

**SURVEYS OF THE FISH RESOURCES OF
THE WESTERN GULF OF GUINEA
(Benin, Togo, Ghana & Côte d'Ivoire)**

**Survey of the pelagic and demersal resources
3 - 29 May 2005**

**Centre de Recherches Oceanologiques
Abidjan
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Cotonou
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Norway**

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The programme has previously conducted the following surveys in the Gulf of Guinea:

Area	Period
Cape Verga (Rep. of Guinea) to Cape St. Paul (Ghana)	02 - 25 June 1981
Togo to Cameroon	07 - 20 August 1981
Côte d'Ivoire and Ghana	12 - 20 October 1989
Benin, Togo, Ghana and Côte d'Ivoire	19 April - 06 May 1999
	29 August - 17 September 2000
	16 July - 09 August 2002

CRUISE REPORTS "DR. FRIDTJOF NANSEN"

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by

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CHAPTER 1 INTRODUCTION

Following a request from the Government of Ghana, later supported by the Governments of Benin, Togo and Côte d'Ivoire, IMR, NORAD and FAO agreed to conduct a survey of fisheries resources in the western Gulf of Guinea covering the waters of the above four countries. This was a follow-up to similar surveys conducted in 19 April - 6 May 1999, 29 August – 17 September 2000, 16 July – 9 August 2002 and 14 May – 8 June 2004. The survey was organised by IMR and FAO under the project GCP/INT/730/NOR: International cooperation with the Nansen Programme; Fisheries Management and Marine Environment. This project is the continuation of a series of projects and agreements between NORAD, IMR and FAO involving surveys with the research vessel “Dr. Fridtjof Nansen”. The objectives of the survey had been previously discussed and agreed upon during a pre-survey meeting held onboard “Dr. Fridtjof Nansen” in Tema, Ghana on 3rd May 2005 where representatives from Côte d'Ivoire, Ghana, Togo, Benin and Norway participated.

1.1 Objectives

The main objectives of the survey were:

- to map the distribution and estimate the acoustic abundance of the main pelagic species/groups
- to describe the distribution, composition and estimate the abundance of the main demersal species on the shelf by a swept-area trawl programme
- to do fishing trials on the deep continental shelf and upper slope
- to collect zooplankton samples for distribution and abundance estimation
- to map the general hydrographic regime by using a CTD-sonde for temperature, salinity and oxygen at bottom trawl stations and in five hydrographical transects
- to do an in-survey training on the main fisheries research and sampling routines

1.2 Progress

Survey period

The vessel left Tema (Ghana) on 3rd May at 1630 hrs GMT and steamed eastwards to the eastern part of Benin where the survey started on the 4th May. The survey of the shelf off Benin was from the 4-7 May, Togo from 7-8 May whilst the area off Ghana was covered from the 9- 20 May. The shelf off Côte d'Ivoire was covered from the 21-27 May. There were two breaks during the cruise; on the 11th May when one participant had to disembark due to being in-disposed and on the 17th of May to celebrate the Norwegian constitutional day. The survey was completed at the Côte d'Ivoire - Liberia border on 27th May at about 1500 hrs and the vessel arrived in Tema in the evening of 29th May.

Fisheries survey

The shelf was surveyed during daytime (0600 to 1800) by parallel course tracks about 20 NM (nautical miles) apart. In Benin and Togo the inter-transect distance was 10 NM, allowing for 6 transects in Benin and 3 in Togo. Semi-random swept-area hauls were carried out on the shelf within the depth zones 0-30 m, 31-50 m and 51-100 m during daytime to determine the abundance of fisheries resources, most especially demersal species. In addition, 10 bottom trawl hauls were made at depths greater than 100 m in areas with suitable trawling grounds to consolidate observations of previous surveys on resources on the deep continental shelf and upper slope. For the estimation of pelagic resources, continuous acoustic registrations were done throughout the survey. To obtain a denser acoustic coverage, night time registrations were made in between the daytime course tracks. Pelagic trawling was mainly carried out during dark hours, either as random blind trawl hauls close to the surface with pelagic trawl or bottom trawl gear equipped with large floats, or on registrations.

Hydrography

CTD-stations were taken at most of the bottom trawl stations. In addition, five hydrographical profiles were made with CTD from the surface down to the bottom or 500 m depth. One hydrographic transect was made off Cotonou, two in Ghana off Accra and Cape Three points and two transects off Cote d'Ivoire (Grand Jacques on the central part and Grand Bérébi in the west).

Plankton

Zooplankton samples were taken with 1 m diameter ICITA net in step oblique hauls at about 50 m depth, one off Benin (Cotonou) and Togo (Kpeme) each, four in Ghana (off Keta/Ada, Tema, Saltpond and Cape Three Points) and three off Côte d'Ivoire (Assini, Grand Lahou and Tabou).

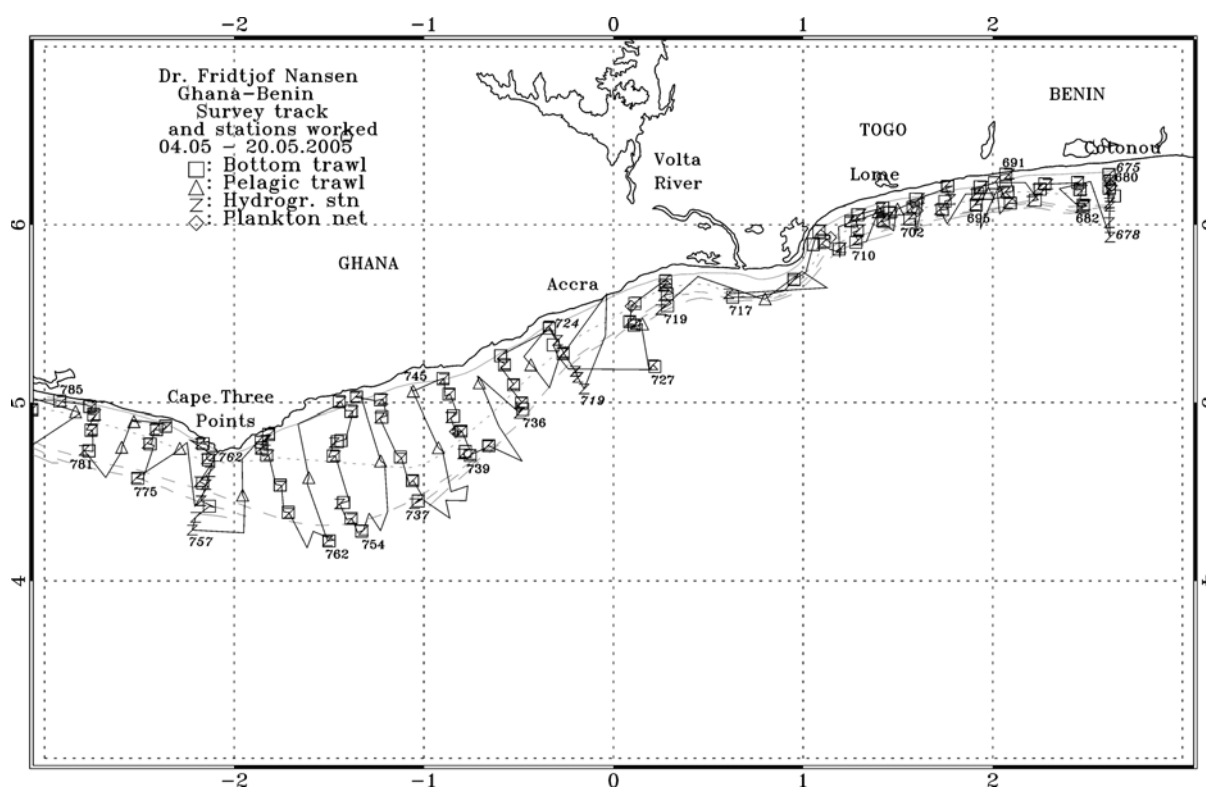
1.3 Survey effort

Figure 1.1a-b shows the cruise tracks with trawl, hydrographic and plankton stations.

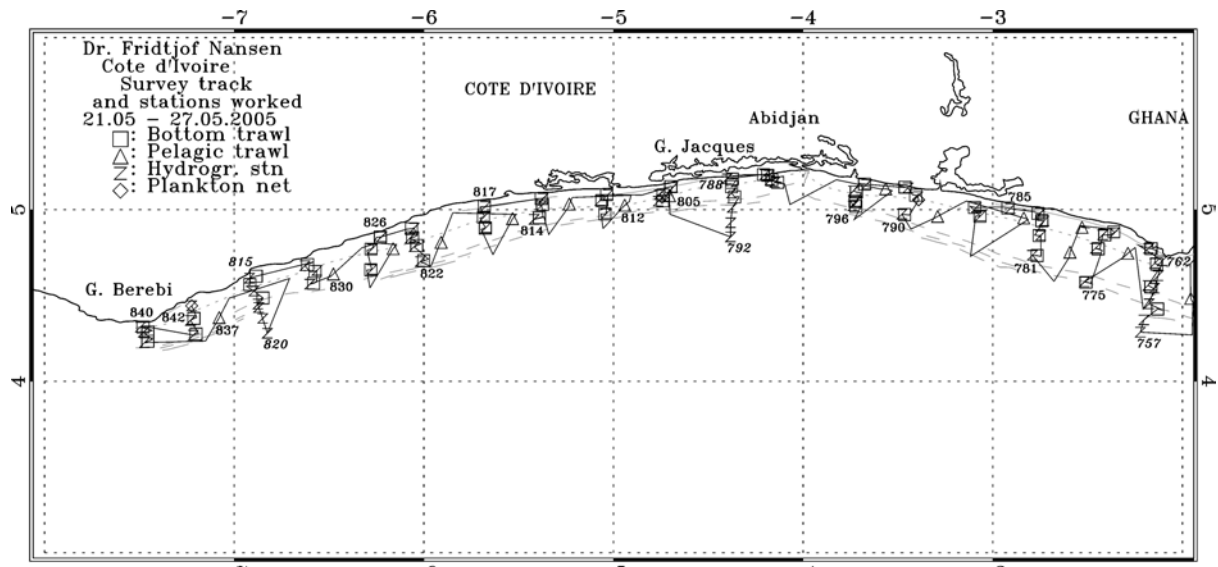
Table 1.1 summarises the survey effort in each sector.

Table 1.1 Number of hydrographic (CTD), plankton (P), pelagic trawl (PT) and bottom trawl (BT) stations, successful swept-area hauls, distance surveyed (NM) and size of survey area (NM²).

Region	CTD	P	PT	BT	Swept-area hauls			Distance surveyed
					0-30 m	31-50m	51-100 m	
Benin	23	1	2	20	6	6	7	355
Area (NM ²)					387	134	244	
Togo	10	1	2	10	3	3	3	185
Area (NM ²)					149	78	100	
Ghana	72	4	13	64	18	18	18	1490
Area (NM ²)					1412	2064	2751	
Côte D'Ivoire	50	3	10	44	12	12	20	835
Area (NM ²)					563	701	2752	
Total	155	9	27	138	39	39	48	2865
Area (NM ²)					2511	2977	4714	



a) Benin - Ghana



b) Ghana - Côte d'Ivoire

Figure 1.1 Course track with fishing, plankton and hydrographic stations for a) Benin - Ghana and b) Ghana - Côte d'Ivoire. Depth contours at 20 m, 50 m, 100 m, 200 m and 500 m are indicated.

CHAPTER 2 METHODS

2.1 Meteorological and hydrographical sampling

Temperature, salinity and oxygen

CTD stations were taken in connection with most bottom trawl stations and at five hydrographic transects. Annex VIII presents positions and depths for the CTD stations taken on the five transects. 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 usually taken down to a few metres above the bottom, but not deeper than 500 m. At some stations two Niskin bottles were triggered in stable water to collect samples for calibration of the salinity and oxygen sensors. The samples are normally analysed for salinity using a Guildline Portasal salinometer, and the oxygen content is determined using the Winkler method.

For oxygen, 20 samples out of 20 from Cape Three Points were accepted for the calibration. A linear regression gave the following formula for correcting the oxygen values:

$$O_2 = O_{2ctd} 1.0312 + 0.0028$$

For the salinity, the analyses of 10 February were applied. The average differences between the salinometer and CTD values were very small and the CTD values were accepted.

Current speed and direction measurements (ADCP)

The ship-born Acoustic Doppler Current Profiler (ADCP) from RD Instruments was run continuously during the survey in broadband mode shallower than about 500 m and in narrow band mode in deeper waters. All data were stored on files for post survey processing.

Meteorological observations

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

2.2 Biological sampling

The trawl catches were sampled for species composition by weight and numbers. The deck sampling procedure is described in more detail by Strømme (1992). Length measurements (total length) were taken for target species. The length of each fish was recorded to the nearest 1 cm below. The carapace length was measured to the nearest 0.5 cm below for shrimp. The mantle length was measured to the nearest 1 cm below for *Sepia* spp. In addition, at a few stations total length and body weight (g) were recorded for the target species in the acoustic survey. Basic information recorded at each fishing stations, i.e. trawl hauls, is presented in Annex I. Pooled length frequency distributions, raised to catch per hour, of selected species by area are shown in Annex II. Groups/families included in the species

composition and swept area analysis are given in Annex III. The swept-area estimates are presented in Annex IV.

A description of the fishing gears used, acoustic instruments and their standard settings is given in Annex VII.

2.3 Biomass estimates

Acoustic abundance estimation

A SIMRAD EK500 Echo sounder was used and the echograms were stored on files. The acoustic biomass estimates were based on the integration technique. The Bergen Integrator (BEI, see Knudsen 1990) was used for analysis and allocation of the integrated s_A -values (average area back scattering coefficient in m^2/NM^2) The splitting and allocation of the integrator outputs (s_A -values) was based on a combination of a visual scrutiny of the behaviour pattern as deduced from echo diagrams, the BEI analysis and the catch composition. The mean integrator value in each sampling unit (s_A -values) was divided between the standard categories/groups of fish, as noted below, on the basis of trawl catches and characteristics of echo traces:

- plankton
- sardinella (*Sardinella aurita* and *S. maderensis*)
- anchovy (*Engraulis encrasicolus*)
- PEL 1 (other clupeids than sardinella and anchovy)
- PEL 2 (carangids, scombrids, barracudas, hairtail)
- mesopelagic fish
- demersal fish

The following target strength (TS) function was applied to convert s_A -values (mean integrator value for a given area) to number of fish (sardinella, anchovy, PEL 2):

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

or in the form

$$C_F = 1.26 \cdot 10^6 \cdot L^{-2} \quad (2)$$

where L is total length and C_F is the reciprocal back scattering strength, or the so-called fish conversion factor. In order to split and convert the allocated s_A -values (m^2/NM^2) to fish densities (number per length group per NM^2) the following formula was used

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

where: N_i = number of fish in length group i

A = area (NM^2) of fish concentration
 s_A = mean integrator value (echo density) in area A (m^2/NM^2)
 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 simple adding of the length frequencies obtained in representative trawl samples within the area. In the case of co-occurrence of target species, the s_A value was split in accordance with length distribution and catch rate in numbers in the trawl catches. Biomass per length group (B_i) was estimated by applying measured weights by length (W_i) when available or theoretical weights (calculated by using condition factors), multiplied with number of fish in the same length group (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 then added up to obtain totals for each region.

Biomass estimates based on swept-area method

In the bottom trawl survey, stock biomasses was estimated by the swept-area method with catch per haul as the index of abundance (see Strømme 1992). The general formula to estimate biomass B , using this method is:

$$B = \frac{A}{a} \cdot \frac{\bar{X}}{q} \quad (6)$$

A is the total area surveyed, a is the swept area of the net per haul, \bar{X} is the average catch per haul (the index of abundance) and q is the proportion of fish in the path of the net that are actually caught. The density of the resource is estimated as biomass per unit area. In a stratified survey of k non-overlapping strata, if the mean catch per haul in stratum i and its variance are denoted by \bar{X}_i and s_i^2 respectively, then an unbiased estimate of the population mean \bar{X} is the stratified mean \bar{X}_{st} , which is given by:

$$\bar{X}_{st} = \frac{1}{N} \sum_{i=1}^k N_i \bar{X}_i = \sum_{i=1}^k W_i \bar{X}_i \quad (7)$$

where $W_i = \frac{N_i}{N} = \frac{A_i}{A}$ is the relative size of the i^{th} stratum (A_i is the area of the i^{th} stratum and A is the total area surveyed). The variance of the stratified mean is given by

$$\text{var}(\bar{X}_{st}) = \sum_{i=1}^k W_i^2 \text{var} \bar{X}_i = \sum_{i=1}^k W_i^2 \frac{s_i^2}{n_i} \quad (8)$$

where n_i is number of hauls in the i^{th} stratum and n is the total number of hauls in the survey. Table 1.1 shows the areas used in the swept-area method to estimate biomass for the different regions. A stratified semi-random design was used with depth and country as stratification factors. Estimated total biomass by species/group was obtained by summing estimates for each depth stratum.

For conversion of catch rates (kg/hour) to fish densities (t/NM²), the effective fishing area was considered as the product of the wing spread and the haul length, or distance over the bottom, as measured by means of the SCANMAR[®] equipment based on GPS readings. The area swept for each haul was thus 18.5 times the distance trawled, raised to NM²/hour. The catchability coefficient (q), i.e the fraction of the fish encountered by the trawl that was actually caught, was conservatively (and for comparison with previous surveys) assumed equal to 1. Mean fish densities by species and strata were calculated by the swept-area module in NAN-SIS.

Total biomass estimates by species and their confidence intervals were obtained from a stratified mean density estimator (using equations 1, 2, and 4 in ANNEX V on a spread-sheet, ANNEX VI) and raised to total area. Since NAN-SIS does not produce variance estimates of the mean densities (ANNEX III), the 95% confidence limits for the biomass estimates were calculated with the underlying assumption that the coefficient of variation ($CV = SD/\text{mean}$) is constant when catch rates in kg/hour are converted to densities (t/NM²). In other words the area swept (normalised per hour) was approximately constant for each haul. Coefficients of variation of the catch rates, by depth strata for each species or group, were obtained using the WinGrafer module of NAN-SIS. Variance of the densities were estimated from the mean and the CV, and equations 2, 3, 6 and 7 in ANNEX V were used to calculate standard error (SE) on the arithmetic mean and confidence intervals (see the spreadsheet BIOMASS.xls, and example in ANNEX VI). GRAFER was also used to produce the figures and tables with grouped catch-rates and time-series presented in this report. SE and confidence intervals in the figures are based on the arithmetic mean, but the lognormal based Pennington's estimator can also be calculated (equations 8 to 12 in ANNEX V).

CHAPTER 3 OCEANOGRAPHIC CONDITIONS

Surface distribution

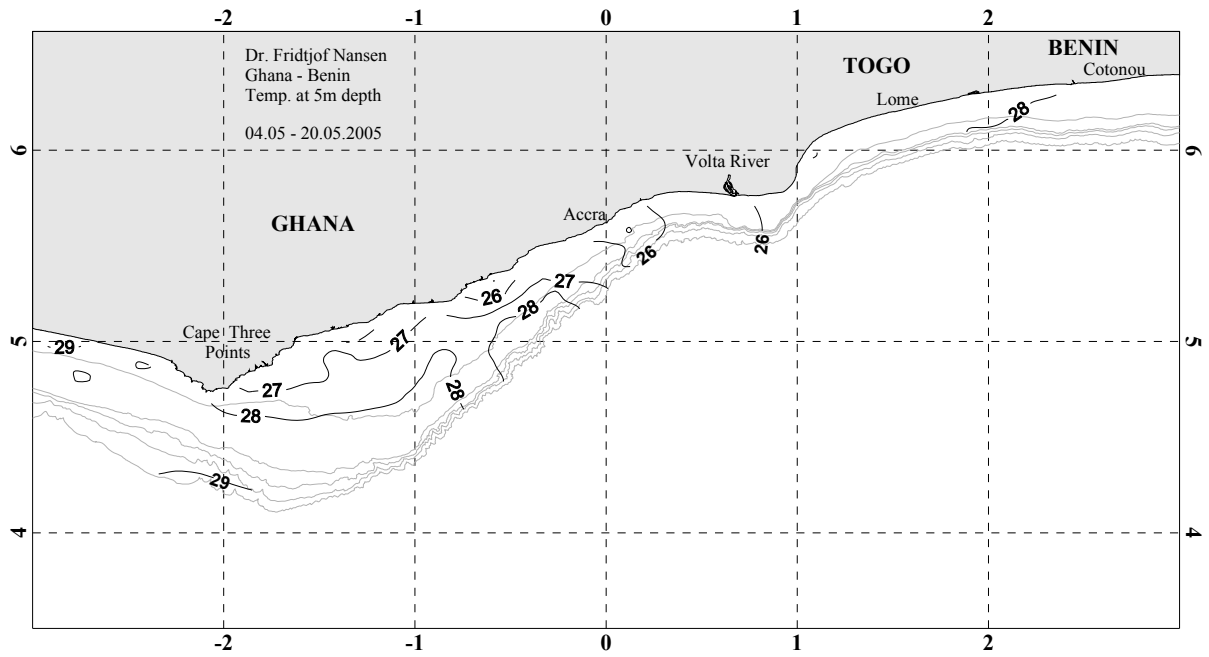
The surface layer temperature was continuously recorded during the cruise. Figures 2.1a and b show the horizontal distribution of sea surface temperature (SST) for the Benin - Ghana and the western Ghana - Côte d'Ivoire areas, respectively. The highest temperature of 29° C was recorded a few places in the western part of Ghana and Côte d'Ivoire, while in most of the area the temperature ranged between 26-28° C. Coastal temperatures were at some places lower than in offshore areas.

The surface salinity (Figures 2.2a and b) ranged between 33.0 psu and 35.4 psu for the whole survey area. The salinity was in general lowest in coastal areas around river estuaries, while in some areas the salinity was higher near the shore than further away from the coast.

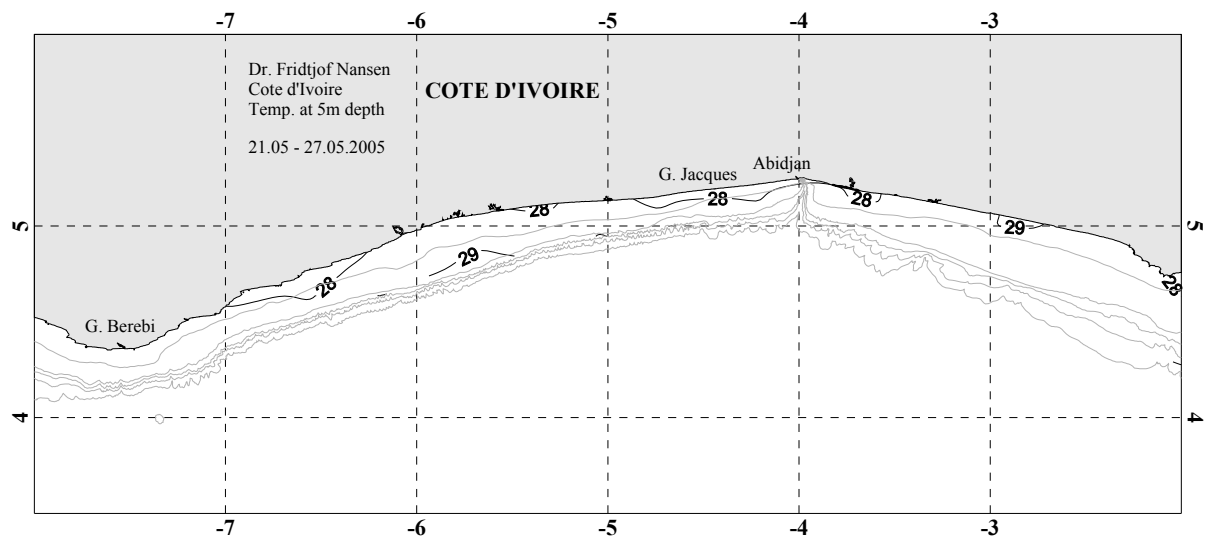
Vertical sections

Figures 2.3a-e show the vertical distribution of temperature, salinity and dissolved oxygen as recorded on the five hydrographic transects worked during the survey. There were only small differences between the profiles. The thermocline was found between 25 and 50 m depth. A relatively flat structure was observed in most sections with no clear signs of vertical water displacement and upwelling.

Temperature ranged from 26.3 - 29.1° C at the surface to 8° at 400-500 m depth. Salinity ranged from 33.8 - 35.3 psu at the surface to 34.8 psu at 400-500 m depth. Dissolved oxygen values ranged between 2 ml/l at the bottom and 4 ml/l at the surface. There was no sign of low bottom oxygen content on the shelf.

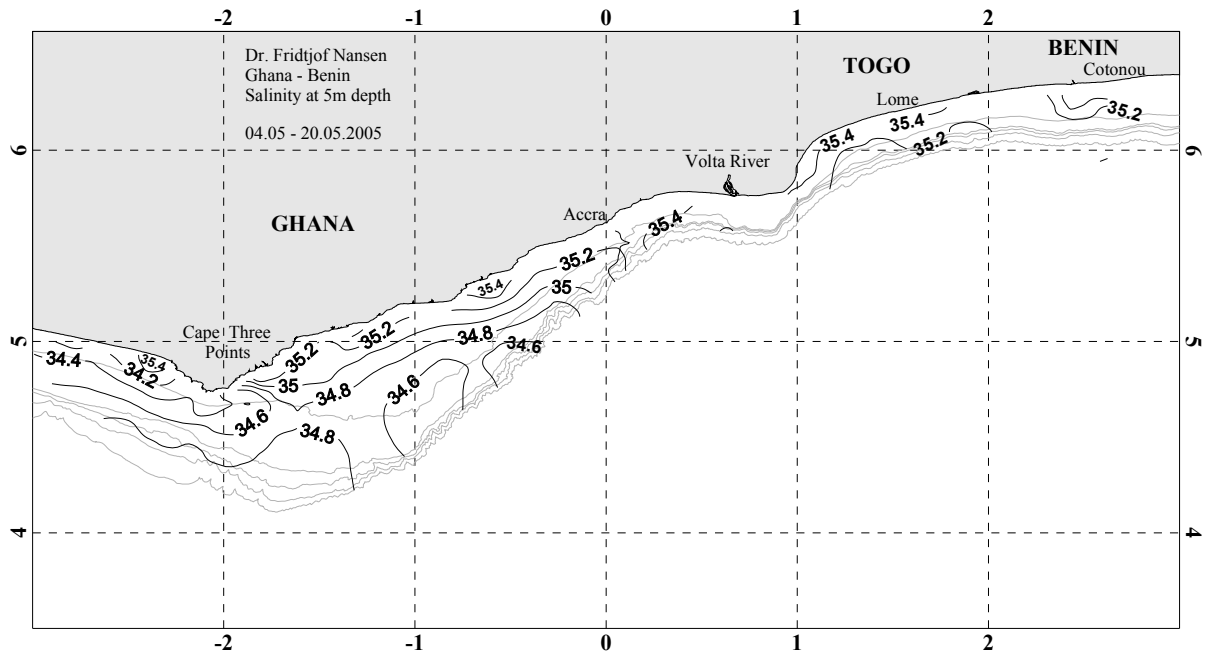


a) Benin - Ghana

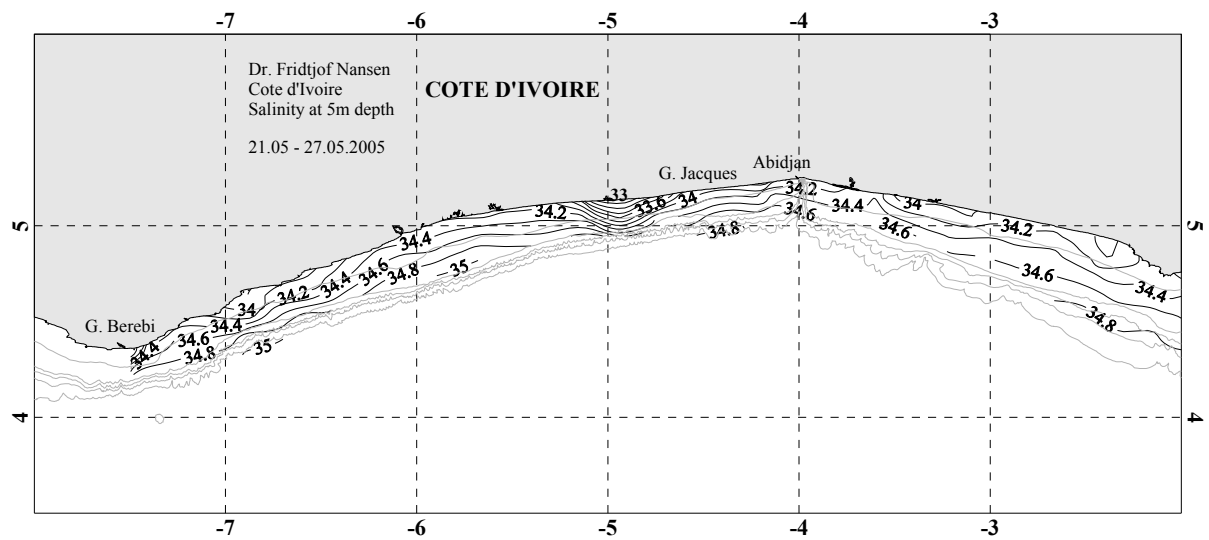


b) Ghana - Côte d'Ivoire

Figure 2.1 Horizontal distribution of surface temperature (5 m depth) at a) Benin - Ghana and b) Ghana - Côte d'Ivoire. Depth contours as in Fig. 1.

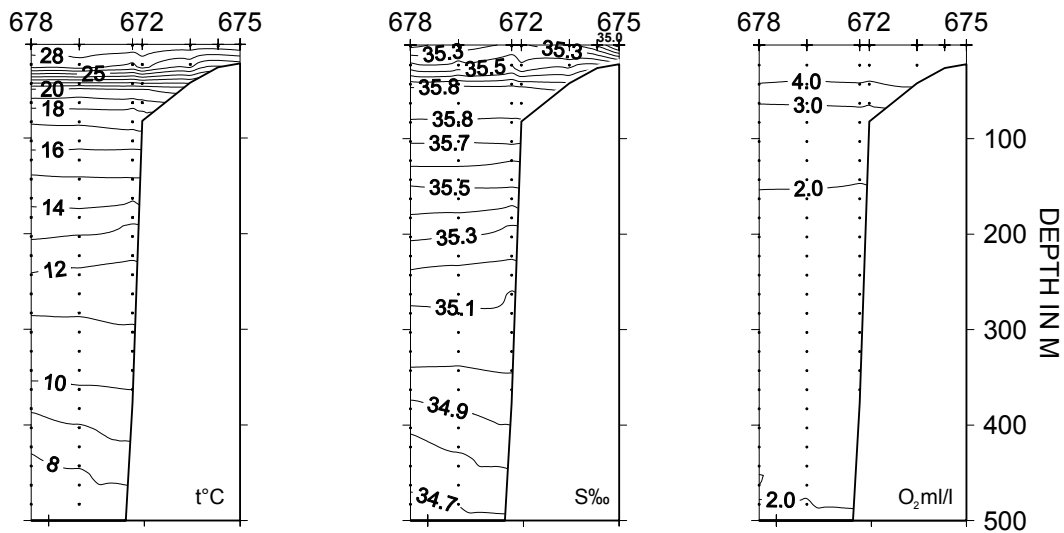


a) Benin - Ghana

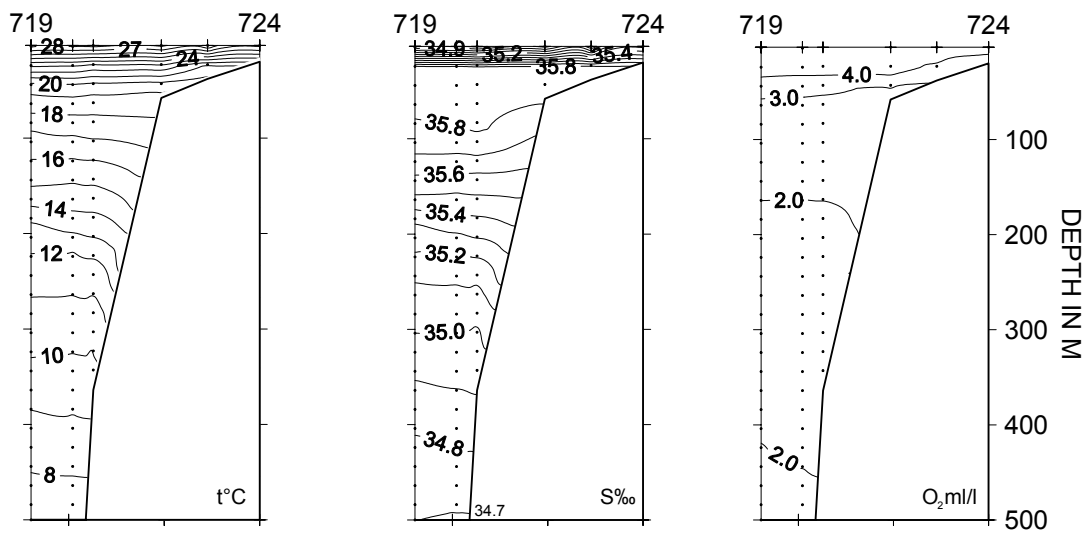


b) Ghana - Côte d'Ivoire

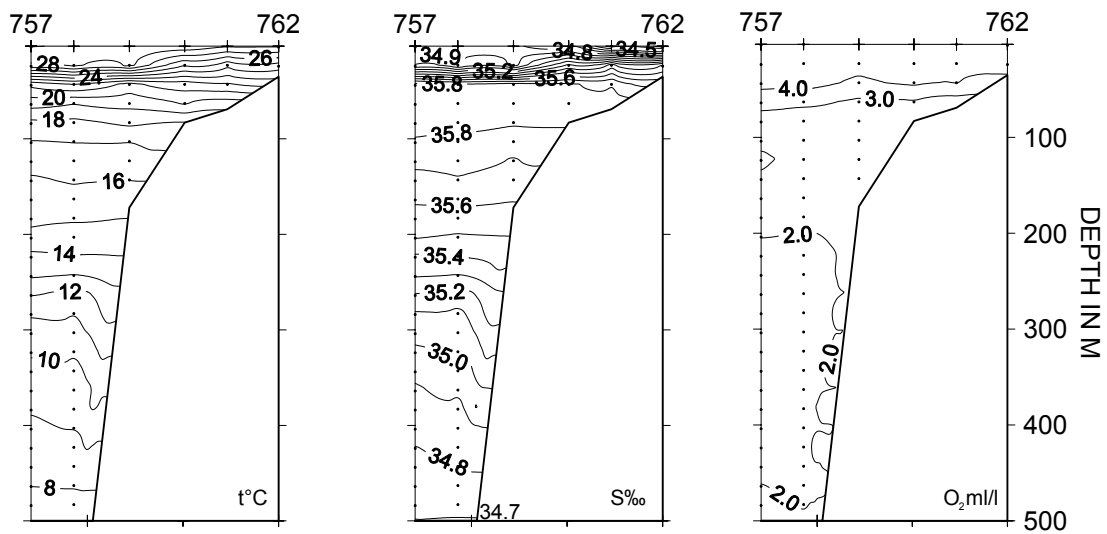
Figure 2.2 Horizontal distribution of salinity (5 m depth) at a) Benin - Ghana and b) Ghana - Côte d'Ivoire. Depth contours as in Fig. 1.



a) Cotonou – 03.05.2005

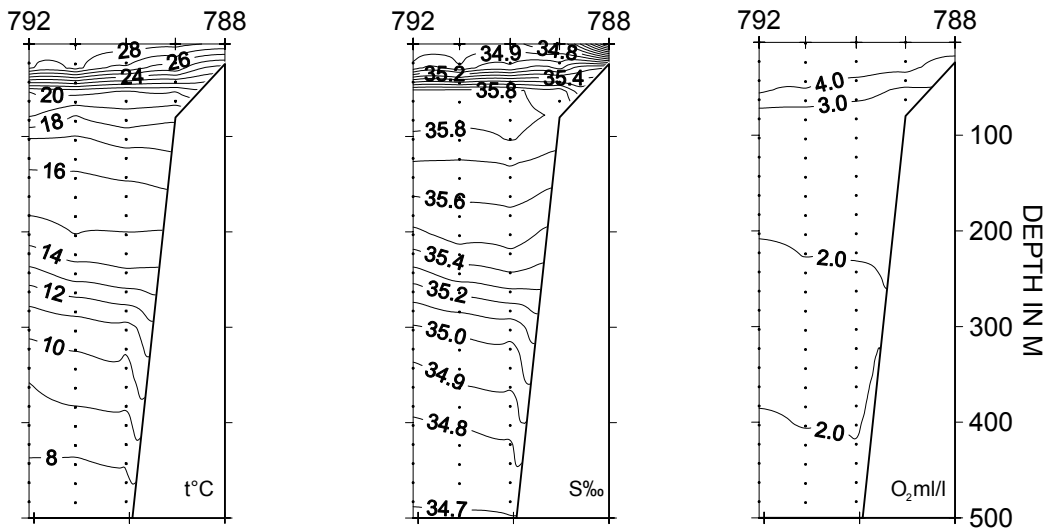


b) Accra – 11.05.2005

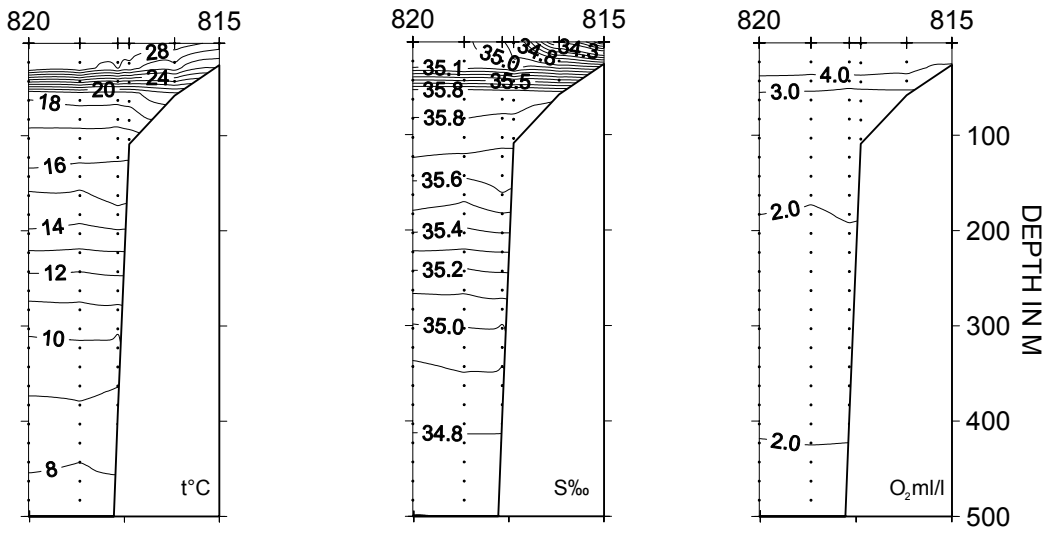


c) Cape Three Points – 17.05.2005

Figure 2.3 Vertical sections of temperature, salinity and oxygen at a) Cotonou, b) Accra, c) Cape Three Points, d) Grand Jacques and e) Grand-Bérébi.



d) Grand Jacques – 22.05.2005



e) Grand Bérébi – 26.05.2005

Figure 2.3 Continuation

CHAPTER 4 RESULTS OF THE ACOUSTIC SURVEY: FISH DISTRIBUTION AND ABUNDANCE ESTIMATE OF PELAGIC SPECIES

The next maps of the main groups of pelagic fish, i.e. sardinellas, anchovies and PEL 2 (mainly carangids), show the distribution as observed with the acoustic integration system. The acoustic densities (in m^2/NM^2) are illustrated by a scale used on acoustic surveys with “Dr. Fridtjof Nansen”.

4.1 Benin

Clupeids

Juvenile *Sardinella maderensis* (5-14 cm) was caught in small quantities in one pelagic blind trawl haul and in most of the bottom trawl hauls on the inner shelf, while *S. aurita* (7-24 cm) was found on the outer shelf. Some low and a few medium density schools were recorded on the inner-central part of the shelf (Fig. 4.1). The biomass of sardinella was estimated to be about 2 400 tonnes (54 % *S. aurita*), applying added and weighted length distributions from bottom trawl hauls and a measured condition factor of 0.77 for *S. aurita* and 1.00 for *S. maderensis*.

Ilisha africana (7-21 cm) was caught in some of the bottom trawl and pelagic blind trawl hauls on the inner shelf area. No schools were allocated to this species.

Anchovy

Juvenile *Engraulis encrasicolus* (3-6 cm) was caught in the bottom trawl and pelagic blind trawl hauls on the inner shelf. Some low - medium density schools were recorded (Fig. 4.2). The biomass of anchovy was estimated to be about 890 tonnes, applying length distributions from a bottom trawl haul and a measured condition factor of 0.67.

PEL 2 (carangids, scombrids, barracudas and hairtail)

This group consisted mainly of carangids with *Alectis alexandrinus*, *Chloroscombrus chrysurus*, *Selene dorsalis*, *Selar crumenophthalmus* and *Decapterus punctatus* the most abundant species in both the bottom trawl and pelagic blind trawl hauls. Most of the carangids were juveniles (3-24 cm). The scombrid *Scomberomorus tritor* was mainly caught on the inner shelf. The barracudas, *Sphyraena guachancho* and *S. sphyraena*, were distributed over the entire inner shelf area, while only a few were caught at the outer shelf. The hairtail *Trichiurus lepturus* was also mainly caught on the inner shelf. Scattered schools of PEL 2 were recorded along the whole coast, all of low density (Fig. 4.3). Based on a pooled length distribution of the most common carangids and a measured condition factor of 0.83 for fish

less than 15 cm (*D. punctatus*), 0.85 for fish between 15-20 cm (*D. punctatus*) and 0.90 for larger fish (*C. chrysurus*), the biomass of this group was estimated to be 4 700 tonnes.

4.2 Togo

Clupeids

Juvenile *Sardinella maderensis* (6-9 cm) and *S. aurita* (6-11 cm) were caught in small quantities in some of the bottom trawl hauls and two pelagic blind trawl haul. Also larger *S. aurita* occurred in a couple of the catches (13-21 cm). A few small low-density schools were recorded and allocated to sardinella (Fig. 4.1). The acoustic biomass was estimated to be about 400 tonnes (100 % *S. aurita*), applying added and weighted length distributions and a measured condition factor of 0.77.

Ilisha africana was not caught in bottom trawl or pelagic blind trawl hauls on the shelf of Togo and no schools were allocated to this species.

Anchovy

Juvenile *Engraulis encrasicolus* (5-7 cm) was caught in one pelagic blind trawl haul on the inner shelf. A few low-density schools were recorded (Fig. 4.2). The biomass of anchovy was estimated to be about 100 tonnes, applying an estimated condition factor of 0.67.

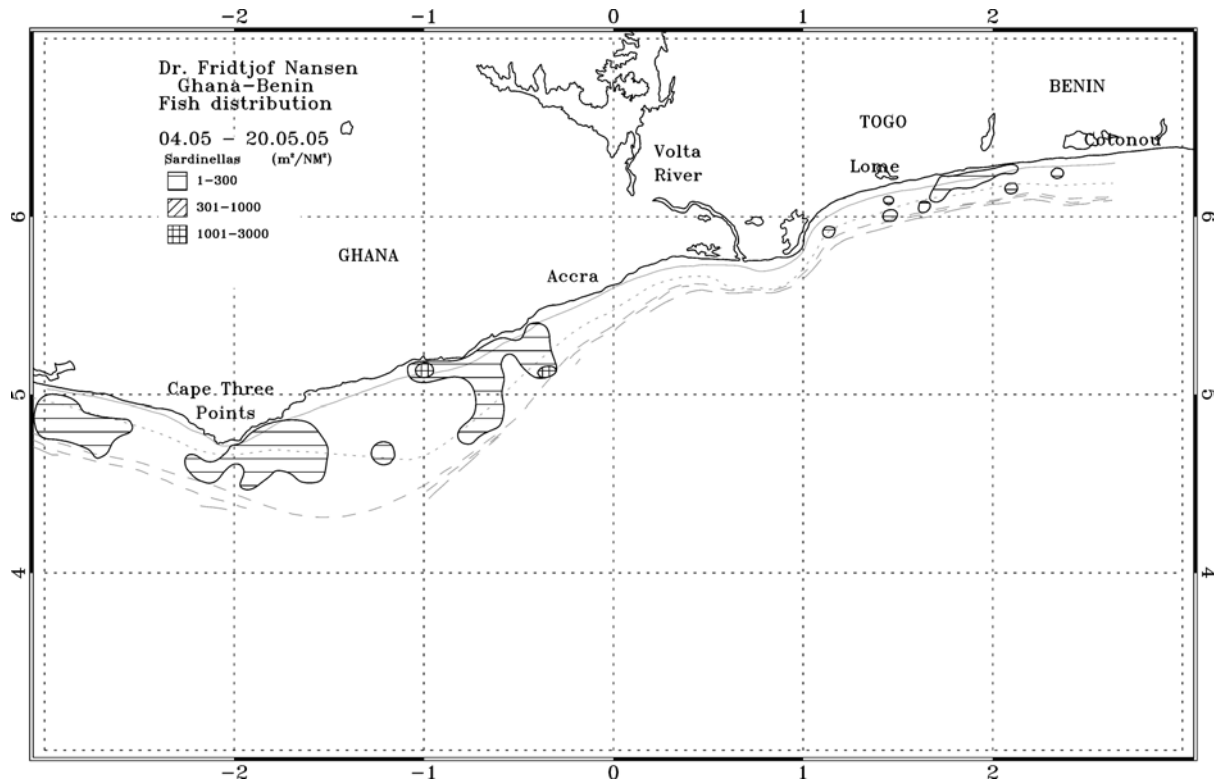


Figure 4.1 Distribution of *Sardinella* spp. Benin - Ghana and. Depth contours as in Fig. 1.

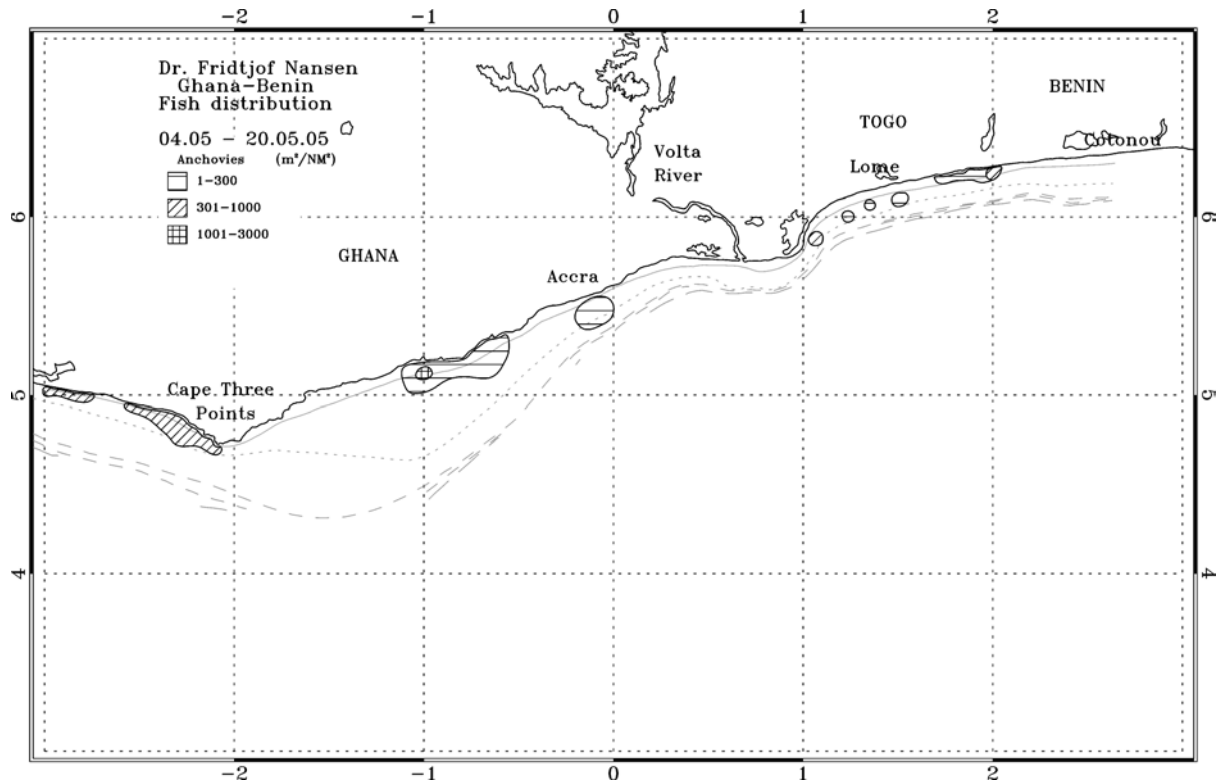


Figure 4.2 Distribution of anchovy (*Engraulis encrasicolus*) off Benin - Ghana. Depth contours as in Fig. 1.

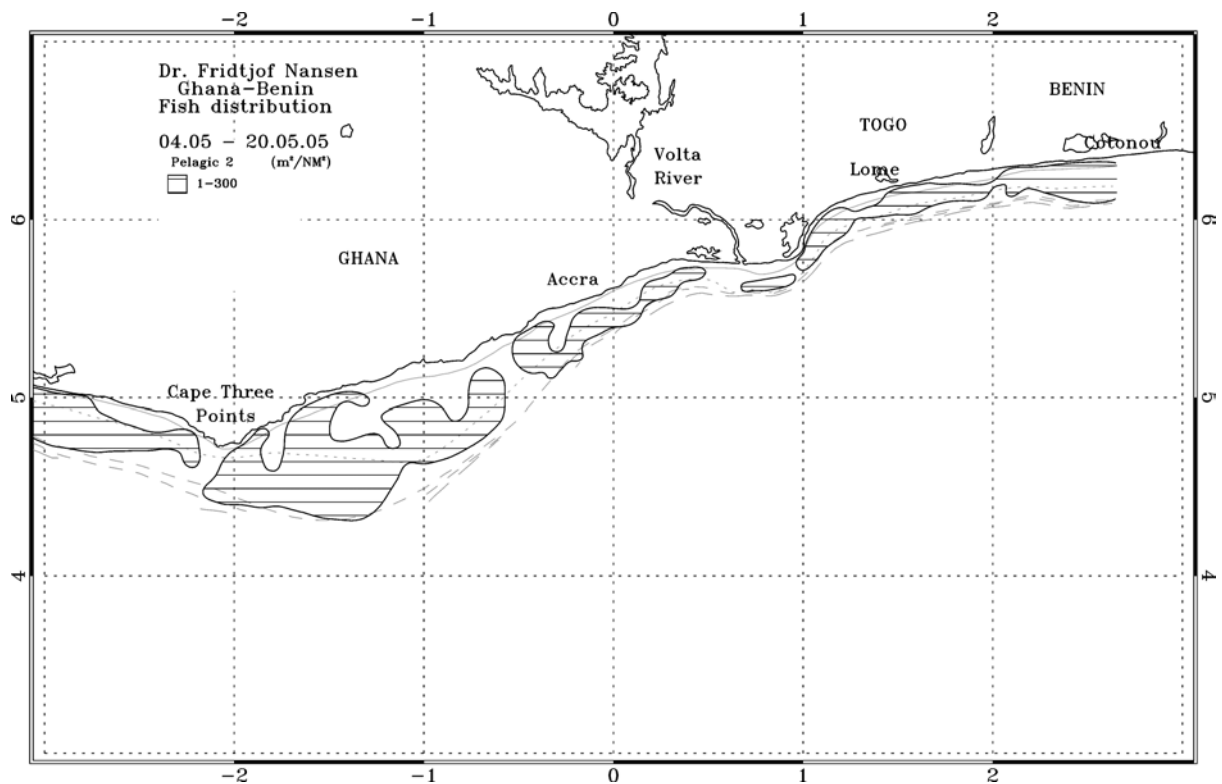


Figure 4.3 Distribution of PEL 2 (Carangids, scombrids, barracudas and hairtail) off Benin-Ghana. Depth contours as in Fig. 1.

PEL 2 (carangids, scombrids, barracudas and hairtail)

Carangids were caught in bottom trawl and pelagic blind trawl over the entire shelf. *Alectis alexandrinus*, *Chloroscombrus chrysurus*, *Selene dorsalis*, *Selar crumenophthalmus* and *Decapterus punctatus* were the most abundant species. All of the *D. punctatus* were juveniles (3-18 cm), while the other species were larger (17-32 cm). Scombrids (*Scomberomorus tritor*) were caught in some bottom trawl hauls and both of the pelagic blind trawl hauls. The barracudas, *Sphyrnaea guachancho* and *S. sphyrnaea* (20-52 cm), were caught in some of the bottom trawl hauls and both of the pelagic blind trawl hauls. Hairtails (*Trichiurus lepturus*) were also caught in a couple of bottom trawl hauls. Only a couple of small low density schools were recorded by the acoustic registration (Fig. 4.3). Based on a pooled length distribution of the most common carangids and a measured condition factor of 0.83 for fish smaller than 15 cm (*D. punctatus*), 0.85 for fish between 15-20 cm (*D. punctatus*) and 0.90 for larger fish (*C. chrysurus*), the biomass of this group was estimated to be 500 tonnes.

4.3 Ghana

Clupeids

Sardinellas were caught in both bottom trawl hauls and in pelagic blind trawl hauls. *Sardinella aurita* (6-28 cm) dominated and was found over most of the shelf area, while juvenile *S. maderensis* (5-17 cm) only occurred a few places on the inner shelf (Fig. 4.4). Several small and some larger schools of low-medium density and a few of high density were allocated to sardinellas (Fig. 4.1). The highest concentrations were recorded west of Accra and around Cape Three Points. The total biomass of sardinellas was estimated to be about 41 000 tonnes, applying pooled and weighted length distributions from both bottom and pelagic trawl hauls and a measured condition factor of 0.78 for *S. aurita* and 1.00 for *S. maderensis*. *S. aurita* contributed over 90 % to the estimated biomass.

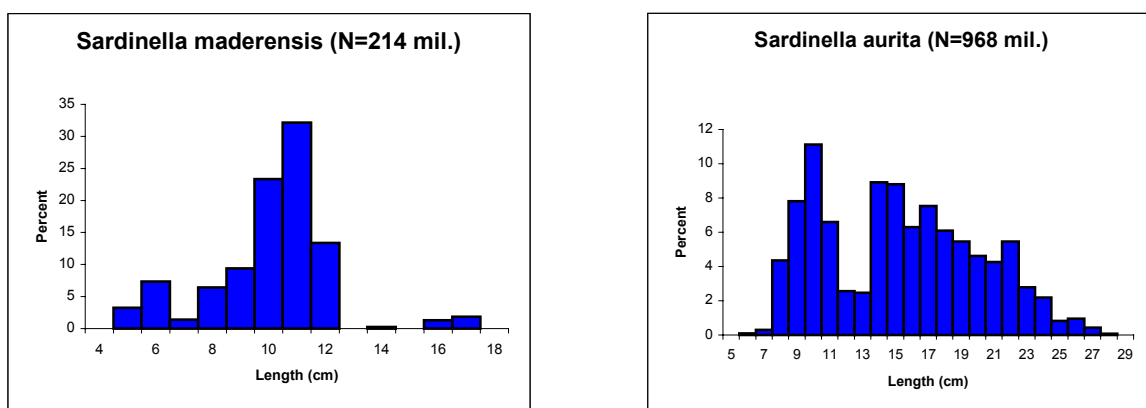


Figure 4.4 Length distribution of *Sardinella maderensis* and *S. aurita* in Ghana

Ilisha africana was caught in a few bottom trawl hauls in shallow waters in the western part of Ghana. No schools were allocated to this species.

