexanchus griseus	12.20	2	2.35	
Nezumia sp.	6.00	212	1.16	
Hoplostethus cadenati	3.00	250	0.58	
Illex coindetii	2.20	6	0.42	
Trachurus capensis	1.60	6	0.31	
Todaropsis eblanae	0.80	6	0.15	
MYCTOPHIDAE	0.80	342	0.15	
Epigonus pandionis	0.20	14	0.04	
Solenocera africana	0.08	30	0.02	
Sufflogobius bibarbatatus	0.08	6	0.02	
Aequorea aequorea	0.00	296		
Chrysaora sp.	0.00	90		
Total	518.56		100.00	

PROJECT STATION:1497
 DATE:26/ 8/97 GEAR TYPE: BT No:2 POSITION:Lat S 2012 Long E 1232
 start stop duration
 TIME :11:05:51 11:20:56 15 (min) Purpose code: 3
 LOG :1849.70 1850.45 0.75 Area code : 1
 FDEPTH: 178 172 GearCond.code: 9
 BDEPTH: 178 172 Validity code:
 Towing dir: 270° Wire out: 550 m Speed: 30 kn*10
 Sorted: 69 Kg Total catch: 955.29 CATCH/HOUR: 3821.16

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Merluccius capensis	2315.12	27608	60.59	3519
Trachurus capensis	1421.32	17712	37.20	3518
Trigla lyra	65.60	56	1.72	
Pterothrissus belloci	19.12	220	0.50	
Aequorea aequorea	0.00	27650		
Chrysaora sp.	0.00	2132		
Total	3821.16		100.01	

PROJECT STATION:1501
 DATE:27/ 8/97 GEAR TYPE: BT No:2 POSITION:Lat S 1951 Long E 1201
 start stop duration
 TIME :05:34:00 06:04:00 30 (min) Purpose code: 3
 LOG :1956.09 1957.66 1.54 Area code : 1
 FDEPTH: 318 320 GearCond.code:
 BDEPTH: 318 320 Validity code:
 Towing dir: 340° Wire out: 960 m Speed: 32 kn*10
 Sorted: 97 Kg Total catch: 224.94 CATCH/HOUR: 449.88

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Merluccius capensis	282.00	624	62.68	3524
Pterothrissus belloci	50.00	294	11.11	
Neoharriotta pinnata	40.02	10	8.90	
Chlorophthalmus atlanticus	40.00	3544	8.89	
Lophius vomerinus	22.00	18	4.89	
Austroglossus microlepis	4.40	6	0.98	
Nezumia sp.	4.00	124	0.89	
Dentex macrophthalms, female	2.00	4	0.44	3525
Chelidonichthys capensis	2.00	4	0.44	
Solenocera africana	2.00	492	0.44	
Illex coindetii	0.92	4	0.20	
Scyliorhinus capensis	0.32	8	0.07	
Helicolenus dactylopterus	0.18	82	0.04	
MYCTOPHIDAE	0.04	32	0.01	
Chrysaora sp.	0.00	70		
Total	449.88		99.98	

PROJECT STATION:1498
 DATE:26/ 8/97 GEAR TYPE: BT No: POSITION:Lat S 2012 Long E 1228
 start stop duration
 TIME :13:26:40 13:56:46 30 (min) Purpose code: 3
 LOG :1860.09 1861.51 1.40 Area code : 1
 FDEPTH: 229 223 GearCond.code:
 BDEPTH: 229 223 Validity code:
 Towing dir: 345° Wire out: 700 m Speed: 30 kn*10
 Sorted: 51 Kg Total catch: 261.50 CATCH/HOUR: 523.00

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Merluccius capensis	368.70	5860	70.50	3521
Trachurus capensis	150.84	1240	28.84	3520
Sufflogobius bibarbatatus	3.46	366	0.66	
Aequorea aequorea	0.00	20110		
Chrysaora sp.	0.00	478		
Total	523.00		100.00	

PROJECT STATION:1502
 DATE:27/ 8/97 GEAR TYPE: BT No:2 POSITION:Lat S 1951 Long E 1206
 start stop duration
 TIME :07:30:00 08:00:00 30 (min) Purpose code: 3
 LOG :1963.97 1965.46 1.49 Area code : 1
 FDEPTH: 286 282 GearCond.code:
 BDEPTH: 286 282 Validity code:
 Towing dir: 160° Wire out: 870 m Speed: 32 kn*10
 Sorted: 68 Kg Total catch: 223.54 CATCH/HOUR: 447.08

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Merluccius capensis	264.80	816	59.23	3528
Pterothrissus belloci	109.60	1560	24.51	
Dentex macrophthalms, female	21.40	88	4.79	3527
Brama brama	16.80	16	3.76	
Dentex macrophthalms, male	12.00	46	2.68	3526
Neoharriotta pinnata	11.20	8	2.51	
Illex coindetii	4.80	8	1.07	
Synagrops microlepis	4.80	416	1.07	
Chlorophthalmus atlanticus	1.60	328	0.36	
Sufflogobius bibarbatatus	0.08	32	0.02	
Aequorea aequorea	0.00	152		
Chrysaora sp.	0.00	424		
Total	447.08		100.00	

PROJECT STATION:1503
 DATE:27/ 8/97 GEAR TYPE: BT No:2 POSITION:Lat S 1952
 start stop duration Long E 1213
 TIME :09:17:41 09:47:12 30 (min) Purpose code: 3
 LOG :1972.80 1974.33 1.51 Area code : 1
 FDEPTH: 240 243 GearCond.code: 1
 BDEPTH: 240 243 Validity code:
 Towing dir: 335° Wire out: 720 m Speed: 30 kn*10
 Sorted: 38 Kg Total catch: 94.10 CATCH/HOUR: 188.20

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Trachurus capensis	175.00	1390	92.99	3529
Merluccius capensis	12.60	176	6.70	3530
Sufflogobius bibarbatatus	0.60	30	0.32	
Aequorea aequorea	0.00	2398		
Chrysaora sp.	0.00	220		
Total	188.20		100.01	

PROJECT STATION:1504
 DATE:27/ 8/97 GEAR TYPE: BT No:2 POSITION:Lat S 1950
 start stop duration Long E 1220
 TIME :11:26:03 11:36:23 10 (min) Purpose code: 3
 LOG :1985.20 1985.73 0.53 Area code : 1
 FDEPTH: 195 194 GearCond.code: 9
 BDEPTH: 195 194 Validity code:
 Towing dir: 270° Wire out: 600 m Speed: 30 kn*10
 Sorted: 80 Kg Total catch: 350.01 CATCH/HOUR: 2100.06

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Merluccius capensis	1594.86	9876	75.94	3532
Trachurus capensis	479.40	6402	22.83	3531
Galeichthys feliceps	14.76	24	0.70	
Pterothrissus belloci	6.30	108	0.30	
Todarodes sagittatus	3.42	24	0.16	
Sufflogobius bibarbatatus	1.32	186	0.06	
Aequorea aequorea	0.00	14964		
Chrysaora sp.	0.00	1422		
Total	2100.06		99.99	

PROJECT STATION:1505
 DATE:27/ 8/97 GEAR TYPE: BT No:2 POSITION:Lat S 1950
 start stop duration Long E 1222
 TIME :12:44:49 12:54:53 10 (min) Purpose code: 3
 LOG :1991.55 1992.09 0.53 Area code : 1
 FDEPTH: 163 164 GearCond.code: 9
 BDEPTH: 163 164 Validity code:
 Towing dir: 350° Wire out: 500 m Speed: 30 kn*10
 Sorted: 73 Kg Total catch: 406.67 CATCH/HOUR: 2440.02

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Merluccius capensis	1662.60	35664	68.14	3534
Trachurus capensis	742.92	9486	30.45	3533
Todarodes sagittatus	25.14	36	1.03	
Dentex macrophthalmus, female	4.68	30	0.19	3536
Dentex macrophthalmus, male	3.66	24	0.15	3535
Sufflogobius bibarbatatus	1.02	102	0.04	
Aequorea aequorea	0.00	4320		
Chrysaora sp.	0.00	882		
Total	2440.02		100.00	

PROJECT STATION:1506
 DATE:27/ 8/97 GEAR TYPE: BT No:2 POSITION:Lat S 1952
 start stop duration Long E 1245
 TIME :15:48:18 15:53:16 5 (min) Purpose code: 3
 LOG :2016.93 2017.20 0.27 Area code : 1
 FDEPTH: 104 104 GearCond.code: 9
 BDEPTH: 104 104 Validity code:
 Towing dir: 350° Wire out: 300 m Speed: 30 kn*10
 Sorted: 42 Kg Total catch: 209.70 CATCH/HOUR: 2516.40

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Trachurus capensis	1857.00	36360	73.80	3537
Merluccius capensis	636.00	7440	25.27	3538
Squalus megalops	19.80	60	0.79	
Chelidonichthys capensis	2.40	180	0.10	
Sufflogobius bibarbatatus	1.20	600	0.05	
Chrysaora sp.	0.00	480		
Aequorea aequorea	0.00	26580		
Total	2516.40		100.01	

PROJECT STATION:1507
 DATE:27/ 8/97 GEAR TYPE: BT No:2 POSITION:Lat S 1952
 start stop duration Long E 1252
 TIME :17:00:00 17:15:35 15 (min) Purpose code: 3
 LOG :2025.62 2026.44 0.80 Area code : 1
 FDEPTH: 70 73 GearCond.code: 1
 BDEPTH: 70 73 Validity code:
 Towing dir: 340° Wire out: 220 m Speed: 30 kn*10
 Sorted: 71 Kg Total catch: 256.60 CATCH/HOUR: 1026.40

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Merluccius capensis	434.40	5264	42.32	3540
Chelidonichthys capensis	146.40	288	14.26	
Callorhynchus capensis	117.60	96	11.46	
Argyrosomus hololepidotus	108.40	32	10.56	
Trachurus capensis	79.20	2520	7.72	3539
Galeichthys feliceps	74.40	384	7.25	
Myliobatis aquila	27.60	8	2.69	
Mustelus palumbes	26.40	24	2.57	
Cynoglossus capensis	7.20	144	0.70	
Todaropsis eblanae	2.40	72	0.23	
Sardinops ocellatus	1.92	24	0.19	
Lepidopus caudatus	0.40	24	0.04	
Aequorea aequorea	0.00	30428		
Chrysaora sp.	0.00	1656		
Total	1026.32		99.99	

PROJECT STATION:1508
 DATE:28/ 8/97 GEAR TYPE: BT No:2 POSITION:Lat S 1935
 start stop duration Long E 1245
 TIME :05:26:00 05:31:00 5 (min) Purpose code: 3
 LOG :2055.88 2056.08 0.18 Area code : 1
 FDEPTH: 60 61 GearCond.code: 9
 BDEPTH: 60 61 Validity code: 9
 Towing dir: 340° Wire out: 220 m Speed: 30 kn*10
 Sorted: 9 Kg Total catch: 13.00 CATCH/HOUR: 156.00

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Merluccius capensis	100.80	1380	64.62	3542
Trachurus capensis	43.20	1512	27.69	3541
Cynoglossus capensis	3.60	72	2.31	
Galeichthys feliceps	3.60	12	2.31	
Illex coindetii	2.40	12	1.54	
Todaropsis eblanae	2.40	72	1.54	
Aequorea aequorea	0.00	492		
Chrysaora sp.	0.00	840		
Total	156.00		100.01	

PROJECT STATION:1509
 DATE:28/ 8/97 GEAR TYPE: BT No:2 POSITION:Lat S 1937
 start stop duration Long E 1232
 TIME :07:49:00 07:50:00 1 (min) Purpose code: 3
 LOG :2071.17 2071.23 0.09 Area code : 1
 FDEPTH: 121 121 GearCond.code: 9
 BDEPTH: 121 121 Validity code: 9
 Towing dir: 10° Wire out: 360 m Speed: 30 kn*10
 Sorted: Kg Total catch: CATCH/HOUR:

