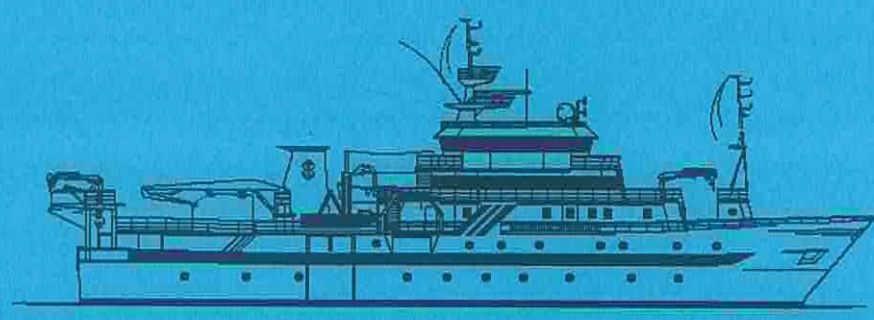


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CRUISE REPORTS 'DR. FRIDTJOF NANSEN'



SURVEYS OF THE FISH RESOURCES OF ANGOLA

Cruise Report No 1/95

Survey of the pelagic and demersal resources

27 February to 2 April 1995

**Institute of Marine Research
IMR, Bergen**

**Institute of Fisheries Research
IP, Luanda**

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27 February to 2 April 1995**

by

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CHAPTER 1 INTRODUCTION

1.1 Objectives

The objectives of the survey had been previously agreed upon with the Director of the Instituto de Investigação Pesqueira (IIP). These can be summarized as follows:

- To map the distribution and estimate the abundance of the commercially important pelagic and semi-pelagic fish species in Angolan waters, north of Benguela, including the two sardinella species *Sardinella aurita* and *S. maderensis*, the Cunene horse mackerel *Trachurus trecae* and other pelagic species, mainly carangids.
- To estimate the biological condition of sardinella and Cunene horse mackerel, length weight relationships and reproductive stages.
- Describe the distribution, composition and abundance of major demersal species, with special emphasis on sea breams (Sparidae), Benguela hake (*Merluccius polli*) and deep-water shrimps (*Parapenaeus longirostris* and *Aristeus varidens*), from Cabinda to Benguela by a swept-area trawl programme.
- Perform comparative trawling with RV 'Goa' on the shelf.
- Collect stomach samples of Benguela hake for later quantitative laboratory analysis of the contents, with special emphasis on economically important shrimps (this study will be carried out by an Angolan student now participating in a M. Phil. course at the University of Bergen).
- Map the general hydrographic regime by using a CTD-sonde on all trawl stations all over the survey area and monitor the temperature, salt and oxygen on IIP standard profiles for hydrographical studies.
- Conduct current measurements with current meter mooring and ADCP system.
- On-the-job training for the Angolan participants on the main survey routines would be imparted, including collection and processing of raw data, species identification, utilization of the programme package NAN-SIS and general methodology in oceanographic research.

The northern region, from Cabinda to Luanda, would be covered by a combined acoustic and bottom trawl survey, since low concentrations of pelagic fish are expected at this time of the year in the northern region. The central area, from Luanda to Benguela would be covered twice, by an acoustic coverage (Luanda-Benguela) and by a demersal survey (Benguela-Luanda) of the shelf and of the upper slope.

1.2 Participation

The scientific staff consisted of:

From IIP, Angola:

Geraldina Assunção, Bomba Bazica, António Bucu, Lourenço Constança, Ana de Sousa, Pedro Panzo, Domingos Pedro (from 26 February to 9 March); Isabel Araújo, Tomatima Bengui, Manuel Domingos, Kumbi Kilombo, Eusébio dos Santos, Agostinho Duarte, Fernando Gombo, Filomena Vas Valho (from 11 March to 2 April).

From IMR, Bergen:

Oddgeir Alvheim (from 26 February to 24 March), Jarle Kristiansen, Bjarte Kvinge, Diana Zaera (from 26 February to 2 April); Guillermo Burgos (from 26 February to 9 March); Gabriella Bianchi and Tor Gammelsrød (from 11 March to 2 April).

1.3 Narrative

The vessel left Luanda in the morning of 26 February and steamed northwards to Cabinda. The sampling programme commenced north of the Congo River outside the closed oil-drilling area with course tracks approximately 20 nm apart, covering the inner, middle and the outer shelf and the slope to 800 m depth. Semi-random swept-area hauls were carried out on the shelf during daytime and on the slope deeper than 400 m during dark hours. CTD-stations were taken at almost all trawl stations. The standard profiles (Cabinda, Pta. da Moita Seca and N'Zeto) coincided with the corresponding survey transects. When shoals of pelagic fish were observed, the distance between the transects was decreased to obtain a better coverage. On 4 March we met RV 'Goa' near N'Zeto in order to perform comparative trawling. Unfortunately these trials had to be disrupted due to breakdown of a generator onboard the RV 'Goa'.

The vessel called at Luanda on 9 March for change of crew. On 11 March the second part of the survey started with an acoustic coverage of the pelagic resources between Luanda and Benguela. The course track consisted of systematic triangular transects, their endpoints about 10 nautical miles apart. This distance was however smaller (to about 5 nautical miles) in correspondence with narrower parts of the shelf. In areas where high concentrations of pelagic fish were detected, surveying was conducted both during daytime and nighttime. CTD (Conductivity-Temperature-Depth) and ADCP (Acoustic Doppler Current Profiler) measurements were taken at every trawl station. From 18 to 19 March, a current meter mooring was deployed at 11°44' S and 13°26' E.

The pelagic survey terminated on 21 March off Benguela where the second coverage of the shelf and upper slope area of the central region started the same day. The course track was changed to transects perpendicular to the coast, about 15 nautical miles apart, running from about 20 to 800 m depth. A call was made in Lobito to disembark a member of the Norwegian crew on March 24. The survey was resumed immediately and ended on 2 April with the arrival in Luanda.

1.4 Survey effort

Figures 1a-c show the cruise tracks with fishing stations and the hydrographic profiles and Table 1 the number of hydrographic, pelagic and bottom trawl stations, successful swept-area hauls by area and depth interval.

Table 1 Number of hydrographic (CTD), pelagic (PT), bottom (BT) trawl stations, successful swept-area hauls and distance surveyed (nm) by area.							
Area	CTD	PT	BT	Swept-area hauls			Distance surveyed
				0-200m	200-400m	400-800m	
Cabinda-Luanda	78	10	77	37	19	19	1 400
Luanda-Benguela	65	40	7	–	–	–	1 620
Benguela-Luanda	59	6	87	44	20	23	3 198
Total	202	56	171	81	39	42	6 218

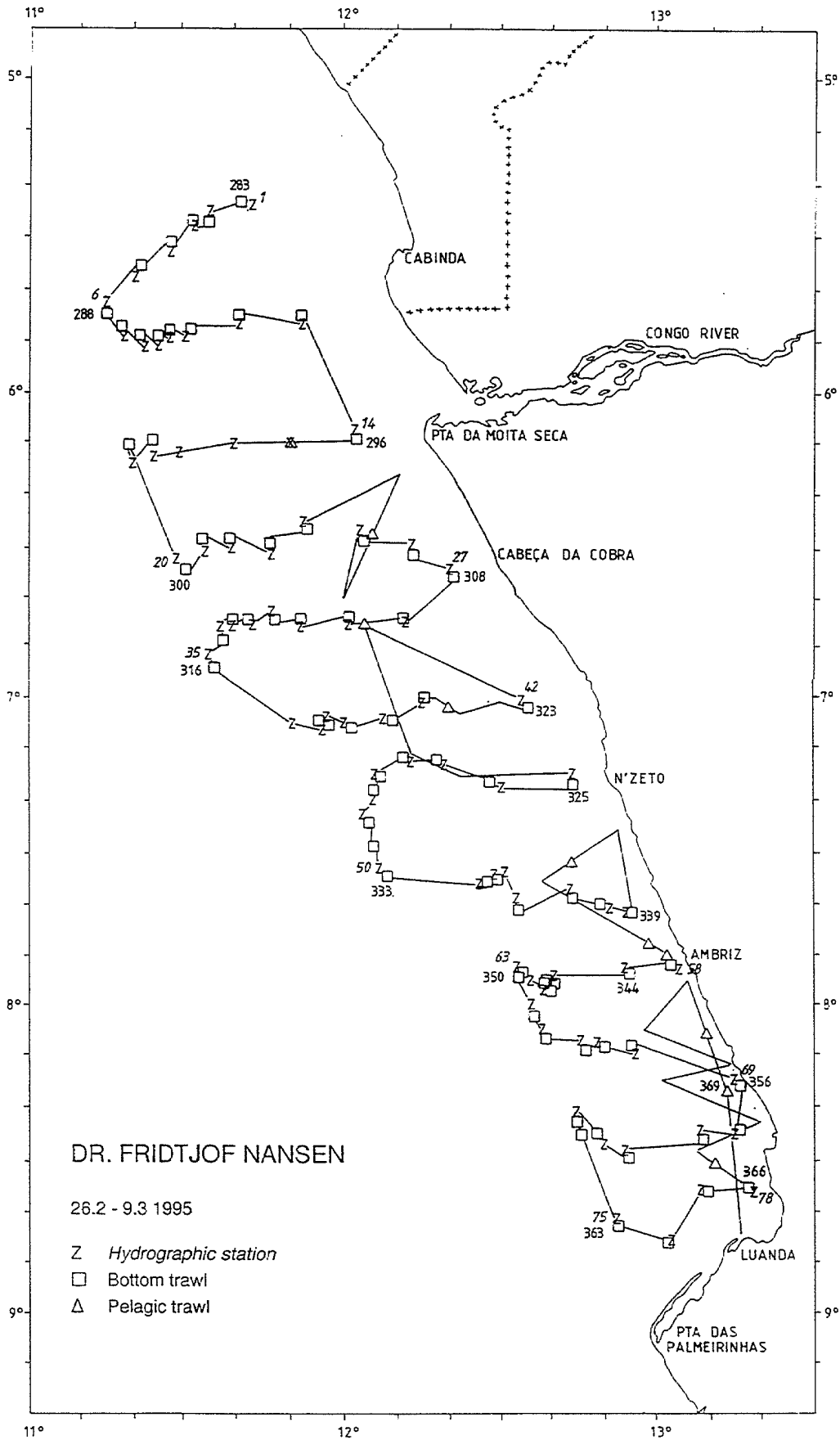


Figure 1a. Course track with fishing and hydrographic stations, acoustic and pelagic survey. Cabinda-Luanda.

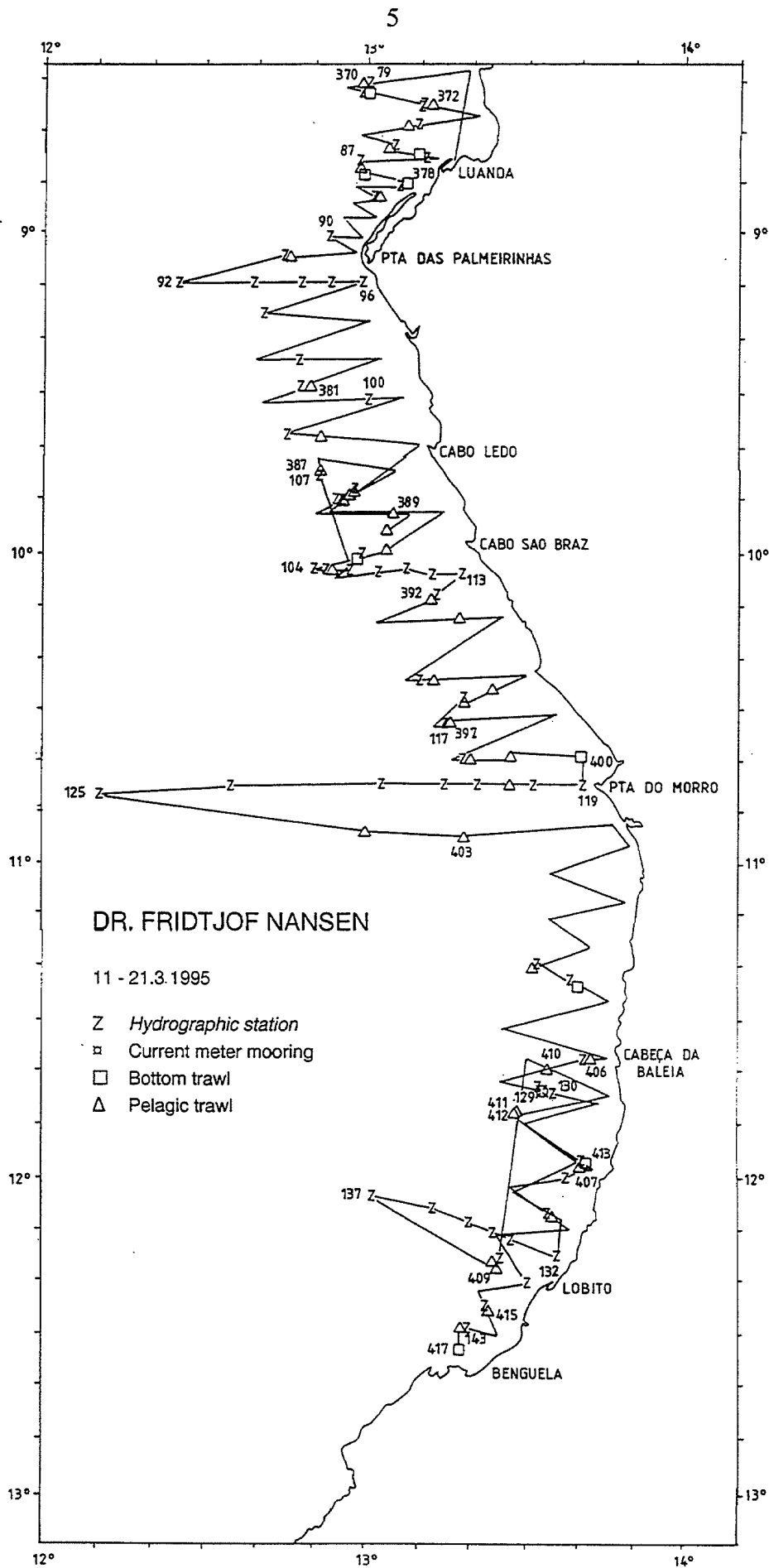


Figure 1b. Course track with fishing and hydrographic stations, acoustic survey. Luanda-Benguela.

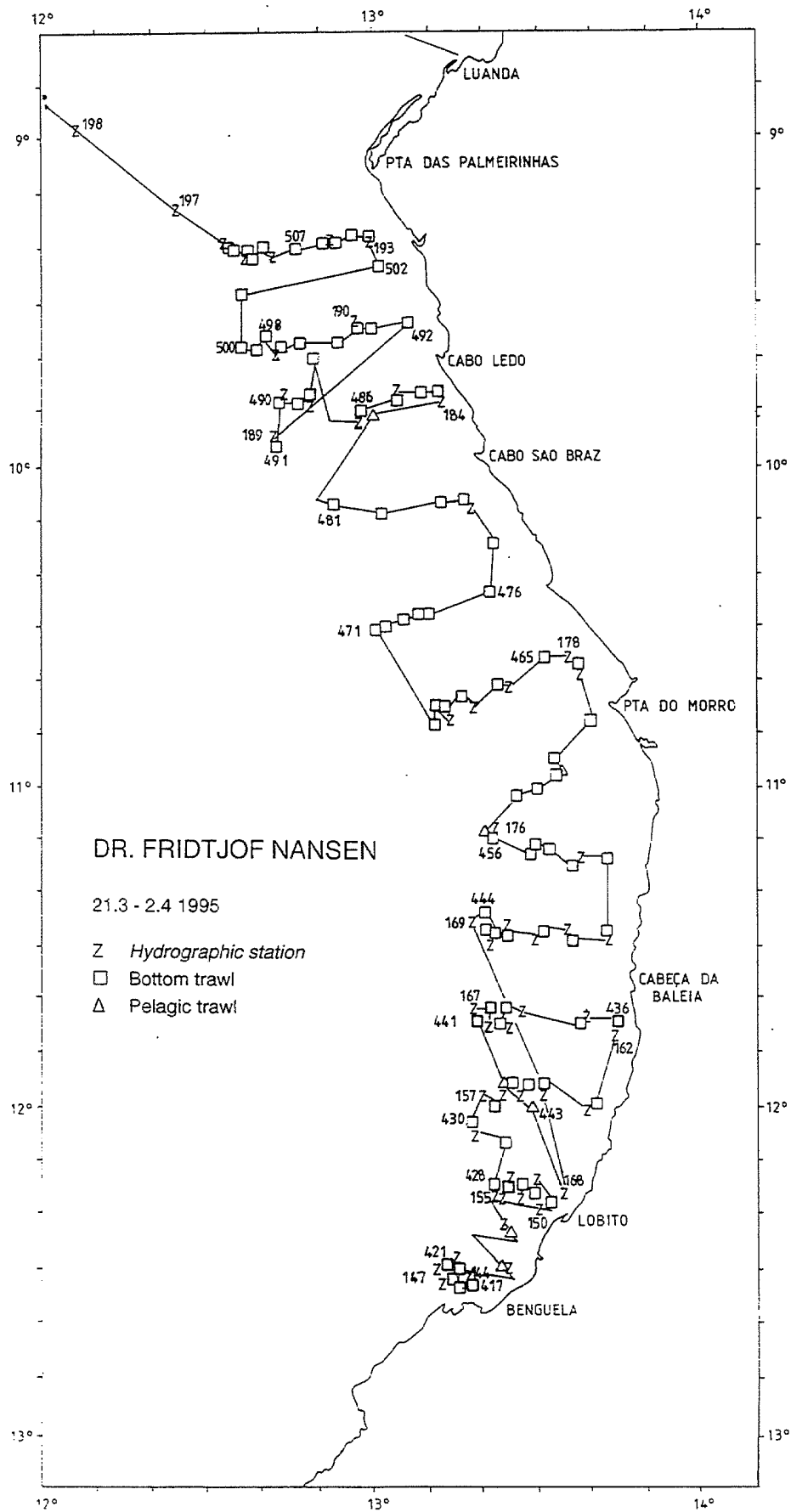


Figure 1c. Course track with fishing and hydrographic stations, bottom-trawl survey. Luanda-Benguela

CHAPTER 2 METHODS

2.1 Hydrographic sampling

A Seabird 911 CTD plus 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 taken down to a few metres above the bottom. Two Niskin bottles were triggered for water samples on each station, one near the bottom and one near the surface (3 m depth). The samples were analysed for salinity using a Guildline Portasal salinometer, and the oxygen content was determined using the Winkler method. These laboratory values were used for calibration of the CTD after removing obvious outliers.

Using 173 points for the salinity calibration a standard error of 0.029 resulted, without any adjustment of the CTD values. This was accepted. It should be noted that a better calibration may be obtained using only the bottom samples, where the gradients in T and S are usually smaller.

For oxygen 64 samples were accepted for the calibration. A linear regression gave the following formula for correcting the oxygen values:

$$O_f = O_{2\text{ctd}} * 1.329 + 0.207$$

Applying this formula a standard error of 0.141 was obtained.

Current meter mooring

A current meter rig consisting of 3 Aanderaa RCM7 current metres and a WLR8 pressure gauge was deployed for about 24 hours. Each current meter was equipped with pressure, temperature and conductivity sensors, thus allowing to calculate salinity. Furthermore, they also included a data Storing Unit, where data were stored with a 10 min. interval. The Data Storing Units were read by a DSU reader using a PC and the P3059 software supplied by Aanderaa Instruments.

ADCP current measurements

A ship born Acoustic Doppler Current Profiler (ADCP) from RD Instruments was activated on every trawl and CTD station where bottom tracking was obtained, i.e. bottom depths less than about 400 m. The ADCP was set to ping every 8 seconds, the depth cell was chosen to 8 m and the number of cells to 50. As a routine the data were averaged over 300 seconds for analyses onboard. Both the raw and averaged data were stored on files. The data were analysed by the PC software UMS (Underway Mapping System), supported by the Sea Fisheries Research Institute, Cape Town, South Africa (Zauner, 1993).

Meteorological observations

Wind (direction and speed), air temperature, global radiation and sea surface temperature (5 m depth) were logged automatically every nautical mile using an Aanderaa meteorological station.

Observations of internal waves

The echograms from the acoustic instruments for fish sampling were occasionally used to identify internal waves. Simultaneously CTD stations and visual observations of surface slicks were performed, such that the characteristics of the waves could be identified and compared with the theory.

2.2 Fish sampling

2.2.1 Acoustic survey

Abundance estimation

The catches were sampled for species composition, by weight and numbers. Biological samples, i.e. length and weight compositions were taken for the target species. Records of fishing stations are presented in Annex I.

A description of the acoustic instruments and their standard settings is given in Annex II. This also includes a description of the fishing gear used.

The following target strength (TS) function was applied to convert S_A -values (mean integrator value for a given area) to number of fish (pilchard, sardinella and Cunene horse mackerel):

$$TS = 20 \log L - 72 \text{ dB} \quad (1)$$

or in the form $C_F = 1.26 \cdot 10^6 \cdot L^{-2}$ (2)

where L is total length and C_F is the fish conversion factor. The following formula was used to calculate the number of fish in length groups (cm) for each fish concentration:

$$N_i = A \cdot S_A \cdot \frac{P_i}{\sum_{i=1}^n \frac{P_i}{C_{Fi}}} \quad (3)$$

where

- N_i = number of fish in length group i
- A = area (naut.miles²) of fish concentration
- S_A = mean integrator value in area (A)
- P_i = proportion of fish in length group i in samples from the area
- C_{Fi} = fish conversion factor for length group i

The number per length group (N_i) was then summed and the total number of fish obtained:

$$N = \sum_{i=1}^n N_i \quad (4)$$

The length distribution of a given species within an area was computed by weighting the length frequencies obtained in each trawl sample within the area by the average S_A value attributed to that species in the 5 mile where the sample was taken.

In the case of cooccurrence of *Sardinella aurita* and *S. maderensis* (these species cannot be separated in the echo traces), the respective contribution to the S_A value attributed to the 'sardinella' category was split using a factor obtained from their length frequency distributions and their CPUE in numbers. The biomass of fish per length group (B_i) was calculated by applying observed mean weights per length group (W_i) multiplied by number of fish in the same length

groups (N_i). The total biomass in each area was obtained by summing the biomass of each length group:

$$B = \sum_{i=1}^n N_i \bar{W}_i \quad (5)$$

The number and biomass per length group in each concentration were at last summed to obtain the totals for each region.

The mean integrator values in each sampling unit (S_A-values) were divided between the following categories of fish on the basis of trawl catches and characteristics of the echo traces:

- sardinella (*S. aurita* and *S. maderensis*)
- Cunene horse mackerel
- P2 (carangids, scombrids, barracudas and hairtails)
- Big eye grunt (*Brachydeuterus auritus*)
- other demersal fish
- plankton

Biological sampling

Total length and body weight were recorded for sardinella and horse mackerel to the nearest ½ cm or 1 g below, respectively. Sex and reproductive stages were described by macroscopic examination, scoring each individually sampled fish according to the following categories:

- 1 Juvenile
- 2 Inactive
- 3 Active
- 4 Ripe
- 5 Running/Spent

2.2.2 Bottom trawl survey

The catches were sampled for species composition by weight and numbers. Length distributions (total length for fish and carapace length for shrimp) were taken for the main species. Biological samples, i.e. length weight, sex and maturity stages, were taken for Benguela hake in connection with stomach

Table 2 Areas used in the swept-area biomass estimates (nm ²).		
Depth stratum (m)	Cabinda-Luanda	Luanda-Benguela
0-50	3 023	1 850
50-100	2 693	1 730
100-200	2 085	1 252
200-300	755	500
300-400	660	350
400-500	540	445
500-600	880	450
600-800	1 500	900

sampling. The records of fishing stations are presented in Annex I. Pooled length frequency distributions (weighted by the catch) of selected species by area, are shown in Annex II. Table 2 shows the areas used in the swept-area biomass estimates.

A stratified random design was used, with depth and main geographic regions (northern and central areas) as stratifying variables. The allocation of trawl stations was approximately proportional to the stratum size. Biomass estimates by species were obtained by summing the estimates calculated for each depth stratum. Confidence intervals were calculated for deep-water shrimp species only. For these species, the stratified variance was calculated as:

$$Var(\bar{y}_{st}) \approx \sum_{h=1}^L W_h^2 \left(\frac{s_h^2}{n_h} \right) \quad \text{where:} \quad W_h = \frac{A_h}{A}$$

where n_h is the number of hauls in stratum h , s_h^2 is the sample variance in stratum h , W_h is the stratum weight for stratum h (ratio between area of stratum h (A_h) to the total survey area (A)) and L is the total number of strata.

The bottom trawl has a headline of 31m (float line), footrope 47 m, estimated headline height 5 m and distance between wings during towing about 18 m. During trawling a 9.5 m long rope was fastened between the wires 150 m in front of the doors giving a constant distance between the doors of 49-50 m. All trawl hauls were monitored by SCANMAR trawl sensors (bottom contact, headline height and distance between the doors) and the actual time the trawl was fishing on the bottom was determined with improved accuracy. For conversion of catch rates to fish densities the area between the wings is assumed to be the effective fishing area i.e. the catch ability coefficient q is equal to 1. The footrope was equipped with a tickler chain which improves the catch ability of bottom living and borrowing species.

A more detailed description of the fishing gear, the acoustic instruments and their standard settings is given in Annex IV.

CHAPTER 3 OCEANOGRAPHIC CONDITIONS

Anomalous oceanographic conditions were found along the whole Angolan coast. The upper 10 to 50 m were dominated by a warm ($T \sim 29^{\circ}\text{C}$) and brackish ($S \sim 30\text{psu}$) water mass. The static stability in the surface layer was therefore very high, and put an effective lid on top of the water column, thus inhibiting vertical circulation and upward transports of nutrients. The present situation is therefore not favourable for biological production and may have a detrimental effect on pelagic fish. It has happened before that the surface layers in Angolan waters have been dominated by a warm and brackish water mass. However, conditions as extreme as observed on the present cruise have, to our knowledge, never been observed before. There is no doubt that this situation will be much discussed in the future, and might be recorded as "The 1995 Benguela el Niño".

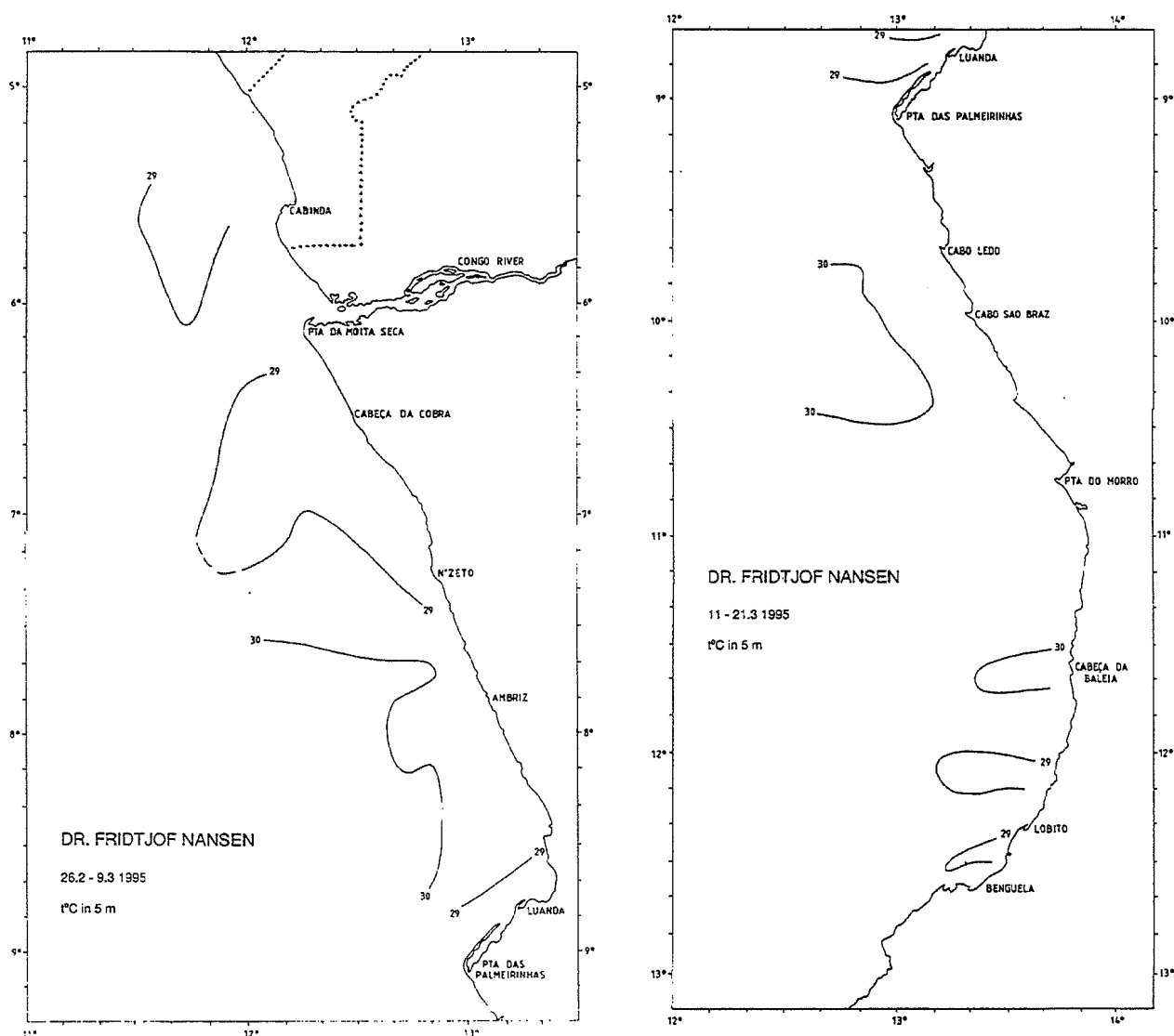


Figure 2 Horizontal distribution of surface (5m) temperature. Cabinda-Luanda and Luanda-Benguela.

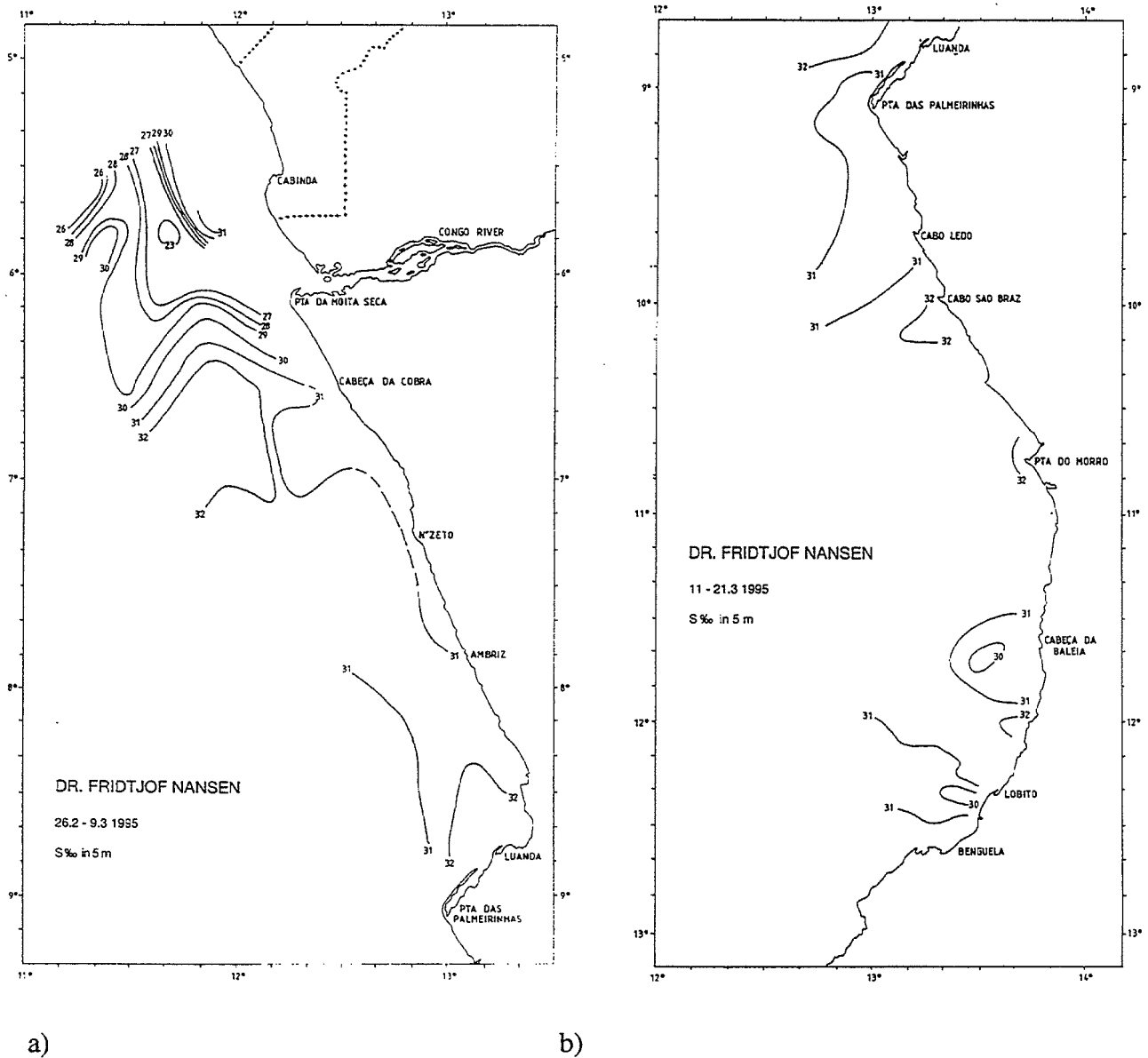


Figure 3 Horizontal distribution of surface (5m) salinity. Cabinda-Luanda and Luanda-Benguela.

Surface distribution

The temperature at the surface (5 m depth) is shown in Fig 2 (a and b), and the salinity distribution in Fig. 3 (a and B). Note the flat structure of the temperature distribution with temperatures between 29 °C and 30°C. The salinity distribution is also flat except for the obvious influence from the Congo River. Usually there is a weak upwelling along the coast at this time of the year evidenced by lower temperatures or higher salinities adjacent to the coast. These conditions were never observed in the course of this survey.

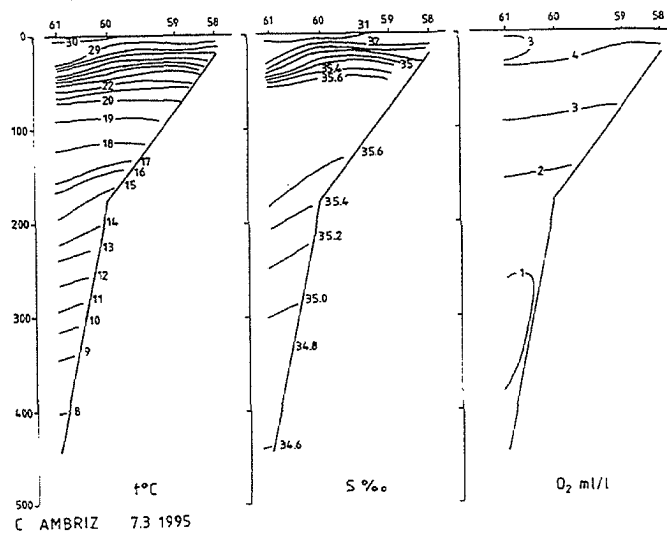
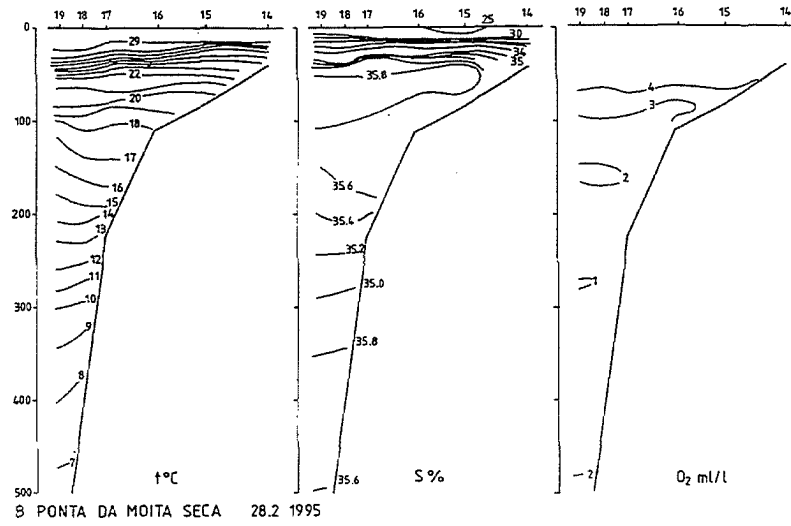
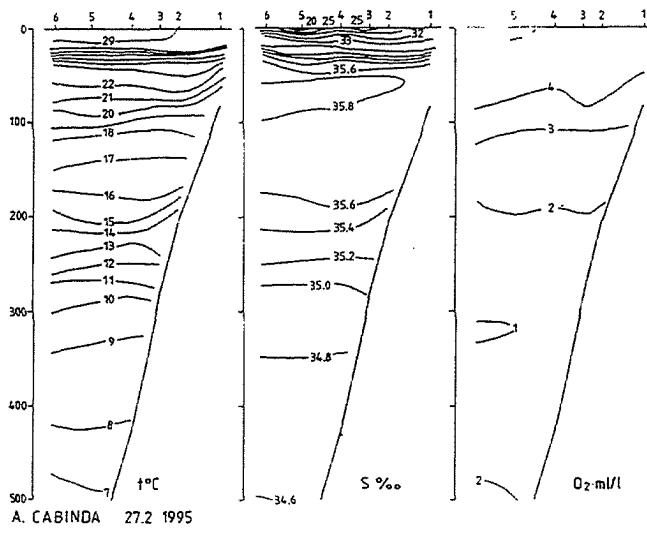


Figure 4 Vertical sections of temperature, salinity and oxygen.

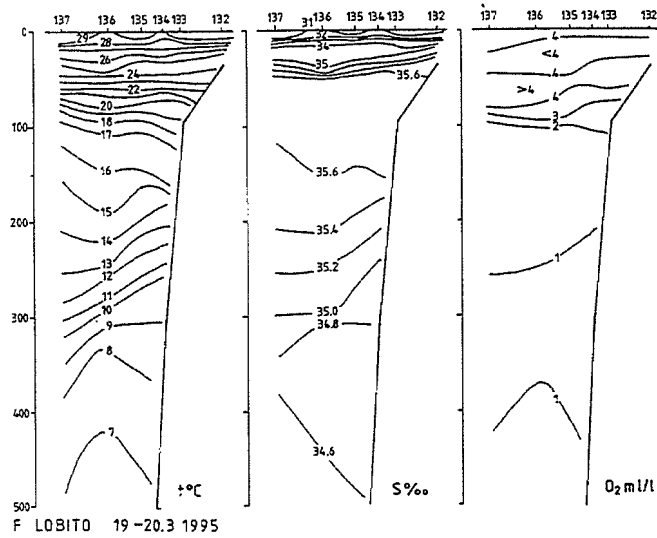
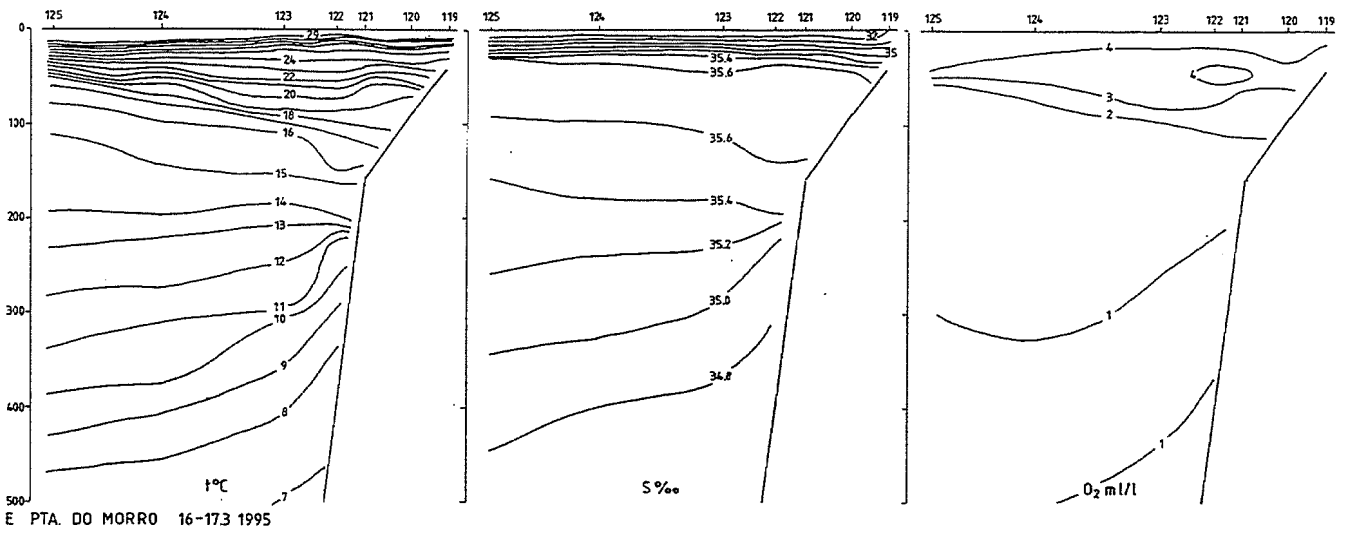
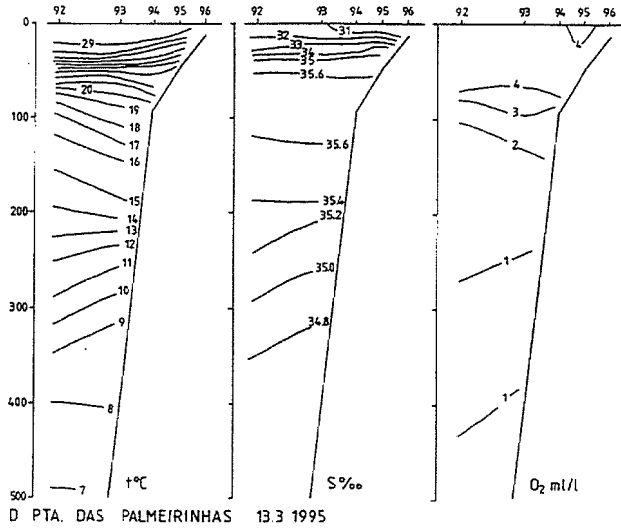


Figure 4 (cont.) Vertical sections of temperature, salinity and oxygen.

Vertical sections

The vertical distributions of temperature, salinity and oxygen along the standard sections are shown in Figures 4 a-e. The most striking feature is the warm and fresh upper layer all the way south to Lobito. The thermocline and halocline are found between 25 and 50 m. We prolonged the sections at Pta. do Morro (Fig. 4) and Ponta das Palmeirinhas to more than 100 nautical miles from the coast, and even here the fresh, warm layer dominated. Thus we have not been able to map neither the western nor the southern limits of this extreme water mass.

The oxygen distribution is more or less as usually observed, but the surface layer seems to be a little depleted in oxygen, especially in the southern part (Pta. das Palmeirinhas and southwards) where the oxygen concentration is usually about 1 ml/l higher.

Comparison with last year situation

To illustrate how different the present situation is from the normal condition, we have compared CTD station 93 in the Pta. da Palmeirinhas section (see map Fig.1) obtained at about 200m depth with a corresponding station last year, which was quite "normal". The results are shown in Fig. 5. We note the upper 100 m are dominated by warmer water in 1995, with a maximum difference of more than 8°C between 25 and 35 m depth. Taken into consideration the vast area influenced by this warm water, this is a significant climate signal as the increase of 8°C over a 10m water column corresponds to a heating of the whole atmospheric column of more than 30°C!

Above 50 m depth the salinity difference starts to become noticeable, and the maximum difference of about 4 psu is found in the surface layer. The excess fresh water content may be calculated as follows.

Assuming that an amount of fresh water (Δh) is distributed over a water column H , the salinity balance equation reads:

$$\int_{-H}^0 \rho_{94} S_{94}(z) dz = \int_{-H}^{\Delta h} \rho_{95} S_{95}(z) dz$$

where ρ_{94} is the density and S is salinity, indexes indicate years. Neglecting the variation in the density and splitting up the integral on the right hand side and re-arranging gives the following expression for the increase in fresh water content (precipitation) in the water column:

$$\Delta h = \frac{1}{S_{95}(0)} \int_{-H}^0 S_{94}(z) - S_{95}(z) dz$$

where $S_{95}(0)$ is the surface salinity from the present cruise. A numerical integration of this equation down to depths where the salinity differences are small (at least 40m) gives an increase in the fresh water content corresponding to about 3000 mm precipitation. These conditions are comparable to those found in areas of the Gulf of Guinea characterized by similar average precipitation and surface salinities.

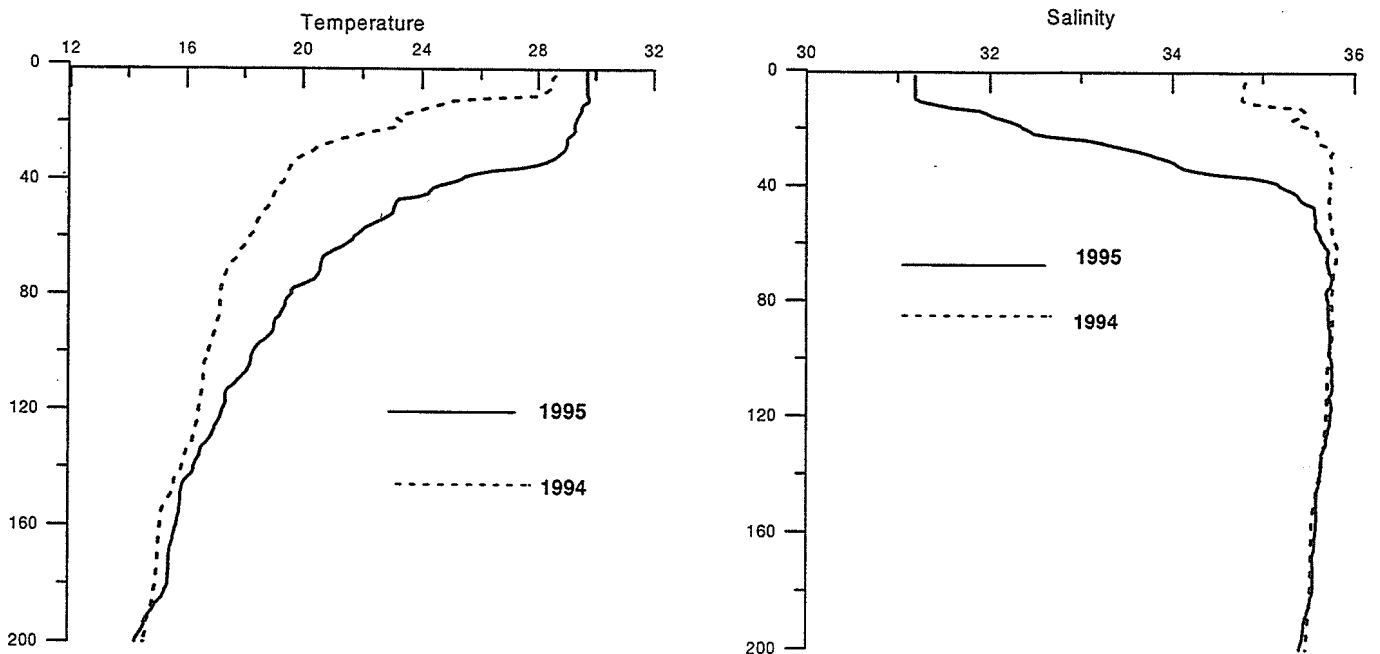


Figure 5 Temperature and salinity profiles from CTD st. 93 in the Ponta das Palmeirinhas section (see Figs 1 and 4), and the corresponding profiles from the March 1994 survey.

Current measurements from an anchored mooring

The current meter rig was anchored at 80 metres water depth outside Rio Eval in position $11^{\circ}44'S$, $13^{\circ}26'E$, (Fig.1). The registrations started the 18th of March and lasted for about 24 hours. The results are shown in Fig. 6. Full moon occurred on March 17th, so our observations are taken shortly after the spring tides. A semidiurnal tidal signal is clearly seen in the water level registration, and we note that the amplitude, which is about 1 meter, shows a decreasing tendency.

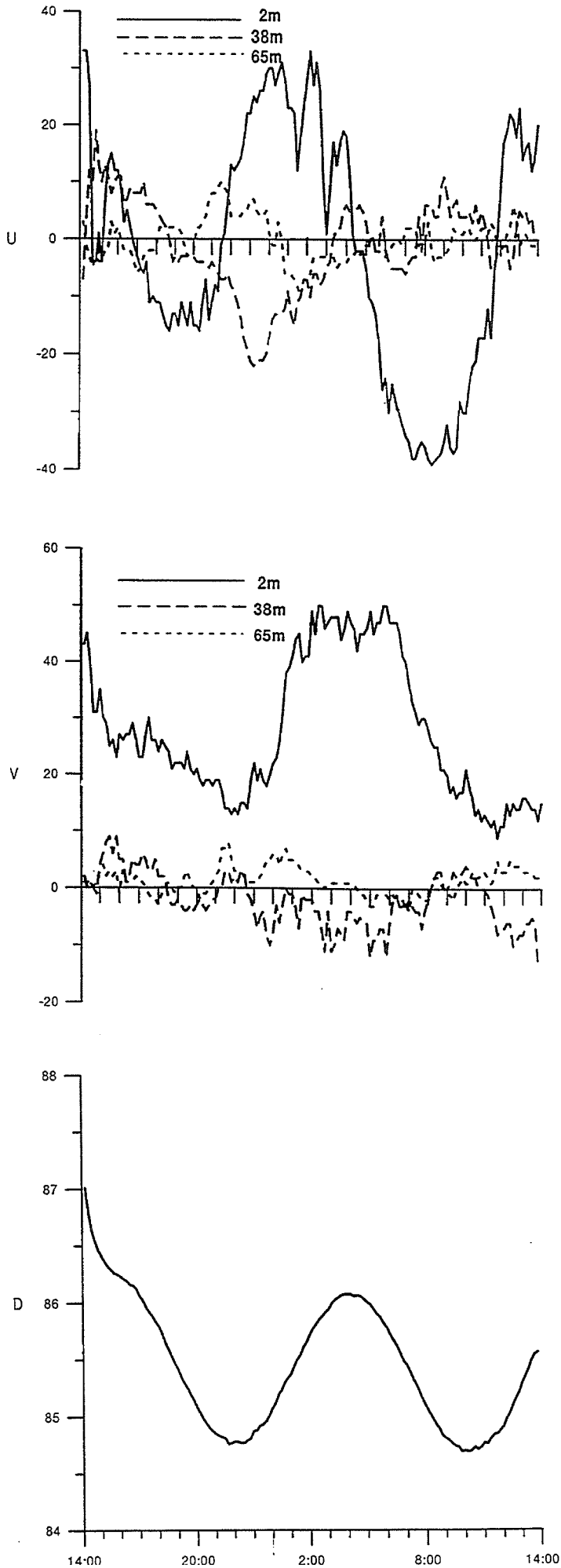


Figure 6 Current measurements at 2m, 38m and 65m obtained from the mooring. Upper panel: east component (U); central panel: north component (V), and lower panel: water level registrations in metres.

The currents are presented as easterly (U) and northerly (V) components at the various depths in Fig. 6. The current is much stronger in the surface layer (2 m) than deeper down (38 m and 65 m). The surface current is mainly northwards with a maximum current of about $\frac{1}{2}$ m/s coinciding with high tide. The surface V-component is the only component which never crossed the zero line, its minimum value was about 0.1 m/s, which means that the brackish surface layer is moving steadily and rather fast northwards.

The tidal signal in the surface U component is about twice as big (amplitude 0.35 m/s) than in the V component, which means that the tidal ellipse probably has its main axis oriented perpendicular to the coast. In the deeper layers the currents are much weaker, and no conclusion can be drawn on average currents from such a short series. At 38 m depth the currents seem to be 180° out of phase with the surface current, while a higher frequency seems to dominate the bottom current.

ADCP current registrations

The Acoustic Doppler Current Profiler was activated on every trawl and CTD stations where bottom tracking was possible (less than about ~ 400 m depth). As this instrument is rather new to us, and there is some doubt about the alignment of the transducers, we have chosen not to present the data yet. However, the general impression is a southbound flow at all levels below 35m with speeds up to $\frac{1}{2}$ m/s. The signals are noisy, though, and further analysis and some smoothing should be performed before publishing these data.

Internal waves

Fig. 7 shows an echogram where the undulating signal from the phytoplankton in the halocline at about 20 m (see CTD station 190 inserted) is clearly seen. Simultaneously surface slicks were observed to move perpendicular to the ship heading coinciding with the wave crests at the echogram. Thus the frequency of the internal waves may be read directly from Fig. 7, and indicate a period (T) of about 5 min. As indicated on the echogram the ship was turning 90 degrees, speeding up and heading into the propagating waves. As the ship was moving with 9 knots and we now know the frequency of the waves, the wavelength (λ) may be estimated from the last part of the echogram, which gives $\lambda \sim 150$ metres. This indicate a phase speed $C = \lambda/T$ of about 0.5 m/s. Assuming a two layer model, with a density difference of 3 kg/m^3 , an upper layer of 20 m and a lower layer of 60 m, the reduced gravity model for internal waves yields a phase speed $C = 0.54$ m/s, which is close to the observed estimate. Dedicated experiments should be set up to study these waves in detail, as they may play a significant role in upper layer mixing as they break, thus

transporting nutrients to the surface layer. This mechanism has been characterized in other part of the world ocean as a "nutrient pump at work".

On-the-job training

The Oceanographers, Fernando Gombo and Isabel Araujo took care of the water sampling from the CTD-rosette sampler. They analysed for Oxygen content using the Winkler method, and the salinity was determined using the Guildline Portasal Salinometer. The vertical sections and the horizontal distribution maps were mainly prepared by them.

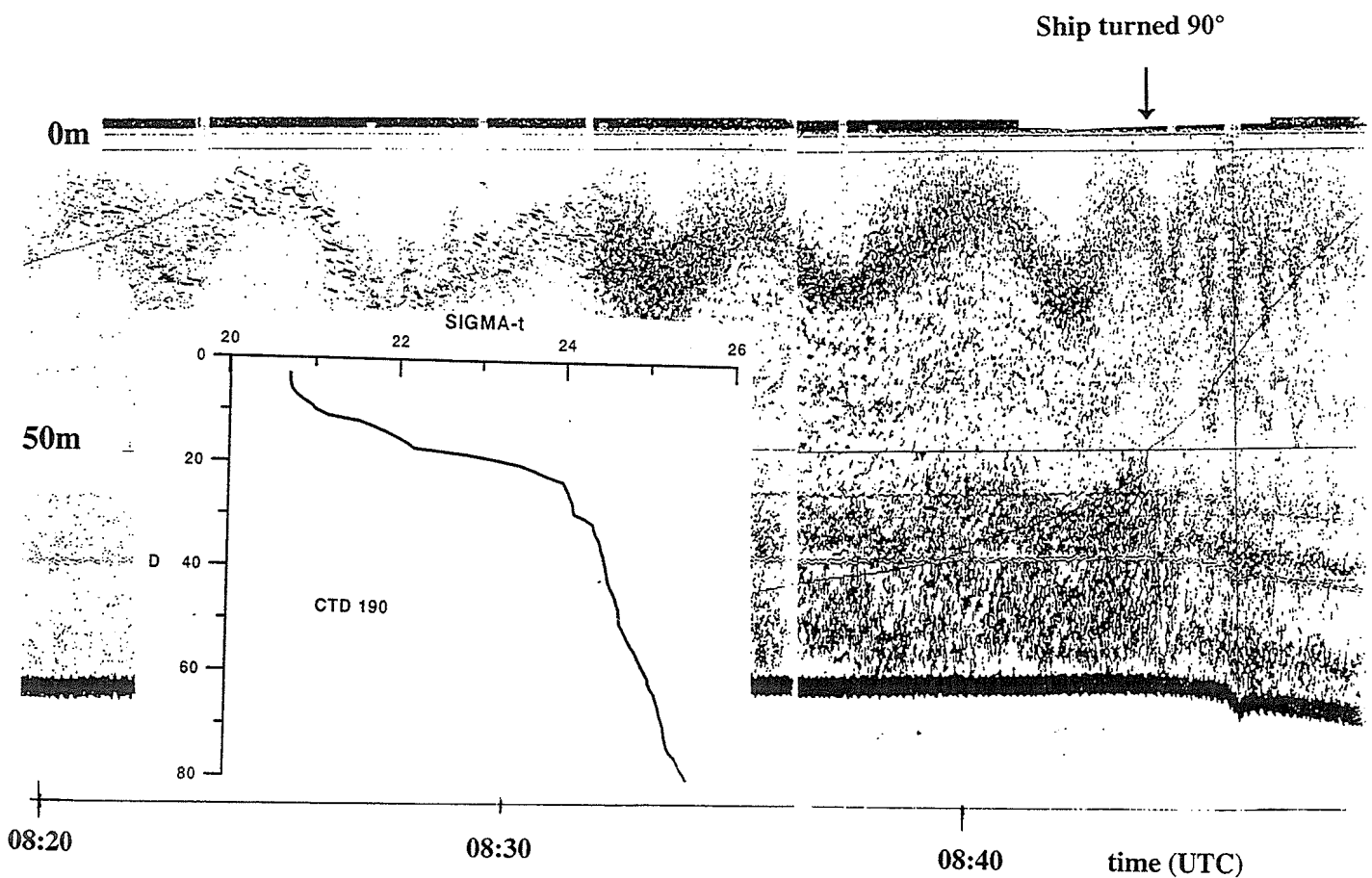


Figure 7 Echogram taken on March 30 at about 8:20 to 8:50 UTC in position $09^{\circ}34\text{ S } 12^{\circ}58\text{ E}$. The undulating structure between 0 and 30 m is due to reflection from phytoplankton in the halocline. After about 20 minutes when the ship was moving parallel to the wave crests, the ship turned 90 degrees left heading into the waves. The corresponding shift in the frequency is clearly seen.

CHAPTER 4 DISTRIBUTION, COMPOSITION AND BIOMASS ESTIMATES OF PELAGIC FISH

The acoustic coverage of the northern region (Cabinda-Luanda) was combined with the demersal survey because low densities of pelagic fish were expected there. According to the results obtained in previous surveys, there is in fact a tendency for pelagic fish (at least sardinella and horse mackerel) to move to the central part of the area (Luanda to Benguela) during the warm summer season. They become more abundant in the north in the course of the upwelling season (July to September). A double coverage was therefore planned for the central region, where higher concentrations of pelagic fish were expected at this time of the year. As in the March 1994 survey, the inshore area about 10 nm width north of Ambriz and the restricted area off Cabinda were not covered because of security reasons and oil extraction activities, respectively.

4.1 Cabinda-Luanda

4.1.1 Sardinella

Figure 8 shows the distribution of both sardinellas in the northern region, including the varying degree of their concentrations as average acoustic integrator values for each area. Sardinella was detected in shelf waters south of N'Zeto to Luanda. *Sardinella maderensis* was more widespread, while *S. aurita* appeared mostly concentrated in a small but dense patch off Ambriz.

The length frequency distribution of *S. maderensis* shows the presence of three cohorts, of modal lengths of 9, 25 and 33 cm respectively (Fig. 9 a). Only large specimens of *S. aurita* were represented in the catches and the length frequency distribution showed a modal length of 34 cm (Fig. 9 b).

The biomass estimate for the two species combined totalled about 24 000 tonnes, divided between the two species in equal proportions.

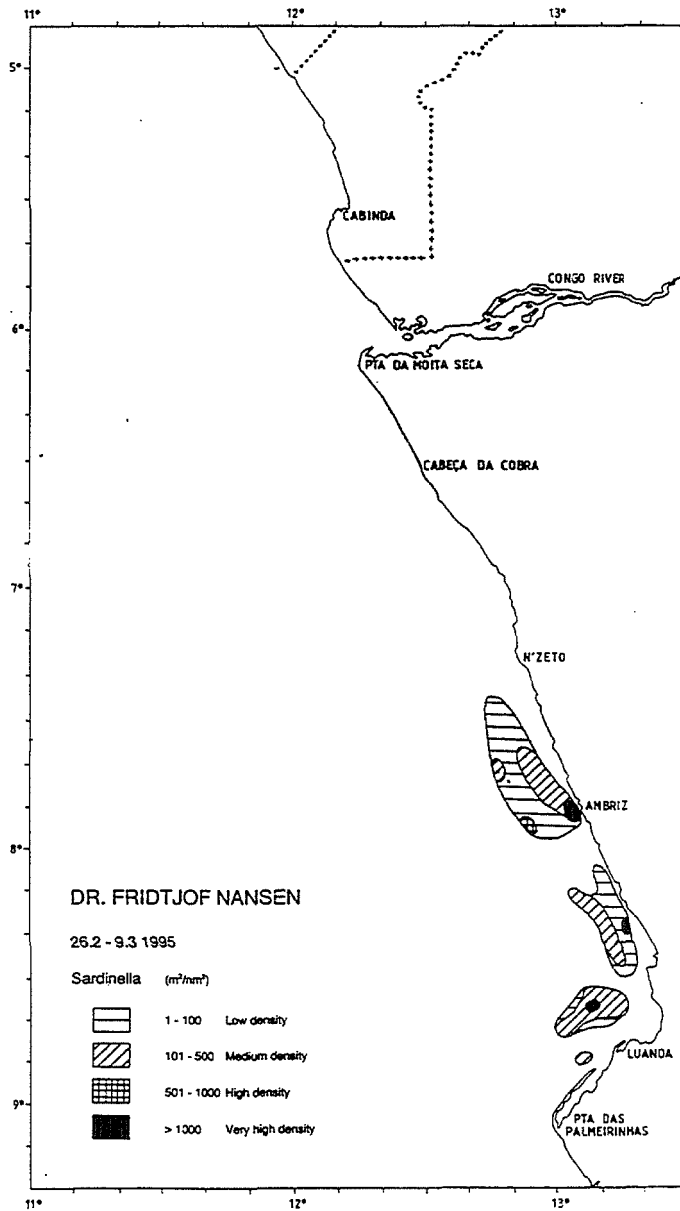
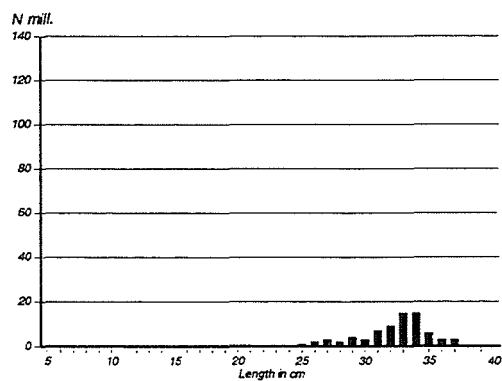
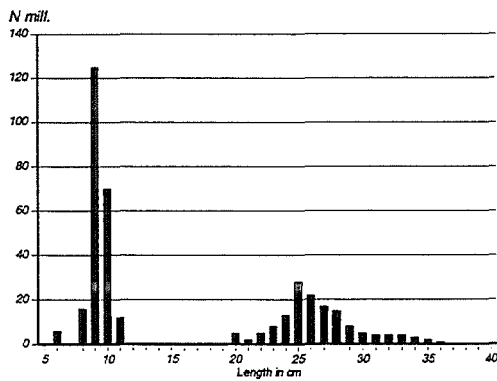


Figure 8 Distribution of *Sardinella* spp. Cabinda-Luanda.



a)

b)

Figure 9 Total length distribution of a) flat sardinella (*Sardinella maderensis*) and b) round sardinella (*S. aurita*). Cabinda-Luanda.

4.1.2 Cunene horse mackerel

Figure 10 shows the distribution of Cunene horse mackerel for the region Cabinda-Luanda. No acoustic recordings were attributed to this species in the northern part of this region. A small concentration was identified off Ambriz and estimated to 300 tonnes. It consisted of young specimens, with modal lengths of 14 and 19 cm. A second concentration was located off Luanda and evaluated to about 8 800 tonnes, consisting of very large specimens with modal length of 39 cm. The most important was however located just outside Luanda and to Pta. das Palmeirinhas, at depths of 100 to 150 m and estimated to 75 000 tonnes. This consisted mainly of large horse mackerel, with a modal length of 37 cm. Smaller cohorts were however also represented, with modal lengths of 14, 19 and 29 cm respectively. Figure 11 shows the length distribution of horse mackerel for the whole region. The total biomass of horse mackerel in this region was estimated to 84 000 tonnes.

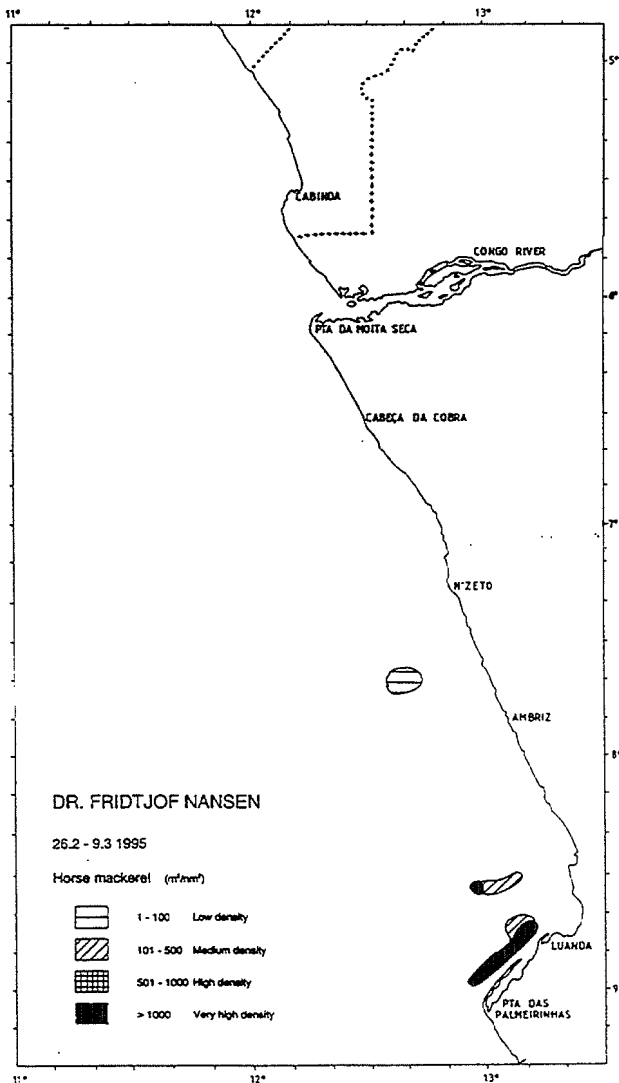


Figure 10 Distribution of horse mackerel (*Trachurus trecae*). Cabinda-Luanda.

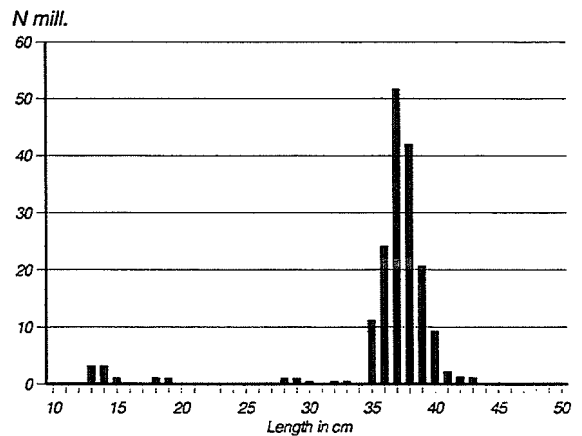


Figure 11 Total length distribution of Cunene horse mackerel (*Trachurus trecae*). Cabinda-Luanda.