Anchovy

Mainly low density schools of *Engraulis encrasicolus* were recorded in shallow waters off Tema-Accra while medium density schools were found west of Cape Three Points and towards the Ghana - Côte d'Ivoire border (Fig. 4.2). Catches of anchovy (3 – 10 cm) were obtained in bottom trawl and pelagic blind trawl hauls in the areas of acoustic registrations. The biomass of anchovy was estimated to be about 13 000 tonnes, applying added length distributions from both bottom trawl and pelagic blind trawl hauls and an estimated condition factor of 0.68.

PEL 2 (carangids, scombrids, barracudas and hairtail)

This group consisted mainly of carangids. *Chloroscombrus chrysurus* (3-30 cm), *Decapterus punctatus* (3-24 cm) and *Selene dorsalis* (3-36 cm) were the most abundant species in the bottom trawl catches, the first two on the whole shelf area and the latter mainly on the inner shelf. *Trachurus trecae* (11-22 cm) was somewhat less abundant. The carangids were also caught in pelagic blind trawl hauls. *Scomber japonicus* and *Scomberomorus tritor* were the most abundant scombrids in the bottom trawl hauls, and were also caught in pelagic blind trawl hauls. The barracudas, *Sphyraena guachancho*, *S. sphyraena* and *S. barracuda*, were found in less than half of the bottom trawl hauls, mainly at the inner shelf, and in a few pelagic blind trawl hauls. The hairtail *Trichiurus lepturus* was caught at some bottom trawl stations. Small low density schools of PEL 2 species were detected all over the shelf, both the inner and outer part (Figs. 4.3 and 4.7). The biomass of PEL 2 was estimated to be 46 000 tonnes, applying added length distributions of the most common carangids (mainly *D. punctatus*, *C. chrysurus* and *S. dorsalis*) from both bottom and pelagic trawl hauls and a measured condition factor of 0.86 (*D. punctatus*).

4.4 Côte d'Ivoire

Clupeids

Sardinellas were recorded along most of the coast of Côte d'Ivoire (Fig. 4.6). Both *Sardinella aurita* (7-28 cm) and *S. maderensis* (6-27 cm) occurred frequently in the bottom trawl catches, and were also caught in the pelagic trawl hauls. *S. aurita* was mainly found on the outer shelf while *S. maderensis* occurred more frequently on the inner shelf. The total biomass was estimated to be about 37 000 tonnes, applying pooled and weighted length distributions from both bottom and pelagic trawl hauls and a measured condition factor of 1.00 for *S. maderensis* and 0.82 for *S. aurita*. *S. aurita* contributed about 60 % to the acoustic

estimate. Most of the *S. maderensis* was juvenile (8-10 cm), while some of the *S. aurita* was larger (16-22 cm, Fig. 4.5).

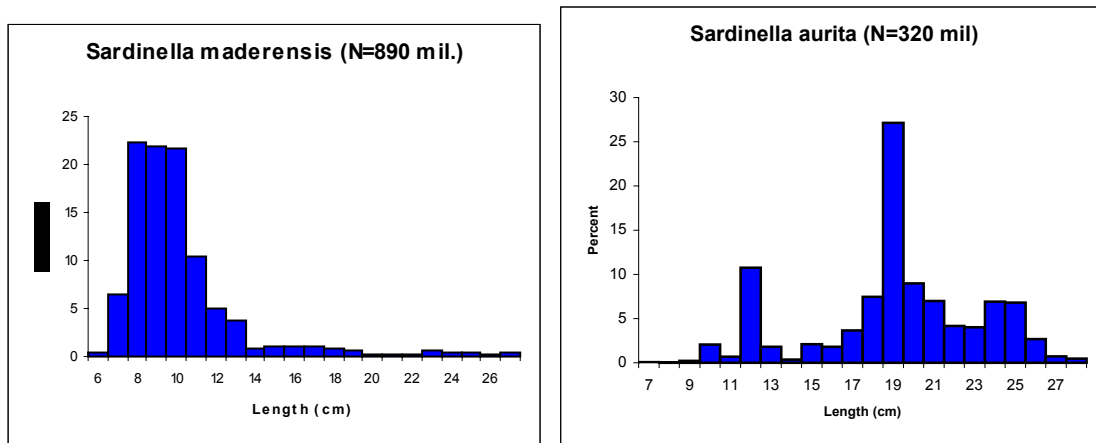


Figure 4.5. Length distribution of *Sardinella maderensis* and *S. aurita* in Côte d'Ivoire

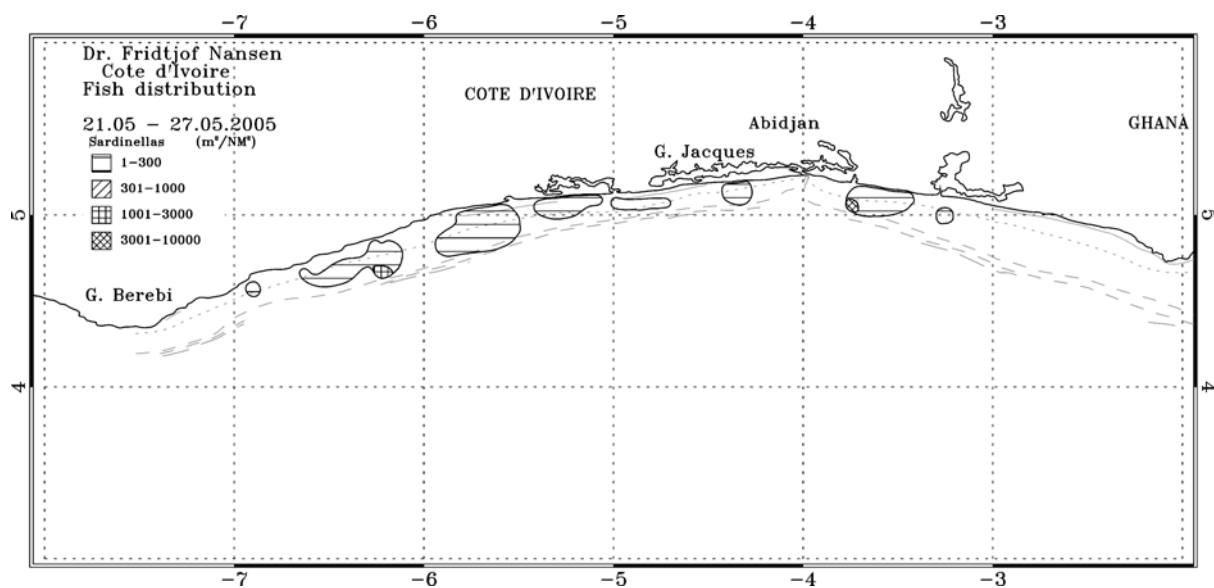


Figure 4.6 Distribution of *Sardinella* spp. off Ghana - Côte d'Ivoire. Depth contours as in Fig. 1.

Ilisha africana was taken in some bottom trawl and pelagic blind trawl hauls on the shallow part of the shelf. No schools were allocated to this species.

Anchovy

Engraulis encrasicolus was not caught in bottom trawl or pelagic blind trawl hauls on the shelf of Côte d'Ivoire and no schools were allocated to anchovy.

PEL 2 (carangids, scombrids, barracudas and hairtail)

The species category PEL 2 consisted mostly of carangids. *Chloroscombrus chrysurus* (3-28 cm), *Selene dorsalis* (3-32 cm) and *Trachurus trecae* (11-24 cm) were the dominant species in the bottom trawl catches, *C. chrysurus* and *S. dorsalis* most abundant at the inner shelf while *T. trecae* mainly was found at the outer shelf. They were also caught in pelagic blind trawl hauls. Other carangids such as *Alectis alexandrinus*, *Selar crumenophthalmus*, *Caranx crysos*, *Decapterus punctatus* and *D. rhonchus* occurred in lower densities. *Scomber japonicus* (18-26 cm) and *Scomberomorus tritor* were the most abundant scombrids in both bottom and pelagic blind trawl hauls, the former mainly found on the outer shelf. Barracudas, dominated by *Sphyraena guachancho*, were common in bottom trawl hauls and pelagic blind trawl hauls. Hairtail (*Trichiurus lepturus*) occurred regularly in bottom trawl hauls on both the inner and outer shelf. It was also found in a few pelagic blind trawl hauls.

Schools of PEL 2 species, mainly of low density, were found over most of the shelf along the whole coastline (Fig. 4.7). Applying added length distributions of the most common carangids (*T. trecae*, *S. dorsalis*, and *C. chrysurus*) from both bottom and pelagic trawl hauls and a measured condition factor of 0.90 (*T. trecae* and *S. japonicus*), the biomass of PEL 2 was estimated to about 30 000 tonnes.

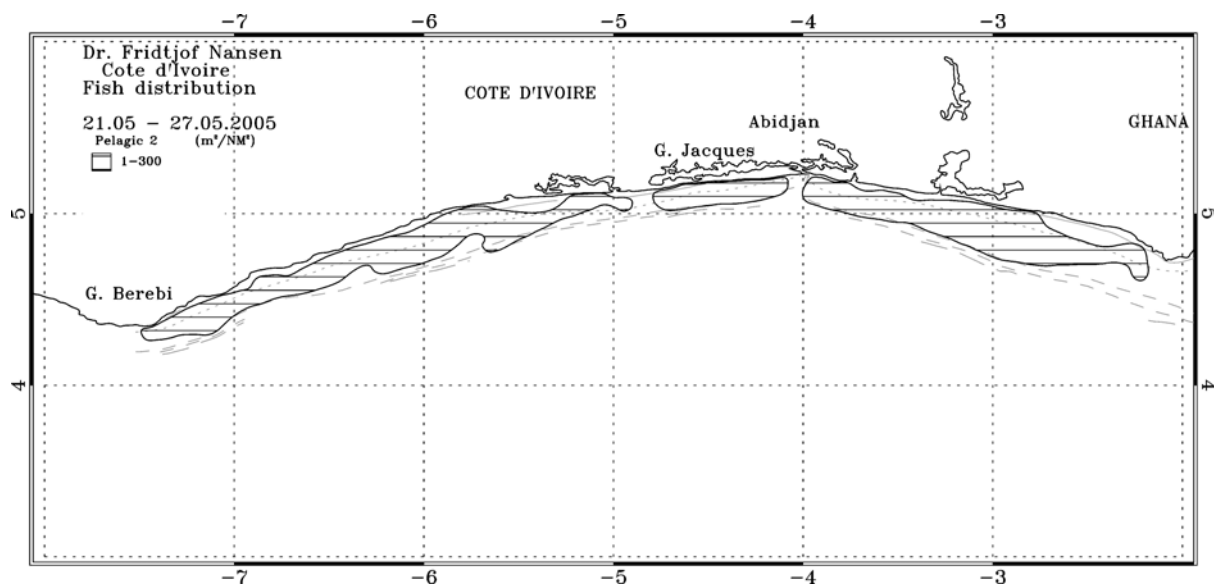


Figure 4.7 Distribution of PEL 2 (Carangids, scombrids, barracudas and hairtail) off Ghana- Côte 'Ivoire. Depth contours as in Fig. 1

4.5 Review of results

Estimated biomasses of PEL 1 species (sardinellas and anchovy) and PEL 2 species (carangids, scombrids, barracudas and hairtails) based on the Dr. Fridtjof Nansen surveys in 1981 (Strømme 1984), 1989 (Anon. 1989), 1999 (Mehl *et al.* 1999), 2000 (Torstensen *et al.* 2000), 2002 (Mehl *et al.* 2002) and 2004 (Mehl *et al.* 2004), are presented in Table 4.1 together with results from the 2005 survey. Benin and Togo sectors were in earlier years covered as one area due to the narrow coastlines. During the last surveys the effort has been increased in this area, allowing for three transects in Togo and six in Benin. Still there are few stations and relatively small areas covered by acoustic registrations in this region, and the precision of the results are accordingly low.

As shown during the previous surveys, pelagic fish were present over large parts of the area, especially the central and western parts. Most pelagic hauls were taken as blind hauls as relatively few schools were seen on the echo sounder during night time. This was partly due to a dispersed distribution and partly due to high abundance of plankton that made acoustic detection and separation very difficult. During daytime it was sometimes difficult to catch schools of pelagic fish with the trawls. Sardinellas and anchovy dominated on the inner shelf, while carangids, scombrids and barracudas were more widely distributed over the entire shelf. Schools shallower than 20 m, especially of anchovy, were not recorded.

The total 2005 biomass estimate for the sardinellas-anchovy group was lower than in the three previous surveys and below the 1981-2004 average. The estimate for Benin was much lower than in 2004 but about the double of the 2000 and 2002 estimates. In Togo the 2005 estimate was the lowest in the time series. In Ghana the estimated biomass was lower than the 2002 and 2004 estimates but slightly above the 1981-2004 average. The estimate for Côte d'Ivoire was only about half of the 2004 estimate and well below the 1981-2004 average.

The total biomass estimate of PEL 2 was similar to the 1999 and 2000 estimates and above the 1989-2004 average. The estimate for Benin is the highest in the time series 2000-2005, about the double of what was obtained in the three previous surveys. In Togo the PEL 2 estimate is higher than in 2004 and 2002 but much lower than in 2000. The estimate for Ghana was a little higher than in 2004 but below the 1989-2004 average. The estimate for Côte d'Ivoire was the highest since 1999 and well above the 1999-2004 average.

Table 4.1. Acoustic biomass estimates of main pelagic groups (tonnes) a) Sardinellas and anchovies (PEL 1) and b) carangids, scombrids, barracudas and hairtail (PEL 2) from surveys with “Dr. Fridtjof Nansen” off Côte d’Ivoire, Ghana, and Benin-Togo in 1981, 1989, 1999, 2000, 2002 and 2004.

a) Sardinellas and anchovies (PEL 1)

Survey Year	Survey period	Côte d’Ivoire	Ghana	Benin – Togo	Benin	Togo	Total
1981	June	39 000	40 000	1) not covered			79 000
1989	12.10 - 20.10	6 000	41 000	5 000			47 000
1999	19.4 - 8.5	42 000	40 000				87 000
2000 ²⁾	29.8 - 15.9	111 000	56 500		1 700	6 500	175 700
2002 ²⁾	16.7 - 9.8	34 000	73 000		1 500	-	108 500
2004	16.5 - 9.6	68 000	68 000		18 600	3 200	157 800
2005	4.5 - 27.5	37 000	54 000		3 300	500	94 800

Table 4.1cont. b) Carangids, scombrids, barracudas and hairtail (PEL 2)

Survey Year	Survey period	Côte d’Ivoire	Ghana	Benin – Togo	Benin	Togo	Total
1981	June	2 000	10 000	1) not covered			12 000
1989	12.10 - 20.10	33 000	57 000	4 000			90 000
1999	19.4 - 8.5	30 000	50 000				84 000
2000 ²⁾	29.8 - 15.9	18 000	61 000		1 500	2 500	83 000
2002 ²⁾	16.7 - 12.8	10 500	52 000		2 600	100	65 200
2004	16.5 - 9.6	19 000	37 000		1 900	200	58 100
2005	4.5 - 27.5	30 000	46 000		4 700	500	81 200

¹⁾The estimated biomass for pelagic species (PEL 1 + PEL 2) was 14 000 tonnes (Strømme, T., Føyn, L. and Sætersdal, G. 1983). ²⁾ Upwelling season

CHAPTER 5 RESULTS FROM THE TRAWL SURVEY: CATCH DISTRIBUTION, COMPOSITION AND SWEEP-AREA BIOMASS ESTIMATES OF DEMERSAL FISH

The composition of the fish fauna on the continental shelf and slope of the western Gulf of Guinea changes with depth (Williams 1968). The catch-distribution analyses were therefore performed for two depth strata on the shelf, 0-50 m (inner shelf) and 51-100 m (outer shelf). In the analyses the “Demersal” group includes commercially important families as Sciaenidae, Haemulidae/Pomadasyidae, Serranidae, Sparidae, Lutjanidae, Merlucciidae, Lethrinidae, Ophidiidae and Ariidae, while the “Pelagic” group includes Engraulidae, Clupeidae, Carangidae, Scombridae, Sphyraenidae and Trichiuridae (the latter family is actually mainly benthopelagic). For the different analysis the “other” group includes all species not accounted for in the groups listed. Therefore, the content of “other” will change from table to table.

The locations of the trawl stations are shown in Figure 1.1. Records of fishing stations and catches are presented in Annex I and pooled length distributions (weighted by catch) of main species by area are shown in Annex II.

In the swept-area biomass estimates, only the shelf area down to depths of 100 m was included, divided into 0-30 m, 30-50 m and 51-100 m. Mean densities of the main demersal species by depth strata, occurrence and catch distributions are shown in Annex IV.

5.1 Benin

19 swept-area trawl stations were made on the shelf off Benin. Due to a steep slope and rough bottom it was difficult to trawl in the deeper areas. Tables 5.1 a-b and Figs. 5.1a-b show catch rates by main groups for the inner shelf (0-50 m) and outer shelf (51-100 m), respectively.

Pelagic fish dominated on the inner shelf with a relative contribution of 45 %. The group “other” was the second most important, contributing 30 % to the catches, followed by the demersal group (20 %), cephalopods (3.5 %), shrimps (1.1 %) and sharks (0.3 %). On the outer shelf the demersal group was the most important with 56 % of the average catch rate. The pelagic group made up 23 % of the catches and “other” fish 12 %. Cephalopods had higher mean catch rates in the outer shelf and made up 7.6 % of the catches. *Sepia officinalis hierredda* was the dominant cephalopod. Sharks were a little more abundant (1.1 %), while shrimps were scarce (0.1 %).

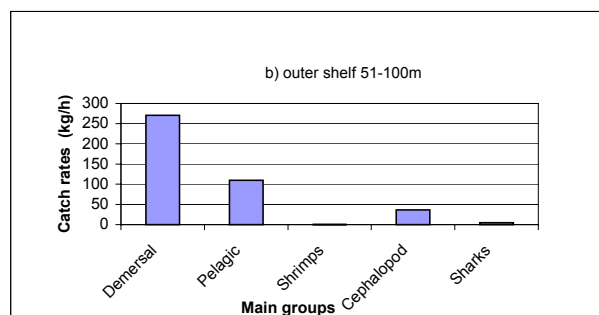
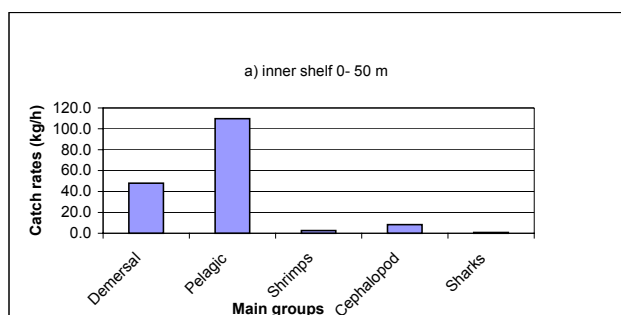
Table 5.1 Benin. Catch rates (kg/h) by main groups in swept-area bottom trawl hauls on a) inner shelf, 0-50 m, and b) outer shelf, 51-100 m.

a) Inner shelf, 0-50 m

Station	Depth	Demersal	Pelagic	Shrimp	Cephalopods	Sharks	Other	Total
679	38	40.0	151.7	2.0	6.8	0.0	59.8	260.3
680	21	45.2	96.0	0.0	0.0	0.0	80.0	221.2
683	40	99.3	435.7	15.6	2.3	0.0	10.3	563.3
684	24	30.2	73.1	0.0	0.7	0.0	41.8	145.8
685	26	45.8	30.8	2.9	5.6	9.6	145.1	239.8
686	40	33.0	145.7	2.6	2.1	0.0	31.0	214.3
690	45	32.1	71.6	0.5	11.9	0.0	56.0	172.1
691	17	32.5	41.2	7.1	0.0	0.0	17.5	98.2
693	24	3.9	22.1	0.0	2.1	0.0	54.1	82.2
694	32	154.0	35.2	0.0	4.6	0.0	279.0	472.8
698	42	32.4	189.9	0.0	63.7	0.0	47.3	333.3
699	19	27.7	22.5	0.0	0.0	0.0	30.5	80.8
Mean	31	48.0	109.6	2.6	8.3	0.8	71.0	240.3
SE		11.5	33.8	1.3	5.1	0.8	21.4	43.8
% Catch		20.0	45.6	1.1	3.5	0.3	29.6	

b) Outer shelf, 51-100 m

Station	Depth	Demersal	Pelagic	Shrimp	Cephalopod	Sharks	Other	Total
678	65	152.3	20.1	1.1	17.2	2.3	37.0	229.9
681	94	383.7	8.7	2.4	31.6	21.3	109.9	557.6
682	82	110.8	54.0	0.0	18.0	11.6	42.5	236.9
687	71	263.0	18.2	0.0	67.7	0.0	56.4	405.4
689	82	656.1	439.6	0.0	16.8	0.0	41.6	1154.2
695	64	117.5	183.0	0.0	31.4	0.0	67.2	399.2
697	63	209.1	44.3	0.0	71.7	0.0	38.3	363.4
Mean	74	270.4	109.7	0.5	36.4	5.0	56.1	478.1
SE		73.7	59.4	0.4	9.0	3.2	9.9	120.3
% Catch		56.6	23.0	0.1	7.6	1.1	11.7	



Figs. 5.1 a-b. Mean catch rates (kg/h) by main groups in swept area bottom hauls on the a) inner shelf (0-50 m) and b) outer shelf (51-100 m).

Catch rates of the most important pelagic families, caught by bottom trawl in the swept-area survey, are presented in Tables 5.2a-b and Figs 5.2a-b. Carangids were the dominant species group on the inner shelf, with an average catch rate of 68 kg/h. *Selene dorsalis*, *Selar crumenophthalmus*, *Chloroscombrus chrysurus* and *Alectis alexandrinus* were the most common carangids on the inner shelf. Barracudas (Sphyraenidae) had the second highest mean catch rate on the inner shelf (30 kg/h), followed by clupeids (7 kg/h), hairtails (3.3 kg/h) and scombrids (1 kg/h). Clupeids had much higher catch rates on the outer shelf (56 kg/h) and were more abundant than carangids (45 kg/h). *Ilisha africana*, *Sardinella maderensis* and *S. aurita* were caught regularly with *S. aurita* being the most abundant and mainly found on the outer shelf, while the two others were found on the inner shelf. *Decapterus punctatus* was the most abundant carangid on the outer shelf. Hairtails had similar catch rates as on the inner shelf, while scombrids were only caught on one station at the outer shelf.

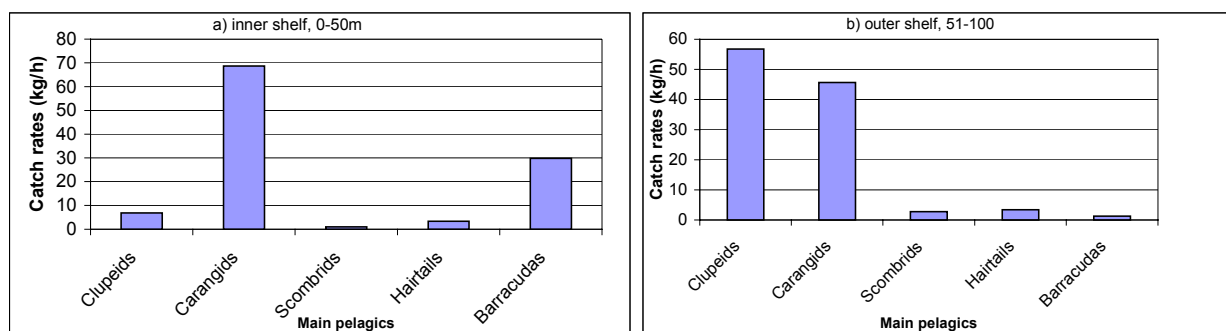
Table 5.2 Benin. Catch rates (kg/h) by main pelagic families in swept-area bottom-trawl hauls on the a) Inner shelf (0-50 m) and b) outer shelf (51-100 m).

a) Inner shelf, 0-50 m

Station	Depth	Clupeids	Carangids	Scombrids	Hairtails	Barracudas	Other	Total
679	38	1.3	115.4	0.0	11.7	23.3	108.7	260.3
680	21	5.0	67.8	3.5	2.0	17.7	125.2	221.2
683	40	0.5	225.6	0.0	0.0	209.6	127.6	563.3
684	24	19.0	22.6	0.0	9.8	21.7	72.7	145.8
685	26	4.0	4.4	0.0	11.9	10.5	209.0	239.8
686	40	0.7	104.8	0.0	0.0	40.2	68.6	214.3
690	45	2.2	67.2	0.0	0.0	2.2	100.5	172.1
691	17	5.8	13.9	0.7	4.4	16.3	57.1	98.2
693	24	5.3	11.4	0.0	0.0	5.3	60.1	82.2
694	32	0.0	31.5	0.0	0.0	3.7	437.6	472.8
698	42	32.8	150.1	4.2	0.0	2.9	143.3	333.3
699	19	6.0	8.8	3.8	0.0	3.9	58.3	80.8
Mean	31	6.9	68.6	1.0	3.3	29.8	130.7	240.3
SE		2.8	19.9	0.5	1.4	16.7	30.8	43.8
% Catch		2.9	28.6	0.4	1.4	12.4	54.4	

b) Outer shelf, 51-100 m

Station	Depth	Clupeids	Carangids	Scombrids	Hairtails	Barracudas	Other	Total
678	65	10.0	0.0	0.0	4.9	5.3	209.8	229.9
681	94	0.4	6.6	0.0	1.7	0.0	548.9	557.6
682	82	4.4	32.7	0.0	17.0	0.0	182.9	236.9
687	71	2.2	16.1	0.0	0.0	0.0	387.2	405.4
689	82	309.4	110.1	19.3	0.0	0.9	714.5	1154.2
695	64	62.7	120.4	0.0	0.0	0.0	216.1	399.2
697	63	8.0	33.7	0.0	0.0	2.6	319.1	363.4
Mean	74	56.7	45.6	2.8	3.4	1.3	368.4	478.1
SE		42.9	18.6	2.8	2.4	0.8	75.3	120.3
% Catch		11.9	9.6	0.6	0.7	0.3	77.1	



Figs 5.2a-b. Mean catch rates (kg/h) by main pelagic families in swept area bottom hauls on the a) inner shelf (0-50 m) and b) outer shelf (51-100 m).

Tables 5.3a-b and Figs. 5.3a-b present catch rates of some of the most commercially important demersal species on the shelf down to 100 m, grouped as seabreams (Sparidae except *Boops boops*), snappers (Lutjanidae), groupers (Serranidae), grunts (Haemulidae except *Brachydeuterus auritus*) and croakers (Sciaenidae). Seabreams had an average catch rate of 20 kg/h on the inner shelf, all the other groups had low catch rates. Seabreams also dominated the outer shelf with an average catch rate of 231 kg/h or 48 % of the total average catch rate, mainly due to one large catch (640 kg/h at station 689). The most commonly occurring species were *Pagrus caeruleostictus*, *Pagellus bellottii* and *Dentex angolensis*. Groupers and croakers had higher catch rates on the outer shelf (15 kg/h and 9 kg/h, respectively), while no snappers and grunts were caught here.

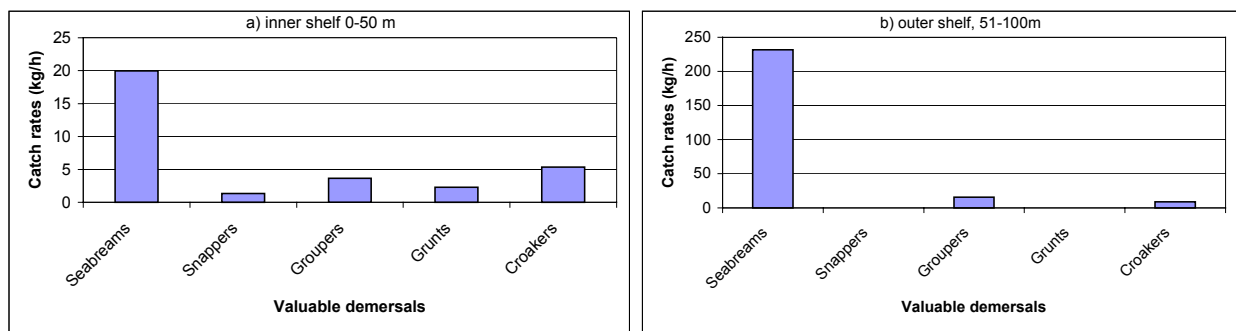
Table 5.3 Benin. Catch rates (kg/h) of commercially important demersal species grouped by families in swept-area bottom-trawl hauls on the a) inner shelf (0-50 m) and b) outer shelf (51-100 m).

a) Inner shelf, 0-50 m

Station	Depth	Seabream	Snappers	Groupers	Grunts	Croakers	Other	Total
679	38	15.8	4.1	0.0	17.1	0.0	223.3	260.3
680	21	2.8	5.7	0.0	0.0	23.2	189.5	221.2
683	40	10.8	0.0	16.6	0.0	0.0	535.8	563.3
684	24	14.1	3.3	0.0	0.0	5.3	123.1	145.8
685	26	5.3	1.8	0.0	2.7	5.2	224.8	239.8
686	40	19.0	0.0	4.9	6.1	0.0	184.3	214.3
690	45	23.1	0.0	4.9	0.3	0.0	143.8	172.1
691	17	0.0	0.0	0.0	1.5	30.2	66.6	98.2
693	24	2.0	0.0	0.0	0.0	0.0	80.2	82.2
694	32	131.5	1.2	0.0	0.0	0.0	340.2	472.8
698	42	15.3	0.0	17.1	0.0	0.0	300.9	333.3
699	19	0.0	0.0	0.1	0.0	0.2	80.4	80.8
Mean	31	20.0	1.3	3.6	2.3	5.3	207.8	240.3
SE		10.4	0.6	1.9	1.4	3.0	38.8	43.8
% Catch		8.3	0.6	1.5	1.0	2.2	86.4	

b) Outer shelf, 51-100 m

Station	Depth	Seabream	Snappers	Groupers	Grunts	Croakers	Other	Total
678	65	10.6	0.0	79.5	0.0	44.1	95.6	229.9
681	94	345.2	0.0	0.0	0.0	17.5	194.8	557.6
682	82	94.2	0.0	0.0	0.0	0.0	142.8	236.9
687	71	239.9	0.0	0.0	0.0	0.0	165.5	405.4
689	82	640.1	0.0	9.3	0.0	0.0	504.8	1154.2
695	64	98.3	0.0	19.3	0.0	0.0	281.6	399.2
697	63	191.9	0.0	0.0	0.0	0.0	171.5	363.4
Mean	74	231.5	0.0	15.4	0.0	8.8	222.4	478.1
SE		79.7	0.0	11.0	0.0	6.4	51.7	120.3
% Catch		48.4	0.0	3.2	0.0	1.8	46.5	



Figs. 5.3a-b. Mean catch rates (kg/h) of valuable demersal species by families in swept area bottom hauls on the a) inner shelf (0-50 m) and b) outer shelf (51-100 m).

Annex IV gives the swept-area estimates of mean densities (t/NM^2) based on the 19 random bottom trawl stations on the shelf of Benin. Of the demersal species, *Galeoides decadactylus* and *Brachydeuterus auritus*, had the highest mean density in the shallowest zone (≤ 30 m), *Pagrus caeruleostoticus*, *Dactylopterus volitans* and *B. auritus* in the 31-50 m zone, while *Dentex congolensis*, *D. angolensis* and *Sepia officinalis hierredda* had the highest density in the 51-100 m zone. *D. congolensis*, and *D. angolensis* had the highest overall mean densities.

Table 5.4 presents swept-area biomass estimates for valuable demersal groups and some other groups that occurred in sizeable quantities. Estimated total biomass of valuable demersal groups was about 2 400 tonnes. Seabreams had the highest biomass followed by croakers and groupers. The highest biomass of seabreams was found between 51-100 m depth, croakers between 0-30 m and groupers between 51-100 m. Grunts and snappers all had low biomass estimates. Of the pelagic and semi-pelagic groups, carangids had the highest estimated biomass.

Table 5.4 Benin. Biomass estimates (tonnes) of important species/groups on the shelf, by depth.

Group/species	0-30 m	31-50 m	51-100 m	Sum	95 % confidence limits	
Seabreams	58	158	1 798	2 014	764	3 265
Grunts	12	16	0	28	0	56
Croakers	147	0	71	218	41	395
Groupers	0	32	122	154	0	331
Snappers	23	4	0	27	1	54
Sum dem.val.	240	210	1 991	2 441	1262	3 621
Bigeye grunt	143	63	37	243	74	411
Carangids	283	513	356	1 152	697	1 607
Barracudas	174	216	10	400	84	715
Cephalopods	19	67	293	379	209	549

5.2 Togo

9 swept-area trawl stations were made on the shelf off Togo. One deep-water bottom trawl was taken at 201-255 m. Tables 5.5a-b and Figs. 5.4a-b present catch rates by main groups for the inner and outer shelf. On the inner shelf the group “other” dominated with a relative contribution of 44 %, demersal fish made up 25 % of the catch and the pelagic group had a relative contribution of 16 %. The mean catch of cephalopods also made up 16 % of the total catch at the inner shelf. No shrimps or sharks were caught. On the outer shelf the demersal group had the highest contribution with 36 % of the total catch, followed by “other” (23 %), the pelagic pelagic (21 %) and cephalopods (19 %). *Sepia officinalis hierredda* was the dominant cephalopod. Some sharks were caught, while no shrimps were found in this zone either.

Table 5.5 Togo. Catch rates (kg/h) by main groups in swept-area bottom trawl hauls on a) inner shelf, 0-50 m, and b) outer shelf, 51-100 m.

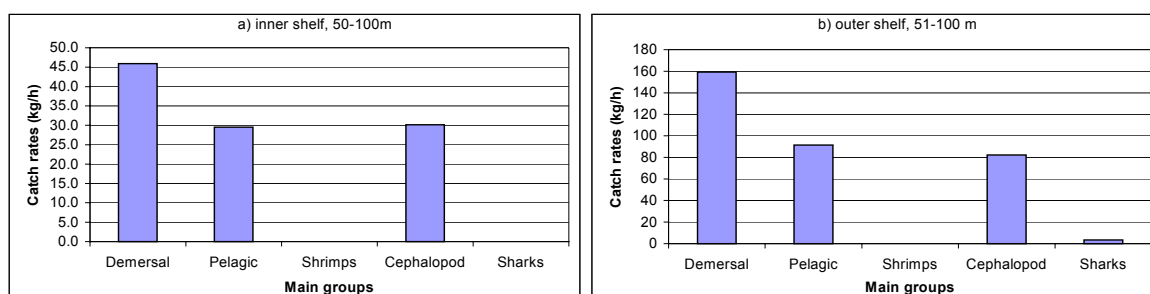
a) Inner shelf, 0-50 m

Station	Depth	Demersal	Pelagic	Shrimp	Cephalopods	Sharks	Other	Total
700	22	20.7	11.5	0.0	1.4	0.0	82.6	116.1
701	41	37.2	49.4	0.0	35.3	0.0	59.8	181.7
705	43	86.3	62.2	0.0	56.2	0.0	52.1	256.8
706	24	44.0	21.4	0.0	0.0	0.0	82.4	147.9
707	24	38.7	16.9	0.0	15.3	0.0	57.4	128.1
708	35	48.5	15.6	0.0	72.8	0.0	155.2	292.0
Mean	32	45.9	29.5	0.0	30.1	0.0	81.6	187.1
SE		9.0	8.6	0.0	12.2	0.0	15.7	29.4

% Catch	24.5	15.8	0.0	16.1	0.0	43.6
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b) Outer shelf, 51-100 m

Station	Depth	Demersal	Pelagic	Shrimp	Cephalopods	Sharks	Other	Total
702	67	263.0	25.8	0.0	59.3	10.2	17.9	376.2
704	52	97.7	149.5	0.0	41.1	0.0	69.5	357.8
709	52	116.8	99.0	0.0	146.2	0.0	216.8	579.0
Mean	57	159.2	91.5	0.0	82.2	3.4	101.4	437.7
SE		52.2	35.9	0.0	32.4	3.4	59.6	70.9
% Catch		36.4	20.9	0.0	18.8	0.8	23.2	



Figs. 5.4a-b. Mean catch rates (kg/h) by main groups in swept area bottom hauls on the a) inner shelf (0-50 m) and b) outer shelf (51-100 m).

Catch rates of the most important pelagic families, caught by bottom trawl in the swept-area survey, are presented in Tables 5.6a-b and Figs. 5.5a-b. Carangids were the dominant species group on the inner shelf (20 kg/h). *Decapterus punctatus*, *Alectis alexandrinus*, *Selar crumenophthalmus*, *Chloroscombrus chrysurus* and *Selene dorsalis* were the most common species. Scombrids (5.8 kg/h) and barracudas (3 kg/h) came next, while hairtails were scarce. Clupeids were more abundant on the outer shelf (60 kg/h). *Sardinella aurita* was the only clupeid caught here, while *S. maderiensis* was found on the inner shelf. Carrangids (26 kg/h) was the second most important group on the outer shelf, while barracudas and scombrids were scarce and no hairtails were caught.

Table 5.6 Togo. Catch rates (kg/h) by main pelagic families in swept-area bottom-trawl hauls on the a) inner shelf (0-50 m) and b) outer shelf (51-100 m).

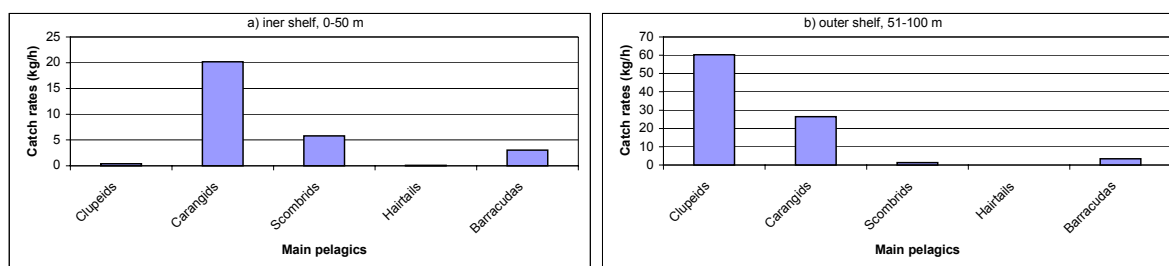
a) Inner shelf, 0-50 m

Station	Depth	Clupeids	Carangids	Scombrids	Hairtails	Barracudas	Other	Total
700	22	0.3	2.5	0.0	0.0	8.7	104.7	116.1
701	41	2.0	43.7	3.2	0.0	0.5	132.3	181.7
705	43	0.0	58.7	0.0	0.7	2.8	194.6	256.8
706	24	0.0	6.5	13.1	0.0	1.8	126.5	147.9
707	24	0.0	0.0	15.1	0.0	1.7	111.3	128.1
708	35	0.0	9.6	3.3	0.0	2.7	276.4	292.0
Mean	32	0.4	20.2	5.8	0.1	3.0	157.6	187.1
SE		0.3	10.1	2.7	0.1	1.2	27.1	29.4
% Catch		0.2	10.8	3.1	0.1	1.6	84.2	

Table 5.6 cont.

b) Outer shelf, 50-100 m

Station	Depth	Clupeids	Carangids	Scombrids	Hairtails	Barracudas	Other	Total
702	67	2.8	23.0	0.0	0.0	0.0	350.4	376.2
704	52	89.2	46.0	4.0	0.0	10.4	208.3	357.8
709	52	88.8	10.2	0.0	0.0	0.0	479.9	579.0
Mean	57	60.3	26.4	1.3	0.0	3.5	346.2	437.7
SE		28.8	10.5	1.3	0.0	3.5	78.4	70.9
% Catch		13.8	6.0	0.3	0.0	0.8	79.1	



Figs. 5.5a-b. Mean catch rates (kg/h) by main pelagic families in swept area bottom hauls on the a) inner shelf (0-50 m) and b) outer shelf (51-100 m).

Tables 5.7a-b and Figs. 5.6a-b present catch rates of some of the most commercially important demersal species on the shelf down to 100 m, grouped as seabreams (*Sparidae* except *Boops boops*), snappers (*Lutjanidae*), groupers (*Serranidae*), grunts (*Haemulidae* except *Brachydeuterus auritus*) and croakers (*Sciaenidae*). The seabreams dominated both the inner and outer parts of the shelf with catch rates of 37 kg/h and 112kg/h, respectively. *Dentex canariensis*, *Pagrus caeruleostictus* and *Pagellus bellottii* were the most common sparids. Groupers and snappers were caught in low numbers on both parts of the shelf, croakers only on the inner shelf, while no grunts (except *Brachydeuterus auritus*) were caught on the shelf of Togo.

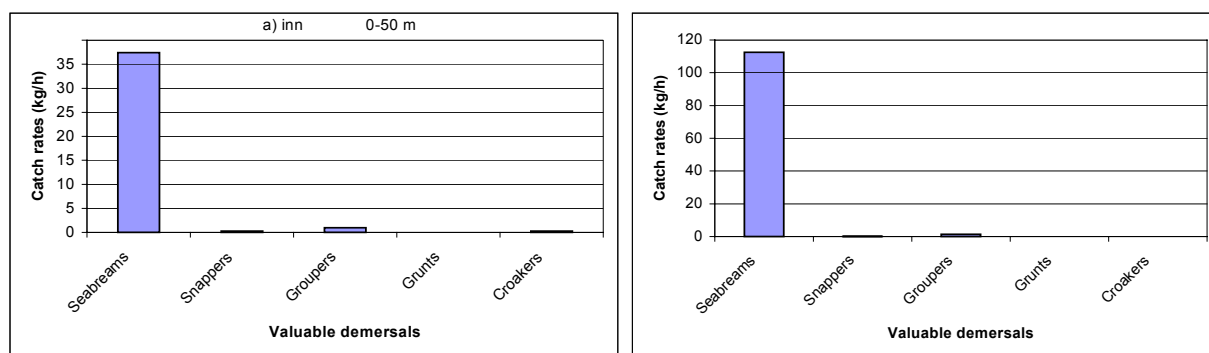
Table 5.7 Togo. Catch rates (kg/h) of commercially important demersal species grouped by families in swept-area bottom-trawl hauls on the a) inner shelf (0-50 m) and b) outer shelf (50-100 m).

a) Inner shelf, 0-50 m

Station	Depth	Seabream	Snappers	Groupers	Grunts	Croakers	Other	Total
700	22	19.5	0.0	0.0	0.0	0.0	96.6	116.1
701	41	20.1	0.0	0.6	0.0	1.5	159.5	181.7
705	43	83.1	0.0	1.6	0.0	0.0	172.0	256.8
706	24	42.1	0.0	0.3	0.0	0.0	105.5	147.9
707	24	14.0	1.6	0.5	0.0	0.0	112.1	128.1
708	35	45.7	0.0	2.8	0.0	0.0	243.5	292.0
Mean	32	37.4	0.3	1.0	0.0	0.3	148.2	187.1
SE		10.6	0.3	0.4	0.0	0.3	22.8	29.4
% Catch		20.0	0.1	0.5	0.0	0.1	79.2	

b) Outer shelf, 50-100 m

Station	Depth	Seabream	Snappers	Groupers	Grunts	Croakers	Other	Total
702	67	131.6	0.0	0.0	0.0	0.0	244.6	376.2
704	52	93.1	0.5	0.2	0.0	0.0	264.1	357.8
709	52	112.6	0.0	4.2	0.0	0.0	462.1	579.0
Mean	57	112.4	0.2	1.5	0.0	0.0	323.6	437.7
SE		11.1	0.2	1.4	0.0	0.0	69.5	70.9
% Catch		25.7	0.0	0.3	0.0	0.0	73.9	



Figs. 5.6a-b. Mean catch rates (kg/h) of valuable demersal species by families in swept area bottom hauls on the a) inner shelf (0-50 m) and b) outer shelf (51-100 m).

Annex IV gives the swept-area estimates of mean densities (t/NM^2) based on the 9 random bottom trawl stations on the shelf of Togo. Of the demersal species *Dentex canariensis* and *Lagocephalus laevigatus* had the highest mean density in the shallowest zone (≤ 30 m), *S. officinalis hierredda*, *P. bellottii* and *Dactylopterus volitans* in the 31-50 m zone and *S. officinalis hierredda*, *P. bellottii* and *Boops boops* in the 51-100 m zone. *S. officinalis hierredda*, *P. bellottii* and *B. Boops* had the highest overall mean densities.

Table 5.8 presents swept-area biomass estimates for valuable demersal groups and other groups that occurred in sizeable quantities in the hauls taken off Togo. Estimated total biomass of valuable demersal groups averaged about 630 tonnes. Seabreams made up most of this, and were most abundant in the deepest zone. Groupers had the second highest estimated biomass, while the estimates for croakers and snappers were very low and no grunts except *B. auritus* were caught. Of the presented pelagic and semi-pelagic groups, carangids had the highest estimated biomass.

Table 5.8 Togo. Biomass estimates (tonnes) of important species/groups on the shelf, by depth.

Group/species	0-30 m	31-50 m	51-100 m	Sum	95 % confidence limits	
Seabreams	121	126	369	616	472	760
Grunts	0	0	0	0	0	0
Croakers	0	2	0	2	0	5
Groupers	1	5	5	11	1	21
Snappers	3	0	1	4	0	10
Sum dem.val.	125	133	633	772	490	776
Bigeye grunt	1	14	4	20	-6	45
Carangids	15	94	88	197	94	300
Barracudas	19	5	12	37	4	70
Cephalopods	24	142	268	434	212	655

5.3 Ghana

A total of 54 swept-area trawl hauls were made on the shelf off Ghana. In addition 8 bottom trawl hauls were made in waters deeper than 100 m. Tables 5.9a-b and Figs. 5.7a-b present catch rates by main groups for the inner (0-50 m) and outer (51-100 m) shelf respectively. The demersal species group had the highest average catch rate on the inner shelf with a relative contribution of 40 %. The group “other” contributed 33 % to the total followed by the pelagic group (25 %). Cephalopods made up 2.6 % of the catch, while shrimps and sharks were scarce (0.2 %). Also on the outer shelf the demersal group dominated the catches, contributing 52 % to the total. The pelagic group had a relative contribution of 24 % and “other” 22 %. Cephalopods and sharks had both higher catch rates than on the inner shelf. No shrimps were found on the outer shelf of Ghana.

Tables 5.10a-b and Figs. 5.8a-b show catch rates of the most important pelagic families caught in the bottom-trawl hauls. Carangids dominated the inner shelf with a mean catch rate of 47 kg/h. The most frequently occurring species of carangids were *Decapterus punctatus*, *Chloroscombrus chrysurus*, *Selene dorsalis*, *Trachurus trecae* and *Alectis alexandrinus*. The second most important group was the Barracudas (17 kg/h) followed by the clupeids (15 kg/h). *Sardinella aurita* was the most common clupeid, found on both the inner and outer shelf, while *S. maderensis* was only observed on the inner shelf. Carangids were also the most abundant group on the outer shelf (150 kg/h) whilst Clupeids had the second highest catch rate on the outer shelf (62 kg/h). Except for one large catch on the outer shelf, Scombrids had low catch rates on both the inner and outer shelf. Hairtails (*Trichiurus lepturus*) were found in relatively low catch rates at a few stations on the inner shelf and only one on the outer. Barracudas were scarce on the outer shelf.

Table 5.9 Ghana. Catch rates (kg/h) by main groups in swept-area bottom-trawl hauls on the a) inner shelf (0-50 m) and b) outer shelf (51-100 m).

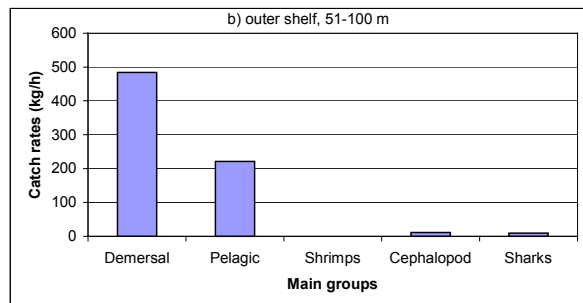
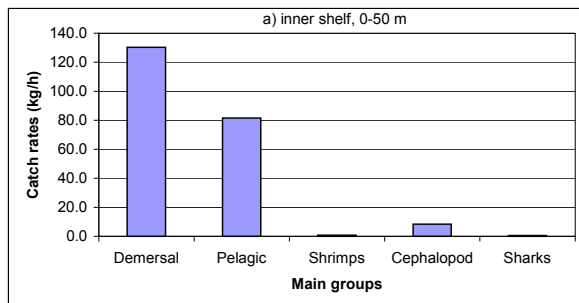
a) Inner shelf, 0-50 m

Station	Depth	Demersal	Pelagic	Shrimp	Cephalopods	Sharks	Other	Total
713	45	877.9	78.6	1.2	25.5	0.0	81.7	1064.9
714	26	10.1	172.8	0.0	36.5	0.0	16.7	236.0
716	21	26.1	11.4	0.0	0.0	0.0	12.3	49.8
717	49	262.2	9.1	0.0	27.0	2.5	38.7	339.5
721	41	11.8	33.9	0.0	26.5	0.0	4.2	76.5
722	26	128.1	19.7	0.0	6.0	0.0	55.0	208.8
723	49	105.9	2.6	0.0	43.5	13.8	94.8	260.7
730	41	20.2	55.6	0.0	7.9	2.1	20.1	106.0
731	24	54.6	73.8	0.1	0.0	0.0	58.8	187.3
732	22	85.7	197.3	0.0	0.0	0.0	15.0	298.0
733	30	56.9	9.3	0.0	0.0	0.0	27.8	94.0
734	45	49.3	24.1	0.0	10.4	0.0	73.8	157.6
741	48	422.4	18.3	0.0	0.0	0.0	80.6	521.2
742	39	144.4	365.6	0.0	4.1	4.6	16.1	534.7
743	30	25.5	2.2	0.0	20.4	0.0	462.4	510.5
744	22	10.9	55.4	0.0	1.7	0.0	483.1	551.1
749	47	11.0	4.1	0.0	2.5	0.0	22.3	40.0
750	34	5.7	4.8	0.0	20.9	0.0	22.2	53.5
751	25	17.1	14.8	0.0	0.3	0.0	9.5	41.7
752	20	106.9	97.6	0.0	17.8	0.0	120.5	342.8
757	47	106.9	1.9	0.0	13.9	0.0	28.1	150.8
758	40	83.4	4.8	0.0	5.2	0.0	642.5	735.9
759	28	3.2	12.1	0.0	7.2	0.0	8.2	30.7
760	23	50.4	28.4	0.0	0.6	0.0	331.8	411.1
765	47	230.5	500.2	0.0	0.0	0.0	147.6	878.3
766	36	264.5	151.7	9.1	3.7	0.0	340.2	769.2
767	29	50.5	27.9	1.1	1.8	0.0	27.4	108.6
768	23	53.9	105.8	0.4	2.1	0.0	86.6	248.7
771	28	85.9	33.4	1.0	0.7	0.0	82.6	203.6
772	46	566.0	187.4	13.3	8.0	0.0	94.4	869.2
777	38	474.5	422.0	0.0	1.7	0.0	143.8	1042.0
778	28	75.7	89.4	2.2	2.6	0.0	56.2	226.1
783	41	89.4	5.1	0.0	0.0	0.0	23.4	117.9
784	27	10.8	22.5	0.0	0.2	0.0	19.3	52.8
785	30	64.5	85.2	0.1	2.0	0.0	105.7	257.5
786	43	46.9	6.9	0.0	2.5	0.0	8.2	64.4
Mean	34	130.3	81.5	0.8	8.4	0.6	107.3	328.9
SE		31.0	20.1	0.4	1.9	0.4	25.3	49.9
% Catch		39.6	24.8	0.2	2.6	0.2	32.6	

Table 5.9 cont.

b) Outer shelf, 51-100 m

Station	Depth	Demersal	Pelagic	Shrimp	Cephalopods	Sharks	Other	Total
712	89	96.4	0.0	0.0	45.7	44.2	117.4	303.7
720	71	18.8	13.4	0.0	0.0	0.0	10.1	42.2
724	85	1971.0	36.2	0.0	51.2	19.2	181.9	2259.4
729	59	2013.4	347.9	0.0	1.1	10.8	1518.0	3891.2
735	65	134.0	0.0	0.0	1.2	0.0	320.4	455.6
736	93	108.6	1.9	0.0	16.3	16.3	283.1	426.2
739	100	187.7	0.0	0.0	3.7	26.8	57.9	276.1
740	70	258.4	509.6	0.0	29.0	22.6	668.6	1488.1
747	71	15.7	0.0	0.0	7.0	3.4	87.1	113.2
748	57	55.1	6.6	0.0	2.8	0.0	110.6	175.0
755	83	155.7	2.5	0.0	9.4	6.8	52.8	227.2
756	62	17.7	32.9	0.0	0.0	0.0	27.8	78.5
763	79	110.2	22.7	0.0	4.6	2.8	55.4	195.7
764	61	11.9	25.4	0.0	11.9	0.0	19.0	68.1
773	85	140.1	67.4	0.0	4.9	13.2	20.2	245.8
781	77	1455.9	2699.3	0.0	3.5	0.0	58.4	4217.1
782	60	239.6	11.6	0.0	5.6	9.0	50.8	316.6
787	56	1723.2	208.2	0.0	7.0	0.0	25.2	1963.6
Mean	74	484.1	221.4	0.0	11.4	9.7	203.6	930.2
SE		172.2	149.5	0.0	3.6	2.9	86.2	309.9
% Catch		52.0	23.8	0.0	1.2	1.1	21.9	



Figs. 5.7a-b. Mean catch rates (kg/h) by main groups in swept area bottom hauls on the a) inner shelf (0-50 m) and b) outer shelf (51-100 m).

Table 5.10 Ghana. Catch rates (kg/h) by main pelagic families in swept-area bottom-trawl hauls on the a) inner shelf (0-50 m) and b) outer shelf (51-100 m).