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
N O C A T C H	0.00			
Total				

PROJECT STATION:1510
 DATE:28/ 8/97 GEAR TYPE: BT No:2 POSITION:Lat S 1937
 start stop duration Long E 1218
 TIME :09:59:27 10:29:52 30 (min) Purpose code: 3
 LOG :2086.83 2088.31 1.47 Area code : 1
 FDEPTH: 185 183 GearCond.code: 1
 BDEPTH: 185 183 Validity code:
 Towing dir: 160° Wire out: 540 m Speed: 30 kn*10
 Sorted: 87 Kg Total catch: 800.41 CATCH/HOUR: 1600.82

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Merluccius capensis	859.28	14350	53.68	3544
Trachurus capensis	722.14	8528	45.11	3543
Sufflogobius bibarbatatus	15.80	2668	1.05	
Dentex macrophthalmus, female	1.58	8	0.10	3546
Dentex macrophthalmus, male	1.02	6	0.06	3545
Aequorea aequorea	0.00	102		
Chrysaora sp.	0.00	50		
Total	1600.82		100.00	

PROJECT STATION:1511
 DATE:28/ 8/97 GEAR TYPE: BT No:2 POSITION:Lat S 1937
 start stop duration Long E 1214
 TIME :11:37:07 12:07:28 30 (min) Purpose code: 3
 LOG :2093.95 2095.77 1.80 Area code : 1
 FDEPTH: 213 212 GearCond.code: 1
 BDEPTH: 213 212 Validity code:
 Towing dir: 340° Wire out: 630 m Speed: 30 kn*10
 Sorted: 78 Kg Total catch: 77.53 CATCH/HOUR: 155.06

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Trachurus capensis	82.40	872	53.14	3548
Merluccius capensis	72.30	1012	46.63	3547
Sufflogobius bibarbatatus	0.36	148	0.23	
Aequorea aequorea	0.00	4738		
Chrysaora sp.	0.00	88		
Total	155.06		100.00	

PROJECT STATION:1512
 DATE:28/ 8/97 GEAR TYPE: BT No:2 POSITION:Lat S 1935
 start stop duration Long E 1208
 TIME :13:31:30 14:01:49 30 (min) Purpose code: 3
 LOG :2103.89 2105.31 1.42 Area code : 1
 FDEPTH: 260 261 GearCond.code:
 BDEPTH: 260 261 Validity code:
 Towing dir: 160° Wire out: 760 m Speed: 30 kn*10

Sorted: 12 Kg Total catch: 11.70 CATCH/HOUR: 23.40

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP
	weight numbers		
Merluccius capensis	21.60 100	92.31	3550
Trachurus capensis	1.94 20	8.29	3549
Chrysaora sp.	0.00 22		
Aequorea aequorea	0.00 4536		
Total	23.54	100.60	

PROJECT STATION:1513
 DATE:28/ 8/97 GEAR TYPE: BT No:2 POSITION:Lat S 1932
 start stop duration Long E 1150
 TIME :16:34:00 17:04:00 30 (min) Purpose code: 3
 LOG :2115.00 2126.80 1.08 Area code : 1
 FDEPTH: 338 334 GearCond.code:
 BDEPTH: 338 334 Validity code:
 Towing dir: 340° Wire out: 950 m Speed: 36 kn*10

Sorted: 69 Kg Total catch: 305.20 CATCH/HOUR: 610.40

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP
	weight numbers		
Helicolenus dactylopterus	272.60 11386	44.66	
Merluccius capensis	244.20 332	40.01	3552
Chlorophthalmus atlanticus	35.20 1380	5.77	
Nezumia sp.	20.00 550	3.28	
Trachurus capensis	16.20 56	2.65	
Dentex macrophthalmus, female	5.80 22	0.95	3551
Solenocera africana	5.80 1472	0.95	
Illex coindetii	4.00 18	0.66	
Hoplostethus cadenati	2.00 104	0.33	
Pterothrissus bellocci	2.00 8	0.33	
Scyliorhinus capensis	1.00 8	0.16	
MYCTOPHIDAE	1.00 132	0.16	
Epigonus pandionis	0.40 46	0.07	
Sufflogobius bibarbatatus	0.20 76	0.03	
Aequorea aequorea	0.00 142		
Total	610.40	100.01	

PROJECT STATION:1514
 DATE:29/ 8/97 GEAR TYPE: BT No:2 POSITION:Lat S 1856
 start stop duration Long E 1151
 TIME :00:00:23 00:00:54 31 (min) Purpose code: 3
 LOG :2174.28 2175.85 1.54 Area code : 1
 FDEPTH: 252 251 GearCond.code:
 BDEPTH: 252 251 Validity code:
 Towing dir: 340° Wire out: 750 m Speed: 30 kn*10

Sorted: 5 Kg Total catch: 5.21 CATCH/HOUR: 10.08

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP
	weight numbers		
Trachurus capensis	3.68 19	36.51	
Merluccius capensis	3.48 48	34.52	3553
Illex coindetii	1.55 2	15.38	
Helicolenus dactylopterus	0.39 23	3.87	
Scyliorhinus capensis	0.39 4	3.87	
Solenocera africana	0.19 52	1.88	
Sufflogobius bibarbatatus	0.19 64	1.88	
Chaceon maritae	0.06 2	0.60	
Nezumia sp.	0.06 2	0.60	
Peristedion cataphractum	0.04 2	0.40	
Synagrops microlepis	0.04 23	0.40	
MYCTOPHIDAE	0.02 17	0.20	
Aequorea aequorea	0.00 1341		
Chrysaora sp.	0.00 70		
Total	10.09	100.11	

PROJECT STATION:1515
 DATE:29/ 8/97 GEAR TYPE: BT No:2 POSITION:Lat S 1854
 start stop duration Long E 1129
 TIME :00:00:29 00:00:59 30 (min) Purpose code: 3
 LOG :2197.94 2199.43 1.49 Area code : 1
 FDEPTH: 311 312 GearCond.code:
 BDEPTH: 311 312 Validity code:
 Towing dir: 360° Wire out: 900 m Speed: 30 kn*10

Sorted: 109 Kg Total catch: 1986.90 CATCH/HOUR: 3973.80

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP
	weight numbers		
Helicolenus dactylopterus	1411.80 25164	35.53	
Merluccius capensis	1196.60 3476	30.11	3554
Trachurus capensis	637.60 6664	16.05	3555
Pterothrissus bellocci	480.20 3890	12.08	
Chlorophthalmus atlanticus	120.00 4842	3.02	
Raja miraletus	37.20 40	0.94	
Illex coindetii	24.80 124	0.62	
Dentex macrophthalmus, female	19.00 76	0.48	3556
Nezumia sp.	16.60 454	0.42	
Trigla lyra	8.20 82	0.21	
Dentex macrophthalmus, male	8.00 32	0.20	3557
Bathynectes piperitus	4.20 40	0.11	
MYCTOPHIDAE	4.20 662	0.11	
Synagrops microlepis	4.20 288	0.11	
GCNOSTOMATIDAE	1.20 40	0.03	
Total	3973.80	100.02	

PROJECT STATION:1516
 DATE:29/ 8/97 GEAR TYPE: BT No:2 POSITION:Lat S 1838
 start stop duration Long E 1128
 TIME :00:00:00 00:00:00 30 (min) Purpose code: 3
 LOG :2214.48 2216.01 1.53 Area code : 1
 FDEPTH: 283 288 GearCond.code:
 BDEPTH: 283 288 Validity code:
 Towing dir: 10° Wire out: 840 m Speed: 30 kn*10

Sorted: 186 Kg Total catch: 2330.15 CATCH/HOUR: 4660.30

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP
	weight numbers		
Merluccius capensis	2408.76 10238	51.69	3561
Chlorophthalmus atlanticus	903.76 38876	19.39	
Helicolenus dactylopterus	583.76 33276	12.53	
Trachurus capensis	335.00 2176	7.19	3560
Dentex macrophthalmus, female	172.50 726	3.70	3559
Synagrops microlepis	123.50 15350	2.65	
Pterothrissus bellocci	59.50 576	1.28	
Dentex macrophthalmus, male	52.26 226	1.12	3558
Squalus megalops	8.50 26	0.18	
Lophius vomerinus	4.76 26	0.10	
Trigla lyra	4.50 26	0.10	
Coelorinchus coelorhinc. polli	1.50 76	0.08	
Total	4660.30	100.01	

PROJECT STATION:1517
 DATE:29/ 8/97 GEAR TYPE: BT No:2 POSITION:Lat S 1837
 start stop duration Long E 1137
 TIME :21:40:06 21:40:22 16 (min) Purpose code: 3
 LOG :2226.81 2227.55 0.74 Area code : 1
 FDEPTH: 226 230 GearCond.code: 9
 BDEPTH: 226 230 Validity code:
 Towing dir: 160° Wire out: 660 m Speed: 30 kn*10

Sorted: 61 Kg Total catch: 181.71 CATCH/HOUR: 681.41

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP
	weight numbers		
Merluccius capensis	313.88 3443	46.06	3562
Trachurus capensis	310.50 3139	45.57	3563
Atractoscion aequidens	47.59 11	6.98	
Synagrops microlepis	9.11 1406	1.34	
Sufflogobius bibarbatatus	0.34 45	0.05	
Chrysaora sp.	0.00 1395		
Total	681.42	100.00	

PROJECT STATION:1518
 DATE:29/ 8/97 GEAR TYPE: BT No:2 POSITION:Lat S 1837
 start stop duration Long E 1151
 TIME :25:00:15 25:00:25 10 (min) Purpose code: 3
 LOG :2241.29 2241.76 0.47 Area code : 1
 FDEPTH: 156 156 GearCond.code: 9
 BDEPTH: 156 156 Validity code:
 Towing dir: 150° Wire out: 450 m Speed: 30 kn*10

Sorted: 59 Kg Total catch: 768.41 CATCH/HOUR: 4610.46

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP
	weight numbers		
Merluccius capensis	3952.80 5554	85.74	3565
Trachurus capensis	550.80 6912	11.95	3564
Dentex macrophthalmus, female	57.24 744	1.24	3566
Dentex macrophthalmus, male	47.46 642	1.03	3567
Sufflogobius bibarbatatus	2.16 324	0.05	
Aequorea aequorea	0.00 5832		
Chrysaora sp.	0.00 4428		
Total	4610.46	100.01	

PROJECT STATION:1519
 DATE:29/ 8/97 GEAR TYPE: BT No:2 POSITION:Lat S 1836
 start stop duration Long E 1200
 TIME :26:40:58 28:20:18 20 (min) Purpose code: 3
 LOG :2253.88 2255.06 1.18 Area code : 1
 FDEPTH: 81 83 GearCond.code:
 BDEPTH: 81 83 Validity code:
 Towing dir: 330° Wire out: 250 m Speed: 33 kn*10

Sorted: 91 Kg Total catch: 794.70 CATCH/HOUR: 2384.10

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP
	weight numbers		
Trachurus capensis	2223.60 61152	93.27	3570
Squatina aculeata	44.40 24	1.86	
Chelidonichthys capensis	42.00 180	1.76	
Merluccius capensis	28.80 207	1.21	
Sardinops ocellatus	21.00 495	0.88	
Dentex macrophthalmus, female	10.20 213	0.43	3568
Dentex macrophthalmus, male	8.10 171	0.34	3569
Umbriina canariensis	5.10 24	0.21	
SEPIIDAE	0.90 24	0.04	
Chrysaora sp.	0.00 24		
Total	2384.10	100.00	

PROJECT STATION:1520
 DATE:30/ 8/97 GEAR TYPE: BT No:2 POSITION:Lat S 1818
 start stop duration
 TIME :05:29:00 05:49:00 20 (min) Purpose code: 3
 LOG :2333.29 2334.42 1.13 Area code : 1
 FDEPTH: 296 301 GearCond.code:
 BDEPTH: 296 301 Validity code:
 Towing dir: 10° Wire out: 870 m Speed: 32 kn*10
 Sorted: 91 Kg Total catch: 825.60 CATCH/HOUR: 2476.80