4.1.3 Other pelagic species

Figure 12 shows the distribution of pelagic fish type 2 for the region Cabinda-Luanda. This category includes various pelagic groups: carangids (other than horse mackerel), barracudas, scombrids and hairtails. Highest concentrations were detected in the region between Ambriz and Luanda. The biomass estimate was obtained by using an overall average length (about 31 cm) for this area and resulted in a value of about 70 000 tonnes. The composition in the catches shows a dominance of the Atlantic bumper *Chloroscombrus chrysurus* (82 %), followed by the lookdown *Selene dorsalis* (10%). The above estimate and relative abundance of the various groups are obviously very rough but still useful to give an idea of the order of magnitude of the resources and to indicate whether important changes have occurred. As compared with earlier surveys with the RV 'Dr. Fridtjof Nansen', the value obtained for this area is consistent with the average values obtained in 1985-86 (65 000 tonnes) .

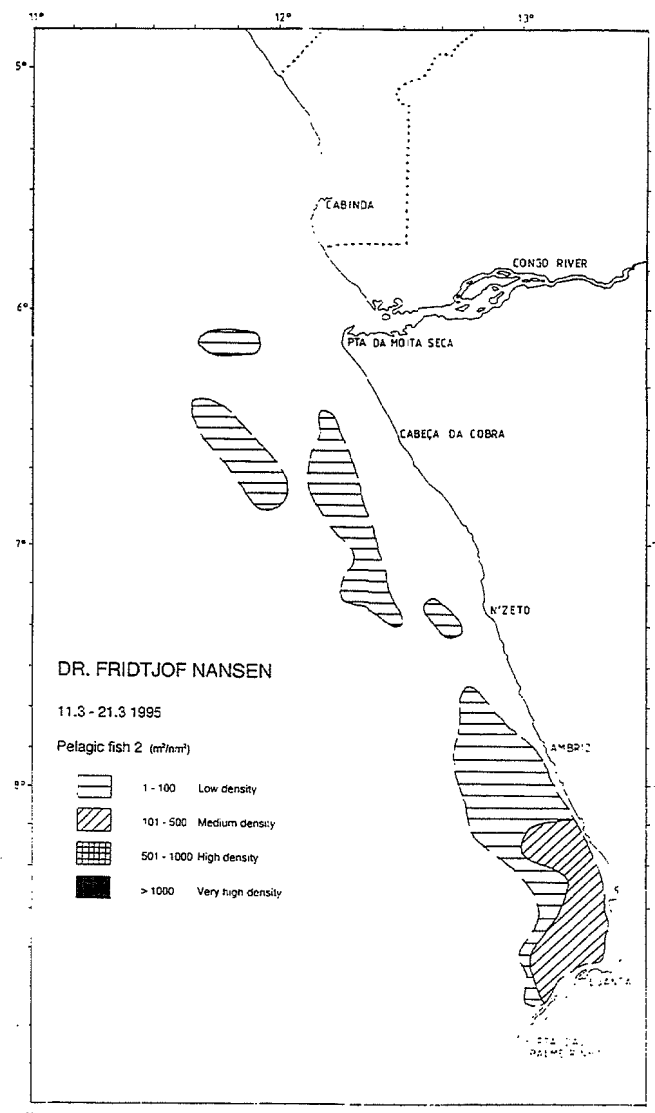


Figure 12 Distribution of pelagic fish type 2. Cabinda-Luanda.

4.2 Luanda-Benguela

4.2.1 Sardinella

Two coverages are available for this region: a first one from Luanda to Benguela which consisted of a purely acoustic survey and a second one, combined with the bottom-trawl survey. The former is characterized by a more intensive sampling on the shelf and biological sampling with the pelagic trawl, while the second followed the pattern of the bottom trawl survey, i.e. parallel tracks extending from shallow coastal waters to 800 m depth.

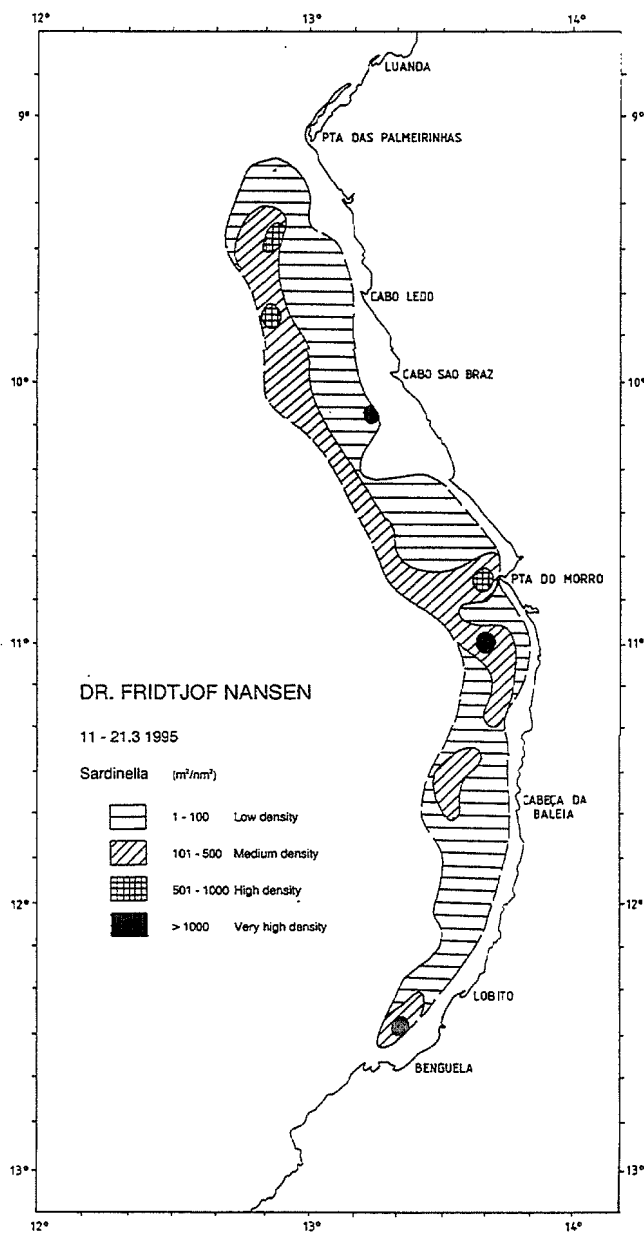


Figure 13 Distribution of *Sardinella* spp. Luanda-Benguela.

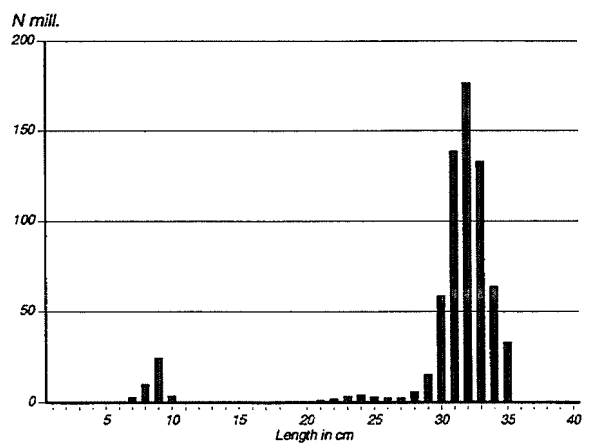


Figure 14 Total length distribution of flat sardinella (*S. maderensis*). Luanda-Benguela.

This latter coverage allowed the detection of sardinella well beyond the continental shelf edge. During nighttime it could hardly be detected from the echotraces, where it appeared dispersed in the upper thick layer of plankton. Pelagic trawling at the surface usually yielded sardinella together with hairtails and small tunas or carangids (i.e. *Trachinotus*). During daytime, it would form loose concentrations but this pattern was not regular.

Also on the shelf (Fig. 13) sardinella did not show a typical schooling behaviour. Dense schools were found only in small areas just south of Cabo Sao Braz, Punta do Morro and between Lobito and Benguela. Most of the samples included large sardinella (modal length 32 cm, Fig. 14). Juveniles (modal length 9 cm) were found in the area between Pta. do Morro and Cabeça da Baleia as well as between Lobito and Benguela, together with juveniles of other species. These seem to be important nursery areas along the Angolan coast. The biomass on the shelf was estimated to about 150 000 tonnes. This figure does not however include the 'offshore sardinella' found on the second coverage.

4.2.2 Cunene horse mackerel

Apart from the very large concentration found off Punta das Palmeirinhas (already reported in section 4.1.1), horse mackerel was almost absent pelagically. It was caught, usually in small quantities, in the bottom trawl during the second coverage of this area. An acoustic estimate was not attempted because of the extremely scarce occurrence.

4.2.3 Other pelagic species

Figure 15 shows that pelagic species type 2 were widely distributed in this region from shallow coastal waters, with a predominance of lookdown and Atlantic bumper, to beyond the edge of the continental shelf where scombrids and hairtails were most common. Areas of largest concentrations correspond to some of the main capes: south of Ponta das Palmeirinhas, off Ponta do Morro and Cabeça da Baleia. The average length, including all the families classified in this group, was about 35 cm. The resulting biomass totalled about 100 000 tonnes. The relative abundance of the various groups in the pelagic trawl catches showed the dominance of scombrids (55 %) followed by the lookdown (22 %). However, the high abundance of scombrids is based on a single very large catch. If this is discarded, then the lookdown becomes the most important species of the group.

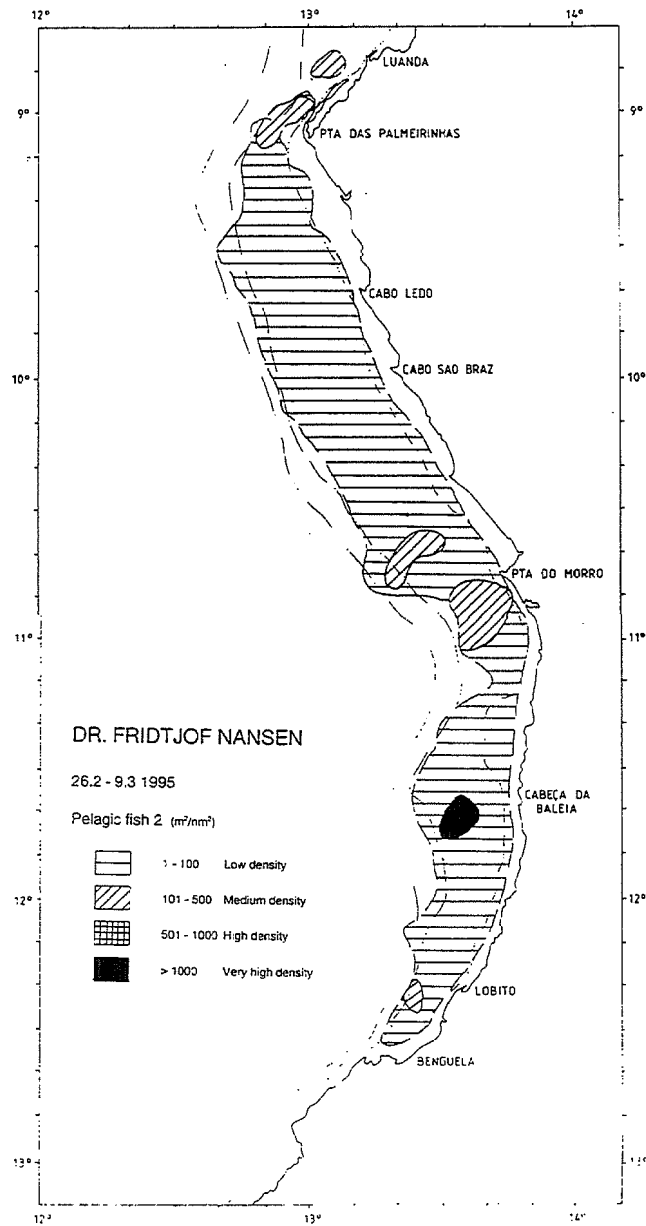


Figure 15 Distribution of pelagic fish type 2. Luanda-Benguela.

4.3 Review of survey results

The present survey has resulted in unexpectedly low estimates of both sardinella and horse mackerel (Tables 3 and 4). While low biomass estimates are typical of this season in the northern region (see August 1994 survey report), the low values obtained in the central region are well below the average for the season and the lowest ever recorded by the 'RV Dr. Fridtjof Nansen'

in this region. This result is surprising considering the consistent increase in the biomass of both species observed since 1989 and reaching a total of more than 500 000 and 250 000 tonnes for sardinella and horse mackerel respectively.

Survey	Cunene-Benguela	Benguela-Luanda	Luanda-Cabinda	Benguela-Cabinda	TOTAL
1/85	25	220	80	300	325
2/85	110	190	180	370	480
3/85	0	70	190	260	260
4/85	0	200	110	310	310
1/86	10	140	110	250	260
2/86	10	130	130	260	270
1/89	40	200	60	260	300
2/89	20	40	130	170	190
3/89	40	100	60	160	200
1/91	+	180	120	300	300
2/91	+	68	154	222	222
1/92	+	119	161	280	280
1/94	*	410	100	510	510
2/94	*	245	290	535	535
1/95	*	140	24	164	

* not surveyed

Survey	Cunene-Benguela	Benguela-Luanda	Luanda-Cabinda	Benguela-Cabinda	TOTAL
1/85	30	195	40	235	265
3/85	50	90	40	130	180
4/85/86	100	125	20	145	245
1/89	35	55	40	95	130
3/89	170	40	35	75	245
1/91	100	80	20	100	200
2/91	100	70	30	100	200
1/92	98	86	80	166	264
1/94	*	238	1	239	
2/94	*	130	120	250	
1/95	*	*	84	84	

* not surveyed

This result may be put in relation with the abnormal climatic conditions found at the time of the survey discussed under Chapter 3, and in particular the thick layer of low salinity and warm

(around 29 °C) surface waters found throughout the survey area. Two main aspects can explain the low biomass estimates obtained: a possible southward migration beyond the area covered by the survey (i.e. south of Benguela) or/and a difference in schooling behaviour such as sardinella was less available to the acoustic integration system. These two aspects will be further discussed below.

Migration

North-South migrations along the coast of Angola are reported for both sardinella species (Ghéno and de Campos Rosado, 1972), with a southward displacement of the adults as far south as Baía dos Tigres for the round sardinella and to Lobito for the flat sardinella during the warm season. Similar migrations were observed through the surveys of the RV 'Dr. Fridtjof Nansen' that systematically yielded higher estimates in the northern region during the southern winter period and in the central region during the warm season. The observations made last year during the February and August surveys of the pelagic resources was consistent with the above pattern. It should however be emphasized that the round sardinella was present in very small quantities. The flat sardinella, described as a more coastal and sedentary species seemed to be distributed also well offshore, beyond the continental shelf edge. The very low estimate obtained during the present survey might be due to a southward movement of the flat sardinella beyond the surveyed area. This rather massive migration would represent a previously undescribed event for this species, possibly occurred this year due to the exceptional climatic conditions. As regards the Cunene horse mackerel, its movements are not described, except from the observations made by the RV 'Dr. Fridtjof Nansen' pointing at north south migrations between northern and central Angola. This species is most abundant off southern Angola (Benguela-Cunene) where it follows the displacements of the Benguela-Angola front. It is however possible that seasonal migration takes place including movements of the size of its area of distribution.

From the above it follows that future surveys should cover the whole Angolan coast, and possibly coordinated with a coverage off northern Namibia.

Methodological considerations and fish behaviour

Acoustic sampling has the advantage of covering a resource in relative short time, i.e. to give a snapshot of abundance and distribution of pelagic species. The method suffers however of a series of bias and sources of variance that are difficult to evaluate and reduce. One of the main problems is the one related to fish behaviour, as day-night variations in school densities and in vessel

avoidance. As regards sardinella, it is common knowledge (Gerlotto, 1989) that its schooling behaviour presents important circadian differences: dense schools are typical of daytime while the opposite is true during nighttime, when schools dissolve and sardinella disperse in the upper water layers. Daytime estimates for this species are usually lower than during nighttime (Gerlotto, 1989), mainly because of vessel avoidance. For this reason, two coverages of areas with dense concentrations are advisable and this strategy was to be applied during this survey as well. During the present survey the behaviour of sardinella seemed to depart from the known pattern, with loose concentrations almost throughout the area both during day- and nighttime. We have no ground to really explain this difference, except may be for the abnormal environmental conditions encountered in the area in the course of the survey, i.e. an upper water layer about 30 m thick, with very low salinity and high temperatures. Sardinella was spread well beyond the edge of the continental shelf, over depths of more than 700 metres, usually loosely mixed with other pelagic species and within a thick layer of plankton. Under these conditions, it was very difficult to separate sardinella echos from those coming from the above layer during the scrutinizing process, possibly leading to underestimation of the biomass.

CHAPTER 5 CATCH RATES, DISTRIBUTION, COMPOSITION AND BIOMASS ESTIMATES OF DEMERSAL FISH (SHELF)

The composition of the fish fauna in the catches was studied by dividing the shelf into two parts: an inner shelf, down to 70 m depth and an outer shelf, from 70 to 200 m. The positions of the trawl stations are shown in Fig. 1a-c. Records of fishing stations and catches are presented in Annex I, while pooled length distributions (weighted by the catch) of main species are shown in Annex II.

In the swept-area biomass estimates for the shelf down to 200 m, the depth strata 0-50 m, 50-100 m and 100-200 m have been applied. Mean densities by depth strata of main species, incidence and the catch distributions are shown in Annex III.

5.1 Cabinda-Luanda

In this region, 37 swept-area trawl stations were successfully performed on the shelf. As in the 1994 September survey, an area of about 10 nm width north of N'Zeto was not covered because of security reasons. This area includes depths to about 20 m, where demersal important groups as the croakers and grunts are usually found. These groups might therefore be under represented as compared with the results obtained in surveys carried out in the periods 1985-86, 1989, 1991 and 1992. Furthermore, the reader is reminded to consider the effect of the utilization of tickler chain on the footrope of the trawl net, already discussed in section 2.2.2.

Table 5 shows the catch rates by main species groups for the inner shelf (20 to 70 m) and outer shelf (71 to 200 m). "Demersal" comprises the commercially important families Sciaenidae, Haemulidae (=Pomadasyidae), Serranidae, Sparidae and Lutjanidae, while "Pelagic" includes, Clupeidae, Carangidae, Scombridae, Sphyraenidae and Trichiuridae (the latter family is actually mainly benthopelagic). The catch rates of both these groups were highest on the inner shelf. Here the proportion of the valuable demersal families was about 50 % of the total catch, while this proportion was about 34 % on the outer shelf. Of the remaining groups, shrimps (mainly *Penaeus notialis*) were only about 1.5 % of the catches on the inner shelf. This species was caught in the area between Luanda and Ambriz, between 20 and 30 m depth.

Table 5 Catch rates by main groups in swept area bottom trawl hauls on the shelf (kg/hour).CABINDA-LUANDA.

INNER SHELF 20-70 m

ST.NO.	DEP.	Demersal	Pelagic	Sharks	Shrimps	Cephalopod	Other
295	52	203.7	70.5		2.7		25.9
296	41	95.6	91.1				204.3
306	68	279.7	91.9			0.5	37.9
307	38	6.3	40.1				10.3
308	20	20.9	39.8	3.9		2.7	48.7
309	59	54.6	40.1	1.8		8.6	32.3
323	29	279.2	62.0		0.7	0.5	72.7
325	28	130.4	16.7				20.2
338	67	7.0	16.8			1.3	19.8
339	40	7.4	20.8				10.5
343	24	179.1	506.4	2.0	5.1		156.2
355	54	540.4	17.5				90.2
356	22	309.5	766.3	17.7	4.6		337.9
357	34	544.0	125.0	26.0	5.2		154.9
366	28	510.0	70.0		82.5	0.4	118.5
MEAN		211.2	131.7	3.4	6.7	0.9	89.4

OUTER SHELF 71-200 m

ST.NO.	DEP.	Demersal	Pelagic	Sharks	Shrimps	Cephalopod	Other
283	100	553.3	110.6	10.6	3.1	9.4	104.4
293	197	272.9	36.8	26.4	9.7		468.5
294	100	183.1	23.6	3.1	3.9	0.1	111.8
302	180	28.4	69.0		3.2	13.8	500.7
303	123		139.9			0.8	
304	104	121.1	51.1	4.3		1.6	41.9
310	79	59.1	3.2	3.9		5.4	88.3
311	134	69.0	3.2		0.9	4.2	84.3
319	135	122.4	10.0	15.5		1.5	835.7
320	107	108.8	181.0	4.3		6.2	91.2
321	78	232.3	3.8				14.6
326	85	42.4	63.5			9.7	9.9
327	116	64.8	172.7			0.9	33.6
328	147	7.2	447.3			0.7	35.0
329	140	9.6			32.0		567.0
336	165	33.9	67.0				1192.1
337	85	202.7	37.9	6.0		14.3	42.3
344	74	376.9	118.0	79.8		19.6	100.1
345	194	41.5	9.8	32.4	59.5	5.9	905.3
354	86	100.1	45.9			3.8	32.1
358	73	717.9	32.2				58.1
365	84	849.1	53.7			0.8	512.2
MEAN		190.8	76.4	8.5	5.1	4.5	265.0

Comparison with the last bottom trawl survey carried out by the RV 'Dr. Fridtjof Nansen' in this area and at the same season, i.e. survey I/1989, shows that the catch rates obtained during the present survey are higher (about 80%) for both the pelagic and the demersal groups on the inner shelf. The comparison does not however take into account changes in the bottom trawl such as the use of larger doors and longer sweeps and the use of tickler chains, whose effects have not been evaluated yet. Experiments made at higher latitudes show for example that with the use of longer sweeps and larger doors the herding effect is enhanced so that the catchability coefficient increases. The higher catch rates might in fact be the result of this effect. In the deeper part of the

shelf (70 to 200 m) the catch rates were only 20% higher, while for the pelagic species this value was 50% lower.

Catch rates of pelagic groups broken down to families (Table 6) are presented just to give some indication of the forms present. On the inner shelf Carangids, specially *Chloroscombrus chrysurus* dominated while on the outer shelf hairtails (*Trichiurus lepturus*) showed the highest catch rates.

Table 6 Catch rates of main pelagic families in swept area bottom trawl hauls for the shelf(kg/hour. CABINDA-LUANDA.

INNER SHELF 20-70 m

ST.NO.	DEP.	Clupeids	Carangids	Barracudas	Scombrids	Hairtails	Other
295	52	0.5				70.0	232.4
296	41	26.0	54.5	10.6			300.0
306	68		61.1	10.1		20.6	318.0
307	38		36.4	2.4		1.2	16.7
308	20		35.2	3.1	1.4		76.2
309	59		37.9			2.2	97.3
323	29	16.6	38.9	2.7		3.7	353.1
325	28		7.1		9.6		150.6
338	67		0.5	0.6		15.7	28.1
339	40		13.7	5.2		1.9	17.9
343	24	51.6	250.1	175.1	2.0	27.6	342.4
355	54		7.7			9.8	630.6
356	22	49.7	494.1	207.2	9.2	6.2	669.8
357	34	30.0	60.6	15.2	3.2	16.0	730.1
366	28	33.5	2.6	3.8		30.2	711.4
MEAN		13.9	73.4	29.1	1.7	13.7	311.6

OUTER SHELF 71-200 m

ST.NO.	DEP.	Clupeids	Carangids	Barracudas	Scombrids	Hairtails	Other
283	100		69.1			41.5	680.8
293	197					36.8	777.5
294	100					23.6	302.0
302	180					69.0	546.1
303	123					139.9	0.8
304	104		1.3			49.8	168.9
310	79		1.8			1.4	156.7
311	134		0.7			2.5	158.4
319	135					10.0	975.1
320	107		32.6			148.3	210.4
321	78		3.8				246.9
326	85					63.5	61.9
327	116	0.6	123.7			48.4	99.3
328	147		55.9		7.6	383.8	43.0
329	140						608.6
336	165				2.5	64.5	1226.0
337	85	0.6	16.7	4.5		16.1	265.3
344	74		12.7	3.8		101.4	576.4
345	194					9.8	1044.7
354	86		23.7			22.2	136.0
358	73		23.7			8.5	776.0
365	84		35.8			17.9	1362.1
MEAN		0.1	18.3	0.4	0.5	57.2	473.8

Table 7 shows the catch rates of the most important demersal species grouped into families. On the inner shelf grunts and seabreams were the most abundant valuable groups while on the outer

shelf, the seabreams, and particularly *D. angolensis* were the most common. The mean catch rate of sparids was lower both in the inner and the outer shelves as compared with survey I/1989. This might in fact mean a general decrease taking into account the possible higher herding effect of the new doors.

Table 7 Catch rates of valuable species grouped by families in swept-area bottom trawl hauls (kg/hour).CABINDA-LUANDA.

INNER SHELF 20-70 m

ST.NO.	DEP.	Seabreams	Grunts	Croakers	Groupers	Snappers	Other
295	52			19.3			283.6
296	41	21.1		32.4			337.5
306	68	166.0	3.1	48.1	8.2		184.4
307	38	6.3					50.4
308	20	18.9					97.0
309	59	26.3			28.3		82.8
323	29	195.7	40.6		18.7	24.0	136.2
325	28	53.3			5.0	68.9	40.1
338	67	4.2	2.9				37.9
339	40	7.0	0.4				31.3
343	24		4.3	36.4			808.1
355	54	55.4	339.5	0.7			252.5
356	22		2.7	166.0			1267.5
357	34	27.3	179.1	75.9	19.6		553.1
366	28		30.4	66.0			685.1
MEAN		38.8	40.2	29.7	5.3	6.2	323.1

OUTER SHELF 71-200 m

ST.NO.	DEP.	Seabreams	Grunts	Croakers	Groupers	Snappers	Other
283	100	38.1					753.3
293	197	32.3		213.4	9.8		558.8
294	100	27.2		5.4			293.1
302	180	28.4					586.7
303	123						140.7
304	104	55.5					164.5
310	79	59.1					100.8
311	134	66.7					94.9
319	135	122.0					863.1
320	107	76.6			27.8		287.0
321	78	178.8			53.5		18.4
326	85	42.4					83.1
327	116	53.9					218.1
328	147	6.2					484.1
329	140						608.6
336	165	33.9					1259.0
337	85	42.7					260.5
344	74	328.6		48.4			317.4
345	194	25.7					1028.7
354	86	68.6					113.3
358	73	35.0					773.2
365	84	31.4	6.4	7.7			1370.3
MEAN		61.5	0.3	12.5	4.1		471.7

Figure 16 shows the distribution of seabreams in the region Cabinda-Luanda. This coincides with the intermediate and deeper shelf sparid-community that largely occupies this region. *Pagellus* is also an important component of this community. Combined catch rates of the valuable sparid species (including the genera *Dentex*, *Sparus* and *Pagellus*) reached above 100 kg/hour in some areas between N'Zeto and Cabeça da Cobra and above 200 kg/hour trawling off Ambriz.

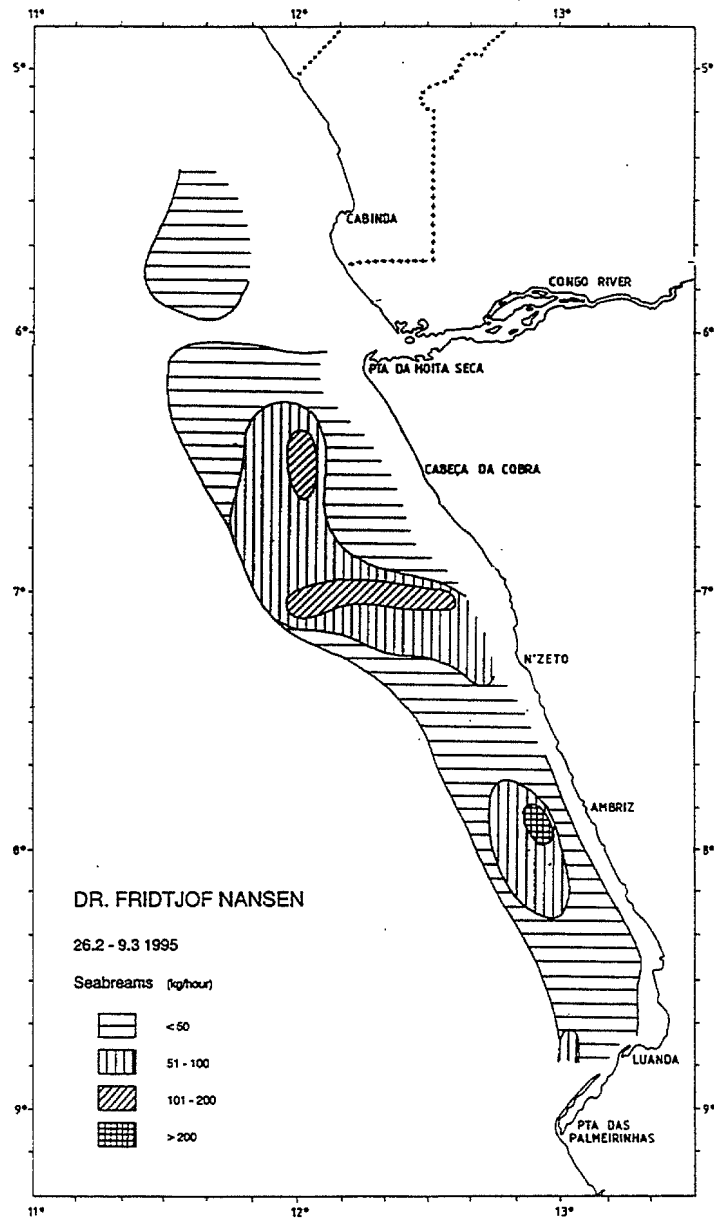


Figure 16 Distribution of seabreams (family Sparidae). Cabinda-Luanda.

Table 8 shows the biomass estimates for the main commercial groups and for other groups that occur in sizeable quantities.

Table 8. Biomass estimates by main groups on the shelf by year/period of investigation. Cabinda-Luanda.

Group/ species	Biomass (tonnes)						
	1985/I ✱	1986/I ✱	1989/I ✱	1991/II ✦	1992 ✦	1994 ✦	1995 ✱
Seabreams	9 600	14 700	9 500	16 500	16 000	32 700	10 100
Grunts*	950	1 400	840	2 900	1 000	900	4 200
Croakers	6 200	5 200	4 600	15 600	14 000	8 500	4 100
Groupers	350	740	950	940	3 000	3 500	900
Sum dem. val.	17 100	22 040	15 900	35 940	34 000	45 600	19 300
Bigeye grunt	34 400	42 800	6 900	19 700	21 000	17 100	21 200
Horse mackerel	2 900	11 900	9 300	12 000	20 000	18 500	600
Other carangids	11 900	8 900	1 650	860	4 000	13 300	11 800
Barracudas	620	1 800	900	-	1 000	820	4 100
Hairtail	16 300	9 600	2 200	8300	7 000	8 900	11 200

* excluding big-eye grunt

✱ summer season (February-March)

✦ winter season (July-September)

The present biomass estimate for the seabreams is consistent with the results obtained in the same period in previous years. Wintertime estimates are the highest and the last year estimate is particularly high. This estimate has been affected by the occurrence of a few very high catches of *Dentex barnardi*. One of the reasons of the differences between summer and winter periods is probably due to the higher catchability of these species during spawning that takes place in wintertime. This pattern is consistent for the sum of the important demersal families, where higher estimates were obtained in the winter surveys.

The second group, including mostly pelagic or semipelagic species that usually form an important part of the catches show large year to year variations as it might be expected considering their behaviour and the inappropriateness of bottom trawl to measure their abundance. Noteworthy is however the very low value of horse mackerel in the present survey that confirms the results obtained from the acoustic system.

5.2 Luanda-Benguela

The shelf area, from 20 to 200 m depth, was covered with 44 bottom trawl stations. Catch rates by station for the main groups are presented in Table 9. In tables 10 and 11, the pelagic and demersal groups respectively are further separated into the main taxa.

The families and species included under each group are as specified under section 5.1. The relative abundance of the main resources groups is very similar to what found in the northern region: on the inner shelf, about 50% of the catch rates consisted of demersal fish and 27% of pelagic species. The other groups (sharks, shrimps, and cephalopods) only represent a minor component of the catches. *Penaeus notialis* was less common than in the northern region while cephalopods, particular *Sepia officinalis* were more abundant. On the outer shelf (70-200 m) about 60% of the catch consisted of valuable demersal species, almost double as much as in the north.

Table 9 Catch rates by main groups in swept area bottom trawl hauls on the shelf (kg/hour). LUANDA-BENGUELA

INNER SHELF 20-70 m

ST. NO.	DEP.	Demersal	Pelagic	Sharks	Shrimps	Cephalopod	Other
417	55	4.5	0.6				
418	60	1031.9	107.9			38.3	249.7
424	46	730.2	67.4		1.7	23.7	89.3
435	32	83.8	77.9		0.2	1.5	44.9
436	23	50.4	99.7				10.9
437	65	27.1	80.2			0.9	6.9
449	44	92.1	12.2				14.6
450	20	56.8	116.7	6.2			44.0
451	27	14.9	12.5				
463	45	165.6	681.9		0.6		103.5
464	37	92.3	795.9	12.2	2.4	2.7	43.5
465	50	354.2	25.3	12.9			93.4
476	69	13.6	87.1			0.5	52.9
477	40	4.6	66.6			0.7	76.4
478	22	72.1	68.5		1.2	0.1	38.0
479	55	2755.1	97.9		14.5	6.2	176.8
483	21	184.7	347.1				223.6
484	39	87.0	6.7			0.9	147.8
485	64	76.3	59.1			0.3	5.5
492	21	26.4	107.2				6.0
493	66	96.4	89.6	0.6	0.1	5.5	21.7
502	20	89.4	2.8			2.0	12.1
503	20	16.0	5.2	4.6		2.0	5.3
504	34	4.8	23.8			6.4	10.4
505	53	38.3	29.3			11.8	527.2
MEAN		246.7	122.8	1.5	0.8	4.1	80.2

OUTER SHELF 71-200

ST. NO.	DEP.	Demersal	Pelagic	Sharks	Shrimps	Cephalopod	Other
419	159	2847.7	938.7	11.4	13.8	13.6	490.4
425	79	240.6	565.4			15.8	15.7
427	103	360.2	105.1			2.1	49.6
434	192	1130.9	22.1	4.5	49.3	0.3	800.5
448	74	2358.2	143.1		2.2	26.3	100.9
452	108	796.2	123.6			5.4	44.3
461	197		17.4				
462	137	501.1	93.8	12.4	16.7	3.6	346.2
466	110	307.8	96.9			0.4	24.7
474	154	34.1				0.1	
475	128	792.6	8.4				50.6
480	100	150.8	5.7			5.7	104.0
486	103	143.6	11.0			9.7	94.0
487	160	464.4				12.6	1950.7
494	80	816.5	290.8		0.9	18.5	66.5
495	104	132.7	68.9			0.8	40.4
496	174	168.4	52.5		1.3	1.4	77.6
506	71	309.0	71.4			4.9	63.8
507	109	61.5	215.3				354.0
508	188	20.8	15.9		2.3	0.1	198.2
MEAN		581.9	142.3	1.4	4.3	6.1	243.6

Comparison with Survey I/1989 shows that catches of valuable demersal species are at similar levels (although differences in the gear used should be considered). The pelagic groups is however much reduced on the inner shelf, mainly due to a decrease in catches of the hairtails (Table 10).

Table 10 Catch rates of main pelagic families in swept area bottom trawl hauls for the shelf (kg/hour). LUANDA-BENGUELA

INNER SHELF 20-70 m

ST.NO.	DEP.	Clupeids	Carangids	Barracudas	Scombrids	Hairtails	Other
417	55		0.6				4.5
418	60		27.3	10.4		70.2	1319.9
424	46	0.5	36.8	14.4	3.3	12.3	844.9
435	32	0.1	7.1	51.2	1.4	18.2	130.5
436	23	6.9	7.9	34.9	6.8	43.2	61.3
437	65		64.8	2.9		12.5	34.9
449	44		5.4		3.5	3.3	106.7
450	20	5.0	100.5	3.4	2.7	5.1	107.1
451	27	1.7	7.0		3.8		14.9
463	45	18.1	551.5	39.3		73.0	269.7
464	37	13.7	575.0	150.0	39.6	15.4	155.4
465	50		21.4	3.9			460.5
476	69		66.8	6.8		13.4	67.0
477	40		41.0	25.6			81.8
478	22	15.0	40.9	12.6			111.4
479	55	2.3	37.4	42.4		15.8	2952.6
483	21	2.8	83.7	231.6		29.0	408.3
484	39		2.9	1.9		1.8	235.6
485	64	0.7	55.8	2.6			82.0
492	21	0.6	88.2	18.5			32.3
493	66	0.4	37.9	5.2		46.1	124.3
502	20		1.0		1.8		103.5
503	20		5.2				27.9
504	34	0.4	13.8	9.6			21.6
505	53		29.3				577.3
MEAN		2.7	76.4	26.7	2.5	14.4	333.4

OUTER SHELF 71-200 m

ST.NO.	DEP.	Clupeids	Carangids	Barracudas	Scombrids	Hairtails	Other
419	159		926.7			12.0	3376.9
425	79	5.4	363.5	3.6		192.9	272.2
427	103		74.3	14.9		15.9	412.0
434	192					22.1	1985.5
448	74		100.3	35.9		5.0	2489.5
452	108		63.3			60.3	845.9
461	197	11.5	4.8			1.1	
462	137					93.8	880.0
466	110	1.1	86.1			9.8	332.9
474	154						34.2
475	128		8.4				843.2
480	100	0.6	3.0			2.1	260.5
486	103		8.6			2.4	247.3
487	160						2427.7
494	80		118.2			172.6	902.4
495	104		54.7		10.6	3.6	173.8
496	174					52.5	248.7
506	71		67.2	4.2			377.7
507	109		89.0			126.3	415.4
508	188					15.9	221.4
MEAN		0.9	98.4	2.9	0.5	39.4	837.4

As regards composition of important demersal families (Table 11), most remarkable is the decrease in the catch rate of grunts on the inner shelf and the substantial increase of rates of

croakers (mainly *Umbrina canariensis*) on the outer shelf. The seabreams show a slight increasing trend.

Table 11 Catch rates of valuable species grouped by families in swept area bottom trawl hauls (kg/hours). LUANDA-BENGUELA

INNER SHELF 20-70

ST.NO.	DEP.	Seabreams	Grunts	Croakers	Groupers	Snappers	Other
417	55		0.8				4.4
418	60	13.9	466.4	71.8			875.8
424	46	22.0	33.0	10.0			847.2
435	32	9.5	20.8	9.9			168.1
436	23	4.4		3.8	1.0		151.8
437	65	2.9			15.6		96.6
449	44	21.5	19.0		51.6		26.9
450	20	5.7	23.9	10.3			183.8
451	27	9.4					18.1
463	45	12.4	16.5	16.3			906.4
464	37	18.4	28.2				902.4
465	50	122.5	106.7	111.8	3.8		141.0
476	69	7.7					146.4
477	40	1.4			3.2		143.8
478	22	9.9	22.4	3.1			144.6
479	55	34.5	68.1	46.9			2901.0
483	21	2.7		8.6			744.2
484	39	37.6	6.2		19.1		179.3
485	64	58.5					82.6
492	21	20.8	5.6				113.2
493	66	35.8	2.1	9.1	6.6		160.3
502	20	27.0			24.0	38.4	16.9
503	20	14.2					18.9
504	34	4.2					41.2
505	53	4.3	26.8		2.8		572.7
MEAN		20.0	33.9	12.1	5.1	1.5	383.5

OUTER SHELF 71-200

ST.NO.	DEP.	Seabreams	Grunts	Croakers	Groupers	Snappers	Other
419	159	779.5		1001.0			2535.1
425	79	22.5	44.1	3.6			767.3
427	103	141.8					375.3
434	192	1117.3					890.3
448	74	66.5		1794.5			769.7
452	108	31.1		18.5			920.0
461	197						17.4
462	137	435.1		22.7			516.0
466	110	18.1		1.5			410.3
474	154	34.1					0.1
475	128	32.5					819.1
480	100	88.0		52.4			125.8
486	103	76.4					181.8
487	160	464.4					1963.3
494	80	48.7		8.0			1136.6
495	104	35.9					206.9
496	174	168.4					132.8
506	71	15.4					433.7
507	109	5.8					624.9
508	188	12.7					224.7
MEAN		179.7	2.2	145.1			652.6

Figure 17 shows the distribution of the catch rates of seabreams on the shelf and upper slope areas. The highest abundance was found in the area Cabeça da Baleia-Benguela, on the deeper shelf and upper slope areas, consisting mainly of *Dentex macrophthalmus*. This species is distributed and most abundant further south and a full coverage of the stock, possibly including

northern Namibia, is recommended. Areas of higher catch rates were also found off Pta. do Morro and Cabo Ledo to Cabo Sao Braz.

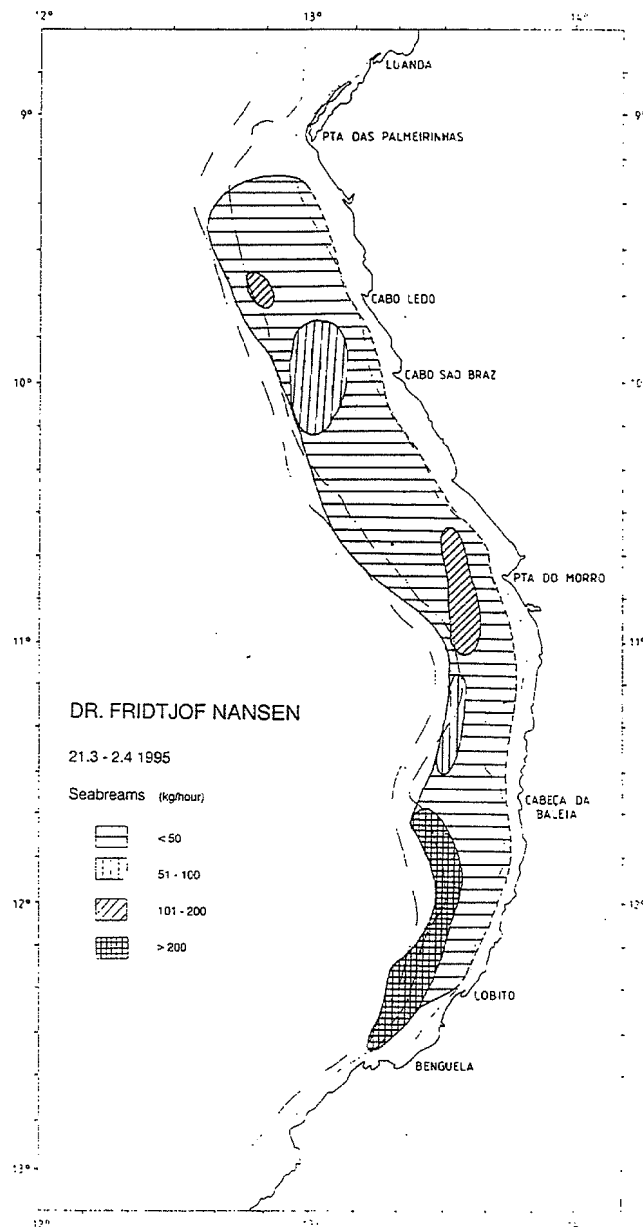


Figure 17 Distribution of seabreams (family Sparidae). Luanda-Benguela.

Table 12 shows the results from the swept-area analysis from the present and previous surveys. The total biomass of valuable demersal groups is at the same level as evaluated last year. However, comparison with the results obtained in surveys carried out in the same season shows a higher value. Again these results should be considered with care, until experiments are

performed to evaluate the differences in catchability with the new doors and the use of tickler chains.

Group/ species	Biomass						
	1985/I*	1986/I*	1989/I*	1991/II*	1992*	1994 *	1995*
Seabreams		9 300	11 100	24 580	28 000	28 730	21 800
Grunts**		2 700	5 600	5 500	2 000	120	3 400
Croakers		5 500	1 450	19 000	2 000	9 250	13 290
Groupers		470	550	1 000	1 000	400	470
Sum dem. val.		17 970	18 700	50 080	33 000	38 500	38 960
Bigeye grunt		44 600	18 500	18 500	52 000	2 990	29 500
Horse mackerel		21 000	7 200	48 500	75 000	65 100	4 200
Other carangids		3 100	8 500	290	1 640	2 790	8 400
Barracudas		1 900	3 000			740	2 700
Hairtail		17 300	12 500	4100	1 300	26 200	5 300

* no swept area hauls available

** excluding big-eye grunt

* summer season (February-March)

* winter season (July-September)

Of non-demersal groups, but usually abundant and well represented in the bottom trawl catches, the horse mackerel and the hairtails show both an important decrease. This however, at least for the horse mackerel, might be due to a southward migration caused by the 'particularly warm' environmental conditions.

CHAPTER 6 CATCH RATES, DISTRIBUTION, COMPOSITION AND BIOMASS ESTIMATES OF DEEP-WATER SHRIMP AND HAKE

The slope off Cabinda-Luanda was covered with 38 hauls distributed as follows: 19 in the depth range 200-400 m and 19 in the range 400-800 m. The slope from Luanda to Benguela was covered with 43 hauls, with 20 in the range 200-400 m and 23 in 400-800 m. The results from the swept area analysis by depth intervals are presented in Annex III, C and D. Tables 13 and 14 show the composition of the catches by major groups. These tables provide information on bycatch composition in the commercial shrimp fisheries. The groups included under 'Demersal' are families of commercial interest (including the hake). The category 'Shrimps' includes all species caught.

Table 13 Catch rates (kg/hour) by main groups in swept area bottom trawl hauls on the slope. CABINDA-LUANDA.

SLOPE 200-800 m

ST.NO.	DEP.	Demersal	Pelagic	Sharks	Shrimps	Cephalopod	Other
284	205	63.1	20.0	19.7	31.1	3.6	189.9
285	299	18.7	88.2		57.3	7.5	370.9
286	427	211.8	34.9	81.9	210.1	0.2	99.3
287	563			17.4	6.1	1.8	187.5
288	757		4.6	12.8	14.8	24.6	142.9
289	636			11.5	6.4		62.6
290	420	84.7	2.4	70.2	177.3		151.4
291	317	38.0	2.4	2.1	22.4	4.5	90.1
292	267	12.3	12.2		10.8		163.2
298	379	41.6	16.6	22.4	32.0		62.9
299	611		7.0	12.1	72.9		211.0
300	460	73.0	28.0	71.3	25.4		120.5
301	320	99.6	70.3		26.7	2.7	304.6
312	241	55.7	9.2	51.4	4.5		1332.1
313	360	16.3	35.5		7.6	1.9	201.7
314	498	119.6	15.5	21.9	9.0		100.2
315	612	24.4	4.1	3.7	19.4		114.2
316	750			4.3	4.5	18.2	239.7
317	318	152.8	11.3	32.8	32.1		538.6
318	256	75.7	42.2	68.9	38.0	2.6	836.9
330	357	2.0	6.7		5.5		109.6
331	473	24.0	0.9	22.1	50.6	2.2	103.5
332	589	26.1		8.8	297.4		113.7
333	707	15.9		4.6	0.9		503.3
334	319	106.0	88.5		103.0	0.2	100.4
335	277	44.3	100.8		174.4		138.4
346	293	26.2	136.1		102.5		36.7
348	395	208.0		42.5	621.6		50.2
349	573	2.5	4.3	13.8	261.8	1.2	61.2
350	659	29.5		2.5	278.4	7.8	207.6
351	597	6.8	2.9	5.3	151.8		114.2
352	502		31.1	1.8	100.6		86.9
353	208	12.5			11.8	4.0	872.0
359	293	4.0			10.7		619.8
360	388	1083.3	4.4	1.7	349.0		238.6
362	576		3.8	0.4	164.3		215.7
363	440		21.9	73.2	439.8	4.8	148.5
364	256	55.7	90.2		10.0	0.7	154.6
MEAN		72.0	23.6	17.9	103.8	2.3	247.2

Shrimps (including the non-commercial families) make up about 25 % of the total catches on the slope in the area Luanda-Cabinda, but only about 10% in the Luanda-Benguela region. The 'Pelagic category' consists mainly of hairtails. The substantial 'Others' group includes a wide variety of slope species of no commercial value. A comparison with the results from last year survey shows an increase in the catch rates of shrimp in the northern region, while the value for the Luanda-Benguela region is about the same.

Table 14 Catch rates (kg/hour) by main groups in swept-area trawl hauls on the slope.

LUANDA-BENGUELA.

SLOPE 200-800 m

ST.NO.	DEP.	Demersal	Pelagic	Sharks	Shrimps	Cephalopod	Other
420	347	368.4	36.2	57.4	151.4	1.3	154.4
421	605	150.0	8.9	4.9	12.0		128.5
428	221	2219.0	77.0	200.0	71.2	17.9	1210.9
429	450	74.4	10.6	34.2	86.5		238.7
430	787	5.2		2.5	39.8	11.4	314.6
431	560		13.2		51.1	1.6	256.8
432	378	69.9	12.2	10.0	73.3		173.7
433	324	345.8	41.2		147.1	1.4	328.0
438	238	1848.0			14.8		814.8
439	318	79.8	2.2		2.0		545.7
440	414	71.6	7.2	0.8	15.8		28.7
441	519	2.0	12.6		76.3		112.8
444	748	2.5	0.6	2.5	11.3	2.4	116.1
445	520	0.8	7.8	5.8	89.2		84.3
446	448	7.4		13.1	155.7		56.9
447	306	448.5	195.0	2.3	15.0		135.6
453	257	109.2	81.0		11.6		311.5
454	369	245.0	21.1	37.2	47.1		96.0
455	429	38.0	9.5	3.7	82.7		61.4
456	702	5.9	0.5	7.6	21.0	1.1	102.6
458	548	11.5	0.4	13.0	49.7	4.8	352.2
459	329	132.4	29.3	22.7	50.0		64.6
460	206	251.0	50.1	21.0	11.8	6.7	613.2
467	260	40.2	42.3		2.9	5.6	573.8
468	340	255.7	119.7		52.0		661.2
469	426	18.2	3.7	1.1	41.0		20.6
471	633	9.0	8.1	4.6	290.3		59.9
472	523	25.3	16.3	3.6	487.4	14.6	99.1
473	206	200.5	31.6		3.1	0.9	324.9
481	415	122.5	6.2	8.2	179.8		26.7
488	226	31.2	6.2		3.0	4.5	223.1
489	348	143.2	1.5	320.5	1.3		40.2
490	460	135.2	3.1	16.3	17.8		79.9
491	322	0.9		0.1	1.7	2.3	38.7
497	259	63.0	24.5		6.6		975.1
498	423	209.4	22.0	40.1	78.8	1.6	130.5
499	526	129.4	2.6	5.5	24.9		86.1
500	713	8.8			4.7	6.4	99.0
501	650	25.5	8.9	5.5	85.9	15.4	374.2
509	246	54.7	17.4		31.4		778.5
510	359	70.5	0.6	40.7	13.9		196.2
511	467	39.6	2.2	27.8	22.8		137.3
512	565	20.0	0.8	12.4	32.6		67.9
MEAN		188.1	21.7	21.5	62.1	2.3	262.7

6.1 Deep-water shrimp

The slope off Cabinda was covered with 24 stations where deep-water shrimps were caught in 22 stations (Table 13). Table 15 shows the catch rates of the rose shrimp (*P. longirostris*) and the striped red shrimp (*A. varidens*) by depths. The mean catch of *P. longirostris* was 12.1 kg/h and for *A. varidens* 3.8 kg/h.

Table 15 Catch rates of main shrimp and bycatch species in swept area bottom trawl hauls on the slope (kg/hour). CABINDA-LUANDA

SLOPE 200-800 m

ST.NO.	DEP.	Seabreams	Hake	Rose shr.	Str. shr.	Spid. shr.	Other
284	205	18.7	8.0	28.4			272.2
285	299		12.1	57.3			473.2
286	427		211.8		13.6	174.4	238.3
287	563				2.4		210.5
288	757				6.1		193.6
289	636				4.6		75.9
290	420		84.7		11.7	165.6	223.9
291	317		38.0	5.8	1.3	14.8	99.6
292	267	7.5	1.6	9.2			180.2
298	379		41.6	3.6	1.9		128.4
299	611				2.4	69.4	231.2
300	460		73.0		7.4		237.9
301	320		99.6	7.8			396.5
312	241	55.7		4.5			1392.7
313	360		16.3	1.6	0.9	5.1	239.1
314	498		119.6		5.5		141.1
315	612		24.4		3.9		137.4
316	750				3.4		263.2
317	318		152.8	29.0			585.7
318	256	75.7		38.0			950.6
330	357		2.0	3.8	0.2		117.8
331	473		24.0		9.3	39.9	130.1
332	589		26.1		4.9	292.5	122.5
333	707		15.9		0.4		508.4
334	319		106.0	6.4			285.7
335	277		44.3	165.6			248.0
346	293		26.2	43.2			232.2
348	395		208.0	28.8	13.6	579.2	92.8
349	573		2.5		1.8	260.0	80.6
350	659		29.5			278.4	217.9
351	597		6.8			151.8	122.4
352	502				10.2	90.4	119.8
353	208	10.3	2.2	11.8			876.0
359	293		4.0	5.2			625.3
360	388		1083.0	0.8	4.6	340.8	247.6
362	576				1.5	159.4	223.2
363	440				33.6	402.0	252.6
364	256	54.2	1.6	10.0			245.5
MEAN		5.8	64.9	12.1	3.8	79.6	300.5

As in the previous surveys the maximum catch rate for *P. longirostris* was observed in the 200-300 m depth stratum. Fig 18 shows the distribution of *P. longirostris*. It was found throughout the survey area, with highest concentration between Ambriz and N'zeto and north of Cabinda.

The highest concentration of *A. varidens* was recorded in the 400-500 m depth stratum. Fig. 19 shows the distribution area of *A. varidens*. The concentration throughout the area was constant (< 20 kg/h).

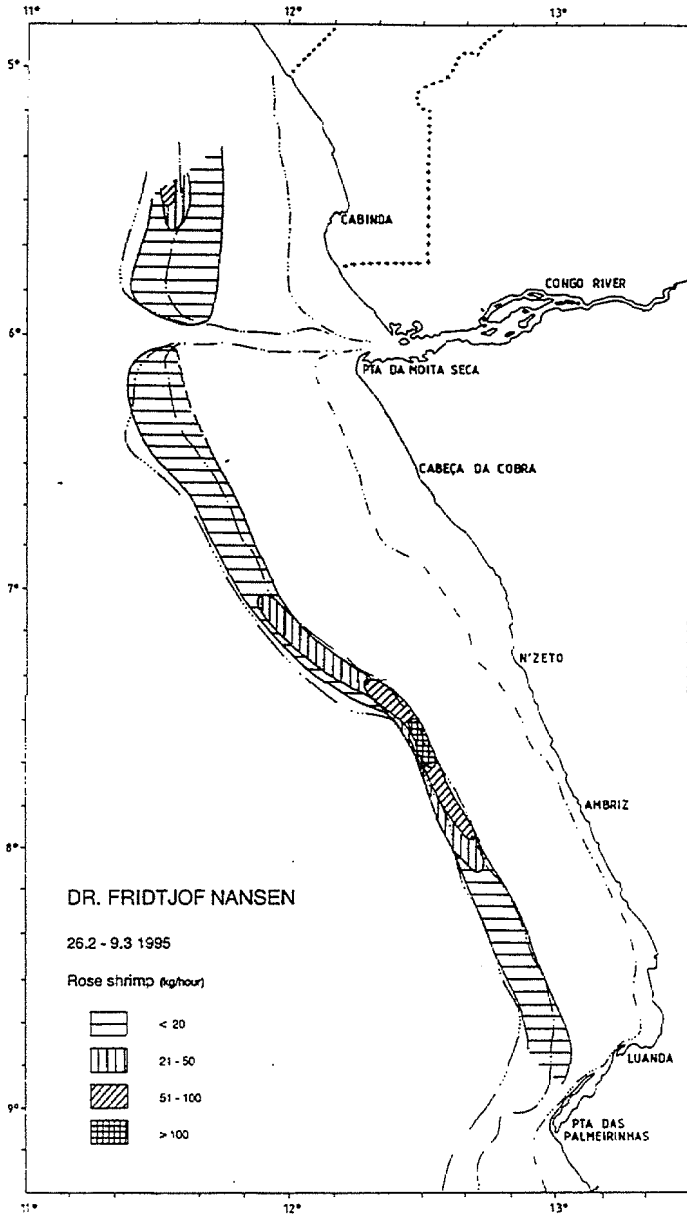


Figure 18 Distribution of rose shrimp (*Parapenaeus longirostris*). Cabinda-Luanda.

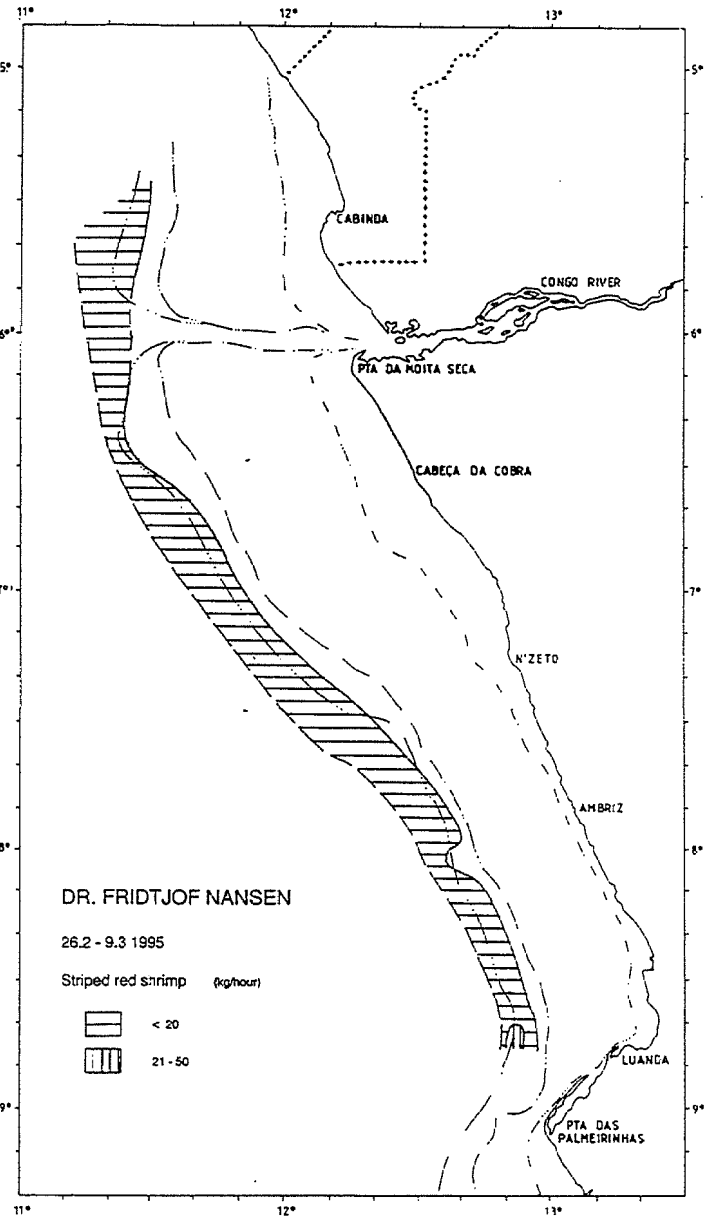


Figure 19 Distribution of striped red shrimp (*Aristeus varidens*). Cabinda-Luanda.

In the Luanda-Benguela region (Table 16) 43 stations were performed and shrimp was caught at 42 stations. Mean catches of rose shrimp were lower than in the northern region (7.9 kg/h) while the catches of striped red shrimp were higher (12 kg/h). These results are comparable with those obtained last year. This is however surprising considering the expected higher catches as a

consequence of the introduction of tickler chain on the bottom trawl. This might point to an actual decrease in the abundance of the above species. Figures 19 and 20 show the distribution of rose shrimp and striped shrimp respectively, in the Luanda-Benguela region. Catches were below 20 kg/h in most the distribution are of both species. The best fishing area for both species resulted the slope between Cabeça da Baleia and Benguela.

Table 16 Catch rates of main demersal families/species in swept area bottom trawl hauls for the slope (kg/hour). LUANDA-BENGUELA.

SLOPE 200-800 m

ST.NO.	DEP.	Seabreams	Hakes	Rose shr.	Striped	Spider	Other
420	347		368.4		106.1	29.9	264.7
421	605		150.0		6.6	0.5	147.1
428	221	2169.5	15.0	71.2			1540.2
429	450		74.4		11.8	24.9	333.3
430	787		5.2		22.4		346.0
431	560				19.9		302.8
432	378		69.9		44.0		225.2
433	324		345.8	143.2			374.5
438	238	1829.8	18.2	14.8			814.8
439	318		79.8	0.7			549.2
440	414		71.6			8.5	44.1
441	519		2.0		26.8	16.1	158.7
444	748		2.5		5.4		127.4
445	520		0.8		2.0		185.1
446	448		7.4		25.6	86.8	113.4
447	306		448.5		12.2		335.7
453	257	55.3	28.0		11.6		418.4
454	369		245.0	7.8	7.9	12.0	173.7
455	429		38.0		28.8	42.8	85.8
456	702		5.9		2.5	13.1	117.3
458	548		11.5		19.7	16.6	383.6
459	329		132.4	31.4	1.7	5.9	127.6
460	206	197.8	53.2	11.8			691.0
467	260	29.4	10.8	2.5			622.1
468	340		255.7	11.1			821.9
469	426		18.2		1.8	38.4	26.3
471	633		9.0		10.9	279.0	73.0
472	523		25.3		13.4	474.0	133.7
473	206	187.0	0.5	3.1			370.4
481	415		122.5		4.8	175.0	41.1
488	226	26.8	4.3	3.0			233.8
489	348		143.2	0.1	1.1		362.1
490	460		135.2		12.3	3.4	101.5
491	322		0.9		1.3		41.4
497	259	6.2	56.8	5.3			1000.8
498	423		209.4	0.2	31.5	22.4	218.8
499	526		129.4		19.7	1.3	98.1
500	713		8.8		1.5	0.6	108.0
501	650		25.5		20.1		469.7
509	246	37.5	17.2	31.4			795.9
510	359		70.5	1.3	9.1	2.3	238.6
511	467		39.6		15.8	3.7	170.5
512	565		20.0		18.0	10.6	85.0
MEAN		105.6	80.8	7.9	12.0	29.5	322.6

The mean catch rate of the rose shrimp was highest between 200 and 400 m (about 16 kg/h) while highest rates for striped red shrimp were obtained between 300 and 400 m (17 kg/h). The latter species had highest frequency of occurrence in the depths greater than 500 m, with catch rates of about 12 kg/h.

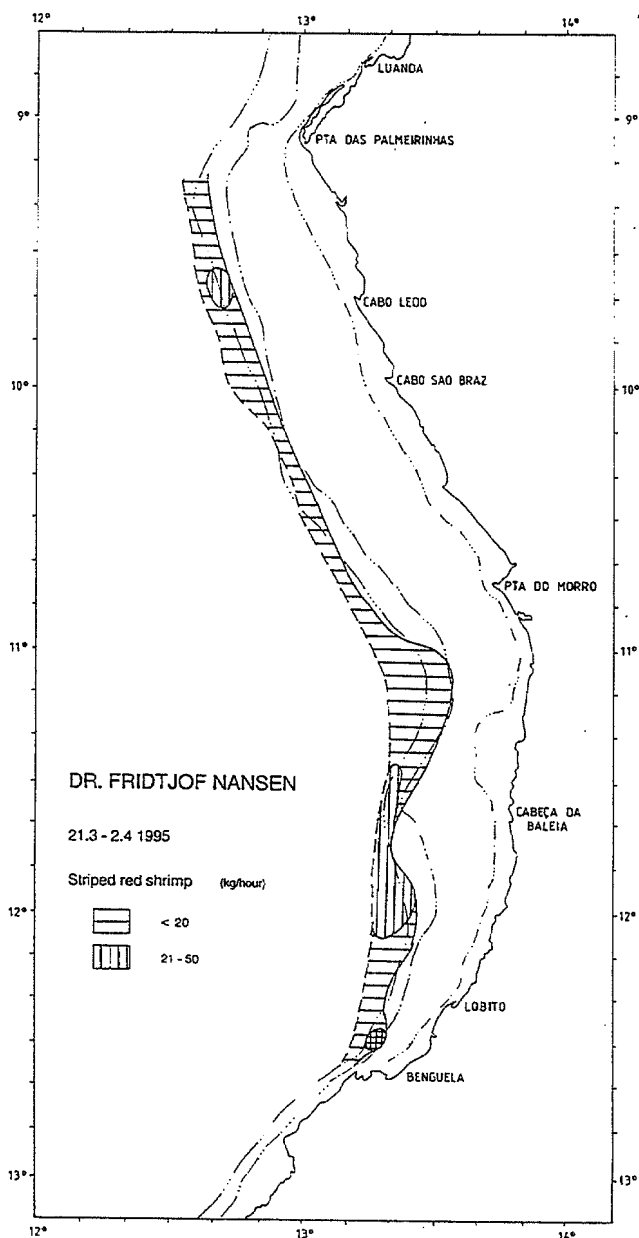


Figure 20 Distribution of rose shrimp (*Parapenaeus longirostris*). Luanda-Benguela.

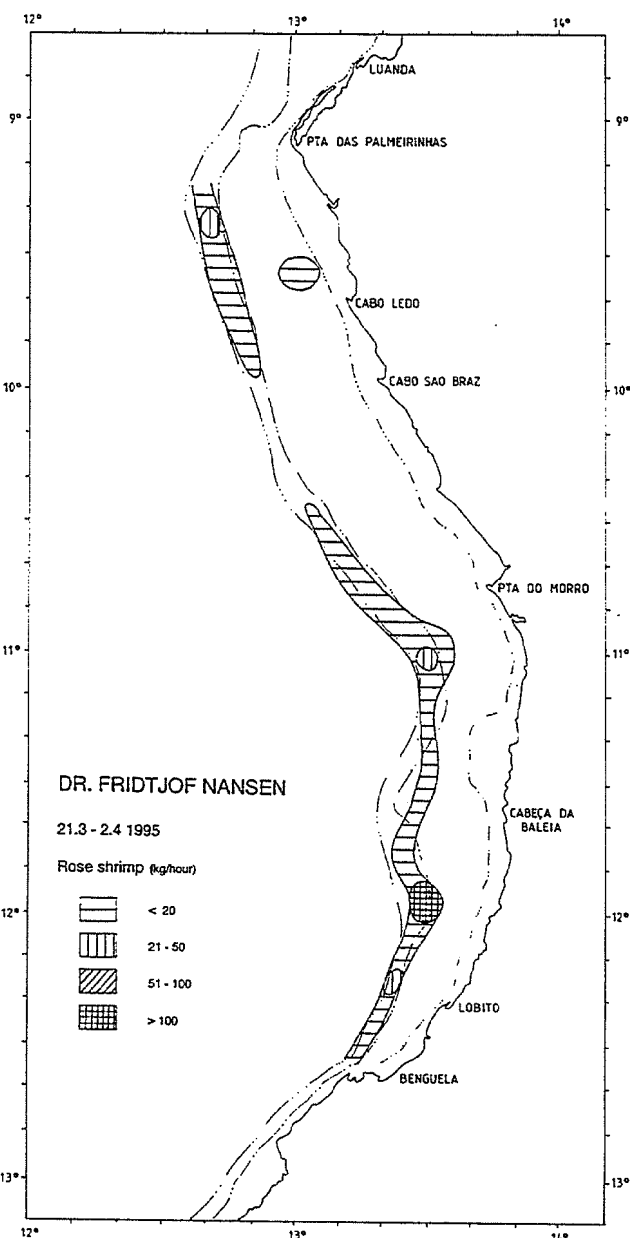


Figure 21 Distribution of striped red shrimp (*Aristeus varidens*). Luanda-Benguela

The biomass estimates for two species by area are given in table 17. Confidence intervals were calculated for the 1995 survey only and were about $\pm 10\%$ for *P. longirostris* and $\pm 7\%$ for *A. varidens*. In the northern region the biomass of *P. longirostris* has increased by 41% from the last year. This increase could be related to better gear performance. However, for *A. varidens* a decline of the biomass by 18.% was observed. In the region Luanda-Benguela the trend appears to be opposite, with rose shrimp showing a decline of about 35 % and the striped red shrimp a slight increase. The total biomass of valuable shrimps is lower as compared to the results obtained in 1986, but appears to have maintained stable levels in later years. This apparent stability probably mask a real decline in the biomass because of the more efficient gear used in this year

survey. A more realistic evaluation of biomass trends will be possible after comparison in the change of efficiency with the introduction of tickler chains.