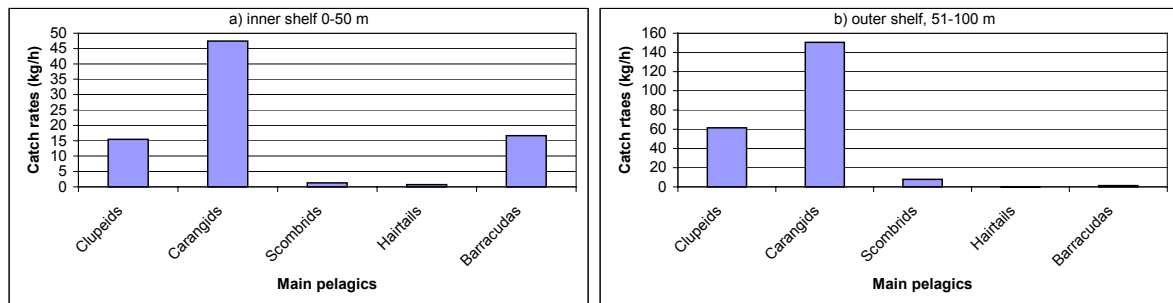
a) Inner shelf, 0-50 m

Station	Depth	Clupeids	Carangids	Scombrids	Hairtails	Barracudas	Other	Total
713	45	5.1	56.1	0.0	0.0	17.4	986.3	1064.9
714	26	19.1	140.3	0.0	0.0	13.4	63.3	236.0
716	21	0.0	0.1	0.0	0.0	11.3	38.4	49.8
717	49	0.6	7.2	0.0	0.0	1.3	330.4	339.5
721	41	1.0	33.0	0.0	0.0	0.0	42.5	76.5
722	26	0.4	15.1	4.3	0.0	0.0	189.1	208.8
723	49	0.0	0.0	0.0	0.0	2.6	258.1	260.7
730	41	9.2	46.4	0.0	0.0	0.0	50.4	106.0
731	24	0.4	67.9	0.0	0.0	5.5	113.5	187.3
732	22	74.6	111.0	0.0	0.0	11.6	100.7	298.0
733	30	1.8	3.8	0.0	0.0	3.6	84.8	94.0
734	45	5.0	16.8	0.0	0.0	2.3	133.5	157.6
741	48	0.0	18.3	0.0	0.0	0.0	503.0	521.2
742	39	114.4	251.3	0.0	0.0	0.0	169.1	534.7
743	30	2.2	0.0	0.0	0.0	0.0	508.3	510.5
744	22	29.3	22.6	0.0	0.0	3.5	495.7	551.1
749	47	0.0	4.1	0.0	0.0	0.0	35.9	40.0
750	34	0.0	4.3	0.0	0.0	0.4	48.8	53.5
751	25	0.0	14.8	0.0	0.0	0.0	26.9	41.7
752	20	10.9	36.9	9.8	0.0	39.9	245.3	342.8
757	47	0.0	1.9	0.0	0.0	0.0	148.9	150.8
758	40	0.0	4.8	0.0	0.0	0.0	731.1	735.9
759	28	0.5	6.6	0.0	0.0	5.1	18.6	30.7
760	23	0.8	24.0	0.2	0.0	3.4	382.8	411.1
765	47	0.0	365.6	0.0	0.0	134.7	378.1	878.3
766	36	8.3	92.6	0.0	1.5	49.3	617.5	769.2
767	29	3.2	12.8	0.3	1.0	10.6	80.7	108.6
768	23	30.1	21.1	16.1	23.0	15.5	143.0	248.7
771	28	2.2	5.8	1.0	0.4	23.8	170.2	203.6
772	46	106.9	56.9	0.0	0.0	23.6	681.7	869.2
777	38	70.7	193.2	0.0	0.0	158.1	620.0	1042.0
778	28	7.5	10.2	15.8	0.0	56.0	136.7	226.1
783	41	0.0	3.3	0.0	0.0	1.9	112.8	117.9
784	27	4.2	16.4	0.0	0.0	1.8	30.3	52.8
785	30	46.7	35.1	0.0	0.0	3.4	172.3	257.5
786	43	0.4	6.5	0.0	0.0	0.0	57.5	64.4
Mean	34	15.4	47.4	1.3	0.7	16.7	247.4	328.9
SE		5.0	13.0	0.7	0.6	5.8	40.7	49.9
% Catch		4.7	14.4	0.4	0.2	5.1	75.2	

Table 5.10 cont.

b) Outer shelf, 51-100 m

Station	Depth	Clupeids	Carangids	Scombrids	Hairtails	Barracudas	Other	Total
712	89	0.0	0.0	0.0	0.0	0.0	303.7	303.7
720	71	7.5	5.9	0.0	0.0	0.0	28.9	42.2
724	85	3.2	33.0	0.0	0.0	0.0	2223.2	2259.4
729	59	0.0	336.5	0.0	0.0	11.4	3543.3	3891.2
735	65	0.0	0.0	0.0	0.0	0.0	455.6	455.6
736	93	0.0	1.9	0.0	0.0	0.0	424.3	426.2
739	100	0.0	0.0	0.0	0.0	0.0	276.1	276.1
740	70	168.4	333.1	7.6	0.0	0.5	978.6	1488.1
747	71	0.0	0.0	0.0	0.0	0.0	113.2	113.2
748	57	0.0	6.6	0.0	0.0	0.0	168.4	175.0
755	83	1.1	1.3	0.1	0.0	0.0	224.7	227.2
756	62	1.3	31.6	0.0	0.0	0.0	45.5	78.5
763	79	0.0	22.7	0.0	0.0	0.0	173.0	195.7
764	61	14.3	9.3	0.0	1.8	0.0	42.8	68.1
773	85	6.5	55.0	5.8	0.0	0.0	178.4	245.8
781	77	905.1	1661.8	128.8	0.0	3.7	1517.7	4217.1
782	60	0.0	8.8	0.0	0.0	2.8	305.0	316.6
787	56	0.0	201.0	0.0	0.0	7.2	1755.4	1963.6
Mean	74	61.5	150.5	7.9	0.1	1.4	708.8	930.2
SE		50.5	92.6	7.1	0.1	0.7	225.8	309.9
% Catch		6.6	16.2	0.9	0.0	0.2	76.2	



Figs. 5.8 a-b Mean catch rates (kg/h) by main pelagic families in swept area bottom hauls on the a) inner shelf (0-50 m) and b) outer shelf (51-100 m).

Catch rates of some of the most commercially important demersal species on the shelf down to 100 m, grouped as seabreams (Sparidae except *Boops boops*), snappers (Lutjanidae), groupers (Serranidae), grunts (Haemulidae except *Brachydeuterus auritus*) and croakers (Sciaenidae) are presented in Tables 5.11a-b and Figs. 5.9a-b. Seabreams had the highest catch rates both on the inner and outer shelf with average catch rates of 30 kg/h and 120 kg/h, respectively. The most common species of seabreams were *Pagellus bellottii*, *Dentex canariensis*, *Pagrus caeruleostictus*, *Dentex congoensis* and *Dentex gibbosus*. *D. congoensis* and *D. gibbosus* were mainly found only on the outer shelf, while *D. canariensis*, *P. caeruleostictus* and *P. bellottii* were found both on the inner and outer shelf (See Annex IV).

The second most important group on the inner and outer shelf was the grunts with average catch rates of 12.4 and 5.9 kg/h, respectively. Other important groups were the croakers (4.9 and 3.3 kg/h), groupers (1.2 and 1.0 kg/h) and snappers (1.1 and 3.5 kg/h).

Table 5.11 Ghana. Catch rates (kg/h) of valuable demersal species grouped by families in swept area bottom trawl hauls on the shelf.

A: Inner shelf (0-50 m), B: Outer shelf (51-100 m).

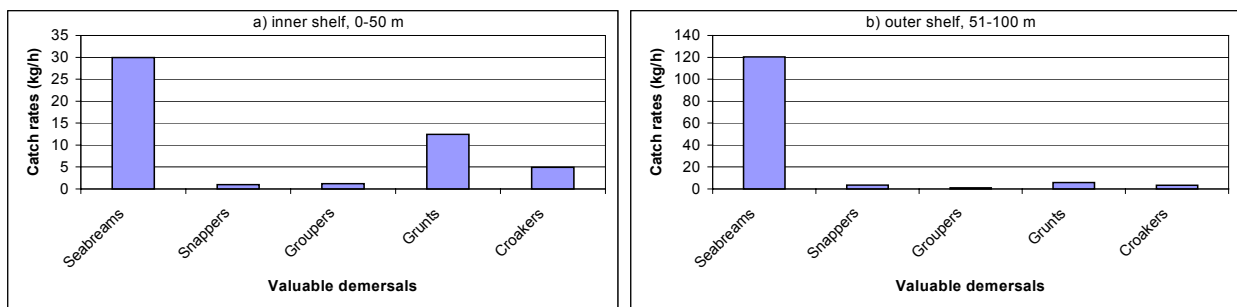
a) Inner shelf, 0-50 m

Station	Depth	Seabreams	Snappers	Groupers	Grunts	Croakers	Other	Total
713	45	103.6	0.0	6.4	0.0	0.0	955.0	1064.9
714	26	9.3	0.2	0.0	0.0	0.0	226.5	236.0
716	21	16.5	0.0	9.6	0.0	0.0	23.7	49.8
717	49	13.6	0.0	1.0	0.0	0.0	324.9	339.5
721	41	11.8	0.0	0.0	0.0	0.0	64.6	76.5
722	26	66.2	0.0	0.0	0.0	0.0	142.6	208.8
723	49	103.6	0.0	2.3	0.0	0.0	154.8	260.7
730	41	19.0	0.3	0.9	0.0	0.0	85.8	106.0
731	24	46.7	0.5	0.0	0.0	2.0	138.0	187.3
732	22	27.9	0.0	0.0	0.0	0.0	270.1	298.0
733	30	39.5	12.2	0.0	0.8	0.0	41.5	94.0
734	45	40.4	5.7	3.0	0.0	0.0	108.5	157.6
741	48	41.4	12.0	5.1	363.9	0.0	98.8	521.2
742	39	139.5	0.0	4.8	0.0	0.0	390.4	534.7
743	30	2.4	0.1	0.0	1.3	0.0	506.7	510.5
744	22	0.3	0.0	0.0	0.0	0.0	550.8	551.1
749	47	9.9	1.1	0.0	0.0	0.0	29.0	40.0
750	34	5.7	0.0	0.0	0.0	0.0	47.9	53.5
751	25	0.0	0.0	0.0	0.0	0.0	41.7	41.7
752	20	1.1	0.0	0.0	3.1	44.3	294.3	342.8
757	47	106.9	0.0	0.0	0.0	0.0	44.0	150.8
758	40	83.4	0.0	0.0	0.0	0.0	652.5	735.9
759	28	2.8	0.0	0.0	0.0	0.0	28.0	30.7
760	23	0.2	0.0	0.0	0.0	10.1	400.9	411.1
765	47	30.7	0.0	8.9	0.0	0.0	838.8	878.3
766	36	1.0	0.0	0.0	3.1	7.7	757.4	769.2
767	29	0.3	0.0	2.0	8.4	4.3	93.7	108.6
768	23	0.0	0.0	0.0	17.9	16.3	214.5	248.7
771	28	0.0	0.0	0.0	5.2	32.1	166.3	203.6
772	46	36.9	2.5	0.0	16.1	23.5	790.1	869.2
777	38	4.3	0.0	0.2	0.0	6.7	1030.9	1042.0
778	28	0.0	0.0	0.0	21.1	11.5	193.5	226.1
783	41	75.3	0.0	0.0	0.0	0.0	42.6	117.9
784	27	7.4	0.0	0.0	0.0	0.0	45.3	52.8
785	30	9.5	0.0	0.0	6.3	19.4	222.3	257.5
786	43	21.6	0.0	0.0	0.0	0.0	42.8	64.4
Mean	34	30.0	1.0	1.2	12.4	4.9	279.4	328.9
SE		6.2	0.5	0.4	10.1	1.7	48.5	49.9
% Catch		9.1	0.3	0.4	3.8	1.5	85.0	

Tab. 5.11 cont.

b) Outer shelf, 51-100 m

Station	Depth	Seabreams	Snappers	Groupers	Grunts	Croakers	Other	Total
712	89	95.4	0.0	0.4	0.0	0.0	207.9	303.7
720	71	18.6	0.0	0.0	0.0	0.0	23.7	42.2
724	85	788.9	0.0	0.0	0.0	0.0	1470.5	2259.4
729	59	37.5	0.0	0.0	14.3	0.0	3839.3	3891.2
735	65	33.3	3.0	5.3	92.4	0.0	321.6	455.6
736	93	105.9	0.0	0.0	0.0	0.0	320.4	426.2
739	100	137.7	0.0	0.0	0.0	50.0	88.3	276.1
740	70	32.5	31.2	7.4	0.0	0.0	1417.0	1488.1
747	71	9.3	4.4	2.1	0.0	0.0	97.5	113.2
748	57	30.8	24.3	0.0	0.0	0.0	119.9	175.0
755	83	135.0	0.0	0.0	0.0	0.0	92.2	227.2
756	62	17.7	0.0	0.0	0.0	0.0	60.8	78.5
763	79	66.9	0.0	2.2	0.0	2.7	124.0	195.7
764	61	11.9	0.0	0.0	0.0	0.0	56.2	68.1
773	85	47.4	0.0	0.0	0.0	4.0	194.4	245.8
781	77	190.8	0.0	0.0	0.0	2.3	4023.9	4217.1
782	60	232.4	0.0	0.0	0.0	0.0	84.2	316.6
787	56	174.6	0.0	0.0	0.0	0.0	1789.0	1963.6
Mean	74	120.4	3.5	1.0	5.9	3.3	796.2	930.2
SE		42.5	2.1	0.5	5.2	2.8	298.4	309.9
% Catch		12.9	0.4	0.1	0.6	0.4	85.6	



Figs. 5.9a-b. Mean catch rates (kg/h) of valuable demersal species by families in swept area bottom hauls on the a) inner shelf (0-50 m) and b) outer shelf (51-100 m).

Annex IV gives the swept-area estimates of mean densities (t/NM^2) based on 54 random trawl stations on the shelf. Of the demersal fish species *Brachydeuterus auritus* had the highest densities in all three depth zones followed by *Galeoides decadactylus* in the ≤ 30 m zone, *P. bellottii* in the 31-50 m zone and *Boops boops* in the deepest zone (51-100 m). *B. auritus*, *B. boops* and *P. bellottii* had the highest overall mean density. In 2000, the scallop *Chlamys purpuratus* had high density in both the shallowest zone ($2.96 t/ NM^2$) and the 31-50m zone ($2.25 t/ NM^2$) and was caught on 30 % of the stations in Ghana, mainly from $0^{\circ}10'W$ to $1^{\circ}15'W$. During the 2002 survey it was only caught in low numbers on a few stations in the same area. The catch rate was found to be very much dependent on the performance of the trawl gear. During the 2004 survey *C. purpuratus* was caught on 9 % of the stations and had a density of $1.78 t/ NM^2$ in the shallowest depth zone, while in the

present survey it occurred on 7 % of the stations with a density of 0.12 and 1.13 t/ NM² in the ≤ 30 m and 31-50 m depth zones, respectively. However, in the last surveys most of the scallops were dead.

Table 5.12 presents swept-area biomass estimates for the valuable demersal groups and other groups that occur in sizeable quantities. The estimated total biomass was about 19 000 tonnes, of which seabreams made up more than 80 % (15 700 tonnes). The highest biomass of seabreams was found between depths of 51 and 100 m. Grunts had the second highest biomass with about 2 200 tonnes. Croakers had the third highest biomass followed by snappers and groupers. Of the pelagic and semi-pelagic groups, the bigeye grunt (*B. auritus*) had an estimated biomass of around 28 000 tonnes, carangids 19 000 tonnes and barracudas and cephalopods 2 000 tonnes.

Table 5.12 Ghana. Biomass estimates (tonnes) of important species/groups on the shelf, by depth.

Group/species	0-30 m	31-50 m	51-100m	Sum	95 % confidence limits	
Seabreams	593	3 240	11 857	15 690	7 179	24 202
Grunts	169	1 569	523	2 261	0	5 372
Croakers	367	124	330	821	174	1 468
Groupers	28	124	83	235	103	366
Snappers	28	83	303	413	30	797
Sum dem.val.	1 186	5 139	13 095	19 420	10 655	28 185
Bigeye grunt	988	9 082	17 826	27 896	2 403	53 390
Carangids	1 412	4 500	13 315	19 226	2 479	35 974
Barracudas	537	1 527	138	2 201	599	3 804
Cephalopods	268	784	1 128	2 181	1 330	3 031

5.4 Côte d'Ivoire

A total of 44 swept-area trawl hauls were made on the Ivorian shelf. Due to lack of suitable bottom, no trawl haul was made deeper than 100 m. Tables 5.13a-b and Figs. 5.10a-b show catch rates by main groups for the inner (0-50 m) and outer (51-100 m) shelf, respectively. The demersal group had the highest average catch rate on the inner shelf with a relative contribution of 44 %. The pelagic group was the second most important contributing 33 % of the catches, followed by the “other” group (20 %). There were low catch rates and contributions of shrimps (1.5 %), cephalopods (0.6 %) and sharks (0.1 %) on this part of the shelf. The most abundant shrimp species were *Penaeus notialis* and *Parapenaeus atlantica*. *Sepia officinalis hierredda* was the dominating cephalopod.

Table 5.13 Côte d'Ivoire. Catch rates (kg/h) by main groups in swept-area bottom-trawl hauls on the a) inner shelf (0-50 m) and b) outer shelf (51-100 m).

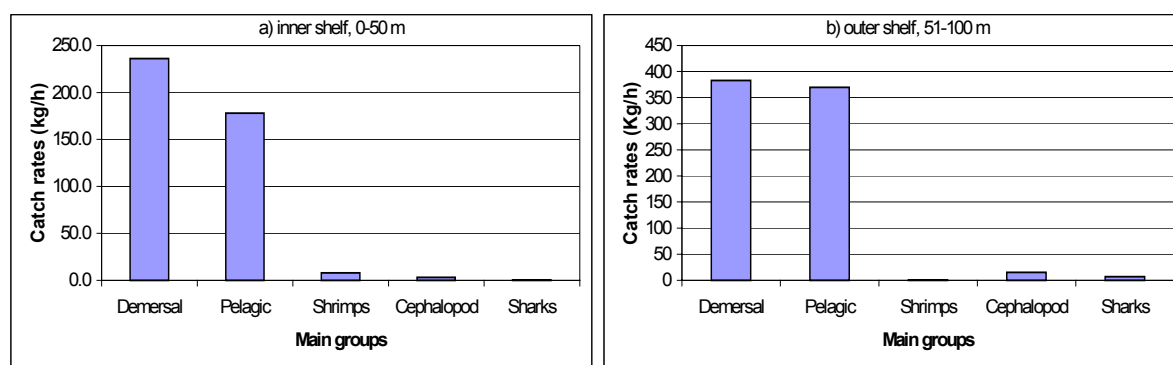
a) Inner shelf, 0-50 m

Station	Depth	Demersal	Pelagic	Shrimp	Cephalopods	Sharks	Other	Total
791	41	67.2	15.2	0.4	10.4	0.0	96.8	190.0
792	25	238.4	134.1	2.3	0.0	0.0	18.5	393.3
793	26	94.6	53.6	0.6	0.5	0.0	48.9	198.2
794	46	237.7	94.8	0.0	13.6	0.0	45.2	391.3
800	34	1664.0	569.3	0.0	2.9	0.0	139.2	2375.3
801	25	643.5	645.4	0.0	0.0	0.0	153.1	1441.9
802	28	24.3	55.8	0.0	0.0	0.0	23.3	103.4
807	45	289.7	711.8	0.0	4.0	0.0	113.3	1118.8
808	22	51.9	360.6	0.7	2.5	0.0	27.8	443.5
809	28	122.0	67.2	1.5	0.0	0.0	45.3	235.9
810	36	82.7	84.6	2.3	0.9	0.0	4.7	175.2
815	37	122.1	29.6	0.5	0.8	0.0	99.1	252.1
816	24	75.3	151.0	11.3	0.0	0.0	93.8	331.4
817	21	68.0	137.2	10.2	2.2	0.0	59.7	277.2
818	46	378.3	35.7	1.1	13.3	0.0	190.2	618.6
824	40	546.1	528.1	0.1	4.9	0.0	41.9	1121.0
825	23	28.2	41.4	9.4	10.9	0.0	402.4	492.2
826	28	157.2	26.4	60.6	0.0	0.0	264.5	508.7
827	45	156.8	44.8	15.6	8.4	0.0	193.0	418.6
833	36	196.1	118.1	10.0	0.0	0.0	129.7	453.9
834	28	139.1	104.7	44.4	0.2	0.0	198.2	486.6
835	44	160.6	125.0	10.8	2.4	0.0	119.1	417.8
839	44	93.8	98.1	7.0	0.3	10.3	43.7	253.3
840	29	29.7	42.8	1.6	0.0	0.0	15.0	89.0
Mean	33	236.1	178.1	7.9	3.3	0.4	106.9	532.8
SE		69.8	43.4	3.0	0.9	0.4	19.1	105.1
% Catch		44.3	33.4	1.5	0.6	0.1	20.1	

Table 5.13 cont.

b) Outer shelf, 51-100 m

Station	Depth	Demersal	Pelagic	Shrimp	Cephalopods	Sharks	Other	Total
790	84	171.7	92.9	0.0	4.6	0.0	22.3	291.5
795	73	515.1	379.8	0.0	19.3	3.4	65.9	983.4
796	89	481.0	1105.5	0.0	17.0	5.0	205.4	1813.9
798	81	157.2	37.2	0.0	0.0	0.0	168.5	362.9
799	61	537.3	266.5	0.0	10.2	33.6	143.3	991.0
803	60	251.2	78.4	0.0	19.8	39.5	63.6	452.3
804	87	80.8	747.5	0.0	40.5	0.0	27.7	896.5
806	70	2116.0	324.8	0.0	9.1	4.0	343.6	2797.5
811	87	434.5	0.0	0.0	42.6	15.4	1942.6	2435.1
814	76	202.4	936.4	0.0	18.3	4.2	481.0	1642.3
819	66	398.1	16.8	0.0	3.9	6.5	54.7	480.0
822	96	57.6	3.7	0.0	4.3	0.0	28.2	93.8
823	60	8.4	44.9	0.0	8.3	11.1	23.2	96.0
828	81	323.1	220.2	0.0	40.5	0.0	357.9	941.7
831	84	94.8	177.8	0.0	37.6	4.3	748.7	1063.1
832	56	581.1	244.2	6.1	6.2	0.0	100.9	938.4
836	82	27.2	4.5	0.0	17.2	12.6	27.1	88.5
838	76	139.4	37.4	0.0	4.4	0.0	20.7	201.9
841	83	1050.7	2634.9	0.0	0.0	0.0	24004.6	27690.1
842	66	31.8	40.3	0.0	4.1	0.0	681.4	757.5
Mean	76	383.0	369.7	0.3	15.4	7.0	1475.6	2250.9
SE		107.9	139.1	0.3	3.2	2.5	1189.9	1349.6
% Catch		17.0	16.4	0.0	0.7	0.3	65.6	



Figs 5.10 a-b. Mean catch rates (kg/h) by main groups in swept area bottom hauls on the a) inner shelf (0-50 m) and b) outer shelf (51-100 m).

The “other” group dominated the catches on the outer shelf (65 %) due to one very large catch of *Priacanthus arenatus* (st.no. 841, 24 000 kg/h). The demersal and pelagic groups contributed almost equal parts, 17 and 16 %, respectively. Cephalopods and sharks had low catch rates also on the outer shelf, while no shrimps were caught.

Tables 5.14a-b and Figs. 5.11a-b show the catch rates of the most important pelagic families caught in the bottom trawl. The carangids were the most abundant pelagic group on the inner shelf with an average catch rate of about 88 kg/h, constituting 16 % of the catch. The most frequently caught species were *Chloroscombrus chrysurus*, *Selene dorsalis*, *Alectis alexandrinus* and *Trachurus trecae*. The second most important group was Barracudas (*Sphyraena* spp.), with an average catch rate of around 61 kg/h, constituting 11% of the catch. Clupeids were third (19 kg/h) and contributed about 5 % to the total. The clupeid species that occurred most frequently were *Sardinella aurita*, *S. maderensis* and *Ilisha africana*. Hairtails (*Trichiurus lepturus*) and scombrids were less abundant.

Table 5.14 Côte d'Ivoire. Catch rates (kg/h) by main pelagic families in swept-area bottom-trawl hauls on the a) inner shelf (0-50 m) and b) outer shelf (51-100 m).

a) Inner shelf, 0-50 m

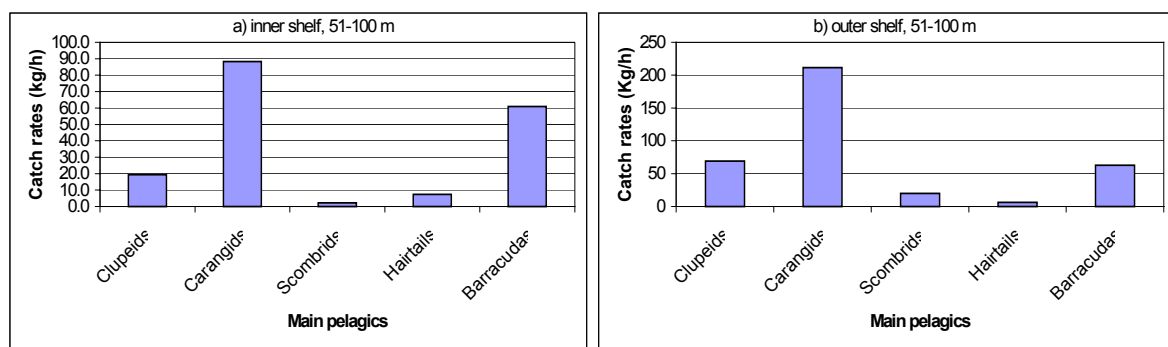
Station	Depth	Clupeids	Carangids	Scombrids	Hairtails	Barracudas	Other	Total
791	41	0.0	15.2	0.0	0.0	0.0	174.8	190.0
792	25	29.1	48.2	27.2	0.0	29.6	259.2	393.3
793	26	17.0	10.6	4.4	0.0	21.5	144.7	198.2
794	46	31.2	42.8	0.0	0.0	20.7	296.5	391.3
800	34	0.0	450.5	0.0	17.3	101.5	1806.1	2375.3
801	25	0.0	246.7	0.0	0.0	398.6	796.6	1441.9
802	28	5.5	46.0	0.0	0.0	4.2	47.6	103.4
807	45	17.7	531.9	0.0	2.0	160.2	407.0	1118.8
808	22	16.0	243.6	0.3	7.7	93.1	82.9	443.5
809	28	4.2	25.6	0.0	0.0	37.4	168.7	235.9
810	36	14.1	60.0	6.3	0.0	4.2	90.6	175.2
815	37	6.8	13.0	2.8	0.4	6.5	222.5	252.1
816	24	22.0	108.0	7.4	0.0	13.7	180.4	331.4
817	21	69.0	23.7	2.9	1.2	40.5	140.0	277.2
818	46	0.0	26.5	0.0	0.0	9.2	583.0	618.6
824	40	4.7	97.5	0.0	0.0	426.0	593.0	1121.0
825	23	7.0	29.8	0.8	0.6	3.2	450.9	492.2
826	28	7.6	1.2	0.0	14.6	3.0	482.3	508.7
827	45	18.4	14.4	0.0	12.0	0.0	373.8	418.6
833	36	87.4	15.1	0.0	8.3	7.3	335.8	453.9
834	28	86.1	7.4	0.0	9.3	2.0	381.9	486.6
835	44	10.0	13.5	0.0	64.0	37.5	292.8	417.8
839	44	8.2	16.2	0.0	37.7	36.1	155.2	253.3
840	29	4.2	32.4	0.6	0.7	4.9	46.2	89.0
Mean	33	19.4	88.3	2.2	7.3	60.9	354.7	532.8
SE		5.2	28.7	1.2	3.0	23.5	74.2	105.1
% Catch		3.6	16.6	0.4	1.4	11.4	66.6	

Carangids also had the highest average catch rate on the outer shelf (211 kg/h). The most frequently caught carangid on the outer shelf was *T. trecae*, which also had the highest catch rates within this group. Clupeids were also more abundant than on the inner shelf (69 kg/h), and the dominating species was *S. aurita*. Barracudas were the third most important pelagic

group and had similar average catch rate as on the inner shelf (62 kg/h). Scombrids (mainly *Scomber japonicus*) was more abundant than on the inner shelf (20 kg/h), while the catch rates of hairtails were low also here.

b) Outer shelf, 51-100 m

Station	Depth	Clupeids	Carangids	Scombrids	Hairtails	Barracudas	Other	Total
790	84	10.5	38.3	41.3	0.0	2.8	198.7	291.5
795	73	46.8	278.1	0.0	42.0	12.9	603.6	983.4
796	89	172.1	577.2	348.4	0.7	7.1	708.4	1813.9
798	81	1.3	35.6	0.0	0.2	0.0	325.7	362.9
799	61	10.7	64.6	0.0	0.0	191.2	724.5	991.0
803	60	7.7	59.2	0.0	0.6	10.9	374.0	452.3
804	87	262.9	468.8	12.3	0.0	3.5	149.1	896.5
806	70	0.0	302.4	0.0	22.4	0.0	2472.7	2797.5
811	87	0.0	0.0	0.0	0.0	0.0	2435.1	2435.1
814	76	69.3	859.7	0.0	5.9	1.5	705.9	1642.3
819	66	12.8	4.0	0.0	0.0	0.0	463.2	480.0
822	96	0.4	0.4	0.0	0.0	3.0	90.1	93.8
823	60	1.5	40.6	0.0	0.4	2.4	51.0	96.0
828	81	13.5	202.5	0.0	0.0	4.2	721.5	941.7
831	84	0.0	175.3	0.0	0.0	2.5	885.3	1063.1
832	56	26.3	67.5	0.0	46.3	104.1	694.3	938.4
836	82	0.0	2.8	0.0	0.0	1.7	84.1	88.5
838	76	0.1	25.8	0.0	9.4	2.2	164.5	201.9
841	83	743.6	986.1	0.0	0.0	905.2	25055.3	27690.1
842	66	1.3	38.0	0.0	0.0	1.0	717.2	757.5
Mean	76	69.0	211.3	20.1	6.4	62.8	1881.2	2250.9
SE		38.6	65.5	17.4	3.1	45.6	1228.8	1349.6
% Catch		3.1	9.4	0.9	0.3	2.8	83.6	



Figs. 5.11a-b. Mean catch rates (kg/h) by main pelagic families in swept area bottom hauls on the a) inner shelf (0-50 m) and b) outer shelf (51-100 m).

Catch rates of some of the most commercially important demersal species on the shelf down to 100 m, grouped as seabreams (Sparidae except *Boops boops*), snappers (Lutjanidae), groupers (Serranidae), grunts (Haemulidae except *Brachydeuterus auritus*) and croakers (Sciaenidae) are presented in Tables 5.15a-b and Figs. 5.12a-b. Croakers had the highest

mean catch rate (20 kg/h) on the inner shelf, and the most common species were *Pseudotolithus senegalensis* and *Pteroscion peli*. Grunts (18 kg/h) were the second most important group, with *Pomadasys peroteti* as the most common species. Seabreams came third (13 kg/h), and *Pagellus bellottii* was the most abundant species. Groupers were less common (2.7 kg/h), and *Epinephelus aeneus* was the most abundant species. Snappers were only found on a few stations with small catches of *Lutjanus fulgens* and *L. goreensis*.

Table 5.15 Côte d'Ivoire. Catch rates (kg/h) of valuable demersal species grouped by families in swept-area bottom-trawl hauls on the a) inner shelf (0-50 m) and b) outer shelf (51-100 m).

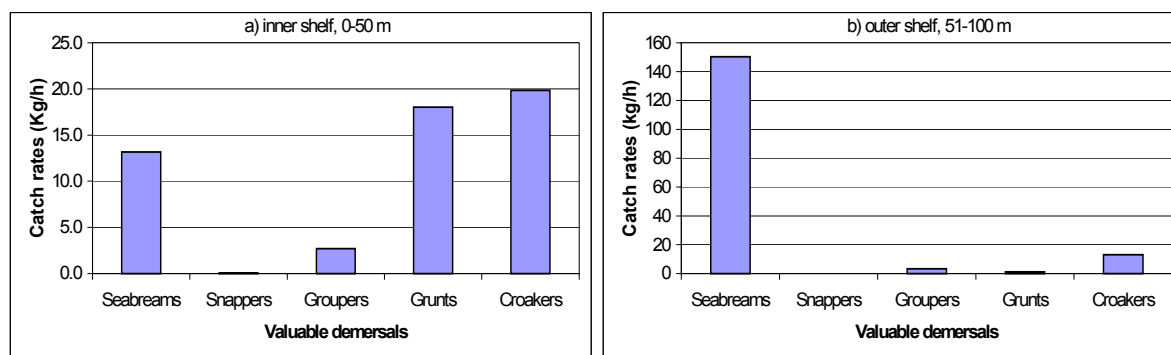
a) Inner shelf, 0-50 m

Station	Depth	Seabreams	Snappers	Groupers	Grunts	Croakers	Other	Total
791	41	62.2	0.0	1.7	0.0	0.0	126.1	190.0
792	25	2.6	0.0	0.0	1.4	2.8	386.6	393.3
793	26	0.0	0.0	0.0	0.5	0.3	197.4	198.2
794	46	87.9	0.0	18.3	91.4	0.0	193.6	391.3
800	34	30.5	0.0	0.0	0.0	0.0	2344.8	2375.3
801	25	20.0	0.0	0.0	1.0	1.6	1419.3	1441.9
802	28	6.6	0.0	0.0	0.0	1.3	95.6	103.4
807	45	49.9	0.0	3.7	7.0	0.0	1058.3	1118.8
808	22	0.0	0.0	0.0	0.2	9.9	433.4	443.5
809	28	0.0	0.0	0.0	9.5	9.2	217.3	235.9
810	36	5.8	0.0	1.6	0.0	0.0	167.8	175.2
815	37	7.1	0.2	4.6	6.0	0.0	234.3	252.1
816	24	0.0	1.1	11.5	0.9	17.8	300.2	331.4
817	21	0.0	0.0	0.5	0.6	25.4	250.6	277.2
818	46	31.1	0.0	4.0	28.5	0.0	555.0	618.6
824	40	12.3	0.0	0.7	4.0	0.0	1104.1	1121.0
825	23	0.0	0.0	0.0	1.8	23.8	466.7	492.2
826	28	0.0	0.0	0.0	110.6	42.4	355.7	508.7
827	45	0.0	0.0	0.0	4.4	13.2	401.0	418.6
833	36	0.0	0.0	9.5	115.5	44.9	283.9	453.9
834	28	0.0	0.0	8.0	7.6	111.5	359.5	486.6
835	44	0.0	0.0	0.0	32.9	82.6	302.3	417.8
839	44	0.0	0.0	0.4	4.9	64.8	183.2	253.3
840	29	0.0	0.1	0.0	4.0	25.2	59.7	89.0
Mean	33	13.2	0.1	2.7	18.0	19.9	479.0	532.8
SE		4.8	0.1	1.0	7.2	6.1	106.1	105.1
% Catch		2.5	0.0	0.5	3.4	3.7	89.9	

On the outer shelf, seabreams dominated the valuable demersal species with an average catch rate of 150 kg/h. *Dentex angolensis*, *Pagellus bellottii* and *D. canariensis* were the most frequently occurring seabreams. Croakers (13 kg/h) constituted the second most important group, *Umbrina canariensis* being the dominant species. Grunts were much less abundant than on the inner shelf and only occurred at a couple of stations. Groupers had similar average catch rates as on the inner shelf (3.3 kg/h), while no snappers were caught on the outer shelf.

b) Outer shelf, 51-100 m

Station	Depth	Seabreams	Snappers	Groupers	Grunts	Croakers	Other	Total
790	84	158.7	0.0	0.0	0.0	0.0	132.9	291.5
795	73	125.4	0.0	0.0	0.0	0.0	858.0	983.4
796	89	40.6	0.0	0.0	0.0	19.8	1753.6	1813.9
798	81	57.9	0.0	0.0	0.0	82.5	222.5	362.9
799	61	497.1	0.0	12.7	0.0	0.0	481.2	991.0
803	60	242.8	0.0	1.7	0.0	0.0	207.9	452.3
804	87	63.5	0.0	0.0	0.0	14.4	818.7	896.5
806	70	127.2	0.0	19.2	0.0	25.6	2625.5	2797.5
811	87	70.4	0.0	0.0	0.0	10.1	2354.6	2435.1
814	76	129.9	0.0	4.0	0.0	34.9	1473.5	1642.3
819	66	340.2	0.0	5.1	17.4	5.3	112.0	480.0
822	96	42.9	0.0	0.0	0.0	3.4	47.5	93.8
823	60	3.4	0.0	1.0	0.0	0.6	91.0	96.0
828	81	240.0	0.0	0.0	0.0	0.0	701.7	941.7
831	84	52.3	0.0	0.0	0.0	18.8	992.0	1063.1
832	56	42.5	0.0	4.8	7.1	37.4	846.6	938.4
836	82	13.2	0.0	12.3	0.0	1.6	61.5	88.5
838	76	11.5	0.0	0.0	0.0	2.7	187.7	201.9
841	83	727.4	0.0	0.0	0.0	0.0	26962.7	27690.1
842	66	20.5	0.0	5.6	0.0	2.9	728.6	757.5
Mean	76	150.4	0.0	3.3	1.2	13.0	2083.0	2250.9
SE		41.4	0.0	1.2	0.9	4.5	1320.3	1349.6
% Catch		6.7	0.0	0.2	0.1	0.6	92.5	



Figs. 5.12a-b. Mean catch rates (kg/h) of valuable demersal species by families in swept area bottom hauls on the a) inner shelf (0-50 m) and b) outer shelf (51-100 m).

Appendix IV gives the swept-area estimates of mean densities (t/NM²) based on 44 random trawl stations on the shelf. Of the demersal species, *Brachydeuterus auritus* had the highest mean densities in both of the two depth zones on the inner shelf (0-30 m, 31-50 m). It was followed by *Galeoides decadactylus* and *Pomadasys peroteti* in the shallowest depth zone and *G. decadactylus* and *Pagellus bellottii* in the 31-50 m zone. *Priacanthus arenatus* was the most abundant demersal species in the 51-100 m depth zone due to the large catch at station 641, followed by *B. auritus* and *P. bellottii*. *P. arenatus* had the highest all over mean density, followed by *B. auritus* and *P. bellottii*.

Table 5.16 presents the swept-area biomass estimates for the valuable demersal groups and other groups that occur in sizeable quantities. The estimated total biomass of valuable demersal groups was about 12 000 tonnes of which seabreams made up almost 80 %. The highest biomass of seabreams was found in the deepest zone. Croakers were the second most important group and were most abundant in the shallowest depth zone, while grunts and seabreams had similar biomass estimates in the 31-50 m zone.

Of the pelagic and semi-pelagic species, bigeye grunt (*B. auritus*) and carangids had the highest biomass estimates, about 15 000 tonnes each. Barracudas had an estimated biomass of 6 000 tonnes and cephalopods 1 000 tonnes.

Table 5.16 Côte d'Ivoire. Biomass estimates (tonnes) of important species/groups on the shelf, by depth.

Group/species	0-30 m	31-50 m	51-100m	Sum	95 % Confidence limits	
Seabreams	45	582	8 241	8 868	4 316	13 419
Grunts	253	533	65	851	212	1 489
Croakers	490	400	696	1 586	847	2 324
Groupers	34	84	194	312	147	477
Snappers	23	7	0	30	0	77
Sum dem. val.	845	1 605	9 196	11 646	7 085	16 206
Bigeye grunt	1 948	6 624	7 010	15 583	3 896	27 269
Carangids	1 323	2 559	11 463	15 344	7 737	22 952
Barracudas	1 070	1 584	3 319	5 973	729	11 217
Cephalopods	28	126	890	1 045	670	1 420

5.5 Review of results

Some of the 1999 and 2000 catch rate and biomass estimates were corrected in 2002. The new values are included in revised editions of the 1999 and 2000 reports and in the time series of later reports.

Togo - Benin

Figs. 5.13 and 5.14 show the mean catch rates of the main groups “Demersal” and “Pelagic” for the whole shelf area from 0 to 100 m in the five last surveys. The mean catch rates of the demersal group were highest in 2000 and 2005, mainly due to a few large catch of Seabreams, and the mean catch rates in 1999, 2002 and 2004 are not within the 95% confidence intervals of the 2005 estimate. The mean catch of the pelagic group has been less variable over the time series.

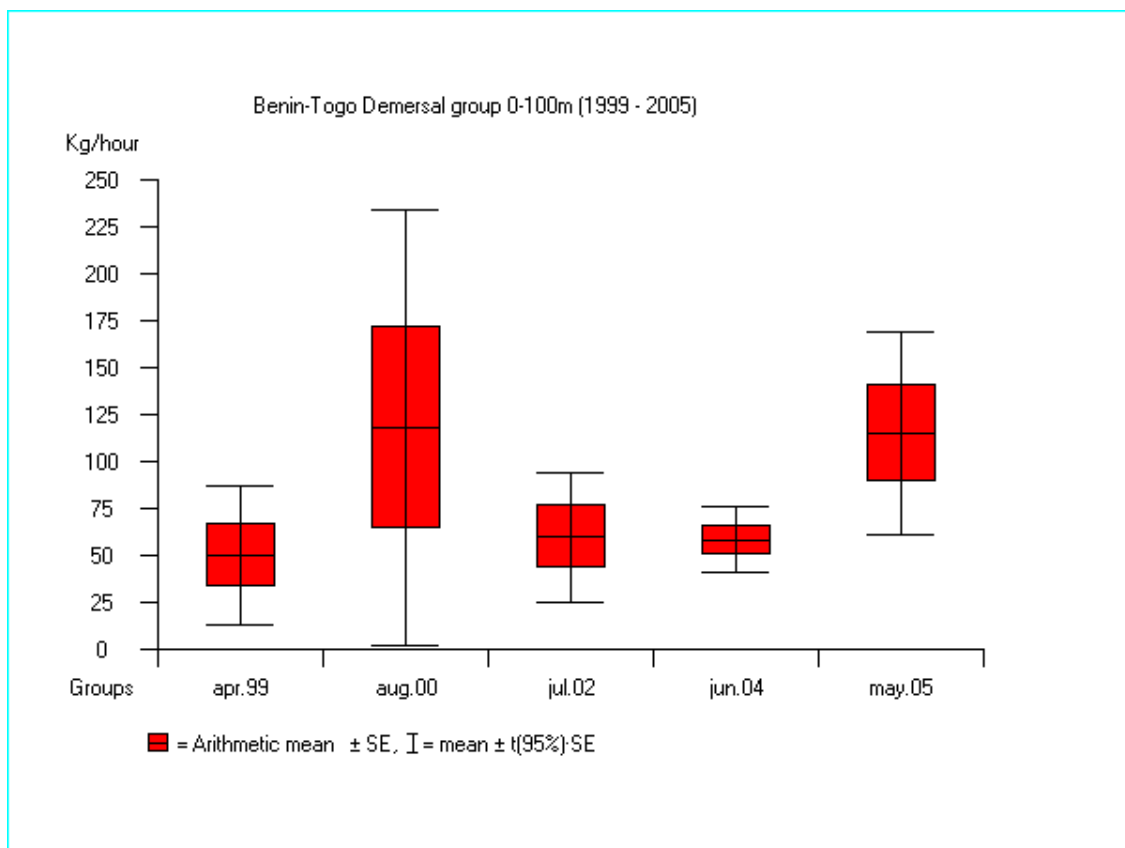


Figure 5.13 Mean catch rates of the main group “demersal” from 0 to 100 m in Togo - Benin 1999-2005.

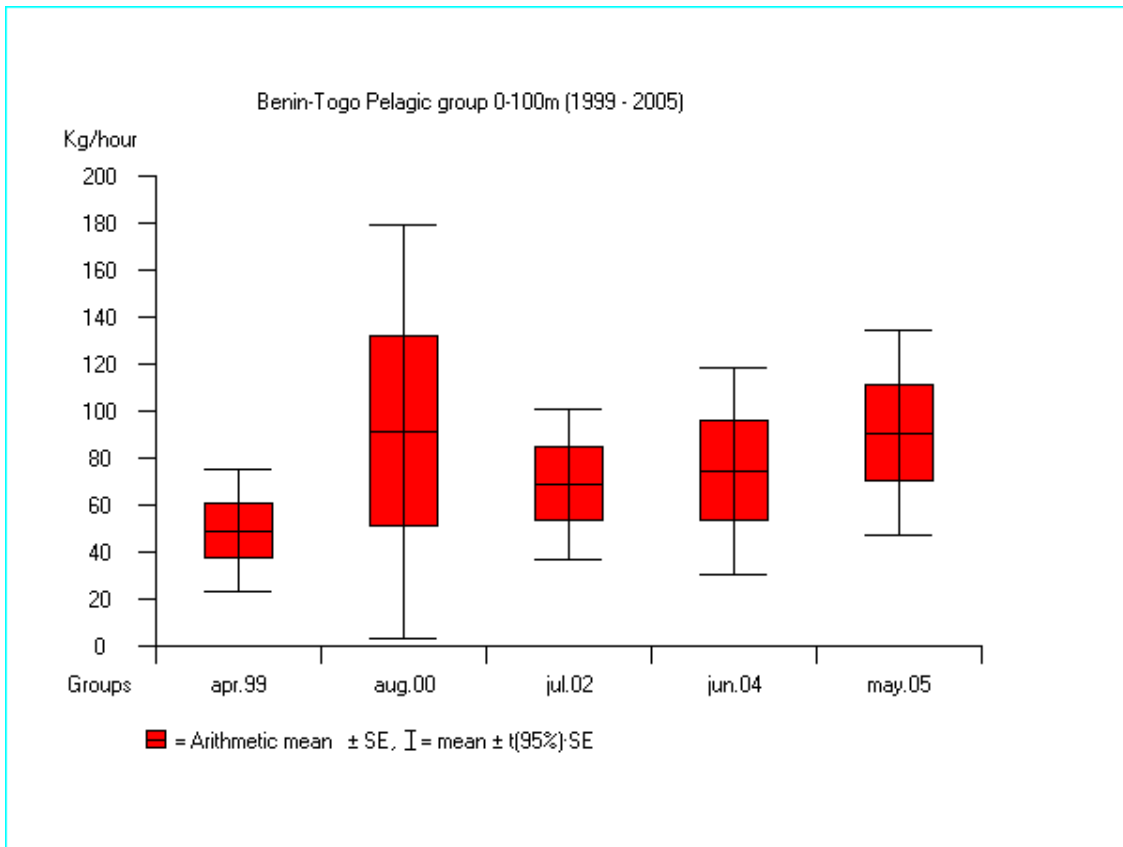


Figure 5.14 Mean catch rates of the main group “pelagic” from 0 to100 m in Togo - Benin 1999-2005.

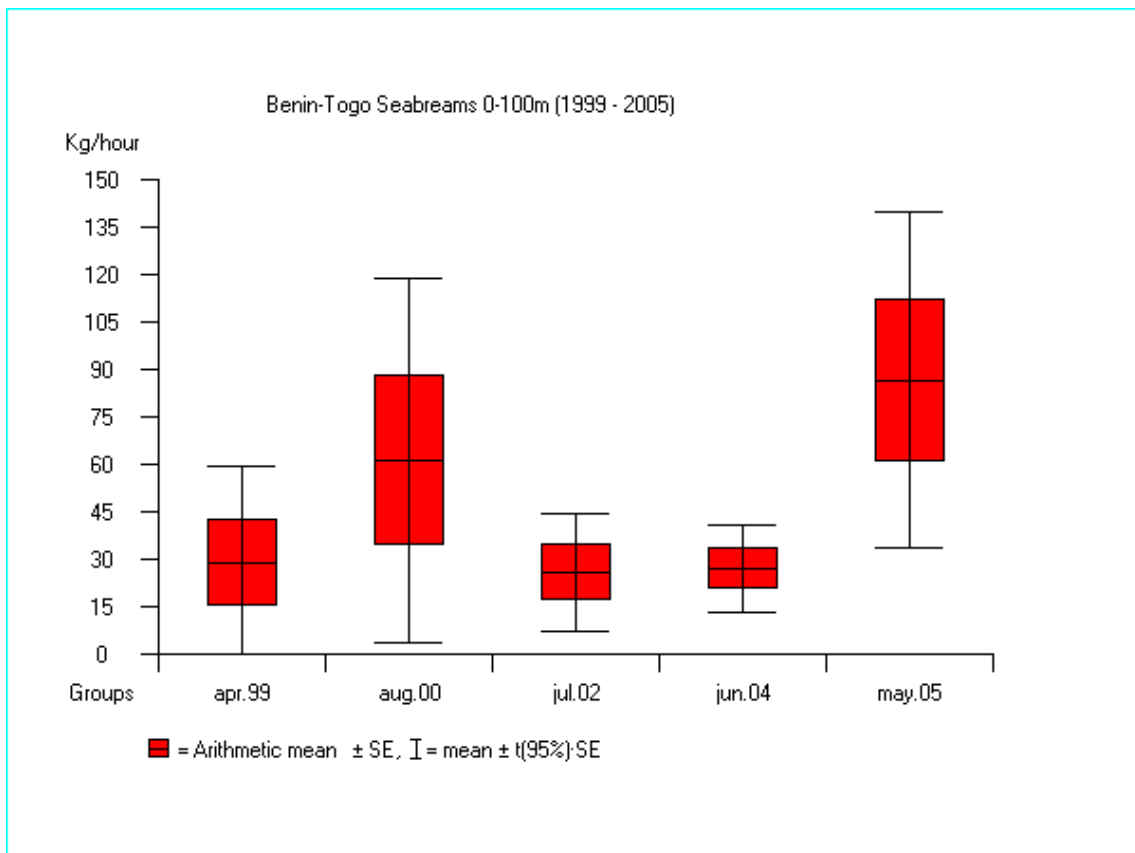


Figure 5.15 Mean catch rates of seabreams from 0 to100 m in Togo - Benin 1999-2005.

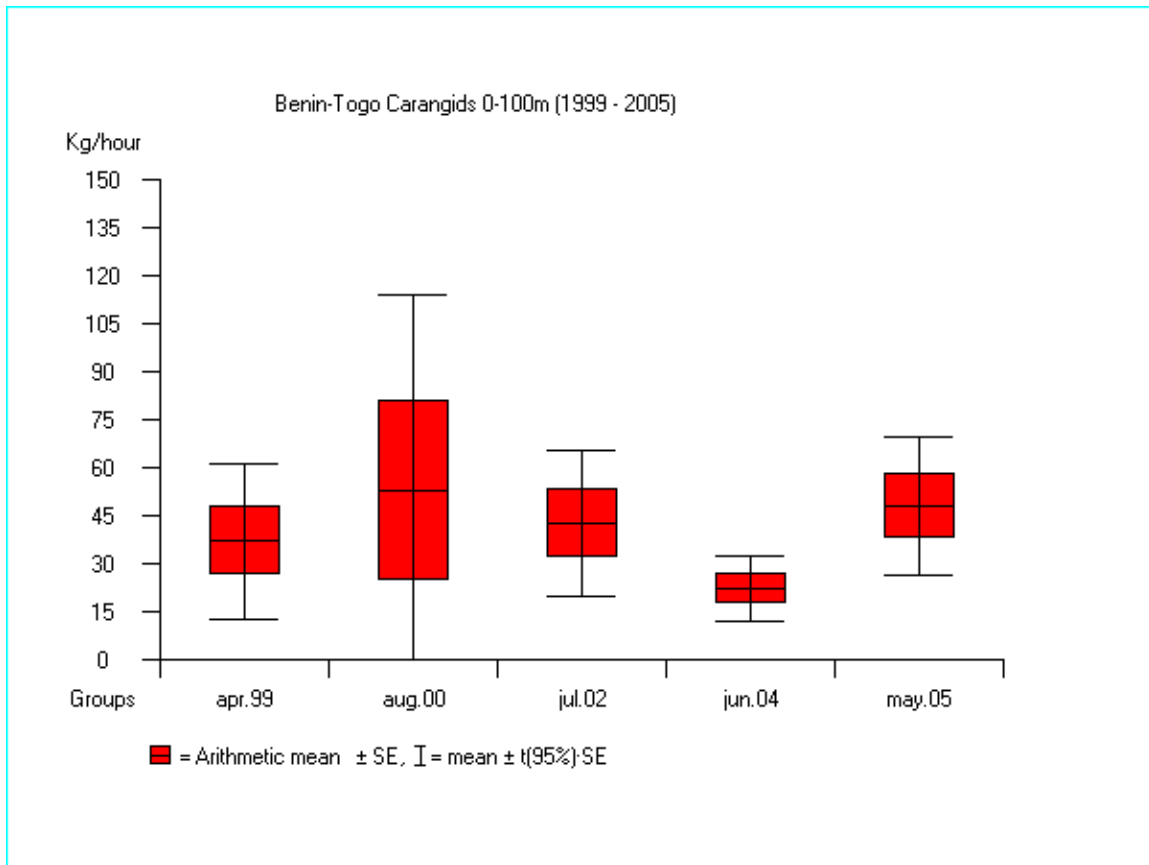


Figure 5.16 Mean catch rates of carangids from 0 to 100 m in Togo - Benin 1999-2005.

Figures 5.15 and 5.16 show the mean catch rates of Seabreams and Carangids, normally the most abundant families in the “Demersal” and “Pelagic” groups. The 1999, 2002 and 2004 seabreams estimates are quite similar, while a few large catches of *Dentex congouensis* in Togo in 2000 (292 kg/h) and Benin in 2005 (514 kg/h) gave high means outside the 95% confidence intervals of the other years. The 2000 carangids estimate had the highest mean and confidence intervals, mainly due to one catch of *Decapterus punctatus* in Benin (419 kg/h). The 2004 estimate is the lowest and outside within the 95% confidence intervals of the 2005 estimate.

Table 5.17 summarizes more details on mean catch rates of valuable demersal groups and a few other common groups covered during the present and two previous surveys in the Benin and Togo waters. The mean catch rates of seabreams in Benin in 2005 and in Togo in 2000 and 2005 were all very high. The other results are also variable and with few clear trends. The time series of biomass estimates (Table 5.18) show the same picture. Some of these results are influenced by a few large catches in some years. When comparing the results one should keep in mind that the surveys were conducted in two different seasons.

Table 5.17 Mean catch rates (kg/h) of valuable demersal and some other groups in swept-area bottom trawl hauls on the shelf (0 - 100 m) off Benin and Togo from the Nansen surveys in 1999, 2000, 2002, 2004 and 2005. 2000 and 2002 surveys in upwelling season.

Group/species	Togo-Benin	Benin				Togo			
	1999	2000	2002	2004	2005	2000	2002	2004	2005
Seabreams	28.6 ¹	29.9	28.7	28.9	97.9	108.7	19.9	23.0	62.4
Grunts	0.9	3.5	1.2	3.2	1.5	0.0	2.2	2.1	-
Croakers	4.6	2.9	7.6	5.2	6.6	1.5	-	0.6	0.2
Groupers	10.3	2.3	1.2	1.6	8.0	4.1	1.0	0.7	1.1
Snappers	0.3	1.3	1.4	1.5	0.9	1.0	13.6	4.5	0.2
Sum dem. val.	44.7¹	39.9	40.0	40.4	114.8	115.3	36.7	30.9	63.9
Bigeye grunt	5.5	10.1	12.1	21.5	9.3	0.6	-	9.8	2.4
Carangids	37.0	64.2	54.8	20.6	60.2	35.9	19.9	25.6	22.3
Barracudas	6.3	4.7	18.0	11.1	19.3	2.0	5.4	4.4	3.2
Cephalopods	14.7	13.2	15.6	9.9	18.6	22.8	23.0	19.0	47.5

¹) 1999 estimate corrected

Table 5.18 Biomass estimates (tonnes) of valuable demersal species and some other groups from swept-area bottom-trawl hauls on the shelf (0 - 100 m) off Benin and Togo from the 1999, 2000, 2002, 2004 and 2005 surveys. 1999 values are splitted proportional to the shelf area (in parenthesis in NM²).