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP
	weight numbers		
Merluccius capensis	1206.90	1126	48.73
Helicolenus dactylopterus	696.60	19080	28.13
Pterothrissus belloci	256.50	2277	10.36
Chlorophthalmus atlanticus	175.50	6198	7.09
Raja clavata	56.70	27	2.29
Nezumia sp.	24.30	729	0.98
Dentex macropthalmus, female	21.90	75	0.88
Trachurus capensis	16.20	162	0.65
Synagrops microlepis	8.10	891	0.33
Trigla lyra	5.40	108	0.22
Dentex macropthalmus, male	3.90	15	0.16
Callinectes sp.	2.70	108	0.11
Laemonema laureysi	1.20	54	0.05
Cynoglossus capensis	0.60	27	0.02
Hymenocephalus italicus	0.30	27	0.01
Aequorea aequorea	0.00	729	
Chrysaora sp.	0.00	54	
Total	2476.80		100.01

PROJECT STATION:1521
 DATE:30/ 8/97 GEAR TYPE: BT No:2 POSITION:Lat S 1818
 start stop duration
 TIME :07:24:00 07:54:00 30 (min) Purpose code: 3
 LOG :2342.97 2344.38 1.50 Area code : 1
 FDEPTH: 182 178 GearCond.code:
 BDEPTH: 182 178 Validity code:
 Towing dir: 160° Wire out: 540 m Speed: 30 kn*10
 Sorted: 86 Kg Total catch: 829.60 CATCH/HOUR: 1659.20

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP
	weight numbers		
Merluccius capensis	492.80	4634	29.70
Dentex macropthalmus, male	405.40	4614	24.43
Trachurus capensis	395.80	5048	23.85
Dentex macropthalmus, female	332.00	3532	20.01
Synagrops microlepis	13.60	2444	0.82
Sufflogobius bibarbus	9.80	348	0.59
Pterothrissus belloci	7.80	194	0.47
Perulibatrachus rosignoli	2.00	38	0.12
Aequorea aequorea	0.00	678	
Chrysaora sp.	0.00	484	
Total	1659.20		99.99

PROJECT STATION:1522
 DATE:30/ 8/97 GEAR TYPE: BT No:2 POSITION:Lat S 1818
 start stop duration
 TIME :09:20:00 09:51:00 31 (min) Purpose code: 3
 LOG :2354.62 2356.32 1.70 Area code : 1
 FDEPTH: 129 128 GearCond.code:
 BDEPTH: 129 128 Validity code:
 Towing dir: 350° Wire out: 390 m Speed: 34 kn*10
 Sorted: 96 Kg Total catch: 1059.34 CATCH/HOUR: 2050.34

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP
	weight numbers		
Trachurus capensis	1358.32	25208	66.25
Mustelus mustelus	327.87	64	15.99
Merluccius capensis	251.23	5237	12.25
Lagocephalus sp.	63.87	43	3.12
Galeichthys feliceps	27.68	106	1.35
Chelidomichthys capensis	10.65	21	0.52
SQUALIDAE	6.39	21	0.31
Dentex macropthalmus, male	1.74	29	0.08
Dentex macropthalmus, female	1.74	29	0.08
Sufflogobius bibarbus	0.85	106	0.04
Aequorea aequorea	0.00	766	
Chrysaora sp.	0.00	1192	
Total	2050.34		99.99

PROJECT STATION:1523
 DATE:30/ 8/97 GEAR TYPE: BT No:2 POSITION:Lat S 1816
 start stop duration
 TIME :10:53:00 11:13:00 20 (min) Purpose code: 3
 LOG :2362.75 2363.90 1.15 Area code : 1
 FDEPTH: 90 88 GearCond.code:
 BDEPTH: 90 88 Validity code:
 Towing dir: 360° Wire out: 280 m Speed: 30 kn*10
 Sorted: 57 Kg Total catch: 531.82 CATCH/HOUR: 1595.46

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP
	weight numbers		
Trachurus capensis	1528.80	53535	95.82
Merluccius capensis	62.73	1092	3.93
Sardinops ocellatus	2.52	27	0.16
Etrumeus whiteheadi	1.41	27	0.09
Chrysaora sp.	0.00	5460	
Total	1595.46		100.00

PROJECT STATION:1524
 DATE:30/ 8/97 GEAR TYPE: BT No:2 POSITION:Lat S 1800
 start stop duration
 TIME :13:12:00 13:42:00 30 (min) Purpose code: 3
 LOG :2383.14 2385.00 1.86 Area code : 1
 FDEPTH: 151 150 GearCond.code:
 BDEPTH: 151 150 Validity code:
 Towing dir: 360° Wire out: 450 m Speed: 30 kn*10
 Sorted: 65 Kg Total catch: 901.68 CATCH/HOUR: 1803.36

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP
	weight numbers		
Trachurus capensis	971.26	14000	53.86
Merluccius capensis	375.00	6050	20.79
Synagrops microlepis	181.50		10.06
Dentex macropthalmus, female	108.94	1324	6.04
Callorhynchus capensis	81.00	26	4.49
Dentex macropthalmus, male	74.66	904	4.14
Todarodes sagittatus	6.50	26	0.36
Dicologlossa cuneata	3.00	50	0.17
Pterothrissus belloci	1.50	76	0.08
Chrysaora sp.	0.00	126	
Total	1803.36		99.99

PROJECT STATION:1525
 DATE:30/ 8/97 GEAR TYPE: BT No:2 POSITION:Lat S 1757
 start stop duration
 TIME :14:48:00 15:08:00 20 (min) Purpose code: 3
 LOG :2391.10 2392.30 1.20 Area code : 1
 FDEPTH: 218 219 GearCond.code:
 BDEPTH: 218 219 Validity code:
 Towing dir: 360° Wire out: 8847 m Speed: 311 kn*10
 Sorted: 83 Kg Total catch: 1462.07 CATCH/HOUR: 4386.21

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP
	weight numbers		
Trachurus capensis	2051.25	25914	46.77
Merluccius capensis	937.50	10389	21.37
Dentex macropthalmus, female	877.71	7392	20.01
Dentex macropthalmus, male	379.08	3051	8.64
Synagrops microlepis	50.64	5364	1.15
Todarodes sagittatus	49.14	114	1.12
Pterothrissus belloci	40.89	600	0.93
Total	4386.21		99.99

PROJECT STATION:1526
 DATE:30/ 8/97 GEAR TYPE: BT No:2 POSITION:Lat S 1755
 start stop duration
 TIME :16:00:30 16:00:50 20 (min) Purpose code: 3
 LOG :2402.22 2403.42 1.20 Area code : 1
 FDEPTH: 310 316 GearCond.code:
 BDEPTH: 310 316 Validity code:
 Towing dir: 360° Wire out: 900 m Speed: 30 kn*10
 Sorted: 116 Kg Total catch: 1218.00 CATCH/HOUR: 3654.00

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP
	weight numbers		
Merluccius capensis	2225.10	18706	60.89
Helicolenus dactylopterus	1103.40	11289	30.20
Nezumia aequalis	147.60	4131	4.04
Dentex macropthalmus, female	40.50	150	1.11
Lophius vaillanti	40.50	36	1.11
Pterothrissus belloci	22.20	108	0.61
Chlorophthalmus atlanticus	18.60	663	0.51
Dentex macropthalmus, male	15.30	63	0.42
Trigla lyra	15.00	330	0.41
Laemonema laureysi	11.10	258	0.30
Trachurus capensis	11.10	108	0.30
Scyllorhinus capensis	3.60	36	0.10
Total	3654.00		100.00

PROJECT STATION:1527
 DATE:31/ 8/97 GEAR TYPE: BT No:2 POSITION:Lat S 1602
 start stop duration
 TIME :05:00:24 05:00:44 20 (min) Purpose code: 3
 LOG :2526.90 2527.88 0.98 Area code : 1
 FDEPTH: 115 117 GearCond.code:
 BDEPTH: 115 117 Validity code:
 Towing dir: 10° Wire out: 350 m Speed: 30 kn*10
 Sorted: 64 Kg Total catch: 387.90 CATCH/HOUR: 1163.70

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP
	weight numbers		
Dentex macropthalmus, male	428.40	4875	36.81
Dentex macropthalmus, female	367.20	3423	31.55
Umbrina canariensis	118.80	1206	10.21
Trachurus capensis	50.40	1188	4.33
Pterothrissus belloci	48.60	432	4.18
Callorhynchus capensis	37.80	18	3.25
Trigla lyra	25.20	252	2.17
Pagellus bellottii	14.40	72	1.24
Spondyliosoma cantharus	12.60	18	1.08
Oxynotus centrina	11.70	3	1.01
Raja miraletus	10.80	18	0.93
Scorpaena normani	9.00	90	0.77
Scorpaena angolensis	7.20	18	0.62
Merluccius capensis	7.20	180	0.62
Zeus faber	5.40	36	0.46
Citharus linguatula	5.40	180	0.46
Illex coindtii	1.80	36	0.15
Anthias anthias	1.80	18	0.15
Total	1163.70		99.99

PROJECT STATION:1528
 DATE:31/ 8/97 GEAR TYPE: BT No: POSITION:Lat S 1602
 start stop duration Long E 1140
 TIME :07:00:23 07:00:53 30 (min) Purpose code: 3
 LOG :2535.01 2536.61 1.60 Area code : 1
 FDEPTH: 60 54 GearCond.code:
 BDEPTH: 60 54 Validity code:
 Towing dir: 220° Wire out: 240 m Speed: 32 kn*10
 Sorted: 75 Kg Total catch: 1169.60 CATCH/HOUR: 2339.20

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP
	weight numbers		
Trachurus capensis	1883.60 82452	80.52	3598
Merluccius capensis	285.60 3298	12.21	3599
Dentex macrophthalmus, male	61.20 2090	2.62	3600
Dentex macrophthalmus, female	55.80 1672	2.39	3601
Engraulis encrasicolus	17.00 1190	0.73	
Pagellus bellottii	13.60 238	0.58	
Dentex macrophthalmus Juv.	12.20 1516	0.52	
Sepia officinalis hierredda	10.20 34	0.44	
Total	2339.20	100.01	

PROJECT STATION:1529
 DATE:31/ 8/97 GEAR TYPE: BT No:2 POSITION:Lat S 1620
 start stop duration Long E 1138
 TIME :10:00:16 10:00:42 26 (min) Purpose code: 3
 LOG :2555.18 2556.53 1.33 Area code : 1
 FDEPTH: 77 75 GearCond.code:
 BDEPTH: 77 75 Validity code:
 Towing dir: 3° Wire out: 260 m Speed: 30 kn*10
 Sorted: 138 Kg Total catch: 2576.28 CATCH/HOUR: 5945.26

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP
	weight numbers		
Trachurus trecae	2450.22 85472	41.21	3602
Dentex macrophthalmus Juv.	1995.23 71421	33.56	3604
Merluccius capensis	1172.77 13246	19.73	3603
Dentex macrophthalmus, female	114.37 858	1.92	3606
Dentex macrophthalmus, male	102.18 969	1.72	3605
Pterothrissus bellocci	47.82 388	0.80	
Atractoscion aequidens	31.66 129	0.53	
Chelidonichthys capensis	20.03 65	0.34	
Pagellus bellottii	10.98 129	0.18	
Total	5945.26	99.99	

PROJECT STATION:1530
 DATE:31/ 8/97 GEAR TYPE: BT No:2 POSITION:Lat S 1620
 start stop duration Long E 1130
 TIME :12:00:20 12:00:28 8 (min) Purpose code: 3
 LOG :2568.98 2568.39 0.41 Area code : 1
 FDEPTH: 88 88 GearCond.code: 9
 BDEPTH: 88 88 Validity code:
 Towing dir: 20° Wire out: 280 m Speed: 30 kn*10
 Sorted: 98 Kg Total catch: 1595.93 CATCH/HOUR: 11969.48