Region/ species	Year / period of investigation					
	1985/I	1986/I	1989	1992	1994	1995
Cabinda-Luanda						
- Rose shrimp	380	150	550	615	1 110	1 580
- Striped red shr.	-	1 200	400	515	610	500
- Scarlet shrimp	-	+	+	130	+	+
Luanda-Benguela						
- Rose shrimp	-	3 400	700	680	710	460
- Striped red shr.	-	1 000	370	570	890	940
- Scarlet shrimp	-	100	+	+	+	+
Total		5 850	2 020	2 570	3 410	3 480

6.2 Benguela hake

The catch rates of Benguela hake (*Merluccius polli*) are shown in tables 15 and 16 for Luanda-Cabinda and Luanda-Benguela respectively. Figures 22 and 23 show the distribution of catch rates in these two regions. Benguela hake showed a continuous distribution on the slope both in the northern and central regions. It was mainly found on the slope from about 300 to 600 m depth, with highest concentration (> 200 kg/h) observed in three areas; off Cabinda, between N'Zeto-Ambriz and off Ambriz -Luanda.

In the Luanda-Beguela region the highest catch rates (about 200 kg/h) were obtained in the depth range 300 to 400 m. Areas of high concentrations were encountered off Cabo-Ledo to Cabo Sao Braz, off Ponta do Morro and between Cabeça da Baleia and Benguela.

Biomass estimates of hake are presented in table 16. In the Luanda-Cabinda region there is an increase of about 30 % in the biomass estimate although this value still continue the low level trend noticed since 1986. In the Luanda-Benguela region there is a decline of about 25 %, consistent with the declining trend of previous years.

Table 18 Biomass estimates of hake by area and year/period of investigation (tonnes).							
Region	Year/period of investigation						
	1985/I	1986/I	1989	1991/I	1992	1994	1995
Cabinda-Luanda	—	17 000	15 300	18 000	14 000	4 700	7 100
Luanda-Benguela	—	31 400	5 300	11 000	8 100	6 670	4 950
Total	—	48 400	20 600	29 000	22 100	11 370	12 050

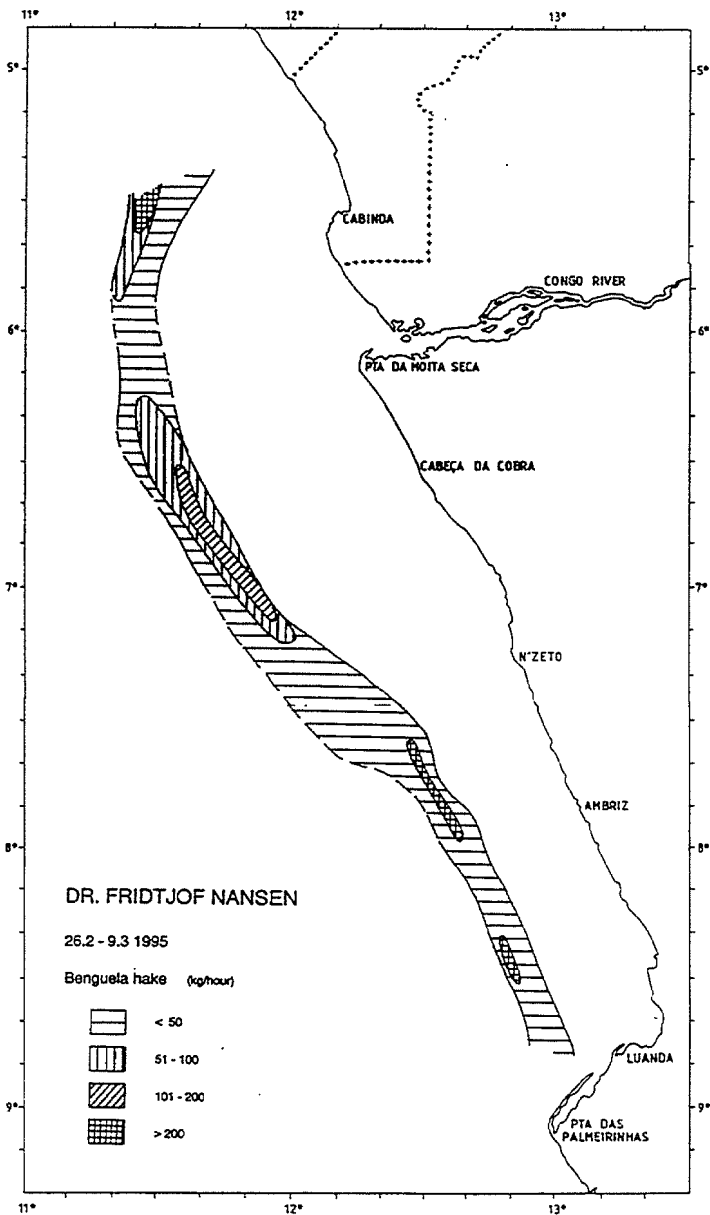


Figure 22 Distribution of Benguela hake (*Merluccius polli*). Cabinda-Luanda

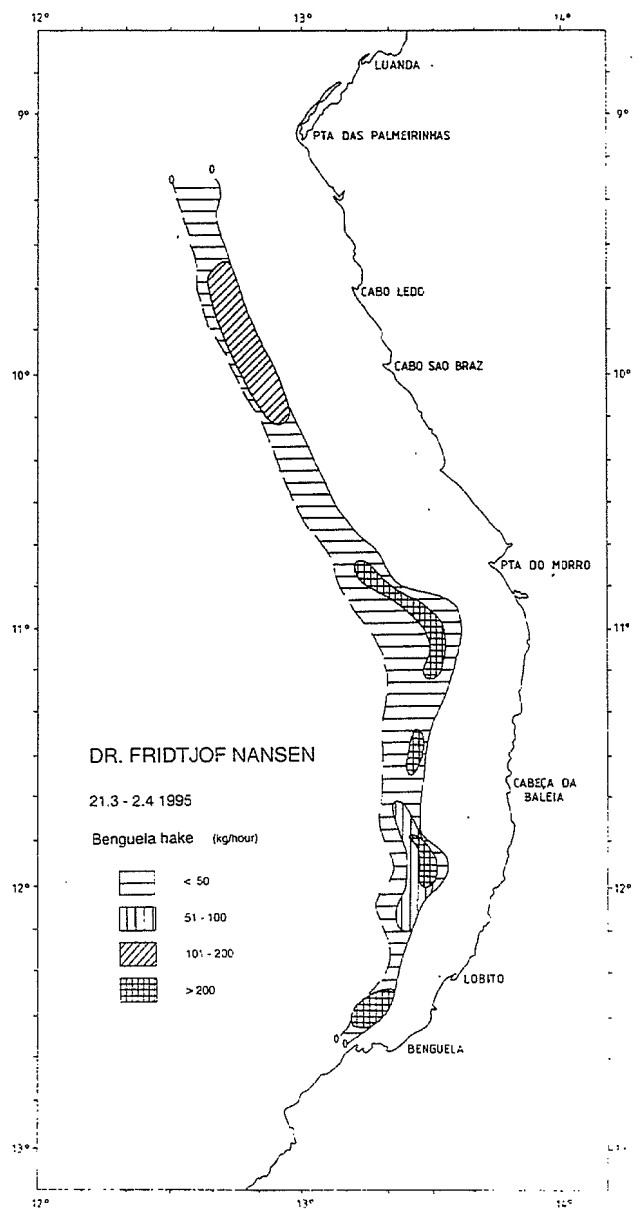


Figure 23 Distribution of Benguela hake (*Merluccius polli*). Luanda-Benguela.

Literature cited:

Gerlotto, F. (1989). Choix d'une strategie d'echantillonnage et de stratification en echo-integration ICES Fisheries Acoustic Science and Technology. Working Group Meeting, Dublin, Irlande, 1989.

Ghéno, Y & de Campos Rosado, F. (1972). Distribution de fréquences de longueur des sardinelles, *Sardinella aurita* (Val) et *Sardinella eba* (Val), débarquées à Pointe-Noire et à St. Paul de Loanda (juin 1969-octobre 1970). Doc.Sci.Cent. Pointe-Noire ORSTOM (Nouv.Sér.), 33

Annex I Records of fishing stations

PROJECT STATION: 283
 DATE: 27/ 2/95 GEAR TYPE: BT No:8 POSITION: Lat S 523 Long E 1140
 start stop duration
 TIME : 06:19:00 06:49:00 30 (min) Purpose code: 3
 LOG : 723.40 725.10 1.70 Area code : 2
 FDEPTH: 94 106 GearCond.code:
 BDEPTH: 94 106 Validity code:
 Towing dir: 270° Wire out: 350 m Speed: 30 kn*10

Sorted: 78 Kg Total catch: 395.70 CATCH/HOUR: 791.40

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Brachydeuterus auritus	488.00	13320	61.66	614
Trachurus trecae	43.70	736	5.52	611
Trichiurus lepturus	41.50	390	5.24	
Pterothrissus bellocci	28.10	210	3.55	
Pentheroscion mbizi	26.70	350	3.37	
Selene dorsalis	25.40	100	3.21	613
Pagellus bellottii	25.00	140	3.16	610
Brotula barbata	18.50	40	2.34	
Dentex angolensis	13.10	90	1.66	615
Mustelus mustelus	10.60	6	1.34	
Lepidotrigla cadmani	9.90	100	1.25	
Citharus linguatula	9.50	240	1.20	
Sepia officinalis hierredda	9.40	380	1.19	
Synagrops microlepis	9.00	1660	1.14	
Uranoscopus polli	7.60	140	0.96	
Cynoglossus canariensis	7.00	20	0.88	
Raja miraletus	6.40	10	0.81	
Chelidonicichthys gabonensis	3.80	20	0.48	
Saurida brasiliensis	2.20	290	0.28	
Solenocera africana	1.60	0	0.20	
Parapenaeus longirostris	1.50	160	0.19	612
Pegusa lascaris	1.10	10	0.14	
GOBIIDAE	0.80	80	0.10	
Monolele microstoma	0.50	40	0.06	
Merluccius polli	0.50	60	0.06	
Total	791.40		99.99	

PROJECT STATION: 285
 DATE: 27/ 2/95 GEAR TYPE: BT No:8 POSITION: Lat S 528 Long E 1134
 start stop duration
 TIME : 09:44:00 10:14:00 30 (min) Purpose code: 3
 LOG : 737.90 739.50 1.60 Area code : 2
 FDEPTH: 294 303 GearCond.code:
 BDEPTH: 294 303 Validity code:
 Towing dir: 360° Wire out: 940 m Speed: 32 kn*10

Sorted: 56 Kg Total catch: 271.30 CATCH/HOUR: 542.60

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Pterothrissus bellocci	159.60	930	29.41	
Chlorophthalmus atlanticus	129.40	2550	23.66	
Parapenaeus longirostris, fem.	49.80	4770	9.18	622
Trichiurus lepturus	48.00	2730	8.85	
Trichiurus lepturus	40.20	40	7.41	
Torpedo nobiliana	29.80	2	5.49	
Halacocephalus laevis	12.60	1740	2.32	
Setarches guentheri	9.90	360	1.82	
Loligo vulgaris	7.50	60	1.38	
Parapenaeus longirostris, male	7.50	150	1.38	623
Nezumia aequalis	6.60	180	1.22	
Pentheroscion mbizi	6.60	30	1.22	
Merluccius polli, female	6.36	46	1.17	625
Malacocephalus occidentalis	6.30	360	1.16	
Merluccius polli, male	5.74	34	1.06	624
Deepwater fish mixture	4.80	300	0.88	
Epigonus pandionis	4.50	60	0.83	
Brotula barbata	4.50	120	0.83	
Coelorinchus coelorhincus	1.50	60	0.28	
Physiculus sp.	1.20	30	0.22	
Chascanopsetta lugubris	0.90	30	0.17	
Peristedion cataphractum	0.30	30	0.06	
Total	542.60		100.00	

PROJECT STATION: 284
 DATE: 27/ 2/95 GEAR TYPE: BT No:8 POSITION: Lat S 526 Long E 1136
 start stop duration
 TIME : 08:05:00 08:35:00 30 (min) Purpose code: 3
 LOG : 3731.90 3733.50 2.60 Area code : 2
 FDEPTH: 211 199 GearCond.code:
 BDEPTH: 211 199 Validity code:
 Towing dir: 160° Wire out: 700 m Speed: 30 kn*10

Sorted: 88 Kg Total catch: 163.63 CATCH/HOUR: 327.26

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Synagrops microlepis	80.40	4960	24.57	
Pterothrissus bellocci	79.60	628	24.32	
Pentheroscion mbizi	36.40	280	11.12	616
Squatina oculata	19.10	2	5.84	
Dentex angolensis	17.80	64	5.44	617
Trichiurus lepturus	17.20	5	5.26	
Parapenaeus longirostris, fem.	14.80	1240	4.52	620
Parapenaeus longirostris, male	13.60	1320	4.16	621
MYCTOPHIDAE	12.20	3	3.73	
Merluccius polli	8.00	172	2.44	
Brotula barbata	7.20	4	2.20	
Uranoscopus polli	3.08	28	0.94	
Bembrops heterurus	2.84	72	0.87	
Trachurus trecae	2.76	36	0.84	618
Solenocera africana	2.72	244	0.83	619
Sepia sp.	2.64	112	0.81	
Zenopsis conchifer	1.92	4	0.59	
Todaropsis eblanae	0.92	12	0.28	
Dentex macrophthalmus	0.88	8	0.27	
Lepidotrigla cadmani	0.60	4	0.18	
SCYLIORHINIDAE	0.56	12	0.17	
Coelorinchus coelorhincus	0.48	12	0.15	
Helicolenus dactylopterus	0.36	12	0.11	
LOPHIIDAE	0.28	4	0.09	
OPHIIDAE	0.24	16	0.07	
Gadella imberbis	0.20	8	0.06	
Squilla sp.	0.20	12	0.06	
Malacocephalus occidentalis	0.12	8	0.04	
SOLEIDAE	0.12	4	0.04	
Antigonia capros	0.04	4	0.01	
Total	327.26		100.01	

PROJECT STATION: 286
 DATE: 27/ 2/95 GEAR TYPE: BT No:8 POSITION: Lat S 532 Long E 1128
 start stop duration
 TIME : 12:12:00 12:42:00 30 (min) Purpose code: 3
 LOG : 750.80 752.30 1.50 Area code : 2
 FDEPTH: 427 427 GearCond.code:
 BDEPTH: 427 427 Validity code:
 Towing dir: 219° Wire out: 1250 m Speed: 30 kn*10

Sorted: 113 Kg Total catch: 318.73 CATCH/HOUR: 637.46

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Nematocarcinus africanus	174.40	24310	27.36	
Merluccius polli, female	149.00	356	23.37	627
Merluccius polli, male	62.80	196	9.85	626
Centrophorus granulosus	51.30	12	8.05	
Deepwater fish mixture	29.12	32	4.57	
Trichiurus lepturus	25.92	32	4.07	
Deania profundorum	18.88	32	2.96	
Plesiopeneus edwardsianus	17.78	38	2.79	
Setarches guentheri	13.56	352	2.13	
Aristeus varidensis, female	9.28	624	1.46	629
Trichiurus lepturus	8.96	448	1.41	
Ruvettus pretiosus	7.64	2	1.20	
Centrophorus squamosus	7.52	16	1.18	
Lamprogrammus exultus	7.52	16	1.18	
Stereomastis sculpta	7.04	608	1.10	
Gadella imberbis	6.56	208	1.03	
Laemonea laureysi	5.92	48	0.93	
Aristeus varidensis, male	4.32	640	0.68	628
Shrimps, small, non comm.	4.32	2032	0.68	
Malacocephalus occidentalis	4.00	16	0.63	
Nezumia aequalis	3.52	112	0.55	
Bathygadus melanobranchus	3.52	16	0.55	
Galeus polli	3.36	80	0.53	
Brotula barbata	2.88	80	0.45	
Synagrops microlepis	1.76	96	0.28	
Yarellia blackfordi	1.76	48	0.28	
Hoplostethus cadenati	1.60	64	0.25	
PORTUNIDAE	1.60	16	0.25	
Elmopterus polli	0.64	32	0.10	
Chaceon maritae	0.62	2	0.10	
ALEPOCEPHALIDAE	0.48	16	0.08	
Halosaurus ovenii	0.16	16	0.03	
Todaropsis eblanae	0.16	16	0.03	
Neoharriotta pinnata	0.16	16	0.03	
Dibranchius atlanticus	0.00	16		
Total	638.06		100.14	

PROJECT STATION: 287
 DATE: 27/ 2/95 GEAR TYPE: BT No:8 POSITION: Lat S 537 Long E 1122
 start stop duration
 TIME :15:12:00 15:42:00 30 (min) Purpose code: 3
 LOG : 767.10 768.60 1.50 Area code : 2
 FDEPTH: 562 563 GearCond.code:
 BDEPTH: 562 563 Validity code:
 Towing dir: 225° Wire out: 1000 m Speed: 30 kn*10
 Sorted: 31 Kg Total catch: 106.47 CATCH/HOUR: 212.94

PROJECT STATION: 290
 DATE: 28/ 2/95 GEAR TYPE: BT No:8 POSITION: Lat S 549 Long E 1122
 start stop duration
 TIME :00:51:00 01:21:00 30 (min) Purpose code: 3
 LOG : 3814.00 3815.60 1.60 Area code : 2
 FDEPTH: 405 435 GearCond.code:
 BDEPTH: 405 435 Validity code:
 Towing dir: * Wire out: 1250 m Speed: 32 kn*10
 Sorted: 22 Kg Total catch: 242.94 CATCH/HOUR: 485.88

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Yarella blackfordi	101.20	12904	47.53	
Hoplostethus cadenati	48.40	1584	22.73	
ALEPOCEPHALIDAE	16.96	624	7.96	
Chlamydoselachus anguineus	11.20	2	5.26	
Lamprogrammus exutus	7.44	24	3.49	
Etmopterus polli	5.12	8	2.40	
NOHEIIDAE	4.32	86	2.03	
Shrimps, small, non comm.	3.20	594	1.50	
Malacocephalus occidentalis	2.80	40	1.31	
Stereomastis sculpta	2.15	200	1.01	
Thysanoteuthis rhombus	1.84	8	0.86	
Aristeus varidens, male	1.60	224	0.75	630
Brotula barbata	1.44	48	0.68	
Halosaurus ovenii	1.20	16	0.56	
Etmopterus pusillus	1.12	8	0.53	
MURAENESOCIDAE	1.04	16	0.49	
Aristeus varidens, female	0.80	48	0.38	631
Glyphus marsupialis	0.54	20	0.25	
Chaceon maritae	0.44	4	0.21	
PORTUNIDAE	0.12	2	0.06	
Total	212.94		99.99	

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Nematocarcinus africanus	165.60	46576	34.08	
Merluccius polli, female	63.30	140	13.03	636
Etmopterus polli	36.48	80	7.51	
Brotula barbata	29.44	352	6.06	
Pterothrissus bellocci	22.08	128	4.54	
Merluccius polli, male	21.40	66	4.40	637
Malacocephalus occidentalis	17.92	96	3.69	
Malacocephalus laevis	15.04	160	3.10	
Neoharriotta pinnata	14.90	2	3.07	
Stereomastis sculpta	11.84	1440	2.44	
Dasyatis marmorata	8.44	32	1.94	
Chaceon maritae	8.20	20	1.83	
Aristeus varidens, female	8.32	448	1.71	638
Chlamydoselachus anguineus	8.10	2	1.67	
Ijimaia loppei	7.10	2	1.46	
Galeus polli	6.88	80	1.42	
Lophius vaillanti	5.30	2	1.09	
Nezumia aequalis	4.32	256	0.89	
Chaunax pictus	3.84	32	0.79	
Dibranchius atlanticus	3.84	272	0.79	
Etmopterus polli	3.80	2	0.78	
Halosaurus ovenii	3.68	144	0.76	
Hoplostethus cadenati	3.36	80	0.69	
Aristeus varidens, male	3.36	624	0.69	639
Trichiurus lepturus	2.40	80	0.49	
Laemonema laureysi	2.24	96	0.46	
Yarella blackfordi	2.24	336	0.46	
MURAENESOCIDAE	0.80	16	0.16	
Total	485.92		100.00	

PROJECT STATION: 288
 DATE: 27/ 2/95 GEAR TYPE: BT No:8 POSITION: Lat S 545 Long E 1115
 start stop duration
 TIME :18:22:00 18:52:00 30 (min) Purpose code: 3
 LOG : 3782.10 3783.40 1.30 Area code : 2
 FDEPTH: 752 762 GearCond.code:
 BDEPTH: 752 762 Validity code:
 Towing dir: 180° Wire out: 2000 m Speed: 30 kn*10
 Sorted: 48 Kg Total catch: 99.86 CATCH/HOUR: 199.72

PROJECT STATION: 291
 DATE: 28/ 2/95 GEAR TYPE: BT No:8 POSITION: Lat S 549 Long E 1125
 start stop duration
 TIME :03:04:00 03:34:00 30 (min) Purpose code: 3
 LOG : 3823.90 3825.50 1.60 Area code : 2
 FDEPTH: 312 321 GearCond.code:
 BDEPTH: 312 321 Validity code:
 Towing dir: 340° Wire out: 900 m Speed: 32 kn*10
 Sorted: 19 Kg Total catch: 79.74 CATCH/HOUR: 159.48

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Alepocephalus sp.	32.50	280	16.27	
Octopus vulgaris	20.00	14	10.01	
Stereomastis sculpta	19.24	1784	9.63	
Nezumia sp.	14.04	250	7.03	
MURAENESOCIDAE	13.74	120	6.88	
Ijimaia loppei	13.00	2	6.51	
Yarella blackfordi	12.54	154	6.28	
Bathygadus sp.	11.64	140	5.83	
Glyphus marsupialis	8.62	302	4.32	
Deania calcea	7.44	14	3.73	
Hoplostethus cadenati	6.34	104	3.17	
Aristeus varidens, female	5.86	274	2.93	633
Thysanoteuthis rhombus	4.64	16	2.32	
Aphanopus sp.	4.60	10	2.30	
Halosaurus ovenii	4.60	90	2.30	
ALEPOCEPHALIDAE	4.24	104	2.12	
CONGRIDAE	3.90	10	1.95	
Etmopterus pusillus	3.50	14	1.75	
Ehinania costaeacanarie	3.24	4	1.62	
Dicrolene intransigra	2.80	40	1.40	
Hydroleagus sp.	1.84	10	0.92	
Raja sp.	1.04	4	0.52	
Aristeus varidens, male	0.26	32	0.13	632
Heterocarpus grimaldii	0.10	6	0.05	
Total	199.72		99.97	

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Pterothrissus bellocci	39.60	216	24.83	
Merluccius polli, male	21.40	116	13.42	642
Merluccius polli, female	16.60	92	10.41	641
Nematocarcinus africanus	14.82	4152	9.29	
Lophius vaillanti	11.28	18	7.07	
Saurida brasiliensis	8.16	144	5.12	
Malacocephalus occidentalis	7.74	282	4.85	
OPHIDIIDAE	7.50	300	4.70	
Parapenaeus longirostris, fem.	5.76	516	3.61	640
Dibranchius atlanticus	4.98	438	3.12	
HISTIOLEPTHIDAE	3.30	12	2.07	
Nezumia aequalis	3.30	54	2.07	
Trichiurus lepturus	2.40	60	1.50	
Chaceon maritae	2.20	10	1.38	
Etmopterus polli	2.10	2	1.32	
Malacocephalus laevis	1.86	234	1.17	
Dasyatis marmorata	1.62	4	1.02	
ARGENTINIDAE	1.26	30	0.79	
Loligo vulgaris	1.20	6	0.75	
Aristeus varidens, male	0.78	150	0.49	643
Stereomastis sculpta	0.60	24	0.38	
Aristeus varidens, female	0.48	66	0.30	644
Shrimps, small, non comm.	0.30	18	0.19	
Solenocera africana	0.24	12	0.15	
Peristedion cataphractum	0.00	6		
Total	159.48		100.00	

PROJECT STATION: 289
 DATE: 27/ 2/95 GEAR TYPE: BT No:8 POSITION: Lat S 548 Long E 1118
 start stop duration
 TIME :22:01:00 22:31:00 30 (min) Purpose code: 3
 LOG : 3800.20 3801.90 1.70 Area code : 2
 FDEPTH: 625 647 GearCond.code:
 BDEPTH: 625 647 Validity code:
 Towing dir: 330° Wire out: 1600 m Speed: 30 kn*10
 Sorted: 19 Kg Total catch: 40.25 CATCH/HOUR: 80.50

PROJECT STATION: 292
 DATE: 28/ 2/95 GEAR TYPE: BT No:8 POSITION: Lat S 549 Long E 1127
 start stop duration
 TIME :06:00:00 06:30:00 30 (min) Purpose code: 3
 LOG : 3832.50 3834.00 1.50 Area code : 2
 FDEPTH: 269 265 GearCond.code:
 BDEPTH: 269 265 Validity code:
 Towing dir: 350° Wire out: 900 m Speed: 3 kn*10
 Sorted: 64 Kg Total catch: 99.26 CATCH/HOUR: 198.52

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Yarella blackfordi	20.84	2816	25.89	
Etmopterus pusillus	11.52	20	14.31	
Hoplostethus cadenati	10.00	160	12.42	
Nezumia aequalis	9.60	164	11.93	
Alepocephalus sp.	5.48	216	6.81	
Aristeus varidens, female	4.24	234	5.27	634
Deepwater fish mixture	3.32	56	4.12	
Stereomastis sculpta	2.84	140	3.53	
MURAENESOCIDAE	2.16	24	2.68	
Bathygadus sp.	2.16	20	2.68	
Halosaurus ovenii	1.92	44	2.39	
Malacocephalus occidentalis	1.56	4	1.94	
OPHIDIIDAE	1.52	88	1.89	
Glyphus marsupialis	1.06	42	1.32	
Melanocetus johnsoni	1.00	16	1.24	
Shrimps, small, non comm.	0.80	164	0.99	
Aristeus varidens, male	0.32	48	0.40	635
Dasyatis centroura	0.16	4	0.20	
Total	80.50		100.01	

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Pterothrissus bellocci	61.04	414	30.75	
Torpedo nobiliana	29.60	2	14.91	
Brotula barbata	17.54	40	8.84	
Zeus capensis	16.50	4	8.31	
Trichiurus lepturus	12.24	416	6.17	
Synagrops microlepis	10.32	556	5.20	
Parapenaeus longirostris, fem.	8.84	990	4.45	645
Laemonema laureysi	8.28	96	4.27	
Dentex angolensis	7.50	10	3.78	
MORIDAE	7.20	256	3.63	
Chaceon maritae	3.42	22	1.72	
Pentheroscion mbizi	3.20	4	1.61	
Coelorinchus coelorhincus	1.68	28	0.85	
Peristedion cataphractum	1.62	40	0.82	
Merluccius polli	1.58	12	0.80	
Solenocera africana	1.58	188	0.80	
Pontinus kuhlii	1.38	18	0.70	
Bassanago albescens	1.26	28	0.63	
SOLEIDAE	1.26	48	0.63	
Bembrops heterurus	1.20	18	0.60	
Parapenaeus longirostris, male	0.36	42	0.18	646
Gephyroberyx darwini	0.36	4	0.18	
Lophiodes kempi	0.30	4	0.15	
Dibranchius atlanticus	0.26	24	0.13	
Total	198.52		100.02	

PROJECT STATION: 293
 DATE: 28/ 2/95 GEAR TYPE: BT No:8 POSITION: Lat S 548 Long E 1132
 start stop duration Purpose code: 3
 TIME :07:53:00 08:23:00 30 (min) Area code : 2
 LOG :3839.00 3840.30 1.30 GearCond.code:
 FDEPTH: 199 195 Validity code:
 BDEPTH: 199 195
 Towing dir: 350° Wire out: 670 m Speed: 30 kn*10
 Sorted: 117 Kg Total catch: 407.13 CATCH/HOUR: 814.26

PROJECT STATION: 296
 DATE: 28/ 2/95 GEAR TYPE: BT No:8 POSITION: Lat S 608 Long E 1202
 start stop duration Purpose code: 3
 TIME :16:24:00 16:54:00 30 (min) Area code : 2
 LOG :3896.40 3898.70 1.30 GearCond.code:
 FDEPTH: 39 42 Validity code:
 BDEPTH: 39 42
 Towing dir: 187° Wire out: 160 m Speed: 27 kn*10
 Sorted: 65 Kg Total catch: 195.52 CATCH/HOUR: 391.04

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Pterothrissus belloci	344.80	2794	42.35	
Miracorvina angolensis	195.80	330	24.05	649
Brotula barbata	43.00	58	5.28	647
Trichiurus lepturus	36.80	110	4.52	
Synagrops microlepis	32.80	1716	4.03	
Dentex angolensis	31.10	130	3.82	648
Galeorhinus galeus	22.00	2	2.70	
Spicara alta	17.60	154	2.16	
Umbriina canariensis	17.60	32	2.16	
Pentheroscion mbizi	17.40	142	2.14	
Epinephelus haifensis	9.80	6	1.20	
Trigla lyra	9.40	88	1.15	
Parapenaeus longirostris, fem.	7.14	814	0.88	650
Torpedo torpedo	5.00	10	0.61	
Peristedion cataphractum	4.80	142	0.59	
Squatina oculata	4.40	10	0.54	
Uranoscopus polli	3.40	44	0.42	
Bembrops heterurus	3.00	44	0.37	
Parapenaeus longirostris, male	2.52	374	0.31	651
Epigonus sp.	1.54	22	0.19	
SOLEIDAE	1.40	32	0.17	
Dentex macrophthalmus	1.20	10	0.15	
Pontinus kuhlii	1.00	10	0.12	
MORIDAE	0.76	22	0.09	
Total	814.26		100.00	

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Galeoides decadactylus	196.00	950	50.12	
Selene dorsalis	48.50	530	12.40	663
Brachydeuterus auritus	42.10	2540	10.77	
Pseudotolithus senegalensis	29.20	34	7.47	661
Ilisha africana	26.00	570	6.65	
Pagrus caeruleostictus	11.08	26	2.83	660
Pagellus bellottii	10.06	34	2.57	659
Sphyraena guachancho	9.80	18	2.51	662
Chloroscombrus chrysurus	6.00	60	1.53	
Argyrosomus regius	3.20	4	0.82	664
Syacium micrurus	1.90	20	0.49	
Trachinus draco	1.80	50	0.46	
Uranoscopus polli	1.60	20	0.41	
SOLEIDAE	1.00	10	0.26	
Albula walpes	0.94	2	0.24	
Sphyraena sphyraena	0.76	2	0.19	
Citharus linguatula	0.60	10	0.15	
Grammolites gruvelli	0.30	20	0.08	
Pseudupeneus prayensis	0.20	2	0.05	
Total	391.04		100.00	

PROJECT STATION: 294
 DATE: 28/ 2/95 GEAR TYPE: BT No:8 POSITION: Lat S 547 Long E 1141
 start stop duration Purpose code: 3
 TIME :10:00:00 10:30:00 30 (min) Area code : 2
 LGG :3849.50 3850.80 1.30 GearCond.code:
 FDEPTH: 100 99 Validity code:
 BDEPTH: 100 99
 Towing dir: 350° Wire out: 400 m Speed: 30 kn*10
 Sorted: 81 Kg Total catch: 162.80 CATCH/HOUR: 325.60

PROJECT STATION: 297
 DATE: 28/ 2/95 GEAR TYPE: PT No:1 POSITION: Lat S 609 Long E 1151
 start stop duration Purpose code: 1
 TIME :19:29:00 20:00:00 31 (min) Area code : 2
 LOG :3919.60 3921.70 2.10 GearCond.code:
 FDEPTH: 35 35 Validity code:
 BDEPTH: 78 78
 Towing dir: 210° Wire out: 297 m Speed: 40 kn*10
 Sorted: 30 Kg Total catch: 355.68 CATCH/HOUR: 688.41

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Brachydeuterus auritus	99.00	984	30.41	654
Pteroscion peli	51.60	736	15.85	655
Pterothrissus belloci	39.60	300	12.16	
Dentex angolensis	25.20	112	7.74	656
Synagrops microlepis	23.76	3624	7.30	
Trichiurus lepturus	23.60	312	7.25	
Uranoscopus polli	14.04	180	4.31	
Brotula barbata	8.56	20	2.63	
Trigla lyra	7.84	84	2.41	
Miracorvina angolensis	5.36	28	1.65	
Raja miraletus	4.84	12	1.49	
GOBIIDAE	4.80	636	1.47	
Monolele microstoma	4.24	84	1.30	
Squatina oculata	3.12	4	0.96	
Parapenaeus longirostris, male	2.60	320	0.80	653
Scorpaena sp.	2.08	52	0.64	
Pagellus bellottii	1.96	8	0.60	
Parapenaeus longirostris, fem.	1.28	180	0.39	652
Citharus linguatula	0.92	8	0.28	
Pegusa lascaris	0.64	44	0.20	
Saurida brasiliensis	0.24	56	0.07	
Bembrops heterurus	0.20	8	0.06	
Sepia elegans	0.08	52	0.02	
LEPIDOTEUTHIDAE	0.04	36	0.01	
Total	325.60		100.00	

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Selene dorsalis	681.68	2925	99.02	665
Brachydeuterus auritus	4.65	46	0.68	
Chloroscombrus chrysurus	2.09	23	0.30	
Total	688.42		100.00	

PROJECT STATION: 295
 DATE: 28/ 2/95 GEAR TYPE: BT No:8 POSITION: Lat S 546 Long E 1153
 start stop duration Purpose code: 3
 TIME :12:10:00 12:40:00 30 (min) Area code : 2
 LOG :3863.30 3864.20 1.20 GearCond.code:
 FDEPTH: 51 52 Validity code:
 BDEPTH: 51 52
 Towing dir: 360° Wire out: 200 m Speed: 30 kn*10
 Sorted: 84 Kg Total catch: 151.42 CATCH/HOUR: 302.84

PROJECT STATION: 298
 DATE: 1/ 3/95 GEAR TYPE: BT No:8 POSITION: Lat S 610 Long E 1124
 start stop duration Purpose code: 3
 TIME :01:15:00 01:45:00 30 (min) Area code : 2
 LOG :3958.20 3959.20 1.00 GearCond.code:
 FDEPTH: 381 376 Validity code:
 BDEPTH: 381 376
 Towing dir: 350° Wire out: 1250 m Speed: 30 kn*10
 Sorted: 27 Kg Total catch: 87.71 CATCH/HOUR: 175.42

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Brachydeuterus auritus	111.60	2682	36.85	657
Trichiurus lepturus	70.02	730	23.12	
Pteroscion peli	68.58	1228	22.65	658
Pseudotolithus senegalensis	19.26	72	6.36	
Raja miraletus	10.00	36	3.30	
Cynoglossus canariensis	5.78	22	1.91	
Arius parkii	4.28	4	1.41	
Stromateus fiatola	3.60	4	1.19	
Monolele microstoma	3.52	100	1.16	
Pennaeus notialis	2.70	190	0.89	
Synagrops microlepis	1.14	76	0.38	
Citharus linguatula	1.00	36	0.33	
Grammolites gruvelli	0.90	18	0.30	
Ilisha africana	0.46	8	0.15	
Total	302.84		100.00	

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Merluccius polli, female	33.30	78	18.98	666
Shrimps, small, non comm.	19.00	5590	10.83	
Trichiurus lepturus	16.64	470	9.49	
OPHIIDAE	14.10	300	8.04	
Deania profundorum	13.34	26	7.60	
Merluccius polli, male	8.30	32	4.73	667
Stereomastis sculpta	8.00	900	4.56	
Nezumia aequalis	6.64	280	3.79	
Coelorrhinus coelorrhinus	6.60	240	3.76	
Galeus polli	5.74	90	3.27	
Malacocephalus laevis	4.94	26	2.82	
Raja miraletus	4.90	6	2.79	
Chaceon maritae	3.90	6	2.22	
Plesionika martia	3.70	480	2.11	
Parapenaeus longirostris, fem.	3.60	370	2.05	668
Hoplostethus cadenati	2.50	10	1.43	
Dibranchius atlanticus	2.34	120	1.33	
Lophius vaillanti	2.20	6	1.25	
Epigonus pandionis	2.10	26	1.20	
Solenocera africana	2.10	120	1.20	
Chaunax pictus	2.10	36	1.20	
Aristeus varidensis, female	1.80	80	1.03	670
Glyphus marsupialis	1.70	56	0.97	
Etmopterus polli	1.70	10	0.97	
Etmopterus pusillus	1.64	10	0.93	
Laemonema laureysi	1.24	40	0.71	
Chlorophthalmus atlanticus	0.64	20	0.36	
Halosaurus ovenii	0.24	10	0.14	
Malacocephalus occidentalis	0.20	6	0.11	
MYCTOPHIDAE	0.10	90	0.06	
Aristeus varidensis, male	0.06	6	0.03	669
MACROURIDAE	0.04	6	0.02	
MURAENESOCIDAE	0.04	10	0.02	
Pontinus kuhlii	0.04	6	0.02	
Yarellia blackfordi	0.00	6		
Peristedion cataphractum	0.00	6		
Total	175.48		100.02	

PROJECT STATION: 299
 DATE: 1/ 3/95 GEAR TYPE: BT No:1 POSITION:Lat S 611
 start stop duration Long E 1119
 TIME :04:13:00 04:43:00 30 (min) Purpose code: 3
 LOG :3970.90 3971.80 0.80 Area code : 2
 FDEPTH: 607 615 GearCond.code:
 BDEPTH: 607 615 Validity code:
 Towing dir: 360° Wire out:1650 m Speed: 30 kn*10

Sorted: 30 Kg Total catch: 151.50 CATCH/HOUR: 303.00

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
GONOSTOMATIDAE	92.40	13990	30.50	
Nematocarcinus africanus	69.40	16810	22.90	
Lamprogrammus exutus	48.20	110	15.91	
Hoplostethus cadenati	28.20	250	9.31	
ALEPOCEPHALIDAE	15.20	400	5.02	
Deania profundorum	11.60	20	3.83	
Yarella blackfordi	9.00	120	2.97	
Lepidopus caudatus	7.00	110	2.31	
Stereomastis sculpta	6.00	840	1.98	
Stomias affinis	3.40	60	1.12	
MORIDAE	3.00	130	0.99	
CONGRIDAE	2.60	60	0.86	
Aristeus varidens, female	2.00	80	0.66	671
Glyphus marsupialis	1.10	40	0.36	673
Dibranchus atlanticus	1.10	60	0.36	
Bathyrcoconger vicinus	1.00	20	0.33	
Nezumia sp.	0.60	20	0.20	
Etmopterus lucifer	0.50	10	0.17	
Aristeus varidens, male	0.40	20	0.13	672
MYCTOPHIDAE	0.30	10	0.10	
Total	303.00		100.01	

PROJECT STATION: 302
 DATE: 1/ 3/95 GEAR TYPE: BT No:8 POSITION:Lat S 629
 start stop duration Long E 1140
 TIME :12:57:00 13:27:00 30 (min) Purpose code: 3
 LOG :4024.10 4025.60 1.50 Area code : 2
 FDEPTH: 186 174 GearCond.code:
 BDEPTH: 186 174 Validity code:
 Towing dir: 340° Wire out: 950 m Speed: 32 kn*10

Sorted: 29 Kg Total catch: 307.54 CATCH/HOUR: 615.08

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Synagrops microlepis	432.00	27820	70.23	
Trichiurus lepturus	69.00	540	11.22	
Chlorophthalmus atlanticus	33.20	1620	5.40	
Dentex angolensis	28.20	112	4.58	681
Raja miraletus	9.20	20	1.50	
Zeus faber	8.40	20	1.37	
Octopus vulgaris	6.40	40	1.04	
Zeus capensis	6.00	60	0.98	
Sepia elegans	5.40	40	0.88	
Brotula barbata	4.66	4	0.76	
Hoplostethus cadenati	4.60	40	0.75	
Todaropsis eblanae	2.00	120	0.33	
Parapenaeus longirostris, fem.	1.80	240	0.29	683
Parapenaeus longirostris, male	1.40	300	0.23	682
Chelidonichthys gabonensis	1.20	20	0.20	
Scorpaena normani	1.00	40	0.16	
Peristedion cataphractum	0.40	20	0.07	
Dentex macrophthalmus	0.22	2	0.04	
Dibranchus atlanticus	0.00	40		
Total	615.08		100.03	

PROJECT STATION: 300
 DATE: 1/ 3/95 GEAR TYPE: BT No:8 POSITION:Lat S 633
 start stop duration Long E 1131
 TIME :08:47:00 09:17:00 30 (min) Purpose code: 3
 LOG :4004.60 4006.50 1.90 Area code : 2
 FDEPTH: 458 461 GearCond.code:
 BDEPTH: 458 461 Validity code:
 Towing dir: 130° Wire out:1400 m Speed: 35 kn*10

Sorted: 93 Kg Total catch: 159.14 CATCH/HOUR: 318.28

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Centrophorus granulosus	62.10	16	19.51	
Merluccius polli, female	53.70	128	16.87	677
Laemonema laureysi	32.00	432	10.05	
Trichiurus lepturus	28.00	248	8.80	
Merluccius polli, male	19.30	68	6.06	676
Shrimps, small, non comm.	18.08	10848	5.68	
MORIDAE	15.60	824	4.90	
Bathyrcoconger vicinus	13.12	56	4.12	
Lamprogrammus exutus	12.40	24	3.90	
Chaunax pictus	11.68	48	3.67	
Lophius vaillanti	7.76	8	2.44	
GONOSTOMATIDAE	5.84	696	1.83	
Aristeus varidens, female	5.60	368	1.76	574
Stereomastis sculpta	4.96	544	1.56	
Scymnodon obscurus	4.40	72	1.38	
Deania profundorum	4.20	8	1.32	
Nezumia sp.	2.80	136	0.88	
Halosaurus ovenii	2.80	88	0.88	
Chaceon maritae	2.66	6	0.84	
Callinectes amnicola	2.40	32	0.75	
Aristeus varidens, male	1.76	192	0.55	675
Coelorrhinchus coelorrhinchus	1.36	24	0.43	
Hymenocephalus italicus	1.20	136	0.38	
ALEPOCEPHALIDAE	1.04	96	0.33	
Bassanago albescens	0.80	8	0.25	
Coloconger cadenati	0.72	8	0.23	
Malacocephalus laevis	0.64	8	0.20	
Galeus polli	0.64	16	0.20	
Dibranchus atlanticus	0.40	32	0.13	
Synagrops microlepis	0.32	8	0.10	
Total	318.28		100.00	

PROJECT STATION: 303
 DATE: 1/ 3/95 GEAR TYPE: BT No:8 POSITION:Lat S 637
 start stop duration Long E 1147
 TIME :15:18:00 15:48:00 30 (min) Purpose code: 3
 LOG :4037.80 4039.20 1.40 Area code : 2
 FDEPTH: 123 122 GearCond.code:
 BDEPTH: 123 122 Validity code:
 Towing dir: 350° Wire out: 400 m Speed: 32 kn*10

Sorted: 70 Kg Total catch: 70.35 CATCH/HOUR: 140.70

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Trichiurus lepturus	139.90	374	99.43	684
Todaropsis eblanae	0.80	6	0.57	
Total	140.70		100.00	

PROJECT STATION: 304
 DATE: 1/ 3/95 GEAR TYPE: BT No:8 POSITION:Lat S 627
 start stop duration Long E 1154
 TIME :17:09:00 17:40:00 31 (min) Purpose code: 3
 LOG :4049.70 4051.20 1.50 Area code : 2
 FDEPTH: 105 102 GearCond.code:
 BDEPTH: 105 102 Validity code:
 Towing dir: 350° Wire out: 400 m Speed: 30 kn*10

Sorted: 86 Kg Total catch: 113.68 CATCH/HOUR: 220.03

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Brachydeuterus auritus	65.61	538	29.82	
Trichiurus lepturus	49.84	91	22.65	
Dentex angolensis	30.29	174	13.77	685
Dentex congoensis	17.23	217	7.83	686
Pterothrissus belloci	11.03	77	5.01	
Lepidotrigla cadmani	10.84	244	4.93	
Citharus linguatula	8.09	236	3.68	
Pagellus bellottii	7.51	103	3.41	687
Squatina oculata	4.34	2	1.97	
Saurida brasiliensis	3.21	840	1.46	
Scorpaena angolensis	2.40	15	1.09	
Priacanthus arenatus	1.70	4	0.77	
Raja miraletus	1.51	4	0.69	
Uranoscopus polli	1.43	8	0.65	
Trachurus trecae	1.28	64	0.58	688
Sepia officinalis hierredda	1.28	159	0.58	
Torpedo torpedo	1.16	2	0.53	
Chaetodon hoefleri	0.50	4	0.23	
Dentex barnardi	0.50	2	0.23	
Illex coincidii	0.27	8	0.12	
Total	220.02		100.00	

PROJECT STATION: 301
 DATE: 1/ 3/95 GEAR TYPE: BT No: POSITION:Lat S 628
 start stop duration Long E 1134
 TIME :10:49:00 11:19:00 30 (min) Purpose code: 3
 LOG :4013.00 4014.30 1.30 Area code : 2
 FDEPTH: 323 316 GearCond.code:
 BDEPTH: 323 316 Validity code:
 Towing dir: 340° Wire out:1130 m Speed: 32 kn*10

Sorted: 50 Kg Total catch: 251.95 CATCH/HOUR: 503.90

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Chlorophthalmus atlanticus	161.00	3474	35.92	
Merluccius polli, male	75.80	530	15.04	678
Trichiurus lepturus	44.00	70	8.73	
Pterothrissus belloci	32.70	180	6.49	
Trichiurus lepturus	26.30	1200	5.22	
Merluccius polli, female	23.80	140	4.72	679
Hymenocephalus italicus	22.50	1570	4.47	
Synagrops microlepis	18.20	810	3.61	
Shrimps, small, non comm.	14.30	6234	2.84	
Epigonus sp.	10.50	180	2.08	
Laemonema laureysi	10.20	180	2.02	
Peristedion cataphractum	8.70	60	1.73	
Parapenaeus longirostris, fem.	7.80	960	1.55	680
Zeus capensis	4.90	10	0.97	
Coelorrhinchus coelorrhinchus	4.20	160	0.83	
Plesionika martia	3.90	370	0.77	
Gadella imberbis	2.60	90	0.52	
Todaropsis eblanae	2.40	20	0.48	
Malacocephalus occidentalis	2.10	10	0.42	
Scorpaena angolensis	1.60	60	0.32	
Dibranchus atlanticus	1.10	140	0.22	
Pegusa lascaris	1.00	40	0.20	
Chascanopsetta lugubris	0.80	10	0.16	
MYCTOPHIDAE	0.80	770	0.15	
Solenocera africana	0.70	70	0.14	
Deepwater fish mixture	0.60	100	0.12	
Chaunax pictus	0.50	30	0.10	
GALATHEIDAE	0.30	40	0.06	
LEPIDOTUTHIDAE	0.30	120	0.06	
NETTASTOMATIDAE	0.30	10	0.06	
GRAMMICOLEPIDAE	0.00	20		
Total	503.90		100.01	

PROJECT STATION: 305
 DATE: 1/ 3/95 GEAR TYPE: PT No:1 POSITION:Lat S 628
 start stop duration Long E 1205
 TIME :21:45:00 22:00:00 15 (min) Purpose code: 1
 LOG :4086.80 4088.10 1.30 Area code : 2
 FDEPTH: 54 48 GearCond.code:
 BDEPTH: 54 48 Validity code:
 Towing dir: 305° Wire out: 80 m Speed: 35 kn*10

Sorted: 1 Kg Total catch: 1.74 CATCH/HOUR: 6.96

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Saurida brasiliensis	4.56	1404	65.52	
Sphyraena sphyraena	1.24	4	17.82	
Brachydeuterus auritus	1.16	16	16.67	
Total	6.96		100.01	

PROJECT STATION: 306
 DATE: 2/ 3/95 GEAR TYPE: BT No:8 POSITION:Lat S 628 Long E 1204
 start stop duration
 TIME :05:45:00 06:15:00 30 (min) Purpose code: 3
 LOG :4122.30 4124.00 1.70 Area code : 2
 FDEPTH: 70 66 GearCond.code:
 BDEPTH: 70 66 Validity code:
 Towing dir: 140° Wire out: 400 m Speed: 30 kn*10
 Sorted: 161 Kg Total catch: 204.94 CATCH/HOUR: 409.88

PROJECT STATION: 309
 DATE: 2/ 3/95 GEAR TYPE: BT No:8 POSITION:Lat S 644 Long E 1212
 start stop duration
 TIME :11:19:00 11:49:00 30 (min) Purpose code: 3
 LOG :4158.70 4160.30 1.60 Area code : 2
 FDEPTH: 59 59 GearCond.code:
 BDEPTH: 59 59 Validity code:
 Towing dir: 320° Wire out: 200 m Speed: 30 kn*10
 Sorted: 69 Kg Total catch: 68.73 CATCH/HOUR: 137.46

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Dentex barnardi	81.50	234	19.88	694
Pagellus bellottii	58.20	188	14.20	691
Brachydeuterus auritus	54.08	1130	13.19	
Umbrina canariensis	48.12		11.74	
Selene dorsalis	32.40	136	7.90	692
Trachurus trecae	28.70	410	7.00	693
Trichiurus lepturus	20.64	34	5.04	
Dentex congoensis	17.70	236	4.32	690
Branchiostegus semifasciatus	12.60	28	3.07	
Sphyræna guachancho	10.14	18	2.47	
Brotula barbata	8.44	10	2.06	
Chelidonichthys gabonensis	8.36	46	2.04	
Epinephelus caninus	8.20	6	2.00	
Dentex angolensis	5.04	24	1.23	689
Plectorhinchus mediterraneus	3.08	4	0.75	
Zeus faber	2.76	6	0.67	
Pagrus caeruleostictus	2.60	4	0.63	
Scorpaena angolensis	2.42	6	0.59	
Chaetodon hoefleri	2.06	18	0.50	
Dentex gibbosus	1.00	2	0.24	
Adioryx hastatus	0.90	4	0.22	
Sepia officinalis hierredda	0.48	6	0.12	
Chaetodon marcellae	0.18	4	0.04	
Serranus sp.	0.10	4	0.02	
Citharus linguatula	0.10	4	0.02	
Raja miraletus	0.04	4	0.01	
Boops boops	0.04	4	0.01	
Total	409.88		99.96	

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Selene dorsalis	31.80	66	23.13	702
Epinephelus aeneus	28.30	10	20.59	
Chelidonichthys gabonensis	16.50	104	12.00	
Pagellus bellottii	7.54	120	5.49	703
Dentex canariensis	7.02	16	5.11	704
Dentex congoensis	5.84	8	4.25	
Octopus vulgaris	5.10	4	3.71	
Lagocephalus laevigatus	3.68	4	2.68	
Decapterus rhonchus	3.54	4	2.58	
Dentex angolensis	3.10	8	2.26	
Raja miraletus	2.94	4	2.14	
Chascanopsetta lugubris	2.62	30	1.91	
Caranx crysos	2.56	2	1.86	
Trichiurus lepturus	2.24	4	1.63	
Pagrus pagrus	2.14	2	1.56	
Sepia officinalis hierredda	1.92	10	1.40	
Priacanthus arenatus	1.88	12	1.37	
Mustelus mustelus	1.76	2	1.28	
Panulirus regius	1.72	2	1.25	
Small squids	1.56	316	1.13	
Chaetodon hoefleri	1.06	4	0.77	
Saurida brasiliensis	1.04	278	0.76	
Fistularia petimba	0.90	2	0.65	
Dentex barnardi	0.70	2	0.51	
Total	137.46		100.02	

PROJECT STATION: 307
 DATE: 2/ 3/95 GEAR TYPE: BT No:8 POSITION:Lat S 630 Long E 1213
 start stop duration
 TIME :07:34:00 08:04:00 30 (min) Purpose code: 3
 LOG :4133.50 4135.10 1.60 Area code : 2
 FDEPTH: 37 39 GearCond.code:
 BDEPTH: 37 39 Validity code:
 Towing dir: 160° Wire out: 130 m Speed: 30 kn*10
 Sorted: 28 Kg Total catch: 28.37 CATCH/HOUR: 56.74

PROJECT STATION: 310
 DATE: 2/ 3/95 GEAR TYPE: BT No:8 POSITION:Lat S 644 Long E 1201
 start stop duration
 TIME :13:21:00 13:51:00 30 (min) Purpose code: 3
 LOG :4172.10 4173.70 1.60 Area code : 2
 FDEPTH: 80 78 GearCond.code:
 BDEPTH: 80 78 Validity code:
 Towing dir: 360° Wire out: 300 m Speed: 32 kn*10
 Sorted: 80 Kg Total catch: 79.94 CATCH/HOUR: 159.88

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Caranx crysos	23.20	24	40.89	
Alectis alexandrinus	7.90	4	13.92	
Chilomyxterus spinosus mauret.	5.86	2	10.33	
Pagellus bellottii	2.94	26	5.18	695
Decapterus rhonchus	2.80	12	4.93	
Lagocephalus laevigatus	2.64	2	4.65	
Sphyræna sphyraena	2.44	6	4.30	
Pagrus caeruleostictus	1.98	4	3.49	
Selene dorsalis	1.56	4	2.75	
Dentex canariensis	1.40	2	2.47	
Trichiurus lepturus	1.22	2	2.15	
Raja miraletus	1.20	6	2.11	
Trachurus trecae	0.96	14	1.69	696
Balistes capriciscus	0.64	2	1.13	
Total	56.74		99.99	

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Chelidonichthys gabonensis	72.60	688	45.41	
Pagellus bellottii	40.70	398	25.46	706
Dentex canariensis	10.30	30	6.44	705
Dentex congoensis	8.10	298	5.07	707
Raja miraletus	5.12	8	3.20	
Sepia officinalis hierredda	4.24	4	2.65	
Mustelus mustelus	3.92	4	2.45	
Fistularia petimba	1.88	4	1.18	
Panulirus regius	1.80	2	1.13	
Seriola rivoliana	1.78	2	1.11	
Ophisurus serpens	1.42	6	0.89	
Trichiurus lepturus	1.42	2	0.89	
Priacanthus arenatus	1.28	2	0.80	
Zeus faber	1.16	2	0.73	
Torpedo torpedo	1.04	2	0.65	
Citharus linguatula	1.02	20	0.64	
Trachinus draco	0.96	22	0.60	
Todaropsis eblanae	0.60	2	0.38	
Small squids	0.54	8	0.34	
Total	159.88		100.02	

PROJECT STATION: 308
 DATE: 2/ 3/95 GEAR TYPE: BT No:8 POSITION:Lat S 635 Long E 1220
 start stop duration
 TIME :09:16:00 09:46:00 30 (min) Purpose code: 3
 LOG :4144.30 4145.70 1.40 Area code : 2
 FDEPTH: 19 20 GearCond.code:
 BDEPTH: 19 20 Validity code:
 Towing dir: 160° Wire out: 100 m Speed: 30 kn*10
 Sorted: 58 Kg Total catch: 57.97 CATCH/HOUR: 115.94

PROJECT STATION: 311
 DATE: 2/ 3/95 GEAR TYPE: BT No:8 POSITION:Lat S 645 Long E 1152
 start stop duration
 TIME :15:27:00 15:57:00 30 (min) Purpose code: 3
 LOG :4185.20 4186.80 1.60 Area code : 2
 FDEPTH: 136 131 GearCond.code:
 BDEPTH: 136 131 Validity code:
 Towing dir: 355° Wire out: 500 m Speed: 32 kn*10
 Sorted: 54 Kg Total catch: 80.78 CATCH/HOUR: 161.56

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Panulirus regius	21.70	30	18.72	
Alectis alexandrinus	16.90	40	14.58	698
Pagrus caeruleostictus	16.30	24	14.06	699
Selene dorsalis	15.50	36	13.37	700
Raja miraletus	8.70	12	7.50	
Albula vulpes	6.34	14	5.47	
Mustelus mustelus	3.90	4	3.36	
Chaetodipterus goreensis	3.64	10	3.14	
Sphyræna guachancho	3.14	10	2.71	
Sepia officinalis hierredda	2.74	2	2.36	
Rhinobatos albomaculatus	2.28	2	1.97	
Caranx crysos	2.06	2	1.78	
Callinectes amnicola	2.00	4	1.73	
Arius parkii	1.96	2	1.69	
Scomberomorus tritor	1.44	2	1.24	
Pagellus bellottii	1.38	10	1.19	701
Dentex canariensis	1.22	2	1.05	
Scyllarides herklotsii	1.18	2	1.02	
Pseudupeneus prayensis	1.12	8	0.97	
Uranoscopus polli	0.98	2	0.85	
Decapterus rhonchus	0.74	6	0.64	697
Syacium micurum	0.48	2	0.41	
Trachinus draco	0.16	4	0.14	
Trachinocephalus myops	0.08	2	0.07	
Total	115.94		100.02	

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Spicara alta	49.50	4696	30.64	708
Dentex angolensis	42.44	358	26.27	709
Dentex congoensis	18.60	354	11.51	710
Pterothrissus belloci	8.04	52	4.98	
Lepidotrigla cadmani	6.60	88	4.09	
Lepidotrigla carolae	6.14	262	3.80	
Raja miraletus	3.80	6	2.35	
Aulopus filamentosus	3.72	78	2.30	
Citharus linguatula	3.62	76	2.24	
Dentex macrophthalmus	3.60	16	2.23	
Trichiurus lepturus	2.46	4	1.52	
Pagellus bellottii	2.10	6	1.30	
Octopus vulgaris	1.46	4	0.90	
Serranus sp.	1.44	34	0.89	
Small squids	1.44	84	0.89	
Todaropsis eblanae	1.28	16	0.79	
Scorpaena normani	1.14	10	0.71	
Shrimps, small, non comm.	0.92	124	0.57	
BOTHIDAE	0.90	42	0.56	
Brachydeuterus auritus	0.84	4	0.52	
Saurida brasiliensis	0.84	40	0.52	
Trachurus trecae	0.74	4	0.46	
Dicologlossa hexophthalma	0.00	4		
Total	161.62		100.04	

PROJECT STATION: 312
 DATE: 2/ 3/95 GEAR TYPE: BT No:8 POSITION:Lat S 644 Long E 1147
 start stop duration
 TIME :16:56:00 17:26:00 30 (min) Purpose code: 3
 LOG :4193.60 4195.30 1.70 Area code : 2
 FDEPTH: 238 243 GearCond.code:
 BDEPTH: 238 243 Validity code:
 Towing dir: 330° Wire out: 750 m Speed: 30 kn*10
 Sorted: 100 Kg Total catch: 726.43 CATCH/HOUR: 1452.86

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Chlorophthalmus atlanticus	1037.50	29900	71.41	
Synagrops microlepis	232.50	13500	16.00	
Dentex angolensis	54.40	138	3.74	711
Squatina aculeata	52.40	2	3.54	
Pterothrissus bellocci	20.50	200	1.41	
Zenopsis conchifer	14.00	36	0.96	
Uranoscopus polli	12.50	100	0.86	
Coelorinchus coelorhincus	10.50	300	0.72	
Trichiurus lepturus	9.20	22	0.63	
Parapenaeus longirostris	4.50	800	0.31	
Brotula barbata	2.12	2	0.15	
Peristedion cataphractum	2.00	50	0.14	
Dentex macropthalmus	1.26	12	0.09	712
Lophiodes kempi	0.48	2	0.03	
Total	1452.86		99.99	

PROJECT STATION: 313
 DATE: 2/ 3/95 GEAR TYPE: BT No:8 POSITION:Lat S 646 Long E 1144
 start stop duration
 TIME :19:15:00 19:45:00 30 (min) Purpose code: 3
 LOG :4203.30 4204.90 1.60 Area code : 2
 FDEPTH: 364 356 GearCond.code:
 BDEPTH: 364 356 Validity code:
 Towing dir: 340° Wire out:1200 m Speed: 30 kn*10
 Sorted: 33 Kg Total catch: 131.51 CATCH/HOUR: 263.02

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Malacocephalus occidentalis	38.10	300	14.49	
Trichiurus lepturus	35.50	1590	13.50	
Laemonema laureysi	35.10	390	13.34	
Gephyroberyx darwini	33.20	20	12.62	
Chlorophthalmus atlanticus	24.70	480	9.39	
Pterothrissus bellocci	22.90	120	8.71	
Merluccius polli, male	13.20	80	5.02	714
Hymenocephalus italicus	10.70	1180	4.07	
Chaunax pictus	7.20	100	2.74	
Nematocarcinus africanus	5.10	1300	1.94	
Paromola cuvieri	4.70	10	1.79	
Coelorinchus coelorhincus	4.10	80	1.56	
Dibranchius atlanticus	4.00	200	1.52	
Merluccius polli, female	3.12	22	1.19	713
Chascanopsetta lugubris	2.80	20	1.06	
Cyttopsis roseus	2.80	30	1.06	
Epigonus sp.	2.70	30	1.03	
Peristedion cataphractum	2.00	50	0.76	
Todaropsis eblanae	1.90	10	0.72	
Synagrops microlepis	1.70	40	0.65	
Parapenaeus longirostris	1.60	160	0.61	
Stereomastis sculpta	1.40	80	0.53	
MYCTOPHIDAE	1.00	800	0.38	
Nezumia sp.	0.90	50	0.34	
Aristeus varidens	0.90	120	0.34	
Bassanago albescens	0.70	20	0.27	
Citharus linguatula	0.60	10	0.23	
Lophius vaillanti	0.40	10	0.15	
Total	263.02		100.01	

PROJECT STATION: 314
 DATE: 2/ 3/95 GEAR TYPE: BT No:8 POSITION:Lat S 645 Long E 1140
 start stop duration
 TIME :21:27:00 21:57:00 30 (min) Purpose code: 3
 LOG :4211.80 4213.60 1.80 Area code : 2
 FDEPTH: 501 494 GearCond.code:
 BDEPTH: 501 494 Validity code:
 Towing dir: 341° Wire out:1550 m Speed: 36 kn*10
 Sorted: 44 Kg Total catch: 133.14 CATCH/HOUR: 266.28

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Merluccius polli, female	92.04	228	34.57	716
Laemonema laureysi	33.18	354	12.46	
Merluccius polli, male	27.60	102	10.37	715
Stereomastis sculpta	23.70	2090	8.90	
Deania profundorum	21.90	102	8.22	
Trichiurus lepturus	15.54	338	5.84	
Lophiodes kempi	11.10	6	4.17	
MORIDAE	10.44	644	3.92	
Chaunax pictus	7.50	114	2.82	
Aristeus varidens, female	4.80	282	1.80	718
Nezumia aequalis	4.14	90	1.55	
Shrimps, small, non comm.	3.48	1114	1.31	
Malacocephalus laevis	2.52	12	0.95	
Ophidurus serpens	1.92	6	0.72	
Coloconger cadenati	1.50	6	0.56	
Gonostoma sp.	1.44	168	0.54	
Bathygadus melanobranchus	0.78	6	0.29	
Aristeus varidens, male	0.72	90	0.27	717
Dibranchius atlanticus	0.60	42	0.23	
Hoplostethus cadenati	0.60	12	0.23	
Hymenocephalus italicus	0.54	66	0.20	
Halosaurus ovenii	0.24	6	0.09	
Total	266.28		100.01	

PROJECT STATION: 315
 DATE: 3/ 3/95 GEAR TYPE: BT No:8 POSITION:Lat S 648 Long E 1138
 start stop duration
 TIME :00:04:00 00:34:00 30 (min) Purpose code: 3
 LOG :4220.60 4222.10 1.50 Area code : 2
 FDEPTH: 611 613 GearCond.code:
 BDEPTH: 611 613 Validity code:
 Towing dir: 160° Wire out:1700 m Speed: 32 kn*10
 Sorted: 18 Kg Total catch: 82.87 CATCH/HOUR: 165.74

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Lamprogrammus exutus	52.80	248	31.86	
Merluccius polli, female	24.38	38	14.71	721
Shrimps, small, non comm.	15.20	4490	9.17	
Bathygadus sp.	14.16	32	8.54	
GONOSTOMATIDAE	11.12	1420	6.71	
Stereomastis sculpta	8.32	800	5.02	
Nezumia aequalis	7.84	168	4.73	
Hoplostethus cadenati	6.80	224	4.10	
Trichiurus lepturus	4.08	32	2.46	
Aristeus varidens, female	3.84	208	2.32	720
MURAENOSOCIDAE	3.44	40	2.08	
Gadella imberbis	2.80	216	1.69	
Bathyroconger vicinus	2.40	72	1.45	
Deania profundorum	2.40	16	1.45	
MORIDAE	1.68	8	1.01	
Melanostomias sp.	1.44	24	0.87	
Stomopterus polli	1.28	24	0.77	
Deepwater fish mixture	1.04	64	0.63	
Dibranchius atlanticus	0.24	24	0.14	
Glyphus marsupialis	0.16	8	0.10	
Heterocarpus laevis	0.16	8	0.10	
Halosaurus ovenii	0.08	8	0.05	
Aristeus varidens, male	0.08	8	0.05	719
Raja sp.	0.00	8		
Total	165.74		100.01	

PROJECT STATION: 316
 DATE: 3/ 3/95 GEAR TYPE: BT No:8 POSITION:Lat S 654 Long E 1137
 start stop duration
 TIME :02:31:00 03:01:00 30 (min) Purpose code: 3
 LOG :4228.40 4229.80 1.40 Area code : 2
 FDEPTH: 750 749 GearCond.code:
 BDEPTH: 750 749 Validity code:
 Towing dir: 170° Wire out:1950 m Speed: 32 kn*10
 Sorted: 33 Kg Total catch: 133.32 CATCH/HOUR: 266.64

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Nezumia aequalis	80.80	2696	30.30	
Stereomastis sculpta	29.68	1834	11.13	
GONOSTOMATIDAE	27.84	360	10.44	
Hoplostethus cadenati	21.36	184	8.01	
OCTOPOTEUTHIDAE	19.16	96	6.81	
MURAENOSOCIDAE	12.32	104	4.62	
Lophiodes kempi	12.08	24	4.55	
Melanostomias sp.	10.24	664	3.84	
Bathyroconger vicinus	9.76	16	3.66	
Chaceon maritae	9.68	16	3.63	
Halosaurus ovenii	6.96	216	2.61	
Lamprogrammus exutus	4.80	24	1.80	
Deania profundorum	4.32	16	1.62	
Deepwater fish mixture	3.92	264	1.47	
ALEPOCEPHALIDAE	3.20	64	1.20	
Raja sp.	2.32	8	0.78	
Geryon sp.	2.08	8	0.78	
Aristeus varidens, female	1.92	160	0.72	723
MORIDAE	1.76	40	0.66	
Aristeus varidens	1.28	136	0.48	
Glyphus marsupialis	1.04	56	0.39	
Laemonema laureysi	0.88	8	0.33	
Aristeus varidens, male	0.24	24	0.09	722
Nemichthys scolopaceus	0.00	8		
Total	266.64		99.99	

PROJECT STATION: 317
 DATE: 3/ 3/95 GEAR TYPE: BT No:8 POSITION:Lat S 706 Long E 1159
 start stop duration
 TIME :08:01:00 08:26:00 25 (min) Purpose code: 3
 LOG :4261.80 4263.00 1.20 Area code : 2
 FDEPTH: 322 314 GearCond.code:
 BDEPTH: 322 314 Validity code:
 Towing dir: 332° Wire out:1050 m Speed: 30 kn*10
 Sorted: 108 Kg Total catch: 319.78 CATCH/HOUR: 767.47