Group/Species	Benin (765)					Togo (327)				
	1999	2000 ^{1,2}	2002 ²	2004	2005	1999	2000 ²	2002 ²	2004	2005
Seabreams	568	700	734	638	2 014	255	1 102	215	243	616
Grunts	41	66	35	57	28	18	5	25	23	0
Croakers	193	83	265	187	218	87	11	0	9	2
Groupers	215	59	26	31	154	97	33	9	6	11
Snappers	15	34	39	40	27	7	8	198	64	4
Sum dem. val.	1 032	942	1 098	953	2 411	464	1 159	447	343	633
Bigeye grunt	118	222	237	402	243	53	0	0	99	20
Carangids	788	1 490	1 306	500	1 152	354	339	171	267	197
Barracudas	170	102	485	361	400	76	25	79	57	37
Cephalopods	320	300	400	210	379	140	260	300	190	434

2000 estimates corrected ²) Upwelling season

Ghana

Figures 5.17 and 5.18 show the mean catch rates of the main groups “Demersal” and “Pelagic” for the whole shelf area from 0 to 100 m in the five last surveys. The “Demersal” group had quite similar mean catch rates in all surveys, but slightly higher and with much larger confidence intervals in 1999 due to one large catch of *B. auritus* (>5 t/h). Pelagic fish had similar high mean catch rates in 2000 and 2002, but much lower in the three other years, especially in 1999 when the estimate was outside the 95% confidence intervals of the two former.

Figs. 5.19 and 5.20 show the mean catch rates of Seabreams and Carangids, the most abundant families in the “Demersal” and “Pelagic” groups. The 2000, 2002, 2004 and 2005 seabream estimates are quite similar, while that in 1999 is much lower and just within their 95% confidence intervals. The carangids show the same picture as the whole “Pelagic” group; high mean catch rates in 2000 and 2002 and very low in 1999 and 2004, outside the 95% confidence intervals of the 2000 and 2002 estimates. The 2005 estimate is somewhere between these extremes.

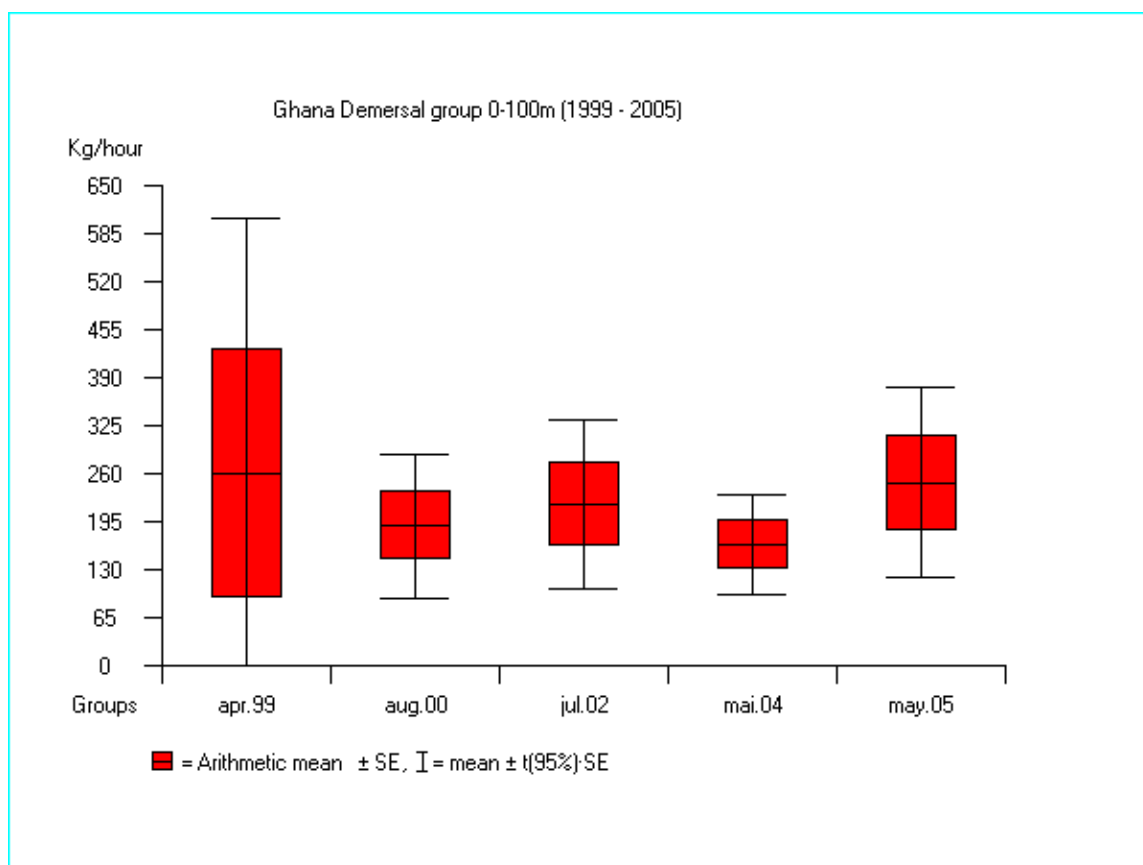


Figure 5.17 Mean catch rates of the main group “demersal” from 0 to 100 m in Ghana 1999-2005.

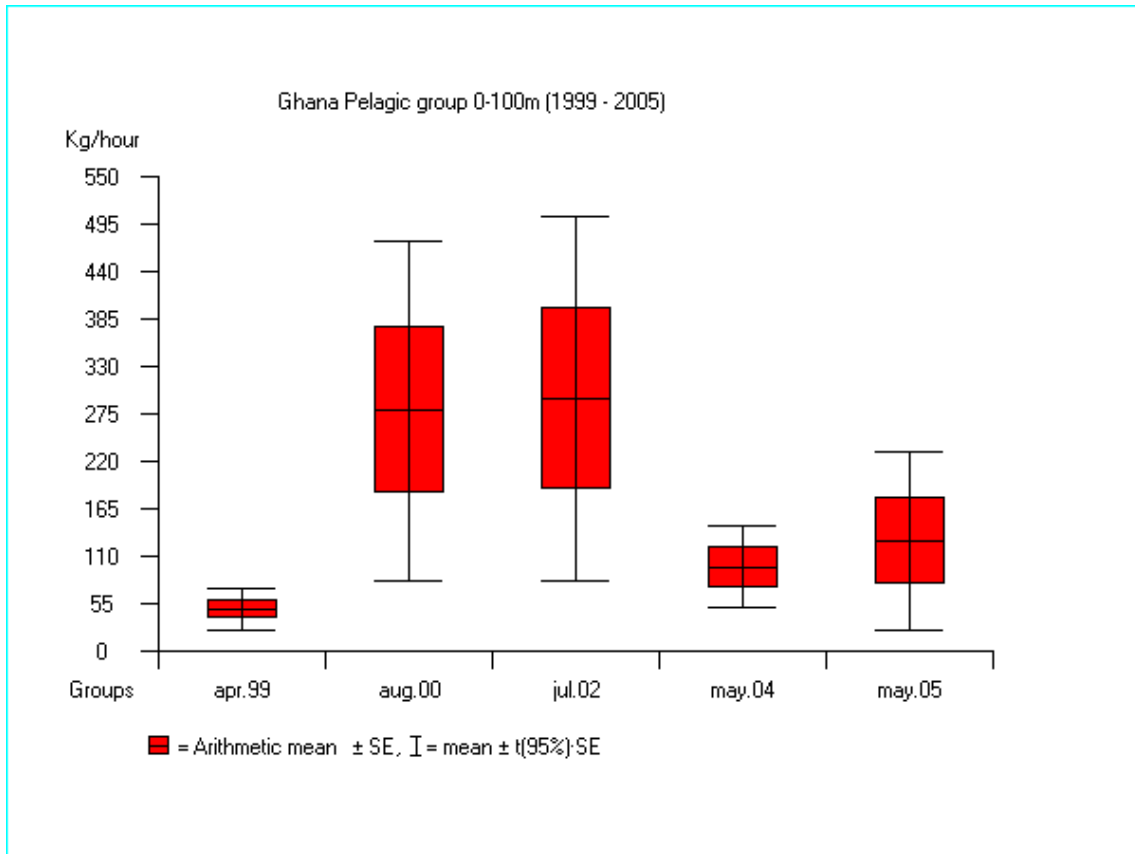


Figure 5.18 Mean catch rates of the main group “pelagic” from 0 to100 m in Ghana 1999-2005

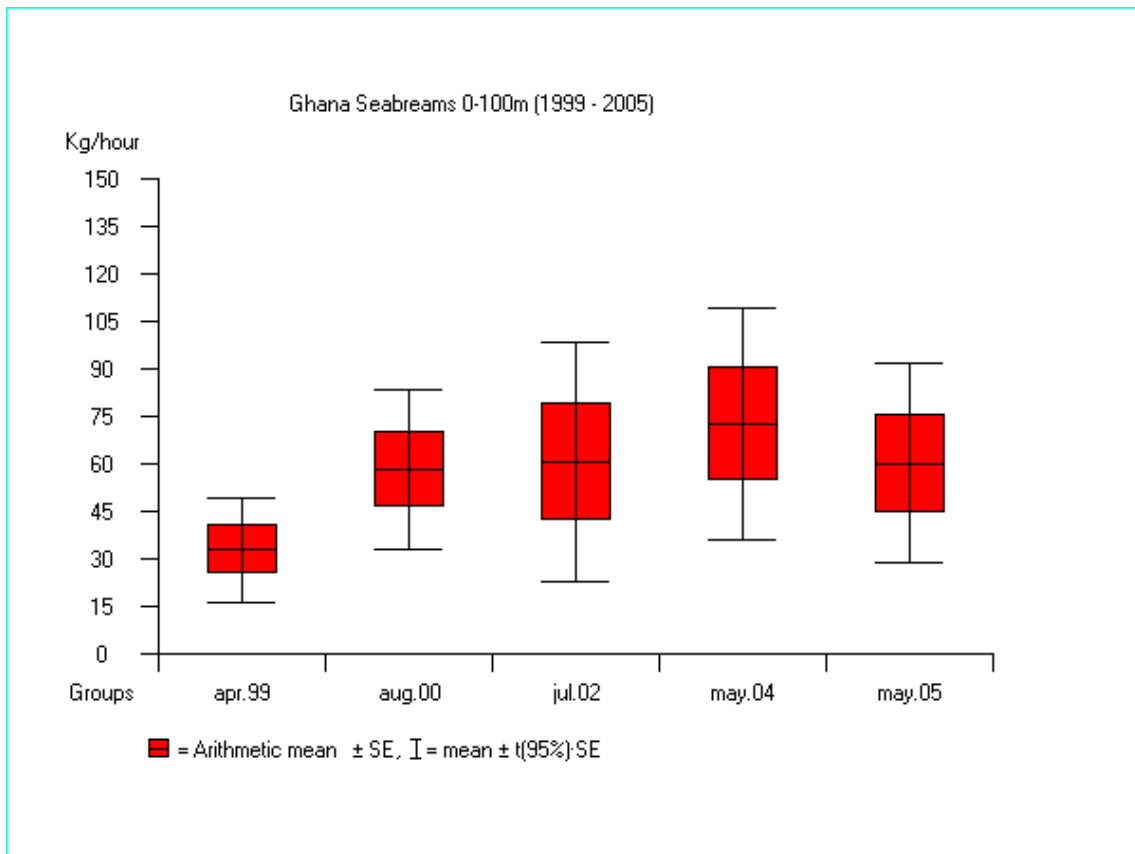


Figure 5.19 Mean catch rates of seabreams from 0 to100 m in Ghana 1999-2005

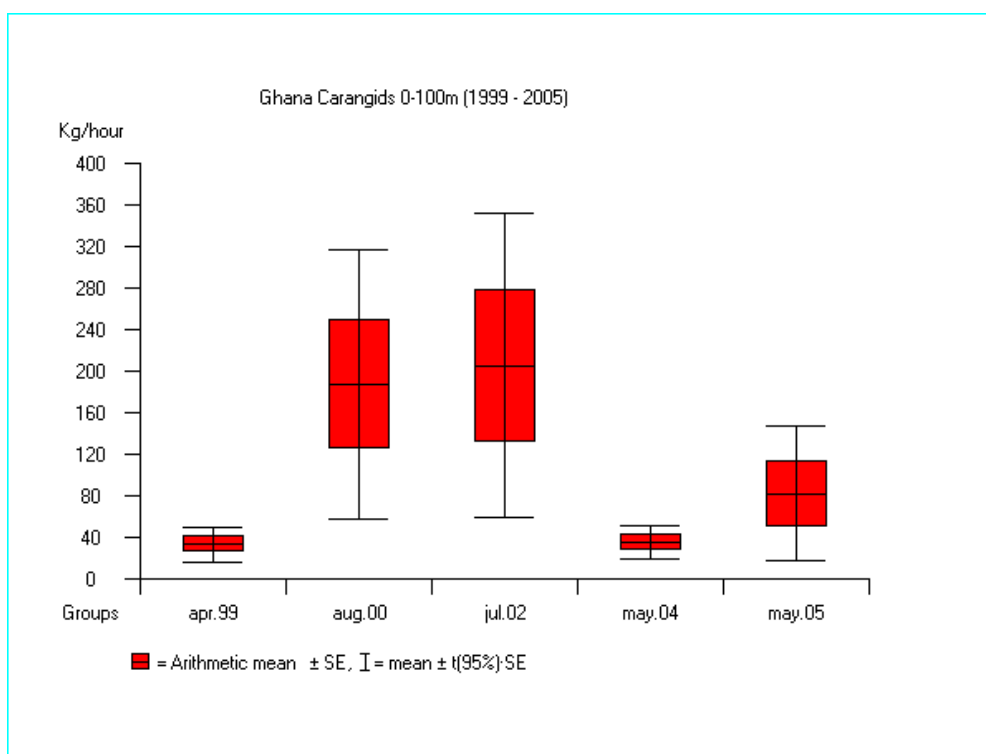


Figure 5.20 Mean catch rates of carangids from 0 to 100 m in Ghana 1999-2005.

Table 5.19 summarizes more details on mean catch rates and swept area biomass estimates of valuable demersal groups and a few other common groups covered during the present and four previous surveys in the Ghana waters. Seabreams had the highest average catch rate in 2004, while most of the other valuable demersal species had high average catch rates in 2000 and in general low in 1999. The time series of biomass estimates show the same trend, but the estimated biomass of seabreams has been quite stable in the four last surveys. Bigeye grunt had much higher catch rate and estimated biomass in 1999 due to one large catch. Carangids were most abundant in 2000 and 2002.

Table 5.19 Mean catch rates (kg/h) and biomass estimates (tonnes) of valuable demersal species and some other groups from swept-area bottom trawl hauls on the shelf (0 – 100 m) off Ghana from the 1999, 2000, 2002, 2004 and 2005 surveys. 2000 and 2002 surveys in upwelling season.

Group/Species	Mean catch rates (kg/h)					Biomass (tonnes)				
	1999	2000	2002	2004	2005	1999	2000 ²	2002	2004	2005
Seabreams	32.8 ¹	58.3	60.7	72.5	60.7	8 478	13 346	14 181	16 187	15 690
Grunts	7.1	14.6	6.5	1.7	10.3	1 431	4 397	1 168	326	2 261
Croakers	0.7	3.2	4.4	1.7	4.4	125	1 046	850	286	821
Groupers	2.5	7.6	1.0	1.1	1.1	557	1 921	254	220	235
Snappers	0.7	22.5	1.9	0.9	1.8	151	5 322	422	200	413
Sum dem. val.	43.8¹	106.2	74.5	77.9	77.7	10 743	26 032	16 876	17 219	19 420
Bigeye grunt	213.4	39.1	110.3	69.1	112.7	70 314	9 120	21 182	13 866	27 896
Carangids	33.3	187.7	205.4	35.3	81.8	6 860	47 054	45 332	7 405	19 226
Barracudas	5.9	5.6	11.1	8.9	11.6	1 084	915	1 999	1 589	2 201
Cephalopods	18.0	28.1	9.8	11.6	9.4	4 400	4 900	2 000	2 600	2 181

¹) 1999 estimate corrected ²) 2000 estimates corrected

Côte d'Ivoire

Figures 5.21 and 5.22 show the mean catch rates of the main groups “Demersal” and “Pelagic” for the whole shelf area from 0 to 100 m in the five last surveys. The “Demersal” group had highest average catch rate and largest confidence intervals in 2000 due to one large catch of *B. auritus* (> 4/h). The average catch rate was lowest in 1999, and outside the 95 % confidence limits of the 2002-2005 estimates. The pelagic fish also had the highest mean catch rate in 2000, outside the 95% confidence intervals of the 1999, 2004 and 2005 estimates, which were the lowest.

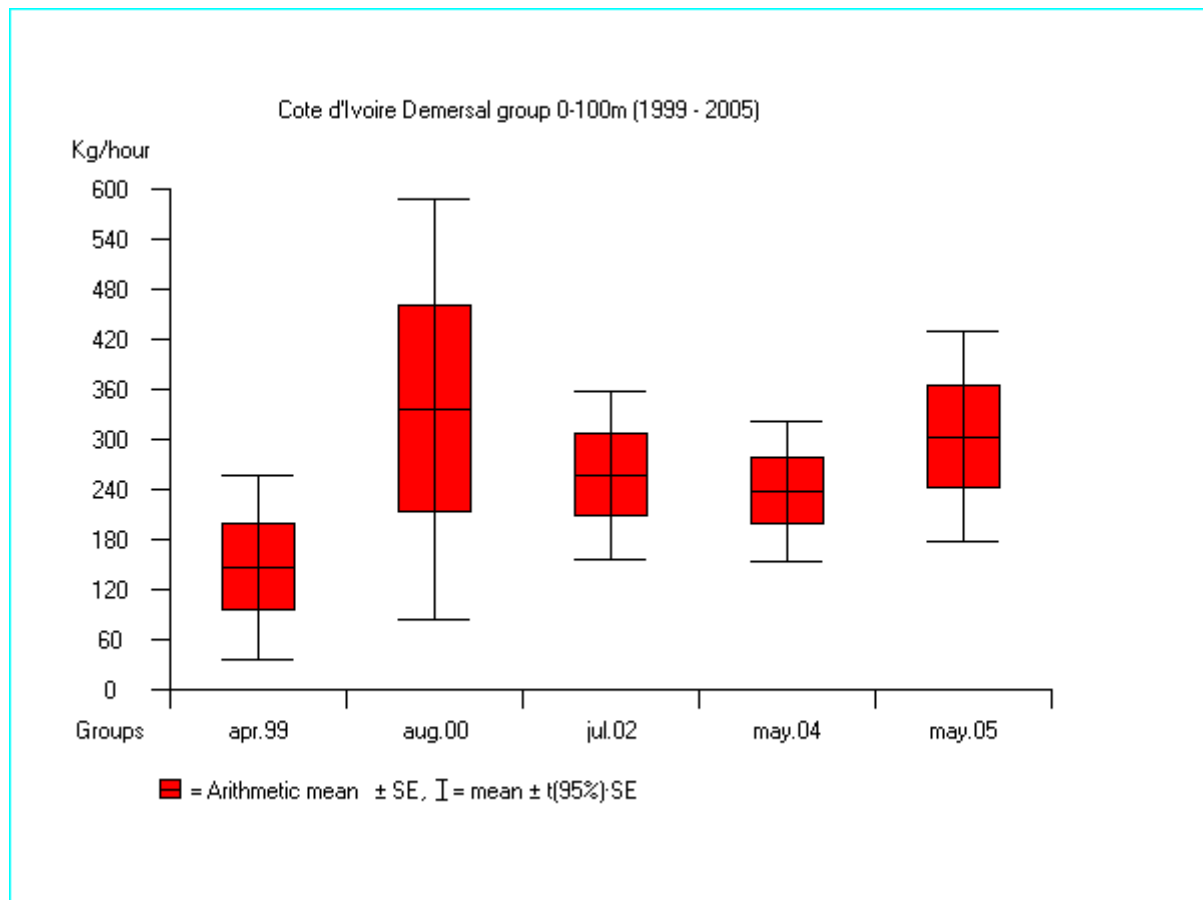


Figure 5.21 Mean catch rates of the main group “demersal” from 0 to 100 m in Côte d'Ivoire 1999-2005.

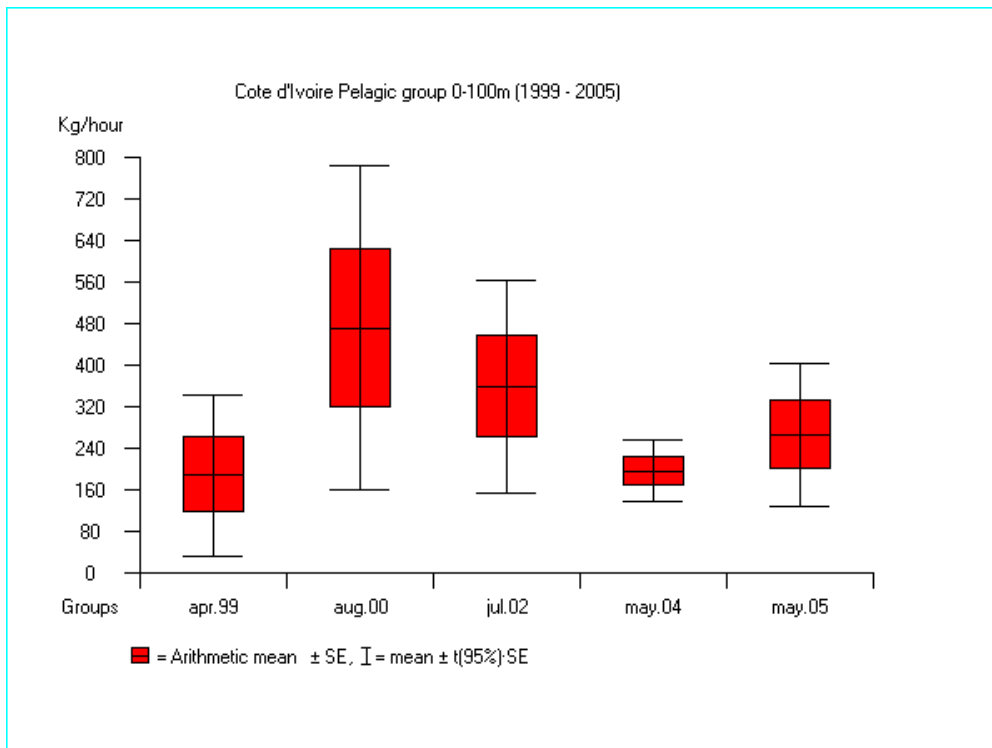


Figure 5.22 Mean catch rates of the main group “pelagic” from 0 to100 m in Côte d’Ivoire 1999-2005.

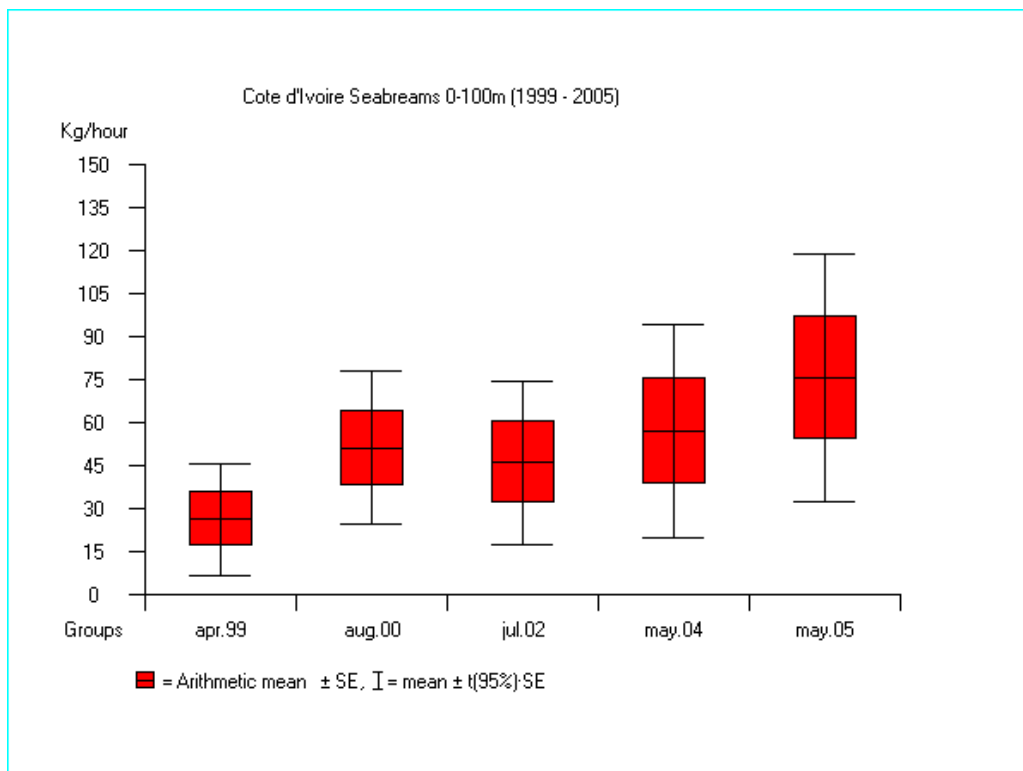


Figure 5.23 Mean catch rates of seabreams from 0 to100 m in Côte d’Ivoire 1999-2005.

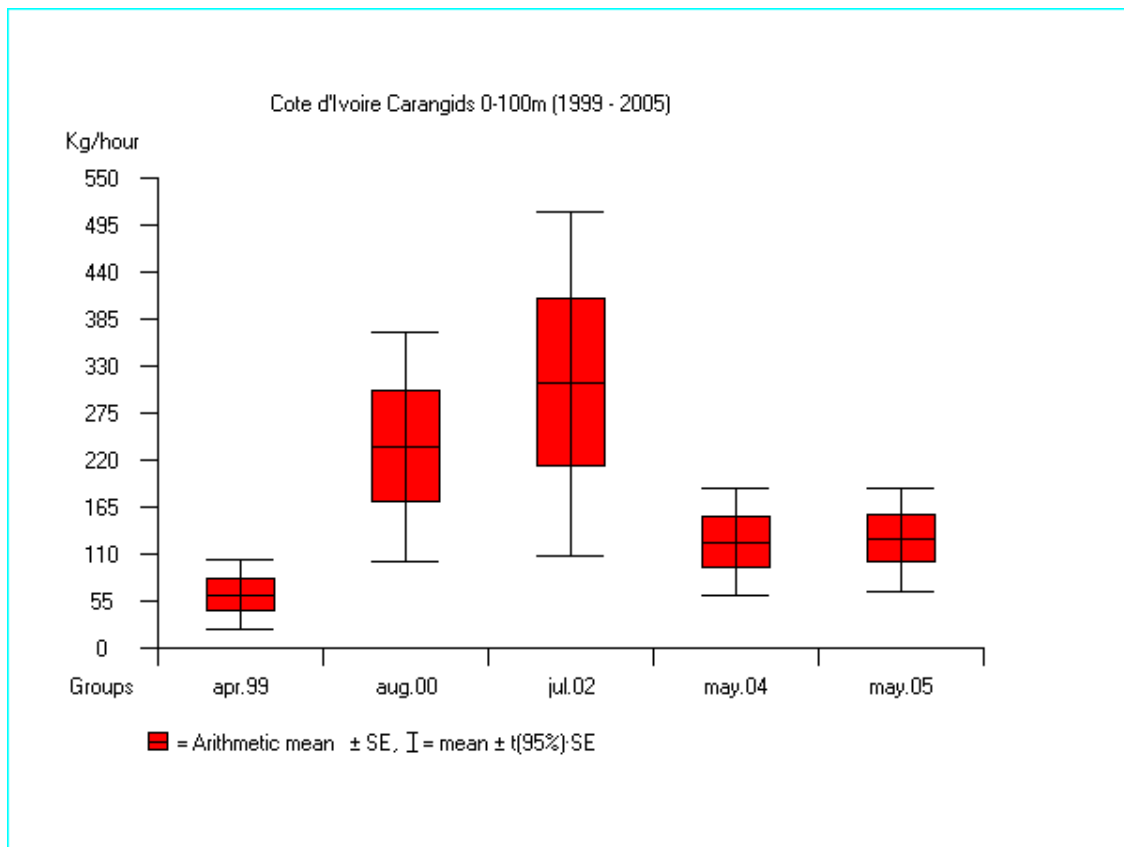


Figure 5.24 Mean catch rates of carangids from 0 to 100 m in Côte d'Ivoire 1999-2005.

Figs. 5.23 and 5.24 show the mean catch rates of Seabreams and Carangids, the most abundant families in the “demersal” and “pelagic” groups. The 2000 – 2004 seabream estimates are quite similar, with a slightly increasing trend, and outside the 95% confidence intervals of the much lower 1999 estimate. The carangids had the highest average catch rate in 2000 and 2002, outside the 95% confidence intervals of the much lower 1999, 2004 and 2005 estimates.

Table 5.20 summarizes more details on mean catch rates and swept area biomass estimates of valuable demersal groups and a few other common groups covered during the present and four previous surveys in the Côte d'Ivoire waters. The valuable demersal species had in general low average catch rates in 1999. It should be noted that the high 2002 estimate of snappers is based on one large catch of *Aspilus fuscus*, which is commercially less important than the other snappers. The time series of biomass estimates show the same picture, low in 1999 and higher and somewhat more stable in later years. Carangids were most abundant in 2002.

Table 5.20 Mean catch rates (kg/h) and biomass estimates (tonnes) of valuable demersal species and some other groups from swept-area bottom trawl hauls on the shelf (0 – 100 m) off Côte d'Ivoire from the 1999, 2000, 2002, 2004 and 2005 surveys. 2000 and 2002 surveys in upwelling season.

Group/Species	Mean catch rates (kg/h)					Biomass (tonnes)				
	1999	2000	2002	2004	2005	1999	2000 ²	2002	2004	2005
Seabreams	26.1 ¹	51.2	46.1	57.2	75.5	3 457	6 666	5 307	6 841	8 868
Grunts	6.0	15.7	8.5	15.7	10.4	417	1 667	695	1 216	851
Croakers	9.5	22.5	31.8	15.5	16.7	941	2 731	3 108	1 485	1 586
Groupers	2.5	2.1	2.7	2.6	3.0	305	283	311	268	312
Snappers	2.3	0.3	12.8	0.1	+	145	38	1 566	13	30
Sum dem. val.	47.0¹	91.8	101.9	91.0	105.7	5 265	11 385	10 987	9 823	11 646
Bigeye grunt	91.9	216.3	108.4	138.6	157.8	9 913	14 245	8 530	11 959	15 583
Carangids	62.2	235.5	309.7	105.2	144.2	5 477	26 369	36 554	10 668	15 344
Barracudas	13.2	3.5	7.3	14.9	61.8	811	259	569	1 176	5 973
Cephalopods	4.3	21.0	10.2	6.1	8.8	450	1 900	900	650	1 045

¹) 1999 estimate corrected

²) 2000 estimates corrected

Gulf of Guinea

Table 5.21 summarises the swept-area biomass estimates from the five last surveys for the whole region. The seabreams estimate for the four last years are quite similar, perhaps with a slight increasing trend, and are all more than 60 % above the 1999 result. Most of the other valuable demersal groups had the highest estimated biomass in 2000 and lowest in 1999. The sum of valuable demersal groups in 1999 was less than 50% of the corresponding 2000 estimate, while the 2002 - 2005 estimates are about 70-85 % of the 2000 one. Among the other groups, the estimated biomasses of carangids were lowest in 1999 and 2004, highest in 2000 and 2002, and intermediate in 2005. Bigeye grunt had the highest estimate in 1999, lower and more similar in 2000-2004 and intermediate in 2005. It should, however, be noted that the 1999 estimate of bigeye grunt is very much driven by one large catch. The estimated biomass of barracudas was highest in 2005, more than the double of what was estimated in the other years. Cephalopods had highest biomass estimate in 2000 and only about the half of that in the three last surveys.

Table 5.21 Biomass estimates (tonnes) of valuable demersal species and some other groups from swept-area bottom trawl hauls on the shelf (0 – 100 m) from surveys with “Dr. Fridtjof Nansen” off Benin, Togo, Ghana and Côte d’Ivoire in 1999, 2000, 2002, 2004 and 2005.

Group/Species	Biomass (tonnes)				
	1999	2000 ^{1,2}	2002 ²	2004	2005
Seabreams	12 757	21 814	20 437	23 909	27 188
Grunts	1 907	6 135	1 922	1 621	3 139
Croakers	1 346	3 871	4 223	1 967	2 626
Groupers	1 174	2 296	600	525	712
Snappers	318	5 402	2 225	317	474
Sum dem. val.	17 502	39 518	29 407	28 339	34 140
Bigeye grunt	80 398	23 587	29 949	26 327	43 741
Carangids	13 480	75 252	83 364	18 839	35 920
Barracudas	2 141	1 301	3 133	3 183	8 611
Cephalopods	5 300	7 360	3 600	3 650	4 038

¹⁾ 2000 estimates corrected

²⁾ Upwelling season

CHAPTER 6 FISHING TRIALS ON THE DEEP CONTINENTAL SHELF AND UPPER SLOPE

Following the request expressed by Ghana to consolidate the observations on resources in waters deeper than 100 m, an effort was made during the survey to trawl at such depths. Generally, trawling at such depths was very difficult because of uneven bottom topography. 10 hauls were made as follows: 1 each off Benin (97 m) and Togo and 8 off Ghana at depths of between 100 and 465 m (Table 6.1). No deep water hauls were made in the Côte d'Ivoire because of general lack of suitable bottom conditions where the continental shelf is very narrow and the slope is extremely steep.

Table 6.1 Positions, catch rates and principal species encountered in trawl hauls taken beyond about 100m depth

Country	Station	Position		Depth (m)	Catch (kg/h)	Top three species caught at the station
		Latitude	Longitude			
Benin	681	06° 06' N	02° 29' E	90 – 97	584.4	<i>Dentex congoensis</i> <i>Dentex angolensis</i> <i>Trigla Lyra</i>
Togo	710	05° 54' N	01° 17' E	209 – 223	954.1	<i>Synagrops microlepis</i> <i>Trichiurus lepturus</i> <i>Zenopsis conchifer</i>
Ghana	719	05° 33' N	00° 17' E	379 – 465	6395.9	<i>Hypoclydonia bella</i> <i>DIODONTIDAE</i> <i>Trichiurus lepturus</i>
	725	05° 26' N	00° 07' E	221 – 231	4409.2	<i>Hypoclydonia bella</i> <i>Squatina oculata</i> <i>Heptanchias perlo</i>
	727	05° 12' N	00° 13' W	105 – 108	2900.9	<i>Priacanthus arenatus</i> <i>Torpedo torpedo</i> <i>Dentex congoensis</i>
	738	04° 46' N	00° 39' W	107 – 111	2956.9	<i>Priacanthus arenatus</i> <i>Boops boops</i> <i>Antigonia capros</i>
	754	04° 17' N	01° 20' W	224 – 249	470.8	<i>Epigonus constanciae</i> <i>Spicara alta</i> <i>Trigla Lyra</i>
	762	04° 14' N	01° 30' W	293 – 308	242.8	<i>Lophiodes kempi</i> <i>Synagrops microlepis</i> <i>Zenion hololepis</i>
	770	04° 25' N	02° 08' W	265 – 281	199.9	<i>Aulopus cadenati</i> <i>Merluccius polli</i> <i>Chlorophthalmus atlanticus</i>
	775	04° 35' N	02° 31' W	250 – 259	341.8	<i>Merluccius polli</i> <i>Lophiodes kempi</i> <i>Squalus megalops</i>

Catch rates between 200 and 6396 kg/h (average 1942 kg/h) were obtained from the 10 hauls. This is much higher than in all previous surveys due to very large catches of *Hypoclydonia bella* and *Priacanthus aerenatus*. The average catch rate amounted to a stock density of 70 t/NM² for all species combined. The corresponding figure for the area between 20 and 100 m was 25.6 t/NM², confirming the higher catch rates found on the upper continental slope than on the shelf in previous surveys. However, whereas catch rates of commercially important species on the shelf were high, other less known species made up the bulk of the catch at the deeper stations. Table 6.1 also gives the three most abundant species recorded on each station.

Table 6.2 Deep stations: catch rates (kg/h) of the most commercially valuable species and ‘others’ in the swept-area bottom trawl hauls, 94 – 400 m.

Station	Depth	Zeidae	Sparidae	Merluccidae	<i>Aristeus varidens</i>	<i>Parapenaeus longirostris</i>	Other	Total
681	94	0.0	345.2	0.0	2.4	0.0	210.0	557.6
710	216	112.4	60.5	0.0	0.0	0.0	781.2	954.1
719	422	0.0	0.0	69.3	0.0	137.2	6189.4	6395.9
725	226	33.3	0.0	0.0	0.0	55.2	4314.7	4403.2
727	107	0.0	204.8	0.0	0.0	0.0	2696.1	2900.9
738	109	0.0	423.4	0.0	0.0	0.0	2533.4	2956.8
754	237	2.4	1.8	0.0	0.8	0.0	465.7	470.8
762	301	57.6	0.0	0.0	2.1	0.0	183.1	242.8
770	273	0.2	10.9	26.3	4.9	0.0	157.6	199.9
775	255	2.2	0.0	115.8	1.3	0.0	222.6	341.8
Mean	224	20.8	104.7	21.1	1.2	19.2	1775.4	1942.4
SE		11.9	51.1	12.7	0.5	14.2	667.3	678.1
% Catch		1.1	5.4	1.1	0.1	1.0	91.4	

Seabreams (*Dentex angolensis* and *D. congoensis*) was the most abundant commercially interesting group on the upper part of the slope with an average catch rate of 104 kg/h, which is comparable to what was obtained on the outer shelf (Table 6.2). *Merluccius polli* and Zeidae (mainly *Zenopsis conchifer*), both with average catch rates of about 21 kg/h, were the most abundant commercially interesting species on the deeper part of the slope. Striped red shrimp (*Aristeus varidens*) was slightly more abundant than in 2004 while rose shrimp (*Parapenaeus longirostris*) had much higher mean catch rate than in previous surveys due to two catches of 137 and 55 kg/h.

Table 6.3 shows the 15 most abundant species in all 10 hauls and their overall assessed density. For comparison the mean densities found in the 2000, 2002 and 2004 surveys are given. The most abundant species were *H. bella* and *P. aerenatus*. In 2004 *Centrophorus squamosus* and *Zenion longipinis* had the highest densities, in 2002 *Centrophorus uyato* and *Zenopsis conchifer* came first, while in 2000 *P. aerenatus* dominated due to one large catch.

Other species that occurred in over 50 % of the hauls in some quantities were *Squatina oculata*, *Antigonia capros* and *Trigla lyra*.

Table 6.3. 15 most abundant species in the deep hauls in 2005 with common English names, percent incidence and mean density (t/NM²) in the present and 2004, 2002 and 2000 surveys.

Rank	Scientific Name	Common English Name	% inc.	Density (t/NM ²)			
				2005	2004	2002	2000
1	<i>Hypoclydonia bella</i>		30	22.75	-	-	2.67
2	<i>Priacanthus aerenatus</i>	Atlantic bigeye	90	17.03	0.38	2.04	12.37
3	<i>DIODONTIDAE</i>	Porcupinefishes	10	5.35	-	-	-
4	<i>Squatina oculata</i>	Smoothback angelshark	50	2.20	0.81	0.56	0.55
5	<i>Trichiurus lepterus</i>	Larghead hairtail	30	2.03	0.05	-	0.24
6	<i>Synagrops microlepis</i>	Thinlip splitfin	30	1.68	-	-	-
7	<i>Heptranchias perlo</i>	Sharpnose sevengill shark	30	1.67	-	0.16	-
8	<i>Boops boops</i>	Bogue	10	1.46	0.39	0.22	-
9	<i>Dentex congoensis</i>	Congo dentex	40	1.33	0.23	0.31	0.91
10	<i>Antigonia capros</i>	Boarfish	50	1.24	-	0.08	0.30
11	<i>Chlorophthalmus atlanticus</i>	Atlantic greeneye	30	0.87	0.45	0.75	2.56
12	<i>Malacocephalus laevis</i>	Softhead grenadier	10	0.76	-	-	0.08
13	<i>Trigla lyra</i>	Piper gurnard	60	0.73	0.38	0.28	0.24
14	<i>Parapenaeus longirostris</i>	Rose shrimp	20	0.68	0.02	0.04	0.12
15	<i>Merluccius polli</i>	Benguela hake	30	0.68	0.34	0.21	0.07

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Annex 1 Records of fishing stations

R/V "DR. FRIDTJOF NANSEN" PROJECT:IG PROJECT STATION: 678
 DATE: 4/ 5/05 GEAR TYPE: BT No:17 POSITION:Lat N 610
 start stop duration Long E 238
 TIME :10:30:31 11:01:55 31 (min) Purpose code: 3
 LOG :1273.18 1274.81 1.60 Area code : 4
 FDEPTH: 65 64 GearCond.code:
 BDEPTH: 65 64 Validity code:
 Towing dir: 270ø Wire out: 185 m Speed: 30 kn*10

Sorted: 49 Kg Total catch: 118.77 CATCH/HOUR: 229.88

SPECIES	CATCH/HOUR weight	% OF TOT. C	SAMP
Epinephelus aeneus	67.01	29.15	
Pentheroscion mbizi	42.27	18.39	2974
Brachydeuterus auritus	15.68	6.82	2979
Serranus accraensis	12.48	5.43	
Torpedo torpedo	8.85	3.85	
Alloteuthis africana	8.71	3.79	
Sepia officinalis hierredda	8.48	3.69	2975
Pagellus bellottii	8.42	3.66	2977
Cymbium cymbium	7.86	3.42	
Sardinella aurita	5.92	2.58	2973
Sphyræna guachancho	5.28	2.30	
Trichiurus lepturus	4.88	2.12	2976
Engraulis encrasicolus	4.06	1.77	2978
Raja miraletus	3.60	1.57	
Grammoplites gruvelli	3.54	1.54	
Sycaclum microrum	3.31	1.44	
Calappa pelii	2.79	1.21	
Citharus linguatula	2.55	1.11	
Brotula barbata	2.32	1.01	
Squatina oculata	2.25	0.98	
Pagrus caeruleostictus	2.21	0.96	
Umbrina canariensis	1.86	0.81	
Microchirus frechkopi	1.51	0.66	
Scorpaena normani	1.32	0.57	
Parapenaeopsis atlantica	1.05	0.46	
Priacanthus arenatus	0.64	0.28	
Chelidonichthys capensis	0.52	0.23	
Pseudupeneus prayensis	0.46	0.20	
Squilla mantis	0.06	0.03	
Total	229.89	100.03	

R/V "DR. FRIDTJOF NANSEN" PROJECT:IG PROJECT STATION: 680
 DATE: 4/ 5/05 GEAR TYPE: BT No:17 POSITION:Lat N 617
 start stop duration Long E 237
 TIME :16:44:59 17:14:43 30 (min) Purpose code: 3
 LOG :1292.87 1294.38 1.49 Area code : 4
 FDEPTH: 21 21 GearCond.code:
 BDEPTH: 21 21 Validity code:
 Towing dir: 255ø Wire out: 145 m Speed: 30 kn*10

Sorted: 19 Kg Total catch: 110.63 CATCH/HOUR: 221.26

SPECIES	CATCH/HOUR weight	% OF TOT. C	SAMP
Chloroscombrus chrysurus	44.16	19.96	2986
Polydactylus quadrifilis	23.48	2	10.61
Ephippion guttifer	21.28	16	9.62
Caranx hippos	15.04	72	6.80
Elops lacerta	13.68	48	6.18
Sphyræna sphyraena	10.32	72	4.66
Pteroscion pelli	9.76	248	4.41
Galeoides decadactylus	8.80	256	3.98
Brachydeuterus auritus	8.16	248	3.69
Sphyræna barracuda	7.40	4	3.34
Pseudolithus brachygnathus	7.04	8	3.18
Lutjanus goreensis	5.72	22	2.59
Selene dorsalis	5.68	80	2.57
Lethrinus atlanticus	5.40	10	2.44
Drepane africana	5.12	72	2.31
Pseudolithus typus	4.40	6	1.99
Cynoglossus senegalensis	3.76	8	1.70
Scomberomorus tritor	3.46	8	1.56
Selar crumenophthalmus	2.96	8	1.34
Pagrus caeruleostictus	2.76	6	1.25
Sardinella maderensis	2.64	128	1.19
Lagocephalus laevigatus	2.48	8	1.12
Ilisha africana	2.32	128	1.05
Trichiurus lepturus	2.00	88	0.90
Pseudolithus typus	2.00	64	0.90
Chaetodipterus goreensis	1.36	16	0.61
Total	221.18	99.95	

R/V "DR. FRIDTJOF NANSEN" PROJECT:IG PROJECT STATION: 679
 DATE: 4/ 5/05 GEAR TYPE: BT No:17 POSITION:Lat N 612
 start stop duration Long E 237
 TIME :11:58:13 12:29:04 31 (min) Purpose code: 3
 LOG :1278.87 1280.50 1.61 Area code : 4
 FDEPTH: 40 36 GearCond.code:
 BDEPTH: 40 36 Validity code:
 Towing dir: 285ø Wire out: 150 m Speed: 30 kn*10

Sorted: 40 Kg Total catch: 134.47 CATCH/HOUR: 260.26

SPECIES	CATCH/HOUR weight	% OF TOT. C	SAMP
Selene dorsalis	90.37	34.72	
Sphyræna guachancho	23.25	8.93	2982
Galeoides decadactylus	18.83	7.24	
Pomadasys rogeri	17.07	6.56	
Selar crumenophthalmus	15.17	5.83	
Trichiurus lepturus	11.71	4.50	2981
Pagrus caeruleostictus	9.02	3.47	
Psettodes belcheri	8.75	3.36	
Chilomycterus spinosus mauret.	8.21	3.15	
Chloroscombrus chrysurus	6.91	2.66	2980
Sepia officinalis hierredda	6.77	2.60	
Pagellus bellottii	6.77	2.60	
Lagocephalus laevigatus	5.50	2.11	
Diodon holocanthus	4.68	1.80	
Lutjanus goreensis	4.14	1.59	
Eucinostomus melanopterus	3.79	1.46	
Priacanthus arenatus	3.39	1.30	
Brachydeuterus auritus	3.04	1.17	
Caranx hippos	2.98	1.15	
Trachinocephalus myops	2.11	0.81	
Penaeus notialis	2.03	0.78	
Grammoplites gruvelli	1.70	0.65	
Pseudupeneus prayensis	1.57	0.60	2983
Sardinella maderensis	1.28	0.49	
Torpedo torpedo	0.95	0.37	
Squilla mantis	0.35	0.13	
Total	260.34	100.03	

R/V "DR. FRIDTJOF NANSEN" PROJECT:IG PROJECT STATION: 681
 DATE: 5/ 5/05 GEAR TYPE: BT No:17 POSITION:Lat N 606
 start stop duration Long E 229
 TIME :02:04:30 02:27:24 23 (min) Purpose code: 3
 LOG :1365.78 1367.01 1.20 Area code : 4
 FDEPTH: 97 90 GearCond.code:
 BDEPTH: 97 90 Validity code:
 Towing dir: 70ø Wire out: 310 m Speed: 30 kn*10

Sorted: 53 Kg Total catch: 213.72 CATCH/HOUR: 557.53

SPECIES	CATCH/HOUR weight	% OF TOT. C	SAMP
Dentex congoensis	224.77	8494	40.32
Dentex angolensis	120.42	1910	21.60
Trigla lyra	35.58	939	6.38
Sepia officinalis hierredda	31.62	417	5.67
Priacanthus arenatus	27.76	1064	4.98
Squatina oculata	21.29	21	3.82
Brotula barbata	20.97	292	3.76
Epigonus constanciae	15.44	470	2.77
Pentheroscion mbizi	13.57	83	2.43
Torpedo marmorata	12.31	10	2.21
Fistularia petimba	9.18	21	1.65
Decapterus punctatus	4.28	219	0.77
Uranoscopus polli	4.07	146	0.73
Umbrina canariensis	3.97	10	0.71
Aristeus varidens	2.40	699	0.43
Trachurus trecae	2.30	52	0.41
Citharus linguatula	2.19	198	0.39
SOLEIDAE	2.19	83	0.39
Trichiurus lepturus	1.67	10	0.30
Anthias anthias	0.42	10	0.08
Sardinella aurita	0.42	21	0.08
Pytonichthys macrurus	0.42	10	0.08
Scorpaena scrofa	0.21	10	0.04
Pseudupeneus prayensis	0.10	10	0.02
Total	557.55	100.02	

R/V "DR. FRIDTJOF NANSEN" PROJECT:IG PROJECT STATION: 682
 DATE: 5/ 5/05 GEAR TYPE: BT No:17 POSITION:Lat N 607
 start stop duration Long E 229
 TIME :06:44:16 07:17:22 33 (min) Purpose code: 3
 LOG :1377.26 1378.88 1.60 Area code : 4
 FDEPTH: 80 83 GearCond.code:
 BDEPTH: 80 83 Validity code:
 Towing dir: 255ø Wire out: 244 m Speed: 30 kn*10

Sorted: 27 Kg Total catch: 130.31 CATCH/HOUR: 236.93

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Dentex congoensis	57.38	2349	24.22	2989
Dentex angolensis	36.80	531	15.53	2990
Decapterus punctatus	28.07	1113	11.85	2988
Trichiurus lepturus	17.02	44	7.18	2992
Lepidotrigla carolae	14.62	836	6.17	
Squatina oculata	11.64	5	4.91	
Sepia officinalis hierredda	9.93	20	4.19	
Lepidotrigla cadmani	9.53	247	4.02	
Boops boops	8.73	182	3.68	2987
Brotula barbata	7.85	44	3.31	
Sepia officinalis hierredda	6.69	436	2.82	
Priacanthus arenatus	5.45	182	2.30	2991
Sardinella aurita	4.36	305	1.84	
Ariomma melanum	3.56	44	1.50	
Trachurus trecae	2.84	29	1.20	
Uranoscopus albesca	1.75	15	0.74	
Selar crumenophthalmus	1.75	15	0.74	
Lophiodes kemp	1.60	22	0.68	
Microchirus frechkopi	1.60	44	0.68	
Fistularia petimba	1.53	7	0.65	
Raja miraletus	0.95	2	0.40	
Alloteuthis africana	0.87	189	0.37	
Citharus linguatula	0.80	65	0.34	
Pegusa lascaris	0.58	7	0.24	
Octopus vulgaris	0.53	2	0.22	
Syacium micrurum	0.51	44	0.22	
Total	236.94		100.00	

R/V "DR. FRIDTJOF NANSEN" PROJECT:IG PROJECT STATION: 683
 DATE: 5/ 5/05 GEAR TYPE: BT No:17 POSITION:Lat N 612
 start stop duration Long E 228
 TIME :08:22:38 08:54:45 32 (min) Purpose code: 3
 LOG :1385.93 1387.49 1.53 Area code : 4
 FDEPTH: 39 40 GearCond.code:
 BDEPTH: 39 40 Validity code:
 Towing dir: 240ø Wire out: 150 m Speed: 30 kn*10

Sorted: 45 Kg Total catch: 300.40 CATCH/HOUR: 563.25

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Sphyræna guachancho	209.63	1427	37.22	2995
Chloroscombrus chrysurus	160.28	1950	28.46	2996
Brachydeuterus auritus	71.78	1560	12.74	2993
Selene dorsalis	62.16	414	11.04	2994
Epinephelus aeneus	16.59	8	2.95	
Penaeus notialis	15.60	11	2.77	
Pagellus bellottii	10.84	84	1.92	
Dactylopterus volitans	4.26	11	0.76	
Calappa rubroguttata	3.41	24	0.61	
Sepia officinalis hierredda	2.31	24	0.41	
Selar crumenophthalmus	1.82	24	0.32	
Decapterus punctatus	1.33	98	0.24	
Grammolites gruvelli	0.98	73	0.17	
Trachinocephalus myops	0.84	49	0.15	
Sardinella maderensis	0.49	36	0.09	
Lophiodes kemp	0.36	24	0.06	
Echeneis naucrates	0.24	11	0.04	
Pseudupeneus prayensis	0.24	73	0.04	
Brotula barbata	0.11	24	0.02	
Total	563.27		100.01	

R/V "DR. FRIDTJOF NANSEN" PROJECT:IG PROJECT STATION: 684
 DATE: 5/ 5/05 GEAR TYPE: BT No:17 POSITION:Lat N 614
 start stop duration Long E 227
 TIME :09:48:13 10:18:10 30 (min) Purpose code: 3
 LOG :1391.46 1392.84 1.37 Area code : 4
 FDEPTH: 23 24 GearCond.code:
 BDEPTH: 23 24 Validity code:
 Towing dir: 256ø Wire out: 100 m Speed: 30 kn*10

Sorted: 38 Kg Total catch: 72.88 CATCH/HOUR: 145.76

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Sphyræna guachancho	21.66	538	14.86	
Galeoides decadactylus	19.52	368	13.39	
Sardinella maderensis	17.58	7884	12.06	
Pagrus caeruleostictus	14.08	30	9.66	
Selene dorsalis	12.12	150	8.32	
Trichiurus lepturus	9.84	366	6.75	
Chloroscombrus chrysurus	7.86	360	5.39	
Brachydeuterus auritus	7.50	298	5.15	
Ephippion guttifer	5.90	4	4.05	
Pseudotolithus typus	5.30	16	3.64	
Trachinocephalus myops	4.98	222	3.42	
Drepane africana	4.46	20	3.06	
Lutjanus goreensis	3.30	4	2.26	
Chaetodipterus goreensis	1.96	8	1.34	
Dactylopterus volitans	1.68	4	1.15	
Catranx crysos	1.44	56	0.99	
Eucinostomus melanopterus	1.44	30	0.99	
Alectis alexandrinus	1.20	8	0.82	
Ilisha africana	1.14	72	0.78	
Sepia officinalis hierredda	0.72	54	0.49	
Dasyatis margarita	0.68	2	0.47	
Elops lacerta	0.62	2	0.43	
Cynoglossus senegalensis	0.40	2	0.27	
Engraulis encrasicolus	0.26	260	0.18	
Bothus podas africanus	0.06	24	0.04	
Lagocephalus laevigatus	0.06	6	0.04	
Total	145.76		100.00	

R/V "DR. FRIDTJOF NANSEN" PROJECT:IG PROJECT STATION: 685
 DATE: 5/ 5/05 GEAR TYPE: BT No:17 POSITION:Lat N 614
 start stop duration Long E 216
 TIME :12:00:49 12:30:37 30 (min) Purpose code: 3
 LOG :1401.96 1403.31 1.32 Area code : 4
 FDEPTH: 26 26 GearCond.code:
 BDEPTH: 26 26 Validity code:
 Towing dir: 256ø Wire out: 100 m Speed: 30 kn*10

Sorted: 89 Kg Total catch: 119.40 CATCH/HOUR: 238.80

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Dasyatis pastinaca	52.00	2	21.78	
Galeoides decadactylus	33.86	316	14.18	2997
Brachydeuterus auritus	17.90	1580	7.50	3000
Lagocephalus laevigatus	13.84	26	5.80	
Ephippion guttifer	13.24	10	5.54	
Lethrinus atlanticus	12.92	32	5.41	
Cymbium cymbium	12.16	4	5.09	
Trichiurus lepturus	11.90	300	4.98	2998
Sphyræna guachancho	10.44	1034	4.37	3001
Rhizoprionodon acutus	9.56	4	4.00	
Trachinocephalus myops	8.96	220	2.50	
Sepia officinalis hierredda	5.60	24	2.35	3005
Pseudotolithus senegalensis	5.16	30	2.16	3003
Selene dorsalis	4.40	60	1.84	
Pagrus caeruleostictus	4.26	8	1.78	3002
Cynoglossus senegalensis	3.66	14	1.53	
Aluterus heudelotii	3.10	10	1.30	
Pomadasyx peroneti	2.72	4	1.14	
Penaeus kerathurus	2.40	36	1.01	
Ilisha africana	2.34	70	0.98	
Portunus validus	2.16	96	0.90	
Lutjanus goreensis	1.80	4	0.75	
Sardinella maderensis	1.36	172	0.57	2999
Grammolites gruvelli	0.90	46	0.38	
Dasyatis marmorata	0.90	2	0.38	
Zanobatus schoenleinii	0.70	2	0.29	
Stephanolepis hispidus	0.66	4	0.28	
Dasyatis margarita	0.64	4	0.27	
Parapenaeopsis atlantica	0.56	224	0.23	
Paraconger notialis	0.56	6	0.23	
Bothus podas africanus	0.54	34	0.23	
Engraulis encrasicolus	0.36	170	0.15	3004
Synodus synodus	0.20	20	0.08	
Dicologlossa hexophtalma	0.04	6	0.02	
Total	238.80		100.00	