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP
	weight numbers		
Trachurus capensis	11925.38 410010	99.63	3607
Zeus faber	40.43 120	0.34	
Etrumeus whiteheadi	3.68 120	0.03	
Total	11969.49	100.00	

PROJECT STATION:1531
 DATE:31/ 8/97 GEAR TYPE: BT No:2 POSITION:Lat S 1638
 start stop duration Long E 1121
 TIME :15:00:30 15:00:50 20 (min) Purpose code: 3
 LOG :2594.44 2595.46 1.01 Area code : 1
 FDEPTH: 184 193 GearCond.code:
 BDEPTH: 184 193 Validity code:
 Towing dir: 10° Wire out: 580 m Speed: 30 kn*10
 Sorted: 108 Kg Total catch: 1687.69 CATCH/HOUR: 5063.07

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP
	weight numbers		
Trachurus capensis	2813.19 60840	55.56	3608
Helicolenus dactylopterus	696.81 5667	13.76	
Pterothrissus bellocci	391.56 3900	7.73	
Zenopsis conchifer	270.93 1353	5.35	
Squalus megalops	260.01 780	5.14	
Dentex macrophthalmus, female	222.90 1938	4.40	3609
Dentex macrophthalmus, male	200.70 1647	3.96	3610
Merluccius capensis	89.43 261	1.77	
Atractoscion aequidens	85.80 51	1.69	
Octopus vulgaris	26.01 51	0.51	
Todaropsis eblanae	5.73 51	0.11	
Total	5063.07	99.98	

PROJECT STATION:1532
 DATE: 1/ 9/97 GEAR TYPE: BT No:2 POSITION:Lat S 1640
 start stop duration Long E 1124
 TIME :05:23:00 05:48:00 25 (min) Purpose code: 3
 LOG :2626.22 2627.47 1.25 Area code : 1
 FDEPTH: 124 122 GearCond.code:
 BDEPTH: 124 122 Validity code:
 Towing dir: 20° Wire out: 370 m Speed: 32 kn*10
 Sorted: 101 Kg Total catch: 905.60 CATCH/HOUR: 2173.44

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP
	weight numbers		
Dentex macrophthalmus, male	1101.60 13951	50.68	3613
Dentex macrophthalmus, female	660.96 7954	30.41	3614
Trachurus capensis	140.40 3619	6.46	3611
Pterothrissus bellocci	136.56 1478	6.28	
Pagellus bellottii	54.00 324	2.48	3612
Anthias anthias	21.60 346	0.99	
Merluccius capensis	17.28 130	0.80	
Umbrina canariensis	12.96 108	0.60	
Atractoscion aequidens	8.64 22	0.40	
Arius parkii	8.64 43	0.40	
Zenopsis conchifer	6.48 22	0.30	
Trigla lyra	4.32 65	0.20	
Total	2173.44	100.00	

PROJECT STATION:1533
 DATE: 1/ 9/97 GEAR TYPE: BT No:2 POSITION:Lat S 1640
 start stop duration Long E 1130
 TIME :06:57:00 07:23:00 26 (min) Purpose code: 3
 LOG :2634.35 2635.74 1.39 Area code : 1
 FDEPTH: 112 112 GearCond.code:
 BDEPTH: 112 112 Validity code:
 Towing dir: 190° Wire out: 330 m Speed: 31 kn*10
 Sorted: 113 Kg Total catch: 1437.80 CATCH/HOUR: 3318.00

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP
	weight numbers		
Pterothrissus bellocci	1006.62 12242	30.34	3615
Trachurus capensis	988.38 29252	29.79	3616
Dentex macrophthalmus, female	552.46 10068	16.65	3617
Merluccius capensis	438.92 4964	13.23	3618
Dentex macrophthalmus, male	303.23 4288	9.14	3619
Raja clavata	13.15 2	0.40	
Chelidonichthys capensis	6.23 30	0.19	
Pagellus bellottii	3.00 30	0.09	
Dicologlossa cuneata	3.00 30	0.09	
Trigla lyra	3.00 30	0.09	
Total	3317.99	100.01	

PROJECT STATION:1534
 DATE: 1/ 9/97 GEAR TYPE: BT No:2 POSITION:Lat S 1639
 start stop duration Long E 1138
 TIME :08:53:00 09:09:00 16 (min) Purpose code: 3
 LOG :2645.87 2646.67 0.80 Area code : 1
 FDEPTH: 76 77 GearCond.code: 9
 BDEPTH: 76 77 Validity code: 9
 Towing dir: 180° Wire out: 260 m Speed: 30 kn*10
 Sorted: Kg Total catch: CATCH/HOUR:

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP
	weight numbers		
N O C A T C H	0.00		
Total			

PROJECT STATION:1535
 DATE: 1/ 9/97 GEAR TYPE: BT No: POSITION:Lat S 1701
 start stop duration Long E 1139
 TIME :12:46:00 12:59:00 13 (min) Purpose code: 3
 LOG :2674.51 2675.27 0.76 Area code : 1
 FDEPTH: 63 64 GearCond.code: 9
 BDEPTH: 63 64 Validity code:
 Towing dir: 180° Wire out: 280 m Speed: 30 kn*10
 Sorted: 94 Kg Total catch: 1437.49 CATCH/HOUR: 6634.57

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP
	weight numbers		
Trachurus capensis	6620.45 194829	99.79	3619
Merluccius capensis	9.18 143	0.14	
Dicologlossa cuneata	4.94 69	0.07	
Chrysaora sp.	0.00 2054		
Total	6634.57	100.00	

PROJECT STATION:1536
 DATE: 1/ 9/97 GEAR TYPE: BT No: POSITION:Lat S 1702
 start stop duration Long E 1129
 TIME :14:24:00 14:54:00 30 (min) Purpose code: 3
 LOG :2686.64 2688.07 1.43 Area code : 1
 FDEPTH: 112 110 GearCond.code:
 BDEPTH: 112 110 Validity code:
 Towing dir: 360° Wire out: 350 m Speed: 30 kn*10
 Sorted: 98 Kg Total catch: 358.46 CATCH/HOUR: 716.92

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Trachurus capensis	369.24	12196	51.50	3620
Dentex macrophthalmus Juv.	140.44	2192	19.59	3622
Merluccius capensis	134.94	1452	18.82	3621
Dentex macrophthalmus, male	36.30	330	5.06	3624
Dentex macrophthalmus, female	32.70	300	4.56	3623
Zeus faber	1.40	8	0.20	
Todaropsis eblanae	0.88	14	0.12	
ANTHIDAE	0.58	8	0.08	
Dicloglossa cuneata	0.44	8	0.06	
Chrysaora sp.	0.00	14		
Total	716.92		99.99	

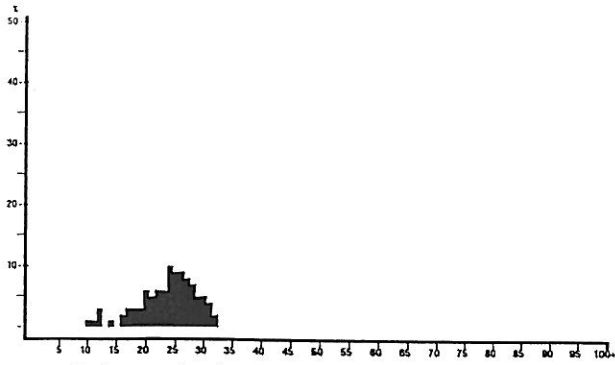
PROJECT STATION:1537
 DATE: 1/ 9/97 GEAR TYPE: BT No: POSITION:Lat S 1702
 start stop duration Long E 1120
 TIME :16:20:00 16:40:00 20 (min) Purpose code: 3
 LOG :2700.68 2701.70 1.02 Area code : 1
 FDEPTH: 176 173 GearCond.code:
 BDEPTH: 176 173 Validity code:
 Towing dir: 355° Wire out: 540 m Speed: 30 kn*10
 Sorted: 95 Kg Total catch: 1151.00 CATCH/HOUR: 3453.00

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Trachurus capensis	2021.40	51372	58.54	3625
Merluccius capensis	441.00	2730	12.77	3626
Pterothrissus belloci	278.40	2730	8.06	
Callorhynchus capensis	183.90	105	5.33	
MYCTOPHIDAE	120.90	27168	3.50	
Trigla lyra	115.50	1311	3.34	
Scorpaena normani	84.00	840	2.43	
Chlorophthalmus atlanticus	63.00	2571	1.82	
Dentex macrophthalmus, female	58.20	480	1.69	3627
Squalus megalops	47.40	105	1.37	
Dentex macrophthalmus, male	33.90	255	0.98	3628
Bemtrrops heterurus	5.40	51	0.16	
Total	3453.00		99.99	

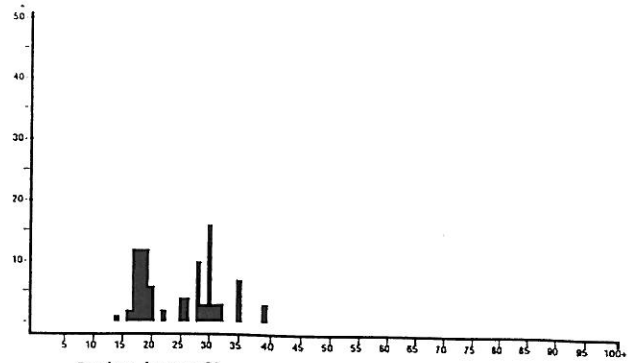
PROJECT STATION:1538
 DATE: 1/ 9/97 GEAR TYPE: ET No: POSITION:Lat S 1702
 start stop duration Long E 1118
 TIME :17:30:00 17:56:00 26 (min) Purpose code: 3
 LOG :2706.34 2707.60 1.26 Area code : 1
 FDEPTH: 286 326 GearCond.code:
 BDEPTH: 286 326 Validity code:
 Towing dir: 354° Wire out: 840 m Speed: 30 kn*10
 Sorted: 95 Kg Total catch: 409.80 CATCH/HOUR: 945.69

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Merluccius capensis	375.23	775	39.68	3631
Scorpaena normani	168.92	1938	17.86	
Chlorophthalmus atlanticus	132.92	3835	14.06	
Callorhynchus capensis	43.38	14	4.59	
Pterothrissus belloci	40.15	235	4.25	
Laemonema laureysi	38.77	1345	4.10	
Dentex macrophthalmus, female	32.54	138	3.44	3629
Squalus megalops	30.46	55	3.22	
Nezumia aequalis	20.77	595	2.20	
Sphyrna lewini	13.85	2	1.46	
Mustelus mustelus	13.15	5	1.39	
Dentex macrophthalmus, male	12.92	53	1.37	3630
Hyperoglyphe moselii	8.31	14	0.88	
Zenopsis conchifer	6.92	14	0.73	
Trachurus capensis	1.38	28	0.15	
Epigonus telescopus	1.38	14	0.15	
Synagrops microlepis	1.38	83	0.15	
Malacocephalus laevis	1.38	14	0.15	
Parapenaeus longirostris	1.38	166	0.15	
Cynoglossus capensis	0.46	14	0.05	
Total	945.65		100.03	

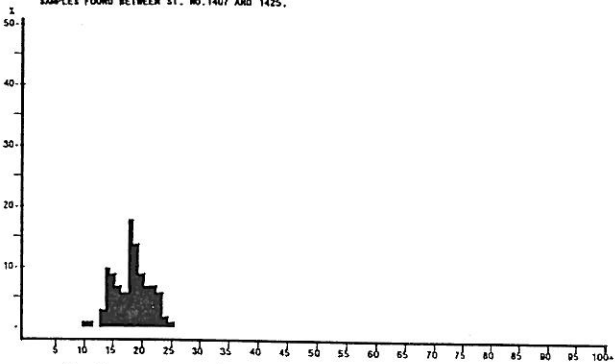
Annex III Size distribution of the main commercial species



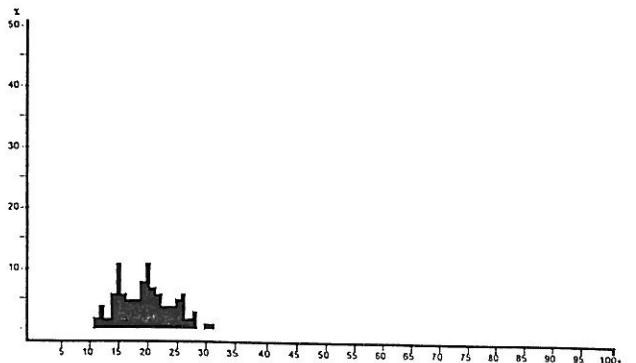
Dentex angolensis
Angola North
Pooled sample (weighted by catch).
MEAN LENGTH = 24.09cm N= 800
NUMBER OF SUBSAMPLES : 13
SAMPLES FOUND BETWEEN ST. NO.1407 AND 1425.