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Chlorophthalmus atlanticus	450.24	10003	58.67	
Merluccius polli, male	122.28	691	15.93	725
Synagrops microlepis	38.98	1651	5.08	
Carcharhinus signatus	32.76	2	4.27	
Merluccius polli, female	30.48	187	3.97	724
Parapenaeus longirostris, fem.	25.15	2995	3.28	728
Pterothrissus bellocci	20.35	115	2.65	
Paromola cuvieri	11.33	19	1.48	
Trichiurus lepturus	11.33	19	1.48	
Hymenocephalus italicus	6.14	710	0.80	
Parapenaeus longirostris, male	3.84	538	0.50	727
Gadella imberbis	3.46	115	0.45	
Solenocera africana	3.07	326	0.40	726
Laemonema laureysi	3.07	58	0.40	
RAJIDAE	2.50	19	0.33	
MYCTOPHIDAE	0.58	288	0.08	
Stereomastis sculpta	0.58	38	0.08	
GALATHEIDAE	0.38	38	0.05	
Nezumia sp.	0.38	19	0.05	
Peristedion cataphractum	0.38	19	0.05	
Lestrolepis intermedia	0.19	19	0.02	
Total	767.47		100.02	

PROJECT STATION: 318
 DATE: 3/ 3/95 GEAR TYPE: BT No:8 POSITION:Lat S 705 Long E 1157
 TIME :09:26:00 09:46:00 20 (min) Purpose code: 3
 LOG :4266.30 4267.50 1.20 Area code : 2
 FDEPTH: 256 256 GearCond.code:
 BDEPTH: 256 256 Validity code:
 Towing dir: 160° Wire out: 800 m Speed: 30 kn*10
 Sorted: 28 Kg Total catch: 354.75 CATCH/HOUR: 1064.25

PROJECT STATION: 321
 DATE: 3/ 3/95 GEAR TYPE: BT No:8 POSITION:Lat S 700 Long E 1216
 TIME :14:02:00 14:14:00 12 (min) Purpose code: 3
 LOG :4288.90 4289.60 1.30 Area code : 2
 FDEPTH: 80 75 GearCond.code:
 BDEPTH: 80 75 Validity code:
 Towing dir: 70° Wire out: 300 m Speed: 32 kn*10
 Sorted: 50 Kg Total catch: 50.13 CATCH/HOUR: 250.65

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Chlorophthalmus atlanticus	496.65	12141	46.67	
Synagrops microlepis	259.05	15432	24.34	
Squatina aculeata	68.85	3	6.47	
Dentex angolensis	66.45	159	6.24	729
Trichiurus lepturus	42.24	264	3.97	
Parapanaeus longirostris, male	22.11	3630	2.08	730
Nezumia sp.	19.80	594	1.86	
CHLOROPHTHALMIDAE	18.81	264	1.77	
Pterothrissus bellooi	17.16	132	1.61	
Parapanaeus longirostris, fem.	15.84	2046	1.49	731
Zenopsis conchifer	12.87	99	1.21	
Uranoscopus polli	10.23	66	0.96	
Dentex macropthalmus	9.24	66	0.87	
Sepia officinalis hierredda	2.64	66	0.25	
Malacocephalus occidentalis	2.31	33	0.22	
Total	1064.25		100.01	

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Dentex canariensis	121.50	265	48.47	743
Epinephelus goreensis	53.50	10	21.34	
Pagellus bellottii	46.75	185	18.65	741
Fistularia petimba	6.30	25	2.51	
Trachinotus ovatus	3.80	10	1.52	
Raja miraletus	3.25	5	1.30	
Dentex angolensis	3.10	65	1.24	742
Chelidonichthys gabonensis	3.05	15	1.22	
Dentex gibbosus	2.70	5	1.08	
Pagrus caeruleostictus	2.45	5	0.98	
Pagrus africanus	2.25	20	0.90	
Zenopsis conchifer	1.35	5	0.54	
Chaetodon hoefleri	0.65	5	0.26	
Total	250.65		100.01	

PROJECT STATION: 319
 DATE: 3/ 3/95 GEAR TYPE: BT No:8 POSITION:Lat S 706 Long E 1201
 TIME :10:50:00 11:14:00 24 (min) Purpose code: 3
 LOG :4271.90 4273.40 1.50 Area code : 2
 FDEPTH: 145 125 GearCond.code:
 BDEPTH: 145 125 Validity code:
 Towing dir: 125° Wire out: 500 m Speed: 32 kn*10
 Sorted: 119 Kg Total catch: 394.08 CATCH/HOUR: 985.20

PROJECT STATION: 322
 DATE: 3/ 3/95 GEAR TYPE: PT No:1 POSITION:Lat S 700 Long E 1217
 TIME :15:16:00 15:31:00 15 (min) Purpose code: 1
 LOG :4296.30 4297.30 1.00 Area code : 2
 FDEPTH: 33 35 GearCond.code:
 BDEPTH: 69 71 Validity code:
 Towing dir: 310° Wire out: 150 m Speed: 32 kn*10
 Sorted: Kg Total catch: CATCH/HOUR:

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Spicara alta	730.83	4928	74.18	734
Dentex angolensis	97.90	343	9.94	733
Erythrocles monodi	23.80	180	2.42	
Lepidotrigla carolae	16.33	138	1.66	
Dentex congongensis	16.25	188	1.65	732
Oxynotus centrina	15.50	3	1.57	
Citharus linguatula	13.15	278	1.33	
Brotula barbata	10.95	8	1.11	
Trichiurus lepturus	9.98	18	1.01	
Raja miraletus	9.83	18	1.00	
Saurida brasiliensis	8.45	253	0.86	
Dentex macropthalmus	7.80	50	0.79	
Zenopsis conchifer	7.30	33	0.74	
Peristedion cataphractum	5.20	180	0.53	
Bembrops sp.	4.30	115	0.44	
Lepidotrigla cadmani	2.83	73	0.29	
Pterothrissus bellooi	2.68	18	0.27	
Sepia officinalis hierredda	1.45	220	0.15	
Serranus sp.	0.48	18	0.05	
Uranoscopus polli	0.08	8	0.01	
Total	985.09		100.00	

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

PROJECT STATION: 323
 DATE: 3/ 3/95 GEAR TYPE: BT No:8 POSITION:Lat S 702 Long E 1236
 TIME :17:37:00 18:07:00 30 (min) Purpose code: 3
 LOG :4316.70 4318.30 1.60 Area code : 2
 FDEPTH: 30 28 GearCond.code:
 BDEPTH: 30 28 Validity code:
 Towing dir: 330° Wire out: 146 m Speed: 30 kn*10
 Sorted: 208 Kg Total catch: 207.55 CATCH/HOUR: 415.10

PROJECT STATION: 320
 DATE: 3/ 3/95 GEAR TYPE: BT No:8 POSITION:Lat S 704 Long E 1209
 TIME :12:33:00 13:03:00 30 (min) Purpose code: 3
 LOG :4281.50 4283.10 1.60 Area code : 2
 FDEPTH: 110 103 GearCond.code:
 BDEPTH: 110 103 Validity code:
 Towing dir: 70° Wire out: 400 m Speed: 32 kn*10
 Sorted: 73 Kg Total catch: 195.71 CATCH/HOUR: 391.42

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Pagrus caeruleostictus	112.40	186	27.08	744
Pagellus bellottii	65.70	476	16.07	749
Pomadasy jubellini	24.60	24	5.93	
Lutjanus dentatus	24.00	2	5.78	
Galeoides decadactylus	20.90	42	5.03	
Decapterus rhonchus	20.70	66	4.99	746
Epinephelus aeneus	16.00	4	3.85	
Sardinella maderensis	15.80	50	3.81	747
Dentex canariensis	14.50	34	3.49	748
Selene dorsalis	13.90	36	3.35	751
Plectorhynchus mediterraneus	10.60	18	2.55	
Albula vulpes	8.10	22	1.95	
Pseudupeneus prayensis	8.10	106	1.95	
Syacium micurum	7.38	58	1.78	
Chelidonichthys gabonensis	6.70	32	1.61	
Pomadasy incisus	5.40	34	1.30	
Trachinus draco	4.20	82	1.01	
Trichiurus lepturus	3.72	6	0.90	
Uranoscopus polli	3.22	16	0.78	
Epinephelus costae	2.66	6	0.64	
Caranx crysos	2.56	8	0.62	
Trachinocephalus myops	2.54	24	0.61	
Sphyræna guachancho	2.36	6	0.57	
Dicologlossa hexopthalma	2.14	30	0.52	
Dentex angolensis	2.06	10	0.50	750
Trachinus radiatus	1.72	12	0.41	
Alectis alexandrinus	1.70	2	0.41	
Zanobatus shoeneleini	1.56	2	0.38	
Torpedo marmorata	1.22	2	0.29	
Cynoglossus canariensis	1.16	8	0.28	
Zeus faber	1.10	2	0.26	
Sardinella aurita	0.82	2	0.20	745
Torpedo torpedo	0.70	4	0.17	
Balistes capricus	0.66	4	0.16	
Penaeus kerathurus	0.64	22	0.15	752
Sepia sp.	0.54	8	0.13	
Sphyræna sphyraena	0.40	2	0.10	
Fistularia petimba	0.36	2	0.09	
Grammolites gruvelli	0.34	8	0.08	
Bothus podas africanus	0.30	8	0.07	
Brachydeuterus auritus	0.26	2	0.06	
Rypticus saponaceus	0.20	2	0.05	
OPHIDIIDAE	0.14	2	0.03	
Penaeus notialis	0.04	4	0.01	
Total	415.10		100.00	

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Trichiurus lepturus	148.34	262	37.90	740
Lepidotrigla carolae	46.68	2130	11.93	
Dentex angolensis	28.98	346	7.40	739
Epinephelus goreensis	27.80	2	7.10	
Dentex congongensis	25.16	760	6.43	738
Selene dorsalis	24.70	92	6.31	
Lepidotrigla cadmani	18.62	138	4.76	
Citharus linguatula	17.42	470	4.45	
Dentex canariensis	17.20	12	4.39	736
Trachurus trecae	7.94	332	2.03	737
Sepia officinalis hierredda	6.16	22	1.57	
Pagellus bellottii	5.24	78	1.34	735
Brachydeuterus auritus	4.40	36	2.12	
Squatina aculeata	4.34	2	1.11	
Raja miraletus	3.02	4	0.77	
Saurida brasiliensis	1.92	474	0.49	
Zeus faber	1.60	10	0.41	
Erythrocles monodi	0.86	4	0.22	
Fistularia petimba	0.78	2	0.20	
Dicologlossa hexopthalma	0.26	4	0.07	
Total	391.42		100.00	

PROJECT STATION: 324
 DATE: 3/ 3/95 GEAR TYPE: PT No:1 POSITION:Lat S 643 Long E 1203
 TIME :23:41:00 00:04:00 23 (min) Purpose code: 1
 LOG :4364.90 4366.30 1.40 Area code : 2
 FDEPTH: 43 53 GearCond.code:
 BDEPTH: 76 76 Validity code:
 Towing dir: 130° Wire out: 150 m Speed: 32 kn*10
 Sorted: 139 Kg Total catch: 139.14 CATCH/HOUR: 362.97

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Decapterus rhonchus	360.65	420	99.36	753
Scomber japonicus	2.32	8	0.64	
Total	362.97		100.00	

PROJECT STATION: 325
 DATE: 4/ 3/95 GEAR TYPE: BT No:8 POSITION:Lat S 716 Long E 1244
 start stop duration
 TIME :07:29:00 07:56:00 27 (min) Purpose code: 3
 LOG :4436.20 4437.50 1.30 Area code : 2
 FDEPTH: 26 29 GearCond.code:
 BDEPTH: 26 29 Validity code:
 Towing dir: 168° Wire out: 120 m Speed: 30 kn*10
 Sorted: 75 Kg Total catch: 75.26 CATCH/HOUR: 167.24

PROJECT STATION: 328
 DATE: 4/ 3/95 GEAR TYPE: BT No:8 POSITION:Lat S 712 Long E 1212
 start stop duration
 TIME :13:50:00 14:20:00 30 (min) Purpose code: 3
 LOG :4471.10 4472.40 1.30 Area code : 2
 FDEPTH: 148 145 GearCond.code:
 BDEPTH: 148 145 Validity code:
 Towing dir: 340° Wire out: 500 m Speed: 32 kn*10
 Sorted: 73 Kg Total catch: 245.12 CATCH/HOUR: 490.24

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP
weight	numbers		
Lutjanus dentatus	68.89	13	41.19
Pagrus caeruleostictus	48.56	89	29.04
Acanthurus monroviae	10.49	13	6.27
Scomberomorus tritor	9.56	4	5.72
Alectis alexandrinus	4.40	2	2.63
Epinephelus goreensis	4.38	2	2.62
Balistes capricus	3.29	2	1.97
Rhinobatos albomaculatus	2.82	2	1.69
Boops boops	2.80	827	1.67
Fistularia petimba	2.18	7	1.30
Dentex canariensis	2.04	11	1.22
Pagrus auriga	2.02	2	1.21
Decapterus rhonchus	1.51	58	0.90
MONAL05	1.20	2	0.72
Trachinotus goreensis	1.20	2	0.72
Pagellus bellottii	0.64	2	0.38
Epinephelus costae	0.62	2	0.37
Cephalopholis taeniops	0.44	2	0.26
Chromis cadenati	0.20	7	0.12
Total	167.24		100.00

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP
weight	numbers		
Trichiurus lepturus	383.78	1670	78.28
Selene dorsalis	55.10	146	11.24
Spicara alta	28.30	534	5.77
Euthynnus alletteratus	7.60	4	1.55
Dentex angolensis	4.80	26	0.98
Brotula barbata	2.64	2	0.54
Zenopsis conchifer	1.64	6	0.33
Dentex congoensis	1.38	26	0.28
Citharus linguatula	1.04	26	0.21
Trigla lyra	1.04	6	0.21
Brachydeuterus auritus	1.04	6	0.21
Trachurus trecae	0.78	20	0.16
Illex coindetii	0.72	26	0.15
Neomerinthe folgori	0.38	6	0.08
Lestidiops sp.	0.00	6	
Total	490.24		99.99

PROJECT STATION: 326
 DATE: 4/ 3/95 GEAR TYPE: BT No:8 POSITION:Lat S 717 Long E 1228
 start stop duration
 TIME :10:00:00 10:12:00 12 (min) Purpose code: 3
 LOG :4453.30 4453.90 0.60 Area code : 2
 FDEPTH: 84 86 GearCond.code:
 BDEPTH: 84 86 Validity code:
 Towing dir: 280° Wire out: 300 m Speed: 30 kn*10
 Sorted: 25 Kg Total catch: 25.08 CATCH/HOUR: 125.40

PROJECT STATION: 329
 DATE: 4/ 3/95 GEAR TYPE: BT No:8 POSITION:Lat S 714 Long E 1206
 start stop duration
 TIME :15:40:00 16:10:00 30 (min) Purpose code: 3
 LOG :4479.60 4481.50 1.90 Area code : 2
 FDEPTH: 150 130 GearCond.code:
 BDEPTH: 150 130 Validity code:
 Towing dir: 329° Wire out: 750 m Speed: 32 kn*10
 Sorted: 30 Kg Total catch: 304.30 CATCH/HOUR: 608.60

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP
weight	numbers		
Trichiurus lepturus	63.50	95	50.64
Pagellus bellottii	20.30	65	16.19
Dentex barnardi	11.55	75	9.21
Sepia officinalis hierredda	7.20	5	5.74
Pagrus caeruleostictus	5.55	10	4.43
Dentex gibbosus	4.95	5	3.95
Chelidonichthys gabonensis	4.05	25	3.23
Raja miraletus	2.90	5	2.31
Octopus vulgaris	2.05	5	1.63
Zeus faber	1.75	5	1.40
Fistularia petimba	1.00	5	0.80
Illex coindetii	0.40	5	0.32
Chaetodon marcellae	0.20	5	0.16
Total	125.40		100.01

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP
weight	numbers		
Synagrops microlepis	356.00	19778	58.49
Chlorophthalmus atlanticus	170.00	7186	27.93
Pterothrissus bellocci	19.00	140	3.12
Parapanaeus longirostris, fem.	16.80	2420	7.71
Parapanaeus longirostris, male	15.20	2460	2.50
CHLOROPHTHALMIDAE	10.80	200	1.77
Merluccius polli	9.60	140	1.58
Zenopsis conchifer	3.80	40	0.62
MYCTOPHIDAE	3.20	2080	0.53
Malacocephalus occidentalis	1.80	40	0.30
Uranoscopus polli	1.80	20	0.30
Nezumia aequalis	0.60	20	0.10
GRAMMICOLEPIDAE	0.00	20	
Peristedion cataphractum	0.00	20	
Total	608.60		100.00

PROJECT STATION: 327
 DATE: 4/ 3/95 GEAR TYPE: BT No:8 POSITION:Lat S 712 Long E 1218
 start stop duration
 TIME :12:05:00 12:35:00 30 (min) Purpose code: 3
 LOG :4464.00 4465.30 1.30 Area code : 2
 FDEPTH: 116 116 GearCond.code:
 BDEPTH: 116 116 Validity code:
 Towing dir: 300° Wire out: 450 m Speed: 30 kn*10
 Sorted: 136 Kg Total catch: 136.01 CATCH/HOUR: 272.02

PROJECT STATION: 330
 DATE: 4/ 3/95 GEAR TYPE: BT No:8 POSITION:Lat S 718 Long E 1205
 start stop duration
 TIME :17:08:00 17:30:00 22 (min) Purpose code: 3
 LOG :4487.70 4488.70 1.00 Area code : 2
 FDEPTH: 355 359 GearCond.code:
 BDEPTH: 355 359 Validity code:
 Towing dir: 144° Wire out: 1000 m Speed: 30 kn*10
 Sorted: 45 Kg Total catch: 45.43 CATCH/HOUR: 123.90

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP
weight	numbers		
Selene dorsalis	121.00	440	44.48
Trichiurus lepturus	48.40	62	17.79
Dentex angolensis	28.90	420	10.62
Lepidotrigla carolae	25.30	952	9.30
Brachydeuterus auritus	10.88	98	4.00
Dentex congoensis	10.52	332	3.87
Pagellus bellottii	8.00	56	2.94
Dentex gibbosus	5.00	6	2.21
Lepidotrigla cadmani	4.40	42	1.62
Trachurus trecae	2.72	106	1.00
Raja miraletus	1.06	2	0.39
Illex coindetii	0.80	40	0.29
Fistularia petimba	0.74	62	0.27
Saurida brasiliensis	0.68	162	0.25
Sardinella maderensis	0.62	2	0.23
Trigla lyra	0.50	4	0.18
Dentex canariensis	0.50	2	0.18
Uranoscopus polli	0.32	4	0.12
Pterothrissus bellocci	0.32	2	0.12
Cynoglossus canariensis	0.22	32	0.08
Chaetodon marcellae	0.08	2	0.03
Sepia sp.	0.06	8	0.02
Neomerinthe folgori	0.00	2	
Total	272.02		99.99

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP
weight	numbers		
Chlorophthalmus atlanticus	48.68	1069	39.29
Laemonema laureysi	18.55	289	14.97
Gephyroberyx darwini	6.93	5	5.59
Trichiurus lepturus	6.68	112	5.39
Epigonus pandionis	5.95	60	4.80
Dibranchius atlanticus	5.37	436	4.33
Malacocephalus occidentalis	4.25	27	3.43
Chaunax pictus	3.98	60	3.21
Parapanaeus longirostris, fem.	3.82	382	3.08
Hymenocephalus italicus	3.00	322	2.42
Setarches guentheri	2.43	153	1.96
Merluccius polli	2.02	11	1.63
Shrimps, small, non comm.	1.53	832	1.23
CHLOROPHTHALMIDAE	1.47	19	1.19
Coeleorhynchus coeleorhynchus	1.42	30	1.15
Pterothrissus bellocci	1.23	5	0.99
Nezumia sp.	1.20	52	0.97
Gadella maraldi	1.15	3	0.93
Bembrops greyi	0.87	14	0.70
GALATHEIDAE	0.82	8	0.66
Lophius vailanti	0.68	3	0.55
Gadella imberbis	0.63	19	0.51
Synagrops microlepis	0.60	25	0.48
Zenopsis conchifer	0.25	3	0.20
Aristeus varidens, female	0.19	41	0.15
Bassanago albescens	0.11	3	0.09
Total	123.81		99.90

PROJECT STATION: 331
 DATE: 4/ 3/95 GEAR TYPE: BT No:8 POSITION:Lat S 723
 start stop duration Long E 1204
 TIME :19:24:00 19:56:00 32 (min) Purpose code: 3
 LOG :4495.80 4497.80 2.00 Area code : 2
 FDEPTH: 468 477 GearCond.code:
 BDEPTH: 468 477 Validity code:
 Towing dir: 140° Wire out:1400 m Speed: 30 kn*10
 Sorted: 52 Kg Total catch: 108.41 CATCH/HOUR: 203.27

PROJECT STATION: 334
 DATE: 5/ 3/95 GEAR TYPE: BT No:8 POSITION:Lat S 735
 start stop duration Long E 1229
 TIME :03:59:00 04:05:00 6 (min) Purpose code: 3
 LOG :4541.80 4541.90 0.10 Area code : 2
 FDEPTH: 319 319 GearCond.code:
 BDEPTH: 319 319 Validity code:
 Towing dir: 10° Wire out:1050 m Speed: 32 kn*10
 Sorted: 10 Kg Total catch: 39.81 CATCH/HOUR: 398.10

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Laemonema laureysi	49.22	731	24.21	
Nematocarcinus africanus	39.94	7223	19.65	
Merluccius polli, male	20.16	68	9.92	774
Centroporus uyato	18.56	6	9.13	
Stereomastis sculpta	9.90	720	4.87	
Chaunax pictus	8.61	79	4.24	
Aristeus varidens, female	7.84	398	3.86	777
Lamprogrammus exutus	5.96	11	2.93	
Malacocephalus occidentalis	5.34	28	2.63	
Chaceon maritae	5.12	11	2.52	
Lophius vaillanti	5.01	6	2.46	
Merluccius polli, female	3.81	9	1.87	775
Dibranchius atlanticus	3.26	259	1.60	
Hymenocephalus italicus	2.75	180	1.36	
Todaropsis eblanae	2.19	11	1.08	
Gadella imberbis	1.63	62	0.80	
Coloconger cadenati	1.52	11	0.75	
Aristeus varidens, male	1.45	58	0.72	776
Deania profundorum	1.24	6	0.61	
Bathygadus melanobranchus	1.24	6	0.61	
Plesiopeneus edwardsianus, f.	1.07	17	0.54	779
Coelorrhinus coelorrhinus	1.07	11	0.53	
Etmopterus pusillus	0.96	6	0.47	
Etmopterus lucifer	0.96	28	0.47	
Trichiurus lepturus	0.90	28	0.44	
GONOSTOMATIDAE	0.84	96	0.41	
Conger conger	0.84	11	0.41	
Nezumia sp.	0.51	23	0.25	
Malacocephalus laevis	0.45	6	0.22	
Galeus polli	0.39	6	0.19	
Plesiopeneus edwardsianus, m.	0.28	9	0.14	778
Halosaurus ovenii	0.23	11	0.11	
Total	203.29		100.00	

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Shrimps, small, non comm.	95.80	55880	24.06	
Trichiurus lepturus	88.50	270	22.23	
Merluccius polli, male	69.50	380	17.46	787
Merluccius polli, female	36.50	230	9.17	788
Laemonema laureysi	25.40	300	6.38	
Malacocephalus laevis	12.20	100	3.06	
Hymenocephalus italicus	10.40	1680	2.61	
Pterothrissus bellocci	10.00	60	2.51	
Nezumia sp.	7.60	180	1.91	
ALEPOCEPHALIDAE	7.20	320	1.81	
Coelorrhinus coelorrhinus	7.20	60	1.81	
Parapeneus longirostris, fem.	6.00	820	1.51	790
MYCTOPHIDAE	5.00	8100	1.51	
Gonostoma sp.	3.40	400	0.85	
PORTUNIDAE	2.60	40	0.65	
Neomerinthe folgori	2.40	40	0.60	
Helicolenus dactylopterus	1.60	120	0.40	
Halosaurus ovenii	1.40	40	0.35	
Chaunax pictus	1.20	60	0.30	
Solenocera africana	0.80	100	0.20	
Dibranchius atlanticus	0.80	60	0.20	
Stereomastis sculpta	0.60	120	0.15	
Parapeneus longirostris, male	0.40	80	0.10	789
C R A B S	0.40	360	0.10	
C E P H A L O P O D A	0.20	120	0.05	
Total	398.10		99.98	

PROJECT STATION: 332
 DATE: 4/ 3/95 GEAR TYPE: BT No:8 POSITION:Lat S 728
 start stop duration Long E 1204
 TIME :21:26:00 21:56:00 30 (min) Purpose code: 3
 LOG :4503.10 4505.00 1.90 Area code : 2
 FDEPTH: 585 593 GearCond.code:
 BDEPTH: 585 593 Validity code:
 Towing dir: 140° Wire out:1650 m Speed: 32 kn*10
 Sorted: 23 Kg Total catch: 222.98 CATCH/HOUR: 445.96

PROJECT STATION: 335
 DATE: 5/ 3/95 GEAR TYPE: BT No:8 POSITION:Lat S 734
 start stop duration Long E 1229
 TIME :05:55:00 06:25:00 30 (min) Purpose code: 3
 LOG :4548.00 4500.00 2.00 Area code : 2
 FDEPTH: 274 280 GearCond.code:
 BDEPTH: 274 280 Validity code:
 Towing dir: 140° Wire out: 850 m Speed: 30 kn*10
 Sorted: 48 Kg Total catch: 228.95 CATCH/HOUR: 457.90

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Nematocarcinus africanus	292.50	42804	65.59	
Lamprogrammus exutus	57.42	126	12.88	
Merluccius polli, female	22.50	44	5.05	780
Stereomastis sculpta	20.34	1890	4.56	
GONOSTOMATIDAE	12.96	1530	2.91	
Hoplostethus cadenati	9.18	342	2.06	
Etmopterus lucifer	8.82	144	1.98	
Aristeus varidens, female	4.86	216	1.09	782
Merluccius polli, male	3.60	8	0.81	781
Bathyrocongrus sp.	3.24	72	0.73	
Chaceon maritae	2.62	4	0.59	
Nezumia sp.	1.80	36	0.40	
Gonostoma sp.	1.62	54	0.36	
ALEPOCEPHALIDAE	1.62	90	0.36	
Bathygadus melanobranchus	1.26	18	0.28	
MELANOSTOMIATIDAE	1.08	18	0.24	
Gadella imberbis	0.54	18	0.12	
Total	445.96		100.01	

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Parapeneus longirostris, fem.	132.48	20528	28.93	793
Trichiurus lepturus	100.80	1248	22.01	
Synagrops microlepis	94.72	3488	20.69	
Parapeneus longirostris, male	33.12	10592	7.23	794
GALATHEIDAE	31.04	8160	6.78	
Merluccius polli, male	26.50	268	5.79	791
Merluccius polli, female	17.80	226	3.89	792
Solenocera africana	8.80	704	1.92	795
GONOSTOMATIDAE	5.60	160	1.22	
Gadella imberbis	2.88	144	0.63	
Coelorrhinus coelorrhinus	1.92	144	0.42	
Hymenocephalus italicus	0.80	128	0.17	
MYCTOPHIDAE	0.64	240	0.14	
Chlorophthalmus atlanticus	0.64	48	0.14	
MELANOSTOMIATIDAE	0.16	16	0.03	
Total	457.90		99.99	

PROJECT STATION: 333
 DATE: 4/ 3/95 GEAR TYPE: BT No:8 POSITION:Lat S 733
 start stop duration Long E 1207
 TIME :23:49:00 00:19:00 30 (min) Purpose code: 3
 LOG :4512.10 4514.30 2.20 Area code : 2
 FDEPTH: 703 711 GearCond.code:
 BDEPTH: 703 711 Validity code:
 Towing dir: 120° Wire out:1900 m Speed: 38 kn*10
 Sorted: 25 Kg Total catch: 262.39 CATCH/HOUR: 524.78

PROJECT STATION: 336
 DATE: 5/ 3/95 GEAR TYPE: BT No:8 POSITION:Lat S 740
 start stop duration Long E 1233
 TIME :09:58:00 10:28:00 30 (min) Purpose code: 3
 LOG :4468.30 4470.40 2.10 Area code : 2
 FDEPTH: 162 167 GearCond.code:
 BDEPTH: 162 167 Validity code:
 Towing dir: 150° Wire out: 550 m Speed: 30 kn*10
 Sorted: 30 Kg Total catch: 646.47 CATCH/HOUR: 1292.94

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Hoplostethus cadenati	272.00	10560	51.83	
Lamprogrammus exutus	100.60	420	19.17	
Nezumia sp.	49.40	1080	9.41	
Bathyrocongrus sp.	24.60	300	4.69	
Hoplostethus cadenati	23.40	100	4.46	
Merluccius polli, female	15.92	26	3.03	783
Halosaurus ovenii	8.80	100	1.68	
ALEPOCEPHALIDAE	7.60	360	1.45	
Stereomastis sculpta	6.00	440	1.14	
Etmopterus polli	4.60	20	0.88	
Malacocephalus laevis	4.40	20	0.84	
DICERATIIDAE	2.00	60	0.38	
Gonostoma sp.	2.00	280	0.38	
Dibranchius atlanticus	1.40	80	0.27	
Chaceon maritae	1.14	2	0.22	
Plesiopeneus edwardsianus	0.48	20	0.09	784
Aristeus varidens, female	0.40	16	0.08	786
Aristeus varidens, male	0.04	4	0.01	785
Total	524.78		100.01	

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Synagrops microlepis	1141.90	90704	88.32	
Trichiurus lepturus	64.50	148	4.99	796
Dentex angolensis	32.60	124	2.52	797
Spicara alta	15.90	110	1.23	798
Lepidotrigla cadmani	14.44	114	1.12	
Zeus faber	9.12	32	0.71	
Zenopsis conchifer	5.36	36	0.41	
Fistularia petimba	3.82	6	0.30	
Sarda sarda	2.46	2	0.19	
Dentex macrophthalmus	1.32	8	0.10	
Bembrops greyi	0.76	38	0.06	
Brotula barbata	0.76	2	0.06	
Total	1292.94		100.01	

PROJECT STATION: 337
 DATE: 5/ 3/95 GEAR TYPE: BT No:8 POSITION:Lat S 738 Long E 1244
 start stop duration
 TIME :13:24:00 13:54:00 30 (min) Purpose code: 3
 LOG :4485.80 4487.80 2.00 Area code : 2
 FDEPTH: 84 85 GearCond.code:
 BDEPTH: 84 85 Validity code:
 Towing dir: 160° Wire out: 300 m Speed: 34 kn*10
 Sorted: 114 Kg Total catch: 151.62 CATCH/HOUR: 303.24

PROJECT STATION: 340
 DATE: 5/ 3/95 GEAR TYPE: PT No:1 POSITION:Lat S 731 Long E 1243
 start stop duration
 TIME :21:05:00 21:25:00 20 (min) Purpose code: 1
 LOG :4645.50 4646.60 1.10 Area code : 2
 FDEPTH: 10 15 GearCond.code:
 BDEPTH: 73 58 Validity code:
 Towing dir: 60° Wire out: 80 m Speed: 3 kn*10
 Sorted: 6 Kg Total catch: 6.03 CATCH/HOUR: 18.09

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Brachydeuterus auritus	160.00	1420	52.76	804
Dentex congoensis	20.50	456	6.76	802
Dentex angolensis	19.24	192	6.34	803
Trichiurus lepturus	16.12	60	5.32	799
Sepia officinalis hierredda	12.54	22	4.14	
Citharus linguatula	9.84	440	3.24	
Lepidotrigla cadmani	8.92	78	2.94	
Lepidotrigla carolae	8.72	290	2.88	
Decapterus rhonchus	7.52	46	2.48	801
Mustelus mustelus	6.02	2	1.99	
Trachurus trecae	5.86	140	1.93	800
Stromateus fiatola	5.40	6	1.78	
Raja miraletus	5.16	8	1.70	
Sphyræna guachancho	4.46	18	1.47	
Selene dorsalis	3.34	26	1.10	
Pagellus bellottii	2.54	30	0.84	
Zeus faber	2.20	8	0.73	
Illex coindetii	1.20	28	0.40	
Saurida brasiliensis	1.06	198	0.35	
Neomerinthe folgori	0.66	16	0.22	
Sardinella maderensis	0.64	2	0.21	
Small squids	0.56	246	0.18	
Dentex canariensis	0.44	6	0.15	
Dicologlossa hexophthalma	0.16	2	0.05	
Zenopsis conchifer	0.14	2	0.05	
Total	303.24		100.01	

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Sardinella maderensis	7.56	39	41.79	810
Brachydeuterus auritus	3.51	30	19.40	809
Trichiurus lepturus	2.61	6	14.43	
Sardinella aurita	1.80	6	9.95	811
Euthynnus alletteratus	1.47	3	8.13	
Saurida brasiliensis	0.93	294	5.14	
Small squids	0.21	102	1.16	
Total	18.09		100.00	

PROJECT STATION: 341
 DATE: 6/ 3/95 GEAR TYPE: PT No:1 POSITION:Lat S 748 Long E 1259
 start stop duration
 TIME :01:25:00 01:55:00 30 (min) Purpose code: 1
 LOG :4682.90 4684.80 1.90 Area code : 2
 FDEPTH: 5 5 GearCond.code:
 BDEPTH: 41 43 Validity code:
 Towing dir: 310° Wire out: 120 m Speed: 4 kn*10
 Sorted: 61 Kg Total catch: 426.35 CATCH/HOUR: 852.70

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Lutjanus dentatus	607.50	84	71.24	
Sardinella maderensis	152.40	954	17.87	813
Sardinella aurita	23.60	92	2.77	812
Ilisha africana	21.40	572	2.51	
Brachydeuterus auritus	19.24	220	2.26	814
Sphyræna guachancho	15.52	44	1.82	
Chloroscombrus chrysurus	6.16	136	0.72	
Trichiurus lepturus	4.32	28	0.51	
Brachydeuterus auritus	2.28	1120	0.27	
Sardinella maderensis	0.28	40	0.03	815
Total	852.70		100.00	

PROJECT STATION: 338
 DATE: 5/ 3/95 GEAR TYPE: BT No:8 POSITION:Lat S 740 Long E 1250
 start stop duration
 TIME :15:26:00 15:56:00 30 (min) Purpose code: 3
 LOG :4598.70 4599.80 1.10 Area code : 2
 FDEPTH: 67 67 GearCond.code:
 BDEPTH: 67 67 Validity code:
 Towing dir: 280° Wire out: 250 m Speed: 32 kn*10
 Sorted: 22 Kg Total catch: 22.45 CATCH/HOUR: 44.90

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Trichiurus lepturus	15.70	40	34.97	805
Lepidotrigla carolae	10.10	62	22.49	
Raja miraletus	5.08	6	11.31	
Lepidotrigla cadmani	2.98	28	6.64	
Pomadasys rogeri	2.88	2	6.41	
Pagellus bellottii	2.54	56	5.66	806
Dentex canariensis	1.62	12	3.61	
Small squids unident.	1.00	676	2.23	
Saurida brasiliensis	0.76	176	1.69	
Citharus linguatula	0.66	18	1.47	
Sphyræna guachancho	0.62	2	1.38	
Sepia officinalis hierredda	0.28	2	0.62	
Decapterus rhonchus	0.24	2	0.53	
Zeus faber	0.22	2	0.49	
Trachurus trecae	0.22	8	0.49	
Total	44.90		99.99	

PROJECT STATION: 342
 DATE: 6/ 3/95 GEAR TYPE: PT No:1 POSITION:Lat S 750 Long E 1302
 start stop duration
 TIME :03:13:00 03:35:00 22 (min) Purpose code: 1
 LOG :4692.60 4693.90 1.30 Area code : 2
 FDEPTH: 5 5 GearCond.code:
 BDEPTH: 26 34 Validity code:
 Towing dir: 302° Wire out: 120 m Speed: 38 kn*10
 Sorted: 63 Kg Total catch: 17847.55 CATCH/HOUR: 48675.14

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Sardinella maderensis	33381.82	304655	68.58	
Chloroscombrus chrysurus	13745.46	268203	28.24	
Sardinella aurita	981.82	6545	2.02	
Sphyræna guachancho	490.91	1402	1.01	
Sphyræna afra	75.14	3	0.15	
Total	48675.15		100.00	

PROJECT STATION: 339
 DATE: 5/ 3/95 GEAR TYPE: BT No:8 POSITION:Lat S 741 Long E 1255
 start stop duration
 TIME :17:07:00 17:22:00 15 (min) Purpose code: 3
 LOG :4609.90 4610.70 0.80 Area code : 2
 FDEPTH: 38 42 GearCond.code:
 BDEPTH: 38 42 Validity code:
 Towing dir: 271° Wire out: 130 m Speed: 3 kn*10
 Sorted: 10 Kg Total catch: 9.73 CATCH/HOUR: 39.92

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Selene dorsalis	12.36	24	31.76	807
Sphyræna guachancho	4.00	4	10.28	
Pagrus caeruleostictus	2.92	8	7.50	
Raja miraletus	2.88	4	7.40	
Pseudupeneus prayensis	2.52	16	6.47	
Pagellus bellottii	2.40	20	6.17	808
Trichiurus lepturus	1.92	4	4.93	
Dentex barnardi	1.72	20	4.42	
Bodianus speciosus	1.56	4	4.01	
Decapterus rhonchus	1.32	24	3.39	
Sphyræna sphyraena	1.20	4	3.08	
Chelidonichthys gabonensis	1.16	8	2.98	
Sphoeroides "marmor"	0.72	4	1.85	
Scorpaena angolensis	0.72	8	1.85	
Pomadasys incisus	0.36	8	0.92	
Zeus faber	0.36	4	0.92	
Chaetodon robustus	0.32	4	0.82	
Rypticus saponaceus	0.28	4	0.72	
Total	38.72		99.47	

PROJECT STATION: 343
 DATE: 6/ 3/95 GEAR TYPE: BT No:8 POSITION:Lat S 752 Long E 1303
 start stop duration
 TIME :05:42:00 06:12:00 30 (min) Purpose code: 3
 LOG :6701.60 6703.20 1.60 Area code : 2
 FDEPTH: 22 25 GearCond.code:
 BDEPTH: 22 25 Validity code:
 Towing dir: 335° Wire out: 110 m Speed: 30 kn*10
 Sorted: 187 Kg Total catch: 424.42 CATCH/HOUR: 848.84

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Chloroscombrus chrysurus	211.00	4340	24.86	
Sphyræna guachancho	175.10	458	20.63	817
Brachydeuterus auritus	131.00	3540	15.43	
Galeoides decadactylus	117.50	940	13.84	
Ilisha africana	44.90	2320	5.29	
Pseudotolithus senegalensis	36.40	32	4.29	818
Trichiurus lepturus	27.60	1800	3.25	
Synagrops microlepis	26.90	2380	3.17	
Selene dorsalis	23.90	380	2.82	819
Alectis alexandrinus	15.20	6	1.79	
Sardinella maderensis	6.70	580	0.79	816
Arius parkii	6.16	8	0.73	
Panulirus regius	5.12	10	0.60	
Penaeus notialis, female	5.10	128	0.60	820
Stromateus fiatola	4.90	6	0.58	
Pomadasys rogeri	4.30	10	0.51	
Rhizoprionodon acutus	2.04	2	0.24	
Scomberomorus tritor	2.02	2	0.24	
Arius heudeloti	1.26	2	0.15	
Cynoglossus canariensis	1.10	4	0.13	
Callinectes pallidus	0.64	2	0.08	
Total	848.84		100.02	

PROJECT STATION: 344
 DATE: 6/ 3/95 GEAR TYPE: BT No:8 POSITION:Lat S 752 Long E 1253
 start stop duration
 TIME :10:08:00 10:13:00 5 (min) Purpose code: 3
 LOG :4715.00 4715.90 0.90 Area code : 2
 FDEPTH: 74 74 GearCond.code:
 BDEPTH: 74 74 Validity code:
 Towing dir: 145° Wire out: 270 m Speed: 32 kn*10
 Sorted: 58 Kg Total catch: 57.86 CATCH/HOUR: 694.32

PROJECT STATION: 348
 DATE: 6/ 3/95 GEAR TYPE: BT No:8 POSITION:Lat S 754 Long E 1238
 start stop duration
 TIME :16:44:00 17:14:00 30 (min) Purpose code: 3
 LOG :5746.30 6748.00 1.70 Area code : 2
 FDEPTH: 400 390 GearCond.code:
 BDEPTH: 400 390 Validity code:
 Towing dir: 150° Wire out:1200 m Speed: 30 kn*10
 Sorted: 150 Kg Total catch: 461.18 CATCH/HOUR: 922.36

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Pagellus bellottii	233.40	1920	33.62	824
Trichiurus lepturus	101.40	180	14.60	
Squatina oculata	79.80	12	11.49	
Chelidonichthys gabonensis	72.00	420	10.37	
Dentex angolensis	51.60	252	7.43	823
Umbrina canariensis	48.36	60	6.97	
Dentex barnardi	30.12	240	4.34	822
Sepia officinalis hierredda	19.56	36	2.82	
Dentex gibbosus	13.44	60	1.94	821
Raja miraletus	12.84	24	1.85	
Decapterus rhonchus	10.58	24	1.54	
Zeus faber	7.68	24	1.11	
Sphyræna guachancho	3.84	12	0.55	
Cynoglossus canariensis	3.60	12	0.52	
Citharus linguatula	2.28	72	0.33	
Chloroscombrus chrysurus	2.04	36	0.29	
Chaetodon hoefleri	1.68	12	0.24	
Total	694.32		100.01	

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Nematocarcinus africanus	579.20	4128	62.80	
Merluccius polli, male	131.38	570	14.24	836
Merluccius polli, female	76.62	262	8.31	837
Centroprorus uyato	37.30	10	4.04	
Parapenaeus longirostris, fem.	28.48	3504	3.09	839
Hymenocephalus italicus	15.20	1424	1.65	
Laemonema laureysi	12.80	224	1.39	
Aristeus varidensis, female	11.52	1040	1.25	841
Dibranchius atlanticus	9.44	672	1.02	
Gadella imberbis	7.20	272	0.78	
Centroprorus granulosus	4.26	2	0.46	
Malacocephalus laevis	2.88	32	0.31	
Aristeus varidensis, male	2.08	256	0.23	840
Etmopterus lucifer	0.96	48	0.10	
Nezumia sp.	0.80	80	0.09	
PORTUNIDAE	0.80	16	0.09	
Chaunax pictus	0.48	48	0.05	
GONOSTOMATIDAE	0.48	48	0.05	
Parapenaeus longirostris, male	0.32	48	0.03	838
Conger conger	0.16	16	0.02	
Total	922.36		100.00	

PROJECT STATION: 345
 DATE: 6/ 3/95 GEAR TYPE: BT No:4 POSITION:Lat S 755 Long E 1241
 start stop duration
 TIME :12:35:00 13:05:00 30 (min) Purpose code: 3
 LOG :4730.90 4732.60 1.70 Area code : 2
 FDEPTH: 193 194 GearCond.code:
 BDEPTH: 193 194 Validity code:
 Towing dir: 160° Wire out: 600 m Speed: 32 kn*10
 Sorted: 61 Kg Total catch: 527.22 CATCH/HOUR: 1054.44

PROJECT STATION: 349
 DATE: 6/ 3/95 GEAR TYPE: BT No:8 POSITION:Lat S 753 Long E 1236
 start stop duration
 TIME :19:26:00 19:56:00 30 (min) Purpose code: 3
 LOG :4753.90 4755.20 1.30 Area code : 2
 FDEPTH: 555 590 GearCond.code:
 BDEPTH: 555 590 Validity code:
 Towing dir: 335° Wire out:1650 m Speed: 30 kn*10
 Sorted: 49 Kg Total catch: 172.46 CATCH/HOUR: 344.92

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Synagrops microlepis	856.00	55926	81.18	
Parapenaeus longirostris, fem.	33.92	4752	3.22	828
Squatina aculeata	32.40	2	3.07	
Dentex macrophtalmus	25.70	260	2.44	825
Parapenaeus longirostris, male	25.60	5232	2.43	827
Zenopsis conchifer	20.80	704	1.97	
Spicara alta	15.50	86	1.56	826
Merluccius polli	15.84	320	1.50	
Trichiurus lepturus	9.76	32	0.93	
Aulopus cadenati	6.08	32	0.58	
Illex coindetii	3.36	80	0.32	
Uranoscopus cadenati	2.72	16	0.26	
Saurida brasiliensis	2.56	256	0.24	
Todaropsis eblanae	1.44	16	0.14	
Sepia officinalis hierredda	1.12	64	0.11	
MYCTOPHIDAE	0.64	656	0.06	
Neomerinthe folgori	0.00	32		
Total	1054.44		100.01	

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Nematocarcinus africanus	260.00	66648	75.38	
GONOSTOMATIDAE	18.96	2296	5.50	
Hoplostethus cadenati	17.84	760	5.17	
Centroprorus uyato	13.20	4	3.83	
Lamprogrammus exultus	9.20	96	2.67	
Deepwater fish mixture	7.28	136	2.11	
Trichiurus lepturus	4.32	208	1.25	
Scopelosaurus sp.	1.92	56	0.56	
Merluccius polli, female	1.88	4	0.55	842
Aristeus varidensis, female	1.84	80	0.53	844
Yarella blackfordi	1.68	40	0.49	
Alepocephalus sp.	1.44	112	0.42	
Dibranchius atlanticus	1.28	112	0.37	
HISTIOTEUTHIDAE	1.20	8	0.35	
Merluccius polli, male	0.64	2	0.19	843
Etmopterus sp.	0.64	8	0.19	
Coelorhynchus coelorhynchus	0.64	8	0.19	
Bathyroconger vicinus	0.56	24	0.16	
Stereomastis sculpta	0.40	80	0.12	
Total	344.92		100.03	

PROJECT STATION: 346
 DATE: 6/ 3/95 GEAR TYPE: BT No:4 POSITION:Lat S 756 Long E 1240
 start stop duration
 TIME :13:55:00 14:25:00 30 (min) Purpose code: 3
 LOG :4736.40 4738.10 1.70 Area code : 2
 FDEPTH: 289 297 GearCond.code:
 BDEPTH: 289 297 Validity code:
 Towing dir: 170° Wire out: 900 m Speed: 32 kn*10
 Sorted: 33 Kg Total catch: 150.80 CATCH/HOUR: 301.60

PROJECT STATION: 350
 DATE: 6/ 3/95 GEAR TYPE: BT No:8 POSITION:Lat S 755 Long E 1236
 start stop duration
 TIME :21:32:00 21:47:00 15 (min) Purpose code: 3
 LOG :4759.60 4760.40 0.80 Area code : 2
 FDEPTH: 665 652 GearCond.code:
 BDEPTH: 665 652 Validity code:
 Towing dir: 140° Wire out:1850 m Speed: 30 kn*10
 Sorted: 44 Kg Total catch: 131.46 CATCH/HOUR: 525.84

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Trichiurus lepturus	136.10	298	45.13	
Shrimps, small, non comm.	53.74	73906	17.82	
Parapenaeus longirostris, fem.	31.54	5196	10.46	831
Deepwater fish mixture	28.50	25246	9.45	
Merluccius polli	26.24	220	8.70	829
Parapenaeus longirostris, male	11.64	2360	3.86	830
Solenocera africana	5.60	1276	1.86	
Zenopsis conchifer	4.50	6	1.49	
Raja miraletus	2.54	6	0.84	
Zenopsis conchifer	1.20	16	0.40	
Total	301.60		100.01	

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Nematocarcinus africanus	278.40	60396	52.94	
Hoplostethus cadenati	120.60	4676	22.93	
Merluccius polli, female	25.56	48	4.86	846
Lamprogrammus sp.	18.72	96	3.56	
GONOSTOMATIDAE	17.16	2008	3.26	
ALEPOCEPHALIDAE	10.80	540	2.05	
Melanostomias sp.	9.96	192	1.89	
Stereomastis sculpta	7.80	876	1.48	
Yarella blackfordi	5.28	108	1.00	
Chaceon maritae	5.16	12	0.98	
Bathyroconger vicinus	5.16	132	0.98	
Todaropsis eblanae	4.68	24	0.89	
Merluccius polli, male	3.96	12	0.75	845
Onychoteuthis banksi	3.12	12	0.59	
Alepocephalus sp.	2.04	36	0.39	
Bathygadus sp.	1.44	12	0.27	
Galeus polli	1.32	24	0.25	
Etmopterus polli	1.20	24	0.23	
Laemonema laureysi	1.08	12	0.21	
Dibranchius atlanticus	0.96	72	0.18	
Nezumia sp.	0.72	12	0.14	
Scopelosaurus sp.	0.36	12	0.07	
MELANOSTOMIATIDAE	0.36	12	0.07	
Total	525.84		99.97	

PROJECT STATION: 347
 DATE: 6/ 3/95 GEAR TYPE: BT No:8 POSITION:Lat S 755 Long E 1240
 start stop duration
 TIME :15:27:00 15:57:00 30 (min) Purpose code: 2
 LCG :4741.70 4743.10 1.40 Area code : 2
 FDEPTH: 299 287 GearCond.code:
 BDEPTH: 299 287 Validity code:
 Towing dir: 350° Wire out: 920 m Speed: 32 kn*10
 Sorted: 82 Kg Total catch: 81.58 CATCH/HOUR: 163.16

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Trichiurus lepturus	123.60	266	75.75	
Shrimps, small, non comm.	24.60	32346	15.08	
MYCTOPHIDAE	10.24	9734	6.28	
Parapenaeus longirostris, fem.	1.96	280	1.20	835
Merluccius polli	1.22	14	0.75	834
Pterothrissus bellotti	0.70	4	0.43	
Parapenaeus longirostris, male	0.50	100	0.31	832
Solenocera africana	0.28	48	0.17	833
Todaropsis eblanae	0.06	2	0.04	
Total	163.16		100.01	

PROJECT STATION: 351
 DATE: 6/ 3/95 GEAR TYPE: BT No:8 POSITION:Lat S 802 Long E 1237
 start stop duration
 TIME :23:46:00 00:16:00 30 (min) Purpose code: 3
 LOG :4769.20 4771.10 1.90 Area code : 2
 FDEPTH: 595 599 GearCond.code:
 BDEPTH: 595 599 Validity code:
 Towing dir: 150° Wire out:1750 m Speed: 32 kn*10
 Sorted: 23 Kg Total catch: 140.52 CATCH/HOUR: 281.04

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Nematocarcinus africanus	151.80	35420	54.01	
GONOSTOMATIDAE	63.36	7730	22.54	
Hoplostethus cadenati	27.72	1102	9.86	
Merluccius polli	6.84	12	2.43	
Lamprogrammus sp.	5.04	36	1.79	
ALEPOCEPHALIDAE	4.80	264	1.71	
MELANOSTOMIATIDAE	4.32	96	1.54	
Mustelus mustelus	4.08	24	1.45	
Stereomastis sculpta	3.60	864	1.28	
Trichiurus lepturus	2.88	84	1.02	
Gadella imberbis	2.16	228	0.77	
Bathyrcongus vicinus	1.32	36	0.47	
Etmopterus sp.	1.20	24	0.43	
Scopelosaurus sp.	0.96	60	0.34	
Nezumia sp.	0.96	24	0.34	
Total	281.04		99.98	

PROJECT STATION: 354
 DATE: 7/ 3/95 GEAR TYPE: BT No:8 POSITION:Lat S 808 Long E 1259
 start stop duration
 TIME :08:18:00 08:48:00 30 (min) Purpose code: 3
 LOG :4804.20 4805.80 1.60 Area code : 2
 FDEPTH: 88 84 GearCond.code:
 BDEPTH: 88 84 Validity code:
 Towing dir: 140° Wire out: 300 m Speed: 30 kn*10
 Sorted: 91 Kg Total catch: 90.96 CATCH/HOUR: 181.92

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Dentex angolensis	34.50	312	18.96	866
Brachydeuterus auritus	31.50	482	17.32	
Trichiurus lepturus	22.20	44	12.20	
Selene dorsalis	17.50	54	9.62	867
Dentex gibbosus	15.90	14	8.74	869
Pagellus bellottii	10.00	166	5.50	865
Citharus linguatula	9.92	320	5.45	
Dentex barnardi	8.24	32	4.53	870
Chelidonichthys gabonensis	5.86	42	3.22	
Lepidotrigla cadmani	5.42	50	2.98	
Chloroscombrus chrysurus	5.18	46	2.85	
Sepia sp.	3.62	6	1.99	
Stromateus fiatola	2.66	2	1.46	
Uranoscopus albesca	2.10	8	1.15	
Scorpaena angolensis	1.66	6	0.91	
Saurida brasiliensis	1.46	314	0.80	
Zeus faber	1.30	6	0.71	
Trachurus trecae	1.02	60	0.56	868
Torpedo torpedo	0.98	2	0.54	
Pegusa lascaris	0.38	2	0.21	
Chaetodon hoefleri	0.38	2	0.21	
Illex coindetii	0.14	4	0.08	
Total	181.92		99.99	

PROJECT STATION: 352
 DATE: 7/ 3/95 GEAR TYPE: BT No:8 POSITION:Lat S 806 Long E 1239
 start stop duration
 TIME :01:51:00 02:21:00 30 (min) Purpose code: 3
 LOG :4776.10 4778.10 2.00 Area code : 2
 FDEPTH: 501 503 GearCond.code:
 BDEPTH: 501 503 Validity code:
 Towing dir: 160° Wire out:1550 m Speed: 34 kn*10
 Sorted: 24 Kg Total catch: 110.24 CATCH/HOUR: 220.48

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Nematocarcinus africanus	90.40	31088	41.00	
GONOSTOMATIDAE	43.68	6552	19.81	
Trichiurus lepturus	23.70	72	10.75	847
MELANOSTOMIATIDAE	10.40	272	4.72	
Malacocephalus laevis	8.48	24	3.85	
Gadella imberbis	8.16	408	3.70	
Trichiurus lepturus	7.44	256	3.37	
Aristeus varidens, female	6.88	320	3.12	849
ALEPOCEPHALIDAE	4.88	472	2.21	
Hoplostethus cadenati	3.44	200	1.56	
Aristeus varidens, male	3.36	416	1.52	848
Laemonema laureysi	2.96	296	1.34	
Chaceon maritae	2.06	2	0.93	
Etmopterus sp.	1.52	32	0.69	
Stereomastis sculpta	1.12	128	0.51	
Scopelosaurus sp.	0.48	8	0.22	
Chaunax pictus	0.48	8	0.22	
Dibranchius sp.	0.32	24	0.15	
Etmopterus polli	0.24	8	0.11	
Bathyrcongus vicinus	0.24	32	0.11	
Lamprogrammus sp.	0.16	8	0.07	
OGCOCEPHALIDAE	0.08	8	0.04	
Nemichthys scolopaceus	0.00	8		
Total	220.48		100.00	

PROJECT STATION: 355
 DATE: 7/ 3/95 GEAR TYPE: BT No:8 POSITION:Lat S 809 Long E 1306
 start stop duration
 TIME :10:03:00 10:23:00 20 (min) Purpose code: 3
 LOG :4813.30 4814.40 1.10 Area code : 2
 FDEPTH: 54 54 GearCond.code:
 BDEPTH: 54 54 Validity code:
 Towing dir: 325° Wire out: 200 m Speed: 30 kn*10
 Sorted: 34 Kg Total catch: 216.02 CATCH/HOUR: 648.06

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Pomadasyd jubelini	339.45		52.38	
Brachydeuterus auritus	144.90	5160	22.36	
Galeoides decadactylus	80.10	216	12.36	
Dentex angolensis	21.42	72	3.31	855
Dentex barnardi	18.36	126	2.83	854
Pagellus bellottii	15.57	117	2.40	856
Trichiurus lepturus	9.81	27	1.51	
Chloroscombrus chrysurus	7.65	72	1.18	
Raja miraletus	6.75	9	1.04	
Branchiostegus semifasciatus	2.79	18	0.43	
Pseudotolithus senegalensis	0.72	9	0.11	
Citharus linguatula	0.54	9	0.08	
Total	648.06		99.99	

PROJECT STATION: 353
 DATE: 7/ 3/95 GEAR TYPE: BT No:8 POSITION:Lat S 809 Long E 1246
 start stop duration
 TIME :05:37:00 06:07:00 30 (min) Purpose code: 3
 LOG :4788.60 4790.10 1.50 Area code : 2
 FDEPTH: 209 206 GearCond.code:
 BDEPTH: 209 206 Validity code:
 Towing dir: 150° Wire out: 750 m Speed: 30 kn*10
 Sorted: 61 Kg Total catch: 450.17 CATCH/HOUR: 900.34

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Synagrops microlepis	749.60	36064	83.26	
MYCTOPHIDAE	52.00	29072	5.78	
Zenopsis conchifer	41.76	240	4.64	
Chlorophthalmus punctatus	16.15	1168	1.79	
Pterothrissus belloci	12.32	112	1.37	
Dentex macrophthalmus	10.30	106	1.14	850
Parapenaeus longirostris, fem.	6.72	1024	0.75	852
Parapenaeus longirostris, male	5.12	1136	0.57	853
Todaropsis eblanae	4.00	32	0.44	
Merluccius polli	2.20	40	0.24	851
OPHIIDAE	0.16	16	0.02	
Total	900.34		100.00	

PROJECT STATION: 356
 DATE: 7/ 3/95 GEAR TYPE: BT No:8 POSITION:Lat S 816 Long E 1316
 start stop duration
 TIME :13:07:00 13:37:00 30 (min) Purpose code: 3
 LOG :4829.50 4831.10 1.60 Area code : 2
 FDEPTH: 22 21 GearCond.code:
 BDEPTH: 22 21 Validity code:
 Towing dir: 140° Wire out: 120 m Speed: 34 kn*10
 Sorted: 86 Kg Total catch: 754.30 CATCH/HOUR: 1508.60

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Chloroscombrus chrysurus	489.20	7766	32.43	
Galeoides decadactylus	256.20	630	16.98	
Sphyræna guachancho	207.20	532	13.73	
Pseudotolithus senegalensis	166.00	136	11.00	859
Sardinella aurita	85.20	280	5.65	860
Brachydeuterus auritus	69.72	1682	4.62	
Pteroscion pelli	35.84	574	2.38	
Ilisha africana	33.46	5334	2.22	
Drepane africana	24.64	42	1.63	
Arius parkii	22.54	42	1.49	
Gymnura micrura	22.10	6	1.46	
Carcharhinus brevipinna	17.70	2	1.17	
Dicologlossa cuneata	17.64	294	1.17	
Lithognathus mormyrus	12.74	42	0.84	
Raja miraletus	9.52	14	0.63	
Scomberomorus kitor	9.20	8	0.61	
Citharus linguatula	7.14	28	0.47	
Trichiurus lepturus	6.15	28	0.41	
Selene dorsalis	4.90	98	0.32	
Penaeus notialis, female	4.48	98	0.30	858
Pomadasyd jubelini	2.66	14	0.18	
Sardinella maderensis	2.24	84	0.15	
Sardinella maderensis	1.28	8	0.08	861
Cynoglossus canariensis	0.70	14	0.05	
Penaeus notialis, male	0.16	8	0.01	857
Total	1508.62		99.98	

PROJECT STATION: 357
 DATE: 7/ 3/95 GEAR TYPE: BT No:8 POSITION:Lat S 825
 start stop duration Long E 1315
 TIME :14:00:00 14:30:00 30 (min) Purpose code: 3
 LOG :4840.40 4842.10 1.70 Area code : 2
 FDEPTH: 36 31 GearCond.code:
 BDEPTH: 36 31 Validity code:
 Towing dir: 22* Wire out: 180 m Speed: 32 kn*10
 Sorted: 56 Kg Total catch: 427.53 CATCH/HOUR: 855.06

PROJECT STATION: 360
 DATE: 7/ 3/95 GEAR TYPE: BT No:8 POSITION:Lat S 824
 start stop duration Long E 1249
 TIME :22:05:00 22:35:00 30 (min) Purpose code: 3
 LOG :4883.40 4884.80 1.40 Area code : 2
 FDEPTH: 390 386 GearCond.code:
 BDEPTH: 390 386 Validity code:
 Towing dir: 330* Wire out:1270 m Speed: 30 kn*10
 Sorted: 87 Kg Total catch: 838.49 CATCH/HOUR: 1676.98

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Brachydeuterus auritus	170.30	8094	19.92	
Pomadasy jubelini	158.60	508	18.55	
Galeoides decadactylus	85.80	768	10.03	
Pseudotolithus senegalensis	68.50	70	8.01	864
Chloroscombrus chrysurus	58.76	1726	6.87	
Pteroscion peli	38.86	2892	4.54	
Ilísha africana	29.76	5700	3.48	
Pegusa lascaris	27.56	638	3.22	
Pagrus pagrus	27.30	78	3.19	
Carcharhinus brevipinna	26.00	10	3.04	
Lithognathus mormyrus	21.70	66	2.54	
Pomadasy incisus	20.54	92	2.40	
Epinephelus aeneus	19.64	4	2.30	
Dasyatis margarita	19.24	52	2.25	
Trichiurus lepturus	15.98	598	1.87	
Sphyrna guachancho	15.20	78	1.78	
Arius parkii	11.18	14	1.31	
Umbra canariensis	7.40	40	0.87	
Dasyatis marmorata	6.50	14	0.76	
Stromateus fiatola	6.24	26	0.73	
Chaetodon hoefleri	5.32	14	0.62	
Peneus notialis, male	3.40	98	0.40	862
Scomberomorus tritor	3.20	4	0.37	
Cynoglossus canariensis	1.94	52	0.23	
Selene dorsalis	1.82	40	0.21	
Peneus notialis, female	1.76	56	0.21	863
Crammoplites gruvelli	1.30	26	0.15	
Scorpaena sp.	0.90	14	0.11	
Sardinella maderensis	0.26	40	0.03	
Dicologlossa cuneata	0.12	14	0.01	
Total	855.08		100.00	

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Merluccius polli, female	541.82	1804	32.31	877
Merluccius polli, male	541.44	2400	32.29	876
Nematocarcinus africanus	340.80	68816	20.32	
Laemonema laureysi	87.92	1388	5.24	
Hymenocephalus italicus	82.94	10310	4.95	
Dibranchius atlanticus	24.96	2140	1.49	
Raja miraletus	16.12	20	0.96	
Bathyrcongonger vicinus	6.32	96	0.38	
Malacocephalus laevis	6.14	58	0.37	
Nezumia sp.	4.60	288	0.27	
Trichiurus lepturus	4.40	212	0.26	
Pterothrissus bellocci	3.26	20	0.19	
Aristeus varidens, male	3.26	384	0.19	878
Solenocera africana	2.88	326	0.17	
Gadella imberbis	2.48	76	0.15	
Etmopterus sp.	1.72	172	0.10	
Chlorophthalmus atlanticus	1.52	38	0.09	
Chaceon maritae	1.34	20	0.08	
Aristeus varidens, female	1.34	266	0.08	879
Hoplostethus cadenati	0.96	20	0.06	
Parapeneus longirostris	0.76	76	0.05	
Peristedion cataphractum	0.00	38		
Total	1676.98		100.00	

PROJECT STATION: 361
 DATE: 8/ 3/95 GEAR TYPE: BT No:8 POSITION:Lat S 823
 start stop duration Long E 1245
 TIME :00:29:00 00:59:00 30 (min) Purpose code: 3
 LOG :4892.30 4894.10 1.80 Area code : 2
 FDEPTH: 575 570 GearCond.code:
 BDEPTH: 575 570 Validity code:
 Towing dir: 145* Wire out:1700 m Speed: 32 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		

PROJECT STATION: 358
 DATE: 7/ 3/95 GEAR TYPE: BT No:8 POSITION:Lat S 825
 start stop duration Long E 1307
 TIME :16:56:00 17:26:00 30 (min) Purpose code: 3
 LOG :4852.80 4853.80 1.00 Area code : 2
 FDEPTH: 74 72 GearCond.code:
 BDEPTH: 74 72 Validity code:
 Towing dir: 160* Wire out: 280 m Speed: 30 kn*10
 Sorted: 74 Kg Total catch: 404.08 CATCH/HOUR: 808.16

PROJECT STATION: 362
 DATE: 8/ 3/95 GEAR TYPE: BT No:8 POSITION:Lat S 825
 start stop duration Long E 1246
 TIME :02:12:00 02:28:00 16 (min) Purpose code: 3
 LOG :4898.50 4899.50 1.00 Area code : 2
 FDEPTH: 578 574 GearCond.code:
 BDEPTH: 578 574 Validity code:
 Towing dir: 160* Wire out:1700 m Speed: 25 kn*10
 Sorted: 10 Kg Total catch: 102.40 CATCH/HOUR: 384.00

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Brachydeuterus auritus	676.20	15204	83.67	
Galeoides decadactylus	40.60	126	5.02	
Pagellus bellottii	23.50	98	2.91	871
Chloroscombrus chrysurus	13.58	126	1.68	
Trichiurus lepturus	8.54	168	1.06	
Dentex angolensis	8.08	34	1.00	873
Zeus faber	7.42	28	0.92	
Pteroscion peli	6.72	84	0.83	
Trachurus trecae	6.30	28	0.78	
Brotula barbata	4.46	4	0.55	
Selene dorsalis	3.78	42	0.47	
Dentex barnardi	3.38	22	0.42	872
Raja miraletus	2.66	14	0.33	
Torpedo torpedo	2.10	14	0.26	
Citharus linguatula	0.84	14	0.10	
Total	808.16		100.00	

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Nematocarcinus africanus	159.38	30638	41.51	
Bathyrcongonger vicinus	72.00	3000	18.75	
Hoplostethus cadenati	41.25	2063	10.74	
Lamprogrammus exutus	37.50	788	9.77	
NOTOSTOMATIDAE	21.00	563	5.47	
GONOSTOMATIDAE	20.63	2325	5.37	
ALEPOCEPHALIDAE	11.25	863	2.93	
Stereomastis sculpta	9.38	1538	2.44	
Trichiurus lepturus	3.75	150	0.98	
Glyphus marsupialis	3.38	150	0.88	
Chlorophthalmus atlanticus	1.88	188	0.49	
Aristeus varidens	1.50	75	0.39	
Etmopterus sp.	0.38	38	0.10	
Dibranchius atlanticus	0.38	113	0.10	
Hymenocephalus italicus	0.38	75	0.10	
Nezumia sp.	0.00	38		
Total	384.04		100.02	

PROJECT STATION: 363
 DATE: 8/ 3/95 GEAR TYPE: BT No:8 POSITION:Lat S 843
 start stop duration Long E 1252
 TIME :06:00:00 06:10:00 10 (min) Purpose code: 3
 LOG :4924.50 4925.20 0.70 Area code : 2
 FDEPTH: 439 440 GearCond.code:
 BDEPTH: 439 440 Validity code:
 Towing dir: 190* Wire out:1400 m Speed: 30 kn*10
 Sorted: 29 Kg Total catch: 114.70 CATCH/HOUR: 688.20