R/V "DR. FRIDTJOF NANSEN" PROJECT:IG PROJECT STATION: 686
 DATE: 5/ 5/05 GEAR TYPE: BT No:17 POSITION:Lat N 612
 start stop duration Long E 215
 TIME :14:05:35 14:35:21 30 (min) Purpose code: 3
 LOG :1406.73 1408.33 1.57 Area code : 4
 FDEPTH: 43 37 GearCond.code:
 BDEPTH: 43 37 Validity code:
 Towing dir: 90ø Wire out: 160 m Speed: 30 kn*10

Sorted: 20 Kg Total catch: 107.16 CATCH/HOUR: 214.32

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Chloroscombrus chrysurus	70.72	840	33.00	3006
Sphyræna guachancho	40.16	144	18.74	3009
Selene dorsalis	33.76	264	15.75	3010
Pagrus caeruleostictus	13.20	56	6.16	3008
Galeoides decadactylus	7.36	56	3.43	
Psettodes belcheri	6.14	12	2.86	
Cymbium cymbium	6.14	12	2.86	
Pomadasyx jubelini	6.14	10	2.86	
Pagellus bellottii	5.42	36	2.53	3007
Epinephelus aeneus	4.88	10	2.28	
Brachydeuterus auritus	2.96	64	1.38	
Ephippion guttifer	2.76	4	1.29	
Aluterus monoceros	2.66	2	1.24	
Penaeus notialis	2.56	200	1.19	
Sepia officinalis hierredda	2.08	24	0.97	
Dactylopterus volitans	2.02	4	0.94	
Syacium micrurum	1.92	48	0.90	
Aluterus heudelotii	0.86	4	0.40	
Sardinella maderensis	0.72	8	0.34	
Eucinostomus melanopterus	0.48	8	0.22	
Pseudupeneus prayensis	0.40	56	0.19	
Dentex canariensis	0.36	2	0.17	
Alectis alexandrinus	0.32	2	0.15	
Cynoglossus senegalensis	0.28	2	0.13	
Dicologlossa cuneata	0.02	8	0.01	
Total	214.32		99.99	

R/V "DR. FRIDTJOF NANSEN" PROJECT:IG PROJECT STATION: 687
 DATE: 5/ 5/05 GEAR TYPE: BT No:17 POSITION:Lat N 613
 start stop duration Long E 213
 TIME :16:33:07 16:52:10 19 (min) Purpose code: 3
 LOG :1418.45 1419.39 0.93 Area code : 4
 FDEPTH: 74 68 GearCond.code:
 BDEPTH: 74 68 Validity code:
 Towing dir: 85ø Wire out: 210 m Speed: 30 kn*10

Sorted: 33 Kg Total catch: 128.56 CATCH/HOUR: 405.98

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Dentex congoensis	152.34	3158	37.52	3013
Dentex angolensis	87.54	1819	21.56	3011
Sepia officinalis hierredda	66.19	139	16.30	
Priacanthus arenatus	32.59	657	8.03	3012
Boops boops	23.12	543	5.69	
Decapterus punctatus	12.13	619	2.99	
Fistularia petimba	8.34	51	2.05	
Chelidonichthys gabonensis	6.95	202	1.71	
Pseudupeneus prayensis	4.93	139	1.21	
Chloroscombrus chrysurus	3.41	38	0.84	
Uranoscopus polli	2.78	13	0.68	
Sardinella aurita	2.15	139	0.53	
Alloteuthis africana	1.52	594	0.37	
Perulibatrachus elminensis	0.88	13	0.22	
Selene dorsalis	0.51	13	0.13	
Dicologlossa hexophtalma	0.38	13	0.09	
Syacium micrurum	0.25	25	0.06	
Total	406.01		99.98	

R/V "DR. FRIDTJOF NANSEN" PROJECT:IG PROJECT STATION: 688
 DATE: 5/ 5/05 GEAR TYPE: PT No: 5 POSITION:Lat N 611
 start stop duration Long E 202
 TIME :20:43:32 21:14:05 31 (min) Purpose code: 1
 LOG :1447.47 1449.00 1.50 Area code : 4
 FDEPTH: 0 0 GearCond.code:
 BDEPTH: 38 31 Validity code:
 Towing dir: 90° Wire out: 150 m Speed: 30 kn*10
 Sorted: 77 Kg Total catch: 77.62 CATCH/HOUR: 150.23

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Scomberomorus tritor	53.11	60	35.35	
Selene dorsalis	26.86	188	17.88	3014
Alectis alexandrinus	17.81	19	11.86	
Chloroscombrus chrysurus	7.74	89	5.15	3015
Sphyræna guachancho	7.51	87	5.00	3016
Selar crumenophthalmus	6.52	29	4.34	
Lagocephalus laevigatus	5.83	14	3.88	
Sepia officinalis hierreda	4.53	33	3.02	
Ilisha africana	3.27	184	2.18	3017
Engraulis encrasicolus	3.00	2290	2.00	
Tylosurus crocodilus crocodil.	2.96	2	1.97	
Brachydeuterus auritus	2.13	74	1.42	3018
Sardinella maderensis	1.70	130	1.13	
Caranx crysos	1.68	6	1.12	
Uraspis helvola	1.49	2	0.99	
Dentex canariensis	0.87	4	0.58	
Lutjanus fulgens	0.85	8	0.57	
Galeoides decadactylus	0.83	14	0.55	
Pagrus caeruleostictus	0.72	2	0.48	
Echeneis naucrates	0.52	2	0.35	
Pagellus bellottii	0.29	2	0.19	
Total	150.22		100.01	

R/V "DR. FRIDTJOF NANSEN" PROJECT:IG PROJECT STATION: 689
 DATE: 6/ 5/05 GEAR TYPE: BT No:17 POSITION:Lat N 607
 start stop duration Long E 206
 TIME :06:05:15 06:37:28 32 (min) Purpose code: 3
 LOG :1479.50 1481.28 1.76 Area code : 4
 FDEPTH: 84 80 GearCond.code:
 BDEPTH: 84 80 Validity code:
 Towing dir: 90° Wire out: 250 m Speed: 32 kn*10
 Sorted: 59 Kg Total catch: 615.55 CATCH/HOUR: 1154.16

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Dentex congoensis	513.75	10631	44.51	3020
Sardinella aurita	309.38	4556	26.81	3019
Decapterus punctatus	102.75	3056	8.90	
Dentex angolensis	85.13	919	7.38	3021
Dentex canariensis	27.56	47	2.39	
Priacanthus arenatus	23.25	150	2.01	
Scomber japonicus	19.31	150	1.67	
Sepia officinalis hierreda	16.76	30	1.45	
Pagellus bellottii	9.38	150	0.81	
Epinephelus aeneus	9.26	4	0.80	
Raja miraletus	7.31	19	0.63	
Boops boops	6.75	113	0.58	
Selar crumenophthalmus	6.00	56	0.52	
Lepidotrigla cadmani	4.88	94	0.42	
Dentex gibbosus	4.31	19	0.37	
Lepidotrigla carolae	2.44	56	0.21	
Ariomma bondi	1.69	131	0.15	
Trachurus trecae	1.31	38	0.11	
Chaetodon marcellae	0.93	19	0.10	
Uranoscopus albus	0.94	38	0.08	
Sphyræna guachancho	0.88	2	0.08	
Total	1154.17		99.98	

R/V "DR. FRIDTJOF NANSEN" PROJECT:IG PROJECT STATION: 690
 DATE: 6/ 5/05 GEAR TYPE: BT No:17 POSITION:Lat N 611
 start stop duration Long E 205
 TIME :08:21:02 08:52:43 32 (min) Purpose code: 3
 LOG :1490.92 1492.61 1.67 Area code : 4
 FDEPTH: 44 45 GearCond.code:
 BDEPTH: 44 45 Validity code:
 Towing dir: 80° Wire out: 150 m Speed: 30 kn*10
 Sorted: 10 Kg Total catch: 91.76 CATCH/HOUR: 172.05

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Selene dorsalis	52.20	195	30.34	3023
Aluterus monoceros	19.80	21	11.51	
Pagrus caeruleostictus	16.95	103	9.85	
Psettodes belcheri	9.08	19	5.28	
Sepia officinalis hierreda	7.39	32	4.30	3025
Chloroscombrus chrysurus	6.71	68	3.90	3022
Pagellus bellottii	6.15	68	3.57	
Alectis alexandrinus	4.52	4	2.63	
Cymbium cymbium	4.44	2	2.58	
Brachydeuterus auritus	3.75	131	2.18	3024
Uraspis secunda	3.49	6	2.03	
Alloteuthis africana	3.30	926	1.92	
Syacium micrurum	3.15	116	1.83	
Epinephelus aeneus	2.81	6	1.63	
Stromateus fiatola	2.72	4	1.58	
Citharus linguatula	2.70	15	1.57	
Sphyræna guachancho	2.21	15	1.28	
Serrius accraensis	2.10	188	1.22	
Lepidotrigla cadmani	2.10	23	1.22	
Raja miraletus	2.03	6	1.18	
Torpedo torpedo	1.91	4	1.11	
Pseudupeneus prayensis	1.84	30	1.07	
Sardinella aurita	1.31	15	0.76	
Octopus vulgaris	1.24	2	0.72	
Uranoscopus polli	1.13	11	0.66	
Uranoscopus polli	1.13	11	0.66	
Cynoglossus senegalensis	0.98	4	0.57	
Sardinella maderensis	0.86	8	0.50	
Pisodonophis semicinctus	0.86	2	0.50	
Chilomycterus spinosus mauret.	0.69	4	0.40	
Penaeus notialis	0.49	38	0.28	
Fistularia petimba	0.49	4	0.28	
Calappa rubroguttata	0.41	8	0.24	
Pomadasy incisus	0.30	4	0.17	
Decapterus punctatus	0.30	75	0.17	
Grammolites gruvelli	0.15	11	0.09	
Saurida brasiliensis	0.15	30	0.09	
Squilla mantis	0.08	4	0.05	
Stephanolepis hispidus	0.08	4	0.05	
Dactylopterus volitans	0.08	4	0.05	
Monochirus hispidus	0.04	4	0.02	
Total	172.12		100.04	

R/V "DR. FRIDTJOF NANSEN" PROJECT:IG PROJECT STATION: 691
 DATE: 6/ 5/05 GEAR TYPE: BT No:17 POSITION:Lat N 617
 start stop duration Long E 204
 TIME :09:59:58 10:29:02 29 (min) Purpose code: 3
 LOG :1500.05 1501.41 1.34 Area code : 4
 FDEPTH: 17 16 GearCond.code:
 BDEPTH: 17 16 Validity code:
 Towing dir: 260° Wire out: 100 m Speed: 28 kn*10
 Sorted: 47 Kg Total catch: 47.57 CATCH/HOUR: 98.42

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Pseudotolithus senegalensis	29.46	381	29.93	3028
Sphyræna guachancho	16.30	395	16.56	3026
Chloroscombrus chrysurus	8.17	786	8.30	3029
Parapenaeopsis atlantica	6.87	972	6.98	
Drepane africana	4.59	54	4.66	3032
Cynoglossus senegalensis	4.39	70	4.46	
Trichiurus lepturus	4.39	209	4.46	
Sardinella maderensis	3.93	478	3.99	3027
Caranx crysos	2.90	25	2.95	
Torpedo nobiliana	2.15	6	2.18	
Ilisha africana	1.70	120	1.73	3030
Galeoides decadactylus	1.57	64	1.60	3031
Portunus validus	1.49	17	1.51	
Selene dorsalis	1.34	199	1.36	
Pomadasy jubelini	1.22	4	1.24	
Lagocephalus laevigatus	1.22	48	1.24	
Selar crumenophthalmus	1.06	14	1.08	
Pentaneus quinquarius	0.83	25	0.84	
Brachydeuterus auritus	0.83	21	0.84	
Scomberomorus tritor	0.72	25	0.73	
Pteroscion peli	0.56	37	0.57	
Squilla acuelata calmani	0.54	14	0.55	
Hemicaranx bicolor	0.46	2	0.47	
Ephippion guttifer	0.37	10	0.38	
Raja miraletus	0.35	2	0.36	
Penaeus monodon	0.23	2	0.23	
Pseudupeneus prayensis	0.21	10	0.21	
Ethmalosa fimbriata	0.19	2	0.19	
Pomadasy rogeri	0.17	2	0.17	
Pseudotolithus epipearcus	0.14	2	0.14	
Pomadasy incisus	0.08	2	0.08	
Total	98.43		99.99	

R/V "DR. FRIDTJOF NANSEN" PROJECT:IG PROJECT STATION: 692
 DATE: 6/ 5/05 GEAR TYPE: BT No:17 POSITION:Lat N 614
 start stop duration Long E 201
 TIME :12:01:08 12:16:08 15 (min) Purpose code: 1
 LOG :1509.40 1510.23 0.81 Area code : 4
 FDEPTH: 22 22 GearCond.code:
 BDEPTH: 22 22 Validity code:
 Towing dir: 76° Wire out: 100 m Speed: 30 kn*10
 Sorted: 19 Kg Total catch: 19.46 CATCH/HOUR: 77.84

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Galeoides decadactylus	16.00	108	20.55	3034
Selene dorsalis	7.08	192	9.10	3033
Elops lacerta	6.52	24	8.38	
Brachydeuterus auritus	5.64	232	7.25	
Pagrus caeruleostictus	4.64	12	5.96	
Sepia officinalis hierreda	4.12	28	5.29	
Ilisha africana	3.60	952	4.62	
Sphyræna guachancho	3.52	200	4.52	3035
Rhinobatos albomaculatus	3.44	4	4.42	
Engraulis encrasicolus	3.40	3400	4.37	
Drepane africana	2.72	20	3.49	
Chaetodipterus goreensis	2.36	12	3.03	
Trachinocephalus myops	2.28	128	2.93	
Chloroscombrus chrysurus	1.84	252	2.36	
Dasyatis margarita	1.52	4	1.95	
Lagocephalus laevigatus	1.52	44	1.70	
Dentex canariensis	1.20	4	1.54	
Uranoscopus polli	1.04	8	1.34	
Diodon holocanthus	0.96	4	1.23	
Sardinella maderensis	0.92	312	1.18	3036
Trachinus lineolatus	0.64	72	0.82	
Caranx hippos	0.56	4	0.72	
Pisodonophis semicinctus	0.56	4	0.72	
Lethrinus atlanticus	0.44	4	0.57	
Trichiurus lepturus	0.32	16	0.41	
Bothus podas africanus	0.32	8	0.41	
Syacium micrurum	0.28	4	0.36	
Callinectes pallidus	0.24	4	0.31	
Ephippion guttifer	0.20	8	0.26	
Decapterus punctatus	0.12	8	0.15	
Pseudotolithus senegalensis	0.04	4	0.05	
Total	77.84		99.99	

R/V "DR. FRIDTJOF NANSEN" PROJECT:IG PROJECT STATION: 693
 DATE: 6/ 5/05 GEAR TYPE: BT No:17 POSITION:Lat N 613
 start stop duration Long E 156
 TIME :13:25:00 13:55:09 30 (min) Purpose code: 3
 LOG :1516.46 1518.05 1.57 Area code : 4
 FDEPTH: 23 24 GearCond.code:
 BDEPTH: 23 24 Validity code:
 Towing dir: 252° Wire out: 123 m Speed: 30 kn*10
 Sorted: 41 Kg Total catch: 41.08 CATCH/HOUR: 82.16

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
J E L Y F I S H	36.44	4	44.35	
Ephippion guttifer	15.66	8	19.06	
Alectis alexandrinus	9.80	6	11.93	
Sphyræna guachancho	5.34	20	6.50	3037
Engraulis encrasicolus	5.00	3184	6.09	3038
Sepia officinalis hierreda	2.08	16	2.53	
Pagrus caeruleostictus	1.98	4	2.41	
Lethrinus atlanticus	1.96	2	2.39	
Dactylopterus volitans	1.12	2	1.36	
Selene dorsalis	0.86	6	1.05	
Selar crumenophthalmus	0.64	2	0.78	
Calappa rubroguttata	0.50	4	0.61	
Galeoides decadactylus	0.34	2	0.41	
Sardinella maderensis	0.30	54	0.37	3039
Chloroscombrus chrysurus	0.14	2	0.17	
Total	82.16		100.01	

R/V "DR. FRIDTJOF NANSEN" PROJECT:IG PROJECT STATION: 694
 DATE: 6/ 5/05 GEAR TYPE: BT No:17 POSITION:Lat N 610
 start stop duration Long E 155
 TIME :15:28:36 15:58:21 30 (min) Purpose code: 3
 LOG :1521.89 1523.43 1.52 Area code : 4
 FDEPTH: 32 32 GearCond.code:
 BDEPTH: 32 32 Validity code:
 Towing dir: 75ø Wire out: 133 m Speed: 30 kn*10
 Sorted: 75 Kg Total catch: 236.44 CATCH/HOUR: 472.88

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Dactylopterus volitans	119.38	396	25.25	
Pagrus caeruleostictus	92.04	188	19.46	3042
Sea cucumbers	45.96	46	9.72	
Dentex canariensis	39.42	156	8.34	3041
Alectis alexandrinus	27.64	24	5.85	3040
Sea urchins (weak spines)	22.68	188	4.80	
Lethrinus atlanticus	21.38	52	4.52	
Lagocephalus laevigatus	20.46	42	4.33	
Acanthurus monroviae	16.56	20	3.50	
Aluterus heudelotii	16.00	52	3.38	
Aluterus monoceros	14.56	20	3.08	
Balistes capricus	8.64	14	1.83	
Hippocampus sp.	5.20	6	1.10	
Sepia officinalis hierredda	4.62	46	0.98	
Sphyræna sphyraena	3.74	16	0.79	
Uraspis helvola	3.02	6	0.64	
Balistes punctatus	2.44	4	0.52	
Fistularia tabacaria	2.28	6	0.48	
E C H I N O D E R M A T A	1.82	16	0.38	
Lutjanus fulgens	1.18	6	0.25	
Fistularia petimba	1.04	10	0.22	
Trachinocephalus myops	0.88	26	0.19	
Selene dorsalis	0.84	6	0.18	
Syacium micrurum	0.56	6	0.12	
Sea urchins (strong spines)	0.36	6	0.08	
Bothus podas africanus	0.14	10	0.03	
Total	472.84		100.02	

R/V "DR. FRIDTJOF NANSEN" PROJECT:IG PROJECT STATION: 695
 DATE: 6/ 5/05 GEAR TYPE: BT No:17 POSITION:Lat N 607
 start stop duration Long E 155
 TIME :17:07:17 17:37:12 30 (min) Purpose code: 3
 LOG :1531.02 1532.58 1.53 Area code : 4
 FDEPTH: 63 64 GearCond.code:
 BDEPTH: 63 64 Validity code:
 Towing dir: 80ø Wire out: 202 m Speed: 30 kn*10
 Sorted: 29 Kg Total catch: 199.61 CATCH/HOUR: 399.22

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Decapterus punctatus	112.84	10726	28.27	3046
Sardinella aurita	61.88	3862	15.50	3044
Dentex angolensis	57.46	416	14.39	3045
Fistularia petimba	27.82	170	6.97	
Pagellus bellottii	26.78	442	6.71	3043
Alloteuthis africana	25.74	7722	6.45	
Epinephelus aeneus	19.26	22	4.82	
Priacanthus arenatus	17.82	208	4.46	
Dentex gibbosus	14.04	66	3.52	
Dactylopterus volitans	8.84	26	2.21	
Selar crumenophthalmus	7.54	52	1.89	
Sepia officinalis hierredda	5.68	12	1.42	
Pseudupeneus prayensis	3.64	104	0.91	
Chilomycterus antennatus	2.34	14	0.59	
Syacium micrurum	1.68	92	0.42	
Lepidotrigla carolae	1.56	52	0.39	
Grammolites gruvelli	1.42	52	0.36	
Citharus linguatula	0.90	26	0.23	
Sphoeroides marmoratus	0.78	14	0.20	
Engraulis encrasicolus	0.78	130	0.20	
Dicologlossa hexopthalma	0.38	14	0.10	
Total	399.18		100.01	

R/V "DR. FRIDTJOF NANSEN" PROJECT:IG PROJECT STATION: 696
 DATE: 6/ 5/05 GEAR TYPE: PT No: 5 POSITION:Lat N 611
 start stop duration Long E 159
 TIME :21:13:03 21:44:49 32 (min) Purpose code: 1
 LOG :1556.46 1558.37 1.88 Area code : 4
 FDEPTH: 0 0 GearCond.code:
 BDEPTH: 36 34 Validity code:
 Towing dir: 270ø Wire out: 150 m Speed: 30 kn*10
 Sorted: 112 Kg Total catch: 112.81 CATCH/HOUR: 211.52

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Scomberomorus tritor	83.76	116	39.60	
Aluterus monoceros	22.91	23	10.83	
Sardinella maderensis - Juv.	19.13	7112	9.04	
Alectis alexandrinus	14.33	11	6.77	
Brachydeuterus auritus	11.63	180	5.50	3048
Sphyræna guachancho	11.53	81	5.45	3047
Engraulis encrasicolus	10.69	6413	5.05	
Selene dorsalis	8.91	84	4.21	3049
Mustelus mustelus	8.74	2	4.13	
Lagocephalus laevigatus	5.48	11	2.59	
Alloteuthis africana	4.74	1648	2.24	
Selar crumenophthalmus	1.88	9	0.89	
Balistes capricus	1.33	2	0.63	
Uraspis helvola	1.29	2	0.61	
Priacanthus arenatus	0.90	8	0.43	
Trachinotus ovatus	0.81	4	0.38	
Decapterus punctatus	0.79	394	0.37	
Caranx crysos	0.77	2	0.36	
Eucinostomus melanopterus	0.49	11	0.23	
Chloroscombus chrysurus	0.45	6	0.21	
Saurida brasiliensis	0.39	92	0.16	
Echeneis naucrates	0.26	13	0.12	
Ariomma bondi	0.23	4	0.11	
Ilisha africana	0.11	4	0.05	
Total	211.55		99.98	

R/V "DR. FRIDTJOF NANSEN" PROJECT:IG PROJECT STATION: 697
 DATE: 7/ 5/05 GEAR TYPE: BT No:17 POSITION:Lat N 605
 start stop duration Long E 144
 TIME :06:03:48 06:33:41 30 (min) Purpose code: 3
 LOG :1592.54 1594.10 1.54 Area code : 4
 FDEPTH: 62 63 GearCond.code:
 BDEPTH: 62 63 Validity code:
 Towing dir: 90ø Wire out: 200 m Speed: 32 kn*10
 Sorted: 32 Kg Total catch: 181.72 CATCH/HOUR: 363.44

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Pagellus bellottii	108.80	2870	29.94	3054
Sepia officinalis hierredda	64.54	402	17.76	
Dentex angolensis	37.70	230	10.37	3051
Decapterus punctatus	33.70	820	9.27	
Pagrus caeruleostictus	25.60	190	7.04	3050
Dentex congoensis	19.80	1540	5.45	3055
Brachydeuterus auritus	17.20	470	4.73	
Sardinella aurita	7.90	890	2.17	3053
Alloteuthis africana	7.20	1760	1.98	
Grammolites gruvelli	5.90	350	1.62	
Lepidotrigla carolae	5.30	210	1.46	
Priacanthus arenatus	5.30	80	1.46	
Fistularia petimba	5.20	50	1.43	
Raja miraletus	4.90	10	1.35	
Lepidotrigla cadmani	3.90	80	1.07	
Pseudupeneus prayensis	3.00	90	0.83	
Sphyræna guachancho	2.60	700	0.72	3052
Chilomycterus spinosus mauret.	2.00	10	0.55	
Syacium micrurum	1.30	200	0.36	
Sphoeroides marmoratus	0.80	10	0.22	
Microchirus frechkopi	0.60	20	0.17	
Citharus linguatula	0.10	10	0.03	
Engraulis encrasicolus	0.10	20	0.03	
Total	363.44		100.01	

R/V "DR. FRIDTJOF NANSEN" PROJECT:IG PROJECT STATION: 698
 DATE: 7/ 5/05 GEAR TYPE: BT No:17 POSITION:Lat N 608
 start stop duration Long E 145
 TIME :07:26:03 07:56:19 30 (min) Purpose code: 3
 LOG :1598.93 1600.58 1.55 Area code : 4
 FDEPTH: 44 40 GearCond.code:
 BDEPTH: 44 40 Validity code:
 Towing dir: 90ø Wire out: 150 m Speed: 32 kn*10
 Sorted: 16 Kg Total catch: 166.64 CATCH/HOUR: 333.28

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Alectis alexandrinus	133.12	112	39.94	
Sepia officinalis hierredda	55.84	96	16.75	
Sardinella aurita	32.64	6080	9.79	3056
Epinephelus aeneus	16.56	4	4.97	
Decapterus punctatus	12.48	5504	3.74	3057
Aluterus monoceros	10.24	10	3.07	
Fistularia petimba	8.08	24	2.42	
Alloteuthis africana	7.84	2008	2.35	
Syacium micrurum	7.28	240	2.18	
Ephippion guttifer	5.32	2	1.60	
Pagellus bellottii	4.96	112	1.49	
Scomberomorus tritor	4.20	6	1.26	
Selene dorsalis	4.08	12	1.22	
Pagellus bellottii	3.92	38	1.18	
Pagrus caeruleostictus	3.76	10	1.13	
Cymbium cymbium	3.38	2	1.01	
Chilomycterus spinosus mauret.	3.28	8	0.98	
Raja miraletus	3.22	6	0.97	
Dactylopterus volitans	3.00	6	0.90	
Sphyræna sphyraena	2.88	16	0.86	
Citharus linguatula	1.44	72	0.43	
Dentex canariensis	1.44	2	0.43	
Pseudupeneus prayensis	1.36	104	0.41	
Dentex gibbosus	1.20	136	0.36	
Aluterus heudelotii	0.66	2	0.20	
Serranus accraensis	0.56	80	0.17	
Selar crumenophthalmus	0.38	2	0.11	
Engraulis encrasicolus	0.16	64	0.05	
Total	333.28		99.97	

R/V "DR. FRIDTJOF NANSEN" PROJECT:IG PROJECT STATION: 699
 DATE: 7/ 5/05 GEAR TYPE: BT No:17 POSITION:Lat N 613
 start stop duration Long E 146
 TIME :09:19:16 09:49:04 30 (min) Purpose code: 3
 LOG :1607.30 1608.78 1.46 Area code : 4
 FDEPTH: 18 19 GearCond.code:
 BDEPTH: 18 19 Validity code:
 Towing dir: 90ø Wire out: 150 m Speed: 30 kn*10
 Sorted: 40 Kg Total catch: 40.38 CATCH/HOUR: 80.76

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Brachydeuterus auritus	27.38	2004	33.90	3058
Galeoides decadactylus	18.74	364	23.20	3059
Drepane africana	4.98	40	6.17	3060
Dasyatis margarita	4.50	4	5.57	
Sphyræna guachancho	3.88	30	4.80	
Chloroscombus chrysurus	3.84	156	4.75	3061
Scomberomorus tritor	3.78	18	4.68	
Sardinella maderensis	3.14	222	3.89	3062
Caranx crysos	3.04	10	3.76	
Engraulis encrasicolus	2.88	1984	3.57	
Selene dorsalis	0.76	30	0.94	
Alectis alexandrinus	0.68	34	0.84	
Dactylopterus volitans	0.64	2	0.79	
Selar crumenophthalmus	0.50	6	0.62	
Trachinocephalus myops	0.46	22	0.57	
Pseudupeneus prayensis	0.34	14	0.42	
Portunus validus	0.32	2	0.40	
Ephippion guttifer	0.32	2	0.40	
Pteroscion pelli	0.22	4	0.27	
Trachinus armatus	0.14	4	0.17	
Epinephelus aeneus	0.14	2	0.17	
Eucinostomus melanopterus	0.08	6	0.10	
Total	80.76		99.98	

R/V "DR. FRIDTJOF NANSEN" PROJECT:IG PROJECT STATION: 700
 DATE: 7/ 5/05 GEAR TYPE: BT No:17 POSITION:Lat N 609
 start stop duration Long E 136
 TIME :11:33:40 12:03:22 30 (min) Purpose code: 3
 LOG :1621.97 1623.51 1.52 Area code : 3
 FDEPTH: 22 22 GearCond.code: 3
 BDEPTH: 22 22 Validity code:
 Towing dir: 250ø Wire out: 150 m Speed: 30 kn*10
 Sorted: 58 Kg Total catch: 58.03 CATCH/HOUR: 116.06

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Lagocephalus laeivigatus	22.20	32	19.13	
Ephippion guttifer	15.88	6	13.68	
Aluterus heudelotii	15.12	46	13.03	
Dentex canariensis	14.72	28	12.68	
Fistularia petimba	10.40	46	8.96	
Sphyaena sphyaena	8.68	34	7.48	3063
Pagrus caeruleostictus	4.80	28	4.14	3064
Balistes punctatus	4.46	8	3.84	
Dactylopterus volitans	2.74	6	2.36	
Acanthostracion quadricornis	2.48	8	2.14	
Chilomycterus spinosus mauret.	2.28	8	1.96	
Alectis alexandrinus	2.22	4	1.91	
Rhinobatos albomaculatus	1.86	2	1.60	
Sepia officinalis hierredda	1.38	10	1.19	
Fistularia tabacaria	1.18	2	1.02	
Brachydeuterus auritus	1.18	60	1.02	
Zanobatus schoenleinii	1.04	2	0.90	
Stephanolepis hispidus	0.82	4	0.71	
Portunus validus	0.44	2	0.38	
Galeoides decadactylus	0.40	12	0.34	
Xyrichtys novacula	0.36	6	0.31	
Uranoscopus polli	0.30	2	0.26	
Chloroscombrus chrysurus	0.30	8	0.26	
Syacium micrurum	0.26	2	0.22	
Sardinella maderensis	0.26	26	0.22	
Trachinocephalus myops	0.22	4	0.19	
Bothus podas africanus	0.14	2	0.12	
Total	116.12		100.05	

R/V "DR. FRIDTJOF NANSEN" PROJECT:IG PROJECT STATION: 701
 DATE: 7/ 5/05 GEAR TYPE: BT No:17 POSITION:Lat N 606
 start stop duration Long E 135
 TIME :13:51:51 14:21:36 30 (min) Purpose code: 3
 LOG :1627.90 1629.40 1.49 Area code : 3
 FDEPTH: 40 42 GearCond.code: 3
 BDEPTH: 40 42 Validity code:
 Towing dir: 75ø Wire out: 163 m Speed: 30 kn*10
 Sorted: 17 Kg Total catch: 98.86 CATCH/HOUR: 197.72

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Sepia officinalis hierredda	22.88	54	11.57	
Selene dorsalis	22.56	100	11.41	
Dactylopterus volitans	18.48	42	9.35	
Decapterus punctatus	15.18	8206	7.68	3065
Brachydeuterus auritus	15.00	5358	7.59	3066
Syacium micrurum	13.38	360	6.77	
Cymbium cymbium	12.90	4	6.52	
Pagellus bellottii	10.02	126	5.07	
Alloteuthis africana	8.82	1848	4.46	
Stromateus fiatola	8.18	10	4.14	
Pagrus caeruleostictus	5.84	16	2.95	
Chilomycterus spinosus mauret.	4.62	18	2.34	
Cynoglossus canariensis	4.46	18	2.26	
Dentex canariensis	4.28	10	2.16	
Psettodes belcheri	4.08	8	2.06	
Octopus vulgaris	3.60	4	1.82	
Aluterus heudelotii	3.54	6	1.79	
Chloroscombrus chrysurus	3.54	36	1.79	
Scomberomorus tritor	3.22	2	1.63	
Alectis alexandrinus	2.40	6	1.21	
Fistularia petimba	2.14	6	1.08	
Sardinella aurita	2.04	18	1.03	
Pseudupeneus prayensis	1.50	42	0.76	
Pseudotolithus senegalensis	1.50	6	0.76	
Priacanthus arenatus	1.14	18	0.58	
Raja miraletus	0.82	2	0.41	
Epinephelus aeneus	0.56	2	0.28	
Sphyaena guachancho	0.50	2	0.25	
Sea cucumbers	0.38	2	0.19	
Antennarius sp.	0.16	2	0.08	
Total	197.72		99.99	

R/V "DR. FRIDTJOF NANSEN" PROJECT:IG PROJECT STATION: 702
 DATE: 7/ 5/05 GEAR TYPE: BT No:17 POSITION:Lat N 602
 start stop duration Long E 134
 TIME :16:34:15 17:04:06 30 (min) Purpose code: 3
 LOG :1638.86 1640.41 1.53 Area code : 3
 FDEPTH: 66 67 GearCond.code: 3
 BDEPTH: 66 67 Validity code:
 Towing dir: 80ø Wire out: 222 m Speed: 30 kn*10
 Sorted: 24 Kg Total catch: 188.12 CATCH/HOUR: 376.24

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Boops boops	127.80	2868	33.97	3068
Dentex angolensis	75.48	900	20.06	3070
Sepia officinalis hierredda	59.32	130	15.77	
Pagellus bellottii	52.56	2976	13.97	
Decapterus rhonchus	15.72	480	4.18	3067
Squatina oculata	10.24	4	2.72	
Fistularia petimba	9.60	42	2.55	
Decapterus punctatus	4.80	348	1.28	3069
Pseudupeneus prayensis	3.60	108	0.96	
Pagrus caeruleostictus	3.60	24	0.96	
Brotula barbata	3.56	4	0.95	
Cheilodichthys gabonensis	3.12	144	0.83	
Sardinella aurita	2.76	84	0.73	
Selar crumenophthalmus	2.52	12	0.67	
Priacanthus arenatus	1.20	12	0.32	
Grammolites gruvelli	0.36	36	0.10	
Total	376.24		100.02	

R/V "DR. FRIDTJOF NANSEN" PROJECT:IG PROJECT STATION: 703
 DATE: 7/ 5/05 GEAR TYPE: BT No: 5 POSITION:Lat N 605
 start stop duration Long E 130
 TIME :21:23:39 21:55:08 31 (min) Purpose code: 1
 LOG :1669.16 1670.86 1.70 Area code : 3
 FDEPTH: 0 0 GearCond.code: 3
 BDEPTH: 36 47 Validity code:
 Towing dir: 190ø Wire out: 150 m Speed: 32 kn*10
 Sorted: 40 Kg Total catch: 113.63 CATCH/HOUR: 219.93

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Alectis alexandrinus	78.81	68	35.83	
Engraulis encrasicolus	58.26	26044	26.49	
Scomberomorus tritor	18.15	21	8.25	
Sphyaena guachancho	15.45	64	7.02	3072
Chloroscombrus chrysurus	12.85	128	5.84	3075
Selene dorsalis	11.71	81	5.32	3074
Sardinella aurita	7.94	1297	3.61	3073
Decapterus punctatus	7.94	1723	3.61	3076
Brachydeuterus auritus	2.90	46	1.32	3071
Selar crumenophthalmus	2.48	10	1.13	
Alloteuthis africana	2.32	387	1.05	
Saurida brasiliensis	0.58	97	0.26	
Priacanthus arenatus	0.58	19	0.26	
Total	219.97		99.99	

R/V "DR. FRIDTJOF NANSEN" PROJECT:IG PROJECT STATION: 704
 DATE: 8/ 5/05 GEAR TYPE: BT No:17 POSITION:Lat N 601
 start stop duration Long E 125
 TIME :06:07:23 06:37:58 31 (min) Purpose code: 3
 LOG :1693.40 1694.96 1.54 Area code : 3
 FDEPTH: 52 52 GearCond.code: 3
 BDEPTH: 52 52 Validity code:
 Towing dir: 80ø Wire out: 180 m Speed: 30 kn*10
 Sorted: 32 Kg Total catch: 184.87 CATCH/HOUR: 357.81

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Sardinella aurita	89.23	9763	24.94	3079
Pagellus bellottii	79.06	1055	22.10	3077
Decapterus punctatus	44.32	3515	12.39	3080
Sepia officinalis hierredda	26.85	211	7.50	
Pseudupeneus prayensis	20.23	532	5.65	3078
Priacanthus arenatus	16.55	619	4.63	
Alloteuthis africana	14.23	4500	3.98	
Pagrus caeruleostictus	13.51	128	3.78	
Sphyaena guachancho	10.35	48	2.89	
Syacium micrurum	7.88	495	2.20	
Dactylopterus volitans	7.20	33	2.01	
Fistularia petimba	4.16	48	1.16	
Chilomycterus spinosus mauret.	4.06	19	1.13	
Brachydeuterus auritus	3.97	48	1.11	
Balistes caprisicus	3.95	6	1.10	
Scomberomorus tritor	3.95	2	1.10	
Grammolites gruvelli	3.29	184	0.92	
Selar crumenophthalmus	1.65	19	0.46	
Lepidotrigla carolae	1.26	48	0.35	
Raja miraletus	0.75	2	0.21	
Lutjanus fulgens	0.50	2	0.14	
Dentex congoensis	0.48	48	0.13	
Spherooides marmoratus	0.19	10	0.05	
Serranus accraensis	0.19	10	0.05	
Total	357.81		99.98	

R/V "DR. FRIDTJOF NANSEN" PROJECT:IG PROJECT STATION: 705
 DATE: 8/ 5/05 GEAR TYPE: BT No:17 POSITION:Lat N 604
 start stop duration Long E 127
 TIME :07:25:32 07:56:34 31 (min) Purpose code: 3
 LOG :1699.12 1700.77 1.62 Area code : 3
 FDEPTH: 42 43 GearCond.code: 3
 BDEPTH: 42 43 Validity code:
 Towing dir: 250ø Wire out: 150 m Speed: 32 kn*10
 Sorted: 24 Kg Total catch: 132.67 CATCH/HOUR: 256.78

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Sepia officinalis hierredda	50.40	93	19.63	
Alectis alexandrinus	44.71	31	17.41	
Pagellus bellottii	33.52	461	13.05	3081
Pagrus caeruleostictus	31.35	95	12.21	
Dentex canariensis	14.69	41	5.72	
Selene dorsalis	13.06	74	5.09	
Torpedo torpedo	10.43	14	4.06	
Aluterus monoceros	8.54	14	3.33	
Raja miraletus	8.26	14	3.22	
Alloteuthis africana	5.77	1450	2.25	
Syacium micrurum	5.77	168	2.25	
Dactylopterus volitans	5.28	19	2.06	
Fistularia petimba	5.07	46	1.97	
Dentex gibbosus	3.58	176	1.39	
Lagocephalus laeivigatus	3.19	6	1.24	
Sphyaena guachancho	2.77	14	1.08	
Brachydeuterus auritus	1.57	14	0.61	
Citharus linguatula	1.01	46	0.39	
Grammolites gruvelli	1.01	33	0.39	
Euclinostomus melanopterus	1.01	14	0.39	
Decapterus punctatus	0.95	46	0.37	
Pseudupeneus prayensis	0.95	114	0.37	
Epinephelus aeneus	0.95	6	0.37	
Rypticus saponaceus	0.87	14	0.34	
Trichurus lepturus	0.74	14	0.29	
Serranus accraensis	0.68	68	0.26	
Trachinocephalus myops	0.60	6	0.23	
Saurida brasiliensis	0.06	14	0.02	
Total	256.79		99.99	

R/V "DR. FRIDTJOF NANSEN" PROJECT:IG PROJECT STATION: 706
 DATE: 8/ 5/05 GEAR TYPE: BT No:17 POSITION:Lat N 606
 start stop duration Long E 125
 TIME :09:37:43 10:07:52 30 (min) Purpose code: 3
 LOG :1706.67 1708.22 1.54 Area code : 3
 FDEPTH: 24 23 GearCond.code:
 BDEPTH: 24 23 Validity code:
 Towing dir: 75ø Wire out: 120 m Speed: 32 kn*10
 Sorted: 73 Kg Total catch: 73.94 CATCH/HOUR: 147.88

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Dentex canariensis	31.96	56	21.61	
Balistes capricus	20.80	52	14.07	
Lagocephalus laevigatus	14.90	14	10.08	
Scomberomorus tritor	13.12	10	8.87	
Acanthostracion quadricornis	13.06	62	8.83	
Pagrus caeruleostictus	8.48	22	5.73	
Dactylopterus volitans	6.82	18	4.61	
Alectis alexandrinus	6.50	16	4.40	
Ephippion guttifer	6.42	4	4.34	
Aluterus heudelotii	4.22	10	2.85	
Fistularia tabacaria	3.20	10	2.16	
Fistularia petimba	3.08	14	2.08	
Stephanolepis hispidus	2.60	14	1.76	
Dasyatis margarita	2.10	4	1.42	
Sphyaena sphyraena	1.80	4	1.22	
Pagellus bellottii	1.68	16	1.14	
Lethrinus atlanticus	1.62	6	1.10	
Sparisoma rubripinne	1.44	2	0.97	
Diodon holocanthus	1.12	2	0.76	
Chilomycterus spinosus mauret.	0.54	2	0.37	
Uranoscopus polli	0.54	4	0.37	
Syacium micrurum	0.38	2	0.26	
Pseudupeneus prayensis	0.38	4	0.26	
Rypticus saponaceus	0.38	2	0.26	
Epinephelus aeneus	0.28	2	0.19	
Trachinocephalus myops	0.26	4	0.16	
Scorpaena senegalensis	0.20	2	0.14	
Total	147.88		100.03	

R/V "DR. FRIDTJOF NANSEN" PROJECT:IG PROJECT STATION: 707
 DATE: 8/ 5/05 GEAR TYPE: BT No:17 POSITION:Lat N 603
 start stop duration Long E 117
 TIME :11:36:06 12:06:12 30 (min) Purpose code: 3
 LOG :1719.35 1721.12 1.75 Area code : 3
 FDEPTH: 24 23 GearCond.code:
 BDEPTH: 24 23 Validity code:
 Towing dir: 255ø Wire out: 120 m Speed: 30 kn*10
 Sorted: 63 Kg Total catch: 63.47 CATCH/HOUR: 126.94

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Pseudupeneus prayensis	22.80	448	17.96	3082
Lethrinus atlanticus	22.60	66	17.80	
Scomberomorus tritor	15.12	8	11.91	
Acanthurus monroviae	13.12	28	10.34	
Sepia officinalis hierredda	11.10	34	8.74	3083
Dentex canariensis	7.24	16	5.70	
Octopus vulgaris	4.16	2	3.28	
Dentex gibbosus	4.06	12	3.20	
Sea urchins (strong spines)	3.32	4	2.62	
Fistularia tabacaria	3.06	10	2.41	
Pagrus caeruleostictus	2.66	14	2.10	
Lagocephalus laevigatus	2.66	4	2.10	
Aluterus heudelotii	2.30	10	1.81	
Balistes punctatus	2.10	2	1.65	
Diodon holocanthus	1.94	2	1.53	
Sphyaena sphyraena	1.74	6	1.37	
Trachinocephalus myops	1.58	28	1.24	
Lutjanus fulgens	1.56	16	1.23	
Acanthostracion quadricornis	1.56	8	1.23	
Torpedo torpedo	1.44	2	1.13	
Cephalopholis taeniops	0.54	2	0.43	
Xyrichtys novacula	0.16	2	0.13	
Synodus synodus	0.12	8	0.09	
Total	126.94		100.00	

R/V "DR. FRIDTJOF NANSEN" PROJECT:IG PROJECT STATION: 708
 DATE: 8/ 5/05 GEAR TYPE: BT No:17 POSITION:Lat N 601
 start stop duration Long E 115
 TIME :13:05:04 13:35:12 30 (min) Purpose code: 3
 LOG :1726.83 1728.32 1.47 Area code : 3
 FDEPTH: 34 35 GearCond.code:
 BDEPTH: 34 35 Validity code:
 Towing dir: 70ø Wire out: 141 m Speed: 30 kn*10
 Sorted: Kg Total catch: 145.99 CATCH/HOUR: 291.98

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Sepia officinalis hierredda	72.76	184	24.92	
Dactylopterus volitans	61.36	296	21.02	
Pagellus bellottii	42.42	390	14.53	3084
Sea urchins (strong spines)	40.08	40	13.73	
Balistes capricus	12.76	12	4.37	
Lagocephalus laevigatus	10.12	10	3.47	
Fistularia petimba	9.32	72	3.19	
Alectis alexandrinus	8.92	8	3.06	
Aluterus heudelotii	8.14	30	2.79	
Aluterus monroviae	4.28	4	1.47	
Ephippion guttifer	3.50	2	1.20	
Scomberomorus tritor	3.34	2	1.14	
Epinephelus aeneus	2.72	2	0.93	
Sphyaena guachancho	2.68	6	0.92	
Pagrus caeruleostictus	2.20	12	0.75	
Dicologlossa cuneata	2.18	14	0.75	
Syacium micrurum	1.54	40	0.53	
Acanthostracion quadricornis	1.48	2	0.51	
Dentex gibbosus	1.04	2	0.36	
Pseudupeneus prayensis	0.40	36	0.14	
Selar crumenophthalmus	0.34	2	0.12	
Decapterus punctatus	0.32	92	0.11	3085
Epinephelus haifensis	0.10	2	0.03	
Total	292.00		100.04	

R/V "DR. FRIDTJOF NANSEN" PROJECT:IG PROJECT STATION: 709
 DATE: 8/ 5/05 GEAR TYPE: BT No:17 POSITION:Lat N 558
 start stop duration Long E 117
 TIME :14:45:22 15:15:15 30 (min) Purpose code: 3
 LOG :1735.99 1737.57 1.55 Area code : 3
 FDEPTH: 52 52 GearCond.code:
 BDEPTH: 52 52 Validity code:
 Towing dir: 245ø Wire out: 184 m Speed: 30 kn*10
 Sorted: Kg Total catch: 289.04 CATCH/HOUR: 578.08

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Sepia officinalis hierredda	132.32	336	22.89	
Priacanthus arenatus	100.96	4304	17.46	
Sardinella aurita	88.80	2080	15.36	3088
Pagellus bellottii	70.22	1120	12.15	3087
Pagrus caeruleostictus	42.40	1136	7.33	3089
Sea cucumbers	27.84	16	4.82	
Pseudupeneus prayensis	24.74	800	4.28	3086
Fistularia petimba	23.84	96	4.12	
Alloteuthis africana	13.92	6400	2.41	
Decapterus punctatus	10.24	256	1.77	
Balistes capricus	9.28	16	1.61	
Syacium micrurum	7.68	1296	1.33	
Raja miraletus	7.68	16	1.33	
Grammolites gruvelli	5.44	240	0.94	
Dactylopterus volitans	5.12	32	0.89	
Epinephelus aeneus	3.58	4	0.62	
Torpedo torpedo	2.66	2	0.46	
Sphoeroides marmoratus	0.80	16	0.14	
Sphoeroides marmoratus	0.80	16	0.14	
Serranus accraensis	0.64	16	0.11	
Total	578.96		100.16	

R/V "DR. FRIDTJOF NANSEN" PROJECT:IG PROJECT STATION: 710
 DATE: 8/ 5/05 GEAR TYPE: BT No:17 POSITION:Lat N 554
 start stop duration Long E 117
 TIME :16:44:30 17:14:14 30 (min) Purpose code: 3
 LOG :1746.61 1748.17 1.55 Area code : 3
 FDEPTH: 209 223 GearCond.code:
 BDEPTH: 209 223 Validity code:
 Towing dir: 230ø Wire out: 626 m Speed: 30 kn*10
 Sorted: 38 Kg Total catch: 477.06 CATCH/HOUR: 954.12

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Synagrops microlepis	445.86	38466	46.73	
Trichilurus lepturus	123.48	630	12.94	
Zenopsis conchifer	97.32	50	10.20	
Squatina oculata	75.08	94	7.87	
Dentex angolensis	60.48	166	6.34	3090
Uranoscopus cadenati	23.58	126	2.47	
Umbrina canariensis	21.96	90	2.30	
Zeus faber	15.12	36	1.58	
Brotula barbata	14.80	16	1.55	
Todaropsis eblanae	10.80	324	1.13	
Heptranchias perlo	10.80	4	1.13	
Raja clavata	5.40	108	0.57	
Spicara alta	5.28	34	0.55	
Fistularia petimba	4.68	36	0.49	
Bembrops heterurus	4.50	54	0.47	
Selar crumenophthalmus	4.14	36	0.43	
Pentheroscion mbizi	3.90	24	0.41	
Illex coindetii	2.88	18	0.30	
Pterotrissus belloci	2.88	18	0.30	
Raja clavata	2.78	4	0.29	
Citharus linguatula	2.70	144	0.28	
Torpedo marmorata	2.52	2	0.26	
Raja miraletus	2.38	8	0.25	
Lepidotrigla cadmani	2.34	36	0.25	
Priacanthus arenatus	1.98	18	0.21	
Peristedion cataphractum	1.80	36	0.19	
Balistes punctatus	1.80	2	0.19	
Scorpaena scrofa	1.62	4	0.17	
Pseudupeneus prayensis	1.26	18	0.13	
Total	954.12		99.98	

R/V "DR. FRIDTJOF NANSEN" PROJECT:IG PROJECT STATION: 711
 DATE: 8/ 5/05 GEAR TYPE: PT No: 5 POSITION:Lat N 604
 start stop duration Long E 124
 TIME :20:15:33 20:45:42 30 (min) Purpose code: 1
 LOG :1766.45 1768.02 1.53 Area code : 3
 FDEPTH: 0 0 GearCond.code:
 BDEPTH: 32 33 Validity code:
 Towing dir: 78ø Wire out: 15 m Speed: 31 kn*10
 Sorted: 32 Kg Total catch: 160.20 CATCH/HOUR: 320.40

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Scomberomorus tritor	130.74	154	40.81	
Selene dorsalis	42.32	338	13.21	3093
Sphyaena guachancho	38.40	138	11.99	3091
Engraulis encrasicolus	30.68	13148	9.58	3094
Sardinella maderensis	26.00	5620	8.11	3095
Lagocephalus laevigatus	12.28	30	3.83	
Dactylopterus volitans	9.34	34	2.92	
Decapterus punctatus	9.16	1640	2.86	3092
Chloroscombrus chrysurus	6.62	72	2.07	
Alectis alexandrinus	5.94	26	1.85	
Selar crumenophthalmus	4.72	22	1.47	
Priacanthus arenatus	1.24	14	0.39	
Stromateus fiatola	1.08	2	0.34	
Euclinostomus melanopterus	0.84	14	0.26	
Galeoides decadactylus	0.60	4	0.19	
Brachydeuterus auritus	0.44	10	0.14	
Total	320.40		100.02	

R/V "DR. FRIDTJOF NANSEN" PROJECT:IG PROJECT STATION: 712
 DATE: 9/ 5/05 GEAR TYPE: BT No:17 POSITION:Lat N 552
 start stop duration Long E 111
 TIME :06:11:25 06:36:10 25 (min) Purpose code: 3
 LOG :1809.21 1810.38 1.15 Area code : 2
 FDEPTH: 90 88 GearCond.code:
 BDEPTH: 90 88 Validity code:
 Towing dir: 246ø Wire out: 270 m Speed: 31 kn*10
 Sorted: 28 Kg Total catch: 126.54 CATCH/HOUR: 303.70

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Uranoscopus cadenati	61.73	173	20.33	
Dentex angolensis	53.86	1450	17.73	3096
Squatina oculata	41.86	19	13.78	
Dentex congogensis	39.17	893	12.90	3097
Sepia officinalis hierredda	37.34	55	12.30	3098
Zeus faber	16.22	29	5.34	
Raja miraletus	14.40	38	4.74	
Fistularia petimba	11.42	38	3.76	
Octopus vulgaris	8.35	29	2.75	
Lepidotrigla carolae	5.66	67	1.86	
Raja straeleni	4.42	10	1.46	
Pagrus caeruleostictus	2.40	10	0.79	
Squalus megalops	2.35	2	0.77	
Lepidotrigla cadmani	2.02	48	0.67	
Lophiodes kempi	1.54	19	0.51	
Boops boops	0.58	10	0.19	
Serranus cabrilla	0.38	58	0.13	
Total	303.70		100.01	

R/V "DR. FRIDTJOF NANSEN" PROJECT:IG PROJECT STATION: 713
 DATE: 9/ 5/05 GEAR TYPE: BT No:16 POSITION:Lat N 554
 start stop duration Long E 107
 TIME :08:22:18 08:53:57 32 (min) Purpose code: 3
 LOG :1817.85 1819.52 1.64 Area code : 2
 FDEPTH: 44 45 GearCond.code:
 BDEPTH: 44 45 Validity code:
 Towing dir: 56ø Wire out: 150 m Speed: 32 kn*10
 Sorted: 33 Kg Total catch: 567.44 CATCH/HOUR: 1063.95

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Brachydeuterus auritus	768.00	16680	72.18	3100
Pagellus bellottii	77.10	870	7.25	3102
Cymbium cymbium	51.00	30	4.79	
Selene dorsalis	30.00	150	2.82	
Decapterus punctatus	24.90	3750	2.34	3101
Sepia officinalis hierredda	22.16	39	2.08	
Sphyræna guachancho	17.40	90	1.64	
Stromateus fiatola	15.92	19	1.50	
Pagrus caeruleostictus	15.00	780	1.41	3099
Pagrus caeruleostictus	10.20	28	0.96	
Raja miraletus	5.40	30	0.51	
Sardinella aurita	5.10	420	0.48	
Epinephelus aeneus	4.86	6	0.46	
Allotautis africana	3.30	750	0.31	
Fistularia petimba	2.49	11	0.23	
Lepidotrigla carolae	1.50	60	0.14	
Serranus scriba	1.50	60	0.14	
Aluterus heudelotii	1.43	4	0.13	
Dentex canariensis	1.26	4	0.12	
Penaeus notialis	1.20	60	0.11	
Pseudupeneus prayensis	1.20	30	0.11	
Selar crumenophthalmus	1.20	90	0.11	
Grammolites gruvelli	0.90	60	0.08	
Syacium micrurum	0.90	180	0.08	
Torpedo torpedo	0.68	2	0.06	
Saurida brasiliensis	0.30	30	0.03	
Total	1064.90		100.07	

R/V "DR. FRIDTJOF NANSEN" PROJECT:IG PROJECT STATION: 714
 DATE: 9/ 5/05 GEAR TYPE: BT No:16 POSITION:Lat N 558
 start stop duration Long E 105
 TIME :10:48:31 11:19:26 31 (min) Purpose code: 3
 LOG :1826.18 1827.70 1.51 Area code : 2
 FDEPTH: 26 26 GearCond.code:
 BDEPTH: 26 26 Validity code:
 Towing dir: 215ø Wire out: 150 m Speed: 32 kn*10
 Sorted: 32 Kg Total catch: 121.95 CATCH/HOUR: 236.03