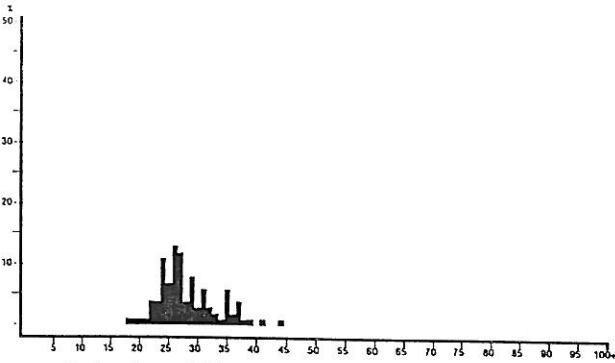
Dentex barnardi
Angola North
Pooled sample (weighted by catch).
MEAN LENGTH = 24.99cm N= 58
NUMBER OF SUBSAMPLES : 2
SAMPLES FOUND BETWEEN ST. NO.1413 AND 1414.



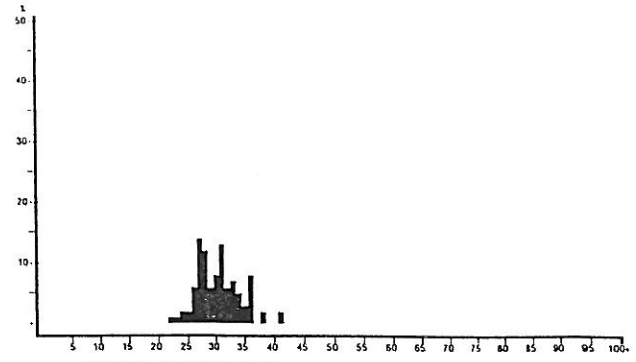
Dentex congolensis
Angola North
Pooled sample (weighted by catch).
MEAN LENGTH = 18.71cm N= 418
NUMBER OF SUBSAMPLES : 5
SAMPLES FOUND BETWEEN ST. NO. 1408 AND 1425.



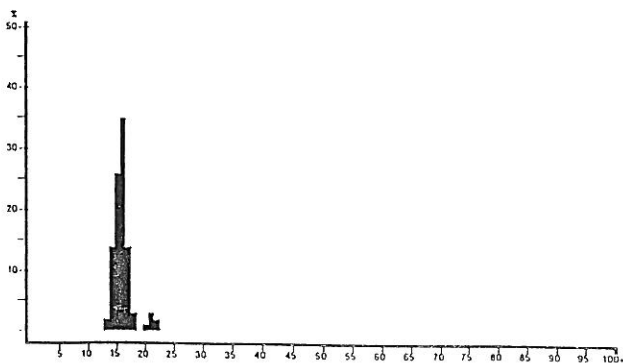
Pagellus bellottii
Angola North
Pooled sample (weighted by catch).
MEAN LENGTH = 20.07cm N= 179
NUMBER OF SUBSAMPLES : 4
SAMPLES FOUND BETWEEN ST. NO. 1407 AND 1425.



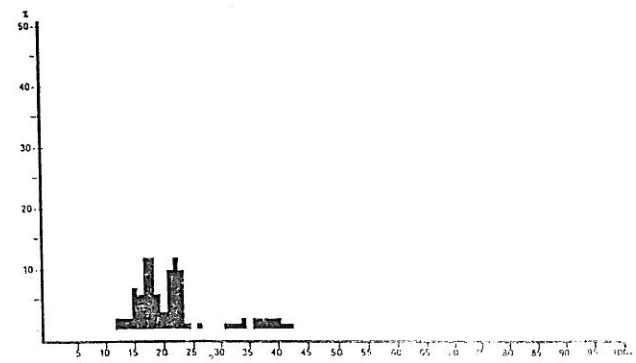
Merluccius polli
Angola North
Pooled sample (weighted by catch).
MEAN LENGTH = 28.36cm N= 338
NUMBER OF SUBSAMPLES : 6
SAMPLES FOUND BETWEEN ST. NO.1411 AND 1425.



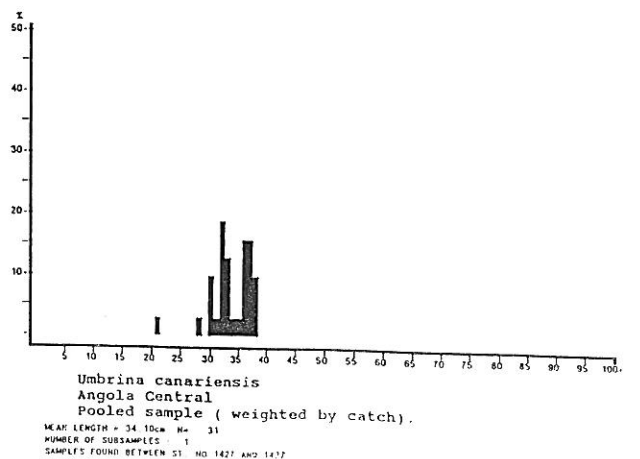
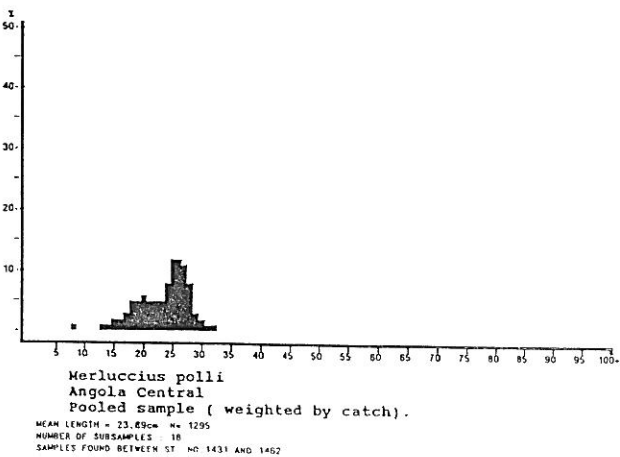
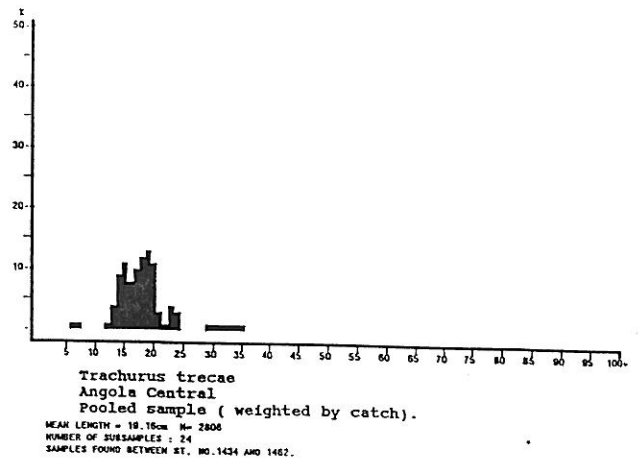
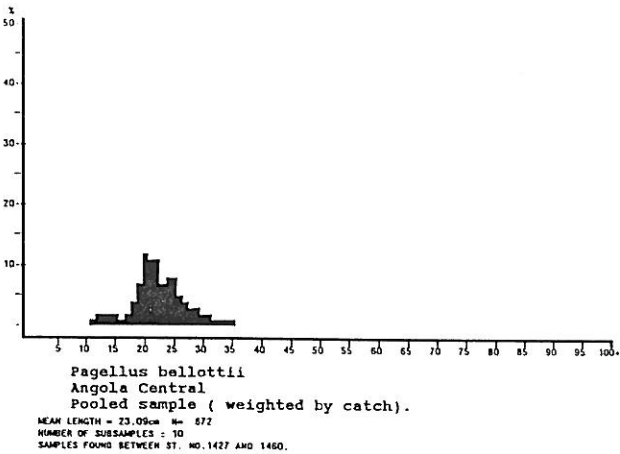
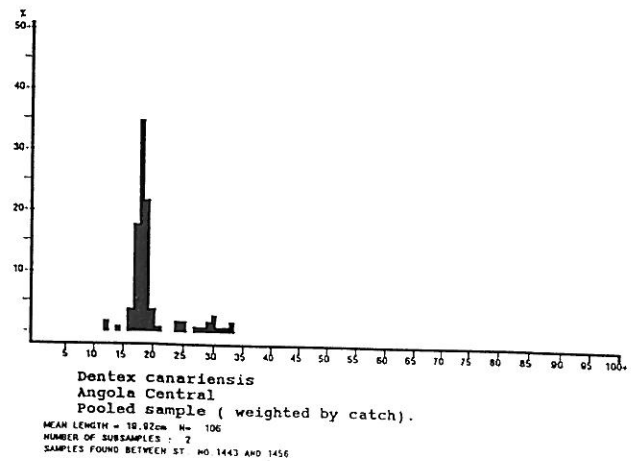
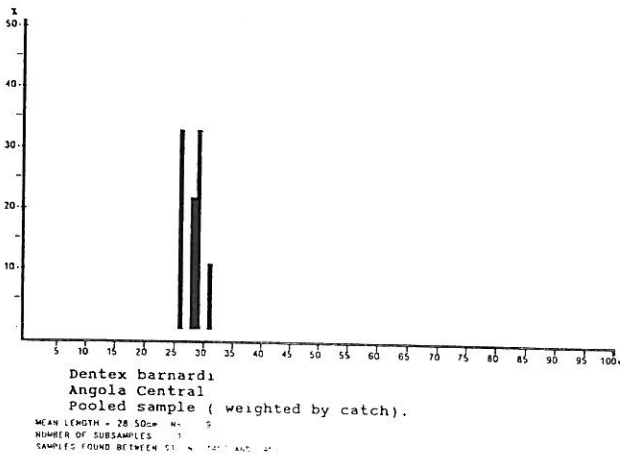
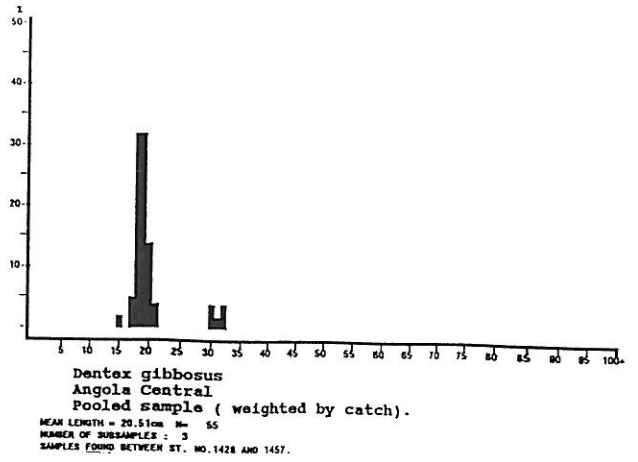
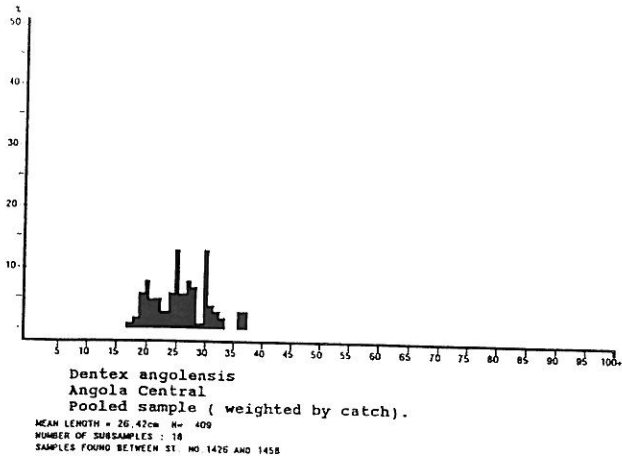
Umbrina canariensis
Angola North
Pooled sample (weighted by catch).
MEAN LENGTH = 30.77cm N= 203
NUMBER OF SUBSAMPLES : 4
SAMPLES FOUND BETWEEN ST. NO.1408 AND 1418.