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Nematocarcinus africanus	402.00	81210	58.41	
Centrophorus uyato	44.70	12	6.50	
Laemonema laureysi	27.60	900	4.01	
Etmopterus lucifer	27.30	780	3.97	
Aristeus varidens, female	23.40	1680	3.40	880
Trichiurus lepturus	21.90	300	3.18	
Coelorinchus coelorrhincus	21.30	570	3.10	
Nezumia sp.	16.80	1440	2.44	
Halosaurus ovenii	11.70	630	1.70	
Bassanago albescens	11.70	300	1.70	
Conger conger	11.10	210	1.61	
Aristeus varidens, male	10.20	1290	1.48	881
Chaunax pictus	9.60	60	1.39	
Hoplostethus cadenati	8.70	540	1.26	
Yarrella blackfordi	7.80	240	1.13	
Hymenocephalus italicus	5.70	600	0.83	
GONOSTOMATIDAE	5.10	660	0.74	
Todaropsis eblanae	4.80	30	0.70	
Plesiopeneus edwardsianus	4.20	120	0.61	882
PORTUNIDAE	3.60	60	0.52	
Synagrops microlepis	3.00	180	0.44	
Bathyrcongonger vicinus	3.00	270	0.44	
Buglossidium luteum	1.80	60	0.26	
Galeus polli	1.20	90	0.17	
Total	688.20		99.99	

PROJECT STATION: 359
 DATE: 7/ 3/95 GEAR TYPE: BT No:8 POSITION:Lat S 828
 start stop duration Long E 1254
 TIME :19:54:00 20:24:00 30 (min) Purpose code: 3
 LOG :4873.20 4875.20 2.00 Area code : 2
 FDEPTH: 293 292 GearCond.code:
 BDEPTH: 293 292 Validity code:
 Towing dir: 170* Wire out:1000 m Speed: 30 kn*10
 Sorted: 58 Kg Total catch: 317.20 CATCH/HOUR: 634.40

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Chlorophthalmus atlanticus	487.84	9614	75.90	
Synagrops microlepis	52.14	2464	8.22	
Laemonema laureysi	49.50	660	7.80	
Pontinus kuhlii	10.22	164	1.61	
Pterothrissus bellocci	6.48	44	1.02	
Raja miraletus	6.04	10	0.95	
Shrimps, small, non comm.	5.50	2288	0.87	
Parapeneus longirostris, fem.	4.94	770	0.78	874
Merluccius polli	3.96	22	0.62	
Coelorinchus coelorrhincus	3.08	120	0.49	
Gadella imberbis	2.08	98	0.33	
MYCTOPHIDAE	1.42	836	0.22	
Bemdrops heterurus	0.98	10	0.15	
Parapeneus longirostris, male	0.22	44	0.03	875
Total	634.40		99.99	

PROJECT STATION: 364
 DATE: 8/ 3/95 GEAR TYPE: BT No:8 POSITION:Lat S 844
 Long E 1257
 start stop duration
 TIME :10:10:00 10:40:00 30 (min) Purpose code: 3
 LOG :4938.30 4939.80 1.50 Area code : 2
 FDEPTH: 258 254 GearCond.code:
 BDEPTH: 258 254 Validity code:
 Towing dir: 20° Wire out: 830 m Speed: 30 kn*10
 Sorted: 26 Kg Total catch: 155.62 CATCH/HOUR: 311.24

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Trichiurus lepturus	90.20	178	28.98	885
Chlorophthalmus atlanticus	55.50	5726	17.83	
Dentex angolensis	53.30	130	17.13	886
Synagrops microlepis	41.70	2032	13.40	
Pterothrissus belloci	22.02	150	7.07	
Zenopsis conchifer	15.00	66	4.82	
Brotula barbata	11.60	8	3.73	
Parapenaeus longirostris, fem.	5.34	832	1.72	884
Parapenaeus longirostris, male	4.68	850	1.50	883
Nezumia sp.	4.56	132	1.47	
Laemonema laureysi	1.74	18	0.56	
Malacocephalus occidentalis	1.62	36	0.52	
Merluccius polli	1.56	6	0.50	
Dentex macropthalmus	0.86	4	0.28	
MYCTOPHIDAE	0.72	498	0.23	
Loligo vulgaris	0.66	12	0.21	
Peristedion cataphractum	0.18	6	0.06	
Total	311.24		100.01	

PROJECT STATION: 367
 DATE: 8/ 3/95 GEAR TYPE: PT No:1 POSITION:Lat S 830
 Long E 1310
 start stop duration
 TIME :16:25:00 16:55:00 30 (min) Purpose code: 1
 LOG :4980.70 4982.20 1.50 Area code : 2
 FDEPTH: 50 45 GearCond.code:
 BDEPTH: 74 67 Validity code:
 Towing dir: 123° Wire out: 150 m Speed: 32 kn*10
 Sorted: 58 Kg Total catch: 58.54 CATCH/HOUR: 117.08

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Selene dorsalis	75.40	202	64.40	891
Sphyræna guachancho	14.10	20	12.04	
Stromateus fiatola	11.90	24	10.16	
Sardinella maderensis	6.62	24	5.65	892
Scomberomorus tritor	5.10	4	4.36	
Sarda sarda	2.82	2	2.41	
Brachydeuterus auritus	1.14	10	0.97	
Total	117.08		99.99	

PROJECT STATION: 368
 DATE: 9/ 3/95 GEAR TYPE: PY No:2 POSITION:Lat S 804
 Long E 1309
 start stop duration
 TIME :02:42:00 03:12:00 30 (min) Purpose code: 1
 LOG :5082.30 5084.30 2.00 Area code : 2
 FDEPTH: 5 5 GearCond.code:
 BDEPTH: 29 29 Validity code:
 Towing dir: 160° Wire out: 120 m Speed: 32 kn*10
 Sorted: 55 Kg Total catch: 116.54 CATCH/HOUR: 233.08

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Sardinella maderensis	68.80	692	29.52	893
Chloroscombrus chrysurus	42.20	944	18.11	
Sphyræna guachancho	30.80	132	13.21	
Ilisha africana	25.20	1212	10.81	
Galeoides decadactylus	15.28	28	6.56	
Pseudotolithus typus	10.76	8	4.62	
Pomadasy jubelini	9.40	16	4.03	
Carcharinus brevipinna	5.26	2	2.26	
Brachydeuterus auritus	4.92	88	2.11	
Pteroscion pelli	3.48	92	1.49	
Selene dorsalis	2.88	28	1.24	
Penaeus notialis, male	2.82	182	1.21	894
Scomberomorus tritor	2.76	2	1.18	
Trichiurus lepturus	2.32	108	1.00	
Shrimps, small, non comm.	1.88	404	0.81	
Sardinella maderensis	1.44	72	0.62	
Penaeus notialis, female	1.28	56	0.55	895
Pomadasy incisus	1.08	4	0.46	
Pentanemus quinquarius	0.48	4	0.21	
Penaeus kerathurus	0.04	16	0.02	
Total	233.08		100.02	

PROJECT STATION: 365
 DATE: 8/ 3/95 GEAR TYPE: BT No:8 POSITION:Lat S 836
 Long E 1308
 start stop duration
 TIME :12:34:00 12:44:00 10 (min) Purpose code: 3
 LOG :4953.90 4954.40 1.50 Area code : 2
 FDEPTH: 85 83 GearCond.code:
 BDEPTH: 85 83 Validity code:
 Towing dir: 90° Wire out: 320 m Speed: 32 kn*10
 Sorted: 144 Kg Total catch: 235.97 CATCH/HOUR: 1415.82

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Brachydeuterus auritus	755.04	19872	53.33	
Stromateus fiatola	328.80	414	23.22	
Lithognathus mormyrus	48.54	96	3.43	
Brotula barbata	41.70	66	2.95	
Selene dorsalis	35.76	132	2.53	
Pagellus bellottii	31.38	144	2.22	887
Cynoponticus ferox	28.50	6	2.01	
Zenopsis conchifer	26.10	78	1.84	
Trichiurus lepturus	17.94	84	1.27	
Lycodontis sp.	17.64	156	1.25	
Pegusa lascaris	17.28	126	1.22	
Cynoglossus canariensis	12.72	162	0.90	
Raja miraletus	8.34	12	0.59	
Torpedo torpedo	7.86	18	0.56	
Pomadasy jubelini	6.42	12	0.45	
Branchiostegus semifasciatus	6.00	12	0.42	
Venus sp.	5.94	156	0.42	
Zeus faber	5.64	12	0.40	
Argyrosomus hololepidotus	4.98	18	0.35	
Galeoides decadactylus	3.72	12	0.26	
Umbra canariensis	1.50	30	0.11	
Calappa sp.	1.32	12	0.09	
Pseudotolithus senegalensis	1.20	12	0.08	
Sepia officinalis hierredda	0.84	30	0.06	
GOBIIDAE	0.54	78	0.04	
ANTENNARIIDAE	0.06	12		
Total	1415.76		100.00	

PROJECT STATION: 369
 DATE: 9/ 3/95 GEAR TYPE: PT No:2 POSITION:Lat S 816
 Long E 1313
 start stop duration
 TIME :04:32:00 05:04:00 32 (min) Purpose code: 1
 LOG :5095.20 5097.00 1.80 Area code : 2
 FDEPTH: 5 5 GearCond.code:
 BDEPTH: 35 36 Validity code:
 Towing dir: 160° Wire out: 120 m Speed: 32 kn*10
 Sorted: 64 Kg Total catch: 64.12 CATCH/HOUR: 120.23

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Sphyræna guachancho	58.13	173	48.35	
Chloroscombrus chrysurus	36.94	686	30.72	897
Scomberomorus tritor	12.34	9	10.26	
Sardinella maderensis	4.43	38	3.68	898
Arius parkii	3.24	2	2.69	
Trachinotus ovatus	2.06	9	1.71	
Caranx crysos	1.56	8	1.30	
Selene dorsalis	0.96	15	0.80	896
Sardinella aurita	0.62	2	0.52	899
Total	120.28		100.03	

PROJECT STATION: 366
 DATE: 8/ 3/95 GEAR TYPE: BT No:8 POSITION:Lat S 835
 Long E 1318
 start stop duration
 TIME :14:28:00 14:58:00 30 (min) Purpose code: 3
 LOG :4957.90 4969.50 1.60 Area code : 2
 FDEPTH: 26 30 GearCond.code:
 BDEPTH: 26 30 Validity code:
 Towing dir: 340° Wire out: 120 m Speed: 32 kn*10
 Sorted: 120 Kg Total catch: 390.71 CATCH/HOUR: 781.42

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Brachydeuterus auritus	329.54	14280	42.17	
Pteroscion pelli	70.20	2032	8.98	
Pseudotolithus senegalensis	65.96	104	8.44	888
Penaeus notialis, female	59.48	2086	7.61	890
Galeoides decadactylus	57.90	110	7.41	
Ilisha africana	33.46	2852	4.28	
Trichiurus lepturus	30.22	248	3.87	
Pomadasy jubelini	28.72	78	3.58	
Pegusa lascaris	27.56	824	3.63	
Penaeus notialis, male	23.06	1786	2.95	889
Dasyatis margarita	14.62	20	1.87	
Arius parkii	10.32	14	1.32	
Torpedo torpedo	8.58	14	1.10	
Cynoponticus ferox	4.80	6	0.61	
Sphyræna guachancho	3.76	26	0.48	
Lithognathus mormyrus	3.56	14	0.46	
Cynoglossus canariensis	3.56	20	0.46	
Pomadasy icus	1.68	6	0.21	
Chloroscombrus chrysurus	1.52	46	0.21	
Eucinostomus melanopterus	1.22	20	0.16	
Selene dorsalis	0.96	26	0.12	
Sepia officinalis hierredda	0.38	52	0.05	
GALATHEIDAE	0.26	78	0.03	
Sardinella maderensis	0.00	6		
Total	781.42		100.00	

PROJECT STATION: 370
 DATE: 11/ 3/95 GEAR TYPE: PT No:2 POSITION:Lat S 830
 Long E 1300
 start stop duration
 TIME :17:00:00 17:30:00 30 (min) Purpose code: 1
 LOG :5184.90 5186.40 1.50 Area code : 2
 FDEPTH: 0 0 GearCond.code:
 BDEPTH: 175 147 Validity code:
 Towing dir: 257° Wire out: 120 m Speed: 3 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: 371
 DATE: 11/ 3/95 GEAR TYPE: BT No:8 POSITION: Lat S 832 Long E 1259
 start stop duration
 TIME :19:18:00 19:28:00 10 (min) Purpose code: 1
 LOG :5199.00 5199.60 0.60 Area code : 2
 FDEPTH: 165 175 GearCond.code:
 BDEPTH: 165 175 Validity code:
 Towing dir: 183° Wire out: 600 m Speed: 3 kn*10
 Sorted: 64 Kg Total catch: 640.20 CATCH/HOUR: 3841.20

PROJECT STATION: 375
 DATE: 12/ 3/95 GEAR TYPE: BT No:8 POSITION: Lat S 844 Long E 1310
 start stop duration
 TIME :06:48:00 07:04:00 16 (min) Purpose code: 1
 LOG :5275.40 5276.30 0.90 Area code : 2
 FDEPTH: 74 78 GearCond.code:
 BDEPTH: 74 78 Validity code:
 Towing dir: 292° Wire out: 300 m Speed: 30 kn*10
 Sorted: 51 Kg Total catch: 508.70 CATCH/HOUR: 1907.63

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Trachurus trecae	2790.00	5484	72.63	900
Synagrops microlepis	250.20	24720	6.51	
Pterothrissus bellocci	181.20	1560	4.72	
Parapenaeus longirostris	180.00	81000	4.69	
MYCTOPHIDAE	102.00	86700	2.66	
Bembros heterurus	82.80	960	2.16	
Chelidonichthys gabonensis	40.20	180	1.05	
Peristedion cataphractum	32.40	480	0.84	
Torpedo torpedo	27.60	60	0.72	
Dentex angolensis	25.20	60	0.66	
Illex coindetii	21.60	180	0.56	
Spicara alta	17.40	240	0.45	
Todaropsis eblanae	15.00	120	0.39	
Arnoglossus imperialis	13.80	900	0.36	
Citharus linguatula	12.00	240	0.31	
Boops boops	9.60	180	0.25	
Uranoscopus cadenati	7.20	60	0.19	
Trichiurus lepturus	6.60	60	0.17	
Solenocera africana	6.00		0.16	
Pontinus sp.	5.40	240	0.14	
Dentex macrophthalmus	5.40	60	0.14	
NETTASTOMATIDAE	3.60	240	0.09	
Chlorophthalmus atlanticus	3.00	360	0.08	
Parapandalus brevipes	3.00		0.08	
Total	3841.20		100.01	

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Brachydeuterus auritus	890.63	19515	46.69	908
Trachurus trecae	367.50	900	19.26	910
Trichiurus lepturus	173.63	1463	9.10	
Argyrosomus hololepidotus	112.13	188	5.88	
Pagellus bellottii	90.00	413	4.72	909
Umbria canariensis	52.13	375	2.73	
Pterothrissus bellocci	49.50	1388	2.59	
Lithognathus mormyrus	40.50	75	2.12	
Epinephelus goreensis	37.88	38	1.99	
Branchiostegus semifasciatus	27.75	38	1.45	
Citharus linguatula	16.50	413	0.86	
Sepia officinalis hierredda	13.50	225	0.71	
Chelidonichthys gabonensis	12.00	38	0.63	
Pteroscion peli	7.50	75	0.39	
Chaetodon hoefleri	5.63	38	0.30	
Galeoides decadactylus	4.88	38	0.26	
MYXAA00	4.13	38	0.22	
Peristedion cataphractum	1.88	38	0.10	
Total	1907.67		100.00	

PROJECT STATION: 376
 DATE: 12/ 3/95 GEAR TYPE: PT No:1 POSITION: Lat S 846 Long E 1258
 start stop duration
 TIME :10:25:00 11:01:00 36 (min) Purpose code: 1
 LOG :5301.40 5303.00 1.60 Area code : 2
 FDEPTH: 190 180 GearCond.code:
 BDEPTH: 214 217 Validity code:
 Towing dir: 196° Wire out: 500 m Speed: 3 kn*10
 Sorted: 14 Kg Total catch: 13.70 CATCH/HOUR: 22.83

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Trichiurus lepturus	18.92	43	82.87	911
MYCTOPHIDAE	3.92	1758	17.17	
Total	22.84		100.04	

PROJECT STATION: 372
 DATE: 11/ 3/95 GEAR TYPE: PT No:2 POSITION: Lat S 836 Long E 1312
 start stop duration
 TIME :21:57:00 22:27:00 30 (min) Purpose code: 1
 LOG :5216.70 5218.40 1.70 Area code : 2
 FDEPTH: 10 10 GearCond.code:
 BDEPTH: 63 72 Validity code:
 Towing dir: 281° Wire out: 150 m Speed: 30 kn*10
 Sorted: 88 Kg Total catch: 213.52 CATCH/HOUR: 427.04

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Chloroscombrus chrysurus	267.00	3514	62.52	
Sardinella aurita	59.40	162	13.91	901
Sardinella maderensis	38.52	324	9.02	902
Sphyræna guachancho	21.04	40	4.93	
Arius heudeloti	10.82	2	2.53	
Selene dorsalis	10.28	108	2.41	
Trichiurus lepturus	8.24	120	1.93	
Carcharias brevipinna	3.84	2	0.90	
Ilisha africana	3.24	24	0.76	
Trachinotus ovatus	2.72	4	0.64	
Scorpaenomor tritor	1.92	4	0.45	
Total	427.02		100.00	

PROJECT STATION: 377
 DATE: 12/ 3/95 GEAR TYPE: BT No:8 POSITION: Lat S 849 Long E 1258
 start stop duration
 TIME :12:05:00 12:20:00 15 (min) Purpose code: 1
 LOG :5307.80 5308.70 0.90 Area code : 2
 FDEPTH: 203 210 GearCond.code:
 BDEPTH: 203 210 Validity code:
 Towing dir: 320° Wire out: 540 m Speed: 3 kn*10
 Sorted: 17 Kg Total catch: 156.25 CATCH/HOUR: 625.04

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Pterothrissus bellocci	97.44	680	15.59	
Trichiurus lepturus	94.80	256	15.17	
MYCTOPHIDAE	76.24	19728	12.20	
Trachurus trecae	69.40	112	11.10	912
Dentex angolensis	63.60	168	10.18	913
Brotula barbata	54.40	40	8.70	
Dentex macrophthalmus	34.36	192	5.50	914
Synagrops microlepis	26.08	1936	4.17	
Chelidonichthys gabonensis	19.80	96	3.17	
Zenopsis conchifer	18.64	72	2.98	
Parapenaeus longirostris, fem.	7.52	200	1.20	916
Grammolites graveli	7.08	44	1.13	
Galeoides decadactylus	6.84	12	1.09	
Parapenaeus longirostris, male	6.40	216	1.02	915
Spicara alta	5.64	24	0.90	
Nezumia sp.	5.60	152	0.90	
Uranoscopus albesca	5.56	24	0.89	
Brachydeuterus auritus	4.40	24	0.70	
Merluccius polli	3.84	56	0.61	
Pontinus sp.	3.40	12	0.54	
Citharus linguatula	3.26	16	0.54	
Todaropsis eblanae	2.80	8	0.45	
Zeus faber	2.52	4	0.40	
Peristedion cataphractum	2.16	24	0.35	
Cynoglossus canariensis	1.60	16	0.26	
Bathyluroconger vicinus	1.56	4	0.25	
Total	625.04		99.99	

PROJECT STATION: 373
 DATE: 12/ 3/95 GEAR TYPE: PT No:2 POSITION: Lat S 838 Long E 1308
 start stop duration
 TIME :01:40:00 02:10:00 30 (min) Purpose code: 1
 LOG :5243.40 5245.00 1.60 Area code : 2
 FDEPTH: 5 5 GearCond.code:
 BDEPTH: 86 95 Validity code:
 Towing dir: 280° Wire out: 120 m Speed: 32 kn*10
 Sorted: 94 Kg Total catch: 93.72 CATCH/HOUR: 187.44

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Selene dorsalis	95.40	526	50.90	
Sardinella maderensis	45.60	232	24.33	904
Trichiurus lepturus	24.00	168	12.80	
Sphyræna guachancho	14.18	50	7.57	903
Chloroscombrus chrysurus	2.78	34	1.48	
Brachydeuterus auritus	2.66	30	1.42	
Sardinella aurita	1.48	4	0.79	905
Saurida brasiliensis	0.98	244	0.52	
Synagrops microlepis	0.36	84	0.19	
Total	187.44		100.00	

PROJECT STATION: 378
 DATE: 12/ 3/95 GEAR TYPE: PT No:1 POSITION: Lat S 850 Long E 1308
 start stop duration
 TIME :13:57:00 14:37:00 40 (min) Purpose code: 1
 LOG :5321.10 5323.40 2.30 Area code : 2
 FDEPTH: 70 74 GearCond.code:
 BDEPTH: 82 98 Validity code:
 Towing dir: 282° Wire out: 180 m Speed: 3 kn*10
 Sorted: 256 Kg Total catch: 894.45 CATCH/HOUR: 1341.68

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Selene dorsalis	604.80	1943	45.08	
Trachurus trecae	437.33	965	32.60	918
Sphyræna guachancho	144.90	137	10.80	917
Trichiurus lepturus	60.63	105	4.52	
Sardinella maderensis	39.27	158	2.93	919
Decapterus rhonchus	21.57	21	1.61	920
Stromateus fiatoia	20.69	21	1.54	
Scorpaenomor japonicus	12.65	17	0.94	
Total	1341.84		100.02	

PROJECT STATION: 374
 DATE: 13/ 3/95 GEAR TYPE: PT No:2 POSITION: Lat S 843 Long E 1305
 start stop duration
 TIME :04:45:00 05:15:00 30 (min) Purpose code: 1
 LOG :5263.50 5265.10 1.60 Area code : 2
 FDEPTH: 5 5 GearCond.code:
 BDEPTH: 116 103 Validity code:
 Towing dir: 286° Wire out: 120 m Speed: 32 kn*10
 Sorted: 67 Kg Total catch: 153.70 CATCH/HOUR: 307.40

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Selene dorsalis	236.60	806	76.97	907
Sardinella maderensis	56.50	236	18.38	906
Trichiurus lepturus	5.76	8	1.87	
Caranx crysos	4.48	4	1.46	
Scorpaenomor tritor	4.06	2	1.32	
Total	307.40		100.00	

PROJECT STATION: 379
 DATE: 12/ 3/95 GEAR TYPE: PT No:1 POSITION: Lat S 854 Long E 1203
 start stop duration
 TIME :17:16:00 17:32:00 16 (min) Purpose code: 1
 LOG :5341.80 5342.80 1.00 Area code : 2
 FDEPTH: 60 70 GearCond.code:
 BDEPTH: 95 111 Validity code:
 Towing dir: 305° Wire out: 200 m Speed: 3 kn*10
 Sorted: 121 Kg Total catch: 12082.00 CATCH/HOUR: 45307.50

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Trachurus trecae	41212.50	97984	90.96	921
Scomber japonicus	3225.00	4125	7.12	922
Decapterus rhonchus	326.25	375	0.72	
Trichiurus lepturus	251.25	750	0.55	
Sardinella aurita	172.50	375	0.38	
Selene dorsalis	131.25	375	0.29	
Total	45318.75		100.02	

PROJECT STATION: 380
 DATE: 13/ 3/95 GEAR TYPE: PT No:1 POSITION: Lat S 905 Long E 1246
 start stop duration
 TIME :00:16:00 00:38:00 22 (min) Purpose code: 1
 LOG :5399.10 5400.10 1.00 Area code : 2
 FDEPTH: 141 153 GearCond.code:
 BDEPTH: 283 386 Validity code:
 Towing dir: 74° Wire out: 420 m Speed: 3 kn*10
 Sorted: 7 Kg Total catch: 22.84 CATCH/HOUR: 62.29

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
MYCTOPHIDAE	22.31	26035	35.82	
S H R I M P S	18.27	17509	29.33	
Parapenaeus longirostris, male	8.43	1702	13.53	924
Trachurus trecae	8.10	19	13.00	923
Parapenaeus longirostris, fem.	5.18	507	8.32	925
Total	62.29		100.00	

PROJECT STATION: 381
 DATE: 13/ 3/95 GEAR TYPE: PT No:2 POSITION: Lat S 929 Long E 1248
 start stop duration
 TIME :18:55:00 19:20:00 25 (min) Purpose code: 1
 LOG :5563.30 5564.70 1.40 Area code : 2
 FDEPTH: 10 10 GearCond.code:
 BDEPTH: 113 105 Validity code:
 Towing dir: 253° Wire out: 130 m Speed: 3 kn*10
 Sorted: 84 Kg Total catch: 83.74 CATCH/HOUR: 200.98

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Sardinella maderensis	117.84	506	58.63	927
Selene dorsalis	30.84	106	15.34	928
Sphyræna guachancho	30.72	29	15.29	929
Trichiurus lepturus	10.92	96	5.43	
Sardinella aurita	5.90	19	2.94	926
Caranx crysos	2.62	2	1.30	
Euthynnus alletteratus	1.08	2	0.54	
Trachurus trecae	0.50	2	0.25	
Bregmaceros sp.	0.26	830	0.13	
Saurida brasiliensis	0.14	34	0.07	
Synagrops microlepis	0.14	38	0.07	
Total	200.96		99.99	

PROJECT STATION: 382
 DATE: 14/ 3/95 GEAR TYPE: PT No:1 POSITION: Lat S 939 Long E 1250
 start stop duration
 TIME :02:20:00 02:50:00 30 (min) Purpose code: 1
 LOG :5630.00 5632.50 2.50 Area code : 2
 FDEPTH: 20 25 GearCond.code:
 BDEPTH: 114 109 Validity code:
 Towing dir: 95° Wire out: 120 m Speed: 3 kn*10
 Sorted: 109 Kg Total catch: 2607.84 CATCH/HOUR: 5215.68

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Sardinella maderensis	4920.00	18080	94.33	930
Trichiurus lepturus	101.28	240	1.94	
Sphyræna guachancho	46.08	48	0.88	
Selene dorsalis	40.32	96	0.77	
Brachydeuterus auritus	30.24	144	0.58	
Sarda sarda	30.24	144	0.58	
Saurida brasiliensis	12.00	384	0.23	
Total	5180.16		99.31	

PROJECT STATION: 383
 DATE: 14/ 3/95 GEAR TYPE: PT No:1 POSITION: Lat S 949 Long E 1256
 start stop duration
 TIME :06:38:00 07:05:00 27 (min) Purpose code: 1
 LOG :5667.70 5669.30 1.60 Area code : 2
 FDEPTH: 20 25 GearCond.code:
 BDEPTH: 104 99 Validity code:
 Towing dir: 55° Wire out: 100 m Speed: 3 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: 384
 DATE: 14/ 3/95 GEAR TYPE: PT No:1 POSITION: Lat S 952 Long E 1255
 start stop duration
 TIME :08:25:00 08:45:00 20 (min) Purpose code: 1
 LOG :5677.60 5678.90 1.30 Area code : 2
 FDEPTH: 22 20 GearCond.code:
 BDEPTH: 114 110 Validity code:
 Towing dir: 45° Wire out: 120 m Speed: 3 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: 385
 DATE: 14/ 3/95 GEAR TYPE: PT No:1 POSITION: Lat S 959 Long E 1303
 start stop duration
 TIME :13:05:00 13:41:00 36 (min) Purpose code: 1
 LOG :5720.00 5722.10 2.10 Area code : 2
 FDEPTH: 64 74 GearCond.code:
 BDEPTH: 80 76 Validity code:
 Towing dir: 59° Wire out: 210 m Speed: 37 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: 386
 DATE: 14/ 3/95 GEAR TYPE: PT No:2 POSITION: Lat S 1003 Long E 1253
 start stop duration
 TIME :16:35:00 17:10:00 35 (min) Purpose code: 1
 LOG :5742.00 5743.80 1.80 Area code : 2
 FDEPTH: 5 5 GearCond.code:
 BDEPTH: 205 122 Validity code:
 Towing dir: 90° Wire out: 120 m Speed: 31 kn*10
 Sorted: 1 Kg Total catch: 1.04 CATCH/HOUR: 1.78

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Sardinella maderensis	1.17	5	65.73	931
Echeneis naucrates	0.62	2	34.83	
Total	1.79		100.56	

PROJECT STATION: 387
 DATE: 14/ 3/95 GEAR TYPE: PT No:2 POSITION: Lat S 946 Long E 1251
 start stop duration
 TIME :19:52:00 20:12:00 20 (min) Purpose code: 1
 LOG :5763.20 5764.40 1.20 Area code : 2
 FDEPTH: 5 5 GearCond.code:
 BDEPTH: 136 143 Validity code:
 Towing dir: 347° Wire out: 120 m Speed: 30 kn*10
 Sorted: 105 Kg Total catch: 105.41 CATCH/HOUR: 316.23

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Sardinella maderensis	293.70	1338	92.88	932
Selene dorsalis	11.22	36	3.55	933
Trichiurus lepturus	4.98	60	1.57	
Uraspis secunda	3.87	3	1.22	
MYCTOPHIDAE	1.74	2436	0.55	
Scomber japonicus	0.72	3	0.23	
Total	316.23		100.00	

PROJECT STATION: 388
 DATE: 14/ 3/95 GEAR TYPE: PT No:2 POSITION: Lat S 950 Long E 1255
 start stop duration
 TIME :23:30:00 00:00:00 30 (min) Purpose code: 1
 LOG :5796.00 5797.70 1.70 Area code : 2
 FDEPTH: 20 20 GearCond.code:
 BDEPTH: 111 114 Validity code:
 Towing dir: 238° Wire out: 120 m Speed: 3 kn*10
 Sorted: 125 Kg Total catch: 125.30 CATCH/HOUR: 250.60

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Sardinella maderensis	185.10	908	73.86	934
Selene dorsalis	53.90	166	21.51	
Trichiurus lepturus	4.40	22	1.76	
Caranx crysos	2.90	2	1.16	
Sardinella aurita	1.86	4	0.74	935
Saurida brasiliensis	1.32	208	0.53	
MYCTOPHIDAE	1.12	386	0.45	
Total	250.60		100.01	

PROJECT STATION: 389
 DATE: 15/ 3/95 GEAR TYPE: PT No:2 POSITION: Lat S 935 Long E 1304
 start stop duration
 TIME :02:32:00 03:00:00 28 (min) Purpose code: 1
 LOG :5817.20 5818.90 1.70 Area code : 2
 FDEPTH: 20 20 GearCond.code:
 BDEPTH: 72 65 Validity code:
 Towing dir: 91° Wire out: 120 m Speed: 3 kn*10
 Sorted: 4 Kg Total catch: 176.72 CATCH/HOUR: 378.69

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Selene dorsalis	120.86	469	31.92	
Sphyræna guachancho	117.43	148	31.01	936
Sardinella maderensis	103.71	401	27.39	937
Trichiurus lepturus	12.69	45	3.35	
Saurida brasiliensis	12.64	3099	3.34	
Chloroscombrus chrysurus	11.36	77	3.00	
Total	378.69		100.01	

PROJECT STATION: 390
 DATE:15/ 3/95 GEAR TYPE: PT No:2 POSITION:Lat S 955
 start stop duration Long E 1304
 TIME :04:03:00 04:30:00 27 (min) Purpose code: 1
 LOG :5824.70 5826.40 1.70 Area code : 2
 FDEPTH: 10 10 GearCond.code:
 BDEPTH: 75 79 Validity code:
 Towing dir: 300° Wire out: 120 m Speed: 35 kn*10
 Sorted: 53 Kg Total catch: 52.62 CATCH/HOUR: 116.93

PROJECT STATION: 395
 DATE:15/ 3/95 GEAR TYPE: PT No:2 POSITION:Lat S 1026
 start stop duration Long E 1322
 TIME :23:30:00 24:00:00 30 (min) Purpose code: 1
 LOG :5976.80 5978.80 2.00 Area code : 2
 FDEPTH: 10 10 GearCond.code:
 BDEPTH: 69 58 Validity code:
 Towing dir: 54° Wire out: 120 m Speed: 4 kn*10
 Sorted: 66 Kg Total catch: 65.76 CATCH/HOUR: 131.52

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Sardinella maderensis	42.80	218	36.60	938
Selene dorsalis	32.22	129	27.55	
Sphyræna guachancho	25.56	40	21.86	
Alectis alexandrinus	6.69	4	5.72	
Saurida brasiliensis	3.56	2149	3.04	
Caranx crysos	1.89	2	1.62	
Alloteuthis africana	1.69	151	1.45	
Chloroscombrus chrysurus	1.36	7	1.16	
Trichiurus lepturus	0.96	2	0.82	
Total	116.73		99.82	

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Trachinotus ovatus	62.80	158	47.75	947
Selene dorsalis	31.00	100	23.57	949
Sardinella maderensis	12.28	58	9.34	948
Scomberomorus tritor	11.02	4	8.38	
Sphyræna guachancho	6.14	14	4.67	
Caranx crysos	5.08	4	3.86	
Euthynnus alletteratus	2.16	2	1.64	
Pellonula leonensis	0.72	960	0.55	
Pellonula leonensis	0.10	30	0.08	
Small squids	0.08	20	0.06	
Saurida brasiliensis	0.08	20	0.06	
Alloteuthis africana	0.06	12	0.05	
Total	131.52		100.01	

PROJECT STATION: 391
 DATE:15/ 3/95 GEAR TYPE: BT No:8 POSITION:Lat S 1001
 start stop duration Long E 1258
 TIME :05:55:00 06:25:00 30 (min) Purpose code: 1
 LOG :5836.40 5837.90 1.50 Area code : 2
 FDEPTH: 105 97 GearCond.code:
 BDEPTH: 105 97 Validity code:
 Towing dir: 228° Wire out: 300 m Speed: 30 kn*10
 Sorted: 113 Kg Total catch: 1585.22 CATCH/HOUR: 3170.44

PROJECT STATION: 396
 DATE:16/ 3/95 GEAR TYPE: PT No:1 POSITION:Lat S 1029
 start stop duration Long E 1317
 TIME :01:23:00 01:45:00 22 (min) Purpose code: 1
 LOG :5989.00 5990.40 1.40 Area code : 2
 FDEPTH: 50 50 GearCond.code:
 BDEPTH: 98 89 Validity code:
 Towing dir: 58° Wire out: 955 m Speed: 3 kn*10
 Sorted: 136 Kg Total catch: 136.08 CATCH/HOUR: 371.13

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Brachydeuterus auritus	2447.20	21954	77.19	939
Selene dorsalis	534.80	2100	16.87	940
Trachurus trecae	134.40	1260	4.24	941
Pagellus bellottii	39.44	280	1.24	
Trichiurus lepturus	15.68	84	0.49	
Dentex gibbosus	5.88	28	0.19	
Chelidonichthys gabonensis	3.64	28	0.11	
Alloteuthis africana	0.84	364	0.03	
Saurida brasiliensis	0.56	140	0.02	
Total	3182.44		100.38	

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Decapterus rhonchus	260.86	352	70.29	952
Sardinella maderensis	63.82	229	17.20	950
Sarda sarda	25.58	8	6.89	
Sphyræna guachancho	7.88	8	2.12	
Selene dorsalis	6.65	16	1.79	
Trachurus trecae	2.07	101	0.56	951
Sardinella aurita	1.55	3	0.42	
Brachydeuterus auritus	0.95	3	0.26	
Saurida brasiliensis	0.95	82	0.26	
Trichiurus lepturus	0.79	3	0.21	
Total	371.10		100.00	

PROJECT STATION: 392
 DATE:15/ 3/95 GEAR TYPE: PT No:1 POSITION:Lat S 1008
 start stop duration Long E 1312
 TIME :12:20:00 12:55:00 35 (min) Purpose code: 1
 LOG :5983.80 5985.60 1.80 Area code : 2
 FDEPTH: 51 50 GearCond.code:
 BDEPTH: 68 71 Validity code:
 Towing dir: 169° Wire out: 135 m Speed: 3 kn*10
 Sorted: 40 Kg Total catch: 246.90 CATCH/HOUR: 423.26

PROJECT STATION: 397
 DATE:16/ 3/95 GEAR TYPE: PT No:1 POSITION:Lat S 1032
 start stop duration Long E 1316
 TIME :04:10:00 04:48:00 38 (min) Purpose code: 1
 LOG :6006.60 6008.70 2.10 Area code : 2
 FDEPTH: 30 40 GearCond.code:
 BDEPTH: 108 119 Validity code:
 Towing dir: 267° Wire out: 130 m Speed: 34 kn*10
 Sorted: 103 Kg Total catch: 1168.60 CATCH/HOUR: 1845.16

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Selene dorsalis	223.89	761	52.90	943
Chloroscombrus chrysurus	188.57	1255	44.55	944
Sardinella maderensis	3.82	22	0.90	942
Scomberomorus tritor	3.74	2	0.88	
Sphyræna guachancho	3.24	5	0.77	
Total	423.26		100.00	

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Sardinella maderensis	1556.05	7382	84.33	953
Selene dorsalis	193.26	711	10.47	954
Sphyræna lewini	63.16	2	3.42	
Trichiurus lepturus	28.71	142	1.56	
Saurida brasiliensis	2.27	512	0.12	
Trachurus trecae	1.71	28	0.09	
Total	1845.16		99.99	

PROJECT STATION: 393
 DATE:15/ 3/95 GEAR TYPE: PT No:2 POSITION:Lat S 1012
 start stop duration Long E 1317
 TIME :16:00:00 16:32:00 32 (min) Purpose code: 1
 LOG :5912.50 5914.50 2.00 Area code : 2
 FDEPTH: 10 10 GearCond.code:
 BDEPTH: 54 41 Validity code:
 Towing dir: 85° Wire out: 120 m Speed: 3 kn*10
 Sorted: 12 Kg Total catch: 12.04 CATCH/HOUR: 22.58

PROJECT STATION: 398
 DATE:16/ 3/95 GEAR TYPE: PT No:1 POSITION:Lat S 1040
 start stop duration Long E 1320
 TIME :10:35:00 10:55:00 20 (min) Purpose code: 1
 LOG :6061.80 6062.80 1.00 Area code : 2
 FDEPTH: 25 25 GearCond.code:
 BDEPTH: 120 127 Validity code:
 Towing dir: 269° Wire out: 120 m Speed: 3 kn*10
 Sorted: 1 Kg Total catch: 0.98 CATCH/HOUR: 2.94

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Scomber japonicus	17.72	6	78.48	
Trachinotus ovatus	3.09	8	13.68	
Chloroscombrus chrysurus	1.24	6	5.49	
Echeneis naucrates	0.53	2	2.35	
Total	22.58		100.00	

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Auxis rochei	2.94	3	100.00	
Total	2.94		100.00	

PROJECT STATION: 394
 DATE:15/ 3/95 GEAR TYPE: PT No:2 POSITION:Lat S 1024
 start stop duration Long E 1311
 TIME :20:10:00 20:30:00 20 (min) Purpose code: 1
 LOG :5948.20 5949.20 1.00 Area code : 2
 FDEPTH: 5 5 GearCond.code:
 BDEPTH: 104 100 Validity code:
 Towing dir: 88° Wire out: 120 m Speed: 3 kn*10
 Sorted: Kg Total catch: 98.10 CATCH/HOUR: 294.30

PROJECT STATION: 399
 DATE:16/ 3/95 GEAR TYPE: PT No:1 POSITION:Lat S 1039
 start stop duration Long E 1328
 TIME :12:38:00 13:08:00 30 (min) Purpose code: 1
 LOG :6074.20 6076.30 2.10 Area code : 2
 FDEPTH: 75 75 GearCond.code:
 BDEPTH: 86 95 Validity code:
 Towing dir: 269° Wire out: 160 m Speed: 3 kn*10
 Sorted: 91 Kg Total catch: 91.14 CATCH/HOUR: 182.28

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Sardinella maderensis	140.70	684	47.81	945
Selene dorsalis	127.50	564	43.32	946
Trichiurus lepturus	13.50	45	4.59	
Trachinotus ovatus	4.80	12	1.63	
Caranx hippos	3.90	3	1.33	
Sphyræna guachancho	2.70	3	0.92	
Bregmaceros nectabanus	0.90	1890	0.31	
Saurida brasiliensis	0.18	27	0.06	
Alloteuthis africana	0.06	27	0.02	
Total	294.24		99.99	

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Selene dorsalis	95.10	224	52.17	955
Sardinella maderensis	53.00	178	29.08	956
Trichiurus lepturus	20.80	12	11.41	
Brachydeuterus auritus	10.64	88	5.84	958
Sphyræna guachancho	2.28	6	1.25	
Sardinella aurita	0.46	2	0.25	957
Total	182.28		100.00	

PROJECT STATION: 400
 DATE:16/ 3/95 GEAR TYPE: BT No:8 POSITION:Lat S 1039
 start stop duration Long E 1340
 TIME :15:00:00 15:30:00 30 (min) Purpose code: 1
 LOG :6091.90 6093.50 1.60 Area code : 2
 FDEPTH: 10 5 GearCond.code:
 BDEPTH: 31 20 Validity code:
 Towing dir: 89° Wire out: 120 m Speed: 32 kn*10

Sorted: 96 Kg Total catch: 333.92 CATCH/HOUR: 667.84

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Brachydeuterus auritus	284.36	4414	42.58	
Galeoides decadactylus	133.24	1242	19.95	
Sphyræna guachancho	53.62	78	8.03	964
Chloroscombrus chrysurus	39.96	364	5.98	963
Pomadasy peroteti	39.38	84	5.90	
Pseudolithus senegalensis	22.80	24	3.41	960
Selene dorsalis	15.92	222	2.38	961
Stromateus fiatola	13.84	26	2.07	
Trichiurus lepturus	12.08	930	1.81	
Pomadasy jubelini	9.02	32	1.35	
Rhinobatos albomaculatus	7.90	2	1.18	
Brachydeuterus auritus	6.30	1028	0.94	
Alectis alexandrinus	4.92	4	0.74	
Pagellus bellottii	4.92	14	0.74	959
Trachinotus ovatus	3.44	14	0.52	
Pomadasy incisus	3.24	20	0.49	
Arius parkii	2.66	4	0.40	
Ilisha africana	2.08	20	0.31	
Lithognathus mormyrus	1.94	6	0.29	
Sphyræna guachancho	1.88	46	0.28	
Sardinella maderensis	1.30	156	0.19	962
Dentex barnardi	1.12	6	0.17	
Ilisha africana	1.04	196	0.16	
Epinephelus aeneus	0.90	2	0.13	
Lagocephalus sp.	0.00	32		
Pterothrissus belloci	0.00	6		
Total	667.86		100.00	

PROJECT STATION: 401
 DATE:16/ 3/95 GEAR TYPE: PT No:1 POSITION:Lat S 1045
 start stop duration Long E 1327
 TIME :18:20:00 18:50:00 30 (min) Purpose code: 1
 LOG :6116.30 6118.30 2.00 Area code : 2
 FDEPTH: 40 45 GearCond.code:
 BDEPTH: 113 107 Validity code:
 Towing dir: 90° Wire out: 150 m Speed: 3 kn*10

Sorted: 56 Kg Total catch: 159.20 CATCH/HOUR: 338.40

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Brachydeuterus auritus	162.60	1566	48.05	965
Sardinella maderensis	133.40	588	39.42	966
Trichiurus lepturus	19.00	96	5.61	
Sepia officinalis hierredda	6.60	6	1.95	
Synagrops microlepis	5.40	972	1.60	
Selene dorsalis	4.20	6	1.24	
Trachurus trecae	4.20	24	1.24	
Bregmaceros nectabanus	1.80	402	0.53	
Saurida brasiliensis	1.20	54	0.35	
Total	338.40		99.99	

PROJECT STATION: 402
 DATE:17/ 3/95 GEAR TYPE: PT No:5 POSITION:Lat S 1053
 start stop duration Long E 1120
 TIME :10:35:00 11:20:00 45 (min) Purpose code: 1
 LOG :1257.20 6259.10 1.90 Area code : 2
 FDEPTH: 500 555 GearCond.code:
 BDEPTH: 1198 1248 Validity code:
 Towing dir: 270° Wire out:1300 m Speed: 32 kn*10

Sorted: 7 Kg Total catch: 70.60 CATCH/HOUR: 94.13

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
GONOSTOMATIDAE	50.00	2303	53.12	
Hoplostethus mediterraneus	6.40	64	6.80	
HISTIOEUTHIDAE	5.20	39	5.52	
Shrimps, small, non comm.	4.93	1164	5.24	
OCTOPOTEUTHIDAE	4.53	39	4.81	
CHIROPTEUTHIDAE	4.27	39	4.54	
MYCTOPHIDAE	3.87	1021	4.11	
Trachipterus trachipterus	2.80	3	2.97	
Brama sp.	2.67	13	2.84	
Ethylagus sp.	1.33	13	1.41	
MELANOSTOMATIDAE	1.33	13	1.41	
Ististius brasiliensis	1.33	13	1.41	
Etmopterus sp.	1.33	13	1.41	
Benthodesmus sp.	0.67	13	0.71	
CHAULIODONTIDAE	0.67	13	0.71	
PARALEPIDIDAE	0.67	13	0.71	
CRANCHIIDAE	0.53	13	0.56	
LOPHIFORMES **	0.40	13	0.42	
ASTRONESTHIDAE	0.27	25	0.29	
MYCTOPHIDAE	0.27	25	0.29	
Onychoteuthis sp.	0.27	13	0.29	
CARISTIIDAE	0.13	13	0.14	
STERNOPYCHIDAE	0.13	39	0.14	
Nemichthys scolopaceus	0.13	13	0.14	
Total	94.13		99.99	

PROJECT STATION: 403
 DATE:17/ 3/95 GEAR TYPE: PT No:5 POSITION:Lat S 1054
 start stop duration Long E 1318
 TIME :14:50:00 15:26:00 36 (min) Purpose code: 1
 LOG :6285.30 6287.40 2.10 Area code : 2
 FDEPTH: 250 270 GearCond.code:
 BDEPTH: 642 694 Validity code:
 Towing dir: 275° Wire out: 700 m Speed: 3 kn*10

Sorted: 8 Kg Total catch: 8.38 CATCH/HOUR: 13.97

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
MYCTOPHIDAE	13.97	2212	100.00	
Total	13.97		100.00	

PROJECT STATION: 403
 DATE:17/ 3/95 GEAR TYPE: PT No:5 POSITION:Lat S 1053
 start stop duration Long E 1258
 TIME :10:35:00 11:20:00 45 (min) Purpose code: 1
 LOG :1257.20 6259.10 1.90 Area code : 2
 FDEPTH: 500 555 GearCond.code:
 BDEPTH: 1198 1248 Validity code:
 Towing dir: 270° Wire out:1300 m Speed: 32 kn*10

Sorted: 7 Kg Total catch: 70.60 CATCH/HOUR: 94.13

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
MYCTOPHIDAE	13.97	2212	14.84	
Total	13.97		14.84	

PROJECT STATION: 404
 DATE:18/ 3/95 GEAR TYPE: PT No:1 POSITION:Lat S 1120
 start stop duration Long E 1330
 TIME :01:20:00 01:40:00 20 (min) Purpose code: 1
 LOG :6392.10 6395.10 3.00 Area code : 2
 FDEPTH: 45 45 GearCond.code:
 BDEPTH: 241 180 Validity code:
 Towing dir: 23° Wire out: 130 m Speed: 4 kn*10

Sorted: 50 Kg Total catch: 257.03 CATCH/HOUR: 771.09

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Sardinella maderensis	617.10	2550	80.03	967
Trichiurus lepturus	51.51	129	6.68	
Trichiurus lepturus	51.36	3723	6.66	
MYCTOPHIDAE	40.41	14370	5.24	
PARALEPIDIDAE	10.71	1044	1.39	
Total	771.09		100.00	

PROJECT STATION: 405
 DATE:18/ 3/95 GEAR TYPE: BT No:8 POSITION:Lat S 1124
 start stop duration Long E 1340
 TIME :03:30:00 04:00:00 30 (min) Purpose code: 1
 LOG :6405.50 6406.80 1.30 Area code : 2
 FDEPTH: 26 29 GearCond.code:
 BDEPTH: 26 29 Validity code:
 Towing dir: 294° Wire out: 100 m Speed: 36 kn*10

Sorted: 4 Kg Total catch: 44.23 CATCH/HOUR: 88.46

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Pteroscion peli	14.08	744	15.92	
Trichiurus lepturus	12.30	74	13.90	
Galeoides decadactylus	9.14	20	10.33	
Sphyræna guachancho	8.38	14	9.47	
Parapanaeopsis atlantica	8.24	2162	9.31	
Trichiurus lepturus	6.88	144	7.78	
Sardinella maderensis	6.66	52	7.53	968
Pomadasy rogeri	4.78	10	5.40	
Brachydeuterus auritus	4.04	32	4.57	
Brachydeuterus auritus	3.84	584	4.34	
Pomadasy incisus	3.10	10	3.50	
Chloroscombrus chrysurus	2.84	18	3.21	
Galeoides decadactylus	2.24	104	2.53	
Ilisha africana	1.36	8	1.54	
Selene dorsalis	0.58	4	0.66	
Total	88.46		99.99	

PROJECT STATION: 406
 DATE:18/ 3/00 GEAR TYPE: PT No:7 POSITION:Lat S 1138
 start stop duration Long E 1343
 TIME :09:20:00 09:50:00 30 (min) Purpose code: 1
 LOG :6456.00 6457.70 1.70 Area code : 2
 FDEPTH: 27 32 GearCond.code:
 BDEPTH: 27 32 Validity code:
 Towing dir: 256° Wire out: 120 m Speed: 3 kn*10

Sorted: 66 Kg Total catch: 65.80 CATCH/HOUR: 131.60

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Chloroscombrus chrysurus	51.20	280	38.91	970
Sphyræna afra	34.00	2	25.84	
Sphyræna guachancho	33.20	50	25.23	969
Trachinotus gorensis	5.08	10	3.86	
Sardinella maderensis	3.86	14	2.93	971
Scomberomorus tritor	2.40	4	1.82	
Stromateus fiatola	1.22	2	0.93	
Sphyræna sphyraena	0.60	2	0.46	
ONYCHOTEUTHIDAE	0.10	44	0.08	
Trichiurus lepturus	0.10	14	0.08	
Total	131.76		100.14	

PROJECT STATION: 407
 DATE:19/ 3/95 GEAR TYPE: PT No:2 POSITION:Lat S 1158
 start stop duration Long E 1341
 TIME :19:25:00 19:40:00 15 (min) Purpose code: 1
 LOG :6550.00 6550.80 0.80 Area code : 2
 FDEPTH: 5 5 GearCond.code:
 BDEPTH: 33 32 Validity code:
 Towing dir: 20° Wire out: 120 m Speed: 3 kn*10

Sorted: 32 Kg Total catch: 79.07 CATCH/HOUR: 316.28

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Sphyræna guachancho	81.44		25.75	
Sardinella maderensis	61.96	424	19.59	972
Chloroscombrus chrysurus	55.04	272	17.40	
Brachydeuterus auritus	49.12	12164	15.53	
Sardinella maderensis	24.96	4428	7.89	973
Sphyræna sphyraena	14.88	48	4.70	
Galeoides decadactylus	12.80	64	4.05	
Ilisha africana	10.40	176	3.29	
Trachinotus ovatus	2.98	16	0.91	
Fenaesus notialis	1.20	64	0.38	
Pteroscion peli	0.80	0	0.25	
Selene dorsalis	0.64	16	0.20	
Bregmaceros sp.	0.16	48	0.05	
Engraulis encrasicolus	0.00	16		
Total	316.28		99.99	

PROJECT STATION: 408
DATE:20/ 3/95 GEAR TYPE: FT No:2 POSITION:Lat S 1218
start stop duration Long E 1324
TIME :08:35:00 09:09:00 34 (min) Purpose code: 1
LOG :6649.80 6651.70 1.90 Area code : 2
FDEPTH: 0 0 GearCond.code:
BDEPTH: 100 99 Validity code:
Towing dir: 95° Wire out: 120 m Speed: 3 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: 409
DATE:20/ 3/95 GEAR TYPE: FT No:1 POSITION:Lat S 1218
start stop duration Long E 1324
TIME :09:58:00 10:26:00 28 (min) Purpose code: 1
LOG :6653.80 6655.70 1.90 Area code : 2
FDEPTH: 75 70 GearCond.code:
BDEPTH: 99 98 Validity code:
Towing dir: 200° Wire out: 250 m Speed: 3 kn*10

Sorted: 1 Kg Total catch: 0.50 CATCH/HOUR: 1.07
SPECIES CATCH/HOUR % OF TOT. C SAMP
weight numbers
Selene dorsalis 1.07 2 100.00
Total 1.07 100.00

PROJECT STATION: 410
DATE:20/ 3/95 GEAR TYPE: FT No:1 POSITION:Lat S 1140
start stop duration Long E 1334
TIME :15:25:00 15:55:00 30 (min) Purpose code: 1
LOG :6703.20 6704.70 1.50 Area code : 2
FDEPTH: 60 65 GearCond.code:
BDEPTH: 80 91 Validity code:
Towing dir: 308° Wire out: 150 m Speed: 3 kn*10

Sorted: 79 Kg Total catch: 127.27 CATCH/HOUR: 254.54

SPECIES CATCH/HOUR % OF TOT. C SAMP
weight numbers
Sardinella maderensis 163.84 700 64.37 974
Selene dorsalis 83.36 244 32.75 975
Decapterus rhonchus 3.94 6 1.55 976
Sardinella aurita 2.08 4 0.82 1046
Chloroscombrus chrysurus 1.28 4 0.50
Total 254.50 99.99

PROJECT STATION: 411
DATE:20/ 3/95 GEAR TYPE: FT No:1 POSITION:Lat S 1149
start stop duration Long E 1329
TIME :20:17:00 20:34:00 17 (min) Purpose code: 1
LOG :6746.30 6747.20 0.90 Area code : 2
FDEPTH: 160 165 GearCond.code:
BDEPTH: 200 204 Validity code:
Towing dir: 320° Wire out: 375 m Speed: 3 kn*10

Sorted: 11 Kg Total catch: 11.25 CATCH/HOUR: 39.71

SPECIES CATCH/HOUR % OF TOT. C SAMP
weight numbers
Dentex macrophthalmus 27.18 134 68.45 977
MYCTOPHIDAE 3.18 2065 8.01
Parapenaeus longirostris 2.93 562 7.38
Synagrops microlepis 2.33 300 5.87
Sardinella maderensis 1.66 7 4.18
Brachydeuterus auritus 0.98 7 2.22
Parapandalus brevipes 0.74 912 1.86
Zenopsis conchifer 0.49 7 1.23
SYNAPHOBRANCHIDAE 0.11 7 0.28
Chlorophthalmus atlanticus 0.11 21 0.28
Chelidonichthys gabonensis 0.04 4 0.10
Bregmaceros sp. 0.04 71 0.10
Merluccius polli 0.04 4 0.10
Total 39.73 100.06

PROJECT STATION: 412
DATE:20/ 3/95 GEAR TYPE: FT No:5 POSITION:Lat S 1148
start stop duration Long E 1328
TIME :21:48:00 22:07:00 19 (min) Purpose code: 1
LOG :6750.80 6752.00 1.20 Area code : 2
FDEPTH: 170 175 GearCond.code:
BDEPTH: 202 197 Validity code:
Towing dir: 123° Wire out: 400 m Speed: 3 kn*10

Sorted: 33 Kg Total catch: 33.14 CATCH/HOUR: 104.65

SPECIES CATCH/HOUR % OF TOT. C SAMP
weight numbers
Dentex macrophthalmus 53.37 231 51.00 978
Erythrocles monodi 34.74 32 33.20
Parapenaeus longirostris 3.57 711 3.41
MYCTOPHIDAE 2.84 376 2.71
Brachydeuterus auritus 2.49 16 2.38
Sardinella maderensis 2.21 9 2.11
Synagrops microlepis 2.08 272 1.99
SYNAPHOBRANCHIDAE 1.55 9 1.48
Parapandalus brevipes 0.76 720 0.73
Trichurus lepturus 0.66 6 0.63
Zenopsis conchifer 0.22 3 0.21
Chlorophthalmus atlanticus 0.09 25 0.09
Sepia elegans 0.06 6 0.06
Total 104.64 100.00

PROJECT STATION: 413
DATE:21/ 3/95 GEAR TYPE: BT No:2 POSITION:Lat S 1157
start stop duration Long E 1341
TIME :00:20:00 00:50:00 30 (min) Purpose code: 1
LOG :6769.90 6771.10 1.20 Area code : 2
FDEPTH: 30 37 GearCond.code:
BDEPTH: 30 37 Validity code:
Towing dir: 200° Wire out: 150 m Speed: 3 kn*10

Sorted: 102 Kg Total catch: 237.45 CATCH/HOUR: 474.90

SPECIES CATCH/HOUR % OF TOT. C SAMP
weight numbers
Pomadasy peroteti 198.96 472 41.90 981
Brachydeuterus auritus 97.02 22260 20.43
Sphyræna guachancho 25.68 50 5.41 983
Trichiurus lepturus 24.14 162 5.08
Pteroscion pelli 17.92 1190 3.77
Chloroscombrus chrysurus 14.86 80 3.13 982
Sardinella maderensis 13.04 64 2.75 984
Galeoides decadactylus 12.94 126 2.72
Pagellus bellottii 7.30 24 1.54 985
Pomadasy incisus 7.06 56 1.49
Sphyræna sphyraena 6.96 18 1.47
Galeoides decadactylus 5.74 140 1.21
Trichiurus lepturus 4.90 476 1.03
Brachydeuterus auritus 4.34 56 0.91
Sardinella maderensis 4.20 210 0.88
Bregmaceros sp. 3.92 1260 0.81
Pseudolithus senegalensis 3.84 2 0.81
Ilisha africana 3.64 126 0.77
Parapenaeopsis atlantica 3.50 490 0.74
Dentex barnardi 2.82 18 0.59
Sepia officinalis hierredda 2.82 4 0.59
Lithognathus mormyrus 2.58 4 0.54
Pseudupeneus prayensis 2.24 8 0.47
Raja clavata 1.80 2 0.38
Ilisha africana 1.26 8 0.27
Penaeus notialis, female 1.02 56 0.21 980
Penaeus notialis, male 0.40 30 0.08 979
Total 474.90 100.00

PROJECT STATION: 414
DATE:21/ 3/95 GEAR TYPE: PT No:2 POSITION:Lat N 1208
start stop duration Long E 1336
TIME :03:55:00 04:25:00 30 (min) Purpose code: 1
LOG :6797.00 6799.50 2.50 Area code : 2
FDEPTH: 5 5 GearCond.code:
BDEPTH: 73 73 Validity code:
Towing dir: 126° Wire out: 120 m Speed: 32 kn*10

Sorted: 97 Kg Total catch: 97.40 CATCH/HOUR: 194.80

SPECIES CATCH/HOUR % OF TOT. C SAMP
weight numbers
Sardinella maderensis 121.50 534 62.37 985
Selene dorsalis 63.90 186 32.80 987
Trachinotus ovatus 5.60 14 2.87
Euthynnus alletteratus 2.42 2 1.24
Trichiurus lepturus 1.38 2 0.71
Total 194.80 99.99

PROJECT STATION: 415
DATE:21/ 3/94 GEAR TYPE: PT No:2 POSITION:Lat S 1227
start stop duration Long E 1324
TIME :10:13:00 10:40:00 27 (min) Purpose code: 1
LOG :6850.70 6852.20 1.50 Area code : 2
FDEPTH: 10 10 GearCond.code:
BDEPTH: 82 95 Validity code:
Towing dir: 334° Wire out: 120 m Speed: 3 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: 416
DATE:21/ 3/95 GEAR TYPE: PT No:7 POSITION:Lat S 1229
start stop duration Long E 1318
TIME :13:00:00 13:15:00 15 (min) Purpose code: 1
LOG :6868.40 6869.40 1.00 Area code : 2
FDEPTH: 80 70 GearCond.code:
BDEPTH: 108 92 Validity code:
Towing dir: 116° Wire out: 180 m Speed: 3 kn*10

Sorted: 18 Kg Total catch: 18.06 CATCH/HOUR: 72.24

SPECIES CATCH/HOUR % OF TOT. C SAMP
weight numbers
Chloroscombrus chrysurus 32.24 204 44.63 999
Selene dorsalis 24.40 64 33.78 988
Sphyræna sphyraena 9.40 28 13.01 990
Sphyræna guachancho 4.80 8 6.64
Trachinotus ovatus 1.40 4 1.94
Total 72.24 100.30

PROJECT STATION: 417
DATE:21/ 3/95 GEAR TYPE: BT No:1 POSITION:Lat S 1233
start stop duration Long E 1319
TIME :14:40:00 15:10:00 30 (min) Purpose code: 3
LOG :6877.90 6879.30 1.40 Area code : 2
FDEPTH: 44 65 GearCond.code:
BDEPTH: 44 65 Validity code:
Towing dir: 315° Wire out: 150 m Speed: 3 kn*10

Sorted: 3 Kg Total catch: 2.56 CATCH/HOUR: 5.12

SPECIES CATCH/HOUR % OF TOT. C SAMP
weight numbers
Diplodus cervinus cervinus 3.10 6 60.55
Plectorhynchus mediterraneus 0.76 2 14.84
Trachurus trecae 0.64 48 12.50 991
Boops boops 0.62 48 12.11
Total 5.12 100.00

PROJECT STATION: 418
 DATE: 21/ 3/95 GEAR TYPE: BT No:1 POSITION: Lat S 1233 Long E 1317
 start stop duration
 TIME :15:50:00 16:20:00 30 (min) Purpose code: 3
 LOG :6881.00 6882.30 1.30 Area code : 2
 FDEPTH: 37 83 GearCond.code:
 BDEPTH: 37 83 Validity code:
 Towing dir: 250° Wire out: 200 m Speed: 32 kn*10

Sorted: 127 Kg Total catch: 714.01 CATCH/HOUR: 1428.02

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Pomadasy inciscus	366.84	2328	25.69	993
Lithognathus mormyrus	236.50		16.56	
Brachydeuterus auritus	236.50	1638	16.56	992
Pomadasy jubelini	99.54		6.97	
Stromateus fiatola	72.04	56	5.04	
Trichiurus lepturus	70.24	638	4.92	
Chelidonichthys gabonensis	66.76		4.68	
Galeoides decadactylus	53.90	144	3.77	
Argyrosomus hololepidotus	41.24	44	2.89	
Sepia officinalis hierredda	29.10	22	2.04	
Trachurus trecae	20.34	56	1.42	
Lagocephalus laevigatus	18.58	12	1.30	
Atractoscion aequidens	15.94	22	1.12	
Zeus faber	14.96	22	1.05	
Umbrina canariensis	14.62	22	1.02	
Pagellus bellottii	13.86	110	0.97	
Sphyræna guachancho	10.44	22	0.73	
Octopus sp.	9.24	12	0.65	
Balistes capricus	9.02	22	0.63	
Raja miraletus	7.92	12	0.55	
Seriola fasciata	6.92	12	0.48	
Diplodus cervinus cervinus	6.82	12	0.48	
Cynoponticus ferox	4.60	2	0.32	
Citharus linguatula	0.98	12	0.07	
Chilomycterus spinosus mauret.	0.98	2	0.07	
Total	1427.88		99.98	

PROJECT STATION: 421
 DATE: 21/ 3/95 GEAR TYPE: BT No:1 POSITION: Lat S 1228 Long E 1314
 start stop duration
 TIME :20:55:00 21:23:00 28 (min) Purpose code: 3
 LOG :6889.30 6896.70 1.40 Area code : 2
 FDEPTH: 597 612 GearCond.code:
 BDEPTH: 597 612 Validity code:
 Towing dir: 210° Wire out: 1500 m Speed: 3 kn*10

Sorted: 23 Kg Total catch: 141.96 CATCH/HOUR: 304.20

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Merluccius polli	150.00	229	49.31	1005
GONOSTOMATIDAE	36.13	2964	11.88	
Laemonema laureysi	35.68	26	11.73	
MYCTOPHIDAE	17.94	1273	5.90	
Hoplostethus sp.	12.21	495	4.01	
Coelorinchus coelorhincus	8.55	174	2.81	
Stereomastis sculpta	5.59	546	1.84	
Plesionika martia	4.89	2736	1.61	
Lamprogrammus exutus	4.76	206	1.56	
Aristeus varidens, female	3.99	341	1.31	1009
Trichiurus lepturus	3.79	154	1.25	
Sardinella maderensis	3.69	13	1.21	1006
Aristeus varidens, male	2.64	199	0.87	1008
Galeus polli	2.51	32	0.83	
Etmopterus pusillus	2.38	45	0.78	
Yarella blackfordi	2.31	84	0.76	
ASTRONESTHIDAE	2.31	225	0.76	
Sardinella aurita	1.37	4	0.45	1007
Halosaurus ovenii	1.29	19	0.42	
Bathyrhocongrus sp.	0.77	39	0.25	
Raja sp.	0.71	32	0.23	
Nematocarcinus africanus	0.45	135	0.15	
Nemichthys scolopaceus	0.26	13	0.09	
Total	304.22		100.01	

PROJECT STATION: 419
 DATE: 21/ 3/95 GEAR TYPE: BT No:1 POSITION: Lat S 1232 Long E 1316
 start stop duration
 TIME :16:55:00 17:20:00 25 (min) Purpose code: 3
 LOG :6884.50 6885.80 1.30 Area code : 2
 FDEPTH: 176 141 GearCond.code:
 BDEPTH: 176 141 Validity code:
 Towing dir: 44° Wire out: 550 m Speed: 3 kn*10

Sorted: 207 Kg Total catch: 1798.18 CATCH/HOUR: 4315.63

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Pentheroscion mbizi	1052.42	4320	24.39	998
Umbrina canariensis	1000.97	1543	23.19	997
Trachurus trecae	926.71	2054	21.47	996
Dentex macropthalmus	779.52	6266	18.06	995
Pterothrissus belloci	268.80	1843	6.23	
Brotula barbata	89.28	86	2.07	994
Bembrops heterurus	31.99	257	0.74	
Synagrops microlepis	25.85	1255	0.60	
Pontinus accraensis	15.86	1663	0.37	
Lophiodes kempii	14.09	26	0.33	
Sepia officinalis hierredda	13.56	154	0.31	
Merluccius polli	12.02	50	0.28	
Trichiurus lepturus	12.02	77	0.28	
Centrophorus uyato	11.40	2	0.26	
Parapeneus longirostris, fem.	10.75	1409	0.25	1000
Spicara alta	9.22	50	0.21	
SOLIIDAE	9.22	77	0.21	
Lepidotrigla cadmani	8.18	77	0.19	
Ophidion sp.	5.88	257	0.14	
Fistularia petimba	3.58	77	0.08	
Parapeneus longirostris, male	3.07	590	0.07	999
Raja sp.	3.07	26	0.07	
Boops boops	2.81	77	0.07	
Coelorinchus coelorhincus	1.54	50	0.04	
Gephyroberyx darwini	1.51	2	0.03	
Lepidotrigla carolae	1.27	50	0.03	
Citharus linguatula	1.03	26	0.02	
Total	4315.62		99.99	

PROJECT STATION: 420
 DATE: 21/ 3/95 GEAR TYPE: BT No:1 POSITION: Lat S 1230 Long E 1316
 start stop duration
 TIME :18:40:00 19:10:00 30 (min) Purpose code: 3
 LOG :6888.60 6890.20 1.60 Area code : 2
 FDEPTH: 350 344 GearCond.code:
 BDEPTH: 350 344 Validity code:
 Towing dir: 30° Wire out: 1050 m Speed: 3 kn*10

Sorted: 257 Kg Total catch: 384.54 CATCH/HOUR: 769.08

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Merluccius polli	368.40	954	47.90	1001
Aristeus varidens, female	98.48	8780	12.80	1004
Laemonema laureysi	77.20	1194	10.04	
Nematocarcinus africanus	29.92	32164	3.89	
Trachurus trecae	28.96	72	3.77	
Galeus melastomus	21.12	392	2.75	
Plesionika martia	15.44	7232	2.01	
GONOSTOMATIDAE	13.52		1.76	
Raja dourlei	13.00	2	1.69	
Etmopterus pusillus	10.56	232	1.37	
Pterothrissus belloci	10.48	280	1.36	
Centrophorus uyato	9.90	10	1.29	
Neoharriotta pinnata	8.30	2	1.08	
Aristeus varidens, male	7.60	1140	0.99	1003
Coelorinchus coelorhincus	7.12	320	0.93	
Lophius vaillanti	6.80	2	0.88	
Centrophorus granulosus	6.30	2	0.82	
Chaceon maritae	5.48	18	0.71	
Zenopsis conchifer	5.42	4	0.70	
Malacocephalus occidentalis	3.92	24	0.51	
Chlorophthalmus atlanticus	3.92	96	0.51	
Sardinella maderensis	3.50	14	0.46	1002
Halosaurus ovenii	3.12	312	0.41	
Trichiurus lepturus	2.88	232	0.37	
Bembrops heterurus	1.92	16	0.25	
Malacocephalus laevis	1.36	16	0.18	
Todaropsis eblanae	1.28	8	0.17	
Etmopterus princeps	1.20	8	0.15	
Sardinella aurita	0.86	2	0.11	
Ophisurus serpens	0.64	8	0.08	
GONOSTOMATIDAE	0.48	32	0.06	
Total	769.08		100.01	