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Decapterus punctatus	132.97	27387	56.34	
Sepia officinalis hierredda	36.46	68	15.45	
Sphyræna barracuda	13.01	2	5.51	
Sardinella aurita	11.55	993	4.89	3105
Lagocephalus laevigatus	9.97	25	4.22	
Engraulis encrasicolus	7.55	1951	3.20	3103
Alectis alexandrinus	6.02	4	2.55	
Pagrus caeruleostictus	4.99	151	2.11	3104
Aluterus monoceros	4.45	4	1.89	
Pagellus bellottii	2.42	33	1.03	
Dentex canariensis	1.84	6	0.78	
Pseudupeneus prayensis	1.35	43	0.57	
Chloroscombrus chrysurus	0.68	4	0.29	
Caranx crysos	0.60	2	0.25	
Brachydeuterus auritus	0.58	19	0.25	
Chaetodipterus gorenensis	0.48	2	0.20	
Raja miraletus	0.48	2	0.20	
Sphyræna guachancho	0.37	2	0.16	
Lutjanus fulgens	0.23	19	0.10	
Total	236.00		99.99	

R/V "DR. FRIDTJOF NANSEN" PROJECT:IG PROJECT STATION: 715
 DATE: 9/ 5/05 GEAR TYPE: BT No:16 POSITION:Lat N 553
 start stop duration Long E 103
 TIME :12:09:36 12:29:12 20 (min) Purpose code: 1
 LOG :1832.86 1833.95 1.08 Area code : 2
 FDEPTH: 33 30 GearCond.code:
 BDEPTH: 33 30 Validity code:
 Towing dir: 16ø Wire out: 147 m Speed: 30 kn*10
 Sorted: 34 Kg Total catch: 267.77 CATCH/HOUR: 803.31

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Decapterus punctatus	232.68	44919	28.97	3109
Brachydeuterus auritus	225.96	41181	28.13	3106
Engraulis encrasicolus	153.51	19425	19.11	3108
Sepia officinalis hierredda	83.40	147	10.38	
Pagellus bellottii	26.25	840	3.27	
Pagrus caeruleostictus	20.16	1050	2.51	3107
Sardinella aurita	16.80	2415	2.09	3110
Pseudupeneus prayensis	12.18	168	1.52	
Fistularia petimba	9.87	21	1.23	
Alectis alexandrinus	9.87	21	1.23	
Trachurus trecae	9.03	126	1.12	
Balistes caprisicus	3.60	3	0.45	
Total	803.31		100.01	

R/V "DR. FRIDTJOF NANSEN" PROJECT:IG PROJECT STATION: 716
 DATE: 9/ 5/05 GEAR TYPE: BT No:16 POSITION:Lat N 542
 start stop duration Long E 57
 TIME :14:31:58 15:01:45 30 (min) Purpose code: 3
 LOG :1851.25 1852.86 1.60 Area code : 2
 FDEPTH: 19 23 GearCond.code:
 BDEPTH: 19 23 Validity code:
 Towing dir: 40ø Wire out: 102 m Speed: 30 kn*10
 Sorted: Kg Total catch: 24.90 CATCH/HOUR: 49.80

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Pagrus caeruleostictus	11.34	112	22.77	3112
Sphyræna barracuda	11.32	2	22.73	
Epinephelus aeneus	9.60	2	19.28	
Balistes caprisicus	6.08	8	12.21	
Pagellus bellottii	5.16	58	10.36	3111
Ephippium guttifer	2.34	2	4.70	
Lagocephalus laevigatus	1.74	2	3.49	
Chilomycterus spinosus mauret.	1.66	2	3.33	
Torpedo torpedo	0.26	2	0.52	
Pseudupeneus prayensis	0.18	2	0.36	
Chloroscombrus chrysurus	0.12	2	0.24	
Total	49.80		99.99	

R/V "DR. FRIDTJOF NANSEN" PROJECT:IG PROJECT STATION: 717
 DATE: 9/ 5/05 GEAR TYPE: BT No:16 POSITION:Lat N 536
 start stop duration Long E 38
 TIME :17:41:26 18:14:15 33 (min) Purpose code: 3
 LOG :1877.53 1879.10 1.57 Area code : 2
 FDEPTH: 50 47 GearCond.code:
 BDEPTH: 50 47 Validity code:
 Towing dir: 285ø Wire out: 235 m Speed: 30 kn*10
 Sorted: 33 Kg Total catch: 186.73 CATCH/HOUR: 339.51

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Brachydeuterus auritus	213.09	3318	62.76	3114
Boops boops	34.45	545	10.15	3113
Priacanthus arenatus	26.73	836	7.87	
Sepia officinalis hierredda	22.25	38	6.55	
Pagellus bellottii	9.73	173	2.87	
Decapterus punctatus	7.18	173	2.11	
Octopus vulgaris	4.75	4	1.40	
Ariomma bondi	4.73	73	1.39	
Dentex canariensis	3.27	7	0.96	
Balistes caprisicus	3.27	4	0.96	
Mustelus mustelus	2.49	2	0.73	
Fegusa lascaris	1.45	2	0.43	
Sphyræna guachancho	1.29	2	0.38	
Epinephelus aeneus	1.00	2	0.29	
Sardinella aurita	0.64	18	0.19	
Pagrus caeruleostictus	0.64	45	0.19	
Pseudupeneus prayensis	0.55	27	0.16	
Syacium micrurum	0.45	91	0.13	
Grammolites gruvelli	0.45	36	0.13	
Aluterus punctata	0.29	2	0.09	
Lepidotrigla carolae	0.27	9	0.08	
Perulibatrachus elminensis	0.25	2	0.07	
Stephanolepis hispidus	0.18	9	0.05	
Microchirus frechkopi	0.09	9	0.03	
Total	339.49		99.97	

R/V "DR. FRIDTJOF NANSEN" PROJECT:IG PROJECT STATION: 718
 DATE:10/ 5/05 GEAR TYPE: PT No: 5 POSITION:Lat N 535
 start stop duration Long E 48
 TIME :00:36:16 01:06:28 30 (min) Purpose code: 1
 LOG :1936.89 1938.31 1.40 Area code : 2
 FDEPTH: 0 0 GearCond.code:
 BDEPTH: 325 266 Validity code:
 Towing dir: 270ø Wire out: 160 m Speed: 35 kn*10
 Sorted: Kg Total catch: 50.16 CATCH/HOUR: 100.32

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Trichurus lepturus	98.98	1862	98.66	
Hypoclydonia bella	0.60	14	0.60	
Gempylus serpens	0.56	2	0.56	
Illex coindetii	0.18	2	0.18	
Total	100.32		100.00	

R/V "DR. FRIDTJOF NANSEN" PROJECT:IG PROJECT STATION: 719
 DATE:10/ 5/05 GEAR TYPE: BT No:16 POSITION:Lat N 533
 start stop duration Long E 17
 TIME :06:33:57 07:04:00 30 (min) Purpose code: 3
 LOG :1978.75 1980.23 1.47 Area code : 2
 FDEPTH: 379 465 GearCond.code:
 BDEPTH: 379 465 Validity code:
 Towing dir: 55ø Wire out:1150 m Speed: 30 kn*10
 Sorted: 22 Kg Total catch: 3197.95 CATCH/HOUR: 6395.90

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Hypoclydonia bella	3466.40	144	54.20	
DIDONOTIDAE	1573.20	14000	24.60	
Trichiurus lepturus	478.80	2520	7.49	
Malacocephalus laevis	224.00	2520	3.50	
Chlorophthalmus atlanticus	148.40	8680	2.32	
Parapenaeus longirostris	137.20	5880	2.15	
Etmopterus spinax	137.20	1400	2.15	
Merluccius polli	69.32	144	1.08	
Setarches guentheri	67.20	6440	1.05	
SQUATINIDAE	55.00	4	0.86	
Nezumia aequalis	16.80	280	0.26	
Lophius vaillanti	10.32	6	0.16	
Ijimaia loppei	6.20	2	0.10	
Heptranchias perlo	5.86	2	0.09	
Total	6395.90		100.01	

R/V "DR. FRIDTJOF NANSEN" PROJECT:IG PROJECT STATION: 720
 DATE:10/ 5/05 GEAR TYPE: BT No:16 POSITION:Lat N 537
 start stop duration Long E 17
 TIME :08:27:52 08:59:33 32 (min) Purpose code: 3
 LOG :1986.27 1988.07 1.79 Area code : 2
 FDEPTH: 70 72 GearCond.code:
 BDEPTH: 70 72 Validity code:
 Towing dir: 78ø Wire out: 210 m Speed: 30 kn*10
 Sorted: 23 Kg Total catch: 22.52 CATCH/HOUR: 42.23

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Sardinella aurita	7.50	218	17.76	
Dentex canariensis	6.43	21	15.23	
Dentex congoensis	5.21	330	12.34	
Decapterus punctatus	4.44	126	10.51	
Fistularia petimba	3.19	32	7.55	
Dentex gibbosus	2.64	11	6.25	
Pseudupeneus prayensis	2.57	24	6.09	
Zeus faber	2.03	2	4.81	
Pagellus bellottii	1.93	54	4.57	
Trachurus trecae	1.41	47	3.34	
Pagellus bogaraveo	1.33	6	3.15	
Lepidotrigla cadmani	1.01	26	2.39	
Dentex angolensis	1.01	30	2.39	
Raja miraletus	0.62	2	1.47	
Boops boops	0.21	4	0.50	
Chaetodon marcellae	0.19	4	0.45	
Microchirus frechkopi	0.17	4	0.40	
Priacanthus arenatus	0.17	6	0.40	
Lepidotrigla carolae	0.17	2	0.40	
Total	42.23		100.00	

R/V "DR. FRIDTJOF NANSEN" PROJECT:IG PROJECT STATION: 721
 DATE:10/ 5/05 GEAR TYPE: BT No:16 POSITION:Lat N 540
 start stop duration Long E 17
 TIME :09:55:08 10:25:37 30 (min) Purpose code: 3
 LOG :1993.74 1995.35 1.60 Area code : 2
 FDEPTH: 41 41 GearCond.code:
 BDEPTH: 41 41 Validity code:
 Towing dir: 78ø Wire out: 150 m Speed: 30 kn*10
 Sorted: Kg Total catch: 38.23 CATCH/HOUR: 76.46

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Decapterus punctatus	31.24	2660	40.86	3119
Alloteuthis africana	20.72	6216	27.10	
Pagellus bellottii	8.18	138	10.70	3115
Sepia officinalis hierredda	5.80	10	7.59	
Pagrus caeruleostictus	3.64	120	4.76	3117
Selar crumenophthalmus	1.62	150	2.12	3116
Fistularia petimba	1.14	8	1.49	
Pseudupeneus prayensis	1.10	36	1.44	
Sardinella aurita	0.98	58	1.28	3118
Priacanthus arenatus	0.76	2	0.99	
Lagocephalus laevis	0.68	2	0.89	
Stephanolepis hispidus	0.44	2	0.58	
Trachurus trecae	0.10	2	0.13	
Saurida brasiliensis	0.06	10	0.08	
Total	76.46		100.01	

R/V "DR. FRIDTJOF NANSEN" PROJECT:IG PROJECT STATION: 722
 DATE:10/ 5/05 GEAR TYPE: BT No:16 POSITION:Lat N 541
 start stop duration Long E 16
 TIME :11:31:47 12:01:37 30 (min) Purpose code: 3
 LOG :2001.30 2002.98 1.66 Area code : 2
 FDEPTH: 25 26 GearCond.code:
 BDEPTH: 25 26 Validity code:
 Towing dir: 246ø Wire out: 120 m Speed: 30 kn*10
 Sorted: Kg Total catch: 104.39 CATCH/HOUR: 208.78

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Lethrinus atlanticus	61.88	518	29.64	3122
Dentex canariensis	61.56	136	29.49	3120
Lagocephalus laevis	24.12	32	11.55	
Decapterus punctatus	15.08	3236	7.22	3121
Acanthostracion quadricornis	8.94	60	4.28	
Acanthurus monroviae	6.26	22	3.00	
Sepia officinalis hierredda	5.96	6	2.85	
Pagrus caeruleostictus	4.62	26	2.21	
Scomberomorus tritor	4.28	2	2.05	
Fistularia petimba	3.68	22	1.86	
Pseudupeneus prayensis	3.12	50	1.49	
Balistes punctatus	2.70	12	1.29	
Bodianus speciosus	1.26	6	0.60	
Scarus hoefleri	1.16	8	0.56	
Stephanolepis hispidus	1.12	6	0.54	
Aluterus heudelotii	0.94	4	0.45	
Chromis cadenati	0.64	8	0.31	
Diodon holocanthus	0.58	2	0.28	
Sardinella maderensis	0.36	38	0.17	3123
Aulostomus strigosus	0.20	2	0.10	
Chaetodon robustus	0.12	4	0.06	
Total	208.78		100.00	

R/V "DR. FRIDTJOF NANSEN" PROJECT:IG PROJECT STATION: 723
 DATE:10/ 5/05 GEAR TYPE: BT No:16 POSITION:Lat N 533
 start stop duration Long E 7
 TIME :13:36:07 14:06:17 30 (min) Purpose code: 3
 LOG :2013.93 2015.30 1.36 Area code : 2
 FDEPTH: 49 48 GearCond.code:
 BDEPTH: 49 48 Validity code:
 Towing dir: 240ø Wire out: 171 m Speed: 30 kn*10
 Sorted: Kg Total catch: 130.35 CATCH/HOUR: 260.70

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Pagellus bellottii	47.44	720	18.20	3126
Fistularia petimba	45.44	464	17.43	
Pseudupeneus prayensis	40.24	448	15.44	
Sepia officinalis hierredda	28.40	48	10.89	
Dentex canariensis	28.24	80	10.83	3125
Pagrus caeruleostictus	27.92	264	10.71	3124
Illex coindetii	15.12	6424	5.80	
Squatina aculeata	13.82	2	5.30	
Dactylopterus volitans	6.16	24	2.36	
Syacium micurum	2.88	64	1.10	
Sphyræna guachancho	2.58	4	0.99	
Epinephelus aeneus	2.32	2	0.89	
Chaetodon marcellae	0.12	2	0.05	
Total	260.68		99.99	

R/V "DR. FRIDTJOF NANSEN" PROJECT:IG PROJECT STATION: 724
 DATE:10/ 5/05 GEAR TYPE: BT No:16 POSITION:Lat N 527
 start stop duration Long E 5
 TIME :15:47:38 16:17:18 30 (min) Purpose code: 3
 LOG :2022.11 2023.41 1.30 Area code : 2
 FDEPTH: 82 87 GearCond.code:
 BDEPTH: 82 87 Validity code:
 Towing dir: 240ø Wire out: 262 m Speed: 30 kn*10
 Sorted: 70 Kg Total catch: 1132.70 CATCH/HOUR: 2265.40

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Boops boops	1182.08	23648	52.18	
Dentex congoensis	794.88	24096	35.09	3127
Fistularia petimba	151.36	416	6.68	
Sepia officinalis hierredda	51.20	64	2.26	
Selar crumenophthalmus	29.44	288	1.30	
Squatina oculata	19.16	12	0.85	
Priacanthus arenatus	10.88	160	0.48	
Chelidonichthys gabonensis	8.96	256	0.40	
Pseudupeneus prayensis	5.12	64	0.23	
Diodon holocanthus	3.84	32	0.17	
Decapterus rhonchus	3.52	64	0.16	
Sardinella aurita	3.20	64	0.14	
Raja miraletus	1.76	4	0.08	
Total	2265.40		100.02	

R/V "DR. FRIDTJOF NANSEN" PROJECT:IG PROJECT STATION: 725
 DATE:10/ 5/05 GEAR TYPE: BT No:16 POSITION:Lat N 526
 start stop duration Long E 7
 TIME :17:24:35 17:54:22 30 (min) Purpose code: 3
 LOG :2028.79 2030.13 1.32 Area code : 2
 FDEPTH: 231 221 GearCond.code:
 BDEPTH: 231 221 Validity code:
 Towing dir: 236ø Wire out: 650 m Speed: 30 kn*10
 Sorted: 53 Kg Total catch: 2204.61 CATCH/HOUR: 4409.22

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Hypoclydonia bella	2899.20	134640	65.75	
Squatina oculata	485.60	280	11.01	
Heptanchias perlo	425.60	240	9.65	
Parasudis fraser-bruenneri	112.80	5640	2.56	
Chlorophthalmus atlanticus	74.40	2160	1.69	
Lophius vaillanti	58.40	80	1.32	
Trigla lyra	55.20	360	1.25	
Parapenaeus longirostris	55.20	5280	1.25	
Umbrina canariensis	51.60	120	1.17	
Brotula barbata	51.60	120	1.17	
Priacanthus arenatus	43.20	760	0.98	
Zenopsis conchifer	33.32	12	0.76	
Synagrops microlepis	14.40	1440	0.33	
Lepidotrigla cadmani	13.20	120	0.30	
Ijimaia loppei	8.08	4	0.18	
Peristedion cataphractum *	7.20	240	0.16	
Gephyroberyx darwini	7.20	240	0.16	
ALLOPOCEPHALIDAE	4.80	960	0.11	
Scyliorhinus canicula	4.02	2	0.09	
Parapandalus narval	1.20	240	0.03	
Monolele microstoma	1.20	120	0.03	
Antigonia capros	1.20	120	0.03	
Plesionika martia	0.60	120	0.01	
Total	4409.22		99.99	

R/V "DR. FRIDTJOF NANSEN" PROJECT:IG PROJECT STATION: 726
 DATE:10/ 5/05 GEAR TYPE: PT No: 5 POSITION:Lat N 527
 start stop duration Long E 9
 TIME :20:24:32 20:54:24 30 (min) Purpose code: 1
 LOG :2046.81 2048.31 1.50 Area code : 2
 FDEPTH: 0 0 GearCond.code:
 BDEPTH: 42 46 Validity code:
 Towing dir: 190ø Wire out: 150 m Speed: 30 kn*10
 Sorted: 34 Kg Total catch: 195.25 CATCH/HOUR: 390.50

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Engraulis encrasicolus	254.00	60324	65.04	3128
Sardinella aurita	35.90	2340	9.19	3130
Decapterus punctatus	35.80	3750	9.17	3131
Lagocephalus laevigatus	22.00	58	5.63	
Selar crumenophthalmus	12.76	54	3.27	
Brachydeuterus auritus	11.80	210	3.02	3129
Sphyraena guachancho	5.78	12	1.48	
Alloteuthis africana	3.90	1380	1.00	
Euthynnus alletteratus	2.90	80	0.74	
Scomberomorus tritor	2.54	6	0.65	
Scomber japonicus	2.22	12	0.57	
Priacanthus arenatus	0.46	2	0.12	
Sardinella maderensis	0.44	2	0.11	
Total	390.50		99.99	

R/V "DR. FRIDTJOF NANSEN" PROJECT:IG PROJECT STATION: 727
 DATE:11/ 5/05 GEAR TYPE: BT No:17 POSITION:Lat N 512
 start stop duration Long E 13
 TIME :01:06:41 01:36:28 30 (min) Purpose code: 3
 LOG :2070.36 2071.65 1.28 Area code : 2
 FDEPTH: 108 105 GearCond.code:
 BDEPTH: 108 105 Validity code:
 Towing dir: 220ø Wire out: 315 m Speed: 30 kn*10
 Sorted: 37 Kg Total catch: 1450.44 CATCH/HOUR: 2900.88

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Priacanthus arenatus	2211.20	183440	76.23	
Torpedo torpedo	137.60	80	4.74	
Dentex congoensis	105.60	2960	3.64	
OPHEM01	81.60	80	2.81	
Scomber japonicus	77.60	320	2.68	
Scorpaena scrofa	75.20	80	2.59	
Dentex gibbosus	66.40	160	2.29	
Umbrina canariensis	33.60	80	1.16	
Pagrus caeruleostictus	21.60	80	0.74	
Scorpaena normani	20.00	80	0.69	
Raja miraletus	16.80	160	0.58	
Pythonichthys microphthalmus	9.60	80	0.33	
Boops boops	8.80	160	0.30	
Microchirus sp.	7.20	16	0.25	
Chelidonicthys gabonensis	6.48	720	0.22	
Sepia officinalis hierredda	4.80	80	0.17	
Uranoscopus polli	4.00	80	0.14	
NETTASTOMATIDAE	4.00	400	0.14	
Microchirus frechkopi	4.00	80	0.14	
Pagellus bellottii	2.40	240	0.08	
Citharus linguatula	1.60	80	0.06	
Antigonia capros	0.80	160	0.03	
Total	2900.88		100.01	

R/V "DR. FRIDTJOF NANSEN" PROJECT:IG PROJECT STATION: 728
 DATE:12/ 5/05 GEAR TYPE: PT No: 5 POSITION:Lat N 513
 start stop duration Long W 26
 TIME :02:44:34 03:14:20 30 (min) Purpose code: 1
 LOG :2198.86 2200.92 2.06 Area code : 2
 FDEPTH: 0 0 GearCond.code:
 BDEPTH: 37 47 Validity code:
 Towing dir: 141ø Wire out: 160 m Speed: 40 kn*10
 Sorted: 66 Kg Total catch: 75.07 CATCH/HOUR: 150.14

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Sardinella aurita	66.80	2560	44.49	3133
Decapterus punctatus	57.36	1736	38.20	3132
Trachurus trecae	22.66	96	15.09	3134
Lagocephalus laevigatus	1.36	4	0.91	
Sardinella maderensis	0.96	8	0.64	
Sphyraena sphyraena	0.50	2	0.33	
Trachinotus ovatus	0.50	2	0.33	
Total	150.14		99.99	

R/V "DR. FRIDTJOF NANSEN" PROJECT:IG PROJECT STATION: 729
 DATE:12/ 5/05 GEAR TYPE: BT No:16 POSITION:Lat N 517
 start stop duration Long W 16
 TIME :06:01:10 06:32:02 31 (min) Purpose code: 3
 LOG :2222.73 2224.24 1.51 Area code : 2
 FDEPTH: 59 59 GearCond.code:
 BDEPTH: 59 59 Validity code:
 Towing dir: 225ø Wire out: 200 m Speed: 30 kn*10
 Sorted: 34 Kg Total catch: 2010.45 CATCH/HOUR: 3891.19

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Brachydeuterus auritus	1740.89	29897	44.74	3135
Lagocephalus laevigatus	1449.64	3751	37.25	
Trachurus trecae	336.48	4523	8.65	
Brotula barbata	178.72	110	4.59	
Boops boops	41.92	1434	1.08	
Priacanthus arenatus	34.20	331	0.88	
Pagrus caeruleostictus	22.06	221	0.57	
Fistularia petimba	18.66	54	0.48	
Pseudupeneus prayensis	15.45	110	0.40	
Pomadasyus incisus	14.34	110	0.37	
Dentex congoensis	13.24	993	0.34	
Sphyraena guachancho	11.42	17	0.29	
Squatina oculata	10.84	2	0.28	
Pagellus bellottii	2.21	110	0.06	
Octopus vulgaris	1.12	2	0.03	
Total	3891.19		100.01	

R/V "DR. FRIDTJOF NANSEN" PROJECT:IG PROJECT STATION: 730
 DATE:12/ 5/05 GEAR TYPE: BT No:16 POSITION:Lat N 519
 start stop duration Long W 19
 TIME :07:25:13 07:56:01 31 (min) Purpose code: 3
 LOG :2230.09 2231.65 1.56 Area code : 2
 FDEPTH: 41 41 GearCond.code:
 BDEPTH: 41 41 Validity code:
 Towing dir: 39ø Wire out: 150 m Speed: 30 kn*10
 Sorted: 55 Kg Total catch: 54.77 CATCH/HOUR: 106.01

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Decapterus punctatus	43.94	2071	41.45	3139
Lagocephalus laevigatus	12.97	31	12.23	
Pagrus caeruleostictus	12.97	155	12.23	3136
Sardinella aurita	9.21	346	8.69	3137
Alloteuthis africana	6.04	1829	5.70	
Pagellus bellottii	6.02	70	5.68	3138
Acantharus monroviae	2.42	2	2.28	
Leptocharias smithii	2.09	2	1.97	
Pseudupeneus prayensis	1.99	19	1.88	
Sepia officinalis hierredda	1.88	4	1.77	
Selar crumenophthalmus	1.45	4	1.37	
Fistularia petimba	1.34	4	1.26	
Selene dorsalis	1.03	2	0.97	
Epinephelus aeneus	0.87	2	0.82	
Paronchellius stauchi	0.50	75	0.47	
Lutjanus fulgens	0.31	2	0.29	
Syacium micrurum	0.25	8	0.24	
Scorpaena scrofa	0.23	2	0.22	
Chromis chromis	0.23	27	0.22	
Lepidotrigla carolae	0.17	2	0.16	
Boops boops	0.06	2	0.06	
Synodus synodus	0.04	2	0.04	
Total	106.01		100.00	

R/V "DR. FRIDTJOF NANSEN" PROJECT:IG PROJECT STATION: 731
 DATE:12/ 5/05 GEAR TYPE: BT No:16 POSITION:Lat N 525
 start stop duration Long W 20
 TIME :09:01:58 09:31:19 29 (min) Purpose code: 3
 LOG :2239.78 2241.20 1.41 Area code : 2
 FDEPTH: 23 25 GearCond.code:
 BDEPTH: 23 25 Validity code:
 Towing dir: 220ø Wire out: 100 m Speed: 30 kn*10
 Sorted: 90 Kg Total catch: 90.51 CATCH/HOUR: 187.26

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Chloroscombrus chrysurus	51.97	722	27.75	3141
Dentex canariensis	25.70	110	13.72	3143
Elops lacerta	21.81	50	11.65	
Pagrus caeruleostictus	20.94	203	11.18	3144
Pseudupeneus prayensis	7.30	112	3.90	3140
Alectis alexandrinus	6.41	8	3.42	
Selene dorsalis	6.25	19	3.34	
Ephippion guttifer	5.57	4	2.97	
Lethrinus atlanticus	5.30	19	2.83	
Sphyraena sphyraena	3.77	12	2.01	
Drepane africana	3.21	8	1.71	
Aluterus heudelotii	2.73	8	1.46	
Fistularia petimba	2.32	12	1.24	
Pseudotolithus typus	2.01	2	1.07	
Acanthostracion quadricornis	1.78	10	0.95	
Sphyraena guachancho	1.76	2	0.94	
Decapterus punctatus	1.72	497	0.92	3142
Lagocephalus laevisgatus	1.72	4	0.92	
Priacanthus arenatus	1.57	10	0.84	
Chaetodon robustus	1.53	37	0.82	
Uraspis helvola	1.51	2	0.81	
Paronchelius stauchi	1.51	246	0.81	
Chaetodipterus goreensis	1.49	4	0.80	
Scorpaena scrofa	1.30	4	0.69	
Raja miraletus	1.01	2	0.54	
Balistes capricus	0.93	2	0.50	
Rypticus saponaceus	0.68	6	0.36	
Syacium micrum	0.68	8	0.36	
Dactylopterus volitans	0.58	2	0.31	
Lutjanus fulgens	0.52	10	0.28	
Chilomycterus spinosus mauret.	0.46	2	0.25	
Sardinella aurita	0.41	10	0.22	
Torpedo torpedo	0.37	2	0.20	
Stephanolepis hispidus	0.21	2	0.11	
Pomadasys incisus	0.12	2	0.06	
Pagellus bellottii	0.08	2	0.04	
Brachydeuterus auritus	0.04	17	0.02	
Total	187.27		100.00	

R/V "DR. FRIDTJOF NANSEN" PROJECT:IG PROJECT STATION: 732
 DATE:12/ 5/05 GEAR TYPE: BT No:16 POSITION:Lat N 516
 start stop duration Long W 36
 TIME :11:56:54 12:26:39 30 (min) Purpose code: 3
 LOG :2258.27 2259.78 1.50 Area code : 2
 FDEPTH: 22 22 GearCond.code:
 BDEPTH: 22 22 Validity code:
 Towing dir: 220ø Wire out: 100 m Speed: 30 kn*10
 Sorted: 150 Kg Total catch: 150.11 CATCH/HOUR: 300.22

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Chloroscombrus chrysurus	84.42	1224	28.12	3149
Engraulis encrasicolus	55.36	21352	18.44	3152
Brachydeuterus auritus	49.92	5664	15.96	3147
Selene dorsalis	20.32	80	6.77	
Sardinella aurita	19.28	2408	6.42	3146
Pagrus caeruleostictus	19.12	66	6.37	3145
Sphyraena sphyraena	11.60	304	3.86	3151
Dentex canariensis	11.04	96	3.68	3150
Lethrinus atlanticus	9.84	20	3.28	3148
Ephippion guttifer	9.68	4	3.22	
Alectis alexandrinus	4.36	12	1.45	
Caranx senegalus	1.92	8	0.64	
Galeoides decadactylus	1.36	4	0.45	
Acanthostracion quadricornis	1.20	8	0.40	
Fistularia tabacaria	0.80	8	0.27	
Chaetodipterus goreensis	0.68	2	0.23	
Cynoglossus senegalensis	0.64	2	0.21	
Pseudupeneus prayensis	0.50	2	0.17	
Chaetodon robustus	0.18	4	0.06	
Total	300.22		100.00	

R/V "DR. FRIDTJOF NANSEN" PROJECT:IG PROJECT STATION: 733
 DATE:12/ 5/05 GEAR TYPE: BT No:16 POSITION:Lat N 513
 start stop duration Long W 34
 TIME :13:15:48 13:45:40 30 (min) Purpose code: 3
 LOG :2263.81 2265.33 1.51 Area code : 2
 FDEPTH: 29 30 GearCond.code:
 BDEPTH: 29 30 Validity code:
 Towing dir: 238ø Wire out: 133 m Speed: 30 kn*10
 Sorted: Kg Total catch: 47.02 CATCH/HOUR: 94.04

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Dentex canariensis	31.40	124	33.39	3157
Pseudupeneus prayensis	12.58	120	13.38	
Lutjanus fulgens	10.46	46	11.12	3155
Pagrus caeruleostictus	6.52	72	6.93	3154
Lethrinus atlanticus	3.76	12	4.00	
Sphyraena sphyraena	3.62	12	3.85	
Bodianus speciosus	2.24	2	2.38	
Alectis alexandrinus	2.06	6	2.19	
Lagocephalus laevisgatus	2.00	4	2.13	
Sardinella aurita	1.82	50	1.94	3156
Aluterus monoceros	1.78	2	1.89	
Apsilus fuscus	1.76	32	1.87	
Pagellus bellottii	1.60	2	1.70	
Priacanthus arenatus	1.60	2	1.70	
Didon holocanthus	1.56	4	1.66	
Chloroscombrus chrysurus	1.52	16	1.62	
Scorpaena angolensis	1.22	2	1.30	
Chaetodipterus goreensis	1.20	4	1.28	
Dactylopterus volitans	0.90	2	0.96	
Pomadasys incisus	0.80	6	0.85	
Brachydeuterus auritus	0.64	36	0.68	3153
Acanthurus monroviae	0.60	2	0.64	
Stephanolepis hispidus	0.56	4	0.60	
Balistes punctatus	0.54	4	0.57	
Fistularia petimba	0.44	4	0.47	
Rypticus saponaceus	0.36	2	0.38	
Chaetodon robustus	0.26	6	0.28	
Trachurus trecae	0.24	2	0.26	
Total	94.04		100.02	

R/V "DR. FRIDTJOF NANSEN" PROJECT:IG PROJECT STATION: 734
 DATE:12/ 5/05 GEAR TYPE: BT No:16 POSITION:Lat N 506
 start stop duration Long W 32
 TIME :14:51:56 15:21:45 30 (min) Purpose code: 3
 LOG :2273.31 2274.78 1.44 Area code : 2
 FDEPTH: 45 45 GearCond.code:
 BDEPTH: 45 45 Validity code:
 Towing dir: 235ø Wire out: 166 m Speed: 30 kn*10
 Sorted: Kg Total catch: 78.81 CATCH/HOUR: 157.62

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Pseudupeneus prayensis	42.52	602	26.98	3164
Pagellus bellottii	22.96	300	14.57	3160
Decapterus punctatus	16.50	568	10.47	3161
Dentex canariensis	10.36	28	6.57	3159
Fistularia petimba	9.44	60	5.99	
Bodianus speciosus	8.28	4	5.25	
Sepia officinalis hierredda	7.88	30	5.00	
Pagrus caeruleostictus	7.08	128	4.49	3163
Dactylopterus volitans	6.40	30	4.06	
Lutjanus fulgens	5.34	20	3.39	3162
Sardinella aurita	5.00	102	3.17	3158
Priacanthus arenatus	2.70	14	1.71	
Epinephelus aeneus	2.56	2	1.62	
Alloteuthis africana	2.52	144	1.60	
Sphyraena guachancho	1.42	2	0.90	
Zeus faber	1.18	2	0.75	
Lagocephalus laevisgatus	1.02	2	0.65	
Sphyraena sphyraena	0.92	4	0.58	
Syacium micrum	0.68	14	0.43	
Aulostomus strigosus	0.50	2	0.32	
Chaetodon robustus	0.42	12	0.27	
Cephalopholis taeniops	0.40	12	0.25	
Apsilus fuscus	0.38	8	0.24	
Chloroscombrus chrysurus	0.28	4	0.18	
Boops boops	0.22	22	0.14	
Aluterus heudelotii	0.22	2	0.14	
Coris julis	0.22	2	0.14	
Antennarius sp.	0.14	2	0.09	
Chaetodon marcellae	0.08	2	0.05	
Total	157.62		100.00	

R/V "DR. FRIDTJOF NANSEN" PROJECT:IG PROJECT STATION: 735
 DATE:12/ 5/05 GEAR TYPE: BT No:16 POSITION:Lat N 500
 start stop duration Long W 29
 TIME :16:30:02 17:00:09 30 (min) Purpose code: 3
 LOG :2281.97 2283.47 1.57 Area code : 2
 FDEPTH: 65 65 GearCond.code:
 BDEPTH: 65 65 Validity code:
 Towing dir: 236ø Wire out: 207 m Speed: 30 kn*10
 Sorted: Kg Total catch: 227.82 CATCH/HOUR: 455.64

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Chromis cadenati	214.76	3234	47.13	
Pomadasys incisus	92.40	1050	20.28	
Pseudupeneus prayensis	63.42	910	13.92	3165
Dentex gibbosus	20.28	60	4.45	
Fistularia petimba	17.36	60	3.81	
Bodianus speciosus	17.22	14	3.78	
Pagrus caeruleostictus	6.76	30	1.48	
Scorpaena scrofa	5.84	10	1.28	
Epinephelus aeneus	5.34	6	1.17	
Dentex canariensis	3.32	14	0.73	
Pagellus bellottii	2.96	32	0.55	3166
Apsilus fuscus	1.80	44	0.40	
Lutjanus fulgens	1.18	2	0.26	
Sepia officinalis hierredda	1.18	2	0.26	
Dactylopterus volitans	1.00	2	0.22	
Coris julis	0.40	6	0.09	
Sargocentron hastatus	0.34	2	0.07	
Chaetodon marcellae	0.08	2	0.02	
Total	455.64		100.00	

R/V "DR. FRIDTJOF NANSEN" PROJECT:IG PROJECT STATION: 736
 DATE:12/ 5/05 GEAR TYPE: BT No:16 POSITION:Lat N 458
 start stop duration Long W 29
 TIME :17:47:08 18:19:12 32 (min) Purpose code: 3
 LOG :2288.73 2290.21 1.48 Area code : 2
 FDEPTH: 93 93 GearCond.code:
 BDEPTH: 93 93 Validity code:
 Towing dir: 240ø Wire out: 300 m Speed: 29 kn*10
 Sorted: 28 Kg Total catch: 227.31 CATCH/HOUR: 426.21

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Priacanthus arenatus	199.13	4973	46.72	
Dentex angolensis	80.44	525	18.87	3168
Fistularia petimba	66.11	122	15.51	
Dentex congoensis	25.09	765	5.89	3167
Squatina oculata	16.31	6	3.83	
Sepia officinalis hierredda	16.28	17	3.82	
Ariomma bondi	6.75	113	1.58	
Lepidotrigla carolae	3.26	45	0.76	
Brotula barbata	2.72	2	0.64	
Trachurus trachurus	1.91	45	0.45	
Torpedo torpedo	1.84	2	0.43	
Antigonia capros	1.69	2	0.40	
Citharus linguatula	1.58	45	0.37	
Raja miraletus	1.03	2	0.24	
Lagocephalus laevisgatus	0.90	2	0.21	
Zeus faber	0.84	4	0.20	
Pagellus bellottii	0.34	34	0.08	
Total	426.22		100.00	

R/V "DR. FRIDTJOF NANSEN" PROJECT:IG PROJECT STATION: 737
 DATE:12/ 5/05 GEAR TYPE: BT No: 5 POSITION:Lat N 507
 start stop duration Long E 42
 TIME :21:44:47 22:14:26 30 (min) Purpose code: 1
 LOG :2312.89 2314.58 1.68 Area code : 2
 FDEPTH: 0 0 GearCond.code:
 BDEPTH: 32 33 Validity code:
 Towing dir: 174ø Wire out: 150 m Speed: 32 kn*10
 Sorted: 58 Kg Total catch: 58.97 CATCH/HOUR: 117.94

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Decapterus punctatus	73.06	4932	61.95	3170
Sardinella aurita	15.96	1022	13.53	3171
Selar crumenophthalmus	14.40	62	12.21	3172
Engraulis encrasicolus	6.20	1354	5.26	3169
Sphyraena guachancho	2.86	8	2.42	
Scomberomorus tritor	2.38	2	2.02	
Dactylopterus volitans	0.92	4	0.78	
Brachydeuterus auritus	0.86	14	0.73	
Sepia officinalis hierredda	0.70	2	0.59	
Sardinella maderensis	0.40	6	0.34	
Alloteuthis africana	0.14	184	0.12	
Saurida brasiliensis	0.06	66	0.05	
Total	117.94		100.00	

R/V "DR. FRIDTJOF NANSEN" PROJECT:IG PROJECT STATION: 738
 DATE:13/ 5/05 GEAR TYPE: BT No:16 POSITION:Lat N 446
 start stop duration Long W 39
 TIME :04:18:15 04:48:12 30 (min) Purpose code: 3
 LOG :2369.36 2370.68 1.31 Area code : 2
 FDEPTH: 107 111 GearCond.code:
 BDEPTH: 107 111 Validity code:
 Towing dir: 225ø Wire out: 331 m Speed: 30 kn*10
 Sorted: 27 Kg Total catch: 1478.47 CATCH/HOUR: 2956.94

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Priacanthus arenatus	2104.40	220330	71.17	
Boops boops	372.80	10120	12.61	
Antigonia capros	306.90	14080	10.38	
Trigla lyra	59.40	2090	2.01	
Dentex congogensis	50.60	2200	1.71	
Trachinus armatus	17.60	330	0.60	
Gephyroberyx darwini	17.60	110	0.60	
Umbrina canariensis	6.60	220	0.22	
NETTASTOMATIDAE	6.60	220	0.22	
Sepia officinalis hierredda	4.40	220	0.15	
Erotula barbata	3.64	2	0.12	
Scomber japonicus	2.90	220	0.10	
Raja miraletus	2.30	4	0.08	
Aulopus cadenati	1.10	110	0.04	
Total	2956.84		100.01	

R/V "DR. FRIDTJOF NANSEN" PROJECT:IG PROJECT STATION: 739
 DATE:13/ 5/05 GEAR TYPE: BT No:16 POSITION:Lat N 442
 start stop duration Long W 45
 TIME :06:06:15 06:39:36 33 (min) Purpose code: 3
 LOG :2376.98 2378.51 1.51 Area code : 2
 FDEPTH: 100 100 GearCond.code:
 BDEPTH: 100 100 Validity code:
 Towing dir: 225ø Wire out: 329 m Speed: 30 kn*10
 Sorted: 26 Kg Total catch: 151.83 CATCH/HOUR: 276.05

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Dentex angolensis	101.45	509	36.75	3173
Umbrina canariensis	50.00	191	18.11	3175
Squatina oculata	26.76	9	9.69	
Lepidotrigla carolae	22.55	291	8.17	
Dentex congogensis	18.45	245	6.68	3174
Sphoeroides pachgaster	14.18	64	5.14	
Fistularia petimba	11.35	44	4.11	
Dentex canariensis	10.73	18	3.89	
Anthias anthias	4.64	418	1.68	
Dentex gibbosus	4.09	9	1.48	
Sepia officinalis hierredda	3.71	5	1.34	
Pagellus bellottii	3.00	27	1.09	
Zeus faber	2.27	18	0.82	
Raja miraletus	2.15	5	0.78	
Antigonia capros	0.73	27	0.26	
Total	276.06		99.99	

R/V "DR. FRIDTJOF NANSEN" PROJECT:IG PROJECT STATION: 740
 DATE:13/ 5/05 GEAR TYPE: BT No:16 POSITION:Lat N 444
 start stop duration Long W 47
 TIME :07:27:45 07:57:32 30 (min) Purpose code: 3
 LOG :2382.16 2383.69 1.53 Area code : 2
 FDEPTH: 69 71 GearCond.code:
 BDEPTH: 69 71 Validity code:
 Towing dir: 50ø Wire out: 230 m Speed: 32 kn*10
 Sorted: 36 Kg Total catch: 744.07 CATCH/HOUR: 1488.14

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Chromis chromis	508.20	7308	34.15	
Decapterus punctatus	326.76	10416	21.96	3177
Boops boops	187.32	5040	12.59	3178
Sardinella aurita	168.42	4914	11.32	3176
Priacanthus arenatus	72.66	462	4.88	
Pseudupeneus prayvensis	35.28	462	2.37	
Apsilus fuscus	29.20	140	1.96	
Sepia officinalis hierredda	29.00	22	1.95	
Leptocharias smithii	22.56	20	1.52	
Fistularia petimba	17.24	60	1.16	
Dentex canariensis	13.54	32	0.91	
Dentex gibbosus	10.36	18	0.70	
Chaetodon robustus	9.24	84	0.62	
Pagrus caeruleostictus	7.82	34	0.53	
Scomber japonicus	7.56	84	0.51	
Epinephelus aeneus	7.36	4	0.49	
Zeus faber	7.00	8	0.47	
Trachurus trachurus	6.30	84	0.42	
Dactylopterus volitans	5.88	42	0.40	
Anthias anthias	4.20	42	0.28	
Chaetodon marcellae	3.78	42	0.25	
Raja miraletus	2.90	6	0.19	
Lutjanus fulgens	2.04	4	0.14	
Scorpaena scrofa	1.94	2	0.13	
Pagellus bellottii	0.78	8	0.05	
Sphyraena guachancho	0.52	2	0.03	
Coris julis	0.28	2	0.02	
Total	1488.14		100.00	

R/V "DR. FRIDTJOF NANSEN" PROJECT:IG PROJECT STATION: 741
 DATE:13/ 5/05 GEAR TYPE: BT No:16 POSITION:Lat N 451
 start stop duration Long W 48
 TIME :09:06:25 09:38:13 32 (min) Purpose code: 3
 LOG :2391.41 2392.93 1.49 Area code : 2
 FDEPTH: 49 46 GearCond.code:
 BDEPTH: 49 46 Validity code:
 Towing dir: 240ø Wire out: 200 m Speed: 30 kn*10
 Sorted: 31 Kg Total catch: 277.99 CATCH/HOUR: 521.23

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Pomadasyus incisus	363.94	2826	69.82	3182
Pseudupeneus prayvensis	39.51	309	7.58	3183
Acanthurus monroviae	18.49	26	3.55	
Dentex canariensis	16.86	49	3.23	3180
Decapterus rhonchus	13.63	36	2.61	
Priacanthus arenatus	12.81	56	2.46	
Pagrus caeruleostictus	12.51	53	2.40	3179
Pagellus bellottii	10.73	99	2.06	3181
Fistularia petimba	9.75	39	1.87	
Lutjanus fulgens	6.94	11	1.33	
Epinephelus aeneus	5.10	4	0.98	
Apsilus fuscus	5.06	15	0.97	
Decapterus punctatus	4.63	69	0.89	
Dentex gibbosus	1.28	4	0.25	
Total	521.24		100.00	

R/V "DR. FRIDTJOF NANSEN" PROJECT:IG PROJECT STATION: 742
 DATE:13/ 5/05 GEAR TYPE: BT No:16 POSITION:Lat N 456
 start stop duration Long W 45
 TIME :11:15:57 11:45:18 29 (min) Purpose code: 3
 LOG :2399.83 2401.35 1.51 Area code : 2
 FDEPTH: 38 39 GearCond.code:
 BDEPTH: 38 39 Validity code:
 Towing dir: 70ø Wire out: 150 m Speed: 29 kn*10
 Sorted: Kg Total catch: 258.46 CATCH/HOUR: 534.74

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Decapterus punctatus	251.26	6902	46.99	3186
Sardinella aurita	114.37	1572	21.39	3184
Pagellus bellottii	102.12	993	19.10	3185
Pagellus bogaraveo	29.96	149	5.60	
Dactylopterus volitans	10.43	33	1.95	
Dentex canariensis	7.45	17	1.39	
Epinephelus aeneus	4.82	2	0.90	
Leptocharias smithii	4.57	2	0.85	
Fistularia petimba	4.30	17	0.80	
Sepia officinalis hierredda	4.14	17	0.77	
Chelidonicichthys gabonensis	1.32	17	0.25	
Total	534.74		99.99	

R/V "DR. FRIDTJOF NANSEN" PROJECT:IG PROJECT STATION: 743
 DATE:13/ 5/05 GEAR TYPE: BT No:16 POSITION:Lat N 503
 start stop duration Long W 52
 TIME :13:02:30 13:32:17 30 (min) Purpose code: 3
 LOG :2409.56 2410.97 1.41 Area code : 2
 FDEPTH: 30 30 GearCond.code:
 BDEPTH: 30 30 Validity code:
 Towing dir: 230ø Wire out: 152 m Speed: 30 kn*10
 Sorted: Kg Total catch: 255.24 CATCH/HOUR: 510.48

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
J E L L Y F I S H	458.40	48	89.80	
Brachydeuterus auritus	21.72	1744	4.25	3187
Sepia off. h. eggs	18.60	46500	3.64	
Pagellus bellottii	2.36	12	0.46	
Lagocephalus laevis	2.18	4	0.43	
Sardinella aurita	2.16	24	0.42	
Sepia officinalis hierredda	1.82	2	0.36	
Pomadasyus jubelini	1.32	12	0.26	
Fistularia petimba	1.28	6	0.25	
Uranoscopus polli	0.52	2	0.10	
Lutjanus goreensis	0.12	12	0.02	
Total	510.48		99.99	

R/V "DR. FRIDTJOF NANSEN" PROJECT:IG PROJECT STATION: 744
 DATE:13/ 5/05 GEAR TYPE: BT No:16 POSITION:Lat N 508
 start stop duration Long W 54
 TIME :14:53:32 15:23:34 30 (min) Purpose code: 3
 LOG :2418.15 2419.71 1.55 Area code : 2
 FDEPTH: 21 22 GearCond.code:
 BDEPTH: 21 22 Validity code:
 Towing dir: 250ø Wire out: 105 m Speed: 30 kn*10
 Sorted: Kg Total catch: 275.55 CATCH/HOUR: 551.10

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
J E L L Y F I S H	456.00	148	82.74	
Cymbium cymbium	26.40	2	4.79	
Chloroscombrus chrysurus	21.20	282	3.85	3190
Engraulis encrasicolus	18.76	2816	3.40	3188
Brachydeuterus auritus	10.60	6492	1.92	3191
Sardinella aurita	10.52	1232	1.91	3189
Sphyræna sphyræna	1.94	6	0.35	
Sepia officinalis hierredda	1.68	4	0.30	
Sphyræna guachancho	1.60	2	0.29	
Decapterus punctatus	0.92	24	0.17	
Galeoides decadactylus	0.60	10	0.11	
Caranx crysos	0.46	2	0.08	
Dentex canariensis	0.20	4	0.04	
Acanthostracion quadricornis	0.12	2	0.02	
Pagrus caeruleostictus	0.10	2	0.02	
Total	551.10		99.99	

R/V "DR. FRIDTJOF NANSEN" PROJECT:IG PROJECT STATION: 745
 DATE:13/ 5/05 GEAR TYPE: PT No: 7 POSITION:Lat N 504
 start stop duration Long W 103
 TIME :18:48:00 19:18:05 30 (min) Purpose code: 1
 LOG :2431.91 2433.58 1.66 Area code : 2
 FDEPTH: 5 5 GearCond.code:
 BDEPTH: 26 23 Validity code:
 Towing dir: 340ø Wire out: 150 m Speed: 32 kn*10
 Sorted: 5 Kg Total catch: 5.92 CATCH/HOUR: 11.84

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Brachydeuterus auritus	5.42	256	45.78	3194
Chloroscombrus chrysurus	3.60	38	30.41	3192
Engraulis encrasicolus	2.32	1636	19.59	3193
Sphyræna guachancho	0.32	2	2.70	
Galeoides decadactylus	0.16	4	1.35	
Sardinella aurita	0.02	6	0.17	
Total	11.84		100.00	

R/V "DR. FRIDTJOF NANSEN" PROJECT:IG PROJECT STATION: 746
 DATE:13/ 5/05 GEAR TYPE: PT No: 5 POSITION:Lat N 445
 start stop duration Long E 55
 TIME :21:57:07 22:27:31 30 (min) Purpose code: 1
 LOG :2456.56 2458.37 1.78 Area code : 2
 FDEPTH: 0 0 GearCond.code:
 BDEPTH: 46 51 Validity code:
 Towing dir: 170ø Wire out: 150 m Speed: 33 kn*10
 Sorted: 3 Kg Total catch: 3.61 CATCH/HOUR: 7.22

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Decapterus punctatus	5.48	80	75.90	3195
Sardinella aurita	1.74	28	24.10	
Total	7.22		100.00	

R/V "DR. FRIDTJOF NANSEN" PROJECT:IG PROJECT STATION: 747
 DATE:14/ 5/05 GEAR TYPE: BT No:16 POSITION:Lat N 427
 start stop duration Long W 102
 TIME :06:01:50 06:32:23 31 (min) Purpose code: 3
 LOG :2518.07 2519.99 1.91 Area code : 2
 FDEPTH: 71 70 GearCond.code:
 BDEPTH: 71 70 Validity code:
 Towing dir: 53ø Wire out: 245 m Speed: 30 kn*10
 Sorted: 58 Kg Total catch: 58.46 CATCH/HOUR: 113.15

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Chromis chromis	39.14	497	34.59	
Fistularia petimba	15.60	83	13.79	
Dactylopterus volitans	14.94	128	13.20	
Sepia officinalis hierredda	7.01	8	6.20	
Pseudupeneus prayensis	6.79	50	6.00	3196
Pagrus caeruleostictus	4.20	17	3.71	
Dentex canariensis	3.50	10	3.09	
Mustelus mustelus	3.35	2	2.96	
Lutjanus fulgens	3.02	6	2.67	
Lepidotrigla carolae	2.46	25	2.17	
Raja miraletus	2.40	6	2.12	
Cephalopholis taeniops	2.07	2	1.83	
Trachinocephalus myops	1.65	8	1.46	
Pagellus bellottii	1.59	15	1.41	
Priacanthus arenatus	1.55	10	1.37	
Sphoeroides pachgaster	1.49	10	1.32	
Apsilus fuscus	1.34	4	1.18	
Chaetodon hoefleri	0.37	2	0.33	
Sargocentron hastatus	0.29	2	0.26	
Chaetodon robustus	0.27	2	0.24	
Anthias anthias	0.14	2	0.12	
Total	113.17		100.02	

R/V "DR. FRIDTJOF NANSEN" PROJECT:IG PROJECT STATION: 748
 DATE:14/ 5/05 GEAR TYPE: BT No:16 POSITION:Lat N 434
 start stop duration Long W 104
 TIME :07:44:07 08:15:07 31 (min) Purpose code: 3
 LOG :2527.73 2529.24 1.51 Area code : 2
 FDEPTH: 56 58 GearCond.code:
 BDEPTH: 56 58 Validity code:
 Towing dir: 240ø Wire out: 200 m Speed: 31 kn*10
 Sorted: 90 Kg Total catch: 90.39 CATCH/HOUR: 174.95

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Pseudupeneus prayensis	52.84	401	30.20	3198
Apsilus fuscus	24.27	137	13.87	
Pagellus bellottii	19.05	147	10.89	3197
Priacanthus arenatus	14.98	95	8.56	3199
Acanthorus monroviae	9.04	15	5.17	
Chromis chromis	7.97	110	4.56	
Fistularia petimba	7.01	50	4.01	
Caranx crysos	6.56	25	3.75	
Dactylopterus volitans	5.88	37	3.36	
HOLTHUROIDEA	5.85	2	3.34	
Pagrus caeruleostictus	5.61	21	3.21	
Dentex canariensis	4.01	10	2.29	
Sepia officinalis hierredda	2.75	6	1.57	
Dentex gibbosus	2.11	4	1.21	
Zeus faber	1.37	2	0.78	
Lagocephalus laevigatus	1.22	2	0.70	
Trachinocephalus myops	1.18	2	0.67	
Raja miraletus	0.77	2	0.44	
Aluterus monoceros	0.58	2	0.33	
Sargocentron hastatus	0.45	4	0.26	
Coris julis	0.43	2	0.25	
Lepidotrigla carolae	0.33	4	0.19	
Lepidotrigla cadmani	0.29	4	0.17	
Syacium micrurus	0.19	2	0.11	
Anthias anthias	0.12	2	0.07	
Chaetodon robustus	0.10	2	0.06	
Total	174.96		100.02	

R/V "DR. FRIDTJOF NANSEN" PROJECT:IG PROJECT STATION: 749
 DATE:14/ 5/05 GEAR TYPE: BT No:16 POSITION:Lat N 442
 start stop duration Long W 107
 TIME :09:38:10 10:08:18 30 (min) Purpose code: 3
 LOG :2539.57 2541.00 1.42 Area code : 2
 FDEPTH: 47 46 GearCond.code:
 BDEPTH: 47 46 Validity code:
 Towing dir: 314ø Wire out: 180 m Speed: 30 kn*10
 Sorted: 20 Kg Total catch: 20.01 CATCH/HOUR: 40.02

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Dactylopterus volitans	8.82	30	22.04	
Pagellus bellottii	6.66	178	16.64	3201
Syacium micrurus	3.62	42	9.05	
Pagrus caeruleostictus	3.24	128	8.10	3200
Pseudupeneus prayensis	2.88	24	7.20	
Sepia officinalis hierredda	2.52	4	6.30	
Decapterus rhonchus	2.36	6	5.90	
Fistularia petimba	2.12	12	5.30	
Aluterus monoceros	1.92	2	4.80	
Caranx crysos	1.78	4	4.45	
Lagocephalus laevigatus	1.62	6	4.05	
Apsilus fuscus	1.14	4	2.85	
Raja miraletus	1.00	2	2.50	
Sargocentron hastatus	0.32	12	0.80	
Bothus podas africanus	0.02	2	0.05	
Total	40.02		100.03	

R/V "DR. FRIDTJOF NANSEN" PROJECT:IG PROJECT STATION: 750
 DATE:14/ 5/05 GEAR TYPE: BT No:16 POSITION:Lat N 455
 start stop duration Long W 113
 TIME :11:53:43 12:23:35 30 (min) Purpose code: 3
 LOG :2555.62 2557.16 1.54 Area code : 2
 FDEPTH: 34 34 GearCond.code:
 BDEPTH: 34 34 Validity code:
 Towing dir: 77ø Wire out: 181 m Speed: 30 kn*10
 Sorted: Kg Total catch: 26.77 CATCH/HOUR: 53.54