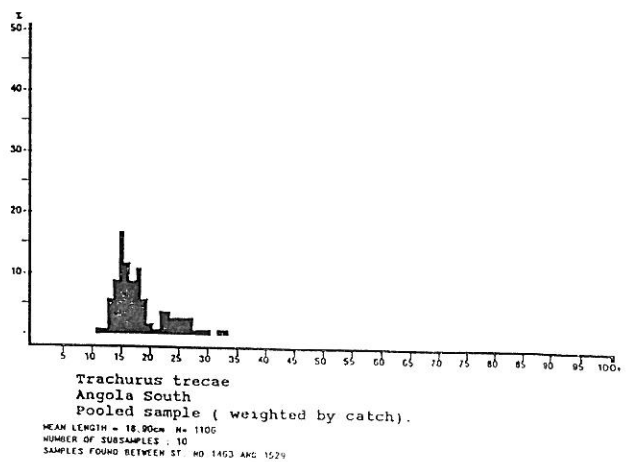
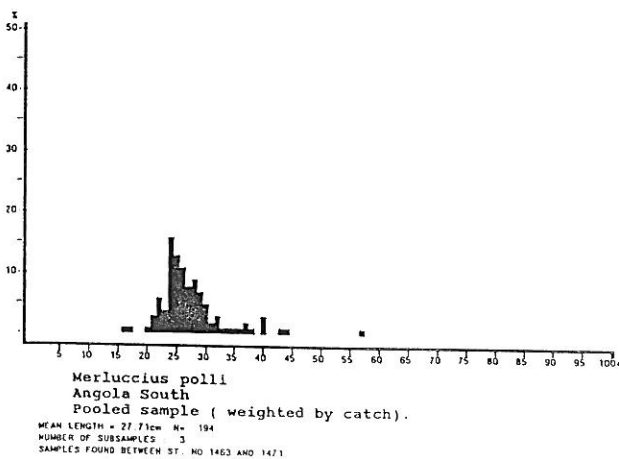
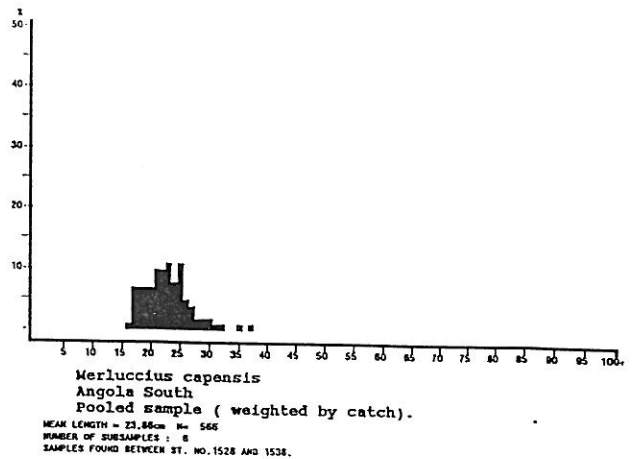
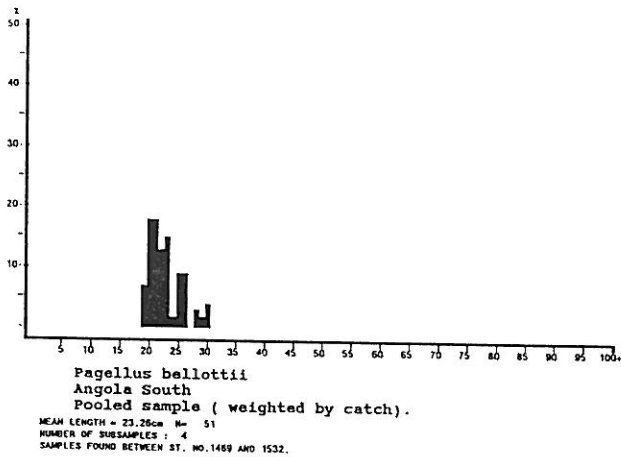
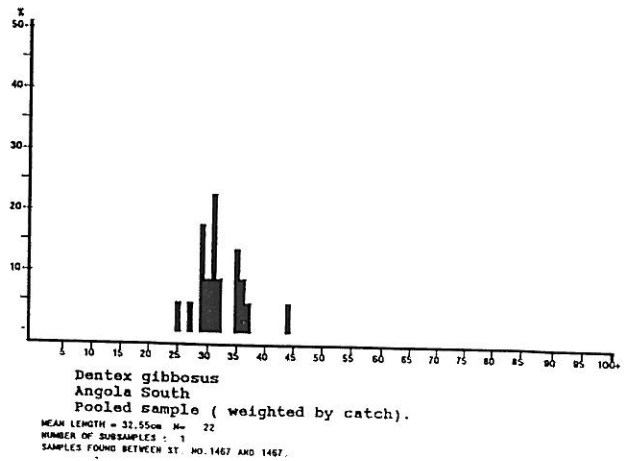
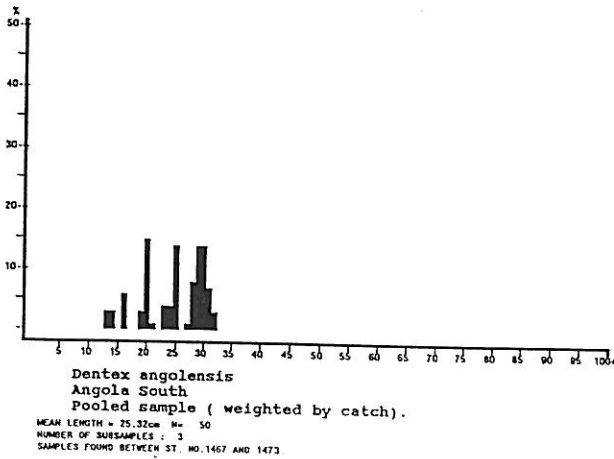
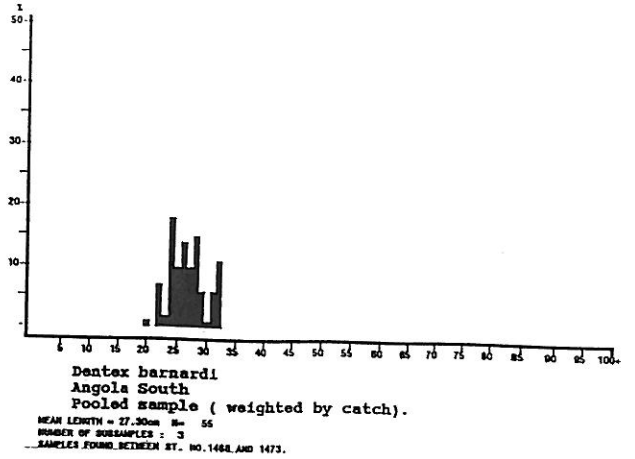
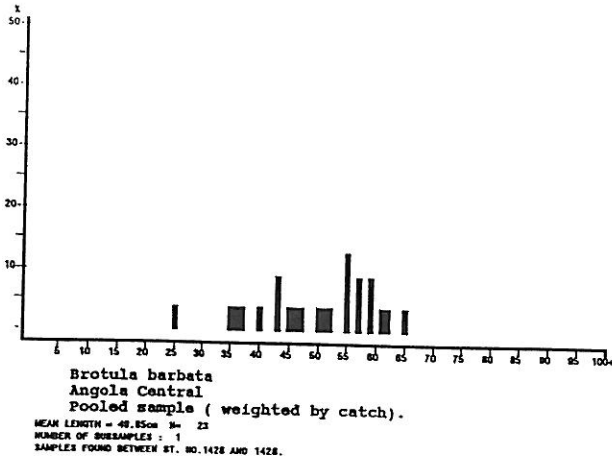


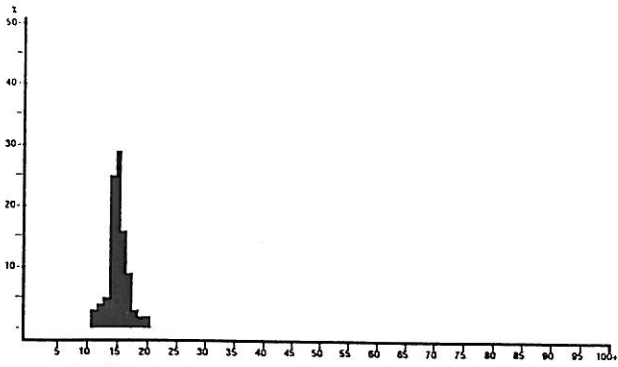
Trachurus trecae
Angola North
Pooled sample (weighted by catch).
MEAN LENGTH = 16.53cm N= 1414
NUMBER OF SUBSAMPLES : 10
SAMPLES FOUND BETWEEN ST. NO.1403 AND 1425.



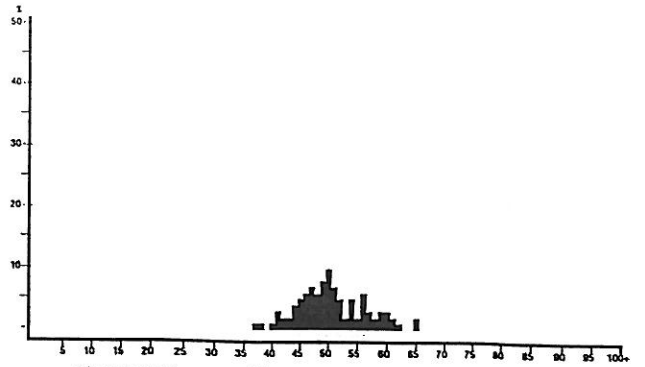
Erythrocles monodi
Angola North
Pooled sample (weighted by catch).
MEAN LENGTH = 22.07cm N= 175
NUMBER OF SUBSAMPLES : 7
SAMPLES FOUND BETWEEN ST. NO. 1414 AND 1414.



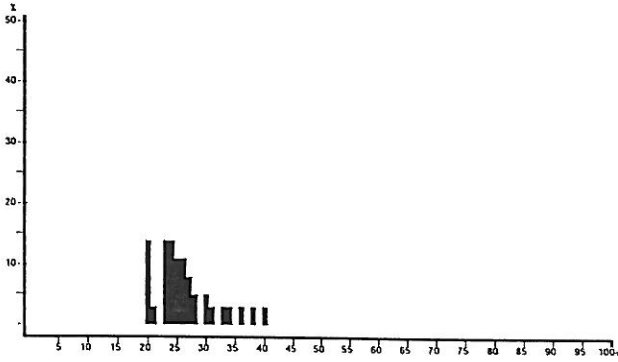




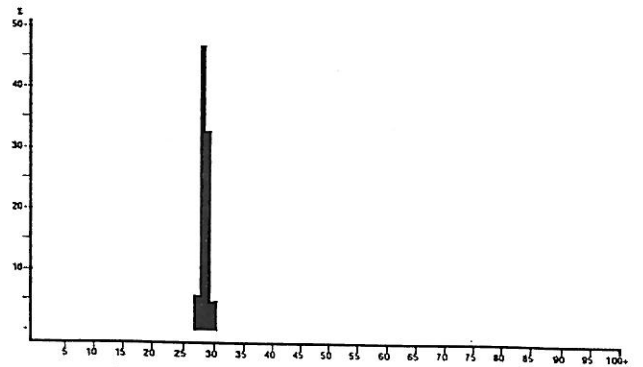
Trachurus capensis
Angola South
Pooled sample (weighted by catch).
MEAN LENGTH = 15.84cm N= 1827
NUMBER OF SUBSAMPLES : 11
SAMPLES FOUND BETWEEN ST. NO.1470 AND 1537.