PROJECT STATION: 422
 DATE: 21/ 3/95 GEAR TYPE: PT No:1 POSITION: Lat S 1229 Long E 1323
 start stop duration
 TIME :00:00:00 00:00:00 22 (min) Purpose code: 1
 LOG :6916.20 6918.30 2.10 Area code : 2
 FDEPTH: 20 20 GearCond.code:
 BDEPTH: 58 39 Validity code:
 Towing dir: 140° Wire out: 120 m Speed: 3 kn*10

Sorted: 24 Kg Total catch: 24.14 CATCH/HOUR: 65.84

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Sardinella maderensis	16.64	134	25.27	1013
Selene dorsalis	12.95	52	19.67	1010
Trichiurus lepturus	7.06	14	10.72	
Chloroscombrus chrysurus	5.65	35	8.58	1011
Bregmaceros sp.	5.62	2894	8.54	
Trichiurus lepturus	3.74	213	5.68	
Scomberomorus tritor	3.25	3	4.94	
Sphyræna guachancho	2.89	49	4.39	
Pomadasy inciscus	2.45	3	3.72	
Sphyræna guachancho	1.85	3	2.81	
Sardinella maderensis	1.53	155	2.32	1012
Sphyræna sphyraena	1.39	3	2.11	
Brachydeuterus auritus	0.76	33	1.15	
Alloteuthis africana	0.03	11	0.05	
Trachurus trecae	0.03	3	0.05	
Total	65.84		100.00	

PROJECT STATION: 423
 DATE: 22/ 3/95 GEAR TYPE: PT No:1 POSITION: Lat S 1224 Long E 1326
 start stop duration
 TIME :03:30:00 04:10:00 40 (min) Purpose code: 1
 LOG :6938.20 6940.20 2.00 Area code : 2
 FDEPTH: 15 15 GearCond.code:
 BDEPTH: 67 87 Validity code:
 Towing dir: 326° Wire out: 120 m Speed: 33 kn*10

Sorted: 61 Kg Total catch: 137.19 CATCH/HOUR: 205.79

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Sardinella maderensis	130.79	561	63.56	1014
Selene dorsalis	32.40	84	15.74	1015
Trichiurus lepturus	24.14	30	11.73	
Sphyræna guachancho	4.94	8	2.40	
Caranx crysos	3.38	3	1.64	
Sarda sarda	2.78	3	1.35	
Scomberomorus tritor	2.60	3	1.26	
Trachinotus ovatus	1.59	3	0.77	
Tylosurus crocodilus crocodil.	1.52	3	0.74	
Chloroscombrus chrysurus	0.92	8	0.45	
Trichiurus lepturus	0.71	48	0.35	
Bregmaceros sp.	0.03	51	0.01	
Saurida brasiliensis	0.03	14	0.01	
Total	205.83		100.01	

PROJECT STATION: 424
 DATE: 22/ 3/95 GEAR TYPE: BT No:1 POSITION: Lat S 1219 Long E 1333
 start stop duration
 TIME :06:53:00 07:23:00 30 (min) Purpose code: 3
 LOG :6959.00 6960.60 1.60 Area code : 2
 FDEPTH: 47 45 GearCond.code:
 BDEPTH: 47 45 Validity code:
 Towing dir: 30° Wire out: 200 m Speed: 3 kn*10

Sorted: 59 Kg Total catch: 456.11 CATCH/HOUR: 912.22

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP
	weight numbers		
Brachydeuterus auritus	587.36 34912	64.39	
Pteroscion peli	58.24 3248	6.38	
Galeoides decadactylus	44.52 112	4.88	
Pomadasy peroteti	33.00 56	3.62	1017
Sepia officinalis hierredda	23.66 168	2.59	
Lithognathus mormyrus	19.60 56	2.15	
Pagellus bellottii	19.20 90	2.10	1016
Gymnura micrura	14.50 4	1.59	
Sphyræna guachancho	12.88 28	1.41	
Selene dorsalis	12.60 112	1.38	
Trichiurus lepturus	12.32 406	1.35	
Chloroscombrus chrysurus	10.64 84	1.17	
Trachurus trecae, juvenile	10.64 896	1.17	
Synapturichthys kleini	10.08 168	1.10	
Argyrosomus hololepidotus	8.40 70	0.92	
Chaetodon hoefleri	7.56 42	0.83	
Rhinobatos albomaculatus	6.22 4	0.68	
Scomber scombrus	3.28 2	0.36	
Grammolites gruvelli	3.22 112	0.35	
Citharus linguatula	3.22 154	0.35	
Trachurus trecae	2.94 14	0.32	
Dentex canariensis	2.80 64	0.31	
Penaeus notialis	1.68 70	0.18	
Argyrosomus hololepidotus	1.60 2	0.18	
Sphyræna sphyraena	1.54 42	0.17	
Sardinella maderensis	0.52 2	0.06	
Total	912.22	99.99	

PROJECT STATION: 427
 DATE: 22/ 3/95 GEAR TYPE: BT No:1 POSITION: Lat S 1214 Long E 1325
 start stop duration
 TIME :11:45:00 12:10:00 25 (min) Purpose code: 3
 LOG :6977.20 6978.50 1.30 Area code : 2
 FDEPTH: 103 102 GearCond.code:
 BDEPTH: 103 102 Validity code:
 Towing dir: 290° Wire out: 300 m Speed: 32 kn*10

Sorted: 123 Kg Total catch: 215.47 CATCH/HOUR: 517.13

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP
	weight numbers		
Brachydeuterus auritus	218.40 986	42.23	1029
Dentex macrophthalmus	65.52 434	12.67	1034
Pagellus bellottii	41.38 180	8.00	1035
Selene dorsalis	41.33 94	7.99	1031
Dentex angolensis	27.50 106	5.32	1030
Trachurus trecae	24.62 98	4.76	1033
Sphyræna sphyraena	14.90 43	2.88	
Trichiurus lepturus	14.33 29	2.77	
Raja miraletus	14.11 22	2.73	
Lepidotrigla cadmani	11.47 77	2.22	
Trachurus trecae, juvenile	8.35 454	1.61	1032
Anthias anthias	7.90 43	1.53	
Zeus faber	6.84 22	1.32	
Dentex canariensis	4.25 12	0.82	
Scorpaena stephanica	3.91 10	0.76	
Pagrus caeruleostictus	3.14 5	0.61	
Chaetodon hoefleri	2.40 10	0.46	
Sepia bertheloti	2.14 22	0.41	
Lepidotrigla carolae	2.14 43	0.41	
Trichiurus lepturus	1.61 17	0.31	
Chelidonicichthys gabonensis	0.84 5	0.16	
Boops boops	0.05 5	0.01	
Citharus linguatula	0.00 5		
Total	517.13	99.98	

PROJECT STATION: 425
 DATE: 22/ 3/95 GEAR TYPE: BT No:1 POSITION: Lat S 1216 Long E 1330
 start stop duration
 TIME :08:18:00 08:48:00 30 (min) Purpose code: 3
 LOG :6965.80 6967.30 1.50 Area code : 2
 FDEPTH: 79 79 GearCond.code:
 BDEPTH: 79 79 Validity code:
 Towing dir: 180° Wire out: 280 m Speed: 3 kn*10

Sorted: 86 Kg Total catch: 418.79 CATCH/HOUR: 837.58

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP
	weight numbers		
Trichiurus lepturus	192.88 846	23.03	
Brachydeuterus auritus	167.18 2712	19.96	
Chloroscombrus chrysurus	154.58 980	18.46	1019
Selene dorsalis	107.42 372	12.83	
Trachurus trecae	85.46 242	10.20	1018
Pomadasy incisus	35.22 186	4.20	
Pagellus bellottii	19.80 210	2.36	1021
Trachurus trecae, juvenile	16.06 1280	1.92	
Sepia officinalis hierredda	15.78 112	1.88	
Pomadasy jubelini	8.90 8	1.06	
Raja miraletus	5.70 10	0.68	
Sardinella maderensis	5.38 22	0.64	1020
Sphyræna sphyraena	3.64 10	0.43	
Umbrina canariensis	3.64 46	0.43	
Lithognathus mormyrus	3.18 18	0.38	
Zeus faber	3.08 10	0.37	
Dentex gibbosus	2.72 14	0.32	
Stromateus fiatola	2.10 2	0.25	
Citharus linguatula	1.68 94	0.20	
Saurida brasiliensis	1.12 196	0.13	
Lepidotrigla carolae	0.84 18	0.10	
Lepidotrigla cadmani	0.84 10	0.10	
Scorpaena normani	0.38 10	0.05	
Total	837.58	99.98	

PROJECT STATION: 428
 DATE: 22/ 3/95 GEAR TYPE: BT No:1 POSITION: Lat S 1215 Long E 1323
 start stop duration
 TIME :13:10:00 13:40:00 30 (min) Purpose code: 3
 LOG :6982.40 6984.00 1.60 Area code : 2
 FDEPTH: 219 223 GearCond.code:
 BDEPTH: 219 223 Validity code:
 Towing dir: 20° Wire out: 600 m Speed: 32 kn*10

Sorted: 137 Kg Total catch: 1897.96 CATCH/HOUR: 3795.92

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP
	weight numbers		
Dentex macrophthalmus	2145.82 10546	56.53	1038
Gephyroberyx darwini	369.24 714	9.73	
Erythrocles monodi	257.56 230	6.79	
Alopias superciliosus	200.00 2	5.27	
Epinephelus goreensis	116.10 6	3.06	
Epigonus telescopus	99.96 1402	2.63	
Synagrops microlepis	76.50 5050	2.02	
Trichiurus lepturus	76.50 26	2.02	
Spicara alta	64.52 154	1.70	
Pterothrissus bellocci	61.20 332	1.61	
Zenopsis conchifer	37.74 868	0.99	
Parapenaeus longirostris, fem.	36.98 2116	0.97	1037
Umbrina canariensis	34.42 52	0.91	
Coelorinchus coelorrhincus	34.38 970	0.90	
Parapenaeus longirostris, male	34.38 2092	0.90	1036
Brotula barbata	30.10 26	0.79	
Malacocephalus laevis	26.02 306	0.69	
Chlorophthalmus atlanticus	20.92 408	0.55	
Merluccius polli	15.04 1224	0.40	
Dentex angolensis	12.76 26	0.34	
Boops boops	10.96 26	0.29	
Illex coindetii	10.46 52	0.28	
Paralepis sp.	9.38 52	0.24	
Pontinus accraensis	7.66 26	0.20	
Sepia sp.	7.40 52	0.19	
Trachurus trecae	0.52 52	0.01	
Total	3795.92	100.01	

PROJECT STATION: 426
 DATE: 22/ 3/95 GEAR TYPE: BT No:1 POSITION: Lat N 1215 Long E 1022
 start stop duration
 TIME :09:52:00 10:22:00 30 (min) Purpose code: 1
 LOG :6971.80 6973.60 1.80 Area code : 2
 FDEPTH: 89 90 GearCond.code:
 BDEPTH: 89 90 Validity code:
 Towing dir: 20° Wire out: 300 m Speed: 3 kn*10

Sorted: 132 Kg Total catch: 132.26 CATCH/HOUR: 264.52

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP
	weight numbers		
Trachurus trecae	54.40 548	20.57	1025
Seriola carpenteri	39.80 4	15.05	
Dentex canariensis	36.20 164	13.69	1022
Umbrina canariensis	33.00 92	12.48	1024
Dentex angolensis	15.00 44	5.67	1027
Trichiurus lepturus	12.60 18	4.76	
Pagellus bellottii	11.54 102	4.36	1028
Pagrus auriga	11.10 28	4.20	1026
Chelidonicichthys gabonensis	7.98 58	3.02	
Spondyliosoma cantharus	7.40 20	2.80	
Epinephelus goreensis	4.36 2	1.65	
Branchiostegus semifasciatus	4.10 4	1.55	
Boops boops	3.52 74	1.33	
Octopus sp.	2.92 4	1.10	
Raja miraletus	2.82 4	1.07	
Chaetodon hoefleri	2.54 16	0.96	
Pontinus accraensis	2.38 8	0.90	
Parapristipoma humile	1.86 4	0.70	
Zeus faber	1.64 4	0.62	
Dentex macrophthalmus	1.60 16	0.60	1023
Fistularia petimba	1.12 4	0.42	
Torpedo torpedo	1.08 4	0.41	
Sphyræna sphyraena	1.06 4	0.40	
Lophiodes kempi	1.02 6	0.39	
Selene dorsalis	1.00 2	0.38	
Alloteuthis africana	0.68 362	0.26	
Chloroscombrus chrysurus	0.64 4	0.24	
Trichiurus lepturus	0.42 18	0.16	
Sepia bertheloti	0.32 4	0.12	
Citharus linguatula	0.18 6	0.07	
Arnoglossus imperialis	0.10 10	0.04	
Saurida brasiliensis	0.10 28	0.04	
Pseudupeneus prayensis	0.04 2	0.02	
Total	264.52	100.03	

PROJECT STATION: 429
 DATE: 22/ 3/95 GEAR TYPE: BT No:1 POSITION: Lat S 1207 Long E 1324
 start stop duration
 TIME :15:40:00 16:10:00 30 (min) Purpose code: 3
 LOG :6994.00 6996.00 2.00 Area code : 2
 FDEPTH: 455 444 GearCond.code:
 BDEPTH: 455 444 Validity code:
 Towing dir: 7° Wire out: 1250 m Speed: 32 kn*10

Sorted: 74 Kg Total catch: 222.18 CATCH/HOUR: 444.36

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP
	weight numbers		
Laemonema laureysi	170.40 2094	38.35	
Merluccius polli	74.40 174	16.74	1039
Plesionika martia	49.80 25494	11.21	
Nematocarcinus africanus	24.90 14418	5.60	
Triplophos sp.	24.00 3522	5.40	
ETMOPTERUS SP.	22.38 684	5.04	
Halosaurus ovenii	12.72 594	2.86	
GONOSTOMATIDAE	10.86 1296	2.44	
Trichiurus lepturus	10.56 24	2.38	
ETMOPTERUS SP.	8.64 180	1.94	
Aristeus varidens, female	7.68 906	1.73	1040
Malacocephalus laevis	5.76 48	1.30	
Hoplostethus cadenati	4.98 354	1.12	
Aristeus varidens, male	4.08 720	0.92	1041
Chlorophthalmus atlanticus	3.12 78	0.70	
Nezumia sp.	2.40 42	0.54	
Neoharriotta pinnata	2.16 48	0.49	
Helicolenus dactylopterus	2.10 6	0.47	
Galeus polli	1.02 204	0.23	
NETTASTOMATIDAE	0.96 108	0.22	
MURAENESOCIDAE	0.96 108	0.22	
Scorpaena normani	0.24 12	0.05	
ASTRONESTHIDAE	0.24 90	0.05	
Total	444.36	100.00	

PROJECT STATION: 430
 DATE: 22/ 3/95 GEAR TYPE: BT No:1 POSITION: Lat S 1204 Long E 1319
 start stop duration
 TIME :18:34:00 19:34:00 60 (min) Purpose code: 3
 LOG :7006.90 7010.20 3.30 Area code : 2
 FDEPTH: 790 783 GearCond.code:
 BDEPTH: 790 783 Validity code:
 Towing dir: 350° Wire out: 1940 m Speed: 3 kn*10
 Sorted: 59 Kg Total catch: 373.61 CATCH/HOUR: 373.61

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Yarellia blackfordi	62.40	1002	16.70	
Nezumia sp.	62.40	1170	16.70	
Lamprogammus exutus	52.20	210	13.97	
Hoplostethus cadenati	49.20	1356	13.17	
Triplophos sp.	33.00	5004	8.83	
Aristeus varidens, female	20.94	1176	5.60	1042
Glyphis marsupialis	17.39	222	4.65	
Stereomastis sculpta	15.36	156	4.11	
OPISTHOEUTHIDAE	11.40	60	3.05	
Laemonema laureysi	9.84	288	2.63	
ALEOCEPHALIDAE	8.04	102	2.15	
Merluccius polli	5.22	7	1.40	
MURAENOCIDAE	5.22	96	1.40	
Chaceon maritae	4.98	12	1.33	
STROMATEIDAE	4.62	18	1.24	
Ebinania sp.	3.24	6	0.87	
Dibranchius atlanticus	2.82	114	0.75	
Deania calcea	2.16	6	0.58	
Aristeus varidens, male	1.50	186	0.40	1043
GONOSTOMATIDAE	1.32	40	0.35	
Galeus polli	0.36	18	0.10	
Total	373.61		99.98	

PROJECT STATION: 433
 DATE: 23/ 3/95 GEAR TYPE: BT No:1 POSITION: Lat S 1157 Long E 1328
 start stop duration
 TIME :05:47:00 06:17:00 30 (min) Purpose code: 3
 LOG :7037.50 7039.20 1.70 Area code : 2
 FDEPTH: 331 317 GearCond.code:
 BDEPTH: 331 317 Validity code:
 Towing dir: 130° Wire out: 900 m Speed: 3 kn*10
 Sorted: 89 Kg Total catch: 431.80 CATCH/HOUR: 863.60

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Merluccius polli	345.80	2840	40.04	1050
Chlorophthalmus atlanticus	237.16	5198	27.46	
Parapenaeus longirostris, fem.	115.54	21620	13.38	1051
Trichiurus lepturus	41.16	174	4.77	
Laemonema laureysi	31.88	426	3.69	
Parapenaeus longirostris, male	27.62	5340	3.20	1052
Hymenocephalus italicus	20.76	4154	2.40	
Pterothrissus belloci	12.94	86	1.50	
Synagrops microlepis	10.34	706	1.20	
MURAENOCIDAE	8.02	96	0.93	
Solenocera africana	3.96	792	0.46	
Coelorinchus coelorhincus	2.52	86	0.29	
Halosaurus ovenii	1.54	86	0.18	
Todaropsis eblanae	1.44	10	0.17	
Callinectes sp.	1.26	20	0.15	
Malacocephalus occidentalis	0.68	10	0.08	
MYCTOPHIDAE	0.48	416	0.06	
Nemichthys scolopaceus	0.20	10	0.02	
Peristedion cataphractum	0.20	20	0.02	
Total	863.50		100.00	

PROJECT STATION: 431
 DATE: 22/ 3/95 GEAR TYPE: BT No:1 POSITION: Lat S 1159 Long E 1322
 start stop duration
 TIME :23:15:00 23:45:00 30 (min) Purpose code: 3
 LOG :7021.00 7022.70 1.70 Area code : 2
 FDEPTH: 579 540 GearCond.code:
 BDEPTH: 579 540 Validity code:
 Towing dir: 156° Wire out: 1500 m Speed: 3 kn*10
 Sorted: 323 Kg Total catch: 161.35 CATCH/HOUR: 322.70

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
GONOSTOMATIDAE	159.60	18830	49.46	
Hoplostethus cadenati	55.20	2240	17.11	
Laemonema laureysi	18.00	240	5.58	
Shrimps, small, non comm.	16.40	7040	5.08	
Plesionika martia	14.80	6760	4.59	
Aristeus varidens, male	11.40	960	3.53	1044
Sardinella maderensis	11.20	40	3.47	
Aristeus varidens, female	8.50	530	2.63	1045
Bathygadus sp.	3.60	200	1.12	
Chaceon maritae	3.20	10	0.99	
MURAENOCIDAE	3.20	240	0.99	
Lamprogammus exutus	2.40	40	0.74	
MELANOSTOMIATIDAE	2.00	40	0.62	
Benthodesmus sp.	2.00	40	0.62	
Chlorophthalmus atlanticus	2.00	40	0.62	
ALEOCEPHALIDAE	2.00	240	0.62	
Tanningia sp.	1.60	40	0.50	
Nezumia sp.	1.60	80	0.50	
Physiculus sp.	1.20	40	0.37	
Nemichthys scolopaceus	1.20	40	0.37	
Coelorinchus coelorhincus	1.20	40	0.37	
Stereomastis sculpta	0.40	40	0.12	
MYCTOPHIDAE	0.00	80		
Total	322.70		100.00	

PROJECT STATION: 434
 DATE: 23/ 3/95 GEAR TYPE: BT No:1 POSITION: Lat S 1156 Long E 1330
 start stop duration
 TIME :07:44:00 08:14:00 30 (min) Purpose code: 3
 LOG :7045.50 7047.20 1.70 Area code : 2
 FDEPTH: 194 190 GearCond.code:
 BDEPTH: 194 190 Validity code:
 Towing dir: 122° Wire out: 600 m Speed: 3 kn*10
 Sorted: 55 Kg Total catch: 1003.80 CATCH/HOUR: 2007.60

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Dentex macrophthalmus	1071.00	9588	53.35	1053
Synagrops microlepis	595.00	4318	29.64	
Coelorinchus coelorhincus	52.36	1802	2.61	
Dentex angolensis	46.32	116	2.31	1056
Brotula barbata	41.80	12	2.08	
Chlorophthalmus atlanticus	34.34	1394	1.71	
Parapenaeus longirostris, fem.	31.62	5236	1.58	1054
Bembrops heterurus	28.90	306	1.44	
Trichiurus lepturus	22.10	68	1.10	
Parapenaeus longirostris, male	17.68	4420	0.88	1055
Zenopsis conchifer	15.98	68	0.80	
Malacocephalus occidentalis	14.62	238	0.73	
Merluccius polli	11.90	306	0.59	
Eopos hoops	10.34	16	0.52	
Torpedo torpedo	4.42	34	0.22	
Uranoscopus cadenati	4.16	2	0.21	
Squatina aculeata	1.70	34	0.08	
Eopos hoops	1.70	34	0.08	
Hoplostethus mediterraneus	1.02	34	0.05	
Trigla lyra	1.02	34	0.05	
Pterothrissus belloci	0.68	68	0.03	
Sepia orbignyana	0.34	34	0.02	
Squatina oculata	0.32	2	0.02	
Total	2007.62		100.02	

PROJECT STATION: 432
 DATE: 23/ 3/95 GEAR TYPE: BT No:1 POSITION: Lat S 1156 Long E 1324
 start stop duration
 TIME :02:24:00 02:55:00 31 (min) Purpose code: 3
 LOG :7029.10 7031.30 2.20 Area code : 2
 FDEPTH: 402 354 GearCond.code:
 BDEPTH: 402 354 Validity code:
 Towing dir: * Wire out: 1100 m Speed: 32 kn*10
 Sorted: 20 Kg Total catch: 175.19 CATCH/HOUR: 339.08

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Hymenocephalus italicus	116.25	12432	34.28	
Merluccius polli	69.87	273	20.61	1049
Laemonema laureysi	42.54	894	12.55	
Aristeus varidens, female	35.77	4525	10.55	1048
Shrimps, small, non comm.	29.26	11218	8.63	
Sardinella maderensis	12.19	54	3.60	
Etmopterus polli	10.03	298	2.96	
Aristeus varidens, male	8.26	888	2.44	1047
Coelorinchus coelorhincus	5.96	163	1.76	
Chlorophthalmus atlanticus	5.42	54	1.60	
Halosaurus ovenii	2.98	81	0.88	
Nezumia sp.	0.27	27	0.08	
MYCTOPHIDAE	0.27	135	0.08	
Total	339.07		100.02	

PROJECT STATION: 435
 DATE: 23/ 3/95 GEAR TYPE: BT No:1 POSITION: Lat S 1159 Long E 1341
 start stop duration
 TIME :10:00:00 10:30:00 30 (min) Purpose code: 3
 LOG :7059.70 7061.30 1.60 Area code : 2
 FDEPTH: 32 31 GearCond.code:
 BDEPTH: 32 31 Validity code:
 Towing dir: 15° Wire out: 150 m Speed: 3 kn*10
 Sorted: 104 Kg Total catch: 104.17 CATCH/HOUR: 208.34

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Brachydeuterus auritus	42.20	14026	20.26	
Sphyræna afra	39.50	2	18.96	
Dasyatis margarita	23.10	20	11.09	
Pomadourus rogeri	20.80	48	9.98	1059
Trichiurus lepturus	18.00	34	8.64	
Galeoides decadactylus	16.00	144	7.68	
Pseudolithus senegalensis	9.94	14	4.77	1057
Sphyræna sphyraena	7.10	24	3.41	
Selene dorsalis	6.00	8	2.88	
Pagellus bellottii	5.98	30	2.87	1058
Sphyræna guanchancho	4.58	8	2.20	
Raja miraletus	2.90	4	1.39	
Dentex canariensis	2.86	8	1.37	
Lithognathus mormyrus	1.42	2	0.68	
Scomberomorus tritor	1.40	2	0.67	
Sepia bertheloti	1.14	16	0.55	
Dicologlossa cuneata	0.96	20	0.46	
Grammoplates gruvelli	0.76	18	0.36	
Chloroscombrus chrysurus	0.72	4	0.35	
Dentex macrophthalmus	0.64	6	0.31	
Torpedo marmorata	0.60	8	0.29	
Synagrops microlepis	0.54	34	0.26	
Trachurus trecae, juvenile	0.34	24	0.16	1060
Alloteuthis africana	0.32	114	0.15	
Penaeus notialis	0.22	4	0.11	
Trichiurus lepturus	0.16	14	0.08	
Sardinella maderensis	0.08	12	0.04	
Coelorinchus coelorhincus	0.08	4	0.04	
Total	208.34		100.01	

PROJECT STATION: 436
DATE:23/ 3/95 GEAR TYPE: BT No:1 POSITION:Lat S 1145
Long E 1344
start stop duration
TIME :12:05:00 12:35:00 30 (min) Purpose code: 3
LOG :7074.30 7075.70 1.40 Area code : 2
FDEPTH: 23 23 GearCond.code:
BDEPTH: 23 23 Validity code:
Towing dir: * Wire out: 150 m Speed: 3 kn*10

Sorted: 80 Kg Total catch: 80.48 CATCH/HOUR: 160.96

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Trichiurus lepturus	43.20	88	26.84	
Lithognathus mormyrus	36.30	66	22.55	1064
Sphyræna guachancho	29.10	50	18.08	
Chloroscombrus chrysurus	7.10	42	4.41	1062
Sardinella maderensis	6.90	32	4.29	1063
Scomberomorus tritor	6.75	6	4.20	
Sphyræna sphyraena	5.82	14	3.62	
Rhinobatos albomaculatus	5.36	4	3.33	
Pagellus bellottii	4.40	12	2.73	1061
Pseudolithus senegalensis	3.75	4	2.34	
Brachydeuterus auritus	3.24	1358	2.01	
Balistes caprisicus	2.06	6	1.28	
Raja miraletus	1.96	2	1.22	
Brachydeuterus auritus	1.74	14	1.08	
Cynoglossus canariensis	1.00	4	0.62	
Epinephelus aeneus	0.98	4	0.61	
Selene dorsalis	0.76	22	0.47	
Dicologlossa cuneata	0.50	6	0.31	
Trachurus trecae, juvenile	0.02	2	0.01	
Total	160.96		100.00	

PROJECT STATION: 437
DATE:23/ 3/95 GEAR TYPE: BT No:1 POSITION:Lat S 1144
Long E 1339
start stop duration
TIME :13:35:00 14:05:00 30 (min) Purpose code: 3
LOG :7082.50 7083.30 1.30 Area code : 2
FDEPTH: 54 65 GearCond.code:
BDEPTH: 54 65 Validity code:
Towing dir: 190° Wire out: 180 m Speed: 3 kn*10

Sorted: 57 Kg Total catch: 57.44 CATCH/HOUR: 114.88

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Selene dorsalis	58.80	130	51.18	1065
Epinephelus aeneus	15.60	2	13.58	
Trichiurus lepturus	12.50	26	10.88	
Brachydeuterus auritus	6.94	414	6.04	
Chloroscombrus chrysurus	4.10	22	3.57	
Rhinobatos albomaculatus	3.00	2	2.61	
Sphyræna sphyraena	2.88	8	2.51	
Trachurus trecae, juvenile	1.92	114	1.67	1066
Lithognathus mormyrus	1.74	4	1.51	
Pagellus bellottii	1.16	24	1.01	
Citharus linguatula	1.14	22	0.99	
Pagellus bellottii	1.12	2	0.97	
Dicologlossa cuneata	0.94	2	0.82	
Chelidonicichthys gabonensis	0.78	2	0.68	
Sepia elegans	0.66	4	0.57	
Dentex canariensis	0.58	2	0.50	
GOBIIDAE	0.52	98	0.45	
Saurida brasiliensis	0.48	30	0.42	
Alloteuthis africana	0.22	10	0.19	
Parapenaeopsis atlantica	0.00	4		
Total	115.08		100.15	

PROJECT STATION: 438
DATE:23/ 3/95 GEAR TYPE: BT No:1 POSITION:Lat S 1143
Long E 1326
start stop duration
TIME :16:10:00 16:40:00 30 (min) Purpose code: 3
LOG :7099.20 7101.00 1.80 Area code : 2
FDEPTH: 223 252 GearCond.code:
BDEPTH: 223 252 Validity code:
Towing dir: 320° Wire out: 600 m Speed: 32 kn*10

Sorted: 96 Kg Total catch: 1338.82 CATCH/HOUR: 2677.64

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Dentex macrophthalmus	1829.80	15792	68.34	1129
Chlorophthalmus atlanticus	460.60	16716	17.20	
Synagrops microlepis	273.00	27468	10.20	
Pterothrissus belloci	49.00	420	1.83	
Zenopsis conchifer	25.76	196	0.96	
Merluccius polli	18.20	308	0.68	
Parapenaeus longirostris, fem.	12.32	1960	0.46	1130
Coelorinchus coelorhincus	3.36	224	0.13	
Parapenaeus longirostris, male	2.52	504	0.09	1067
Malacocephalus laevis	1.96	56	0.07	
MYCTOPHIDAE	1.12	924	0.04	
Total	2677.64		100.00	

PROJECT STATION: 439
DATE:23/ 3/95 GEAR TYPE: BT No:1 POSITION:Lat S 1144
Long E 1324
start stop duration
TIME :17:38:00 18:08:00 30 (min) Purpose code: 3
LOG :7104.80 7106.30 1.50 Area code : 2
FDEPTH: 314 322 GearCond.code:
BDEPTH: 314 322 Validity code:
Towing dir: 170° Wire out: 900 m Speed: 3 kn*10

Sorted: 57 Kg Total catch: 314.80 CATCH/HOUR: 629.60

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Chlorophthalmus atlanticus	444.40	10374	70.58	
Merluccius polli	79.76	604	12.67	1068
Pterothrissus belloci	30.92	166	4.91	
Helicolenus dactylopterus	25.30	188	4.02	
Laemonema laureysi	15.62	276	2.48	
Synagrops microlepis	8.70	408	1.38	
MURAENOSOCIDAE	8.14	298	1.29	
Zenopsis conchifer	4.84	34	0.77	
Callinectes sp.	2.42	44	0.38	
Trichiurus lepturus	2.20	22	0.35	
Malacocephalus occidentalis	1.54	22	0.24	
Solenocera africana	1.32	374	0.21	
MYCTOPHIDAE	1.22	914	0.19	
Lophiodes kempfi	1.00	22	0.16	
Coelorinchus coelorhincus	1.00	12	0.16	
Parapenaeus longirostris	0.66	176	0.10	
Munida sp.	0.56	210	0.09	
Total	629.60		99.98	

PROJECT STATION: 440
DATE:23/ 3/95 GEAR TYPE: BT No:1 POSITION:Lat S 1143
Long E 1321
start stop duration
TIME :19:55:00 20:25:00 30 (min) Purpose code: 3
LOG :7111.90 7113.40 1.50 Area code : 2
FDEPTH: 410 417 GearCond.code:
BDEPTH: 410 417 Validity code:
Towing dir: 350° Wire out:1100 m Speed: 3 kn*10

Sorted: 1 Kg Total catch: 62.08 CATCH/HOUR: 124.16

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Merluccius polli	71.60	202	57.67	1069
MYCTOPHIDAE	25.84	37034	20.81	
Nematocarcinus africanus	8.50	4590	6.85	
Plesionika martia	7.34	5408	5.91	
Sardinella maderensis	7.24	34	5.83	1070
GONOSTOMATIDAE	1.54	1732	1.24	
Hoplostethus sp.	1.16	386	0.93	
Elmopterus polli	0.78	40	0.63	
Laemonema laureysi	0.16	2	0.13	
Total	124.16		100.00	

PROJECT STATION: 441
DATE:23/ 3/95 GEAR TYPE: BT No:1 POSITION:Lat S 1144
Long E 1319
start stop duration
TIME :22:10:00 22:40:00 30 (min) Purpose code: 3
LOG :7118.50 7120.00 1.50 Area code : 2
FDEPTH: 521 516 GearCond.code:
BDEPTH: 521 516 Validity code:
Towing dir: 170° Wire out:1400 m Speed: 3 kn*10

Sorted: 32 Kg Total catch: 101.81 CATCH/HOUR: 203.62

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Shrimps, small, non comm.	33.36	6420	16.38	
Triplophos sp.	30.48	3744	14.97	
Lamprogrammus exultus	25.92	1632	12.73	
Nematocarcinus africanus	16.08	2298	7.90	
Hoplostethus cadenati	15.84	528	7.78	
Aristeus varidens, female	14.64	842	7.19	1072
Aristeus varidens, male	12.18	984	5.98	1071
MELANOSTOMATIDAE	11.28	96	5.54	
GONOSTOMATIDAE	7.68	72	3.77	
MYCTOPHIDAE	7.20	2160	3.54	
Bathyrcoconger vicinus	6.96	168	3.42	
Benthodesmus tenuis	6.72	48	3.30	
Nemichthys scolopaceus	5.52	72	2.71	
Sardinella maderensis	4.28	20	2.10	1073
Merluccius polli	1.98	2	0.97	
Trachipterus sp.	1.64	2	0.81	
Trichiurus lepturus	1.62	6	0.80	
Chlorophthalmus atlanticus	0.24	24	0.12	
Total	203.62		100.01	

PROJECT STATION: 442
DATE:24/ 3/95 GEAR TYPE: PT No:2 POSITION:Lat S 1156
Long E 1324
start stop duration
TIME :00:30:00 00:50:00 20 (min) Purpose code: 1
LOG :7130.90 7132.20 1.30 Area code : 2
FDEPTH: 5 5 GearCond.code:
BDEPTH: 432 438 Validity code:
Towing dir: 160° Wire out: 120 m Speed: 3 kn*10

Sorted: 33 Kg Total catch: 130.40 CATCH/HOUR: 391.20

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Sardinella maderensis	259.80	1248	66.41	1074
Trichiurus lepturus	98.40	624	25.15	
MYCTOPHIDAE	33.00	12516	8.44	
Total	391.20		100.00	

PROJECT STATION: 443
DATE:24/ 3/95 GEAR TYPE: PT No:2 POSITION:Lat S 1200
Long E 1329
start stop duration
TIME :02:55:00 03:25:00 30 (min) Purpose code: 1
LOG :7139.70 7141.90 2.20 Area code : 2
FDEPTH: 10 10 GearCond.code:
BDEPTH: 411 461 Validity code:
Towing dir: 200° Wire out: 120 m Speed: 32 kn*10

Sorted: 69 Kg Total catch: 378.80 CATCH/HOUR: 757.60

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Sardinella maderensis	677.60	2970	89.44	1075
Euthynnus alletteratus	34.22	56	4.52	
Trichiurus lepturus	19.70	154	2.60	
Trachinotus ovatus	16.18	44	2.14	
Auxis thazard	9.90	34	1.31	
Total	757.60		100.01	

PROJECT STATION: 444
 DATE: 25/ 3/95 GEAR TYPE: BT No:1 POSITION: Lat S 1124 Long E 1320
 start stop duration
 TIME :00:10:00 00:40:00 30 (min) Purpose code: 3
 LOG :7229.00 7231.00 2.00 Area code : 2
 FDEPTH: 752 744 GearCond.code:
 BDEPTH: 752 744 Validity code:
 Towing dir: 20° Wire out: 1900 m Speed: 3 kn*10
 Sorted: 18 Kg Total catch: 67.67 CATCH/HOUR: 135.34

PROJECT STATION: 447
 DATE: 25/ 3/95 GEAR TYPE: BT No:1 POSITION: Lat S 1127 Long E 1324
 start stop duration
 TIME :06:05:00 06:35:00 30 (min) Purpose code: 3
 LOG :7249.10 7250.60 1.50 Area code : 2
 FDEPTH: 304 307 GearCond.code:
 BDEPTH: 304 307 Validity code:
 Towing dir: 220° Wire out: 900 m Speed: 3 kn*10
 Sorted: 62 Kg Total catch: 398.22 CATCH/HOUR: 796.44

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Hoplostethus atlanticus	23.96	826	17.70	
Coelorinchus coelorhincus	19.88	350	14.69	
GONOSTOMATIDAE	18.76	350	13.86	
Lamprogrammus exutus	13.16	28	9.72	
Stereomastis sculpta	12.04	1400	8.90	
Diplophos sp.	8.68	1050	6.41	
Aristeus varidens, female	4.98	244	3.68	1077
Shrimps, small, non comm.	4.34	1680	3.21	
Laemonema laureysi	4.34	168	3.21	
Nezumia sp.	2.80	56	2.07	
Bathyrhocongrus sp.	2.66	42	1.97	
Chaceon maritae	2.66	10	1.97	
Etmopterus polli	2.52	14	1.86	
Merluccius polli	2.52	4	1.86	
SEPIOLIDAE	2.38	28	1.76	
OPHICHTHIDAE	2.24	42	1.66	
Dibranchius atlanticus	1.68	98	1.24	
ALEPOCEPHALIDAE	0.98	56	0.72	
PASIPHAIDAE	0.96	70	0.71	
MELANOSTOMIATIDAE	0.70	70	0.52	
Glyphus marsupialis	0.60	40	0.44	
MYCTOPHIDAE	0.56	350	0.41	
Halosaurus ovenii	0.42	14	0.31	
Nemichthys scolopaceus	0.42	14	0.31	
Sardinella maderensis	0.42	2	0.31	
Aristeus varidens, male	0.42	34	0.31	1076
Benthodesmus tenuis	0.14	14	0.10	
OSCOCEPHALIDAE	0.14	14	0.10	
Total	135.36		100.01	

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Merluccius polli	448.50	3836	56.31	1082
Trichiurus lepturus	195.00	924	24.48	
Pterothrissus bellouci	61.36	352	7.70	
Chlorophthalmus atlanticus	41.08	1028	5.16	
Laemonema laureysi	12.10	326	1.52	
Aristeus varidens, female	7.54	2132	0.95	1083
MYCTOPHIDAE	6.50	4394	0.82	
Aristeus varidens, male	4.68	1066	0.59	1084
Zenopsis conchifer	4.16	26	0.52	
Shrimps, small, non comm.	2.74	2522	0.34	
Hymenocephalus italicus	2.74	286	0.34	
Malacocephalus occidentalis	2.74	52	0.34	
Etmopterus polli	2.34	364	0.29	
Synagrops microlepis	2.22	260	0.28	
Coelorinchus coelorhincus	1.96	156	0.25	
MURAENESOCIDAE	0.78	78	0.10	
Total	796.44		99.99	

PROJECT STATION: 448
 DATE: 25/ 3/95 GEAR TYPE: BT No:1 POSITION: Lat S 1127 Long E 1330
 start stop duration
 TIME :08:01:00 08:22:00 21 (min) Purpose code: 3
 LOG :7259.40 7260.60 1.00 Area code : 2
 FDEPTH: 78 69 GearCond.code:
 BDEPTH: 78 69 Validity code:
 Towing dir: 20° Wire out: 300 m Speed: 3 kn*10
 Sorted: 95 Kg Total catch: 920.14 CATCH/HOUR: 2628.97

PROJECT STATION: 445
 DATE: 25/ 3/95 GEAR TYPE: BT No:1 POSITION: Lat S 1126 Long E 1321
 start stop duration
 TIME :02:15:00 02:45:00 30 (min) Purpose code: 3
 LOG :7237.00 7238.80 1.80 Area code : 2
 FDEPTH: 512 527 GearCond.code:
 BDEPTH: 512 527 Validity code:
 Towing dir: 200° Wire out: 1300 m Speed: 32 kn*10
 Sorted: 24 Kg Total catch: 33.95 CATCH/HOUR: 187.90

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Umbrina canariensis	1794.49	2817	68.26	1085
Brachydeuterus auritus	399.14	5306	15.18	
Lithognathus mormyrus	98.09	137	3.73	
Raja miraletus	68.51	166	2.61	
Pagellus bellottii	47.43	457	1.80	1087
Selene dorsalis	40.89	111	1.56	
Sphyræna guachancho	35.91	54	1.37	
Trachurus trecae	34.80	1409	1.32	1086
Decapterus rhonchus	24.60	114	0.94	
Octopus vulgaris	21.29	29	0.81	
Dentex angolensis	18.23	140	0.69	1088
Citharus linguatula	18.23	469	0.69	
Zeus faber	9.66	29	0.37	
Trichiurus lepturus	4.97	249	0.19	
Sepia orbigynna	4.97	83	0.19	
Lepidotrigla cadmani	4.49	414	0.17	
Paraperanæus longirostris	2.20	303	0.08	
Engraulis encrasicolus	1.94	386	0.07	
Dentex canariensis	0.83	6	0.03	
Total	2630.67		100.06	

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Shrimps, small, non comm.	87.20		46.41	
MELANOSTOMIATIDAE	39.36	848	20.95	
Lamprogrammus exutus	10.56	1072	5.62	
Diplophos sp.	10.40	1648	5.53	
Benthodesmus tenuis	7.84	304	4.17	
ALEPOCEPHALIDAE	6.88	352	3.66	
Hoplostethus atlanticus	6.88	384	3.66	
Isistius brasiliensis	3.52	16	1.87	
GONOSTOMATIDAE	3.20	16	1.70	
Etmopterus pusillus	2.24	48	1.19	
Chlorophthalmus atlanticus	2.08	64	1.11	
Aristeus varidens, female	1.56	96	0.83	1079
Nemichthys scolopaceus	1.12	80	0.60	
Dibranchius atlanticus	0.96	48	0.51	
Coelorinchus coelorhincus	0.80	32	0.43	
Halosaurus ovenii	0.80	96	0.43	
Merluccius polli	0.78	2	0.42	
Laemonema laureysi	0.48	16	0.26	
Malacocephalus occidentalis	0.48	16	0.26	
Aristeus varidens, male	0.44	40	0.23	1078
Stereomastis sculpta	0.32	16	0.17	
Total	187.90		100.01	

PROJECT STATION: 449
 DATE: 25/ 3/95 GEAR TYPE: BT No:1 POSITION: Lat S 1129 Long E 1335
 start stop duration
 TIME :09:14:00 09:43:00 29 (min) Purpose code: 3
 LOG :7265.60 7267.20 1.60 Area code : 2
 FDEPTH: 43 45 GearCond.code:
 BDEPTH: 43 45 Validity code:
 Towing dir: 170° Wire out: 150 m Speed: 3 kn*10
 Sorted: 57 Kg Total catch: 57.48 CATCH/HOUR: 118.92

PROJECT STATION: 446
 DATE: 25/ 3/95 GEAR TYPE: BT No:1 POSITION: Lat S 1128 Long E 1321
 start stop duration
 TIME :04:15:00 04:45:00 30 (min) Purpose code: 3
 LOG :7242.80 7244.00 1.20 Area code : 2
 FDEPTH: 442 453 GearCond.code:
 BDEPTH: 442 453 Validity code:
 Towing dir: 25° Wire out: 1200 m Speed: 3 kn*10
 Sorted: 14 Kg Total catch: 116.55 CATCH/HOUR: 233.10

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Epinephelus marginatus	36.38	2	32.27	
Epinephelus aeneus	13.24	2	11.13	
Pagellus bellottii	12.87	155	10.82	1089
Plectorhynchus macrolepis	11.13	17	9.36	
Raja miraletus	10.97	17	9.22	
Dentex canariensis	8.59	62	7.22	1090
Alectis alexandrinus	5.38	4	4.52	
Pomadourus incisus	5.17	19	4.35	
Scomberomorus tritor	3.52	2	2.96	
Trichiurus lepturus	3.31	12	2.78	
Pomadourus rogeri	2.69	2	2.26	
Chaetodon hoefleri	1.45	8	1.22	
Chelidonichthys lastoviza	0.70	4	0.59	
Fistularia petimba	0.58	2	0.49	
Syacium micrum	0.39	2	0.33	
Trigla lyra	0.29	2	0.24	
Dicologlossa hexophthalma	0.14	2	0.12	
Citharus linguatula	0.12	6	0.10	
Total	118.92		99.98	

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Nematocarcinus africanus	86.76	25026	37.22	
Plesionika martia	43.38	1295	18.61	
Laemonema laureysi	31.50	252	13.51	
Aristeus varidens, female	19.98	1764	4.48	1080
Etmopterus polli	10.44	486	4.48	
Yarella blackfordi	9.36	270	4.02	
Merluccius polli	7.38	36	3.17	
Aristeus varidens, male	5.58	882	2.39	1081
Nemichthys scolopaceus	3.60	38	1.54	
Chlorophthalmus atlanticus	3.24	80	1.39	
Coelorinchus coelorhincus	2.16	36	0.93	
Triplophos sp.	1.80	252	0.77	
Etmopterus pusillus	1.44	36	0.62	
Malacocephalus occidentalis	1.44	108	0.62	
Deania profundorum	1.26	18	0.54	
MURAENESOCIDAE	1.26	216	0.54	
ASTRONESTHIDAE	1.08	162	0.46	
Hoplostethus cadenati	1.08	1260	0.46	
Halosaurus ovenii	0.36	630	0.15	
Total	233.10		99.99	

PROJECT STATION: 450
 DATE: 25/ 3/95 GEAR TYPE: BT No:1 POSITION: Lat S 1128 Long E 1342
 start stop duration Purpose code: 3
 TIME :10:52:00 11:22:00 30 (min) Area code : 2
 LOG :7275.50 7277.00 1.50 GearCond.code:
 FDEPTH: 20 19 Validity code:
 BDEPTH: 20 19
 Towing dir: 350° Wire out: 120 m Speed: 3 kn*10
 Sorted: 111 Kg Total catch: 111.87 CATCH/HOUR: 223.74

PROJECT STATION: 453
 DATE: 25/ 3/95 GEAR TYPE: BT No:1 POSITION: Lat S 1112 Long E 1332
 start stop duration Purpose code: 3
 TIME :15:25:00 15:55:00 30 (min) Area code : 2
 LOG :7304.00 7305.90 1.90 GearCond.code:
 FDEPTH: 256 258 Validity code:
 BDEPTH: 256 258
 Towing dir: * Wire out: 700 m Speed: 3 kn*10
 Sorted: 40 Kg Total catch: 256.62 CATCH/HOUR: 513.24

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP
	weight numbers		
Alectis alexandrinus	64.60 100	28.87	1093
Pomadasys rogeri	23.90 52	10.68	1096
Galeoides decadactylus	19.60 38	8.76	
Selene dorsalis	16.10 40	7.20	1095
Chloroscombrus chrysurus	14.80 68	6.61	1094
Dasyatis margarita	12.50 18	5.59	
Arius parkii	7.66 16	3.42	
Pseudotolithus typus	7.24 8	3.24	
Rhinobatos albomaculatus	6.80 8	3.04	
Lithognathus mormyrus	6.38 10	2.85	
Pagellus bellottii	5.70 14	2.55	1091
Sardinella maderensis	5.00 28	2.23	1092
Caranx crysos	4.98 6	2.23	
Trichiurus lepturus	4.92 10	2.20	
Sphyrna lewini	3.46 2	1.55	
Pseudotolithus senegalensis	3.06 2	1.37	
Raja miraletus	2.98 4	1.33	
Mustelus mustelus	2.78 4	1.24	
Scomberomorus tritor	2.66 2	1.19	
Sphyrna guachancho	2.40 38	1.07	
Brachydeuterus auritus	2.18 850	0.97	
Sphyrna sphyraena	1.00 4	0.45	
Tarpon atlanticus	1.00 2	0.45	
Cynoglossus canariensis	0.68 6	0.30	
Brachydeuterus auritus	0.66 4	0.29	
Eucinostomus melanopterus	0.32 2	0.14	
Trichiurus lepturus	0.16 22	0.07	
Torpedo nobiliana	0.14 2	0.06	
Engraulis encrasicolus	0.08 36	0.04	
Total	223.74	99.99	

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP
	weight numbers		
Chlorophthalmus atlanticus	150.40 3334	29.30	
Synagrops microlepis	96.48 12864	18.80	
Trichiurus lepturus	80.96 4230	15.77	
Dentex macrophthalmus	55.26 384	10.77	1100
MYCTOPHIDAE	32.16 26532	6.27	
Merluccius polli	28.00 560	5.46	
Pteroscion peli	25.92 176	5.05	
Laemonema laureysi	14.72 224	2.87	
Pontinus accraensis	10.08 144	1.96	
Aristeus varidens, female	6.30 1452	1.23	1099
Aristeus varidens, male	5.28 1258	1.03	1098
Grammolites gruveli	3.20 32	0.62	
Zenopsis conchifer	1.92 16	0.37	
Coelorrhinus coelorrhinus	1.60 32	0.31	
Bathyrrocongrus sp.	0.80 32	0.16	
Cynoglossus canariensis	0.16 16	0.03	
Cynoglossus canariensis	0.00		
Total	513.24	100.00	

PROJECT STATION: 454
 DATE: 25/ 3/95 GEAR TYPE: BT No:1 POSITION: Lat S 1112 Long E 1330
 start stop duration Purpose code: 3
 TIME :16:50:00 17:20:00 30 (min) Area code : 2
 LOG :7310.30 7312.10 1.80 GearCond.code:
 FDEPTH: 366 372 Validity code:
 BDEPTH: 366 372
 Towing dir: * Wire out: 950 m Speed: 3 kn*10
 Sorted: 45 Kg Total catch: 220.83 CATCH/HOUR: 441.66

PROJECT STATION: 451
 DATE: 25/ 3/95 GEAR TYPE: BT No:1 POSITION: Lat S 1114 Long E 1343
 start stop duration Purpose code: 3
 TIME :12:45:00 13:00:00 15 (min) Area code : 2
 LOG :7290.50 7291.30 0.80 GearCond.code:
 FDEPTH: 30 24 Validity code:
 BDEPTH: 30 24
 Towing dir: 270° Wire out: 120 m Speed: 3 kn*10
 Sorted: 6 Kg Total catch: 6.86 CATCH/HOUR: 27.44

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP
	weight numbers		
Pagellus bellottii	9.36 20	34.11	
Arius parkii	5.56 8	20.26	
Selene dorsalis	5.32 8	19.39	
Scomberomorus tritor	3.76 4	13.70	
Sardinella maderensis	1.72 4	6.27	
Chloroscombrus chrysurus	1.72 4	6.27	
Total	27.44	100.00	

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP
	weight numbers		
Merluccius polli	245.00 1490	55.47	1101
Laemonema laureysi	56.50 100	12.79	
Etmopterus pusillus	37.20 3420	8.42	
Trichiurus lepturus	21.10 160	4.78	
Hymenocephalus italicus	20.90 3220	4.73	
Plesionika martia	18.00 7580	4.08	
Nematocarcinus africanus	12.00 6600	2.72	
Peristedion cataphractum	7.70 50	1.74	
Parapenaeus longirostris, fem.	7.40 1200	1.68	1104
Nezumia sp.	4.90 240	1.11	
Aristeus varidens, male	4.60 680	1.04	1105
Aristeus varidens, female	3.30 470	0.75	1102
Callinectes sp.	1.70 40	0.38	
Solenocera africana	1.40 160	0.32	
MYCTOPHIDAE	1.00 2000	0.23	
Malacocephalus occidentalis	1.00 20	0.23	
Halosaurus ovenii	0.70 70	0.16	
Parapenaeus longirostris, male	0.40 50	0.09	1103
Hoplostethus mediterraneus	0.40 10	0.09	
GONOSTOMATIDAE	0.40 10	0.09	
Yarrella blackfordi	0.40 10	0.09	
Pterothrissus belloci	0.40 20	0.09	
Total	446.40	101.08	

PROJECT STATION: 452
 DATE: 25/ 3/95 GEAR TYPE: BT No:1 POSITION: Lat S 1114 Long E 1337
 start stop duration Purpose code: 3
 TIME :13:55:00 14:25:00 30 (min) Area code : 2
 LOG :7296.50 7297.90 1.40 GearCond.code:
 FDEPTH: 108 108 Validity code:
 BDEPTH: 108 108
 Towing dir: 210° Wire out: 300 m Speed: 32 kn*10
 Sorted: 65 Kg Total catch: 484.76 CATCH/HOUR: 969.52

PROJECT STATION: 455
 DATE: 25/ 3/95 GEAR TYPE: BT No:1 POSITION: Lat S 1112 Long E 1329
 start stop duration Purpose code: 3
 TIME :18:20:00 18:50:00 30 (min) Area code : 2
 LOG :7315.50 7317.00 1.50 GearCond.code:
 FDEPTH: 428 429 Validity code:
 BDEPTH: 428 429
 Towing dir: 180° Wire out: 1200 m Speed: 3 kn*10
 Sorted: 19 Kg Total catch: 97.67 CATCH/HOUR: 195.34

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP
	weight numbers		
Brachydeuterus auritus	740.26 5416	76.35	1097
Trichiurus lepturus	60.30 450	6.22	
Selene dorsalis	46.36 120	4.78	
Synagrops microlepis	21.30 3364	2.20	
Umbrina canariensis	18.46 60	1.90	
Pagellus bellottii	17.70 90	1.83	
Trachurus trecae	16.96 46	1.75	
Chelidonichthys gabonensis	15.76 90	1.63	
Dentex angolensis	8.70 30	0.90	
Pterothrissus belloci	6.60 106	0.68	
Pteroscion peli	6.46 16	0.67	
Sepia officinalis hierredda	5.40 16	0.56	
Dentex macrophthalmus	4.66 30	0.48	
Cynoglossus canariensis	0.60 16	0.06	
GOBIIDAE	0.00 16		
Saurida brasiliensis	0.00 16		
Total	969.52	100.01	

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP
	weight numbers		
Nematocarcinus africanus	42.76 68444	21.89	
Merluccius polli	38.00 122	19.45	1106
Aristeus varidens, female	26.24 3016	13.43	1107
Hoplostethus cadenati	13.50 682	6.91	
Nezumia sp.	11.20 616	5.73	
Plesionika martia	11.10 1942	5.68	
Laemonema laureysi	10.60 172	5.43	
MYCTOPHIDAE	8.78 6368	4.49	
Trichiurus lepturus	7.96 22	4.07	
GONOSTOMATIDAE	5.20 262	2.66	
Chaceon maritae	4.36 8	2.23	
Halosaurus ovenii	2.92 232	1.49	
Yarrella blackfordi	2.60 90	1.33	
Aristeus varidens, male	2.56 5132	1.31	1108
Isistius brasiliensis	2.00 8	1.02	
Etmopterus polli	1.72 112	0.88	
Sardinella maderensis	1.18 6	0.60	
Triplophos sp.	0.98 112	0.50	
MURAENOSOCIDAE	0.82 120	0.42	
Sardinella aurita	0.40 2	0.20	
Hymenocephalus italicus	0.30 68	0.15	
Peristedion cataphractum	0.16 38	0.08	
Total	195.34	99.95	

PROJECT STATION: 456
 DATE: 25/ 3/95 GEAR TYPE: BT No:1 POSITION: Lat S 1112 Long E 1326
 start stop duration
 TIME : 20:25:00 21:31:00 66 (min) Purpose code: 3
 LOG : 7324.90 7328.00 3.10 Area code : 2
 FDEPTH: 716 688 GearCond.code:
 BDEPTH: 716 688 Validity code:
 Towing dir: 360° Wire out: 1840 m Speed: 32 kn*10

Sorted: 29 Kg Total catch: 152.73 CATCH/HOUR: 138.85

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP
	weight numbers		
GONOSTOMATIDAE	24.36 432	17.54	
Triplophos sp.	19.77 2555	14.24	
Hoplostethus cadenati	19.00 541	13.68	
Nematocarcinus africanus	13.09 3568	9.43	
Yarrella blackfordi	12.55 286	9.04	
Stereomastis sculpta	8.73 609	6.29	
PSEUDOCARCHARIIDAE	6.14 9	4.42	
Merluccius polli	5.91 8	4.26	1109
Lamprogrammus exutus	5.86 32	4.22	
Plesionika martia	4.91 1964	3.54	
Nezumia sp.	2.64 86	1.90	
Aristeus varidens, female	2.45 106	1.76	1111
Chaceon maritae	1.59 3	1.15	
Raja sp.	1.59 19	1.15	
Etmopterus pusillus	1.50 23	1.08	
ASTRONETHIDAE	1.41 105	1.02	
OCTOPOTEUTHIDAE	1.14 9	0.82	
Laemonema laureysi	1.09 41	0.79	
DICERATIIDAE	0.95 5	0.68	
MURÆNESOCIDAE	0.82 118	0.59	
Chlorophthalmus atlanticus	0.73 18	0.53	
Dibranchius atlanticus	0.59 32	0.42	
Talissmania longifilis	0.55 36	0.40	
Benthodesmus sp.	0.50 18	0.36	
MYCTOPHIDAE	0.41 314	0.30	
Glyphus marsupialis	0.27 14	0.19	
PASIPHAGIDAE	0.23 9	0.17	
Aristeus varidens, male	0.08 7	0.06	1110
Total	138.86	100.03	

PROJECT STATION: 457
 DATE: 26/ 3/95 GEAR TYPE: PT No:2 POSITION: Lat S 1059 Long E 1323
 start stop duration
 TIME : 09:00:00 00:30:00 30 (min) Purpose code: 3
 LOG : 2338.60 7340.40 1.80 Area code : 2
 FDEPTH: 15 15 GearCond.code:
 BDEPTH: 705 560 Validity code:
 Towing dir: 90° Wire out: 120 m Speed: 32 kn*10

Sorted: 73 Kg Total catch: 72.80 CATCH/HOUR: 145.60

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP
	weight numbers		
Sphyrna lewini	120.00 2	82.42	
Trichiurus lepturus	12.90 60	8.86	
Sardinella maderensis	5.18 22	3.56	1112
MYCTOPHIDAE	3.00 3984	2.06	
Sardinella aurita	2.44 12	1.68	1113
Illex coindetii	2.06 12	1.41	
Ariomma bondi	0.02 2	0.01	
Total	145.60	100.00	

PROJECT STATION: 458
 DATE: 26/ 3/95 GEAR TYPE: BT No:1 POSITION: Lat S 1102 Long E 1326
 start stop duration
 TIME : 02:00:00 02:30:00 30 (min) Purpose code: 3
 LOG : 7344.50 7347.20 2.70 Area code : 2
 FDEPTH: 576 520 GearCond.code:
 BDEPTH: 576 520 Validity code:
 Towing dir: 160° Wire out: 1400 m Speed: 3 kn*10

Sorted: 49 Kg Total catch: 215.69 CATCH/HOUR: 431.38

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP
	weight numbers		
Lamprogrammus exutus	128.00 2952	29.21	
MELANOSTOMIATIDAE	76.32 1368	17.59	
Diplophos sp.	49.32 5728	11.43	
Hoplostethus cadenati	25.56 684	5.93	
ALEPOCEPHALIDAE	20.16 1440	4.57	
Nematocarcinus africanus	16.64 2998	3.86	
Aristeus varidens, female	13.76 654	3.19	1116
Plesionika martia	13.32 2398	3.09	
MURÆNESOCIDAE	13.32 324	3.09	
Etmopterus pusillus	12.96 216	3.00	
Merluccius polli	11.50 18	2.67	1114
Stereomastis sculpta	10.08 216	2.34	
Triplophos sp.	10.08 180	2.34	
Nezumia sp.	9.00 72	2.09	
Nemichthys scolopacea	8.28 36	1.92	
Aristeus varidens, male	5.94 586	1.38	1115
C E P H A L O P O D A	4.76 10	1.10	
MYCTOPHIDAE	3.32 600	0.77	
Laemonema laureysi	0.36 36	0.08	
Benthodesmus tenuis	0.36 36	0.08	
Talissmania longifilis	0.36 36	0.08	
Total	431.40	100.01	

PROJECT STATION: 459
 DATE: 26/ 3/95 GEAR TYPE: BT No:1 POSITION: Lat S 1102 Long E 1330
 start stop duration
 TIME : 05:55:00 06:25:00 30 (min) Purpose code: 3
 LOG : 7356.90 7358.50 1.60 Area code : 2
 FDEPTH: 327 331 GearCond.code:
 BDEPTH: 327 331 Validity code:
 Towing dir: 170° Wire out: 950 m Speed: 3 kn*10

Sorted: 19 Kg Total catch: 150.10 CATCH/HOUR: 300.20

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP
	weight numbers		
Merluccius polli	132.40 704	44.10	1117
Trichiurus lepturus	29.32 110	9.77	
Parapeneus longirostris, fem.	24.90 4412	8.29	1118
Hymenoccephalus italicus	21.16 960	7.05	
Etmopterus sp.	14.58 94	4.86	
Laemonema laureysi	14.44 196	4.81	
MURÆNESOCIDAE	9.86 256	3.28	
Plesionika martia	9.68 5748	3.22	
Pterothrissus bellocci	6.98 34	2.33	
Centrophorus uyato	6.90 2	2.30	
Parapeneus longirostris, male	6.46 1350	2.15	1119
Nematocarcinus africanus	5.86 4548	1.95	
Synagrops microlepis	5.28 408	1.76	
Ruvettus pretiosus	1.90 2	0.63	
Aristeus varidens	1.70 212	0.57	
Solenocera africana	1.36 188	0.45	
Callinectes sp.	1.28 18	0.43	
Etmopterus pusillus	1.20 18	0.40	
Coelrorinchus coelrorinchus	1.20 52	0.40	
Chlorophthalmus atlanticus	0.68 18	0.23	
Peristedion cataphractum	0.68 128	0.23	
Triplophos sp.	0.42 34	0.14	
Halosaurus ovenii	0.34 18	0.11	
Malacocephalus occidentalis	0.34 8	0.11	
Total	298.92	99.57	

PROJECT STATION: 460
 DATE: 26/ 3/95 GEAR TYPE: BT No:1 POSITION: Lat S 1059 Long E 1331
 start stop duration
 TIME : 07:44:00 08:14:00 30 (min) Purpose code: 3
 LOG : 7363.80 7365.30 1.50 Area code : 2
 FDEPTH: 211 200 GearCond.code:
 BDEPTH: 211 200 Validity code:
 Towing dir: 350° Wire out: 600 m Speed: 3 kn*10

Sorted: 26 Kg Total catch: 476.88 CATCH/HOUR: 953.76

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP
	weight numbers		
Synagrops microlepis	434.00 35196	45.50	
Dentex macropthalmus	197.80 1780	20.74	1120
Chlorophthalmus atlanticus	105.00 2772	11.01	
Merluccius polli	53.20 1092	5.58	1121
Trichiurus lepturus	50.12 252	5.25	
Zenopsis conchifer	49.80 224	5.22	
Carcharhinus signatus	21.00 4	2.20	
Pterothrissus bellocci	20.44 168	2.14	
Loligo vulgaris	6.72 28	0.70	
Parapeneus longirostris, fem.	6.16 1064	0.65	1123
Parapeneus longirostris, male	5.60 1148	0.59	1122
Brotula sp.	2.24 140	0.23	
MYCTOPHIDAE	1.68 1232	0.18	
Total	953.76	99.99	

PROJECT STATION: 461
 DATE: 26/ 3/95 GEAR TYPE: BT No:1 POSITION: Lat S 1057 Long E 1332
 start stop duration
 TIME : 09:08:00 09:38:00 30 (min) Purpose code: 3
 LOG : 7368.90 7370.70 1.80 Area code : 2
 FDEPTH: 163 231 GearCond.code:
 BDEPTH: 163 231 Validity code:
 Towing dir: 270° Wire out: 120 m Speed: 3 kn*10

Sorted: 9 Kg Total catch: 8.71 CATCH/HOUR: 17.42

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP
	weight numbers		
Sardinella maderensis	11.52 54	66.13	1124
Trachinotus ovatus	4.76 16	27.32	
Trichiurus lepturus	1.14 2	6.54	
Total	17.42	99.99	

PROJECT STATION: 462
 DATE: 26/ 3/95 GEAR TYPE: BT No:1 POSITION: Lat S 1056 Long E 1332
 start stop duration
 TIME : 10:25:00 10:55:00 30 (min) Purpose code: 3
 LOG : 7374.70 7376.30 1.60 Area code : 2
 FDEPTH: 140 134 GearCond.code:
 BDEPTH: 140 134 Validity code:
 Towing dir: 330° Wire out: 450 m Speed: 3 kn*10

Sorted: 68 Kg Total catch: 486.89 CATCH/HOUR: 973.78

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP
	weight numbers		
Dentex macropthalmus	396.90 2084	40.76	1127
Synagrops microlepis	146.30 10348	15.02	
Trichiurus lepturus	93.80 1190	9.63	
Brotula barbata	35.00 14	3.59	
Grammolites gruvelli	29.40 336	3.02	
Spicara alta	24.78 112	2.54	
Umbrina canariensis	22.68 28	2.33	
Dentex angolensis	21.28 56	2.19	
Chelidonichtys gabonensis	19.60 126	2.01	
Merluccius polli	19.18 476	1.97	1128
Torpedo torpedo	18.76 14	1.93	
Pagrus caeruleostictus	16.94 28	1.74	
Uranoscopus polli	14.84 84	1.52	
Brachydeuterus auritus	12.74 70	1.31	
Carcharhinus signatus	12.40 2	1.27	
Boops boops	11.34 56	1.26	
Raja miraletus	10.64 24	1.09	
Parapeneus longirostris, male	9.66 910	0.99	1125
Pterothrissus bellocci	8.82 56	0.91	
Pontinus accraensis	7.56 42	0.78	
Parapeneus longirostris, fem.	7.30 742	0.72	1126
Zenopsis conchifer	6.86 14	0.70	
Zeus faber	6.44 28	0.66	
Anthias anthias	4.90 28	0.50	
Cynoglossus canariensis	4.76 28	0.49	
Citharus linguatula	3.78 28	0.39	
Peristedion cataphractum	3.78 28	0.39	
Sepia bertheloti	3.64 28	0.37	
Total	973.78	99.98	

PROJECT STATION: 463
 DATE: 26/ 3/95 GEAR TYPE: BT No:1 POSITION: Lat S 1048 Long E 1340
 start stop duration Purpose code: 3
 TIME :12:30:00 13:00:00 30 (min) Area code : 2
 LOG :7389.50 7391.00 1.50 GearCond.code:
 FDEPTH: 46 44 Validity code:
 BDEPTH: 46 44
 Towing dir: * Wire out: 150 m Speed: 3 kn*10
 Sorted: 95 Kg Total catch: 475.80 CATCH/HOUR: 951.60

PROJECT STATION: 466
 DATE: 27/ 3/95 GEAR TYPE: BT No:1 POSITION: Lat S 1041 Long E 1323
 start stop duration Purpose code: 3
 TIME :11:30:00 12:00:00 30 (min) Area code : 2
 LOG :7457.70 7458.40 0.70 GearCond.code:
 FDEPTH: 110 110 Validity code:
 BDEPTH: 110 110
 Towing dir: 300* Wire out: 300 m Speed: 3 kn*10
 Sorted: 91 Kg Total catch: 214.93 CATCH/HOUR: 429.86