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Sepia officinalis hierredda	20.88	20	39.00	
Lagocephalus laevigatus	11.02	26	20.58	
Cymbium cymbium	7.70	4	14.38	
Pagellus bellottii	5.32	52	9.94	3202
Caranx crysos	4.30	12	8.03	
Dactylopterus volitans	1.56	4	2.91	
Fistularia petimba	1.44	10	2.69	
Sphyræna guachancho	0.42	2	0.78	
Chlamys purpuratus	0.38	36	0.71	
Pagrus caeruleostictus	0.36	12	0.67	
Syacium micrurus	0.10	2	0.19	
Decapterus punctatus	0.04	6	0.07	
Bothus podas africanus	0.02	2	0.04	
Total	53.54		99.99	

R/V "DR. FRIDTJOF NANSEN" PROJECT:IG PROJECT STATION: 751
 DATE:14/ 5/05 GEAR TYPE: BT No:16 POSITION:Lat N 501
 start stop duration Long W 114
 TIME :13:52:43 14:22:49 30 (min) Purpose code: 3
 LOG :2564.11 2565.67 1.55 Area code : 2
 FDEPTH: 25 25 GearCond.code:
 BDEPTH: 25 25 Validity code:
 Towing dir: 255ø Wire out: 127 m Speed: 30 kn*10
 Sorted: Kg Total catch: 20.87 CATCH/HOUR: 41.74

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Brachydeuterus auritus	17.08	6120	40.92	3203
Alectis alexandrinus	13.88	4	33.25	
J E L L Y F I S H	9.00	20	21.56	
Dactylopterus volitans	0.42	2	1.01	
Chloroscombrus chrysurus	0.40	4	0.96	
Alloteuthis africana	0.32	132	0.77	
Decapterus punctatus	0.28	22	0.67	
Trachurus trecae	0.24	2	0.57	
Synodus saurus	0.10	2	0.24	
Pagellus bellottii	0.02	4	0.05	
Total	41.74		100.00	

R/V "DR. FRIDTJOF NANSEN" PROJECT:IG PROJECT STATION: 752
 DATE:14/ 5/05 GEAR TYPE: BT No:16 POSITION:Lat N 502
 start stop duration Long W 121
 TIME :15:58:17 16:28:13 30 (min) Purpose code: 3
 LOG :2573.36 2574.78 1.41 Area code : 2
 FDEPTH: 20 20 GearCond.code:
 BDEPTH: 20 20 Validity code:
 Towing dir: 80° Wire out: 123 m Speed: 30 kn*10

Sorted: Kg Total catch: 171.42 CATCH/HOUR: 342.84

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Brachydeuterus auritus	58.20	3820	16.98	3204
Chlamys purpuratus	55.90	4020	16.30	
Sphyræna guachancho	39.92	436	11.64	3207
J E L L Y F I S H	32.10	40	9.36	
Chloroscombrus chrysurus	25.60	4110	7.47	3205
Pseudotolithus senegalensis	25.18	34	7.34	3210
Pseudotolithus brachygnathus	18.08	2	5.27	
Sepia officinalis hierredda	17.80	80	5.19	
Galeoides decadactylus	15.40	210	4.49	3209
Ilisha africana	10.90	860	3.18	3208
Scomberomus tritor	9.80	100	2.86	
Selene dorsalis	7.70	80	2.25	
Ephippium guttifer	5.18	4	1.51	
Alectis alexandrinus	3.60	270	1.05	3206
Stromateus fiatola	3.48	6	1.02	
Pomadourus incisus	3.10	30	0.90	
Echidna pelli	3.04	2	0.89	
Pseudupeneus prayensis	1.90	50	0.55	
Pteroscion pelli	1.00	60	0.29	
Trachinocephalus myops	0.90	20	0.26	
Pagrus caeruleostictus	0.76	30	0.22	
Elops lacerta	0.72	4	0.21	
Lagocephalus laevigatus	0.68	4	0.20	
Acanthurus monroviae	0.50	2	0.15	
Dentex canariensis	0.38	4	0.11	
Trachinus lineolatus	0.30	30	0.09	
Sargocentron hastatus	0.24	2	0.07	
Lethrinus atlanticus	0.24	2	0.07	
Squilla mantis	0.20	10	0.06	
Sardinella maderensis	0.04	2	0.01	
Total	342.84		99.99	

R/V "DR. FRIDTJOF NANSEN" PROJECT:IG PROJECT STATION: 753
 DATE:14/ 5/05 GEAR TYPE: PT No: 5 POSITION:Lat N 441
 start stop duration Long E 114
 TIME :20:56:58 21:26:09 29 (min) Purpose code: 1
 LOG :2598.32 2599.96 1.59 Area code : 2
 FDEPTH: 0 0 GearCond.code:
 BDEPTH: 48 49 Validity code:
 Towing dir: 170° Wire out: 150 m Speed: 31 kn*10

Sorted: 34 Kg Total catch: 205.08 CATCH/HOUR: 424.30

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Chloroscombrus chrysurus	249.02	2383	58.69	3211
Sardinella aurita	161.63	1266	38.09	3213
Decapterus punctatus	10.18	248	2.40	3212
Sardinella maderensis	3.48	25	0.82	
Total	424.31		100.00	

R/V "DR. FRIDTJOF NANSEN" PROJECT:IG PROJECT STATION: 754
 DATE:15/ 5/05 GEAR TYPE: BT No:16 POSITION:Lat N 417
 start stop duration Long W 120
 TIME :04:28:31 04:58:20 30 (min) Purpose code: 3
 LOG :2657.28 2658.65 1.34 Area code : 2
 FDEPTH: 224 249 GearCond.code:
 BDEPTH: 224 249 Validity code:
 Towing dir: 250° Wire out: 688 m Speed: 30 kn*10

Sorted: Kg Total catch: 235.38 CATCH/HOUR: 470.76

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Epigonus constanciae	141.84	2748	30.13	
Spicara alta	121.44	840	25.80	
Trigla lyra	40.92	288	8.69	
Squalus megalops	31.16	28	6.62	
Epinephelus goreensis	29.96	2	6.36	
Aulopus cadenati	19.68	300	4.18	
Umbrina canariensis	16.68	48	3.54	
Antigonia capros	11.88	216	2.52	
Leptocharias smithii	9.96	4	2.12	
Sphoeroides pachygaster	8.28	48	1.76	
Raja miraletus	7.56	24	1.61	
Brotula barbata	6.06	4	1.29	
Squatina oculata	4.22	2	0.90	
Priacanthus arenatus	3.96	156	0.84	
Oxynotus centrina	2.88	2	0.61	
Chascanopsetta lugubris	2.52	12	0.54	
Uranoscopus polli	2.16	12	0.46	
Dentex congoensis	1.80	12	0.36	
Peristedion cataphractum	1.68	48	0.36	
Zeus faber	1.32	12	0.28	
Paraconger notialis	1.20	12	0.25	
Zenion hololepis	1.08	60	0.23	
Parapandalus narval	0.84	444	0.18	
Aristeus varidens	0.84	36	0.18	
Nezumia aequalis	0.84	12	0.18	
Total	470.76		100.01	

R/V "DR. FRIDTJOF NANSEN" PROJECT:IG PROJECT STATION: 755
 DATE:15/ 5/05 GEAR TYPE: BT No:16 POSITION:Lat N 421
 start stop duration Long W 123
 TIME :06:06:37 06:37:38 31 (min) Purpose code: 3
 LOG :2664.68 2666.17 1.46 Area code : 2
 FDEPTH: 80 85 GearCond.code:
 BDEPTH: 80 85 Validity code:
 Towing dir: 256° Wire out: 260 m Speed: 30 kn*10

Sorted: 117 Kg Total catch: 117.44 CATCH/HOUR: 227.30

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Dentex gibbosus	87.21	217	38.37	
Boops boops	20.73	1053	9.12	
Fistularia petimba	17.88	79	7.87	
Pagellus bellottii	16.70	306	7.35	3215
Pagrus caeruleostictus	16.26	35	7.15	3216
Dentex canariensis	14.83	33	6.52	3214
Sepia officinalis hierredda	9.37	15	4.12	
Mustelus mustelus	6.83	4	3.00	
Raja miraletus	6.29	12	2.77	
Pseudupeneus prayensis	6.14	64	2.70	3217
Dactylopterus volitans	6.08	25	2.67	
Zeus faber	3.97	4	1.75	
Peristedion cataphractum	2.57	48	1.13	
Chromis chromis	2.09	21	0.92	
Raja straeleni	2.03	2	0.89	
Sphoeroides pachygaster	1.88	6	0.83	
Branchiostegus semifasciatus	1.66	2	0.73	
Sardinella aurita	1.12	43	0.49	
Decapterus punctatus	1.06	52	0.47	
Lepidotrigla carolae	0.77	8	0.34	
Lepidotrigla cadmani	0.50	10	0.22	
Priacanthus arenatus	0.43	8	0.19	
Antigonia capros	0.41	10	0.18	
Decapterus rhonchus	0.23	2	0.10	
Chaetodon marcellae	0.10	2	0.04	
Scomber japonicus	0.10	4	0.04	
Total	227.24		99.96	

R/V "DR. FRIDTJOF NANSEN" PROJECT:IG PROJECT STATION: 756
 DATE:15/ 5/05 GEAR TYPE: BT No:16 POSITION:Lat N 427
 start stop duration Long W 125
 TIME :08:22:26 08:53:07 31 (min) Purpose code: 3
 LOG :2675.28 2677.09 1.79 Area code : 2
 FDEPTH: 62 61 GearCond.code:
 BDEPTH: 62 61 Validity code:
 Towing dir: 75° Wire out: 210 m Speed: 30 kn*10

Sorted: 40 Kg Total catch: 40.53 CATCH/HOUR: 78.45

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Decapterus rhonchus	22.88	135	29.17	3218
Decapterus punctatus	8.69	207	11.08	3220
Pseudupeneus prayensis	7.70	66	9.82	3221
Fistularia petimba	6.60	50	8.41	
Dactylopterus volitans	5.81	35	7.41	
Pagrus caeruleostictus	5.52	23	7.04	
Dentex canariensis	5.25	14	6.69	
Pagellus bellottii	3.48	37	4.44	3219
Dentex gibbosus	3.45	14	4.40	
Raja miraletus	3.21	8	4.09	
Lagocephalus laevigatus	2.01	8	2.56	
Zeus faber	1.53	4	1.95	
Sardinella aurita	1.34	29	1.71	
Priacanthus arenatus	0.35	2	0.45	
Lepidotrigla carolae	0.31	4	0.40	
Trachinus armatus	0.17	2	0.22	
Trachinocephalus myops	0.15	2	0.19	
Total	78.45		100.03	

R/V "DR. FRIDTJOF NANSEN" PROJECT:IG PROJECT STATION: 757
 DATE:15/ 5/05 GEAR TYPE: BT No:16 POSITION:Lat N 442
 start stop duration Long W 129
 TIME :10:55:22 11:26:35 31 (min) Purpose code: 3
 LOG :2694.06 2695.61 1.53 Area code : 2
 FDEPTH: 46 47 GearCond.code:
 BDEPTH: 46 47 Validity code:
 Towing dir: 240° Wire out: 200 m Speed: 30 kn*10

Sorted: 77 Kg Total catch: 77.91 CATCH/HOUR: 150.79

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Pagellus bellottii	103.66	989	68.74	3222
Sepia officinalis hierredda	13.90	10	9.22	
Balistes capricus	13.32	23	8.83	
Fistularia petimba	4.80	21	3.18	
Dactylopterus volitans	4.06	15	2.69	
Syacium micrurum	3.37	37	2.23	
Pagrus caeruleostictus	3.19	25	2.12	
Aluterus monoceros	2.17	2	1.44	
Decapterus rhonchus	0.97	6	0.64	
Caranx crysos	0.95	2	0.63	
Trachinocephalus myops	0.14	2	0.09	
Trachinus armatus	0.14	2	0.09	
Bothus podas africanus	0.14	4	0.09	
Total	150.81		99.99	

R/V "DR. FRIDTJOF NANSEN" PROJECT:IG PROJECT STATION: 758
 DATE:15/ 5/05 GEAR TYPE: BT No:16 POSITION:Lat N 447
 start stop duration Long W 126
 TIME :12:50:03 13:20:12 30 (min) Purpose code: 3
 LOG :2703.95 2705.51 1.56 Area code : 2
 FDEPTH: 40 40 GearCond.code:
 BDEPTH: 40 40 Validity code:
 Towing dir: 70ø Wire out: 153 m Speed: 30 kn*10
 Sorted: 32 Kg Total catch: 367.90 CATCH/HOUR: 735.80

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP
	weight numbers		
Chlamys purpuratus	632.00	71280	85.89
Pagellus bellottii	79.32	774	10.78
Dactylopterus volitans	5.62	18	0.76
Sepia officinalis hierredda	5.20	4	0.71
Pagrus caeruleostictus	4.04	44	0.55
Chloroscombrus chrysurus	2.78	26	0.38
Pseudupeneus prayensis	2.30	22	0.31
Caranx crysos	1.98	4	0.27
Trachinocephalus myops	0.98	10	0.13
Balistes capricus	0.96	2	0.13
Syacium micrurum	0.18	10	0.02
Trachinus lineolatus	0.14	2	0.02
Xyrichtys novacula	0.12	2	0.02
Bothus podas africanus	0.08	6	0.01
Grammolites gruvelli	0.06	2	0.01
Priacanthus arenatus	0.06	2	0.01
Decapterus punctatus	0.04	2	0.01
Total	735.86	100.01	

R/V "DR. FRIDTJOF NANSEN" PROJECT:IG PROJECT STATION: 759
 DATE:15/ 5/05 GEAR TYPE: BT No:16 POSITION:Lat N 457
 start stop duration Long W 123
 TIME :14:55:57 15:25:43 30 (min) Purpose code: 3
 LOG :2716.20 2717.82 1.62 Area code : 2
 FDEPTH: 28 27 GearCond.code:
 BDEPTH: 28 27 Validity code:
 Towing dir: 270ø Wire out: 137 m Speed: 30 kn*10
 Sorted: Kg Total catch: 15.37 CATCH/HOUR: 30.74

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP
	weight numbers		
Sepia officinalis hierredda	7.08	6	23.03
J E L L Y F I S H	6.68	44	21.73
Caranx crysos	5.56	8	18.09
Sphyræna guachancho	5.06	8	16.46
Pagellus bellottii	1.58	18	5.14
Alectis alexandrinus	1.00	2	3.25
Pagrus caeruleostictus	1.00	18	3.25
Lagocephalus laevigatus	0.88	2	2.86
Dactylopterus volitans	0.64	2	2.08
Brachydeuterus auritus	0.42	12	1.37
Sardinella maderensis	0.36	8	1.17
Dentex canariensis	0.20	8	0.65
Alloteuthis africana	0.14	56	0.46
Sardinella aurita	0.14	2	0.46
Total	30.74	100.00	

R/V "DR. FRIDTJOF NANSEN" PROJECT:IG PROJECT STATION: 760
 DATE:15/ 5/05 GEAR TYPE: BT No:16 POSITION:Lat N 500
 start stop duration Long W 127
 TIME :16:26:46 16:56:32 30 (min) Purpose code: 3
 LOG :2721.95 2723.49 1.46 Area code : 2
 FDEPTH: 21 24 GearCond.code:
 BDEPTH: 21 24 Validity code:
 Towing dir: 260ø Wire out: 126 m Speed: 30 kn*10
 Sorted: Kg Total catch: 205.57 CATCH/HOUR: 411.14

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP
	weight numbers		
J E L L Y F I S H	324.16	72	78.84
Brachydeuterus auritus	40.16	17000	9.77
Chloroscombrus chrysurus	14.68	244	3.57
Pseudotolithus senegalensis	8.02	16	1.95
Trachinotus terala	7.04	2	1.71
Chlamys purpuratus	4.72	232	1.15
Sphyræna guachancho	3.36	336	0.82
Pseudotolithus brachygnathus	2.04	2	0.50
Ephippion guttifer	1.92	8	0.47
Alectis alexandrinus	1.44	8	0.35
Decapterus punctatus	0.88	64	0.21
Sepia officinalis hierredda	0.58	6	0.14
Syacium micrurum	0.56	8	0.14
Sardinella maderensis	0.40	8	0.10
Trachinocephalus myops	0.40	16	0.10
Ilisha africana	0.40	24	0.10
Pagrus caeruleostictus	0.22	12	0.05
Scomberomorus tritor	0.16	8	0.04
Total	411.14	100.01	

R/V "DR. FRIDTJOF NANSEN" PROJECT:IG PROJECT STATION: 761
 DATE:15/ 5/05 GEAR TYPE: PT No: 2 POSITION:Lat N 435
 start stop duration Long W 136
 TIME :21:45:02 22:16:31 31 (min) Purpose code: 1
 LOG :2757.29 2759.31 2.01 Area code : 2
 FDEPTH: 30 25 GearCond.code:
 BDEPTH: 57 57 Validity code:
 Towing dir: 205ø Wire out: 150 m Speed: 40 kn*10
 Sorted: 9 Kg Total catch: 9.28 CATCH/HOUR: 17.96

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP
	weight numbers		
Sardinella aurita	7.24	68	40.31
Scomber japonicus	4.30	21	23.94
Decapterus punctatus	3.27	39	18.21
Todarodes sagittatus	1.16	2	6.46
Chloroscombrus chrysurus	1.08	4	6.01
Dactylopterus volitans	0.91	4	5.07
Total	17.96	100.00	

R/V "DR. FRIDTJOF NANSEN" PROJECT:IG PROJECT STATION: 762
 DATE:16/ 5/05 GEAR TYPE: BT No:16 POSITION:Lat N 414
 start stop duration Long W 130
 TIME :01:34:31 02:04:21 30 (min) Purpose code: 3
 LOG :2785.42 2786.99 1.55 Area code : 2
 FDEPTH: 308 293 GearCond.code:
 BDEPTH: 308 293 Validity code:
 Towing dir: 85ø Wire out: 900 m Speed: 30 kn*10
 Sorted: 28 Kg Total catch: 121.39 CATCH/HOUR: 242.78

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP
	weight numbers		
Lophiodes kemp	66.24	16	27.28
Synagrops microlepis	56.56	1840	23.30
Zenion hololepis	54.40	3984	22.41
Squalus acanthias	21.14	14	8.71
Priacanthus arenatus	7.52	672	3.10
Spherooides marmoratus	6.16	40	2.54
Epigonus constanciae	6.16	120	2.54
Trigla lyra	3.68	56	1.52
Cyrtopsis roseus	3.20	240	1.32
Chloroscombrus chrysurus	3.04	40	1.25
Brachydeuterus auritus	3.04	736	1.25
Etmopterus pusillus	2.56	8	1.05
Aristeus varidens	2.12	248	0.87
Illex coindetii	2.08	8	0.86
GALATHEIDAE	1.84	104	0.76
Parapandalus narval	1.04	136	0.43
Calappa-like with spines	0.48	16	0.20
Peristedion cataphractum	0.48	40	0.20
Dibranchius atlanticus	0.40	24	0.16
Monolele microstoma	0.32	24	0.13
Cypselurus pinnatibarbatus	0.32	8	0.13
Total	242.78	100.01	

R/V "DR. FRIDTJOF NANSEN" PROJECT:IG PROJECT STATION: 763
 DATE:16/ 5/05 GEAR TYPE: BT No:16 POSITION:Lat N 423
 start stop duration Long W 143
 TIME :06:00:26 06:31:39 31 (min) Purpose code: 3
 LOG :2815.77 2817.26 1.46 Area code : 2
 FDEPTH: 78 80 GearCond.code:
 BDEPTH: 78 80 Validity code:
 Towing dir: 285ø Wire out: 261 m Speed: 30 kn*10
 Sorted: 101 Kg Total catch: 101.10 CATCH/HOUR: 195.68

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP
	weight numbers		
Boops boops	38.52	2398	19.69
Fistularia petimba	38.48	139	19.66
Dentex gibbosus	30.85	85	15.77
Decapterus punctatus	18.74	612	9.58
Dentex canariensis	17.36	46	8.87
Pagellus bellottii	12.06	178	6.16
Pseudupeneus prayensis	7.90	77	4.04
Pagrus caeruleostictus	6.60	25	3.37
Sepia officinalis hierredda	4.61	10	2.36
Decapterus rhonchus	3.97	31	2.03
Squalus megalops	2.81	2	1.44
Umbrina canariensis	2.65	12	1.35
Chromis chromis	2.52	25	1.29
Raja miraletus	2.25	6	1.15
Epinephelus aeneus	2.15	2	1.10
Dactylopterus volitans	1.45	10	0.74
Sargocentron hastatus	0.81	6	0.41
Spherooides pachygaster	0.79	4	0.40
Zeus faber	0.75	2	0.38
Anthias squamipinnis	0.21	12	0.11
Lepidotrigla carolae	0.17	2	0.09
Lepidotrigla cadmani	0.04	2	0.02
Total	195.69	100.01	

R/V "DR. FRIDTJOF NANSEN" PROJECT:IG PROJECT STATION: 764
 DATE:16/ 5/05 GEAR TYPE: BT No:16 POSITION:Lat N 432
 start stop duration Long W 145
 TIME :07:51:24 08:21:24 30 (min) Purpose code: 3
 LOG :2826.82 2828.21 1.37 Area code : 2
 FDEPTH: 60 61 GearCond.code:
 BDEPTH: 60 61 Validity code:
 Towing dir: 280ø Wire out: 210 m Speed: 29 kn*10
 Sorted: 34 Kg Total catch: 34.06 CATCH/HOUR: 68.12

SPECIES	CATCH/HOUR	% OF TOT. C	SAMP
	weight numbers		
Sardinella aurita	14.30	152	20.99
Sepia officinalis hierredda	11.54	24	16.94
Pseudupeneus prayensis	8.40	90	12.33
Pagellus bellottii	5.44	58	7.99
Decapterus punctatus	4.98	146	7.31
Decapterus rhonchus	4.28	34	6.28
Dactylopterus volitans	3.84	18	5.64
Fistularia petimba	3.38	18	4.96
Pagrus caeruleostictus	2.58	28	3.79
Dentex canariensis	2.48	10	3.64
Trichurus lepturus	1.80	4	2.64
Zeus faber	1.64	4	2.41
Dentex gibbosus	1.40	6	2.06
Priacanthus arenatus	0.70	6	1.03
Lagocephalus laevigatus	0.66	2	0.97
Alloteuthis africana	0.36	240	0.53
Syacium micrurum	0.20	12	0.29
Citharus linguatula	0.06	2	0.09
Chaetodon marcellae	0.04	2	0.06
Grammolites gruvelli	0.04	2	0.06
Total	68.12	100.01	

R/V "DR. FRIDTJOF NANSEN" PROJECT:IG PROJECT STATION: 765
 DATE:16/ 5/05 GEAR TYPE: BT No:16 POSITION:Lat N 442
 start stop duration Long W 150
 TIME :09:44:56 10:14:46 30 (min) Purpose code: 3
 LOG :2839.34 2840.71 1.36 Area code : 2
 FDEPTH: 47 47 GearCond.code:
 BDEPTH: 47 47 Validity code:
 Towing dir: 260° Wire out: 200 m Speed: 30 kn*10

Sorted: 24 Kg Total catch: 439.19 CATCH/HOUR: 878.38

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Selene dorsalis	355.20	962	40.44	3242
Brachydeuterus auritus	190.92	28970	21.74	3243
Sphyræna guachancho	134.68	296	15.33	
Raja miraletus	48.84	110	5.56	
Galeoides decadactylus	35.88	74	4.08	
Grammolites gruvelli	28.12	1258	3.20	
Pagellus bellottii	18.50	672	2.11	
Pagrus caeruleostictus	10.72	110	1.22	
Chloroscombrus chrysurus	10.36	110	1.18	
Epinephelus aeneus	8.88	36	1.01	
Perulibatrachus rossignoli	6.66	36	0.76	
Torpedo torpedo	6.28	74	0.71	
Cynoglossus senegalensis	5.92	74	0.67	
Citharus linguatula	4.44	258	0.51	
Pegusa lascaris	4.06	36	0.46	
Saurida brasiliensis	3.70	1072	0.42	
Syacium micrurum	3.34	370	0.38	
Dentex canariensis	1.48	36	0.17	
Gobius sp.	0.36	110	0.04	
Total	878.34		99.99	

R/V "DR. FRIDTJOF NANSEN" PROJECT:IG PROJECT STATION: 766
 DATE:16/ 5/05 GEAR TYPE: BT No:16 POSITION:Lat N 445
 start stop duration Long W 151
 TIME :10:59:49 11:29:03 29 (min) Purpose code: 3
 LOG :2843.97 2845.49 1.51 Area code : 2
 FDEPTH: 36 36 GearCond.code:
 BDEPTH: 36 36 Validity code:
 Towing dir: 60° Wire out: 180 m Speed: 30 kn*10

Sorted: 82 Kg Total catch: 371.80 CATCH/HOUR: 769.24

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Galeoides decadactylus	262.74	745	34.16	3244
Brachydeuterus auritus	252.68	9561	32.85	3245
Selene dorsalis	90.87	261	11.81	3246
Elops lacerta	71.23	149	9.26	
Sphyræna guachancho	49.34	168	6.41	
Penæus notialis	9.12	306	1.19	
Engraulis encrasicolus	7.82	1628	1.02	3247
Pseudotolithus typus	7.72	19	1.00	
Drepane africana	5.11	19	0.66	
Sepia officinalis hierredda	3.72	8	0.48	
Pomadasy jubelini	3.06	8	0.40	
Chloroscombrus chrysurus	1.68	8	0.22	
Trichurus lepturus	1.49	19	0.19	
Torpedo torpedo	1.12	19	0.15	
Pagrus caeruleostictus	0.83	27	0.11	
Sardinella maderensis	0.27	19	0.04	
Pagellus bellottii	0.21	8	0.03	
Ethmalosa fimbriata	0.19	8	0.02	
Total	769.20		100.00	

R/V "DR. FRIDTJOF NANSEN" PROJECT:IG PROJECT STATION: 767
 DATE:16/ 5/05 GEAR TYPE: BT No:16 POSITION:Lat N 447
 start stop duration Long W 151
 TIME :12:39:30 13:09:16 30 (min) Purpose code: 3
 LOG :2850.05 2851.51 1.46 Area code : 2
 FDEPTH: 29 29 GearCond.code:
 BDEPTH: 29 29 Validity code:
 Towing dir: 67° Wire out: 136 m Speed: 30 kn*10

Sorted: Kg Total catch: 54.31 CATCH/HOUR: 108.62

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Brachydeuterus auritus	35.56	1230	32.74	
Galeoides decadactylus	19.80	144	18.23	3254
Sphyræna guachancho	10.60	260	9.76	3252
Selene dorsalis	9.34	276	8.60	3249
Pomadasy incisus	8.20	168	7.55	3253
J E L L Y F I S H	5.04	68	4.64	
Pseudotolithus senegalensis	4.12	8	3.79	
Chloroscombrus chrysurus	2.78	250	2.56	3251
Sardinella maderensis	2.64	154	2.43	3250
Epinephelus aeneus	1.98	2	1.82	
Drepane africana	1.70	12	1.57	
Sepia officinalis hierredda	1.66	8	1.53	
Penæus notialis	1.08	40	0.99	
Trichurus lepturus	1.00	6	0.92	
Selar crumenophthalmus	0.70	2	0.64	
Ilisha africana	0.54	26	0.50	3248
Lagocephalus laevigatus	0.44	2	0.41	
Scomberomorus tritor	0.30	4	0.28	
Pagrus caeruleostictus	0.28	12	0.26	
Eucinostomus melanopterus	0.20	4	0.18	
Pomadasy peroteti	0.16	2	0.15	
Pteroscion pelli	0.16	6	0.15	
Squilla aculeata calmani	0.14	6	0.13	
Alloteuthis africana	0.12	44	0.11	
Perulibatrachus elminensis	0.02	2	0.02	
Scyllarides sp.	0.02	10	0.02	
Grammolites gruvelli	0.02	4	0.02	
Sicyonia sp.	0.02	6	0.02	
Total	108.62		100.02	

R/V "DR. FRIDTJOF NANSEN" PROJECT:IG PROJECT STATION: 768
 DATE:16/ 5/05 GEAR TYPE: BT No:16 POSITION:Lat N 449
 start stop duration Long W 149
 TIME :15:34:57 16:04:46 30 (min) Purpose code: 3
 LOG :2857.83 2859.50 1.66 Area code : 2
 FDEPTH: 23 23 GearCond.code:
 BDEPTH: 23 23 Validity code:
 Towing dir: 255° Wire out: 116 m Speed: 30 kn*10

Sorted: 31 Kg Total catch: 124.37 CATCH/HOUR: 248.74

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
J E L L Y F I S H	54.90	450	22.07	
Trichurus lepturus	22.98	462	9.24	3259
Ilisha africana	21.18	2670	8.51	3257
Brachydeuterus auritus	19.62	3924	7.89	3260
Cynoponticus ferox	16.28	12	6.54	
Scomberomorus tritor	16.14	330	6.49	
Sphyræna guachancho	15.48	112	6.22	3256
Pomadasy peroteti	14.16	26	5.69	
Chloroscombrus chrysurus	12.30	1614	4.94	3261
Pseudotolithus senegalensis	9.00	84	3.62	
Selene dorsalis	8.76	120	3.52	3258
Sardinella maderensis	8.70	576	3.50	3255
Pseudotolithus typus	5.82	12	2.34	
Myliobatis aquila	3.96	6	1.59	
Elops lacerta	3.32	262	1.33	
Galeoides decadactylus	2.98	16	1.20	
Lagocephalus laevigatus	2.32	2	0.93	
Stromateus fiatola	2.06	10	0.83	
Drepane africana	0.26	2	0.10	
Ethmalosa fimbriata	0.24	2	0.10	
Squilla aculeata calmani	0.06	2	0.02	
Total	248.74		99.97	

R/V "DR. FRIDTJOF NANSEN" PROJECT:IG PROJECT STATION: 769
 DATE:16/ 5/05 GEAR TYPE: BT No: 5 POSITION:Lat N 429
 start stop duration Long E 157
 TIME :20:09:25 20:42:00 33 (min) Purpose code: 1
 LOG :2882.51 2884.17 1.65 Area code : 2
 FDEPTH: 79 0 GearCond.code:
 BDEPTH: 79 86 Validity code:
 Towing dir: 180° Wire out: 150 m Speed: 31 kn*10

Sorted: 8 Kg Total catch: 7.77 CATCH/HOUR: 14.13

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Sardinella aurita	8.36	122	59.16	3262
Ariomma bondi	3.02	67	21.37	
Scomber japonicus	1.58	11	11.18	
Trachurus trecae	0.76	16	5.38	
Priacanthus arenatus	0.24	2	1.70	
Exocoetus volitans	0.16	87	1.13	
Total	14.12		99.92	

R/V "DR. FRIDTJOF NANSEN" PROJECT:IG PROJECT STATION: 770
 DATE:17/ 5/05 GEAR TYPE: BT No:16 POSITION:Lat N 425
 start stop duration Long W 208
 TIME :02:14:22 02:44:10 30 (min) Purpose code: 3
 LOG :2927.67 2929.24 1.57 Area code : 2
 FDEPTH: 265 281 GearCond.code:
 BDEPTH: 265 281 Validity code:
 Towing dir: 105° Wire out: 799 m Speed: 30 kn*10

Sorted: 93 Kg Total catch: 99.94 CATCH/HOUR: 199.88

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Aulopus cadenati	34.88	192	17.45	
Merluccius polli	26.32	64	13.17	
Chlorophthalmus atlanticus	25.84	928	12.93	
Priacanthus arenatus	19.68	3896	9.85	
Perestedium cataphractum *	12.88	344	6.44	
Raja clavata	11.28	16	5.64	
Dentex angolensis	10.88	16	5.44	
Squalus acanthias	10.80	8	5.40	
Chascanopsetta lugubris	10.64	72	5.32	
Illex coindetii	8.00	56	4.00	
Spherooides marmoratus	5.84	56	2.92	
Trigla lyra	5.04	16	2.52	
Aristeus varidens	4.88	336	2.44	
Pontinus accraensis	3.44	56	1.72	
SQUALIDAE	2.28	18	1.14	
Laemonema laureysi	2.00	64	1.00	
Chelidonichthys gabonensis	1.84	16	0.92	
Hypoclydonia bella	0.88	8	0.44	
Cynoponticus ferox	0.80	24	0.40	
Nezumia aequalis	0.56	24	0.28	
Photichthys argenteus	0.32	24	0.16	
Zenion hololepis	0.24	16	0.12	
CHIROSTYLIDAE	0.24	16	0.12	
Calappa pelli	0.16	8	0.08	
Monolele microstoma	0.16	8	0.08	
Total	199.88		99.98	

R/V "DR. FRIDTJOF NANSEN" PROJECT:IG PROJECT STATION: 771
 DATE:18/ 5/05 GEAR TYPE: BT No:17 POSITION:Lat N 446
 start stop duration Long W 210
 TIME :12:35:46 13:05:33 30 (min) Purpose code: 3
 LOG :2975.30 2976.89 1.59 Area code : 2
 FDEPTH: 28 28 GearCond.code: 2
 BDEPTH: 28 28 Validity code:
 Towing dir: 110ø Wire out: 131 m Speed: 30 kn*10
 Sorted: 24 Kg Total catch: 101.79 CATCH/HOUR: 203.58

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Brachydeuterus auritus	48.60	3480	23.87	3268
Elops lacerta	32.36	98	15.90	
Sphyraena guachancho	23.84	122	11.71	3266
J E L Y F I S H	15.20	96	7.47	
Pseudotolithus senegalensis	14.64	48	7.19	3263
Pseudotolithus typus	13.56	28	6.66	
Drepane africana	10.64	24	5.23	
Dasyatis margarita	9.04	10	4.44	
Cynoponticus ferox	7.32	4	3.60	
Galeoides decadactylus	5.28	20	2.59	
Selene dorsalis	4.28	160	2.10	3267
Pteroscion pelli	3.92	116	1.93	
Pomadasy jubelini	3.16	8	1.55	
Pomadasy peroteti	2.04	12	1.00	
Ilisha africana	1.96	132	0.96	3264
Chloroscombrus chrysurus	1.56	240	0.77	3265
Scomberomorus tritor	1.00	16	0.49	
Portunus validus	0.84	2	0.41	
Sepia officinalis hierredda	0.68	32	0.33	
Parapanaeus longirostris	0.62	50	0.30	
Perulibatrachus elminensis	0.62	6	0.30	
Trichiurus lepturus	0.44	36	0.22	
Cynoglossus senegalensis	0.42	4	0.21	
Penaeus notialis	0.36	10	0.18	
Torpedo nobiliana	0.32	2	0.16	
Sardinella aurita	0.28	16	0.14	
Pisodonophis semicinctus	0.28	4	0.14	
Squilla mantis	0.20	8	0.10	
Callinectes pallidus	0.12	12	0.06	
Total	203.58		100.01	

R/V "DR. FRIDTJOF NANSEN" PROJECT:IG PROJECT STATION: 772
 DATE:18/ 5/05 GEAR TYPE: BT No:17 POSITION:Lat N 441
 start stop duration Long W 208
 TIME :13:56:05 14:26:08 30 (min) Purpose code: 3
 LOG :2982.42 2984.03 1.61 Area code : 2
 FDEPTH: 45 46 GearCond.code: 2
 BDEPTH: 45 46 Validity code:
 Towing dir: 120ø Wire out: 166 m Speed: 30 kn*10
 Sorted: 37 Kg Total catch: 434.58 CATCH/HOUR: 869.16

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Brachydeuterus auritus	486.20	18434	55.94	3272
Engraulis encrasicolus	102.96	45292	11.85	3270
Selene dorsalis	27.56	364	3.17	
Pagellus bellottii	27.30	104	3.14	
Sphyraena guachancho	23.64	64	2.72	3269
Grammolites gruvelli	22.36	1820	2.57	
Pseudotolithus senegalensis	22.16	46	2.55	3271
Chloroscombrus chrysurus	19.76	286	2.27	
Galeoides decadactylus	16.12	52	1.85	
Penaeus notialis	13.26	468	1.53	
Cymbium cymbium	13.04	28	1.50	
Pomadasy peroteti	13.04	34	1.50	
Trachinocephalus myops	11.18	338	1.29	
Citharus linguatula	10.92	702	1.26	
Alectis alexandrinus	9.62	26	1.11	
Pagrus caeruleostictus	9.62	26	1.11	
Dicologlossa cuneata	5.98	52	0.69	
Sepia officinalis hierredda	5.20	26	0.60	
Sardinella maderensis	3.90	104	0.45	
Cynoglossus senegalensis	3.90	26	0.45	
Gobius sp	3.38	806	0.39	
Torpedo torpedo	2.98	4	0.34	
Lutjanus fulgens	2.50	10	0.29	
Octopus vulgaris	2.32	4	0.27	
Syaciium micrurum	1.82	364	0.21	
Pomadasy incisus	1.56	16	0.18	
Pomadasy jubelini	1.54	4	0.18	
Pseudotolithus epipercus	1.32	4	0.15	
Portunus validus	0.90	2	0.10	
Brotula barbata	0.78	26	0.09	
Scyllarides herklotsii	0.78	260	0.09	
Perulibatrachus elminensis	0.78	26	0.09	
Alloteuthis africana	0.52	234	0.06	
Drepane africana	0.26	26	0.03	
Total	869.16		100.02	

R/V "DR. FRIDTJOF NANSEN" PROJECT:IG PROJECT STATION: 773
 DATE:18/ 5/05 GEAR TYPE: BT No:17 POSITION:Lat N 441
 start stop duration Long W 208
 TIME :16:57:05 17:27:08 30 (min) Purpose code: 3
 LOG :2995.82 2997.34 1.61 Area code : 2
 FDEPTH: 85 85 GearCond.code: 2
 BDEPTH: 85 85 Validity code:
 Towing dir: 120ø Wire out: 277 m Speed: 30 kn*10
 Sorted: 27 Kg Total catch: 122.88 CATCH/HOUR: 245.76

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Boops boops	86.88	2520	35.35	3277
Decapterus rhonchus	55.04	2584	22.40	3275
Pagellus bellottii	28.08	1016	11.43	3273
Dentex angolensis	19.28	184	7.85	3276
Squatina oculata	13.24	2	5.39	
Sardinella aurita	12.48	168	2.64	3274
Scomber japonicus	5.84	96	2.38	
Zenion hololepis	4.72	24	1.92	
Umbrina canariensis	4.00	32	1.63	
Fistularia petimba	3.72	16	1.51	
Raja miraletus	3.52	8	1.43	
Scorpaena scrofa	3.16	6	1.29	
Octopus vulgaris	2.62	2	1.07	
Sepia officinalis hierredda	2.26	6	0.92	
Syaciium micrurum	2.24	96	0.91	
Brotula barbata	1.88	2	0.76	
Chelidonichthys gabonensis	1.84	80	0.75	
Priacanthus arenatus	0.48	16	0.20	
Dicologlossa hexophthalma	0.32	8	0.13	
Sphoeroides marmoratus	0.16	8	0.07	
Total	245.76		100.03	

R/V "DR. FRIDTJOF NANSEN" PROJECT:IG PROJECT STATION: 774
 DATE:18/ 5/05 GEAR TYPE: PT No: 5 POSITION:Lat N 445
 start stop duration Long E 217
 TIME :21:39:15 22:15:42 36 (min) Purpose code: 1
 LOG :3031.09 3032.91 1.80 Area code : 2
 FDEPTH: 0 0 GearCond.code: 2
 BDEPTH: 53 60 Validity code:
 Towing dir: 228ø Wire out: 180 m Speed: 31 kn*10
 Sorted: 32 Kg Total catch: 32.89 CATCH/HOUR: 54.82

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Scomberomorus tritor	13.18	7	24.04	
Engraulis encrasicolus	9.92	2553	18.10	3279
Brachydeuterus auritus	8.95	232	16.33	3278
Chloroscombrus chrysurus	7.57	78	13.81	3280
Selene dorsalis	5.23	25	9.54	
Sardinella aurita	3.33	27	6.07	
Sphyraena guachancho	2.43	8	4.43	
Alloteuthis africana	2.02	2493	3.68	
Sardinella maderensis	1.25	25	2.28	
Selar crumenophthalmus	0.70	3	1.28	
Echeneis naucrates	0.23	2	0.42	
Total	54.81		99.98	

R/V "DR. FRIDTJOF NANSEN" PROJECT:IG PROJECT STATION: 775
 DATE:19/ 5/05 GEAR TYPE: BT No:17 POSITION:Lat N 435
 start stop duration Long W 231
 TIME :00:55:12 01:25:10 30 (min) Purpose code: 3
 LOG :3052.04 3053.68 1.62 Area code : 2
 FDEPTH: 259 250 GearCond.code: 2
 BDEPTH: 259 250 Validity code:
 Towing dir: 105ø Wire out: 789 m Speed: 31 kn*10
 Sorted: Kg Total catch: 170.92 CATCH/HOUR: 341.84

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Merluccius polli	115.80	216	33.88	
Lophiodes kempi	55.08	18	16.11	
Squalus megalops	28.72	22	8.40	
Parasudis fraser-bruenneri	24.12	1242	7.06	
Oxymorus centrina	18.72	4	5.48	
Ijimaia loppei	13.98	6	4.09	
Chelidonichthys gabonensis	11.04	102	3.23	
Squatina oculata	10.24	28	3.00	
Peristedion cataphractum	10.08	228	2.95	
Sphoeroides marmoratus	9.00	54	2.63	
Chascanopsetta lugubris	7.80	66	2.28	
Illex coindetii	7.32	36	2.14	
Scyllorhinus cervigoni	6.42	84	1.88	
NETTASTOMATIDAE	5.28	120	1.54	
Bembrops greyi	5.16	42	1.51	
Uranoscopus albesca	3.00	12	0.88	
Zenion longipinnis	2.10	468	0.61	
Raja straeleni	1.74	12	0.51	
Nezumia aequalis	1.50	36	0.44	
Etmopterus spinax	1.38	12	0.40	
Aristeus varidens	1.26	156	0.37	
Brotula barbata	0.72	18	0.21	
Octopus vulgaris	0.54	6	0.16	
Photichthys argenteus	0.42	66	0.12	
Priacanthus arenatus	0.18	18	0.05	
Monolene microstoma	0.12	12	0.04	
Cyrtopsis roseus	0.12	6	0.04	
Total	341.84		100.01	

R/V "DR. FRIDTJOF NANSEN" PROJECT:IG PROJECT STATION: 776
 DATE:19/ 5/05 GEAR TYPE: BT No:17 POSITION:Lat N 446
 start stop duration Long W 227
 TIME :05:00:09 05:00:40 9 (min) Purpose code: 3
 LOG :3073.33 3073.79 0.46 Area code : 2
 FDEPTH: 57 58 GearCond.code: 8
 BDEPTH: 57 58 Validity code: 9
 Towing dir: 110ø Wire out: 265 m Speed: 30 kn*10
 Sorted: Kg Total catch: CATCH/HOUR:

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

R/V "DR. FRIDTJOF NANSEN" PROJECT:IG PROJECT STATION: 777
 DATE:19/ 5/05 GEAR TYPE: BT No:16 POSITION:Lat N 451
 start stop duration Long W 225
 TIME :15:07:52 15:37:47 30 (min) Purpose code: 3
 LOG :3107.90 3109.42 1.51 Area code : 2
 FDEPTH: 39 37 GearCond.code: 2
 BDEPTH: 39 37 Validity code:
 Towing dir: 90ø Wire out: 149 m Speed: 30 kn*10
 Sorted: 31 Kg Total catch: 521.02 CATCH/HOUR: 1042.04

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Brachydeuterus auritus	463.36	84768	44.47	3284
Selene dorsalis	176.64	704	16.95	3281
Sphyraena guachancho	158.08	1024	15.17	3282
Galeoides decadactylus	107.52	832	10.32	
Engraulis encrasicolus	69.76	23264	6.69	3283
Drepane africana	22.46	82	2.16	
Chloroscombrus chrysurus	10.88	128	1.04	
Pseudotolithus senegalensis	6.68	16	0.64	
Elops lacerta	6.54	16	0.63	
Alectis alexandrinus	5.72	20	0.56	
Stromateus fiatola	4.22	8	0.40	
Pagellus bellottii	2.94	16	0.28	
Bothus podas africanus	1.28	32	0.12	
Alloteuthis africana	1.28	544	0.12	
Sardinella maderensis	0.96	192	0.09	
Citharus linguatula	0.96	64	0.09	
Dentex canariensis	0.72	8	0.07	
Pagrus caeruleostictus	0.62	10	0.06	
Psettodes belcheri	0.48	2	0.05	
Sepia officinalis hierredda	0.42	2	0.04	
Perulibatrachus elminensis	0.34	4	0.03	
Epinephelus aeneus	0.18	2	0.02	
Total	1042.04		99.99	

R/V "DR. FRIDTJOF NANSEN" PROJECT:IG PROJECT STATION: 778
 DATE:19/ 5/05 GEAR TYPE: BT No:16 POSITION:Lat N 452
 start stop duration Long W 222
 TIME :16:32:18 16:55:37 23 (min) Purpose code: 3
 LOG :3112.40 3113.65 1.21 Area code : 2
 FDEPTH: 29 26 GearCond.code:
 BDEPTH: 29 26 Validity code:
 Towing dir: 305ø Wire out: 129 m Speed: 30 kn*10
 Sorted: Kg Total catch: 86.65 CATCH/HOUR: 226.04

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Sphyræna guachancho	55.98	337	24.77	3289
Brachydeuterus auritus	43.10	2301	19.07	3288
Galeoides decadactylus	30.00	110	13.27	3290
J E L Y F I S H	16.64	102	7.36	
Pomadasy peroteti	16.59	50	7.34	
Scomberomorus tritor	15.76	177	6.97	
Pseudotolithus senegalensis	8.61	91	3.81	3291
Ilisha africana	7.25	454	3.21	3285
Selene dorsalis	3.97	183	1.76	
Dasyatis margarita	3.47	13	1.54	
Elops lacerta	3.34	8	1.48	
Chloroscombrus chrysurus	3.13	590	1.38	3286
Trachinotus teraia	3.05	3	1.35	
Pteroscion pelli	2.87	185	1.27	3287
Sepia officinalis hierredra	2.61	5	1.15	
Pomadasy jubelini	2.30	10	1.02	
Pomadasy incisus	2.19	10	0.97	
Penaeus notialis	2.17	130	0.96	
Drepane africana	1.30	8	0.58	
Cynoglossus senegalensis	1.07	10	0.47	
Sardinella maderensis	0.26	18	0.12	
Cynoponticus ferox	0.23	3	0.10	
Squilla mantis	0.16	8	0.07	
Total	226.05		100.02	

R/V "DR. FRIDTJOF NANSEN" PROJECT:IG PROJECT STATION: 779
 DATE:19/ 5/05 GEAR TYPE: PT No: 5 POSITION:Lat N 454
 start stop duration Long E 232
 TIME :18:37:15 19:07:15 30 (min) Purpose code: 1
 LOG :3126.28 3127.74 1.45 Area code : 2
 FDEPTH: 0 0 GearCond.code:
 BDEPTH: 35 35 Validity code:
 Towing dir: 110ø Wire out: 180 m Speed: 29 kn*10
 Sorted: 118 Kg Total catch: 118.64 CATCH/HOUR: 237.28

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Sphyræna guachancho	54.62	236	23.02	3292
Selene dorsalis	49.38	392	20.81	3295
Engraulis encrasicolus	33.80	11492	14.24	3293
Galeoides decadactylus	19.28	114	8.13	3294
Scomberomorus tritor	18.36	22	7.74	
Alectis alexandrinus	16.96	28	7.15	
Brachydeuterus auritus	15.68	582	6.61	3296
Sardinella maderensis	12.56	4028	5.29	3297
Pomadasy peroteti	3.06	12	1.29	
Selar crumenophthalmus	2.70	8	1.14	
Lagocephalus laevigatus	1.90	4	0.80	
Saurida brasiliensis	1.40	394	0.59	
Trachinotus ovatus	1.38	4	0.58	
Caranx crysos	1.06	2	0.45	
Trichiurus lepturus	0.96	4	0.40	
Elops lacerta	0.96	2	0.40	
Pagrus caeruleostictus	0.96	4	0.40	
Alloteuthis africana	0.96	404	0.40	
Drepane africana	0.52	2	0.22	
Pagellus bellottii	0.42	2	0.18	
Trachurus trecae	0.26	2	0.11	
Decapterus punctatus	0.10	2	0.04	
Total	237.28		99.99	

R/V "DR. FRIDTJOF NANSEN" PROJECT:IG PROJECT STATION: 780
 DATE:19/ 5/05 GEAR TYPE: PT No: 5 POSITION:Lat N 445
 start stop duration Long E 236
 TIME :20:52:40 21:21:53 29 (min) Purpose code: 1
 LOG :3140.97 3142.60 1.62 Area code : 2
 FDEPTH: 0 0 GearCond.code:
 BDEPTH: 69 73 Validity code:
 Towing dir: 203ø Wire out: 180 m Speed: 32 kn*10
 Sorted: 3 Kg Total catch: 3.67 CATCH/HOUR: 7.59

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Sardinella aurita	7.12	54	93.81	3298
Selar crumenophthalmus	0.48	4	6.32	
Total	7.60		100.13	

R/V "DR. FRIDTJOF NANSEN" PROJECT:IG PROJECT STATION: 781
 DATE:20/ 5/05 GEAR TYPE: BT No:16 POSITION:Lat N 444
 start stop duration Long W 246
 TIME :06:02:44 06:26:40 24 (min) Purpose code: 3
 LOG :3176.97 3178.27 1.29 Area code : 2
 FDEPTH: 77 76 GearCond.code:
 BDEPTH: 77 76 Validity code:
 Towing dir: 100ø Wire out: 262 m Speed: 30 kn*10
 Sorted: 52 Kg Total catch: 1686.82 CATCH/HOUR: 4217.05

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Trachurus trecae	1621.50	42550	38.45	3301
Boops boops	1262.70	37720	29.94	3299
Sardinella aurita	905.05	24380	21.46	3300
Scomber japonicus	128.80	1380	3.05	
Dentex angolensis	71.30	690	1.69	
Sphoeroides pachgaster	49.45	230	1.17	
Dentex congoensis	49.45	1610	1.17	
Pagellus bellottii	48.30	345	1.15	
Selar crumenophthalmus	24.15	115	0.57	
Dentex canariensis	19.78	55	0.47	3302
Decapterus punctatus	16.10	230	0.38	
Fistularia petimba	4.30	13	0.10	
Sphyræna sphyraena	3.73	15	0.09	
Sepia officinalis hierredra	3.45	5	0.08	
Raja miraletus	2.90	5	0.07	
Umbrina canariensis	2.33	10	0.06	
Dentex gibbosus	2.00	10	0.05	
Zeus faber	1.78	5	0.04	
Total	4217.07		99.99	

R/V "DR. FRIDTJOF NANSEN" PROJECT:IG PROJECT STATION: 782
 DATE:20/ 5/05 GEAR TYPE: BT No:16 POSITION:Lat N 451
 start stop duration Long W 245
 TIME :08:18:50 08:47:55 29 (min) Purpose code: 3
 LOG :3187.67 3189.10 1.42 Area code : 2
 FDEPTH: 59 61 GearCond.code:
 BDEPTH: 59 61 Validity code:
 Towing dir: 270ø Wire out: 200 m Speed: 30 kn*10
 Sorted: 41 Kg Total catch: 153.06 CATCH/HOUR: 316.68

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Pagellus bellottii	224.94	4850	71.03	3303
Pseudupeneus prayensis	30.43	428	9.61	3304
Priacanthus arenatus	9.02	93	2.85	
Mustelus mustelus	8.98	10	2.84	
Brachydeuterus auritus	7.26	157	2.29	
Trachurus trecae	5.59	101	1.77	
Dactylopterus volitans	5.30	37	1.67	
Dentex canariensis	4.18	37	1.32	
Chloroscombrus chrysurus	3.25	56	1.03	
Fistularia petimba	3.21	29	1.01	
Sepia officinalis hierredra	2.83	6	0.89	
Sphyræna sphyraena	2.79	8	0.88	
Octopus vulgaris	2.73	6	0.86	
Pagrus caeruleostictus	2.32	8	0.73	
Grammolites gruvelli	1.20	46	0.38	
Dentex angolensis	0.93	74	0.29	
Trachinocephalus myops	0.74	8	0.23	
Lepidotrigla carolae	0.46	19	0.15	
Raja miraletus	0.43	2	0.14	
Total	316.59		99.97	

R/V "DR. FRIDTJOF NANSEN" PROJECT:IG PROJECT STATION: 783
 DATE:20/ 5/05 GEAR TYPE: BT No:16 POSITION:Lat N 456
 start stop duration Long W 244
 TIME :09:50:54 10:20:17 29 (min) Purpose code: 3
 LOG :3195.83 3197.40 1.57 Area code : 2
 FDEPTH: 40 41 GearCond.code:
 BDEPTH: 40 41 Validity code:
 Towing dir: 280ø Wire out: 180 m Speed: 30 kn*10
 Sorted: 23 Kg Total catch: 57.00 CATCH/HOUR: 117.93

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Pagellus bellottii	73.39	780	62.23	3305
Brachydeuterus auritus	14.07	397	11.93	3307
Pseudupeneus prayensis	11.65	149	9.88	3306
Dactylopterus volitans	3.62	10	3.07	
Selene dorsalis	3.25	21	2.76	
Galeoides decadactylus	1.86	14	1.58	
Pagrus caeruleostictus	1.59	35	1.35	
Fistularia petimba	1.55	21	1.31	
Balistes capricus	1.45	14	1.23	
Syacium micrurum	1.39	103	1.18	
Sphyræna guachancho	1.14	10	0.97	
Raja miraletus	1.08	4	0.92	
Sphyræna sphyraena	0.72	4	0.61	
Citharus linguatula	0.72	31	0.61	
Dentex canariensis	0.31	10	0.26	
Grammolites gruvelli	0.10	14	0.08	
Total	117.89		99.97	

R/V "DR. FRIDTJOF NANSEN" PROJECT:IG PROJECT STATION: 784
 DATE:20/ 5/05 GEAR TYPE: BT No:16 POSITION:Lat N 459
 start stop duration Long W 246
 TIME :11:26:08 11:56:09 30 (min) Purpose code: 3
 LOG :3201.56 3203.11 1.52 Area code : 2
 FDEPTH: 28 26 GearCond.code:
 BDEPTH: 28 26 Validity code:
 Towing dir: 280ø Wire out: 150 m Speed: 30 kn*10

Sorted: Kg Total catch: 26.39 CATCH/HOUR: 52.78

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Chloroscombrus chrysurus	10.02	178	18.98	3308
J E L L Y F I S H	9.20	38	17.43	
Drepane africana	8.50	26	16.10	
Selene dorsalis	5.04	34	9.55	
Dentex canariensis	4.60	16	8.72	
Engraulis encrasicolus	4.16	3276	7.88	3310
Brachydeuterus auritus	3.36	352	6.37	3309
Pagrus caeruleostictus	2.40	6	4.55	
Sphyræna guachancho	1.84	20	3.49	
Balistes punctatus	1.42	2	2.69	
Alectis alexandrinus	0.76	6	1.44	
Caranx crysos	0.58	2	1.10	
Pagellus bellottii	0.44	6	0.83	
Sepia officinalis hierredda	0.20	126	0.38	
Stephanolepis hispidus	0.10	2	0.19	
Chaetodon robustus	0.10	2	0.19	
Sardinella maderensis	0.06	32	0.11	
Total	52.78		100.00	