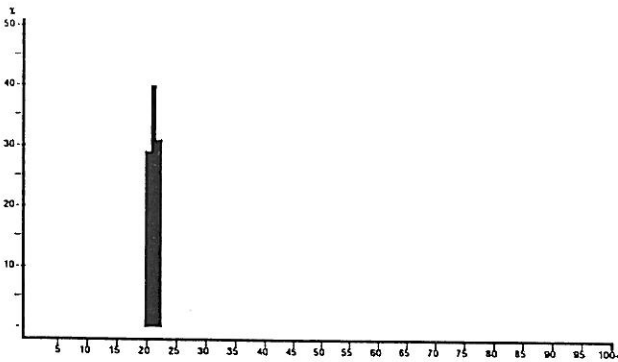
Atractoscion aequidens
Angola South
Pooled sample (weighted by catch).
MEAN LENGTH = 50.83cm N= 83
NUMBER OF SUBSAMPLES : 4
SAMPLES FOUND BETWEEN ST. NO.1470 AND 1473.



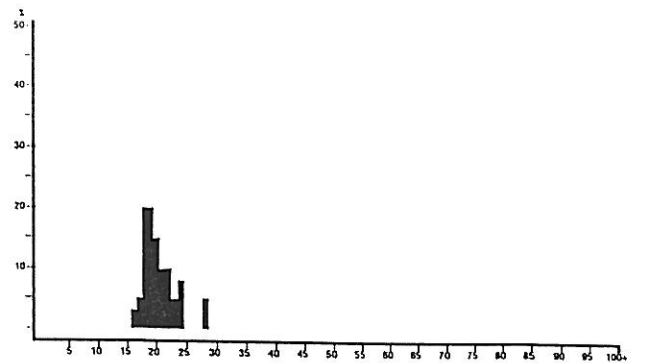
Umbrina canariensis
Angola South
Pooled sample (weighted by catch).
MEAN LENGTH = 26.69cm N= 37
NUMBER OF SUBSAMPLES : 1
SAMPLES FOUND BETWEEN ST. NO.1464 AND 1464



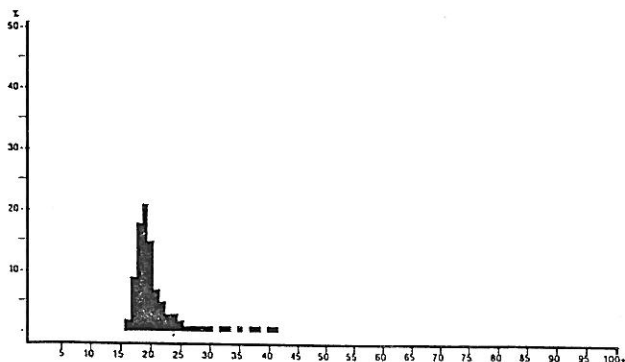
Scomber japonicus
Angola South
Pooled sample (weighted by catch).
MEAN LENGTH = 28.87cm N= 84
NUMBER OF SUBSAMPLES : 1
SAMPLES FOUND BETWEEN ST. NO.1472 AND 1472



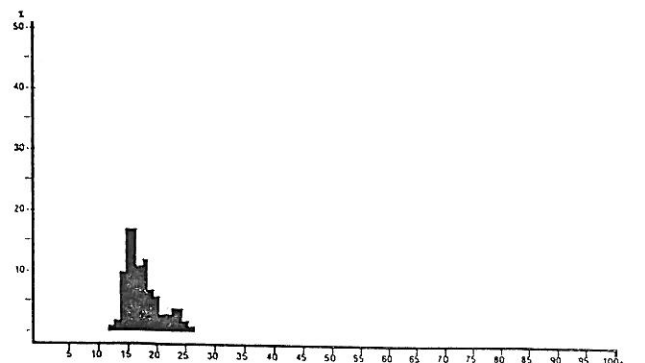
Etrumeus whiteheadi
Angola South
Pooled sample (weighted by catch).
MEAN LENGTH = 21.52cm N= 45
NUMBER OF SUBSAMPLES : 1
SAMPLES FOUND BETWEEN ST. NO.1473 AND 1473.



Merluccius paradoxus
Namibia North
Pooled sample (weighted by catch).
MEAN LENGTH = 20.80cm N= 40
NUMBER OF SUBSAMPLES : 1
SAMPLES FOUND BETWEEN ST. NO.1476 AND 1476.



Merluccius capensis
Namibia North
Pooled sample (weighted by catch).
MEAN LENGTH = 21.99cm N= 4425
NUMBER OF SUBSAMPLES : 47
SAMPLES FOUND BETWEEN ST. NO.1474 AND 1526



Trachurus capensis
Namibia North
Pooled sample (weighted by catch).
MEAN LENGTH = 18.07cm N= 4197
NUMBER OF SUBSAMPLES : 39
SAMPLES FOUND BETWEEN ST. NO.1474 AND 1525

ANNEX V Catch rates of commercially important demersal resources

Angola north

SHELF 50 - 200 m

Station	Depth	Sparids	Merluccidae	Carangidae	Croakers	Cephalopods	Other
1413	71	73.6		31.6	92.8	17.8	239.9
1425	82	9.6	0.6	72.0	30.2	9.6	152.1
1407	84	73.5				6.6	67.8
1418	91	87.2		160.0	58.4	17.6	258.2
1419	105	10.7	1.1	529.1	12.2	91.3	130.4
1420	114	173.2		317.8	113.6	14.6	99.1
1408	115	124.5		1693.4	3122.3		411.4
1417	125	116.1		188.5	29.5	16.3	57.1
1409	134	249.0		212.1	33.9	41.8	137.8
1423	143	227.1		11.0	27.7	8.5	1218.6
1412	160	33.5		26.3	18.6	7.8	191.8
1416	184	26.0	190.5		7.6	3.0	3599.2
MEAN		100.3	16.0	270.2	295.6	19.6	546.9

SLOPE 200 - 350 m

Station	Depth	Sparids	Merluccidae	Carangidae	Croakers	Cephalopods	Other
1411	212	127.0	30.8	76.0	5.0	39.6	204.0
1421	277		151.2	5.6		3.2	613.2
1422	292		262.3			1.4	207.4
1415	349		286.8				594.1
1410	357		287.8			2.8	256.6
MEAN		25.4	203.8	16.3	1.0	9.4	375.1

Angola central

SHELF 50 - 200 m

Station	Depth	Sparids	Merluccidae	Carangidae	Croakers	Cephalopods	Other
1443	49	66.2	1.4	162.9	44.2	26.9	335.3
1427	61	189.2		89.3	239.8	13.0	355.1
1460	66	213.4	3.3	427.9	96.8		115.1
1447	68	194.0	4.5	235.5	3.0	9.0	615.9
1437	69	83.7	8.0	120.1	23.7	7.9	381.9
1429	73	118.0		364.4	192.8		152.3
1456	76	217.4		1920.0			124.2
1436	82	82.5	3.1	1046.1	109.3	1.5	359.0
1457	83	128.3		697.2	49.0	16.1	45.1
1428	93	91.0	6.6	34.2	37.4		328.0
1450	95	430.1	0.7	720.0	42.7	18.7	344.8
1461	100	895.7	40.9	833.2	23.7	2.4	452.6
1442	102	89.3	2.7	1709.1	16.2	5.4	371.3
1455	108	665.1		2536.5	91.2		111.9
1430	110	32.0	6.9	313.5	96.9	21.6	230.6
1462	110	78.8	5.0	143.2	0.1	11.1	6.5
1444	114	42.7		145.0		2.5	69.6
1438	116	46.1		1452.0	70.1	4.8	229.3
1426	129	113.2		13.0	75.4	1.0	262.1
1448	146	640.8	139.2	128.4		1.4	303.8
1441	159	40.9	64.8	1016.4		37.7	517.4
1435	167	29.6	1311.4	481.4	21.2	6.8	820.2
1445	176	1482.8	144.5	1012.8	6.7	16.7	1328.5
1431	180	35.0	192.8	0.3		5.1	827.0
1451	191	1967.0	198.3	27.5	7.2	4.4	728.0
MEAN		318.9	85.4	625.2	49.9	8.6	376.6

SLOPE 200 - 350 m

Station	Depth	Sparids	Merluccidae	Carangidae	Croakers	Cephalopods	Other
1440	200	239.2	12.0	117.6	22.8	10.8	492.0
1454	202	841.3	264.0	53.3		8.9	300.6
1458	202	2251.4	144.5	18.9	69.4	11.8	347.5
1439	206	54.8	212.5	11.9	83.3	10.2	842.4
1432	219	45.4	104.8			4.0	153.6
1434	219	24.2	173.8	314.6	2.6	5.7	1188.8
1453	253	21.8	36.0	0.8		3.2	214.4
1449	254	454.8	1130.0	158.0		2.8	361.2
1459	270	116.2	11.2			18.2	779.3
1452	276	21.8	37.8	8.4	29.4	1.5	832.3
1433	291		21.6			3.6	438.7
1446	317		450.0	4.8		5.2	367.2
MEAN		339.2	216.5	57.4	17.3	7.2	526.5

Angola south

SHELF 50 - 200 m

Station	Depth	Sparids	Merluccidae	Carangidae	Croakers	Cephalopods	Other
1528	57	142.8	285.6	1883.6		10.2	17.0
1535	64		9.2	6620.5			4.9
1529	76	2222.8	1172.8	2450.2	31.7		67.9
1472	82	40.1		2247.5	1607.4		892.3
1530	88			11925.4			44.1
1468	89	3156.8		436.0	2109.6		101.5
1473	97	1627.7		1171.9	308.9		208.3
1464	100	863.2		3657.7	517.0	65.0	94.3
1536	111	209.4	134.9	369.2		0.9	2.4
1533	112	858.7	438.9	988.4			1032.0
1527	116	822.6	7.2	50.4	118.8	1.8	162.9
1467	117	170.0		956.4	24.6	5.5	40.8
1469	121	1961.5		2382.1	202.4		66.5
1532	123	1816.6	17.3	140.4	21.6		177.6
1470	126	3312.6		1165.3	849.5		890.5
1466	128	84.0		461.4	6.6	9.6	13.9
1537	175	92.1	441.0	2021.4			898.5
1531	189	423.6	89.4	2813.2	85.8	5.7	1645.3
MEAN		989.1	144.2	2318.9	326.9	5.5	353.4

SLOPE 200 - 350 m

Station	Depth	Sparids	Merluccidae	Carangidae	Croakers	Cephalopods	Other
1463	232	1815.7	332.1	65.1	182.4	12.0	1017.9
1471	277	4602.0	714.0	21.0	202.1		1346.6
1465	314	113.3	504.0			1.8	456.9
MEAN		2192.2	641.8	29.2	128.2	4.6	1115.0