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP
	weight numbers		
Chloroscombrus chrysurus	440.00	3336	46.24 1131
Selene dorsalis	111.50	380	11.72 1132
Brachydeuterus auritus	89.20	940	9.37
Galeoides decadactylus	77.30	130	8.12
Trichiurus lepturus	73.00	180	7.67
Sphyræna guachancho	33.80	30	3.55
Brachydeuterus auritus	31.20	2916	3.28
Sardinella maderensis	18.10	70	1.90 1133
Pomadasy's rogeri	16.50	20	1.73
Pseudotolithus senegalensis	16.30	20	1.71
Raja miraletus	9.30	10	0.98
Pagellus bellottii	9.10	20	0.96
Dicologlossa cuneata	5.80	70	0.61
Sphyræna sphyraena	5.50	10	0.58
Torpedo nobiliana	5.40	10	0.57
Dentex canariensis	3.30	10	0.35
Cynoglossus canariensis	3.10	10	0.33
Citharus linguatula	2.60	20	0.27
Penaeus notialis	0.60	2	0.06
Total	951.60		100.00

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP
	weight numbers		
Brachydeuterus auritus	286.58	2564	66.67
Selene dorsalis	74.06	240	17.23 1141
Trachurus trecae	12.00	312	2.79 1143
Rhinobatos albomaculatus	9.80	2	2.28
Trichiurus lepturus	9.78	24	2.28
Pagellus bellottii	9.66	152	2.25 1144
Dentex angolensis	7.94	152	1.85 1142
Pterothrissus bellocci	3.44	92	0.80
Citharus linguatula	2.52	148	0.59
Lepidotrigla cadmani	1.96	32	0.46
Pentheroscion mbizi	1.60	4	0.37
Uranoscopus cadenati	1.50	10	0.37
Zeus faber	1.56	4	0.36
Umbrina canariensis	1.46	14	0.34
Lepidotrigla carolae	1.28	102	0.30
Peristedion cataphractum	1.14	24	0.27
Sardinella maderensis	1.10	4	0.26
Grammolites gruvelli	0.68	10	0.16
Dentex barnardi	0.54	4	0.13
Uranoscopus polli	0.50	4	0.12
Sepia elegans	0.40	4	0.09
Raja miraletus	0.26	4	0.06
Total	429.86		100.03

PROJECT STATION: 464
 DATE: 26/ 3/95 GEAR TYPE: BT No:1 POSITION: Lat S 1038 Long E 1337
 start stop duration Purpose code: 3
 TIME :14:10:00 14:40:00 30 (min) Area code : 2
 LOG :7400.10 7401.50 1.40 GearCond.code:
 FDEPTH: 38 36 Validity code:
 BDEPTH: 38 36
 Towing dir: 330* Wire out: 150 m Speed: 32 kn*10
 Sorted: 102 Kg Total catch: 474.50 CATCH/HOUR: 949.00

PROJECT STATION: 467
 DATE: 27/ 3/95 GEAR TYPE: BT No:1 POSITION: Lat S 1043 Long E 1317
 start stop duration Purpose code: 3
 TIME :13:30:00 14:00:00 30 (min) Area code : 2
 LOG :7466.00 7467.00 1.00 GearCond.code:
 FDEPTH: 243 277 Validity code:
 BDEPTH: 243 277
 Towing dir: 300* Wire out: 650 m Speed: 32 kn*10
 Sorted: 35 Kg Total catch: 332.43 CATCH/HOUR: 664.86

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP
	weight numbers		
Chloroscombrus chrysurus	491.28	3750	51.77 1136
Sphyræna guachancho	143.98	340	15.17 1134
Selene dorsalis	44.16	312	4.65 1135
Scomberomorus tritor	39.56	18	4.17
Galeoides decadactylus	33.02	64	3.48
Pomadasy's rogeri	28.24	46	2.98
Lithognathus mormyrus	25.84	46	2.72
Alectis ciliaris	18.58	18	1.96
Pagellus bellottii	18.40	56	1.94
Trichiurus lepturus	15.36	36	1.62
Sardinella maderensis	13.70	56	1.44 1137
Arius parkii	12.96	10	1.37
Caranx crysos	12.22	10	1.29
Carcharhinus limbatus	12.20	4	1.29
Torpedo marmorata	8.18	10	0.86
Sphyræna sphyraena	6.06	36	0.64
Trachinotus ovatus	4.60	10	0.48
Decapterus rhonchus	4.14	10	0.44
Brachydeuterus auritus	3.68	626	0.39
Brachydeuterus auritus	3.12	10	0.33
Alloteuthis africana	2.66	148	0.28
Penaeus notialis	2.38	10	0.25
Citharus linguatula	2.30	10	0.24
Engraulis encrasicolus	2.30	120	0.24
Pteroscion peli	0.08	10	0.01
Total	949.00		100.01

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP
	weight numbers		
Chlorophthalmus atlanticus	280.80	6340	42.23
Synagrops microlepis	242.10	13002	36.41
Trichiurus lepturus	37.08	90	5.58
Dentex macrophthalmus	18.78	128	2.82 1145
Zenopsis conchifer	18.00	90	2.71
Merluccius polli	10.80	180	3.62
Zeus faber	9.54	18	1.43
MYCTOPHIDAE	7.38	1242	1.11
Dentex angolensis	6.48	12	0.97
Laemonema laureysi	6.12	54	0.92
Small squids unident.	5.58	458	0.84
Coelorrhinus coelorrhinus	5.58	72	0.84
Trachurus trecae	5.22	18	0.79
Hymenocephalus italicus	4.14	54	0.62
Boops boops	3.60	18	0.54
Parapenaeus longirostris, fem.	1.54	148	0.23 1147
Parapenaeus longirostris, male	1.00	112	0.15 1146
Pagellus bellottii	0.54	2	0.08
Solenocera africana	0.40	2	0.06
Citharus linguatula	0.18	18	0.03
Total	664.86		99.98

PROJECT STATION: 465
 DATE: 26/ 3/95 GEAR TYPE: BT No:1 POSITION: Lat S 1037 Long E 1333
 start stop duration Purpose code: 3
 TIME :15:40:00 16:10:00 30 (min) Area code : 2
 LOG :7406.70 7408.00 1.30 GearCond.code:
 FDEPTH: 50 50 Validity code:
 BDEPTH: 50 50
 Towing dir: 300* Wire out: 180 m Speed: 3 kn*10
 Sorted: 90 Kg Total catch: 242.90 CATCH/HOUR: 485.80

PROJECT STATION: 468
 DATE: 27/ 3/95 GEAR TYPE: BT No:1 POSITION: Lat S 1045 Long E 1316
 start stop duration Purpose code: 3
 TIME :15:05:00 15:35:00 30 (min) Area code : 2
 LOG :7472.00 7473.80 1.80 GearCond.code:
 FDEPTH: 338 342 Validity code:
 BDEPTH: 338 342
 Towing dir: 130* Wire out: 1000 m Speed: 32 kn*10
 Sorted: 30 Kg Total catch: 544.34 CATCH/HOUR: 1088.68

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP
	weight numbers		
Umbrina canariensis	83.72	202	17.23 1139
Pomadasy's incisus	79.30	400	16.32
Galeoides decadactylus	70.98	198	14.61
Dentex barnardi	68.38	312	14.08 1140
Dentex canariensis	34.20	72	7.04
Pseudotolithus senegalensis	28.08	46	5.78
Plectorhinchus mediterraneus	27.44	6	5.65
Selene dorsalis	21.36	224	4.40
Pagellus bellottii	19.90	94	4.10 1138
Chaetodon hoefleri	18.30	156	3.77
Rhizoprionodon acutus	10.50	4	2.18
Brachydeuterus auritus	5.72	38	1.18
Sphyræna sphyraena	3.94	6	0.81
Epinephelus marginatus	3.80	2	0.78
Parapristipoma octolineatum	3.64	6	0.75
Bodianus speciosus	2.70	2	0.56
Leptocharias smithii	2.30	2	0.47
Pseudupeneus prayensis	1.44	6	0.36
Total	485.80		100.01

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP
	weight numbers		
Chlorophthalmus atlanticus	366.70	6406	33.68
Merluccius polli	255.74	2014	23.49
Laemonema laureysi	109.06	1330	10.02
Hymenocephalus italicus	79.04	5360	7.26
Trichiurus lepturus	65.36	152	6.00
Benthodesmus tenuis	54.34	1882	4.99
Synagrops microlepis	38.76	1672	3.56
Shrimps, small, non comm.	33.06	10836	3.04
Coelorrhinus coelorrhinus	16.34	342	1.50
Pterothrissus bellocci	14.06	114	1.29
Malacocephalus occidentalis	13.68	76	1.26
MYCTOPHIDAE	12.92	1572	1.19
ALEPOCEPHALIDAE	10.64	152	0.98
Parapenaeus longirostris, fem.	7.42	1084	0.68 1149
Solenocera africana	5.40	454	0.50
Parapenaeus longirostris, male	3.64	152	0.33 1148
ARISTEIDAE	2.52	152	0.23
Small squids unident.	0.03	266	
Chaunax sp.	0.00	38	
Total	1088.68		100.00

PROJECT STATION: 469
 DATE: 27/ 3/95 GEAR TYPE: BT No:1 POSITION: Lat S 1046 Long E 13145
 start stop duration
 TIME :17:50:00 18:20:00 30 (min) Purpose code: 3
 LOG :7480.90 7482.50 1.60 Area code : 2
 FDEPTH: 423 428 GearCond.code:
 BDEPTH: 423 428 Validity code:
 Towing dir: 325° Wire out: 1150 m Speed: 3 kn*10

Sorted: 5 Kg Total catch: 42.33 CATCH/HOUR: 84.66

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Nematocarcinus africanus	38.40	7040	45.36	
Merluccius polli	18.20	56	21.50	1150
Melanostomias sp.	11.04	204	13.04	
Laemonema laureysi	4.56	72	5.39	
Benthodesmus sp.	3.72	228	4.39	
Nezumia sp.	1.56	96	1.84	
MYCTOPHIDAE	1.56	2460	1.84	
Aristeus varidens, female	1.54	98	1.82	1151
Triplophos sp.	0.84	48	0.99	
Plesionika martia	0.72	288	0.85	
Isistius brasiliensis	0.62	2	0.73	
Etmopterus pusillus	0.48	12	0.57	
MURAENOSOCIDAE	0.48	24	0.57	
Hymenocephalus italicus	0.48	108	0.57	
Aristeus varidens, male	0.22	30	0.26	1152
SERGESTIDAE	0.12	24	0.14	
Dibranchus atlanticus	0.12	24	0.14	
Total	84.66		100.00	

PROJECT STATION: 470
 DATE: 27/ 3/95 GEAR TYPE: BT No:1 POSITION: Lat S 1048 Long E 13148
 start stop duration
 TIME :20:00:00 20:51:00 51 (min) Purpose code: 3
 LOG :7487.90 7490.40 2.50 Area code : 2
 FDEPTH: 0 0 GearCond.code:
 BDEPTH: 575 614 Validity code: 9
 Towing dir: 140° Wire out: 1280 m Speed: 3 kn*10

Sorted: Kg Total catch: CATCH/HOUR:

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Total				

PROJECT STATION: 471
 DATE: 28/ 3/95 GEAR TYPE: BT No:1 POSITION: Lat S 1031 Long E 1301
 start stop duration
 TIME :00:10:00 00:40:00 30 (min) Purpose code: 3
 LOG :7514.10 7515.60 1.50 Area code : 2
 FDEPTH: 630 635 GearCond.code:
 BDEPTH: 630 635 Validity code:
 Towing dir: 320° Wire out: 1700 m Speed: 32 kn*10

Sorted: 24 Kg Total catch: 185.94 CATCH/HOUR: 371.88

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Nematocarcinus africanus	279.00	70308	75.02	
MELANOSTOMIATIDAE	15.44	286	4.15	
Diplophos sp.	13.50	1826	3.63	
Lamprogrammus exutus	11.70	136	3.15	
Aristeus varidens, female	9.76	464	2.62	1154
Merluccius polli	9.00	16	2.42	
Hoplostethus cadenati	6.60	406	1.77	
Talismania oregonia	5.70	600	1.53	
Benthodesmus tenuis	4.50	196	1.21	
Trichiurus lepturus	3.60	30	0.97	
Etmopterus pusillus	3.14	60	0.84	
Malacocephalus laevis	2.40	286	0.65	
Etmopterus polli	1.50	16	0.40	
Laemonema laureysi	1.20	60	0.32	
Aristeus varidens, male	1.18	150	0.32	1153
Stereomastix sculpta	1.04	150	0.28	
Chaceon maritae	0.98	2	0.26	
Triplophos sp.	0.90	30	0.24	
ARISTEIDAE	0.32	28	0.09	
Coelorrhinchus coelorrhinchus	0.30	16	0.08	
Nemichthys scolopaceus	0.14	76	0.04	
Total	371.90		99.99	

PROJECT STATION: 472
 DATE: 28/ 3/95 GEAR TYPE: BT No:1 POSITION: Lat S 1030 Long E 1302
 start stop duration
 TIME :03:00:00 03:30:00 30 (min) Purpose code: 3
 LOG :7521.10 7522.40 1.30 Area code : 2
 FDEPTH: 525 520 GearCond.code:
 BDEPTH: 525 520 Validity code:
 Towing dir: 150° Wire out: 1400 m Speed: 32 kn*10

Sorted: 25 Kg Total catch: 323.17 CATCH/HOUR: 646.34

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Nematocarcinus africanus	474.00	111390	73.34	
Laemonema laureysi	54.72	408	8.47	
Merluccius polli	25.30	46	3.91	1155
OPHISTHOREURHIDAE	14.64	24	2.27	
Hoplostethus cadenati	13.92	648	2.15	
Aristeus varidens, female	10.90	736	1.69	1157
Benthodesmus tenuis	8.64	312	1.34	
Coelorrhinchus coelorrhinchus	7.92	96	1.23	
Trichiurus lepturus	7.68	48	1.19	
Lamprogrammus exutus	5.76	24	0.89	
Etmopterus polli	3.60	96	0.56	
Dibranchus atlanticus	2.64	96	0.41	
Aristeus varidens, male	2.46	362	0.38	1156
Talismania oregonia	2.40	744	0.37	
Diplophos sp.	2.16	552	0.33	
MYCTOPHIDAE	1.92	1056	0.30	
Malacocephalus laevis	1.92	216	0.30	
Bathyrocongrus sp.	1.20	24	0.19	
MELANOSTOMIATIDAE	1.20	72	0.19	
Nemichthys scolopaceus	1.20	192	0.19	
Stereomastix sculpta	0.96	96	0.15	
Bathyrocongrus sp.	0.96	144	0.15	
Chlorophthalmus atlanticus	0.24	24	0.04	
Saurida brasiliensis	0.00	24		
Total	646.34		100.04	

PROJECT STATION: 473
 DATE: 28/ 3/95 GEAR TYPE: BT No:1 POSITION: Lat S 1030 Long E 1307
 start stop duration
 TIME :05:40:00 05:55:00 15 (min) Purpose code: 3
 LOG :7529.60 7530.30 0.70 Area code : 2
 FDEPTH: 203 209 GearCond.code:
 BDEPTH: 203 209 Validity code:
 Towing dir: 330° Wire out: 330 m Speed: kn*10

Sorted: 140 Kg Total catch: 140.26 CATCH/HOUR: 561.04

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Synagrops microlepis	170.80	15972	30.44	
Dentex macrophthalmus	143.80	816	25.63	1159
Spicara alta	63.20	276	11.26	
Dentex angolensis	43.20	116	7.70	1158
Trichiurus lepturus	31.60	96	5.63	
Epinephelus gorensis	31.08	4	5.54	
Zenopsis conchifer	24.24	172	4.32	
Brachydeuterus auritus	13.00	92	2.32	
Pterothrissus belloti	12.92	136	2.30	
Hoplostethus mediterraneus	3.88	4	0.69	
Grammolites gruvelli	3.84	56	0.68	
Brotula barbata	3.68	4	0.66	
Zeus faber	3.44	8	0.61	
Parapanaeus longirostris	3.08	44	0.55	
Trigla lyra	3.04	24	0.54	
Uranoscopus polli	1.80	16	0.32	
Chlorophthalmus atlanticus	1.32	56	0.24	
Dibranchus atlanticus	0.96	40	0.17	
Pontinus accraensis	0.56	4	0.10	
Merluccius polli	0.52	8	0.09	
Sepia orbignyana	0.52	24	0.09	
Todarodes sagittatus	0.40	4	0.07	
Peristedion cataphractum	0.16	8	0.03	
Total	561.04		99.98	

PROJECT STATION: 474
 DATE: 28/ 3/95 GEAR TYPE: BT No:1 POSITION: Lat S 1028 Long E 1308
 start stop duration
 TIME :11:25:00 11:30:00 5 (min) Purpose code: 3
 LOG :7551.60 7551.80 0.20 Area code : 2
 FDEPTH: 153 154 GearCond.code:
 BDEPTH: 153 154 Validity code: 9
 Towing dir: 323° Wire out: 450 m Speed: 3 kn*10

Sorted: 2 Kg Total catch: 2.85 CATCH/HOUR: 34.20

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Dentex angolensis	32.52	96	95.09	1160
Dentex macrophthalmus	1.56	36	4.56	
Sepia bertheloti	0.12	24	0.35	
Total	34.20		100.00	

PROJECT STATION: 475
 DATE: 28/ 3/95 GEAR TYPE: BT No:1 POSITION: Lat S 1029 Long E 1309
 start stop duration
 TIME :12:30:00 13:00:00 30 (min) Purpose code: 3
 LOG :7556.70 7557.80 1.10 Area code : 2
 FDEPTH: 129 126 GearCond.code:
 BDEPTH: 129 126 Validity code:
 Towing dir: * Wire out: 300 m Speed: 3 kn*10

Sorted: 37 Kg Total catch: 425.78 CATCH/HOUR: 851.56

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Brachydeuterus auritus	760.10	6462	89.26	
Raja miraletus	27.50	44	3.23	
Dentex angolensis	13.02	92	1.53	1162
Dentex macrophthalmus	12.64	72	1.48	1161
Lepidotrigla carolae	10.12	44	1.19	
Trachurus trecae	8.36	44	0.98	
Cynoglossus canariensis	7.48	44	0.88	
Lepidotrigla cadmani	5.50	22	0.65	
Pagellus bellottii	3.32	34	0.39	1163
Pagrus pagrus	2.22	2	0.26	
Dentex barnardi	0.66	2	0.08	
Dentex canariensis	0.64	2	0.08	
Saurida brasiliensis	0.00	22		
Total	851.56		100.01	

PROJECT STATION: 476
 DATE: 28/ 3/95 GEAR TYPE: BT No:1 POSITION: Lat S 1024 Long E 1321
 start stop duration
 TIME :14:40:00 15:10:00 30 (min) Purpose code: 3
 LOG :7571.80 7573.10 1.30 Area code : 2
 FDEPTH: 71 67 GearCond.code:
 BDEPTH: 71 67 Validity code:
 Towing dir: * Wire out: 200 m Speed: 3 kn*10

Sorted: 77 Kg Total catch: 77.04 CATCH/HOUR: 154.08

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Stromateus fiatola	52.00	46	33.75	
Selene dorsalis	48.90	126	31.74	1164
Trichiurus lepturus	13.44	38	8.72	
Alectis alexandrinus	8.00	2	5.19	
Pagellus bellottii	7.72	34	5.01	1165
Sphyræna guaciancho	6.84	8	4.44	
Brachydeuterus auritus	5.90	80	3.83	
Decapterus rhonchus	4.90	6	3.18	
Trachurus trecae	2.64	6	1.71	
Chloroscombrus chrysurus	1.54	6	1.00	
Trachurus trecae, juvenile	0.82	32	0.53	1166
Fistularia petimba	0.82	2	0.53	
Alloteuthis africana	0.52	26	0.34	
Citharus linguatula	0.02	2	0.01	
Peristedion cataphractum	0.02	2	0.01	
Saurida brasiliensis	0.00	2		
Total	154.08		99.99	

PROJECT STATION: 477
 DATE: 28/ 3/95 GEAR TYPE: BT No:1 POSITION: Lat S 1014 Long E 1320
 start stop duration
 TIME :16:05:00 16:35:00 30 (min) Purpose code: 3
 LOG :7580.80 7581.70 0.90 Area code : 2
 FDEPTH: 42 38 GearCond.code:
 BDEPTH: 42 38 Validity code:
 Towing dir: 350° Wire out: 150 m Speed: 32 kn*10
 Sorted: 74 Kg Total catch: 74.18 CATCH/HOUR: 148.36

PROJECT STATION: 480
 DATE: 28/ 3/95 GEAR TYPE: BT No:1 POSITION: Lat S 1009 Long E 1302
 start stop duration
 TIME :20:50:00 21:20:00 30 (min) Purpose code: 3
 LOG :7610.30 7611.90 1.60 Area code : 2
 FDEPTH: 100 100 GearCond.code:
 BDEPTH: 100 100 Validity code:
 Towing dir: 160° Wire out: 300 m Speed: 3 kn*10
 Sorted: 133 Kg Total catch: 133.08 CATCH/HOUR: 266.16

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Galeoides decadactylus	71.90	100	48.46	
Alectis alexandrinus	20.80	12	14.02	
Sphyræna guachancho	20.48	42	13.80	
Selene dorsalis	15.70	28	10.58	
Sphyræna sphyraena	5.16	16	3.48	
Trachurus trecae	4.46	18	3.01	
Raja miraletus	3.48	4	2.35	
Epinephelus aeneus	3.22	2	2.17	
Pagellus bellottii	1.36	6	0.92	
Dicologlossa cuneata	1.06	2	0.71	
Alloteuthis africana	0.74	92	0.50	
Total	148.36		100.00	

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Pagellus bellottii	64.50	944	24.23	1172
Umbrina canariensis	49.80	132	18.71	1171
Chelidonichthys gabonensis	27.20	236	10.22	
Lepidotrigla cadmani	24.20	206	9.09	
Lepidotrigla carolae	20.30	588	7.63	
Dentex macrophthalmus	13.44	56	5.05	1174
Brotula barbata	11.20	22	4.21	
Brachydeuterus auritus	10.40	100	3.91	
Dentex canariensis	5.36	8	2.01	
Raja miraletus	5.30	18	1.99	
Sepia orbignyana	4.06	84	1.53	
Uranoscopus polli	3.80	22	1.43	
Dentex angolensis	3.60	38	1.35	1175
Citharus linguatula	3.50	136	1.31	
Brotula sp.	3.14	216	1.18	
Trachurus trecae	3.02	58	1.13	1173
Atractoscion aequidens	2.62	2	0.98	
MURAENIDAE	2.46	106	0.92	
Trichiurus lepturus	2.10	4	0.79	
Sepia officinalis hierreda	1.62	18	0.61	
Zeus faber	1.60	4	0.60	
Scorpaena sp.	1.08	2	0.41	
Pagrus caeruleostictus	0.58	6	0.22	
Sardinella maderensis	0.56	2	0.21	
Dentex gibbosus	0.50	2	0.19	
Saurida brasiliensis	0.22	34	0.08	
Total	266.16		99.99	

PROJECT STATION: 478
 DATE: 28/ 3/95 GEAR TYPE: BT No:1 POSITION: Lat S 1008 Long E 1318
 start stop duration
 TIME :17:23:00 17:53:00 30 (min) Purpose code: 3
 LOG :7587.10 7588.60 1.50 Area code : 2
 FDEPTH: 24 20 GearCond.code:
 BDEPTH: 24 20 Validity code:
 Towing dir: 300° Wire out: 120 m Speed: 3 kn*10
 Sorted: 90 Kg Total catch: 89.98 CATCH/HOUR: 179.96

PROJECT STATION: 481
 DATE: 28/ 3/95 GEAR TYPE: BT No:1 POSITION: Lat S 1009 Long E 1252
 start stop duration
 TIME :23:10:00 23:40:00 30 (min) Purpose code: 3
 LOG :7625.00 7626.30 1.30 Area code : 2
 FDEPTH: 428 402 GearCond.code:
 BDEPTH: 428 402 Validity code:
 Towing dir: 340° Wire out: 1200 m Speed: 3 kn*10
 Sorted: 21 Kg Total catch: 171.70 CATCH/HOUR: 343.40

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Galeoides decadactylus	33.80	30	18.78	
Brachydeuterus auritus	26.00	254	14.45	
Alectis alexandrinus	19.40	14	10.78	
Sardinella maderensis	15.00	74	8.34	1167
Trachinotus ovatus	14.40	240	8.00	
Pomadasy s peroteti	14.30	30	7.95	
Sphyræna guachancho	10.96	22	6.09	
Pagellus bellottii	9.86	38	5.48	1168
Arius parkii	9.70	14	5.39	
Pomadasy incisus	8.14	30	4.52	
Selene dorsalis	4.44	74	2.47	
Pseudotolithus senegalensis	3.06	6	1.70	
Raja miraletus	2.54	4	1.41	
Chloroscombrus chrysurus	1.24	10	0.69	
Sphyræna guachancho	1.18	34	0.66	
Trachinotus goreensis	1.00	2	0.56	
Shrimps, small, non comm.	0.86	688	0.48	
Lithognathus mormyrus	0.84	2	0.47	
Hemiramphus balao	0.58	4	0.32	
Bucinosomus melanopterus	0.50	10	0.28	
Cynoglossus canariensis	0.50	2	0.28	
Sphyræna sphyraena	0.46	2	0.26	
Decapterus rhonchus	0.44	2	0.24	
Pennaeus notialis	0.32	6	0.18	
Brachydeuterus auritus	0.24	206	0.13	
Pegusa lascaris	0.10	10	0.06	
Alloteuthis africana	0.10	34	0.06	
Total	179.96		100.03	

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Nematocarcinus africanus	175.00	45878	50.96	
Merluccius polli	122.50	378	35.67	1178
Lophius vailanti	13.00	10	3.79	
Chaunax pictus	7.00	40	2.04	
Deania profundorum	6.50	2	1.89	
Benthodesmus tenuis	4.80	190	1.40	
Aristeus varidens, female	4.50	250	1.31	1177
Laemonema laureysi	2.90	40	0.84	
Etmopterus pusillus	1.70	60	0.50	
Trichiurus lepturus	1.40	10	0.41	
Dibranchius atlanticus	1.40	80	0.41	
Coelorrhinus coelorrhinus	0.70	50	0.20	
Diplophus sp.	0.50	90	0.15	
Hoplostethus cadenati	0.40	20	0.12	
Hymenocephalus italicus	0.40	60	0.12	
Aristeus varidens, male	0.34	48	0.10	1176
Chaceon maritae	0.26	2	0.08	
Halosaurus ovenii	0.10	20	0.03	
Total	343.40		100.02	

PROJECT STATION: 479
 DATE: 28/ 3/95 GEAR TYPE: BT No:1 POSITION: Lat S 1007 Long E 1313
 start stop duration
 TIME :18:37:00 19:07:00 30 (min) Purpose code: 3
 LOG :7593.60 7595.40 1.80 Area code : 2
 FDEPTH: 53 57 GearCond.code:
 BDEPTH: 53 57 Validity code:
 Towing dir: 160° Wire out: 200 m Speed: 3 kn*10
 Sorted: 66 Kg Total catch: 1525.25 CATCH/HOUR: 3050.50

PROJECT STATION: 482
 DATE: 29/ 3/95 GEAR TYPE: PT No:2 POSITION: Lat S 952 Long E 1305
 start stop duration
 TIME :04:20:00 04:35:00 15 (min) Purpose code: 1
 LOG :7656.00 7657.30 1.30 Area code : 2
 FDEPTH: 10 10 GearCond.code:
 BDEPTH: 63 66 Validity code:
 Towing dir: 240° Wire out: 120 m Speed: 32 kn*10
 Sorted: 126 Kg Total catch: 126.22 CATCH/HOUR: 504.88

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Brachydeuterus auritus	2580.60	43616	84.60	
Pomadasy incisus	62.48	264	2.05	
Cynoponticus ferox	59.40	88	1.95	
Stromateus fiatola	48.20	56	1.58	
Sphyræna guachancho	42.36	88	1.39	
Trachurus trecae	37.40	220	1.23	
Pseudotolithus senegalensis	32.70	28	1.07	
Pagellus bellottii	32.00	146	1.05	1169
Arius parkii	25.08	44	0.82	
Dicologlossa cuneata	24.64	132	0.81	
Cynoglossus canariensis	16.28	132	0.53	
Trichiurus lepturus	15.84	44	0.52	
Pennaeus notialis	14.52	352	0.48	
Grammoplites gruvelli	13.64	748	0.45	
Miracorvina angolensis	9.80	20	0.32	
Octopus vulgaris	6.16	44	0.20	
Pomadasy jubelini	5.60	14	0.18	
Citharus linguatula	4.40	88	0.14	
Umbrina canariensis	4.40	44	0.14	
Pegusa lascaris	3.68	352	0.12	
Raja miraletus	3.46	8	0.11	
Galeoides decadactylus	3.10	10	0.10	
Dentex canariensis	2.48	20	0.08	
Sardinella maderensis	1.64	8	0.05	1170
Sardinella aurita	0.64	2	0.02	
Total	3050.50		99.99	

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Selene dorsalis	274.00	700	54.27	
Sardinella maderensis	203.20	932	40.25	1179
Sphyræna guachancho	13.28	12	2.63	
Caranx crysos	9.32	8	1.85	
Trichiurus lepturus	2.24	4	0.44	
Trachinotus ovatus	1.48	4	0.29	
Sardinella aurita	1.36	4	0.27	
Total	504.88		100.00	

PROJECT STATION: 483
 DATE: 29/ 3/95 GEAR TYPE: BT No:1 POSITION: Lat S 949 Long E 1312
 start stop duration
 TIME :06:00:00 06:30:00 30 (min) Purpose code: 3
 LOG :7666.90 7668.30 1.40 Area code : 2
 FDEPTH: 20 22 GearCond.code:
 BDEPTH: 20 22 Validity code:
 Towing dir: 360° Wire out: 100 m Speed: kn*10
 Sorted: 66 Kg Total catch: 377.73 CATCH/HOUR: 755.46

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Sphyræna guachancho	231.56	452	30.65	
Galeoides decadactylus	222.20	638	29.41	
Brachydeuterus auritus	162.25	1464	21.48	
Chloroscombrus chrysurus	60.50	430	8.01	
Trichiurus lepturus	29.04	78	3.84	
Alectis alexandrinus	13.20	8	1.75	
Lithognathus mormyrus	11.20	34	1.48	
Selene dorsalis	9.90	166	1.31	
Pseudotolithus senegalensis	8.56	10	1.13	
Pagellus bellottii	2.68	10	0.35	
Sardinella maderensis	2.58	12	0.34	1180
Bucinosomus melanopterus	1.44	34	0.19	
Sardinella maderensis	0.22	22	0.03	
Trachurus trecae, juvenile	0.12	110	0.02	
Total	755.46		99.99	

PROJECT STATION: 484
 DATE:29/ 3/95 GEAR TYPE: BT No:1 POSITION:Lat S 948 Long E 1308
 start stop duration
 TIME :07:17:00 07:33:00 16 (min) Purpose code: 3
 LOG :7673.30 7674.20 0.90 Area code : 2
 FDEPTH: 39 38 GearCond.code:
 BDEPTH: 39 38 Validity code:
 Towing dir: 160° Wire out: 150 m Speed: 3 kn*10

PROJECT STATION: 488
 DATE:29/ 3/95 GEAR TYPE: BT No:1 POSITION:Lat S 948 Long E 1249
 start stop duration
 TIME :15:40:00 16:10:00 30 (min) Purpose code: 3
 LOG :7723.90 7724.50 0.60 Area code : 2
 FDEPTH: 227 224 GearCond.code:
 BDEPTH: 227 224 Validity code:
 Towing dir: 20° Wire out: 700 m Speed: 3 kn*10

Sorted: 65 Kg Total catch: 64.60 CATCH/HOUR: 242.25

Sorted: 32 Kg Total catch: 134.00 CATCH/HOUR: 268.00

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP
weight numbers			
Galeoides decadactylus	145.88	446	60.22
Pagellus bellottii	25.91	225	10.70
Lithognathus morumyrus	24.00	56	9.91
Epinephelus aeneus	19.13	15	7.90
Dentex gibbosus	6.15	19	2.54
Pomadasys jubelini	5.70	8	2.35
Pagrus caeruleostictus	5.55	11	2.29
Sphyræna guachancho	1.91	4	0.79
Trichurus lepturus	1.84	4	0.76
Selene dorsalis	1.54	8	0.64
Decapterus rhonchus	1.39	8	0.57
Chaetodon hoefleri	1.35	8	0.56
Alloteuthis africana	0.86	236	0.36
Pomadasys incisus	0.53	4	0.22
Citharus linguatula	0.53	11	0.22
Total	242.27		100.03

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP
weight numbers			
Synagrops microlepis	170.10	896	63.47
Dentex angolensis	23.80	70	8.88
Grammolites gruvelli	12.04	126	4.49
Brotula barbata	9.28	8	3.46
Zeus faber	7.90	56	2.95
Chlorophthalmus atlanticus	6.86	386	2.56
Trichurus lepturus	6.16	8	2.30
Uranoscopus polli	4.48	22	1.67
Merluccius polli	4.34	50	1.62
Coelorinchus coelorhincus	4.26	84	1.59
Dentex macrophthalmus	3.04	24	1.13
Illux caoindetii	3.00	6	1.12
Pterothrissus bellocci	2.66	6	0.99
Beryx splendens	1.96	6	0.73
Hymenocephalus italicus	1.82	22	0.68
Citharus linguatula	1.74	14	0.65
Parapenaeus longirostris, fem.	1.74	322	0.65
Sepia bertheloti	1.54	14	0.57
Parapenaeus longirostris, male	1.28	272	0.48
Total	268.00		99.99

PROJECT STATION: 485
 DATE:29/ 3/95 GEAR TYPE: BT No:1 POSITION:Lat S 948 Long E 1305
 start stop duration
 TIME :08:35:00 09:05:00 30 (min) Purpose code: 3
 LOG :7679.20 7680.50 1.30 Area code : 2
 FDEPTH: 64 64 GearCond.code:
 BDEPTH: 64 64 Validity code:
 Towing dir: 340° Wire out: 250 m Speed: 3 kn*10

Sorted: 71 Kg Total catch: 70.55 CATCH/HOUR: 141.10

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP
weight numbers			
Pagellus bellottii	58.20	272	41.25
Decapterus rhonchus	27.40	78	19.42
Lithognathus morumyrus	17.80	34	12.52
Alectis alexandrinus	15.00	6	10.63
Selene dorsalis	10.64	38	7.54
Chelidonichthys gabonensis	3.38	28	2.40
Caranx crysos	2.74	2	1.94
Sphyræna guachancho	2.58	4	1.83
Raja miraletus	1.36	2	0.96
Sardinella aurita	0.74	2	0.52
Pseudupeneus prayensis	0.38	2	0.27
Chaetodon hoefleri	0.30	2	0.21
Dentex canariensis	0.26	2	0.18
Alloteuthis africana	0.26	88	0.18
Saurida brasiliensis	0.06	6	0.04
Total	141.10		99.99

PROJECT STATION: 489
 DATE:29/ 3/95 GEAR TYPE: BT No:1 POSITION:Lat S 951 Long E 1248
 start stop duration
 TIME :17:35:00 18:05:00 30 (min) Purpose code: 3
 LOG :7732.90 7734.30 1.40 Area code : 2
 FDEPTH: 346 349 GearCond.code:
 BDEPTH: 346 349 Validity code:
 Towing dir: 360° Wire out:1000 m Speed: 3 kn*10

Sorted: 253 Kg Total catch: 253.30 CATCH/HOUR: 506.60

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP
weight numbers			
Carcharhinus limbatus	320.00	4	63.17
Merluccius polli	143.20	806	28.27
Laemonema laureysi	12.70	176	2.51
Malacocephalus occidentalis	11.40	64	2.25
GONOSTOMATIDAE	2.34	68	0.46
Hymenocephalus italicus	2.06	314	0.41
Chaunax pictus	1.96	38	0.39
Zenopsis conchifer	1.86	10	0.37
MURAENESOCIDAE	1.68	34	0.33
Dibranchius atlanticus	1.64	114	0.32
Benthodesmus tenuis	1.48	75	0.29
Pterothrissus bellocci	1.26	10	0.25
Nezumia sp.	1.20	25	0.20
Aristeus varidens, female	0.90	98	0.18
Synagrops microlepis	0.76	56	0.15
Lophiodes sp.	0.56	8	0.11
MYCTOPHIDAE	0.54	104	0.11
Stomopterus pusillus	0.46	14	0.09
Raja clavata	0.40	2	0.08
Aristeus varidens, male	0.24	36	0.05
Parapenaeus longirostris	0.12	18	0.02
Solenocera africana	0.04	12	0.01
Total	506.60		100.02

PROJECT STATION: 486
 DATE:29/ 3/95 GEAR TYPE: BT No:1 POSITION:Lat S 950 Long E 1257
 start stop duration
 TIME :10:15:00 10:45:00 30 (min) Purpose code: 3
 LOG :7689.60 7691.40 1.80 Area code : 2
 FDEPTH: 102 104 GearCond.code:
 BDEPTH: 102 104 Validity code:
 Towing dir: 180° Wire out: 350 m Speed: 3 kn*10

Sorted: 58 Kg Total catch: 129.12 CATCH/HOUR: 258.24

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP
weight numbers			
Brachydeuterus auritus	67.20	480	26.02
Lepidotrigla carolae	54.36	432	21.05
Pagellus bellottii	39.84	468	15.43
Dentex angolensis	36.60	504	14.17
Rhinobatos albomaculatus	15.90	4	6.16
Lepidotrigla cadmani	12.96	124	5.02
Sepia officinalis hierredda	9.62	8	3.73
Citharus linguatula	5.04	172	1.95
Decapterus rhonchus	4.28	16	1.66
Zeus faber	3.76	12	1.46
Trichurus lepturus	2.40	4	0.93
Trachurus trecae, juvenile	2.24	132	0.87
Trachurus trecae	2.04	4	0.79
Raja miraletus	1.96	4	0.76
Alloteuthis africana	0.04	48	0.02
Total	258.24		100.02

PROJECT STATION: 490
 DATE:29/ 3/95 GEAR TYPE: BT No:1 POSITION:Lat S 948 Long E 1244
 start stop duration
 TIME :20:16:00 20:46:00 30 (min) Purpose code: 3
 LOG :7745.90 7747.70 1.80 Area code : 2
 FDEPTH: 466 454 GearCond.code:
 BDEPTH: 466 454 Validity code:
 Towing dir: 135° Wire out:1200 m Speed: 3 kn*10

Sorted: 13 Kg Total catch: 126.19 CATCH/HOUR: 252.38

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP
weight numbers			
Merluccius polli	135.20	340	53.57
Lophiodes sp.	30.72	8	12.17
Laemonema laureysi	18.08	304	7.16
Hymenocephalus italicus	12.60	704	5.07
Deania profundorum	10.08	16	3.99
Aristeus varidens, female	9.36	1144	3.71
Stomopterus pusillus	6.24	54	2.47
Chaunax pictus	5.36	56	2.12
Lamprogammarus exutus	3.92	16	1.55
Nematocarcinus africanus	3.36	2800	1.33
Aristeus varidens, male	2.94	556	1.16
Trichurus lepturus	2.40	4	0.95
Malacocephalus laevis	2.00	48	0.79
Nezumia sp.	1.60	32	0.63
Dibranchius atlanticus	1.28	88	0.51
SERGESTIDAE	0.96	24	0.38
Plesioipeneus edwardsianus	0.96	16	0.38
Triplophos sp.	0.96	384	0.38
Yarrella blackfordi	0.88	32	0.35
Benthodesmus tenuis	0.72	32	0.29
Hoplostethus cadenati	0.64	96	0.25
MYCTOPHIDAE	0.64	784	0.25
MURAENESOCIDAE	0.48	32	0.19
ASTRONESTHIDAE	0.32	56	0.13
Plesionika martia	0.24	208	0.10
Stereomastis sculpta	0.24	32	0.10
Total	252.38		99.98

PROJECT STATION: 487
 DATE:29/ 3/95 GEAR TYPE: BT No:1 POSITION:Lat S 940 Long E 1204
 start stop duration
 TIME :13:30:00 14:00:00 30 (min) Purpose code: 3
 LOG :7710.20 7711.90 1.70 Area code : 2
 FDEPTH: 172 147 GearCond.code:
 BDEPTH: 172 147 Validity code:
 Towing dir: 135° Wire out: 500 m Speed: 32 kn*10

Sorted: 67 Kg Total catch: 1213.83 CATCH/HOUR: 2427.66

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP
weight numbers			
Spicara alta	1679.40	19714	69.18
Dentex angolensis	324.00	936	13.35
Dentex macrophthalmus	140.40	1260	5.78
Anthias anthias	65.88	900	2.71
Zenopsis conchifer	46.80	36	1.93
Scorpaena normani	31.68	72	1.30
Zeus faber	24.48	36	1.01
Pterothrissus bellocci	21.24	72	0.87
Grammolites gruvelli	18.00	108	0.74
Synagrops microlepis	12.96	648	0.53
Sepia elegans	12.60	72	0.52
Chelidonichthys capensis	12.24	36	0.50
Peristedion cataphractum	9.00	72	0.37
Citharus linguatula	9.00	36	0.37
Chlorophthalmus atlanticus	8.28	72	0.34
Rhinobatos albomaculatus	6.60	2	0.27
Brotula barbata	5.10	2	0.21
Total	2427.66		99.98

PROJECT STATION: 491
 DATE:30/ 3/95 GEAR TYPE: BT No:1 POSITION:Lat S 956 Long E 1243
 start stop duration
 TIME :00:30:00 01:10:00 40 (min) Purpose code: 3
 LOG :7773.90 7795.40 1.50 Area code : 2
 FDEPTH: 340 303 GearCond.code: 2
 BDEPTH: 340 303 Validity code:
 Towing dir: 340° Wire out:1800 m Speed: 3 kn*10
 Sorted: 29 Kg Total catch: 29.04 CATCH/HOUR: 43.56

PROJECT STATION: 494
 DATE:30/ 3/95 GEAR TYPE: BT No:1 POSITION:Lat S 934 Long E 1257
 start stop duration
 TIME :09:24:00 09:54:00 30 (min) Purpose code: 3
 LOG :7833.90 7835.80 1.90 Area code : 2
 FDEPTH: 80 80 GearCond.code: 2
 BDEPTH: 80 80 Validity code:
 Towing dir: 160° Wire out: 300 m Speed: 3 kn*10
 Sorted: 67 Kg Total catch: 596.60 CATCH/HOUR: 1193.20

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP
	weight numbers		
Deepwater fish mixture	7.65	99	17.56
MELANOSTOMIATIDAE	6.84	135	15.70
Coelorinchus coelorhynchus	4.77	96	10.95
Diplophos sp.	4.38	144	10.06
Stereomastix sculpta	2.40	102	5.51
OCTOPOTEUTHIDAE	2.25	9	5.17
Cruriraja parvumaculata	1.92	9	4.41
ALEPOCEPHALIDAE	1.67	12	3.83
Hoplostethus cadenati	1.53	36	3.51
Aristeus varidens, female	1.02	48	2.34
Dibranchius atlanticus	0.96	48	2.20
OPHIDIIDAE	0.90	27	2.07
Merluccius polli	0.87	2	2.00
Laemonema laureysi	0.81	48	1.86
Triplophos sp.	0.78	99	1.79
Melanostomias sp.	0.72	45	1.65
Bathypterois sp.	0.63	66	1.45
Bathyrcongus sp.	0.57	9	1.31
GONOSTOMATIDAE	0.51	33	1.17
Talissmania longifilis	0.48	12	1.10
Dibranchius sp.	0.33	12	0.76
Aristeus varidens, male	0.32	38	0.73
PASIPHAGIDAE	0.30	17	0.69
MURAENESOCIDAE	0.27	6	0.62
Nezumia sp.	0.27	6	0.62
Halosaurus ovenii	0.27	3	0.62
Galeus polli	0.12	3	0.28
Glyphus marsupialis	0.03	8	0.07
Total	43.57	100.03	

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP
	weight numbers		
Brachydeuterus auritus	759.90	7396	63.69
Trichiurus lepturus	172.56	272	14.46
Trachurus trecae	69.20	834	5.80
Trachurus trecae, juvenile	31.28	2364	2.62
Zeus faber	24.14	86	2.02
Dentex angolensis	21.00	246	1.76
Branchiostegus semifasciatus	19.90	714	1.67
Sepia orbignyana	17.06	18	1.43
Selene dorsalis	14.28	52	1.20
Chelidonicichthys gabonensis	13.60	102	1.14
Pagellus bellottii	10.70	116	0.90
Dentex gibbosus	9.36	34	0.78
Umbrina canariensis	7.98	34	0.67
Dentex canariensis	7.60	42	0.64
Seriola carpenteri	3.48	2	0.29
Citharus linguatula	3.40	102	0.28
Saurida brasiliensis	2.38	1514	0.20
Uranoscopus polli	2.04	18	0.17
Octopus vulgaris	1.12	2	0.09
Raja miraletus	1.02	18	0.09
Parapenaeus longirostris	0.86	102	0.07
Alloteuthis africana	0.34	170	0.03
Total	1193.20	100.00	

PROJECT STATION: 492
 DATE:30/ 3/95 GEAR TYPE: BT No:1 POSITION:Lat S 933 Long E
 start stop duration
 TIME :05:38:00 05:58:00 20 (min) Purpose code: 3
 LOG :7809.90 7810.90 1.00 Area code : 2
 FDEPTH: 20 21 GearCond.code: 2
 BDEPTH: 20 21 Validity code:
 Towing dir: 335° Wire out: 100 m Speed: 3 kn*10
 Sorted: 47 Kg Total catch: 46.51 CATCH/HOUR: 139.53

PROJECT STATION: 495
 DATE:30/ 3/95 GEAR TYPE: BT No:1 POSITION:Lat S 937 Long E 1254
 start stop duration
 TIME :10:49:00 11:20:00 31 (min) Purpose code: 3
 LOG :7841.50 7842.50 1.00 Area code : 2
 FDEPTH: 103 104 GearCond.code: 2
 BDEPTH: 103 104 Validity code:
 Towing dir: 330° Wire out: 330 m Speed: 3 kn*10
 Sorted: 59 Kg Total catch: 125.42 CATCH/HOUR: 242.75

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP
	weight numbers		
Chloroscombrus chrysurus	75.60	135	54.18
Pagellus bellottii	20.82	87	14.92
Sphyræna guachancho	18.45	39	13.22
Alectis alexandrinus	6.63	3	4.75
Pomadasys jubelini	5.55	6	3.98
Caranx crysos	2.82	3	2.02
Torpedo marmorata	2.43	3	1.74
Caranx senegalensis	2.04	3	1.46
Cynoglossus canariensis	1.41	6	1.01
Dasycottus marginatus	0.99	3	0.71
Decapterus rhonchus	0.72	12	0.52
Trachinocephalus myops	0.60	3	0.43
Sardinella maderensis	0.57	3	0.41
Selene dorsalis	0.36	9	0.26
Syacium micrurum	0.33	3	0.24
Pegusa lascaris	0.21	3	0.15
Total	139.53	100.00	

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP
	weight numbers		
Brachydeuterus auritus	96.77	735	39.86
Trachurus trecae, juvenile	34.45	1413	14.19
Dentex angolensis	22.92	263	9.44
Trachurus trecae	18.04	151	7.43
Pagellus bellottii	10.95	116	4.51
Sarda sarda	10.61	6	4.37
Zeus faber	9.29	31	3.83
Lepidotrigla cadmani	9.20	62	3.75
Lepidotrigla carolae	4.22	77	1.74
Raja miraletus	3.83	8	1.58
Trichiurus lepturus	3.56	4	1.47
Citharus linguatula	3.21	66	1.32
Saurida brasiliensis	2.71	410	1.12
Selene dorsalis	2.25	4	0.93
Pontinus accraensis	2.05	12	0.84
Dentex canariensis	2.01	8	0.83
Branchiostegus semifasciatus	1.94	2	0.80
Grammolites gruvelli	1.43	8	0.59
Scorpaena angolensis	1.39	4	0.57
Peristedion cataphractum	1.24	8	0.51
Sepia bertheloti	0.77	12	0.32
Total	242.74	100.00	

PROJECT STATION: 493
 DATE:30/ 3/95 GEAR TYPE: BT No:1 POSITION:Lat S 934 Long E 1257
 start stop duration
 TIME :08:07:00 08:37:00 30 (min) Purpose code: 3
 LOG :7829.10 7830.60 1.50 Area code : 2
 FDEPTH: 66 66 GearCond.code: 2
 BDEPTH: 66 66 Validity code:
 Towing dir: 270° Wire out: 250 m Speed: 3 kn*10
 Sorted: 107 Kg Total catch: 106.96 CATCH/HOUR: 213.92

PROJECT STATION: 496
 DATE:30/ 3/95 GEAR TYPE: BT No:1 POSITION:Lat S 937 Long E 1247
 start stop duration
 TIME :12:40:00 13:10:00 30 (min) Purpose code: 3
 LOG :7851.50 7853.50 2.00 Area code : 2
 FDEPTH: 168 179 GearCond.code: 2
 BDEPTH: 168 179 Validity code:
 Towing dir: 150° Wire out: 480 m Speed: 3 kn*10
 Sorted: 60 Kg Total catch: 150.61 CATCH/HOUR: 301.22

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP
	weight numbers		
Trichiurus lepturus	46.10	130	21.55
Brachydeuterus auritus	37.30	470	17.44
Selene dorsalis	32.00	158	14.96
Pagellus bellottii	28.50	218	13.37
Chelidonicichthys gabonensis	10.52	124	4.92
Umbrina canariensis	6.80	44	3.18
Dentex canariensis	6.64	62	3.10
Epinephelus aeneus	6.60	4	3.09
Lithognathus mormyrus	5.40	8	2.52
Sphyræna sphyraena	4.60	34	2.15
Galeoides decadactylus	3.80	24	1.78
Brotula barbata	3.00	2	1.40
Sepia officinalis hierredda	2.68	6	1.25
Trachurus trecae	2.42	16	1.13
Octopus vulgaris	2.40	6	1.12
Stromateus fiatola	2.38	2	1.11
Argyrosomus hololepidotus	2.30	4	1.08
Pomadasys incisus	2.12	10	0.99
Chloroscombrus chrysurus	1.84	12	0.86
Decapterus rhonchus	0.96	2	0.45
Chaetodon hoefleri	0.70	6	0.33
Trachurus trecae, juvenile	0.68	56	0.32
Saurida brasiliensis	0.64	150	0.30
Squatina aculeata	0.62	2	0.29
Dentex angolensis	0.60	28	0.28
Sphyræna guachancho	0.60	2	0.28
Branchiostegus semifasciatus	0.42	2	0.20
Sardinella maderensis	0.38	2	0.18
Sepia orbignyana	0.30	6	0.14
Citharus linguatula	0.28	10	0.13
Alloteuthis africana	0.16	48	0.07
Parapenaeus longirostris	0.08	12	0.04
Total	213.92	100.01	

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP
	weight numbers		
Dentex macrophthalmus	143.24	1340	47.55
Trichiurus lepturus	52.50	140	17.43
Pterotrissus bellocci	42.64	360	14.16
Dentex angolensis	25.14	126	8.35
Zenopsis conchifer	11.40	70	3.78
Grammolites gruvelli	7.44	96	2.47
Torpedo marmorata	4.64	6	1.54
Chelidonicichthys gabonensis	3.40	30	1.13
Raja miraletus	2.70	6	0.90
Scorpaena angolensis	2.50	30	0.83
Uranoscopus cadenati	1.44	10	0.48
Parapenaeus longirostris, fem.	1.24	210	0.41
Illex coindetii	1.00	26	0.33
Synagrops microlepis	0.60	106	0.20
Saurida brasiliensis	0.50	126	0.17
Sepia bertheloti	0.40	36	0.13
Citharus linguatula	0.34	16	0.11
Parapenaeus longirostris, male	0.10	30	0.03
Total	301.22	100.00	

PROJECT STATION: 497
 DATE: 30/ 3/95 GEAR TYPE: BT No:1 POSITION: Lat S 938 Long E 1244
 start stop duration
 TIME :14:00:00 14:30:00 30 (min) Purpose code: 3
 LOG :7857.50 7858.70 1.20 Area code : 2
 FDEPTH: 241 276 GearCond.code:
 BDEPTH: 241 276 Validity code:
 Towing dir: 330° Wire out: 700 m Speed: 32 kn*10
 Sorted: 31 Kg Total catch: 534.56 CATCH/HOUR: 1069.12

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Synagrops microlepis	649.40	36074	60.74	
Chlorophthalmus atlanticus	224.40	4556	20.99	
Zenopsis conchifer	81.26	476	7.60	
Merluccius polli	55.78	748	5.31	1220
Trichiurus lepturus	24.48	34	2.29	
Peristedion cataphractum	10.20	68	0.95	
Coelorrinchus coelorrhincus	9.86	102	0.92	
Dentex angolensis	4.58	10	0.43	1216
Parapenaeus longirostris, fem.	3.16	388	0.30	1218
Parapenaeus longirostris, male	2.16	236	0.20	1217
Dentex macropthalmus	1.60	10	0.15	1219
Parapandalus narval	1.18	94	0.11	
Solenocera africana	0.06	6	0.01	
Total	1069.12		100.00	

PROJECT STATION: 498
 DATE: 30/ 3/95 GEAR TYPE: BT No:1 POSITION: Lat S 937 Long E 1241
 start stop duration
 TIME :15:45:00 16:15:00 30 (min) Purpose code: 3
 LOG :7865.50 7867.10 1.60 Area code : 2
 FDEPTH: 449 397 GearCond.code:
 BDEPTH: 449 397 Validity code:
 Towing dir: 20° Wire out:1300 m Speed: 32 kn*10
 Sorted: 89 Kg Total catch: 241.24 CATCH/HOUR: 482.48

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Merluccius polli	209.40	616	43.40	1221
Laemonema laureysi	44.28	532	9.18	
Etmopterus pusillus	30.34	940	6.29	
Aristeus varidens, female	25.54	5692	5.29	1223
Plesionika martia	23.20	2224	4.81	
Nematocarcinus africanus	22.42	5066	4.65	
Pterothrissus bellocci	16.74	86	3.47	
Trichiurus lepturus	15.66	38	3.25	
Dibranchus atlanticus	12.86	220	2.67	
Nemichthys scolopaceus	12.16	374	2.52	
Hymenoccephalus italicus	11.72	1544	2.43	
Coelorrinchus coelorrhincus	10.16	226	2.11	
Chaunax pictus	8.26	108	1.71	
Centrophorus uyato	7.40	2	1.53	
Benthodesmus tenuis	6.38	270	1.32	
Aristeus varidens, male	6.00	1128	1.24	1222
Synagrops microlepis	4.42	346	0.92	
MURAENESOCIDAE	3.30	102	0.68	
Hoplostethus cadenati	1.90	118	0.39	
Etmopterus polli	1.84	22	0.38	
Zenopsis conchifer	1.78	6	0.37	
OCTOPOTUTHIDAE	1.62	10	0.34	
Plesionipenaeus edwardsianus	1.30	22	0.27	
Halosaurus ovenii	0.98	70	0.20	
Stereomastis sculpta	0.98	118	0.20	
Chlorophthalmus atlanticus	0.76	16	0.16	
Neoharriotta pinnata	0.48	6	0.10	
Parapenaeus longirostris	0.16	16	0.03	
ASTRONESTHIDAE	0.16	60	0.03	
Solenocera africana	0.16	16	0.03	
Total	482.36		99.97	

PROJECT STATION: 499
 DATE: 30/ 3/95 GEAR TYPE: BT No:1 POSITION: Lat S 938 Long E 1240
 start stop duration
 TIME :18:40:00 19:10:00 30 (min) Purpose code: 3
 LOG :7879.50 7881.30 1.80 Area code : 2
 FDEPTH: 530 521 GearCond.code:
 BDEPTH: 530 521 Validity code: 1
 Towing dir: 270° Wire out:1350 m Speed: 3 kn*10
 Sorted: 32 Kg Total catch: 124.30 CATCH/HOUR: 248.60

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Merluccius polli	129.40	232	52.05	1224
Laemonema laureysi	26.00	196	10.46	
Aristeus varidens, female	14.98	992	6.03	1236
Hoplostethus cadenati	13.40	494	5.39	
Triplophos sp.	8.84	228	3.56	
Nezumia sp.	6.40	92	2.57	
MELANOSTOMIATIDAE	5.70	424	2.29	
Nemichthys scolopaceus	5.00	102	2.01	
Aristeus varidens, male	4.70	704	1.89	1225
Etmopterus pusillus	3.98	50	1.60	
Dibranchus atlanticus	3.98	192	1.60	
Stereomastis sculpta	3.02	374	1.21	
Halosaurus ovenii	2.80	18	1.13	
Lamprogrammus exutus	2.80	66	1.13	
Benthodesmus tenuis	2.60	22	1.05	
MYCTOPHIDAE	2.56	3788	1.03	
Plesionika martia	2.16	1494	0.87	
Plesionipenaeus edwardsianus	1.78	32	0.72	
Yarrella blackfordi	1.76	60	0.71	
Chaunax pictus	1.34	28	0.54	
ASTRONESTHIDAE	1.30	130	0.52	
Nematocarcinus africanus	1.26	360	0.51	
MURAENESOCIDAE	1.00	24	0.40	
ECHINORHINIDAE	0.94	4	0.38	
Etmopterus polli	0.56	8	0.23	
Malacocephalus occidentalis	0.20	8	0.08	
Total	248.46		99.96	

PROJECT STATION: 500
 DATE: 30/ 3/95 GEAR TYPE: BT No:1 POSITION: Lat S 938 Long E 1237
 start stop duration
 TIME :21:05:00 21:35:00 30 (min) Purpose code: 3
 LOG :7892.20 7893.70 1.50 Area code : 2
 FDEPTH: 715 711 GearCond.code:
 BDEPTH: 715 711 Validity code: 1
 Towing dir: 170° Wire out:1700 m Speed: 3 kn*10
 Sorted: 14 Kg Total catch: 59.50 CATCH/HOUR: 119.00

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Nezumia sp.	35.40	184	29.75	
Lamprogrammus exutus	33.20	72	27.90	
Merluccius polli	8.80	16	7.39	
OCTOPOTUTHIDAE	6.40	24	5.38	
MURAENESOCIDAE	5.80	88	4.87	
Yarrella blackfordi	4.40	112	3.70	
Talissmania longifilis	4.40	40	3.70	
MELANOSTOMIATIDAE	2.80	64	2.35	
Glyphus marsupialis	2.40	184	2.02	
Dicrolene sp.	2.20	32	1.85	
Nemichthys scolopaceus	1.80	176	1.51	
Stereomastis sculpta	1.60	216	1.34	
Nemichthys scolopaceus	1.60	176	1.34	
Hoplostethus cadenati	1.60	40	1.34	
Triplophos sp.	1.60	264	1.34	
Aristeus varidens, female	1.40	70	1.18	1227
Dibranchus atlanticus	1.40	72	1.18	
MYCTOPHIDAE	0.60	616	0.50	
Nematocarcinus africanus	0.60	144	0.50	
Halosaurus ovenii	0.60	8	0.50	
Plesionika martia	0.20	168	0.17	
Aristeus varidens, male	0.14	20	0.12	1226
Total	118.94		99.93	

PROJECT STATION: 501
 DATE: 30/ 3/95 GEAR TYPE: BT No:1 POSITION: Lat S 929 Long E 1236
 start stop duration
 TIME :23:50:00 00:20:00 30 (min) Purpose code: 3
 LOG :7904.00 7905.50 1.50 Area code : 2
 FDEPTH: 669 631 GearCond.code:
 BDEPTH: 669 631 Validity code:
 Towing dir: 350° Wire out:1800 m Speed: 32 kn*10
 Sorted: 20 Kg Total catch: 257.66 CATCH/HOUR: 515.32

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Lamprogrammus exutus	89.76	408	17.42	
Shrimps, small, non comm.	65.76	22128	12.76	
Coelorrinchus acanthiger	58.32	456	11.32	
Nezumia sp.	27.12	672	5.26	
Merluccius polli	25.50	36	4.95	1230
Bathyrocongus sp.	22.56	624	4.38	
Stereomastis sculpta	21.60	2832	4.19	
Hoplostethus cadenati	20.88	720	4.05	
Laemonema laureysi	18.00	1872	3.49	
GONOSTOMATIDAE	16.08	336	3.12	
Chaceon maritae	15.60	24	3.03	
Beryx splendens	15.60	24	3.03	
Coelorrinchus coelorrhincus	15.36	408	2.98	
Diplophos sp.	12.96	2064	2.51	1229
Aristeus varidens, female	10.48	684	2.03	
Triplophos sp.	9.84	216	1.91	
Aristeus varidens, male	9.66	1344	1.87	1228
Benthodesmus tenuis	8.88	336	1.72	
OPISTHOTUTHIDAE	8.16	24	1.58	
MURAENESOCIDAE	7.92	240	1.54	
OCTOPOTUTHIDAE	7.20	24	1.40	
Etmopterus pusillus	5.52	120	1.07	
Dibranchus sp.	5.52	192	1.07	
ALEPOCEPHALIDAE	4.56	312	0.88	
Dibranchus atlanticus	4.56	240	0.88	
Ebinania sp.	3.36	24	0.65	
Talissmania longifilis	1.92	192	0.37	
Cruriraja parcomaculata	1.20	120	0.23	
Lophius sp.	0.96	24	0.19	
NETTASTOMATIDAE	0.24	24	0.05	
Halosaurus ovenii	0.24	48	0.05	
MYCTOPHIDAE	0.00	72		
Total	515.32		99.98	

PROJECT STATION: 502
 DATE: 31/ 3/95 GEAR TYPE: BT No:1 POSITION: Lat S 924 Long E 1302
 start stop duration
 TIME :05:11:00 05:41:00 30 (min) Purpose code: 3
 LOG :7933.20 7934.50 1.30 Area code : 2
 FDEPTH: 20 20 GearCond.code:
 BDEPTH: 20 20 Validity code: 1
 Towing dir: 330° Wire out: 100 m Speed: 3 kn*10
 Sorted: 53 Kg Total catch: 53.20 CATCH/HOUR: 106.40

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Lutjanus goreensis	38.40	20	36.09	
Epinephelus aeneus	22.20	12	20.86	
Pagrus caeruleostictus	16.40	32	15.41	
Pagellus bellottii	9.80	36	9.21	1231
Acanthurus monroviae	7.50	8	7.05	
Panulirus regius	3.00	4	2.82	
Sepia orbignyana	2.00	2	1.88	
Scomberomorus tritor	1.80	2	1.69	
Epinephelus costae	1.80	2	1.69	
Raja miraletus	1.60	2	1.50	
Caranx hippos	1.00	2	0.94	
Dentex gibbosus	0.80	2	0.75	
Chaetodon hoeferi	0.02	2	0.02	
Total	106.32		99.91	

PROJECT STATION: 503
 DATE: 31/ 3/95 GEAR TYPE: BT No:1 POSITION: Lat S 919 Long E 1300
 start stop duration Purpose code: 3
 TIME :06:26:00 06:56:00 30 (min) Area code : 2
 LOG :7938.10 7939.40 1.30 GearCond.code: 1
 FDEPTH: 19 20 Validity code: 1
 BDEPTH: 19 20
 Towing dir: 330° Wire out: 110 m Speed: 3 kn*10

Sorted: 16 Kg Total catch: 16.70 CATCH/HOUR: 33.40

SPECIES	CATCH/HOUR weight numbers	% OF TOT. C	SAMP
Pagellus bellottii	14.20 62	42.51	1232
Carcharhinus limbatus	4.60 2	13.77	
Caranx crysos	2.80 4	8.38	
Alectis alexandrinus	2.40 2	7.19	
Sepia orbignyana	2.00 2	5.99	
Acanthurus monroviae	1.86 2	5.57	
Brachydeuterus auritus	1.80 18	5.39	
Raja miraletus	1.60 2	4.79	
Balistes sp.	1.40 2	4.19	
Trachinus armatus	0.20 4	0.60	
Eucinostomus melanopterus	0.20 4	0.60	
Pegusa triophthalmus	0.04 2	0.12	
Total	33.10	99.10	

PROJECT STATION: 504
 DATE: 31/ 3/95 GEAR TYPE: BT No:1 POSITION: Lat S 919 Long E 1257
 start stop duration Purpose code: 3
 TIME :07:30:00 08:00:00 30 (min) Area code : 2
 LOG :7942.10 7943.60 1.50 GearCond.code: 1
 FDEPTH: 33 34 Validity code: 1
 BDEPTH: 33 34
 Towing dir: 157° Wire out: 150 m Speed: 3 kn*10

Sorted: Kg Total catch: 22.70 CATCH/HOUR: 45.40

SPECIES	CATCH/HOUR weight numbers	% OF TOT. C	SAMP
Sphyræna sphyraena	9.60 30	21.15	
Sepia orbignyana	5.60 32	12.33	
Selene dorsalis	5.60 12	12.33	
Raja miraletus	5.00 8	11.01	
Chloroscombrus chrysurus	4.60 18	10.13	
Pagellus bellottii	4.20 24	9.25	1233
Lagocephalus laevis	3.40 2	7.49	
Alectis alexandrinus	3.40 2	7.49	
Alloteuthis africana	0.80 94	1.76	
Fistularia petimba	0.60 2	1.32	
Syacium micrurum	0.60 6	1.32	
Brachydeuterus auritus	0.60 8	1.32	
Dasyatis margarita	0.40 2	0.88	
Sardinella maderensis	0.40 2	0.88	
Trachinus araneus	0.30 6	0.66	
Decapterus rhonchus	0.20 4	0.44	
Trachinus armatus	0.10 2	0.22	
Total	45.40	99.98	

PROJECT STATION: 505
 DATE: 31/ 3/95 GEAR TYPE: BT No:1 POSITION: Lat S 920 Long E 1254
 start stop duration Purpose code: 3
 TIME :08:38:00 09:08:00 30 (min) Area code : 2
 LOG :7947.80 7949.30 1.50 GearCond.code: 1
 FDEPTH: 54 52 Validity code: 1
 BDEPTH: 54 52
 Towing dir: 290° Wire out: 200 m Speed: 3 kn*10

Sorted: Kg Total catch: 303.32 CATCH/HOUR: 606.64

SPECIES	CATCH/HOUR weight numbers	% OF TOT. C	SAMP
Rhinoptera marginata	522.50 100	86.13	
Pomadasys jubelini	26.80 24	4.42	
Alectis alexandrinus	21.50 22	3.54	
Selene dorsalis	7.40 16	1.22	
Sepia elegans	6.34 6	1.05	
Dentex canariensis	4.32 28	0.71	
Brachydeuterus auritus	3.58 44	0.59	
Octopus vulgaris	3.02 2	0.50	
Epinephelus goreensis	2.82 2	0.46	
Zeus faber	2.48 6	0.41	
Sepia officinalis hierredda	2.20 4	0.36	
Raja miraletus	2.04 2	0.34	
Brachydeuterus auritus	0.78 36	0.13	
Chloroscombrus chrysurus	0.40 2	0.07	
Sepia orbignyana	0.25 2	0.04	
Citharus linguatula	0.16 4	0.03	
Saurida brasiliensis	0.04 10	0.01	
Total	606.64	100.01	

PROJECT STATION: 506
 DATE: 31/ 3/95 GEAR TYPE: BT No:1 POSITION: Lat S 919 Long E 1252
 start stop duration Purpose code: 3
 TIME :09:58:00 10:28:00 30 (min) Area code : 2
 LOG :7953.80 7953.60 1.80 GearCond.code: 1
 FDEPTH: 71 70 Validity code: 1
 BDEPTH: 71 70
 Towing dir: 270° Wire out: 250 m Speed: 3 kn*10

Sorted: 27 Kg Total catch: 224.52 CATCH/HOUR: 449.04

SPECIES	CATCH/HOUR weight numbers	% OF TOT. C	SAMP
Brachydeuterus auritus	293.60 24128	65.38	
Selene dorsalis	67.20 496	14.97	
Brotula barbata	26.72 16	5.95	
Citharus linguatula	15.04 288	3.35	
Chelidonichthys gabonensis	8.32 48	1.85	
Pegusa lascaris	7.84 96	1.75	
Pagellus bellottii	7.08 106	1.58	1234
Zeus faber	4.96 16	1.10	
Sepia officinalis hierredda	4.86 12	1.08	
Dentex angolensis	4.52 24	1.01	1235
Sphyræna sphyraena	4.16 16	0.93	
Dentex angolensis	3.78 32	0.84	
Saurida brasiliensis	0.96 224	0.21	
Total	449.04	100.00	

PROJECT STATION: 507
 DATE: 31/ 3/95 GEAR TYPE: BT No:1 POSITION: Lat S 922 Long E 1247
 start stop duration Purpose code: 3
 TIME :11:20:00 11:50:00 30 (min) Area code : 2
 LOG :7961.70 7962.50 1.80 GearCond.code: 1
 FDEPTH: 104 113 Validity code: 1
 BDEPTH: 104 113
 Towing dir: 330° Wire out: 300 m Speed: 3 kn*10

Sorted: 31 Kg Total catch: 315.37 CATCH/HOUR: 630.74

SPECIES	CATCH/HOUR weight numbers	% OF TOT. C	SAMP
Synagrops microlepis	309.70 30970	49.10	
Trichiurus lepturus	126.34 590	20.03	
Selene dorsalis	59.66 248	9.46	1240
Brachydeuterus auritus	55.66 362	8.82	
Trachurus trecae	29.30 136	4.65	1237
Raja miraletus	19.00 20	3.01	
Citharus linguatula	7.22 58	1.14	
Pontinus accraensis	6.46 20	1.02	
Chelidonichthys gabonensis	6.08 20	0.96	
Pterothrissus bellocci	5.32 20	0.84	
Dentex macrophthalmus	2.56 22	0.41	1239
Dentex angolensis	2.54 18	0.40	1238
Dentex canariensis	0.72 2	0.11	
Saurida brasiliensis	0.18 38	0.03	
Total	630.74	99.98	

PROJECT STATION: 508
 DATE: 31/ 3/95 GEAR TYPE: BT No:1 POSITION: Lat S 921 Long E 1242
 start stop duration Purpose code: 3
 TIME :13:05:00 13:35:00 30 (min) Area code : 2
 LOG :7969.80 7970.80 1.00 GearCond.code: 1
 FDEPTH: 183 193 Validity code: 1
 BDEPTH: 183 193
 Towing dir: 330° Wire out: 500 m Speed: 3 kn*10

Sorted: 26 Kg Total catch: 118.67 CATCH/HOUR: 237.34

SPECIES	CATCH/HOUR weight numbers	% OF TOT. C	SAMP
Synagrops microlepis	147.20 6152	62.02	
Trichiurus lepturus	15.92 48	6.71	
Merluccius polli	8.16 96	3.44	1245
Chlorophthalmus atlanticus	7.76 368	3.27	
Dentex macrophthalmus	7.50 60	3.16	1242
Coelorinchus coelorhincus	7.28 256	3.07	
Spicara alta	5.74 34	2.42	
Rhinobatos albomaculatus	5.64 2	2.38	
Pterothrissus bellocci	5.28 32	2.22	
Dentex angolensis	5.18 16	2.18	1241
Grammolites gruvelli	4.32 32	1.82	
Zeus faber	4.16 40	1.75	
Zenopsis conchifer	3.76 8	1.58	
Raja clavata	2.86 2	1.21	
Uranoscopus polli	2.32 8	0.98	
Peristedion cataphractum	1.84 8	0.78	
Parapenaeus longirostris, male	1.40 218	0.59	1243
Parapenaeus longirostris, fem.	0.86 82	0.36	1244
Sepia bertheloti	0.08 8	0.03	
Citharus linguatula	0.08 8	0.03	
Total	237.34	100.00	

PROJECT STATION: 509
 DATE: 31/ 3/95 GEAR TYPE: BT No:1 POSITION: Lat S 923 Long E 1240
 start stop duration Purpose code: 3
 TIME :14:55:00 15:25:00 30 (min) Area code : 2
 LOG :7980.10 7981.30 1.20 GearCond.code: 1
 FDEPTH: 249 243 Validity code: 1
 BDEPTH: 249 243
 Towing dir: 350° Wire out: 700 m Speed: 32 kn*10

Sorted: 33 Kg Total catch: 441.03 CATCH/HOUR: 882.06

SPECIES	CATCH/HOUR weight numbers	% OF TOT. C	SAMP
Synagrops microlepis	361.40 12168	40.97	
Chlorophthalmus atlanticus	256.10 5200	29.03	
Pterothrissus bellocci	35.36 208	4.01	
Malacocephalus occidentalis	29.38 324	3.33	
Dentex macrophthalmus	24.40 106	2.77	1249
Parapenaeus longirostris, male	18.84 2418	2.14	1246
Trichiurus lepturus	17.42 26	1.97	
Merluccius polli	17.16 208	1.95	
Grammolites gruvelli	16.90 104	1.92	
Zenopsis conchifer	14.30 78	1.62	
MYCTOPHIDAE	13.52 4316	1.53	
Dentex angolensis	13.14 32	1.49	1248
Parapenaeus longirostris, fem.	12.60 1288	1.43	1247
Coelorinchus coelorhincus	12.48 364	1.41	
Pontinus accraensis	9.10 26	1.03	
Ariomma bondi	8.84 72	1.00	
Brotula barbata	8.64 8	0.98	
Peristedion cataphractum	6.50 26	0.74	
Citharus linguatula	5.98 26	0.68	
Total	882.06	100.00	

PROJECT STATION: 510
 DATE: 31/ 3/95 GEAR TYPE: BT No:1 POSITION: Lat S 921 Long E 1239
 start stop duration
 TIME :16:30:00 17:00:00 30 (min) Purpose code: 3
 LOG :7986.70 7987.80 1.20 Area code : 2
 FDEPTH: 350 367 GearCond.code:
 BDEPTH: 350 367 Validity code:
 Towing dir: * Wire out:1000 m Speed: 3 kn*10
 Sorted: 27 Kg Total catch: 160.92 CATCH/HOUR: 321.84

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Merluccius polli	70.50	246	21.91	1256
Hymenocephalus italicus	57.20	7084	17.77	
Hoplostethus mediterraneus	41.60	40	12.93	
Centrophorus uyato	39.10	10	12.15	
Laemonema laureysi	29.60	248	9.20	
Lophiodes sp.	22.40	8	6.96	
Malacocephalus laevis	15.20	8	4.72	
Coelorinchus coelorhincus	8.32	272	2.59	
Nemichthys scolopaceus	5.76	240	1.79	
Aristeus varidens, male	5.20	672	1.62	1250
MYCTOPHIDAE	4.40	472	1.37	
Aristeus varidens, female	3.92	728	1.22	1251
Synagrops microlepis	3.76	240	1.17	
Pterothrissus belloci	3.04	24	0.94	
Nematocarcinus africanus	2.32	204	0.72	
Scorpaena normani	1.76	8	0.55	
Etmopterus pusillus	1.60	128	0.50	
Parapenaeus longirostris, fem.	1.28	152	0.40	1257
Hoplostethus cadenati	1.20	40	0.37	
GEMPYLIDAE	1.12	8	0.35	
Plesionika martia	0.96	576	0.30	
Benthodesmus tenuis	0.56	40	0.17	
Chaunax pictus	0.40	16	0.12	
Peristedion cataphractum	0.40	24	0.12	
Solenocera africana	0.24	40	0.07	
Total		321.84	100.01	

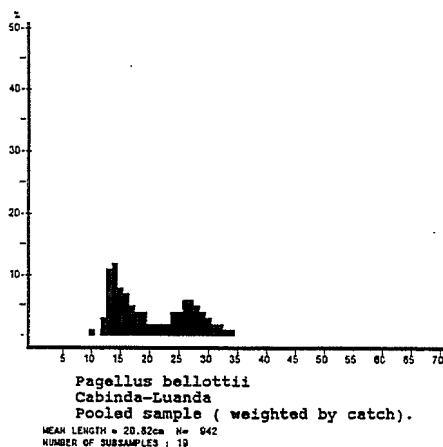
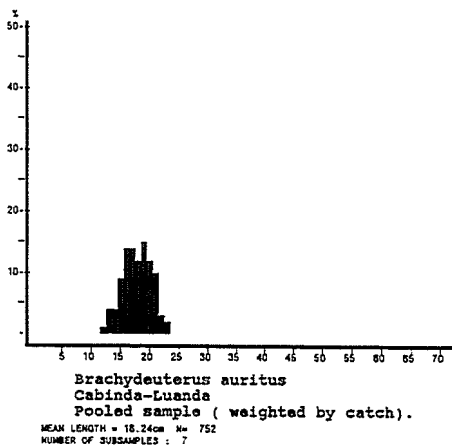
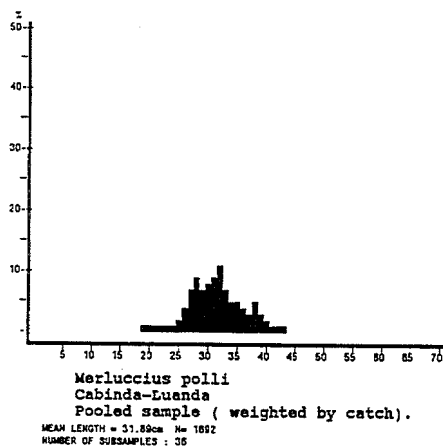
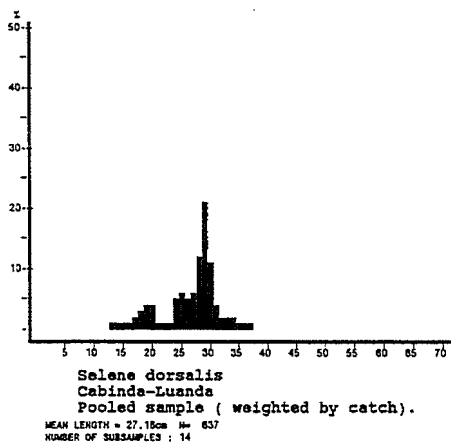
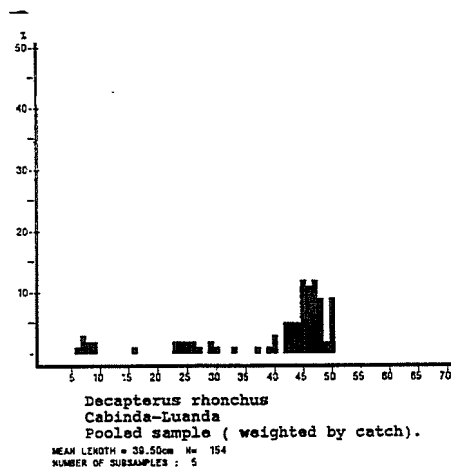
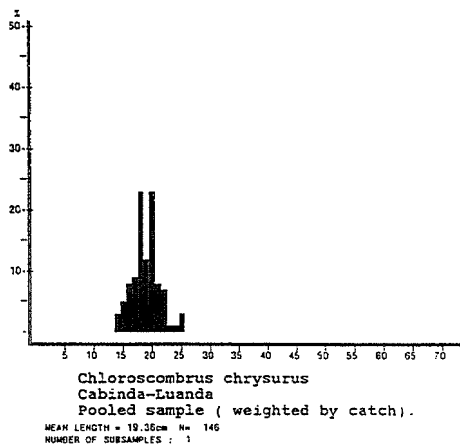
PROJECT STATION: 512
 DATE: 31/ 3/95 GEAR TYPE: BT No:1 POSITION: Lat S 921 Long E 1234
 start stop duration
 TIME :20:35:00 20:53:00 18 (min) Purpose code: 3
 LOG :8006.40 8007.20 0.80 Area code : 2
 FDEPTH: 571 558 GearCond.code:
 BDEPTH: 571 558 Validity code:
 Towing dir: 270° Wire out:1400 m Speed: 3 kn*10
 Sorted: 11 Kg Total catch: 40.10 CATCH/HOUR: 133.67

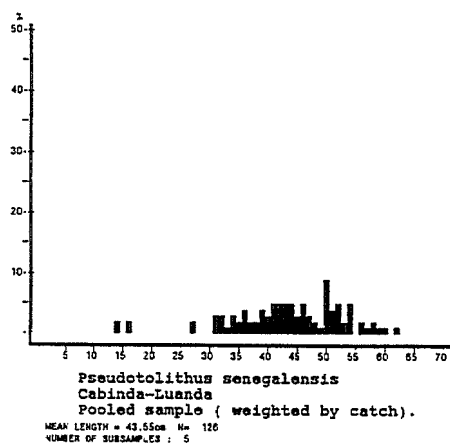
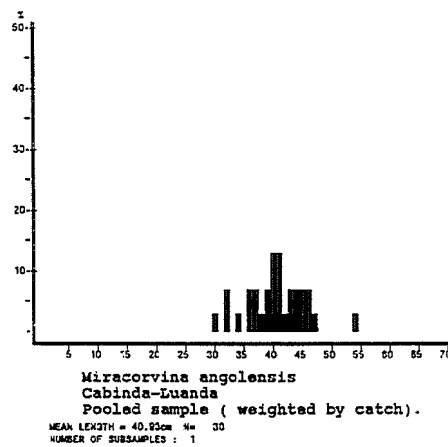
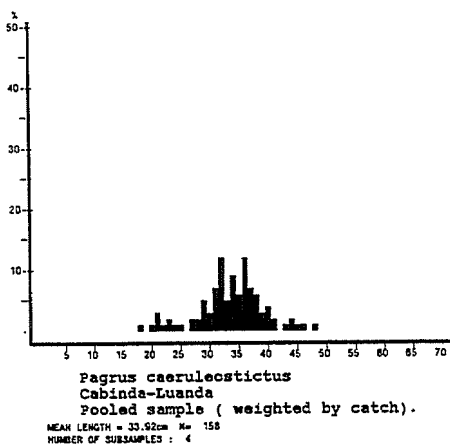
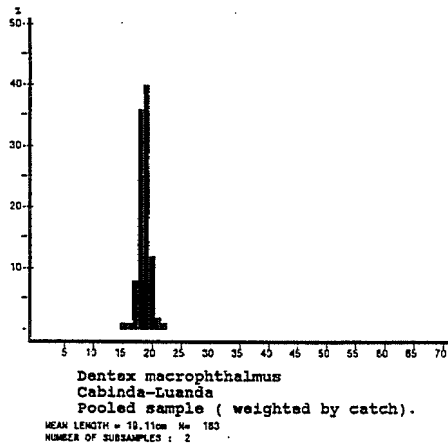
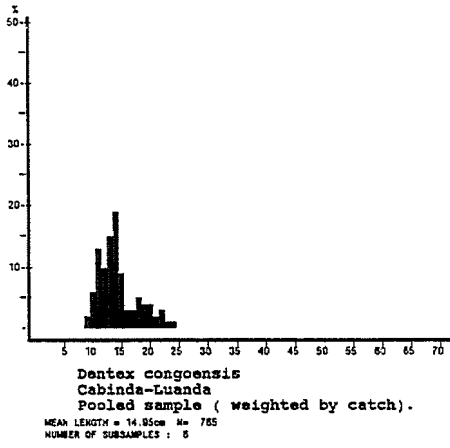
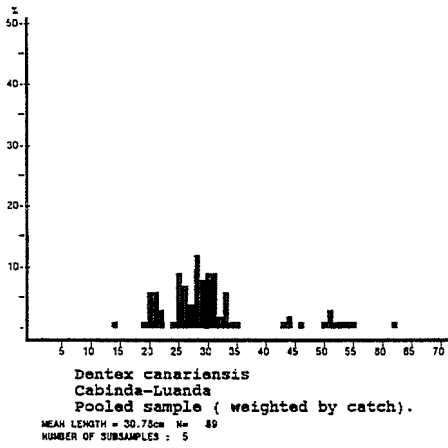
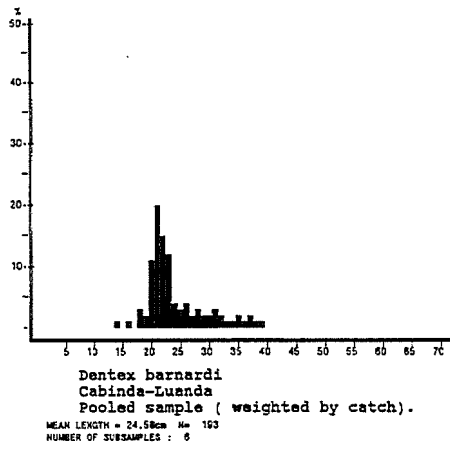
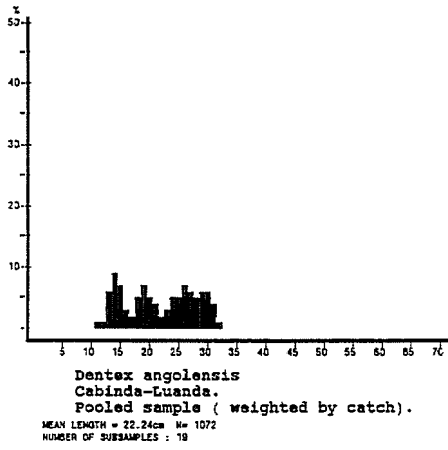
SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Merluccius polli	20.00	40	14.96	
Aristeus varidens, female	14.43	723	10.80	1255
Lamprogrammus exutus	13.50	170	10.10	
Nematocarcinus africanus	10.60	7050	7.93	
Nezumia sp.	8.60	220	6.43	
Nemichthys scolopaceus	8.00	1043	5.98	
Stereomastis sculpta	7.87	600	5.89	
Centrophorus uyato	6.67	3	4.99	
Hoplostethus cadenati	5.30	150	3.96	
Laemonema laureysi	5.20	50	3.89	
Triplophus sp.	4.30	700	3.22	
Apristurus sp.	3.80	10	2.84	
MURAENESOCIDAE	3.70	110	2.77	
Aristeus varidens, male	3.60	473	2.69	1254
Plesionika martia	3.20	1600	2.39	
ASTRONESTHIDAE	3.20	390	2.39	
Yarella blackfordi	2.50	60	1.87	
MYCTOPHIDAE	2.30	1540	1.72	
Etmopterus pusillus	1.90	20	1.42	
Lophiodes sp.	1.30	10	0.97	
Benthodesmus tenuis	0.80	70	0.60	
Dibranchius atlanticus	0.80	43	0.60	
Talissmania longifilis	0.70	20	0.52	
Dicrolene sp.	0.60	10	0.45	
Glyphus marsupialis	0.50	60	0.37	
SERGESTIDAE	0.30	40	0.22	
Total		133.67	99.97	

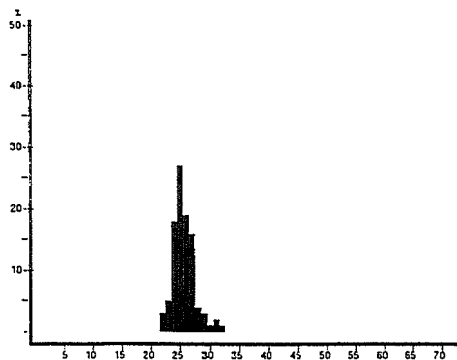
PROJECT STATION: 511
 DATE: 31/ 3/95 GEAR TYPE: BT No:1 POSITION: Lat S 922 Long E 1236
 start stop duration
 TIME :18:27:00 18:57:00 30 (min) Purpose code: 3
 LOG :7996.80 7998.00 1.20 Area code : 2
 FDEPTH: 470 464 GearCond.code:
 BDEPTH: 470 464 Validity code:
 Towing dir: 355° Wire out:1200 m Speed: 3 kn*10
 Sorted: 19 Kg Total catch: 114.94 CATCH/HOUR: 229.88

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Laemonema laureysi	66.60	576	28.97	
Merluccius polli	39.60	72	17.23	
Stereomastis sculpta	26.10	306	11.35	
Centrophorus uyato	26.00	12	11.31	
Nezumia sp.	16.30	280	7.09	
Aristeus varidens, female	14.06	918	6.12	1252
MYCTOPHIDAE	5.32	7256	2.31	
Triplophus sp.	4.24	146	1.84	
Nematocarcinus africanus	3.66	1674	1.59	
Chaunax pictus	3.34	28	1.45	
Lamprogrammus exutus	2.80	90	1.22	
ASTRONESTHIDAE	2.44	334	1.06	
Benthodesmus tenuis	2.16	144	0.94	
Dibranchius atlanticus	2.16	154	0.94	
Plesionika martia	1.96	946	0.85	
Etmopterus pusillus	1.80	46	0.78	
Aristeus varidens, male	1.72	246	0.75	1253
Hymenocephalus italicus	1.62	450	0.70	
MURAENESOCIDAE	1.56	100	0.68	
MELANOSTOMIATIDAE	1.52	28	0.66	
Nemichthys scolopaceus	1.26	198	0.55	
Plesiopenaeus edwardsianus	0.82	18	0.36	
Malacocephalus occidentalis	0.72	18	0.31	
DICERATIIDAE	0.54	28	0.23	
SERGESTIDAE	0.54	72	0.23	
Yarella blackfordi	0.46	10	0.20	
Talissmania longifilis	0.28	10	0.12	
Total		229.58	99.84	

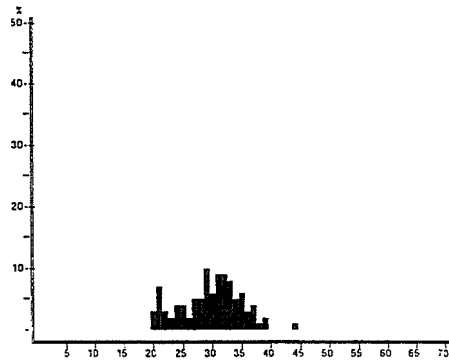
Annex II Size composition of main species



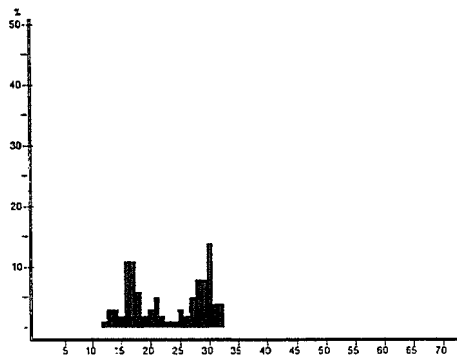




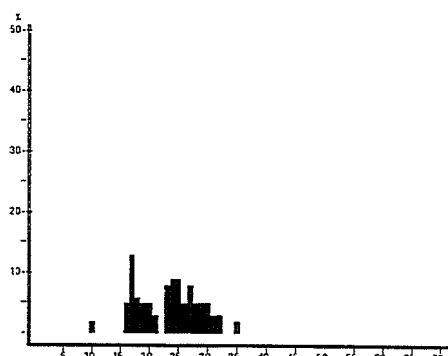
Chloroscombrus chrysurus
Luanda-Benguela
Pooled sample (weighted by catch).
MEAN LENGTH = 25.14cm N= 344
NUMBER OF SUBSAMPLES : 6



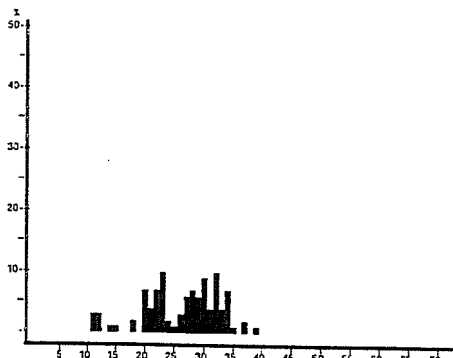
Selene dorsalis
Luanda-Benguela
Pooled sample (weighted by catch).
MEAN LENGTH = 30.24cm N= 498
NUMBER OF SUBSAMPLES : 20



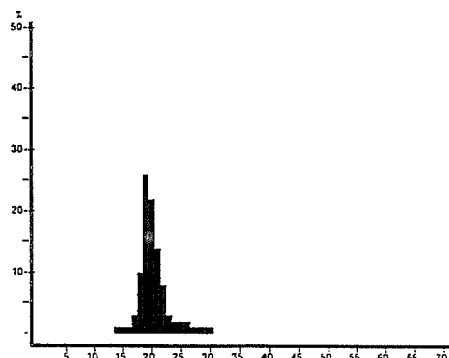
Dentex angolensis
Luanda-Benguela
Pooled sample (weighted by catch).
MEAN LENGTH = 23.38cm N= 655
NUMBER OF SUBSAMPLES : 20



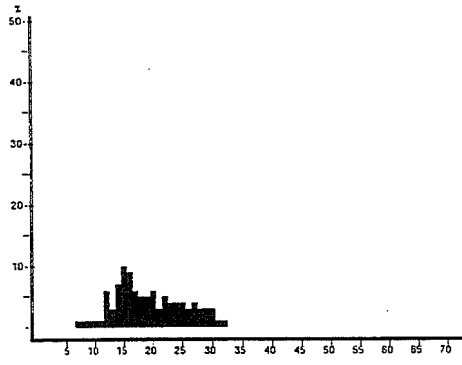
Dentex barnardi
Luanda-Benguela
Pooled sample (weighted by catch).
MEAN LENGTH = 23.79cm N= 63
NUMBER OF SUBSAMPLES : 1



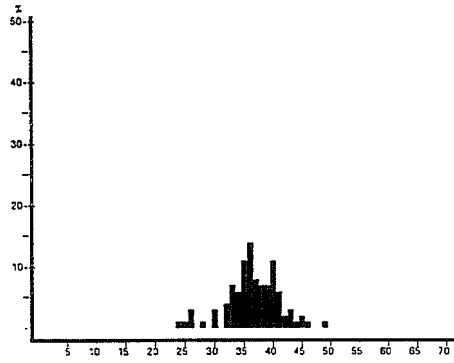
Dentex canariensis
Luanda-Benguela
Pooled sample (weighted by catch).
MEAN LENGTH = 26.93cm N= 113
NUMBER OF SUBSAMPLES : 2



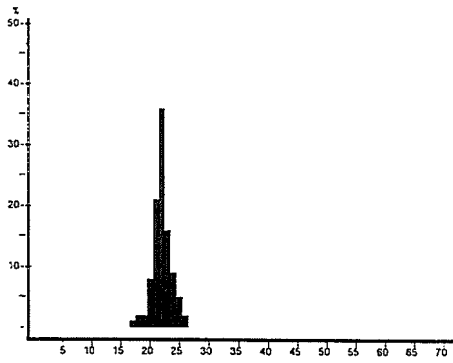
Dentex macrophthalmus
Luanda-Benguela
Pooled sample (weighted by catch).
MEAN LENGTH = 23.83cm N= 1089
NUMBER OF SUBSAMPLES : 21



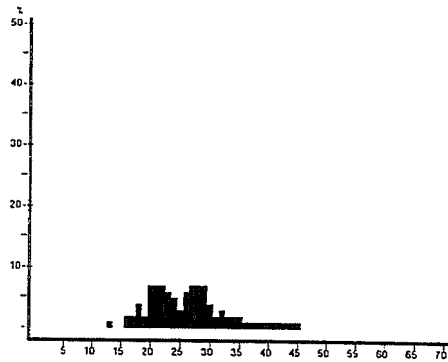
Pagellus bellottii
Luanda-Benguela
Pooled sample (weighted by catch).
MEAN LENGTH = 19.56cm N= 1252
NUMBER OF SUBSAMPLES : 27



Umbrina canariensis
Luanda-Benguela
Pooled sample (weighted by catch).
MEAN LENGTH = 36.79cm N= 203
NUMBER OF SUBSAMPLES : 5



Brachydeuterus auritus
Luanda-Benguela
Pooled sample (weighted by catch).
MEAN LENGTH = 22.54cm N= 166
NUMBER OF SUBSAMPLES : 3



Merluccius polli
Luanda-Benguela
Pooled sample (weighted by catch).
MEAN LENGTH = 27.01cm N= 1044
NUMBER OF SUBSAMPLES : 25

Annex III Swept-area estimates

SWEPT AREA ANALYSIS FROM STATION 283 TO STATION 367

A. CABINDA-LUANDA. Demersal species shelf.

SPECIES NAME	SAMPLE DISTRIB. BY CATCH CLASSES Lower limits, Kg/nm					% inci- dence	Mean dens. t/nm ²	Mean densities by bottom depth strata t/nm ²			
	>0	10	30	100	300			1000	- 50m	50-100m	100-200m
<i>Brachydeuterus auritus</i>	6	4	7	2	1	54	2.76	2.32	5.07	0.24	
<i>Synagrops microlepis</i>	4	1	1	3		24	2.15	0.08	0.08	6.45	
<i>Galeoides decadactylus</i>	2	4	3			24	0.78	2.42	0.30		
<i>Spicara alta</i>	3	2		1		16	0.64			1.97	
<i>Pterothrissus bellocci</i>	6	1		1		22	0.46		0.16	1.21	
<i>Pomadasys jubelini</i>	4		1	1		14	0.45	0.64	0.69		
<i>Dentex angolensis</i>	14	6				54	0.40	0.01	0.32	0.84	
<i>Pagellus bellottii</i>	19	5				65	0.37	0.27	0.67	0.07	
<i>Pseudolithus senegalensis</i>	3	4	1			22	0.33	1.15	0.06		
<i>Pteroscion peli</i>	1	5				16	0.26	0.45	0.35		
<i>Miracorvina angolensis</i>	1		1			5	0.21		0.01	0.63	
<i>Pagrus caeruleostictus</i>	7	1	1			24	0.18	0.64	0.02		
<i>Chlorophthalmus atlanticus</i>			1	1		5	0.15			0.47	
<i>Chelidonichthys gabonensis</i>	10	1				30	0.12	0.03	0.28		
<i>Stromateus fiatola</i>	5		1			16	0.12	0.03	0.27		
<i>Dentex congoensis</i>	10					27	0.12		0.10	0.24	
<i>Dentex barnardi</i>	8	1				24	0.11	0.01	0.27		
<i>Brotula barbata</i>	9	1				27	0.11		0.12	0.19	
<i>Lepidotrigla carolae</i>	5	1				16	0.10		0.05	0.26	
<i>Dentex canariensis</i>	10	1				30	0.10	0.06	0.17	0.05	
<i>Raja miraletus</i>	24					65	0.10	0.07	0.14	0.07	
<i>Lutjanus dentatus</i>	1	1				5	0.09	0.31			
<i>Umbrina canariensis</i>	4	1				14	0.08	0.02	0.13	0.06	
<i>Lepidotrigla cadmani</i>	10					27	0.07		0.06	0.15	
<i>Citharus linguatula</i>	18					49	0.07	0.03	0.07	0.11	
<i>Penaeus notialis</i> , female	3	1				11	0.06	0.22			
<i>Sepia officinalis hierredda</i>	15					41	0.05	0.01	0.08	0.03	
<i>Lithognathus mormyrus</i>	4					11	0.05	0.12	0.04		
<i>Pegusa lascaris</i>	6					16	0.05	0.17	0.02		
<i>Parapenaeus longirostris</i> , fem.	5					14	0.05			0.15	
<i>Epinephelus goreensis</i>	3					8	0.05	0.02	0.06	0.07	
<i>Epinephelus aeneus</i>	3					8	0.05	0.11	0.06		
<i>Arius parkii</i>	6					16	0.05	0.16	0.01		
<i>Parapenaeus longirostris</i> , male	5					14	0.04		0.01	0.11	
<i>Penaeus notialis</i> , male	3					8	0.02	0.08			
<i>Solenocera africana</i>	1					3					
<i>Penaeus kerathurus</i>	1										
<i>Penaeus notialis</i>	2					5			0.01		
<i>Parapenaeus longirostris</i>	1					3					
Shrimps, small, non comm.	1					3					
Other fish							0.93	1.28	0.68	1.09	
Sum all species							11.73	10.71	10.36	14.46	
Sum Snappers							0.09	0.31			
Sum Groupers							0.12	0.14	0.14	0.11	
Sum Grunts							3.25	3.08	5.78	0.24	
Sum Croakers							0.92	1.63	0.60	0.75	
Sum Seabreams							1.41	1.21	1.65	1.32	
Sum Sharks							0.15	0.15	0.10	0.22	
Sum Rays							0.19	0.32	0.16	0.09	
Sum Squids							0.09	0.01	0.12	0.10	
Sum											
Sum commercial shrimps							0.17	0.30	0.02	0.26	

Number of stations included in analysis, total and by depth strata

37 10 15 12

SWEPT AREA ANALYSIS FROM STATION 283 TO STATION 367

C. CABINDA-LUANDA. Demersal species slope.

SPECIES NAME	SAMPLE DISTRIB. BY CATCH CLASSES					% inci- dence	Mean dens. t/nm ²	Mean densities by bottom depth strata t/nm ²			
	Lower limits, Kg/nm							200-300m	300-400m	400-500m	500-500m
	>0	10	30	100	300	1000					
<i>Chlorophthalmus atlanticus</i>	4	2	2	3	1		48	3.51	6.24	2.80	
<i>Nematocarcinus africanus</i>	2	1	3	2			32	2.06		3.31	3.60
<i>Synagrops microlepis</i>	7	5	2	1			60	1.93	4.60	0.24	0.02
<i>Merluccius polli</i> , male	9	2	3	1			60	1.77	0.08	4.31	0.76
<i>Merluccius polli</i> , female	6	6	2	1			60	1.65	0.06	3.28	1.84
<i>Pterothrissus belloci</i>	11	4	1				64	0.67	1.09	0.56	0.12
<i>Laemonema laureysi</i>	12	4	1				68	0.56	0.16	0.93	0.67
Shrimps, small, non comm.	8	1	1				40	0.54	0.17	1.24	0.12
<i>Parapenaeus longirostris</i> , fem.	14	1	1				64	0.42	0.73	0.35	
<i>Hymenocephalus italicus</i>	10	2					48	0.25		0.66	0.04
<i>Dentex angolensis</i>	2	3					20	0.23	0.58		
<i>Squatina aculeata</i>		2					8	0.14	0.34		
<i>Centrophorus granulatus</i>	1	2					12	0.14		0.01	0.56
<i>Zenopsis conchifer</i>	7	1					28	0.12	0.29		
<i>Parapenaeus longirostris</i> , male	12						48	0.11	0.26	0.02	
<i>Centrophorus uyato</i>	1	2					12	0.11		0.12	0.26
<i>Malacocephalus occidentalis</i>	11	1					48	0.11	0.03	0.19	0.14
<i>Malacocephalus laevis</i>	9	1					40	0.11	0.04	0.20	0.10
<i>Coelorinchus coelorhincus</i>	14						56	0.10	0.06	0.16	0.10
<i>Aristeus varidens</i> , female	11						44	0.09		0.06	0.27
<i>Brotula barbata</i>	7						28	0.09	0.13		0.17
<i>Dibranchius atlanticus</i>	14						56	0.09		0.21	0.04
<i>Nezumia</i> sp.	11						44	0.09	0.07	0.12	0.08
<i>Stereomastis sculpta</i>	10						40	0.09		0.06	0.28
<i>Deania profundorum</i>	5						16	0.08		0.07	0.23
<i>Torpedo nobiliana</i>	2						8	0.08	0.19		
Deepwater fish mixture	4						16	0.08	0.10		0.16
<i>Chaunax pictus</i>	11						44	0.07		0.07	0.18
<i>Etmopterus polli</i>	4	1					16	0.06		0.02	0.21
<i>Gephyroberyx darwini</i>	2	1					12	0.05		0.14	
<i>Carcharhinus signatus</i>		1					4	0.05		0.13	
<i>Merluccius polli</i>	7						28	0.05	0.12	0.01	
<i>Solenocera africana</i>	10						40	0.04	0.05	0.05	
<i>Aristeus varidens</i> , male	10						40	0.03		0.02	0.10
<i>Plesiopenaeus edwardsianus</i>	2						8	0.03			0.12
<i>Parapenaeus longirostris</i>	3						12	0.01	0.01	0.01	
<i>Plesionika martia</i>	2						8	0.01		0.04	
<i>Glyphus marsupialis</i>	1						4			0.01	
<i>Plesiopenaeus edwardsianus</i> , f.	1						4				0.01
<i>Plesiopenaeus edwardsianus</i> , m.	1						4				
<i>Aristeus varidens</i>	1						4				
Other fish								1.08	0.77	1.09	1.67
Sum all species								16.70	16.17	20.49	11.85
Sum Snappers											
Sum Groupers											
Sum Grunts											
Sum Croakers								0.04	0.10		
Sum Seabreams								0.26	0.65		
Sum Sharks								0.71	0.38	0.40	1.61
Sum Rays								0.13	0.21	0.11	0.05
Sum Squids								0.03	0.07	0.03	0.03
Sum											
Sum commercial shrimps								2.80	1.05	3.87	4.10

Number of stations included in analysis, total and by depth strata

25 10 9 6

SWEPT AREA ANALYSIS FROM STATION 283 TO STATION 367

C. CABINDA-LUANDA. Demersal species slope cont.

SPECIES NAME	SAMPLE DISTRIB. BY CATCH CLASSES					% inci- dence	Mean dens. t/nm ²	Mean densities by bottom depth strata t/nm ²				
	Lower limits, Kg/nm							500-600m	600-800m	800-800m	800-800m	
	>0	10	30	100	300	1000						
<i>Nematocarcinus africanus</i>			1	6			54	3.17	4.70	1.86		
<i>Hoplostethus cadenati</i>	9	3	2				100	1.40	0.74	1.97		
GONOSTOMATIDAE	6	2	1				69	0.93	0.73	1.10		
<i>Lamprogrammus exutus</i>	4	3	1				62	0.80	0.52	1.03		
<i>Yarella blackfordi</i>	5		1				46	0.41	0.57	0.26		
<i>Stereomastis sculpta</i>	12	1					100	0.30	0.17	0.42		
<i>Nezumia aequalis</i>	2	1					23	0.26		0.49		
ALEPOCEPHALIDAE	10						77	0.22	0.19	0.25		
<i>Merluccius polli</i> , female	5						38	0.20	0.11	0.28		
<i>Bathyroconger vicinus</i>	7	1					62	0.20	0.33	0.09		
<i>Nezumia</i> sp.	6	1					54	0.14	0.01	0.25		
<i>Alepocephalus</i> sp.	3	1					31	0.12	0.01	0.21		
MURAENESOCIDAE	5						38	0.09	0.01	0.16		
<i>Aristeus varidens</i> , female	10						77	0.08	0.07	0.10		
<i>Bathygadus</i> sp.	4						31	0.08		0.15		
<i>Deania profundorum</i>	3						23	0.07		0.14		
<i>Octopus vulgaris</i>	1						8	0.06		0.11		
<i>Lamprogrammus</i> sp.	3						23	0.06	0.02	0.08		
<i>Melanostomias</i> sp.	3						23	0.06		0.10		
<i>Halosaurus ovenii</i>	6						46	0.06	0.01	0.10		
OCTOPOTEUTHIDAE	1						8	0.05		0.09		
<i>Glyphus marsupialis</i>	7						54	0.05	0.02	0.07		
Shrimps, small, non comm.	3						23	0.05	0.02	0.08		
<i>Chaceon maritae</i>	6						46	0.05	0.02	0.08		
<i>Bathyrocongrus</i> sp.	2						15	0.05	0.01	0.08		
<i>Aristeus varidens</i> , male	8						62	0.02	0.02	0.01		
<i>Aristeus varidens</i>	2						15	0.01	0.01	0.01		
<i>Heterocarpus grimaldii</i>	1						8					
<i>Heterocarpus laevigatus</i>	1						8					
<i>Plesiopenaeus edwardsianus</i>	1						8					
Other fish								0.68	0.76	0.69		
Sum all species								9.67	9.05	10.26		
Sum Snappers												
Sum Groupers												
Sum Grunts												
Sum Croakers												
Sum Seabreams												
Sum Sharks								0.28	0.27	0.30		
Sum Rays								0.01		0.02		
Sum Squids								0.15	0.02	0.26		
Sum												
Sum commercial shrimps								3.33	4.82	2.05		

Number of stations included in analysis, total and by depth strata

13

6

7

SWEPT AREA ANALYSIS FROM STATION 417 TO STATION 512

B. LUANDA-BENGUELA. Demersal shelf species.

SPECIES NAME	SAMPLE DISTRIB. BY CATCH CLASSES					% inci- dence	Mean dens. t/nm ²	Mean densities by bottom depth strata t/nm ²				
	Lower limits, Kg/nm							- 50m	50-100m	100-200m	200-200m	
	>0	10	30	100	300	1000						
Brachydeuterus auritus	16	6	6	5	2		66	5.88	1.82	10.05	6.95	
Umbrina canariensis	8	1			2		25	2.25		5.05	2.40	
Dentex macrophthalmus	6	1	2	2	1		27	1.83		0.03	5.71	
Spicara alta	3				1		9	1.15			3.63	
Synagrops microlepis	5		3	1			20	0.91			2.86	
Trichiurus lepturus	23	8	3				70	0.85	0.42	1.30	0.95	
Pentheroscion mbizi	1				1		5	0.77			2.42	
Galeoides decadactylus	4	5	3				27	0.59	1.39	0.18		
Pagellus bellottii	29	5					75	0.46	0.34	0.76	0.32	
Dentex angolensis	14	3	1				39	0.42		0.12	1.22	
Lithognathus mormyrus	11	1	2				30	0.40	0.25	1.04		
Rhinoptera marginata					1		2	0.40		1.34		
Pomadasys incisus	4	2			1		16	0.40	0.03	1.32		
Pterothrissus belloci	7	1	1				20	0.26			0.82	
Raja miraletus	24	2					59	0.17	0.09	0.25	0.21	
Brotula barbata	4	3					16	0.15		0.09	0.38	
Chelidonichthys gabonensis	11	1					27	0.14		0.35	0.10	
Stromateus fiatola	2	3					11	0.14		0.48		
Pomadasys jubelini	5		1				14	0.13	0.02	0.40		
Zeus faber	14						32	0.09		0.15	0.15	
Sepia officinalis hierredda	9	1					23	0.08	0.04	0.15	0.06	
Sphyrna lewini	1		1				5	0.08	0.20			
Lepidotrigla carolae	7	1					18	0.07		0.05	0.17	
Epinephelus aeneus	7						16	0.07	0.12	0.06		
Pomadasys rogeri	4	1					11	0.07	0.18			
Citharus linguatula	26						59	0.07	0.02	0.12	0.08	
Zenopsis conchifer	4	1					11	0.06			0.18	
Lepidotrigla cadmani	9						20	0.06		0.07	0.13	
Pseudolithus senegalensis	7						16	0.06	0.09	0.07		
Grammolites gruvelli	9						20	0.06	0.01	0.03	0.14	
Pteroscion peli	2	1					7	0.05	0.11		0.02	
Argyrosomus hololepidotus	3	1					7	0.05	0.02	0.13		
Rhinobatos albomaculatus	8						18	0.05	0.04	0.01	0.12	
Anthias anthias	2	1					7	0.05			0.17	
Parapenaeus longirostris, fem.	5						11	0.04			0.11	
Parapenaeus longirostris, male	5						11	0.02			0.07	
Penaeus notialis	6						14	0.01	0.01	0.03		
Parapenaeus longirostris	3						7			0.01		
Parapenaeopsis atlantica	1						2					
Shrimps, small, non comm.	1						2					
Other fish								0.95	0.77	0.90	1.31	
Sum all species								19.29	5.97	24.54	30.68	
Sum Snappers								0.03	0.09			
Sum Groupers								0.10	0.19	0.07		
Sum Grunts								6.52	2.16	11.77	6.95	
Sum Croakers								3.22	0.23	5.32	4.84	
Sum Seabreams								3.21	0.68	2.08	7.38	
Sum Sharks								0.11	0.25		0.07	
Sum Rays								0.69	0.26	1.60	0.42	
Sum Squids								0.18	0.07	0.35	0.11	
Sum												
Sum commercial shrimps								0.07	0.01	0.04	0.18	

Number of stations included in analysis, total and by depth strata

44 17 13 14

SWEPT AREA ANALYSIS FROM STATION 417 TO STATION 512

D. LUANDA-BENGUELA. Demersal species slope.

SPECIES NAME	SAMPLE DISTRIB. BY CATCH CLASSES					% inci- dence	Mean dens. t/nm ²	Mean densities by bottom depth strata t/nm ²				
	Lower limits, Kg/nm							200-300m	300-400m	400-500m	500-500m	
	>0	10	30	100	300	1000						
<i>Dentex macrophthalmus</i>	3	2	2		2		31	4.60	14.82			
<i>Synagrops microlepis</i>	7	3	2	5			59	3.58	11.28	0.19	0.02	
<i>Merluccius polli</i>	10	8	8	3			100	3.38	0.83	6.12	2.56	
<i>Chlorophthalmus atlanticus</i>	9	1	4	5			66	3.08	6.18	3.06	0.03	
<i>Trichiurus lepturus</i>	11	8	1				69	0.82	1.27	1.02	0.13	
<i>Laemonema laureysi</i>	14	6	2				76	0.82	0.08	1.11	1.21	
<i>Nematocarcinus africanus</i>	9	2	2				45	0.57		0.14	1.65	
<i>Gephyroberyx darwini</i>				1			3	0.40	1.28			
<i>Carcharhinus limbatus</i>				1			3	0.39		1.04		
<i>Pterothrissus bellocci</i>	11	5					55	0.39	0.68	0.42	0.06	
<i>Hymenocephalus italicus</i>	13	3					55	0.37	0.04	0.87	0.09	
<i>Zenopsis conchifer</i>	10	2	1				45	0.34	1.04	0.05	0.01	
<i>Aristeus varidens</i> , female	15		1				55	0.29	0.02	0.41	0.42	
<i>Erythrocles monodi</i>			1				3	0.28	0.89			
<i>Parapenaeus longirostris</i> , fem.	10	1	1				41	0.25	0.29	0.42		
<i>Alopias superciliosus</i>			1				3	0.22	0.69			
<i>Plesionika martia</i>	10	2					41	0.20		0.12	0.50	
<i>Dentex angolensis</i>	4	2					21	0.17	0.55			
<i>Coelorinchus coelorhincus</i>	18	1					66	0.17	0.31	0.15	0.05	
<i>Epinephelus gorensis</i>		1	1				7	0.16	0.53			
<i>Spicara alta</i>		2					7	0.15	0.48			
<i>Centrophorus uyato</i>	3	2					17	0.13		0.21	0.15	
<i>Parapenaeus longirostris</i> , male	10	1					38	0.12	0.26	0.10		
<i>Epigonus telescopus</i>			1				3	0.11	0.35			
<i>Etmopterus pusillus</i>	10	1					38	0.10		0.14	0.15	
<i>Brotula barbata</i>	4						14	0.08	0.25			
<i>Malacocephalus occidentalis</i>	10	1					38	0.08	0.14	0.10	0.01	
<i>Benthodesmus tenuis</i>	6	1					24	0.07	0.07	0.14	0.06	
<i>Hoplostethus mediterraneus</i>	2	1					10	0.07	0.02	0.17		
<i>Aristeus varidens</i> , male	16						55	0.07	0.02	0.09	0.09	
<i>Grammolites gruveli</i>	3	1					14	0.07	0.21			
<i>Lophiodes</i> sp.	2	1					10	0.07		0.09	0.10	
Shrimps, small, non comm.	3						10	0.06		0.15		
<i>Malacocephalus laevis</i>	6						21	0.06	0.10	0.07	0.02	
<i>Nezumia</i> sp.	9						31	0.05		0.02	0.13	
<i>Solenocera africana</i>	10						34	0.02		0.04		
<i>Parapenaeus longirostris</i>	4						14	0.01	0.01			
SERGESTIDAE	3						10				0.01	
<i>Glyphus marsupialis</i>	1											
PASIPHAIDAE	1						3					
<i>Parapandalus narval</i>	1						3		0.01			
<i>Plesiopenaeus edwardsianus</i>	3						10				0.01	
<i>Aristeus varidens</i>	1						3			0.01		
ARISTEIDAE	1									0.01		
Other fish								0.96	1.08	0.76	1.19	
Sum all species								22.76	43.71	17.22	8.65	
Sum Snappers												
Sum Groupers								0.16	0.53			
Sum Grunts								0.02	0.05			
Sum Croakers								0.06	0.20			
Sum Seabreams								4.79	15.43			
Sum Sharks								1.00	0.77	1.56	0.54	
Sum Rays								0.01		0.05		
Sum Squids								0.06	0.16	0.02	0.01	
Sum												
Sum commercial shrimps								1.53	0.61	1.34	2.68	

Number of stations included in analysis, total and by depth strata

29

9

11

9

SWEPT AREA ANALYSIS FROM STATION 417 TO STATION 512

D. LUANDA-BENGUELA. Demersal species slope cont.

SPECIES NAME	SAMPLE DISTRIB. BY CATCH CLASSES				% incidence	Mean dens. t/nm ²	Mean densities by bottom depth strata t/nm ²			
	Lower limits, Kg/nm						500-600m	600-800m	800-800m	800-800m
	>0	10	30	100 300 1000						
Nematocarcinus africanus	7		1	1	64	2.09	2.79	1.40		
Merluccius polli	11		2		93	0.89	0.80	0.98		
Lamprogrammus exutus	10	4			100	0.80	0.62	0.97		
GONOSTOMATIDAE	6	1	1		57	0.58	0.72	0.45		
Hoplostethus cadenati	9	2			79	0.49	0.53	0.45		
Shrimps, small, non comm.	2	3			36	0.45	0.57	0.33		
Laemonema laureysi	10	2			86	0.42	0.51	0.33		
Nezumia sp.	7	2			64	0.35	0.10	0.59		
Aristeus varidens, female	14				100	0.29	0.35	0.24		
MELANOSTOMIATIDAE	7	2			64	0.27	0.45	0.09		
Triplophos sp.	8	1			64	0.27	0.23	0.30		
Yarrella blackfordi	5	1			43	0.19	0.02	0.37		
Stereomastis sculpta	13				93	0.19	0.09	0.30		
Diplophos sp.	6				43	0.17	0.18	0.16		
Coelorinchus acanthiger		1				0.14		0.28		
Aristeus varidens, male	14				100	0.12	0.18	0.07		
Coelorinchus coelorhincus	7				50	0.12	0.05	0.19		
Benthodesmus tenuis	9				64	0.10	0.13	0.06		
Plesionika martia	7				50	0.09	0.12	0.05		
OPISTHOTEUTHIDAE	3				21	0.08	0.08	0.09		
MURAENESOCIDAE	8				57	0.08	0.07	0.09		
ALEPOCEPHALIDAE	6				43	0.08	0.09	0.06		
Etmopterus pusillus	8				57	0.07	0.07	0.06		
Nemichthys scolopaceus	12				79	0.07	0.13	0.02		
Chaceon maritae	6				43	0.07	0.01	0.12		
Bathyrocongrus sp.	5				29	0.07	0.01	0.12		
Hoplostethus atlanticus	2				14	0.06	0.03	0.09		
Glyphus marsupialis	5				36	0.05		0.09		
SERGESTIDAE	1									
PASIPHAEIDAE	2				14			0.01		
Plesiopenaeus edwardsianus	1				7		0.01			
ARISTEIDAE	1				7					
Other fish						0.49	0.38	0.61		
Sum all species						9.14	9.32	8.97		
Sum Snappers										
Sum Groupers										
Sum Grunts										
Sum Croakers										
Sum Seabreams										
Sum Sharks						0.17	0.16	0.13		
Sum Rays						0.01		0.02		
Sum Squids						0.13	0.10	0.17		
Sum commercial shrimps						2.64	3.45	1.86		

Number of stations included in analysis, total and by depth strata.

14

7

7

Annex IV Instruments and fishing gear used

The Simrad EK-500/38kHz scientific sounder was used during the survey for fish abundance estimation. The Bergen Echo Integrator system (BEI) was used to scrutinize the acoustic records from the 38kHz echo sounder, and to allocate integrator values to fish species.

The details of the settings of the 38kHz echo sounder where as follows:

Tranceiver-1 menu (38 kHz lowering keel)

Transducer depth	0.00 m
Absorbtion coeff.	10 dB/km
Pulse length	medium (1ms)
Bandwidth	wide
Max power	2000 Watt
2-way beam angle	-21.0 dB
SV transducer gain	28.0 dB
TS transducer gain	27.9 dB
Angle sensitivity	21.9
3 dB beamwidth	6.8 dg
Alongship offset	0.00 "
Athwardship offset	0.04 "

Display menu

Echogram	1 (38 kHz)
Bottom range	15 m
Bottom range start	10 m
Sv colour min	-72 dB

Printer- menu

Echogram	1 (38 kHz)
Range	100, 250 and 500 m
Range start	0
Bottom range	12 m
Bottom range start	10 m
Sv colour min	-72 dB
TVG	20 log R

Bottom detection menu Minimum level -50 dB

Fishing gear

The vessel has two different sized "Åkrahavn" pelagic trawls and one "Gisund super bottom trawl". All three trawls were used during the survey.

The bottom trawl has a headline of 31 m, footrope 47 m and 20 mm meshsize in the codend with an inner net of 10 mm meshsize. The estimated opening is 6 m (observed 5.7) and distance between wings during towing about 18 m. The sweeps are 40 m long. The trawl is equipped with a 12" rubber bobbins gear. The doors are of 'Thyborøn' combi type, 7.81 m², 1670 kg, their distance while trawling about 46 m in average. This distance is kept constant at all depths by the use of a 9.5 m strap between the wires at 130 m distance from the doors (applied at depths greater than 60 m). A tickler chain (44 m in total) was attached at the footrope.

The SCANMAR system was used both on pelagic and bottom trawls. This equipment consists of sensors, a hydrophone, a receiver, a display unit and a battery charger. Communication between sensors and ship is based on acoustic transmission.

The doors are fitted with sensors to provide information on their distance.

A height sensor is fitted to the bottom trawl to measure the trawl opening and provide information on clearance.

The pelagic trawl is equipped with a trawleye that provides information on the trawl opening and the distance of the footrope to the bottom.

F/F Dr. Fridtjof Nansen

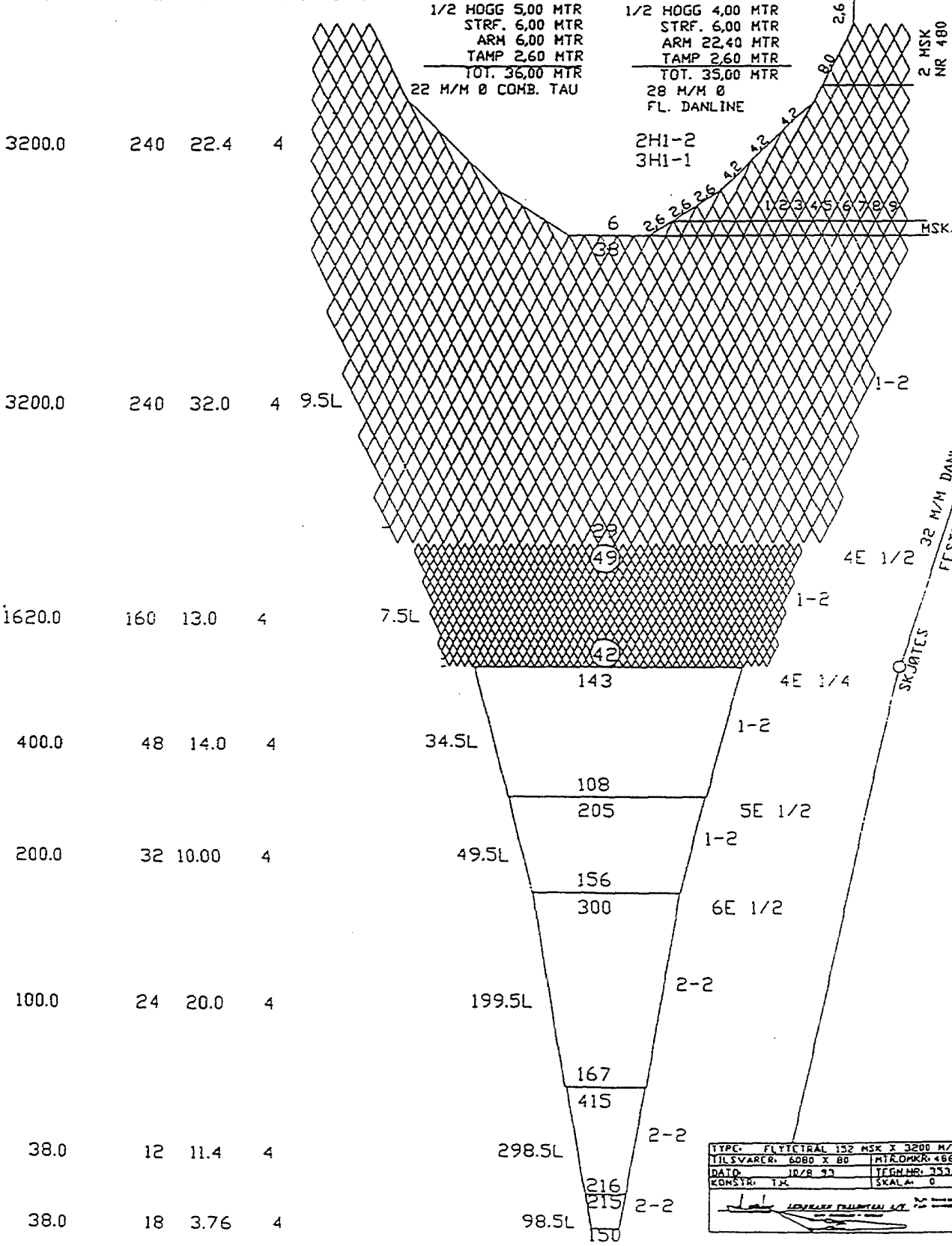
OVER/UNDER/SIDER

OVERDEL:
50 STK 11" PLASTKULER

UNDERDEL:
14 M/M WIRE DMSP. MED
14 M/M BLYTAU
+ KJETTING.

TOTAL VEKT UNDER 400 KG.

MASKER TRAAD LENGDE MASKER
M/M NR. I MTR. I EVING



SKJÆTES
32 M/M DANLINETAU
FESTES FOR HVER 40 CM
2 % KORTERE ENN NOTLIN

TYP: FLYTETRAL 152 MSK X 3200 M/M	
TILSVARER: 6080 X 80	MTR. DMKR: 466.4
DATE: 18/8 93	TFGH NR: 353NY
KONSTR: TX	SKALA: 0

F/F Dr. Fridtjof Nansen

MASKER
M/H NR. I MTR. I EVING

TRAAD LENGDE MASKER
160 19.4 4

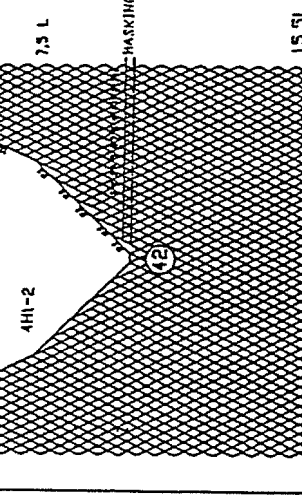
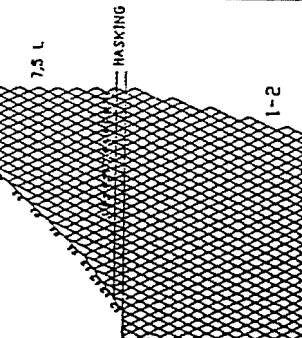
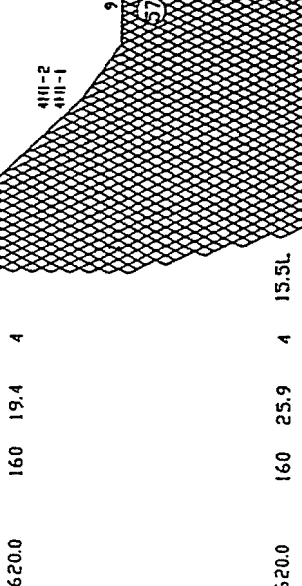
OVERDEL
50 STK 11" KULER
OMSLUTTET AV NETT.

UNDERDEL
14 M/H VIRE OMSP. MED
14 M/H BLYTAU.
KJUTING
TOT. VEKT UNDER 400 KG.
1/2 HOGG 320 HIR
STR. 430 HIR
ARML. 1940 HIR
TOT. 320 HIR
22 M/H COMB. TAU.

1/2 HOGG 940 HIR
STR. 1530 HIR
ARML. 1940 HIR
TOT. 320 HIR
22 M/H B.
FL. DANLINC

4 HSK NR 240
7,5 L
HASKING

4 HSK NR 240
7,5 L
HASKING



1620.0 160 25.9 4 15.5L

400.0 48 14.0 4 34.5L

200.0 32 10.00 4 49.5L

100.0 24 20.0 4 199.5L

38.0 12 11.4 4 298.5L

38.0 12 11.4 4 298.5L

38.0 12 11.4 4 298.5L

38.0 12 11.4 4 298.5L

38.0 18 3.76 4 98.5L

38.0 18 3.76 4 98.5L

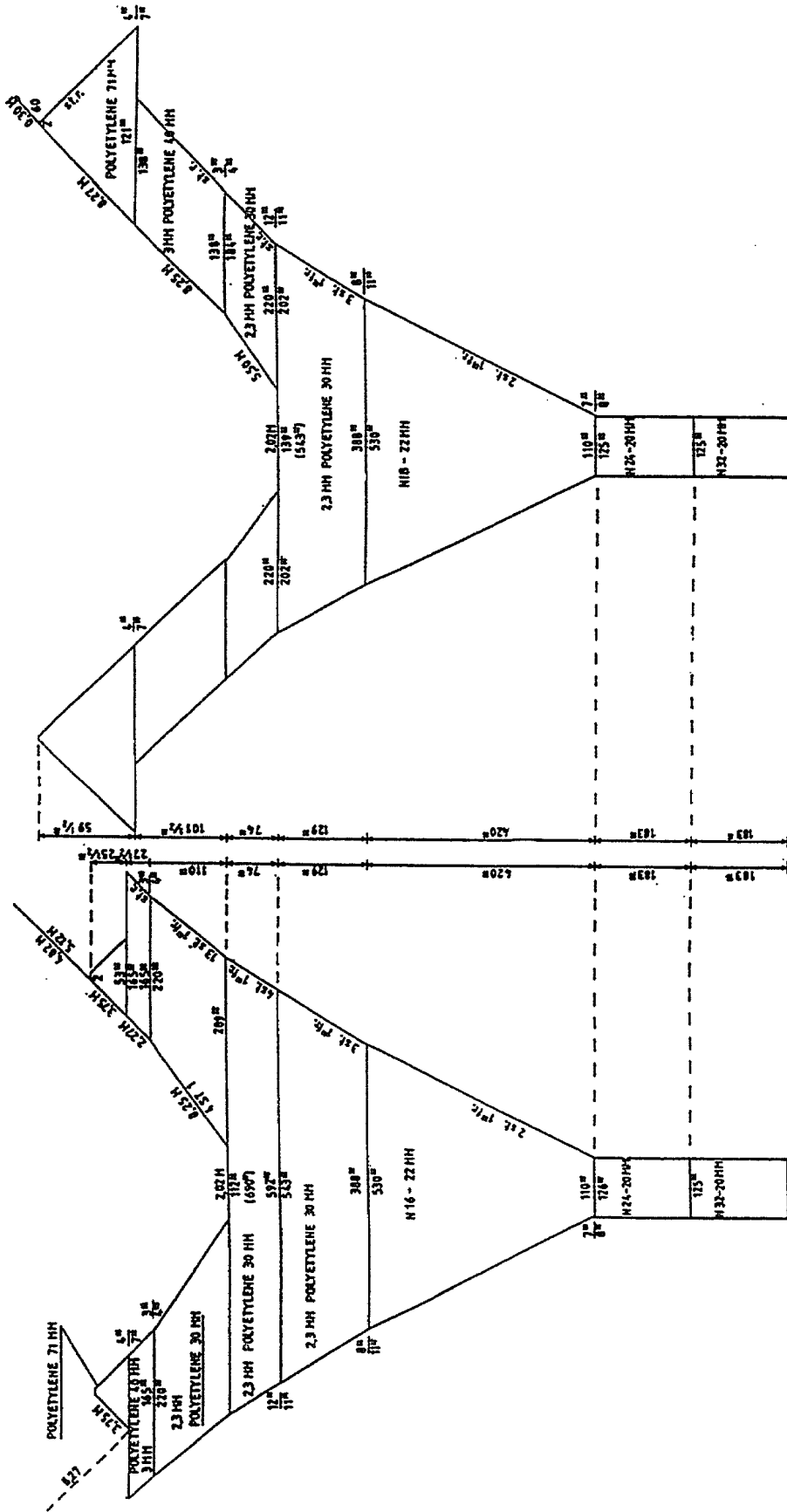
38.0 18 3.76 4 98.5L

38.0 18 3.76 4 98.5L

TYPE:	FLYTEIRAL 198 HSK X 1620 M/H
TILSVARER:	4010 X 80 MTR/OKR 320
DATE:	23/6 93
KONSTR:	T-H
SKALA:	0

TEK. NANSJEN
198 1620 M/H
1620 X 4010

Bottom trawl: High opening shrimp and fish trawl with net headline 31m (floatline), foot-
 rope 47m, gear with 12 cm diameter roller disks, 40 m sweeps, estimated headline height
 6m and distance between wings during towing 18-20m.



Annex V Maturity stages of main pelagic species

Sardinella maderensis

Cabinda-Luanda

(N = 1773)

Length group	Mean.W	N.	% per Maturity Stage				
			1	2	3	4	5
8 - 9	1.00	6	100	0	0	0	0
9 - 10	1.00	16	100	0	0	0	0
10 - 11	1.00	2	100	0	0	0	0
14 - 15	3.00	1	0	100	0	0	0
20 - 21	7.14	7	14	86	0	0	0
21 - 22	8.15	20	0	90	5	0	5
22 - 23	9.26	34	3	79	15	3	0
23 - 24	10.16	38	3	82	13	0	3
24 - 25	12.80	44	5	82	14	0	0
25 - 26	12.92	66	2	76	23	0	0
26 - 27	13.93	59	3	76	19	2	0
27 - 28	14.73	56	2	64	30	4	0
28 - 29	16.37	59	2	64	27	2	5
29 - 30	17.48	88	0	53	36	9	1
30 - 31	19.34	163	0	46	41	6	7
31 - 32	20.89	288	0	46	33	12	8
32 - 33	2.63	385	8	0	42	42	10
33 - 34	24.31	263	0	35	48	8	9
34 - 35	25.84	120	0	34	49	3	14
35 - 36	28.67	45	0	27	44	9	20
36 - 37	29.64	11	0	27	27	9	36
38 - 39	18.00	2	0	50	0	50	0

Sardinella maderensis

Luanda-Benguela

(N = 1348)

Length group	Mean.W	N.	% per Maturity Stage				
			1	2	3	4	5
8 - 9	1.00	6	100	0	0	0	0
9 - 10	1.00	16	100	0	0	0	0
10 - 11	1.00	2	100	0	0	0	0
14 - 15	3.00	1	0	100	0	0	0
20 - 21	6.80	5	0	100	0	0	0
21 - 22	8.15	20	0	90	5	0	5
22 - 23	9.07	29	0	83	14	3	0
23 - 24	10.39	31	0	84	16	0	0
24 - 25	10.71	28	0	86	14	0	0
25 - 26	12.54	13	0	77	23	0	0
26 - 27	13.00	13	0	77	23	0	0
27 - 28	14.00	12	0	67	25	8	0
28 - 29	15.35	17	0	53	35	0	12
29 - 30	17.46	52	0	56	29	13	2
30 - 31	19.18	132	0	45	40	7	8
31 - 32	20.74	261	0	47	33	11	8
32 - 33	22.51	350	0	41	43	9	7
33 - 34	23.96	223	0	34	50	7	9
34 - 35	25.41	98	0	27	59	1	13
35 - 36	28.36	33	0	21	48	9	21
36 - 37	30.67	6	0	0	17	17	67