Namibia north

SHELF 50 - 200 m

Station	Depth	Sparids	Merluccidae	Carangidae	Croakers	Cephalopods	Other
1494	60		504.0	24.0	34.3	3.0	555.4
1476	67		223.7	11557.6	30.5		349.7
1507	72		434.4	79.2	108.4	2.4	401.9
1484	76		32.8	3441.2			
1519	82	18.3	28.8	2223.6	5.1		108.3
1477	83	11.6	224.0	2364.9		29.9	157.2
1523	89		62.7	1528.8			3.9
1506	104		636.0	1857.0			23.4
1493	115		667.8	1668.8			765.0
1478	116	930.0	231.0	534.8			107.6
1483	116		1386.0	1139.6	1498.1	32.0	57.6
1522	129	3.5	251.2	1358.3			437.3
1485	130		390.2	1416.0			
1495	130		3710.0	1710.0			245.7
1475	131	19.8	11.3	1119.3		2.3	26.0
1492	149	25.9	1413.6	8073.3			398.9
1524	151	183.6	375.0	971.3		6.5	267.0
1518	156	104.7	3952.8	550.8			2.2
1505	164	8.3	1662.6	742.9		25.1	1.0
1479	169	811.9	240.0	555.0			326.9
1497	175		2315.1	1421.3			84.7
1486	179		1292.0	4231.1			
1521	180	737.4	492.8	395.8			33.2
1510	184	2.6	859.3	722.1			16.8
1504	195		1594.9	479.4		3.4	22.4
1491	199		210.1	1269.3			106.4
MEAN		109.9	892.4	1978.3	64.5	4.0	173.0

SLOPE 200 - 350 m

Station	Depth	Sparids	Merluccidae	Carangidae	Croakers	Cephalopods	Other
1511	213		72.3	82.4			0.4
1525	219	1256.8	937.5	2051.3		49.1	91.5
1482	225	6.2	1875.8	1869.6			3.1
1498	226		368.7	150.8			3.5
1517	228		313.9	310.5	47.6		9.5
1503	242		12.6	175.0			0.6
1514	252		3.5	3.7		1.6	1.4
1490	260	50.8	1822.4	470.3			11.8
1512	261		21.6	1.9			
1487	263		65.3			0.2	8.2
1480	264	344.9	3941.4	227.9	58.5		866.5
1499	283	1.2	200.4				26.2
1502	284	33.4	264.8			4.8	144.1
1516	286	224.8	2408.8	335.0			1691.8
1489	295	50.4	3702.6				38.9
1520	299	25.8	1206.9	16.2			1227.9
1474	300	30.0	1894.2	4.2	54.6		636.7
1515	312	27.0	1196.6	637.6		24.8	2087.8
1526	313	55.8	2225.1	11.1			1362.0
1501	319	2.0	282.0			0.9	165.0
1481	325	12.1	146.0	4.2			383.3
1500	335		189.2	1.6		3.0	324.8
1513	336	5.8	244.2	16.2		4.0	340.2
1488	366		250.8			2.2	562.1
MEAN		88.6	985.3	265.4	6.7	3.8	416.1

ANNEX IV Food and feeding habits of large-eye dentex in Angolan and Namibian waters

INTRODUCTION

The large-eye dentex is largely distributed along the Angolan and Namibian coast, and is one of the most important demersal fish in the Angolan fisheries. This study has covered all the distributional area of this species, with emphasis on the area of higher concentration, in order to define the food and feeding habits by regions and depth strata.

MATERIAL AND METHODS

A total of 511 stomachs were collected and analysed during "Dr. Fridtjof" Nansen survey in Angolan and Namibian waters, from 6th of August to 4th of September 1997.

Each fish was measured for total length and body weight to the nearest 0.1 cm and g respectively. The stomach was then removed, opened and each item was identified, measured and weighed. The number of empty stomachs was also recorded.

The food items were categorized into major taxonomic groups. The data were analysed by a combination of numerical, frequency of occurrence and gravimetric methods in order to minimize bias typical of each method. The index of relative importance (IRI) was computed following the method proposed by George and Hadley (1979) as follows:

$$IRI = 100(AI/\Sigma AI),$$

where AI = % frequency of occurrence + % total number + % total weight.

Table I. Summary of food constituents in 511 feeding *Dentex macrophthalmus* fish expressed by numerical, frequency of occurrence and gravimetric methods. The index of relative importance (IRI) is also shown.

Food item	Numerical		Frequency		Gravimetric		RI
	n	%	F	%	Wt	%	RI
Polychaeta	55	4.5	42	12.57	0.157	9.17	8.7
Euphauseacea	809	65.77	77	23.10	0.271	15.82	34.9
Not identified fish	202	16.42	135	40.42	0.362	21.13	26
Not identified shrimp	147	11.95	67	20.06	0.174	10.16	14.1
Fish larvae	11	0.89	7	2.1	0.048	2.80	1.9
Cephalopoda	4	0.33	4	1.1	0.629	36.72	12.7
Squillidae	2	0.16	2	0.6	0.072	4.2	1.7
No. of fish examined= 511		No. with food =326 (63.8%)					

n=number; F= frequency of occurrence; Wt= weight per fish (g).

Table II. Quantitative analysis of stomach content and mean consumption of *Dentex macrophthalmus* of different length groups

Length group (cm)	Number examined	Mean fish weight (g)	Mean stomach content (g)	Mean consumption (g food/g food)
10-14	9	42.0	0.137	0.0032
15-19	101	91.0	0.219	0.0024
20-24	234	183.4	0.243	0.0013
25-29	152	241.0	0.266	0.0011
30-34	15	454.7	0.521	0.0011

RESULTS

FOOD AND FEEDING HABITS

Table I summarizes the food composition. Only 185 (36.2%) of the 511 fish examined had empty stomachs. Numerically, Euphauseacea contributed with 65.8% of all food items, fish and shrimps with 16.4% e 11.95% respectively. The occurrence of Euphausiacea, however, was only 23.1% compared with 40.4% for fish. Gravimetrically, Fish constituted 21.1% of all food items. Values of the index of relative importance show that Euphauseacea are the main food items in *D. macrophthalmu*, followed by Fish and Shrimps.

FEEDING IN RELATION TO FISH SIZE

The predators were grouped in five length sizes from 10 to 34 cm in total length. The quantitative analysis of the stomach food content of the five length sizes is summarized in Table II. The mean consumption rate (g food/g fish) decreased with increasing length size.

a. Angolan waters

Table III summarizes the percentage composition of food in the different length groups. The data show that Polychaeta are the most important food item in the first size group based on occurrence and Fish become more important in older fish. The importance is balanced between Fish, Shrimps and Cephalopods in length group V.

Table IV summarizes the indices of relative importance. Polychaetes appear to be the more important in the first group, while Fish is the more important for all older groups.

b. Namibian waters

Table V summarizes the percentage composition of food in the different length groups. Based on occurrence the data show that Polychaetes are more important in length group II, while Euphauseacea in V, but showing a balanced importance in length groups III and IV. Fish were more important in the length group IV.

Table VI summarizes the indices of relative importance. According to the relative importance, Euphauseacea were more important in all length groups, except the group II occupied by Polychaetes (66%).

FEEDING IN RELATION TO DEPTH

Table VII. Items found by depth (50-150 m, 150-350 m) in Angolan waters

50-150 m (No.157)					150-350 m (N.128)				
	N%	F%	W%	IRI		N%	F%	W%	IRI
Polychaetes	3.0	4.4	2.1	3.2	Polychaete	26.1	15.6	11.5	17.7
Euphauseacea	15.9	4.4	2.1	7.5	Euphauseacea				
Fish larvae	3.8	4.4	4.7	4.3	Fish larvae				
Cephalopoda	2.3	3.3	8.3	4.6	Cephalopoda	13.0	0.5	23.8	14.5
Fish	62.1	75.8	56.8	65.0	Fish	8.7	51.9	38.0	32.9
Shrimps	12.1	6.6	22.0	13.6	Shrimps	50.0	24.7	24.0	32.9
Squillidae	0.8	1.1	4.1	2.0	Squillidae	2.2	13.0	2.7	2.0

a. Angolan water

Table VII shows the percentage composition of food in different strata. The stratum between 50 and 150 m of depth presented a higher number of items eaten by large-eye Dentex. Fish were dominant with a higher index of relative importance (65%). Euphauseacea and fish larvae were not found between 150-350 m of depth, while Fish and Shrimps dominated the stratum with the same index of relative importance, followed by polychaetes.

Table VII. Items found by depth (50-150 m, 150-350 m) in Namibian waters

50-150 m (No.52)					150-350 m (No.174)				
	N%	F%	W%	IRI		N%	F%	W%	IRI
Polychaetes	18.7	53.3	52.0	41.3	Polychaetes	5.7	23.9	13.3	14.3
Euphauseacea	80.3	40.0	27.9	49.4	Euphauseacea	72.0	24.6	15.6	37.4
Fish	0.7	4.4	18.0	7.7	Fish larvae	1.3	3.5	5.8	3.7
Fish larvae					Fish	4.9	22.5	46.6	24.7
Shrimps	0.3	2.2	2.0	1.5	Shrimps	16.1	25.4	18.8	20.1

b. Namibian waters

Table VIII shows the items found by depth strata in Namibian waters. Polychaetes and Euphauseacea are the main items between 50-150 m of depth. Euphauseacea was dominant in occurrence (53.3%), and Polychaetes in relative importance (49.4%). In the strata between 150-350 m, Euphauseacea was also dominant in its relative importance, but showed a balanced occurrence with Shrimps, Polychaetes and Fish.

Angolan waters

Table III. Percentage composition of food in the different length groups of *Dentex macrophthalmus*

Length group and No	I (4)			II (30)			III (137)			IV (102)			V (12)		
	N	F	W	N	F	W	N	F	W	N	F	W	N	F	W
Polychaeta	28.6	66.7	69.2	4.8	11.1	12.1	8.6	9.2	21.1	5	6.8	10.5			
Euphausiacea	71.4	33.3	30.8	52.4	11.1	4.6	6.7	1.1	1.7						
Shrimps				4.8	5.6	22	19	19.5	30.7	15	15.9	13.4	44.4	28.6	9.3
Fish				38.1	72.2	60.7	60	64.4	42	76.7	72.7	64.1	22.2	28.6	47.8
Squillidae							1	1.1	2.6				11.1	14.3	4.4
Fish larvae							4.8	4.6	2.6						
Cephalopoda										3.3	4.5	11.9	22.2	28.6	38.5

N=numerical %, F=percentage frequency of occurrence, W=percentage of total weight.

I= 10-14cm, II= 15-19cm, III= 20-24cm, IV= 25-29cm, V= 30-34cm.

Table IV. Relative importance of different items in fish of different length groups

Length group	I	II	III	IV	V
No. examined	4	30	137	102	12
Polychaeta	54.8	9.3	13	7.4	
Euphausiacea	45.2	22.7	3		
Shrimps		11	23.1	14.8	27.4
Fish		57	55.4	71.1	32.9
Squillidae			1.6		9.9
Fish larvae			4		
Cephalopoda				6.6	29.8

Namibian waters

Table III. Percentage composition of food in the different length groups of *Dentex macrophthalmus*

Length group and No	I (5)			II (71)			III (75)			IV (68)			V (7)		
	N	F	W	N	F	W	N	F	W	N	F	W	N	F	W
Polychaeta				50	78.7	69.2	10	27.2	27.3	0.7	29.7	24.8			
Euphausiacea	83.3	50	85.7	47.1	19.1	28.2	79.5	27.9	17.1	71.4	25.7	41.9	81	66.7	57.1
Shrimps	16.7	50	14.3	2.9	2.1	2.6	4.7	18.5	37.8	21.8	40.5	29	19	33.3	42.9
Fish							4.5	23.5	12.1	6.1	29.7	24.8			
Squillidae															
Fish larvae								1.3	3.7	5.7					
Cephalopoda															

N=numerical %, F=percentage frequency of occurrence, W=percentage of total weight.

I= 10-14cm, II= 15-19cm, III= 20-24cm, IV= 25-29cm, V= 30-34cm.

Table IV. Relative importance of different items in fish of different length groups

Length group	I	II	III	IV	V
No. examined	5	71	75	68	7
Polychaeta		66	21.5	3.1	
Euphausiacea	73	31.5	48.2	46.3	68.3
Shrimps	27	2.5	13.4	30.4	31.7
Fish			13.4	20.2	
Squillidae					
Fish larvae			3.6		
Cephalopoda					