R/V "DR. FRIDTJOF NANSEN" PROJECT:IG PROJECT STATION: 785
 DATE:20/ 5/05 GEAR TYPE: BT No:16 POSITION:Lat N 501
 start stop duration Long W 255
 TIME :13:12:31 13:42:22 30 (min) Purpose code: 3
 LOG :3212.00 3213.59 1.57 Area code : 2
 FDEPTH: 30 29 GearCond.code:
 BDEPTH: 30 29 Validity code:
 Towing dir: 280ø Wire out: 132 m Speed: 30 kn*10

Sorted: Kg Total catch: 128.76 CATCH/HOUR: 257.52

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
J E L L Y F I S H	67.20	540	26.10	
Engraulis encrasicolus	46.14	35136	17.92	3316
Brachydeuterus auritus	29.34	1836	11.39	3314
Galeoides decadactylus	20.94	456	8.13	3315
Selene dorsalis	18.66	90	7.25	
Pseudotolithus senegalensis	18.44	34	7.16	3313
Alectis alexandrinus	15.68	50	6.09	3311
Drepane africana	8.92	40	3.46	
Pagrus caeruleostictus	6.92	18	2.69	
Pomadasys peroteti	6.32	16	2.45	
Chaetodipterus goreensis	5.20	2	2.02	
Sphyræna guachancho	3.38	28	1.31	
Dentex angolensis	2.54	12	0.99	
Sepia officinalis hierredda	1.90	4	0.74	
Bothus podas africanus	1.50	42	0.58	
Syacium micrurum	1.14	24	0.44	
Pteroscion peli	0.96	66	0.37	
Chloroscombrus chrysurus	0.78	66	0.30	
Sardinella maderensis	0.54	270	0.21	3312
Trachinocephalus myops	0.30	6	0.12	
Trachinus lineolatus	0.30	12	0.12	
Uranoscopus polli	0.18	6	0.07	
Octopus vulgaris	0.14	2	0.05	
Penaeus kerathurus	0.10	2	0.04	
Total	257.52		100.00	

R/V "DR. FRIDTJOF NANSEN" PROJECT:IG PROJECT STATION: 786
 DATE:20/ 5/05 GEAR TYPE: BT No:16 POSITION:Lat N 501
 start stop duration Long W 306
 TIME :14:54:18 15:24:18 30 (min) Purpose code: 3
 LOG :3222.89 3224.40 1.50 Area code : 2
 FDEPTH: 43 43 GearCond.code:
 BDEPTH: 43 43 Validity code:
 Towing dir: 275ø Wire out: 165 m Speed: 30 kn*10

Sorted: Kg Total catch: 32.19 CATCH/HOUR: 64.38

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Brachydeuterus auritus	25.32	1416	39.33	3318
Pagellus bellottii	21.24	354	32.99	3317
J E L L Y F I S H	6.08	110	9.44	
Alectis alexandrinus	4.20	2	6.52	
Sepia officinalis hierredda	1.80	4	2.80	
Selene dorsalis	1.40	6	2.17	
Alloteuthis africana	0.68	284	1.06	
Sardinella maderensis	0.36	14	0.56	
Syacium micrurum	0.36	60	0.56	
Balistes capricus	0.34	4	0.53	
Dentex angolensis	0.32	4	0.50	
Grammolites gruvelli	0.30	14	0.47	
Decapterus rhonchus	0.30	6	0.47	
Galeoides decadactylus	0.28	2	0.43	
Pseudupeneus prayensis	0.26	6	0.40	
Caranx crysos	0.24	2	0.37	
Fistularia petimba	0.22	2	0.34	
Decapterus punctatus	0.18	4	0.28	
Chloroscombrus chrysurus	0.18	4	0.28	
Citharus linguatula	0.08	6	0.12	
Dicologlossa hexophthalma	0.08	2	0.12	
Priacanthus arenatus	0.06	8	0.09	
Bothus podas africanus	0.04	2	0.06	
Monochirus hispidus	0.04	2	0.06	
Hippocampus sp.	0.02	2	0.03	
Total	64.38		99.98	

R/V "DR. FRIDTJOF NANSEN" PROJECT:IG PROJECT STATION: 787
 DATE:20/ 5/05 GEAR TYPE: BT No:16 POSITION:Lat N 458
 start stop duration Long W 304
 TIME :16:25:49 16:55:35 30 (min) Purpose code: 3
 LOG :3231.38 3232.74 1.36 Area code : 2
 FDEPTH: 55 56 GearCond.code:
 BDEPTH: 55 56 Validity code:
 Towing dir: 270ø Wire out: 181 m Speed: 30 kn*10

Sorted: 33 Kg Total catch: 981.78 CATCH/HOUR: 1963.56

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Brachydeuterus auritus	1544.40	45000	78.65	3319
Chloroscombrus chrysurus	167.40	2820	8.53	3321
Pagellus bellottii	140.40	2700	7.15	3322
Dentex angolensis	34.20	180	1.74	
Trachurus trecae	18.00	300	0.92	
Selene dorsalis	15.60	60	0.79	
Pseudupeneus prayensis	15.60	180	0.79	
Priacanthus arenatus	9.00	60	0.46	
Sphyræna guachancho	7.20	42	0.37	3320
Sepia officinalis hierredda	7.00	12	0.36	
Boops boops	4.20	180	0.21	
Fistularia petimba	0.56	6	0.03	
Total	1963.56		100.00	

R/V "DR. FRIDTJOF NANSEN" PROJECT:IG PROJECT STATION: 788
 DATE:20/ 5/05 GEAR TYPE: PT No: 5 POSITION:Lat N 457
 start stop duration Long E 250
 TIME :21:47:30 22:17:10 30 (min) Purpose code: 1
 LOG :3271.54 3272.94 1.39 Area code : 2
 FDEPTH: 0 0 GearCond.code:
 BDEPTH: 42 42 Validity code:
 Towing dir: 289ø Wire out: 180 m Speed: 29 kn*10

Sorted: 47 Kg Total catch: 822.64 CATCH/HOUR: 1645.28

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Chloroscombrus chrysurus	1527.20	24886	92.82	3324
Sardinella maderensis	62.56	7728	3.80	3323
Scomberomorus tritor	20.80	18	1.26	
Trachinotus ovatus	11.04	46	0.67	
Selar crumenophthalmus	10.12	46	0.62	
Brachydeuterus auritus	6.44	92	0.39	
Sphyræna guachancho	3.90	26	0.24	
Selene dorsalis	3.22	46	0.20	
Total	1645.28		100.00	

R/V "DR. FRIDTJOF NANSEN" PROJECT:IG PROJECT STATION: 789
 DATE:21/ 5/05 GEAR TYPE: PT No: 5 POSITION:Lat N 458
 start stop duration Long W 317
 TIME :02:36:10 03:06:09 30 (min) Purpose code: 1
 LOG :3301.27 3302.66 1.38 Area code : 1
 FDEPTH: 0 0 GearCond.code:
 BDEPTH: 74 77 Validity code:
 Towing dir: 240ø Wire out: 170 m Speed: 40 kn*10

Sorted: 6 Kg Total catch: 6.37 CATCH/HOUR: 12.74

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Chloroscombrus chrysurus	4.38	64	34.38	
Sarda sarda	2.54	6	19.94	
Sardinella aurita	1.84	24	14.44	
Decapterus rhonchus	1.46	14	11.46	
Trachinotus ovatus	1.46	6	11.46	
Sardinella maderensis	0.70	4	5.49	
Scomber japonicus	0.34	2	2.67	
Stromateus fiatola	0.02	2	0.16	
Total	12.74		100.00	

R/V "DR. FRIDTJOF NANSEN" PROJECT:IG PROJECT STATION: 790
 DATE:21/ 5/05 GEAR TYPE: BT No:15 POSITION:Lat N 458
 start stop duration Long W 328
 TIME :06:00:27 06:31:19 31 (min) Purpose code: 3
 LOG :3320.77 3322.35 1.57 Area code : 1
 FDEPTH: 84 83 GearCond.code:
 BDEPTH: 84 83 Validity code:
 Towing dir: 100ø Wire out: 200 m Speed: 30 kn*10

Sorted: 31 Kg Total catch: 150.63 CATCH/HOUR: 291.54

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Dentex angolensis	147.62	1157	50.63	3325
Scomber japonicus	41.28	366	14.16	3327
Trachurus trecae	38.32	645	13.14	3326
Brotula barbata	13.05	19	4.48	
Sardinella aurita	10.45	147	3.58	
Pseudupeneus prayensis	9.06	70	3.11	
Dentex congoensis	5.13	70	1.76	
Sepia officinalis hierredda	4.63	8	1.59	
Pagellus bellottii	3.66	43	1.26	
Lepidotrigla carolae	3.14	35	1.08	
Sphyræna sphyraena	2.81	12	0.96	
Priacanthus arenatus	2.79	25	0.96	
Lepidotrigla cadmani	2.26	122	0.78	
Branchiostegus semifasciatus	1.78	2	0.61	
Dentex canariensis	1.66	4	0.57	
Fistularia petimba	1.03	8	0.35	
Uranoscopus albesca	0.87	4	0.30	
Chilomycterus spinosus mauret.	0.62	2	0.21	
Dentex gibbosus	0.60	2	0.21	
Citharus linguatula	0.43	25	0.15	
Dicologlossa hexophthalma	0.35	8	0.12	
Total	291.54		100.01	

R/V "DR. FRIDTJOF NANSEN" PROJECT:IG PROJECT STATION: 791
 DATE:21/ 5/05 GEAR TYPE: BT No:15 POSITION:Lat N 505
 start stop duration Long W 324
 TIME :09:06:47 09:28:22 22 (min) Purpose code: 3
 LOG :3333.44 3334.52 1.03 Area code : 1
 FDEPTH: 40 41 GearCond.code:
 BDEPTH: 40 41 Validity code:
 Towing dir: 280ø Wire out: 200 m Speed: 30 kn*10
 Sorted: 20 Kg Total catch: 69.68 CATCH/HOUR: 190.04

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Sea urchins (strong spines)	50.05	483	26.34	
Pagellus bellottii	40.96	450	21.55	3329
Grammolites gruvelli	15.87	892	8.35	
Pagrus caeruleostictus	13.80	46	7.26	3330
Syacium micrurum	11.45	633	6.03	
Alectis alexandrinus	9.98	14	5.25	
Alloteuthis africana	8.65	7159	4.55	
Dactylopterus volitans	7.83	33	4.12	
Dentex canariensis	7.45	25	3.92	
Selene dorsalis	5.24	19	2.76	
Citharus linguatula	3.68	205	1.94	
Brachydeuterus auritus	3.33	278	1.75	3328
Raja miraletus	2.48	5	1.30	
Eucinostomus melanopterus	1.83	55	0.96	
Sepia officinalis hierredda	1.72	11	0.91	
Epinephelus aeneus	1.39	3	0.73	
Lagocephalus laevigatus	1.06	8	0.56	
Saurida brasiliensis	1.01	128	0.53	
Fistularia petimba	0.55	3	0.29	
Penaeus notialis	0.35	5	0.18	
Serranus accraensis	0.27	41	0.14	
Lepidotrigla carolae	0.22	3	0.12	
Trachinocephalus myops	0.22	3	0.12	
Priacanthus arenatus	0.22	3	0.12	
Torpedo torpedo	0.22	3	0.12	
Aluterus heudelotii	0.08	3	0.04	
Armoglossus imperialis	0.03	3	0.02	
Monochirus hispidus	0.03	3	0.02	
Total	189.97		99.98	

R/V "DR. FRIDTJOF NANSEN" PROJECT:IG PROJECT STATION: 792
 DATE:21/ 5/05 GEAR TYPE: BT No:15 POSITION:Lat N 508
 start stop duration Long W 328
 TIME :10:22:44 10:52:24 30 (min) Purpose code: 3
 LOG :3338.81 3340.31 1.49 Area code : 1
 FDEPTH: 25 24 GearCond.code:
 BDEPTH: 25 24 Validity code:
 Towing dir: 280ø Wire out: 150 m Speed: 30 kn*10
 Sorted: 37 Kg Total catch: 196.66 CATCH/HOUR: 393.32

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Brachydeuterus auritus	231.66	33946	58.90	3331
Chloroscombrus chrysurus	39.16	516	9.96	3335
Sardinella maderensis	29.14	3234	7.41	3336
Scomberomus tritor	27.16	638	6.91	
Sphyraena quachancho	19.18	38	4.88	3334
Sphyraena juveniles	10.44	616	2.65	
Galeoides decadactylus	7.32	104	1.86	3332
Alectis alexandrinus	4.40	32	1.12	
Selene dorsalis	3.88	52	0.99	3333
Drepane africana	2.96	10	0.75	
Dactylopterus volitans	2.38	8	0.61	
Caranx senegalus	2.04	154	0.58	
Pagrus caeruleostictus	2.26	6	0.57	
Elops lacerta	1.98	6	0.50	
Pseudotolithus typus	1.88	10	0.48	
Eucinostomus melanopterus	1.42	32	0.36	
Pomadasys peroteti	1.40	4	0.36	
Pteroscion pelli	0.88	10	0.22	
Zanobatus shoeneleini	0.84	2	0.21	
Caranx senegalus	0.72	2	0.18	
Raja miraletus	0.60	2	0.15	
Trachinocephalus myops	0.54	10	0.14	
Chaetodipterus goreensis	0.48	2	0.12	
Dentex canariensis	0.30	2	0.08	
Total	393.28		99.99	

R/V "DR. FRIDTJOF NANSEN" PROJECT:IG PROJECT STATION: 793
 DATE:21/ 5/05 GEAR TYPE: BT No:15 POSITION:Lat N 509
 start stop duration Long W 341
 TIME :12:48:45 13:18:58 30 (min) Purpose code: 3
 LOG :3355.46 3357.04 1.56 Area code : 1
 FDEPTH: 26 26 GearCond.code:
 BDEPTH: 26 26 Validity code:
 Towing dir: 280ø Wire out: 129 m Speed: 30 kn*10
 Sorted: Kg Total catch: 99.11 CATCH/HOUR: 198.22

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Brachydeuterus auritus	93.84	13344	47.34	3337
Elops lacerta	25.80	60	13.02	
Sphyraena quachancho	21.52	104	10.86	3339
J E L Y F I S H	17.04	192	8.60	
Sardinella maderensis	16.80	1956	8.48	3338
Selene dorsalis	5.88	132	2.97	
Scomberomus tritor	4.44	84	2.24	
Trachinotus terala	2.54	2	1.28	
Galeoides decadactylus	2.16	84	1.09	
Drepane africana	2.04	104	1.03	
Alectis alexandrinus	1.52	6	0.77	
Penaeus notialis	0.64	24	0.32	
Caranx hippos	0.64	2	0.32	
Squilla acuelata calmani	0.60	24	0.30	
Sepia officinalis hierredda	0.50	10	0.25	
Pomadasys peroteti	0.50	4	0.25	
Calappa rubropunctata	0.46	2	0.23	
Stromateus fiatola	0.42	2	0.21	
Squilla mantis	0.36	12	0.18	
Pseudotolithus senegalensis	0.30	2	0.15	
Ethmalosa fimbriata	0.22	2	0.11	
Total	198.22		100.00	

R/V "DR. FRIDTJOF NANSEN" PROJECT:IG PROJECT STATION: 794
 DATE:21/ 5/05 GEAR TYPE: BT No:15 POSITION:Lat N 506
 start stop duration Long W 343
 TIME :14:13:45 14:43:38 30 (min) Purpose code: 3
 LOG :3361.85 3363.42 1.57 Area code : 1
 FDEPTH: 45 47 GearCond.code:
 BDEPTH: 45 47 Validity code:
 Towing dir: 100ø Wire out: 166 m Speed: 30 kn*10
 Sorted: 25 Kg Total catch: 195.63 CATCH/HOUR: 391.26

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Pomadasys peroteti	91.42	238	23.37	
Pagellus bellottii	87.08	1582	22.26	3342
Brachydeuterus auritus	40.04	1750	10.23	
Sardinella maderensis	31.22	378	7.98	3340
Pseudupeneus prayensis	28.42	406	7.26	
Sphyraena quachancho	20.72	112	5.30	
Epinephelus aeneus	17.88	6	4.57	
Alectis alexandrinus	17.20	6	4.40	
Selene dorsalis	16.94	224	4.33	3341
Octopus vulgaris	11.90	14	3.04	
Chloroscombrus chrysurus	4.76	84	1.22	
Syacium micrurum	4.34	140	1.11	
Lagocephalus laevigatus	4.06	14	1.04	
Decapterus rhonchus	3.92	140	1.00	
Dactylopterus volitans	2.80	14	0.72	
Grammolites gruvelli	2.24	196	0.57	
Dasyatis margarita	1.92	2	0.49	
Alloteuthis africana	0.98	854	0.25	
Pagrus caeruleostictus	0.84	42	0.21	
Sepia officinalis hierredda	0.74	2	0.19	
Balistes capriciscus	0.72	2	0.18	
Citharus linguatula	0.70	28	0.18	
Serranus accraensis	0.42	14	0.11	
Total	391.26		100.01	

R/V "DR. FRIDTJOF NANSEN" PROJECT:IG PROJECT STATION: 795
 DATE:21/ 5/05 GEAR TYPE: BT No:15 POSITION:Lat N 503
 start stop duration Long W 344
 TIME :15:50:11 16:20:28 30 (min) Purpose code: 3
 LOG :3368.52 3369.93 1.40 Area code : 1
 FDEPTH: 73 72 GearCond.code:
 BDEPTH: 73 72 Validity code:
 Towing dir: 277ø Wire out: 255 m Speed: 30 kn*10
 Sorted: Kg Total catch: 491.69 CATCH/HOUR: 983.38

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Decapterus rhonchus	270.60	6360	27.52	
Brachydeuterus auritus	232.20	13170	23.61	3343
Boops boops	103.50	5070	10.52	
Dentex angolensis	88.50	780	9.00	3347
Brotula barbata	54.00	120	5.49	
Sardinella aurita	46.80	750	4.76	3345
Trichichirus lepturus	42.00	360	4.27	
Dentex congoensis	36.90	1590	3.75	3344
Sepia officinalis hierredda	18.96	30	1.93	
Chelidonichthys gbonensis	15.30	780	1.56	
Sphyraena quachancho	12.90	90	1.31	
Citharus linguatula	10.50	300	1.07	
Pseudupeneus prayensis	9.90	120	1.01	
Dicologlossa hexophthalma	7.20	120	0.73	
Priacanthus arenatus	6.60	120	0.67	
Chloroscombrus chrysurus	5.70	60	0.58	
Grammolites gruvelli	5.40	120	0.55	
Monochirus hispidus	3.60	30	0.37	
Mustelus mustelus	3.36	4	0.34	
Branchiostegus semifasciatus	3.04	4	0.31	
Lagocephalus laevigatus	2.70	30	0.27	
Selene dorsalis	1.80	32	0.18	
Fistularia petimba	1.32	8	0.13	
Octopus vulgaris	0.30	2	0.03	
Pythonichthys microphthalmus	0.30	2	0.03	
Total	983.38		99.99	

R/V "DR. FRIDTJOF NANSEN" PROJECT:IG PROJECT STATION: 796
 DATE:21/ 5/05 GEAR TYPE: BT No:15 POSITION:Lat N 501
 start stop duration Long W 343
 TIME :17:11:45 17:41:41 30 (min) Purpose code: 3
 LOG :3374.17 3375.78 1.61 Area code : 1
 FDEPTH: 90 88 GearCond.code:
 BDEPTH: 90 88 Validity code:
 Towing dir: 98ø Wire out: 299 m Speed: 30 kn*10
 Sorted: 34 Kg Total catch: 906.94 CATCH/HOUR: 1813.88

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Trachurus trecae	577.20	16536	31.82	3348
Boops boops	386.88	12792	21.33	3349
Scomber japonicus	348.40	3744	19.21	3351
Sardinella aurita	172.12	2964	9.49	3350
Priacanthus arenatus	155.48	11336	8.57	3352
Brachydeuterus auritus	29.64	364	1.63	
Dentex angolensis	21.84	208	1.20	
Pentheroscion mbizi	19.76	156	1.09	
Dentex congoensis	18.72	572	1.03	
Sepia officinalis hierredda	16.96	30	0.94	
Sphoeroides pachyaster	15.60	156	0.86	
Citharus linguatula	9.36	156	0.52	
Lepidotrigla carolae	7.80	208	0.43	
Sphyraena sphyraena	7.12	28	0.39	
Zeus faber	5.44	8	0.30	
Squatina oculata	5.00	2	0.28	
Ariomma bondi	4.68	104	0.26	
Microchirus frechkopi	4.16	52	0.23	
Brotula barbata	4.14	4	0.23	
Raja miraletus	0.74	2	0.04	
Uranoscopus albesca	0.72	2	0.04	
Trichichirus lepturus	0.66	4	0.04	
Chilomycterus spinosus mauret.	0.56	2	0.03	
Fistularia petimba	0.36	2	0.02	
Uranoscopus polli	0.30	2	0.02	
Pontinus accraensis	0.24	2	0.01	
Total	1813.88		100.01	

R/V "DR. FRIDTJOF NANSEN" PROJECT:IG PROJECT STATION: 797
 DATE:22/ 5/05 GEAR TYPE: BT No: 5 POSITION:Lat N 507
 start stop duration Long E 334
 TIME :20:00:18 20:00:29 30 (min) Purpose code: 1
 LOG :3400.83 3402.31 1.46 Area code : 1
 FDEPTH: 0 0 GearCond.code:
 BDEPTH: 31 31 Validity code:
 Towing dir: 282ø Wire out: 180 m Speed: 29 kn*10
 Sorted: 40 Kg Total catch: 40.45 CATCH/HOUR: 80.90

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Sardinella maderensis	29.92	2244	36.98	3354
Sphyræna guachancho	15.18	130	18.76	3356
Brachydeuterus auritus	14.00	402	17.31	3357
Selax crumenophthalmus	8.16	80	10.09	3358
Trichiurus lepturus	4.44	94	5.49	
Scomberomorus tritor	3.44	38	4.25	
Elops lacerta	1.66	4	2.05	
Ilisha africana	1.54	68	1.90	3355
Sardinella aurita	1.40	100	1.73	3353
Selene dorsalis	0.96	12	1.19	
Trachurus trecae	0.10	4	0.12	
Chloroscombrus chrysurus	0.10	2	0.12	
Total	80.90		99.99	

R/V "DR. FRIDTJOF NANSEN" PROJECT:IG PROJECT STATION: 798
 DATE:22/ 5/05 GEAR TYPE: BT No:15 POSITION:Lat N 509
 start stop duration Long W 408
 TIME :06:04:39 06:31:01 26 (min) Purpose code: 3
 LOG :3453.36 3454.75 1.38 Area code : 1
 FDEPTH: 80 81 GearCond.code:
 BDEPTH: 80 81 Validity code:
 Towing dir: 90ø Wire out: 265 m Speed: 31 kn*10
 Sorted: 28 Kg Total catch: 157.29 CATCH/HOUR: 362.98

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Umbrina canariensis	73.94	279	20.37	3360
Lepidotrigla carolae	44.33	582	12.21	
Trachurus trecae	35.61	1703	9.81	3361
Citharus linguatula	32.49	1059	8.95	
Uranoscopus albesca	28.55	224	7.87	
Dentex angolensis	24.92	210	6.87	3359
Dentex canariensis	23.68	48	6.52	
Brotula barbata	16.78	67	4.62	
Cynoglossus monodi	15.58	72	4.29	
Pegusa lascaris	13.71	113	3.78	
Pentheroscion mbizi	8.52	51	2.35	
Grammolites gruvelli	7.36	196	2.03	
Torpedo torpedo	6.55	9	1.80	
Pagellus bellottii	4.98	62	1.37	
Pagrus caeruleostictus	4.36	14	1.20	
Zeus faber	2.93	5	0.81	
Torpedo marmorata	2.86	2	0.79	
Cynoponticus ferox	2.68	2	0.74	
Plicanthus arenatus	2.17	42	0.60	
Branchiostegus semifasciatus	2.12	5	0.58	
Raja miraletus	1.43	2	0.39	
Sardinella aurita	1.34	21	0.37	
Pseudupeneus prayensis	1.25	9	0.34	
Syacium micrurum	1.13	113	0.31	
Spherooides pachgaster	1.11	2	0.31	
Microchirus frechkopi	0.51	21	0.14	
Sargocentron hastatus	0.46	2	0.13	
Chilomycterus spinosus mauret.	0.44	2	0.12	
Chaetodon hoefleri	0.37	2	0.10	
Dicologlossa hexophthalma	0.30	9	0.08	
Trichiurus lepturus	0.23	2	0.06	
Scorpaena scrofa	0.18	2	0.05	
Total	362.87		99.96	

R/V "DR. FRIDTJOF NANSEN" PROJECT:IG PROJECT STATION: 799
 DATE:22/ 5/05 GEAR TYPE: BT No:15 POSITION:Lat N 510
 start stop duration Long W 410
 TIME :08:08:45 08:38:09 29 (min) Purpose code: 3
 LOG :3462.34 3463.91 1.57 Area code : 1
 FDEPTH: 60 60 GearCond.code:
 BDEPTH: 62 60 Validity code:
 Towing dir: 70ø Wire out: 200 m Speed: 31 kn*10
 Sorted: 31 Kg Total catch: 478.99 CATCH/HOUR: 991.01

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Pagellus bellottii	448.68	9037	45.28	3362
Sphyræna guachancho	191.19	5195	19.29	3365
Pseudupeneus prayensis	104.86	2230	10.58	3366
Trachurus trecae	55.03	1593	5.55	3363
Mustelus mustelus	33.64	33	3.39	
Brachydeuterus auritus	27.52	666	2.78	3364
Dentex canariensis	24.56	85	2.48	3367
Pagrus caeruleostictus	20.26	103	2.04	
Sepia officinalis hierredda	10.22	21	1.03	
Epinephelus aeneus	10.10	2	1.02	
Selene dorsalis	9.56	145	0.96	
Grammolites gruvelli	7.53	261	0.76	
Lepidotrigla carolae	6.37	145	0.64	
Sardinella aurita	5.79	87	0.58	
Torpedo torpedo	5.42	8	0.55	
Sardinella maderensis	4.92	87	0.50	
Dactylopterus volitans	4.74	31	0.48	
Citharus linguatula	4.63	145	0.47	
Serranus accraensis	2.61	174	0.26	
Fistularia petimba	2.52	6	0.25	
Dentex angolensis	2.03	145	0.20	
Balistes caprisicus	1.82	2	0.18	
Raja miraletus	1.82	4	0.18	
Dentex gibbosus	1.57	6	0.16	
Zeus faber	1.22	6	0.12	
Stromateus fiatola	0.56	2	0.06	
Branchiostegus semifasciatus	0.52	2	0.05	
Cynoglossus monodi	0.48	2	0.05	
Sargocentron hastatus	0.43	2	0.04	
Chaetodon robustus	0.41	6	0.04	
Total	991.01		99.97	

R/V "DR. FRIDTJOF NANSEN" PROJECT:IG PROJECT STATION: 800
 DATE:22/ 5/05 GEAR TYPE: BT No:15 POSITION:Lat N 512
 start stop duration Long W 411
 TIME :09:35:07 09:58:56 24 (min) Purpose code: 3
 LOG :3468.56 3469.66 1.10 Area code : 1
 FDEPTH: 34 33 GearCond.code:
 BDEPTH: 34 33 Validity code:
 Towing dir: 260ø Wire out: 150 m Speed: 30 kn*10
 Sorted: 29 Kg Total catch: 950.12 CATCH/HOUR: 2375.30

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Brachydeuterus auritus	1633.50	39270	68.77	
Chloroscombrus chrysurus	354.75	20955	14.93	
Sphyræna guachancho	101.48	1320	4.27	
Pseudupeneus prayensis	91.58	908	3.86	
Selene dorsalis	86.63	1568	3.65	
Dactylopterus volitans	47.03	248	1.98	
Trichiurus lepturus	17.33	330	0.73	
Pagellus bellottii	16.50	248	0.69	
Dentex canariensis	14.03	83	0.59	
Decapterus rhonchus	9.08	83	0.38	
Octopus vulgaris	2.88	3	0.12	
Citharichthys stampflii	0.55	3	0.02	
Total	2375.34		99.99	

R/V "DR. FRIDTJOF NANSEN" PROJECT:IG PROJECT STATION: 801
 DATE:22/ 5/05 GEAR TYPE: BT No:15 POSITION:Lat N 512
 start stop duration Long W 413
 TIME :10:37:53 11:08:20 30 (min) Purpose code: 3
 LOG :3471.42 3472.86 1.43 Area code : 1
 FDEPTH: 25 24 GearCond.code:
 BDEPTH: 25 24 Validity code:
 Towing dir: 260ø Wire out: 150 m Speed: 29 kn*10
 Sorted: 32 Kg Total catch: 720.96 CATCH/HOUR: 1441.92

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Brachydeuterus auritus	611.60	15752	42.42	3370
Sphyræna guachancho	398.64	2684	27.65	3371
Chloroscombrus chrysurus	114.40	8184	7.93	3368
Selene dorsalis	91.52	1980	6.35	3369
Pseudupeneus prayensis	69.52	660	4.82	
Galeoides decadactylus	45.76	704	3.17	
Dactylopterus volitans	25.08	88	1.74	
Alectis alexandrinus	22.88	88	1.59	
Caranx hippos	16.72	132	1.16	
Dentex canariensis	14.58	148	1.01	3372
Lethrinus atlanticus	9.30	24	0.64	
Trachinocephalus myops	4.84	44	0.34	
Eucinostomus melanopterus	4.40	44	0.31	
Pagellus bellottii	4.14	28	0.29	
Balistes caprisicus	3.18	12	0.22	
Pseudolithus senegalensis	1.56	2	0.11	
Pagrus caeruleostictus	1.32	44	0.09	
Caranx crysos	1.20	2	0.08	
Pomadoury jubelini	0.50	2	0.03	
Pomadoury peroteti	0.48	4	0.03	
Pythonichthys microphthalmus	0.30	2	0.02	
Total	1441.92		100.00	

R/V "DR. FRIDTJOF NANSEN" PROJECT:IG PROJECT STATION: 802
 DATE:22/ 5/05 GEAR TYPE: BT No:15 POSITION:Lat N 511
 start stop duration Long W 422
 TIME :13:13:54 13:43:44 30 (min) Purpose code: 3
 LOG :3487.11 3488.73 1.61 Area code : 1
 FDEPTH: 28 27 GearCond.code:
 BDEPTH: 28 27 Validity code:
 Towing dir: 90ø Wire out: 137 m Speed: 30 kn*10
 Sorted: Kg Total catch: 51.69 CATCH/HOUR: 103.38

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Caranx senegalensis	26.36	198	25.50	
Brachydeuterus auritus	16.48	2308	15.94	3377
J E L Y F I S H	15.92	68	15.40	
Chloroscombrus chrysurus	12.04	820	11.65	3373
Sardinella maderensis	5.52	248	5.34	3376
Sphyræna guachancho	4.22	48	4.08	3374
Pagellus bellottii	3.54	26	3.42	3375
Caranx crysos	2.72	12	2.63	
Alectis alexandrinus	2.68	2	2.59	
Lagocephalus laevigatus	2.36	6	2.28	
Dentex canariensis	2.14	10	2.07	
Selene dorsalis	1.60	52	1.55	
Galeoides decadactylus	1.54	18	1.49	
Balistes caprisicus	1.36	2	1.32	
Pseudolithus senegalensis	1.26	2	1.22	
Pseudupeneus prayensis	1.20	10	1.16	
Trachinocephalus myops	0.92	14	0.89	
Pagrus caeruleostictus	0.88	2	0.85	
Decapterus punctatus	0.64	16	0.62	
Total	103.38		100.00	

R/V "DR. FRIDTJOF NANSEN" PROJECT:IG PROJECT STATION: 803
 DATE:22/ 5/05 GEAR TYPE: BT No:15 POSITION:Lat N 508
 start stop duration Long W 423
 TIME :14:41:46 15:11:37 30 (min) Purpose code: 3
 LOG :3495.05 3496.64 1.60 Area code : 1
 FDEPTH: 61 59 GearCond.code:
 BDEPTH: 61 59 Validity code:
 Towing dir: 80ø Wire out: 222 m Speed: 30 kn*10
 Sorted: Kg Total catch: 226.18 CATCH/HOUR: 452.36

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Pagellus bellottii	241.68	3660	53.43	3382
Selene dorsalis	52.20	912	11.54	3380
Squatina oculata	39.48	8	8.73	
Pseudupeneus prayensis	25.42	492	5.62	3381
Sepia officinalis hierredda	11.60	28	2.56	
Sphyaena guachancho	10.88	80	2.41	3379
Octopus vulgaris	7.56	10	1.67	
Decapterus rhonchus	6.96	384	1.54	3378
Brachydeuterus auritus	6.72	192	1.49	
Grammolites gruvelli	6.36	288	1.41	
J E L V F I S H	6.24	48	1.38	
Zeus faber	6.24	12	1.38	
Sardinella aurita	5.64	84	1.25	
Dactylopterus volitans	4.92	36	1.09	
Lagocephalus laevigatus	4.68	24	1.03	
Balistes capricus	2.64	6	0.58	
Raja miraletus	2.16	6	0.48	
Sardinella maderensis	2.04	72	0.45	
Serranus accraensis	1.68	60	0.37	
Priacanthus arenatus	1.44	24	0.32	
Dicologlossa hexophthalma	1.44	36	0.32	
Dentex angolensis	1.08	72	0.24	
Citharus linguatula	0.84	96	0.19	
Trichiurus lepturus	0.64	2	0.14	
Alloteuthis africana	0.60	144	0.13	
Fistularia petimba	0.60	12	0.13	
Chelidonichthys gabonensis	0.48	12	0.11	
Gobius sp	0.12	12	0.03	
Total	452.34		100.02	

R/V "DR. FRIDTJOF NANSEN" PROJECT:IG PROJECT STATION: 804
 DATE:22/ 5/05 GEAR TYPE: BT No:15 POSITION:Lat N 504
 start stop duration Long W 422
 TIME :17:04:24 17:21:58 18 (min) Purpose code: 3
 LOG :3508.96 3509.84 0.88 Area code : 1
 FDEPTH: 87 86 GearCond.code:
 BDEPTH: 87 86 Validity code:
 Towing dir: 80ø Wire out: 299 m Speed: 30 kn*10
 Sorted: 33 Kg Total catch: 268.96 CATCH/HOUR: 896.53

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Trachurus trecae	468.80	8347	52.29	3383
Sardinella aurita	262.93	4907	29.33	3384
Dentex angolensis	62.67	347	6.99	
Alloteuthis africana	18.67	42933	2.08	
Sepia officinalis hierredda	14.40	27	1.61	
Umrina canariensis	14.40	53	1.61	
Scomber japonicus	12.27	133	1.37	
Zeus faber	9.07	27	1.01	
Onychoteuthis banksi	7.47	80	0.83	
Raja miraletus	7.47	20	0.83	
Citharus linguatula	3.73	107	0.42	
Sphyaena sphyraena	3.47	27	0.39	
Lepidotrigla carolae	2.93	53	0.33	
Pseudupeneus prayensis	2.93	27	0.33	
Boops boops	2.93	80	0.33	
Fistularia petimba	1.60	53	0.18	
Pagellus bellottii	0.80	27	0.09	
Total	896.54		100.02	

R/V "DR. FRIDTJOF NANSEN" PROJECT:IG PROJECT STATION: 805
 DATE:23/ 5/05 GEAR TYPE: PT No: 5 POSITION:Lat N 505
 start stop duration Long E 442
 TIME :23:52:47 00:22:33 30 (min) Purpose code: 1
 LOG :3554.93 3556.66 1.73 Area code : 1
 FDEPTH: 0 0 GearCond.code:
 BDEPTH: 51 36 Validity code:
 Towing dir: 10ø Wire out: 160 m Speed: 35 kn*10
 Sorted: Kg Total catch: 90.31 CATCH/HOUR: 180.62

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Sardinella maderensis	38.88	1566	21.53	3387
Sphyaena guachancho	38.84	198	21.50	3389
Chloroscombrus chrysurus	29.46	1518	16.31	3385
Scomberomorus tritor	20.32	26	11.25	
Carcharhinus sp.	15.60	2	8.64	
Selene dorsalis	14.52	1032	8.04	3388
Alectis alexandrinus	9.18	12	5.08	
Brachydeuterus auritus	8.40	264	4.65	3386
Trichiurus lepturus	2.22	90	1.23	
Decapterus rhonchus	1.56	12	0.86	
Sarda sarda	1.34	4	0.74	
Ilisha africana	0.30	18	0.17	
Total	180.62		100.00	

R/V "DR. FRIDTJOF NANSEN" PROJECT:IG PROJECT STATION: 806
 DATE:23/ 5/05 GEAR TYPE: BT No:15 POSITION:Lat N 503
 start stop duration Long W 444
 TIME :06:10:11 06:30:51 21 (min) Purpose code: 3
 LOG :3570.01 3571.08 1.06 Area code : 1
 FDEPTH: 68 71 GearCond.code:
 BDEPTH: 68 71 Validity code:
 Towing dir: 80ø Wire out: 225 m Speed: 31 kn*10
 Sorted: 35 Kg Total catch: 979.13 CATCH/HOUR: 2797.51

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Brachydeuterus auritus	1705.60	31520	60.97	3390
Trachurus trecae	294.40	7040	10.52	3391
Brotula barbata	224.00	400	8.01	
Uranoscopus albesca	109.60	240	3.92	
Dentex angolensis	79.20	1520	2.83	3392
Pegusa lascaris	68.00	560	2.43	
Priacanthus arenatus	64.80	960	2.32	
Stromateus fiatola	62.40	320	2.23	
Pagellus bellottii	48.00	880	1.72	
Pentheroscion mbizi	25.60	160	0.92	
Trichiurus lepturus	22.40	400	0.80	
Lepidotrigla carolae	19.20	240	0.69	
Serranus accraensis	19.20	480	0.69	
Boops boops	14.40	320	0.51	
Grammolites gruvelli	9.60	320	0.34	
Sepia officinalis hierredda	9.14	14	0.33	
Decapterus punctatus	8.00	80	0.29	
Citharus linguatula	5.60	160	0.20	
Mustelus mustelus	3.97	3	0.14	
Fistularia petimba	2.11	3	0.08	
Lophiodes kempii	1.31	3	0.05	
Raja miraletus	0.97	3	0.03	
Total	2797.50		100.02	

R/V "DR. FRIDTJOF NANSEN" PROJECT:IG PROJECT STATION: 807
 DATE:23/ 5/05 GEAR TYPE: BT No:15 POSITION:Lat N 505
 start stop duration Long W 444
 TIME :08:30:24 09:00:22 30 (min) Purpose code: 3
 LOG :3577.94 3579.50 1.56 Area code : 1
 FDEPTH: 42 47 GearCond.code:
 BDEPTH: 42 47 Validity code:
 Towing dir: 80ø Wire out: 200 m Speed: 32 kn*10
 Sorted: 31 Kg Total catch: 560.36 CATCH/HOUR: 1120.72

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Selene dorsalis	253.64	4794	22.63	3398
Chloroscombrus chrysurus	243.44	4726	21.72	3393
Brachydeuterus auritus	229.16	22338	20.45	3396
Sphyaena guachancho	160.22	4088	14.30	3397
Pagellus bellottii	35.26	684	3.15	3395
Galeoides decadactylus	32.98	884	2.94	3394
Alectis alexandrinus	31.76	28	2.83	
Syacium micrurum	29.24	306	2.61	
Sardinella maderensis - Juv.	17.68	1904	1.58	3399
Grammolites gruvelli	15.30	986	1.37	
Eucinostomus melanopterus	14.28	306	1.27	
Pagrus caeruleostictus	11.90	272	1.06	
Cynoglossus monodi	11.22	68	1.00	
Pomadasy peroteti	6.96	26	0.62	
Citharus linguatula	6.80	442	0.61	
Trachurus trecae	3.06	68	0.27	
Pseudupeneus prayensis	2.72	34	0.24	
Dentex canariensis	2.72	34	0.24	
Serranus scriba	2.72	272	0.24	
Octopus vulgaris	2.08	2	0.19	
Trichiurus lepturus	2.04	68	0.18	
Sepia officinalis hierredda	1.92	4	0.17	
Torpedo torpedo	1.90	4	0.17	
Epinephelus aeneus	0.94	4	0.08	
Dactylopterus volitans	0.78	2	0.07	
Total	1120.72		99.99	

R/V "DR. FRIDTJOF NANSEN" PROJECT:IG PROJECT STATION: 808
 DATE:23/ 5/05 GEAR TYPE: BT No:15 POSITION:Lat N 508
 start stop duration Long W 442
 TIME :09:56:00 10:27:11 31 (min) Purpose code: 3
 LOG :3584.09 3585.62 1.51 Area code : 1
 FDEPTH: 22 22 GearCond.code:
 BDEPTH: 22 22 Validity code:
 Towing dir: 240ø Wire out: 150 m Speed: 31 kn*10
 Sorted: 35 Kg Total catch: 229.12 CATCH/HOUR: 443.46

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Chloroscombrus chrysurus	149.81	8129	33.78	3403
Sphyaena guachancho	93.10	610	20.99	3405
Selene dorsalis	90.97	3368	20.51	3400
Brachydeuterus auritus	41.81	1500	9.43	3402
Galeoides decadactylus	8.52	116	1.92	
Sardinella maderensis	8.52	552	1.92	3401
Stromateus fiatola	8.44	43	1.90	
Trichiurus lepturus	7.65	68	1.73	
Ilisha africana	7.45	319	1.68	3404
Drepane africana	7.05	23	1.59	
Pseudolithothys senegalensis	6.68	31	1.51	
Pteroscion pelli	3.19	116	0.72	
Sepia officinalis hierredda	2.48	4	0.56	
Elops lacerta	1.53	6	0.35	
Caranx senegallus	1.16	10	0.26	
Squilla mantis	1.16	48	0.26	
Caranx crysos	0.97	10	0.22	
Penaeus notialis	0.70	29	0.16	
Caranx hippos	0.68	10	0.15	
Raja miraletus	0.50	2	0.11	
Scomberomorus tritor	0.31	2	0.07	
Lagocephalus laevigatus	0.29	39	0.07	
Pisodonophis semicinctus	0.23	2	0.05	
Pomadasy peroteti	0.21	2	0.05	
Pythonichthys micropthalmus	0.08	2	0.02	
Total	443.49		100.01	

R/V "DR. FRIDTJOF NANSEN" PROJECT:IG PROJECT STATION: 809
 DATE:23/ 5/05 GEAR TYPE: BT No:15 POSITION:Lat N 505
 start stop duration Long W 502
 TIME :13:10:46 13:41:01 30 (min) Purpose code: 3
 LOG :3605.16 3606.59 1.41 Area code : 1
 FDEPTH: 28 28 GearCond.code:
 BDEPTH: 28 28 Validity code:
 Towing dir: 270ø Wire out: 145 m Speed: 30 kn*10
 Sorted: 27 Kg Total catch: 117.97 CATCH/HOUR: 235.94

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Brachydeuterus auritus	103.32	2982	43.79	3346
Sphyræna guachancho	37.44	216	15.87	3410
Galeoides decadactylus	28.44	846	12.05	3409
Selene dorsalis	18.44	738	7.82	3407
Pomadasy s peroteti	9.46	30	4.01	
Drepane africana	8.44	12	3.58	
Pseudotolithus senegalensis	8.42	24	3.57	
Cymbium cymbium	6.88	2	2.92	
Chloroscombrus chrysurus	6.72	114	2.85	3411
Sardinella maderensis	2.64	102	1.12	3406
Ilisha africana	1.56	204	0.66	3408
Parapenaeopsis atlantica	1.50	258	0.64	
DIAGENIDAE	1.20	6	0.51	
Pteroscion peli	0.78	54	0.33	
Trachinotus ovatus	0.40	2	0.17	
Callinectes pallidus	0.30	12	0.13	
Total	235.94		100.02	

R/V "DR. FRIDTJOF NANSEN" PROJECT:IG PROJECT STATION: 810
 DATE:24/ 5/05 GEAR TYPE: BT No:15 POSITION:Lat N 503
 start stop duration Long W 504
 TIME :14:41:46 15:11:37 30 (min) Purpose code: 3
 LOG :3610.13 3611.77 1.63 Area code : 1
 FDEPTH: 37 35 GearCond.code:
 BDEPTH: 37 35 Validity code:
 Towing dir: 80ø Wire out: 166 m Speed: 30 kn*10
 Sorted: 30 Kg Total catch: 87.72 CATCH/HOUR: 175.44

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Brachydeuterus auritus	75.30	14140	42.92	3417
Chloroscombrus chrysurus	46.50	610	26.50	3413
Sardinella maderensis	14.16	1516	8.07	3415
Scomberomorus tritor	6.34	10	3.61	
Selene dorsalis	5.84	130	3.33	3414
Pagellus bellottii	5.78	54	3.29	3412
Alectis alexandrinus	5.06	2	2.88	
Sphyræna guachancho	4.16	120	2.37	3416
Caranx crysos	2.58	4	1.47	
Penaeus notialis	1.86	140	1.06	
Epinephelus aeneus	1.78	6	1.01	
J E L L Y F I S H	1.20	16	0.68	
Grammolites gruvelli	1.00	110	0.57	
Sepia officinalis hierredda	0.90	600	0.51	
Drepane africana	0.58	2	0.33	
Parapenaeopsis atlantica	0.46	86	0.26	
'Spider crab 2'	0.40	76	0.23	
Echeneis naucrates	0.32	2	0.18	
Syacium micrurum	0.30	16	0.17	
Callinectes pallidus	0.20	6	0.11	
Galeoides decadactylus	0.20	6	0.11	
Scyllarides herklotsii	0.16	46	0.09	
Eucinostomus melanopterus	0.14	6	0.08	
Antennarius sp.	0.12	2	0.07	
Squilla acuelata calmani	0.10	6	0.06	
Total	175.44		99.96	

R/V "DR. FRIDTJOF NANSEN" PROJECT:IG PROJECT STATION: 811
 DATE:23/ 5/05 GEAR TYPE: BT No:15 POSITION:Lat N 458
 start stop duration Long W 503
 TIME :17:31:22 18:02:18 31 (min) Purpose code: 3
 LOG :3620.26 3621.51 1.24 Area code : 1
 FDEPTH: 88 86 GearCond.code:
 BDEPTH: 88 86 Validity code:
 Towing dir: 270ø Wire out: 301 m Speed: 27 kn*10
 Sorted: 40 Kg Total catch: 1258.11 CATCH/HOUR: 2435.05

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Priacanthus arenatus	1675.43	155895	68.80	3418
Brotula barbata	342.85	658	14.08	
Pegusa lascaris	98.05	921	4.03	
Lepidotrigla carolae	70.41	921	2.89	
Dentex angolensis	55.28	658	2.27	
Octopus vulgaris	36.00	58	1.48	
Ariomma bondi	26.98	592	1.11	
Citharus linguatula	25.05	526	1.03	
Uranoscopus albesca	20.52	58	0.84	
Raja miraletus	17.23	39	0.71	
Squatina oculata	15.37	4	0.63	
Pagellus bellottii	11.85	461	0.49	
Boops boops	11.19	132	0.46	
Umbrina canariensis	10.06	19	0.41	
Sepia officinalis hierredda	6.58	263	0.27	
Grammolites gruvelli	4.61	66	0.19	
Dentex congoensis	3.29	132	0.14	
Microchirus frechkopi	2.63	66	0.11	
Lophiodes kempi	1.16	4	0.05	
Pythonichthys micropthalmus	0.33	2	0.01	
Perulibatrachus elminensis	0.19	2	0.01	
Total	2435.06		100.01	

R/V "DR. FRIDTJOF NANSEN" PROJECT:IG PROJECT STATION: 812
 DATE:23/ 5/05 GEAR TYPE: PT No: 5 POSITION:Lat N 502
 start stop duration Long E 456
 TIME :20:02:58 20:32:47 30 (min) Purpose code: 1
 LOG :3638.26 3640.11 1.84 Area code : 1
 FDEPTH: 5 5 GearCond.code:
 BDEPTH: 49 39 Validity code:
 Towing dir: 37ø Wire out: 150 m Speed: 32 kn*10
 Sorted: 39 Kg Total catch: 1044.92 CATCH/HOUR: 2089.84

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Brachydeuterus auritus	1513.20	36556	72.41	3421
Sphyræna guachancho	173.68	572	8.31	
Sardinella aurita	168.48	1352	8.06	3419
Trachurus trecae	79.56	1924	3.81	3420
Scomber japonicus	60.84	312	2.91	
Sardinella maderensis - Juv.	29.12	2652	1.39	3422
Alectis alexandrinus	25.24	18	1.21	
Auxis thazard	22.36	104	1.07	
Sarda sarda	15.98	34	0.76	
Scomberomorus tritor	1.38	2	0.07	
Total	2089.84		100.00	

R/V "DR. FRIDTJOF NANSEN" PROJECT:IG PROJECT STATION: 813
 DATE:24/ 5/05 GEAR TYPE: PT No: 5 POSITION:Lat N 502
 start stop duration Long E 514
 TIME :23:42:38 00:12:31 30 (min) Purpose code: 1
 LOG :3663.86 3665.12 1.26 Area code : 1
 FDEPTH: 5 5 GearCond.code:
 BDEPTH: 42 49 Validity code:
 Towing dir: 210ø Wire out: 150 m Speed: 35 kn*10
 Sorted: 45 Kg Total catch: 45.35 CATCH/HOUR: 90.70

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Chloroscombrus chrysurus	38.36	518	42.29	3423
Selene dorsalis	13.98	212	15.41	3426
Brachydeuterus auritus	10.70	290	11.80	3428
Scomberomorus tritor	10.18	18	11.22	
Sphyræna guachancho	8.88	34	9.79	3424
Selar crumenophthalmus	3.60	14	3.97	
Sardinella maderensis	3.00	278	3.31	3427
Trachinotus ovatus	0.92	4	1.01	
Ilisha africana	0.58	16	0.64	
Trachurus trecae	0.50	10	0.55	
Total	90.70		99.99	

R/V "DR. FRIDTJOF NANSEN" PROJECT:IG PROJECT STATION: 814
 DATE:24/ 5/05 GEAR TYPE: BT No:15 POSITION:Lat N 457
 start stop duration Long W 523
 TIME :06:11:19 06:36:04 25 (min) Purpose code: 3
 LOG :3691.61 3692.84 1.22 Area code : 1
 FDEPTH: 77 75 GearCond.code:
 BDEPTH: 77 75 Validity code:
 Towing dir: 75ø Wire out: 265 m Speed: 31 kn*10
 Sorted: 41 Kg Total catch: 684.34 CATCH/HOUR: 1642.42

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Trachurus trecae	859.70	18650	52.34	3429
Raja miraletus	265.32	713	16.15	
Priacanthus arenatus	143.35	10930	8.73	3425
Dentex angolensis	121.18	1663	7.38	3431
Sardinella aurita	69.29	1584	4.22	3430
Pentheroscion mbizi	34.94	197	2.13	
Brotula barbata	19.80	79	1.21	
Chilomycterus spinosus mauret.	17.81	79	1.08	
Sepia officinalis hierredda	16.10	50	0.98	
Boops boops	13.85	317	0.84	
Citharus linguatula	11.47	355	0.70	
Perulibatrachus elminensis	10.68	38	0.65	
Antennarius sp.	6.34	118	0.39	
Trichiurus lepturus	5.93	38	0.36	
Pagellus bellottii	5.54	158	0.34	
Grammolites gruvelli	5.14	79	0.31	
Lepidotrigla carolae	5.14	238	0.31	
Ariomma bondi	5.14	79	0.31	
Squatina oculata	4.18	5	0.25	
Serranus accraensis	3.96	79	0.24	
Spherooides marmoratus	3.17	38	0.19	
Dibranchius atlanticus	3.17	38	0.19	
Dentex congoensis	3.17	158	0.19	
Octopus vulgaris	2.18	5	0.13	
Sphyræna guachancho	1.49	7	0.09	
Dactylopterus volitans	1.49	5	0.09	
Scorpaena scrofa	1.42	5	0.09	
Uranoscopus albesca	0.84	2	0.05	
Fistularia petimba	0.50	2	0.03	
SYNGNATHIDAE	0.02	2		
Total	1642.31		99.97	

R/V "DR. FRIDTJOF NANSEN" PROJECT:IG PROJECT STATION: 815
 DATE:24/ 5/05 GEAR TYPE: BT No:15 POSITION:Lat N 502
 start stop duration Long W 522
 TIME :08:10:13 08:41:21 31 (min) Purpose code: 3
 LOG :3698.98 3700.34 1.35 Area code : 1
 FDEPTH: 38 36 GearCond.code:
 BDEPTH: 38 36 Validity code:
 Towing dir: 260ø Wire out: 200 m Speed: 29 kn*10

Sorted: 31 Kg Total catch: 130.28 CATCH/HOUR: 252.15

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Brachydeuterus auritus	104.32	23797	41.37	3432
Stromateus fiatola	24.15	27	9.58	
Pseudupeneus prayensis	21.21	180	8.41	
Balistes capricus	15.43	50	6.12	
Panulirus regius	11.46	17	4.54	
Galeoides decadactylus	10.16	536	4.03	3433
Cymbium sp.	7.35	4	2.91	
Sardinella maderensis	6.77	739	2.68	3436
Sphyraena guachancho	6.52	391	2.59	3435
Fomadasy peroteti	5.96	17	2.36	
Alectis alexandrinus	5.28	2	2.09	
Dentex canariensis	5.26	159	2.09	3434
Epinephelus aeneus	4.16	8	1.65	
Chloroscombrus chrysurus	3.19	29	1.27	
Scomberomorus tritor	2.81	12	1.11	
Selene dorsalis	2.71	81	1.07	
Eucinostomus melanopterus	1.97	33	0.78	
Trachurus trecae	1.84	43	0.73	
Syacium micrurum	1.65	126	0.65	
Priacanthus arenatus	1.63	14	0.65	
Grammolites gruvelli	1.30	68	0.52	
Pagellus bellottii	1.20	4	0.48	
Todarodes sagittatus	0.81	4	0.32	
Perulibatrachus elminensis	0.75	4	0.30	
Bothus podas africanus	0.64	23	0.25	
Raja miraletus	0.62	2	0.25	
Pagrus caeruleostictus	0.60	4	0.24	
Penaeus notialis	0.52	10	0.21	
Trichurus lepturus	0.43	4	0.17	
Serranus accraensis	0.39	4	0.15	
Citharus linguatula	0.39	4	0.15	
Stephanolepis hispidus	0.23	2	0.09	
Lutjanus fulgens	0.19	2	0.08	
Scorpaena scrofa	0.17	2	0.07	
Total	252.07		99.96	

R/V "DR. FRIDTJOF NANSEN" PROJECT:IG PROJECT STATION: 816
 DATE:24/ 5/05 GEAR TYPE: BT No:15 POSITION:Lat N 504
 start stop duration Long W 523
 TIME :09:27:07 09:58:13 31 (min) Purpose code: 3
 LOG :3704.27 3705.78 1.51 Area code : 1
 FDEPTH: 24 23 GearCond.code:
 BDEPTH: 24 23 Validity code:
 Towing dir: 260ø Wire out: 150 m Speed: 30 kn*10

Sorted: 46 Kg Total catch: 171.21 CATCH/HOUR: 331.37

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Chloroscombrus chrysurus	85.35	1103	25.76	3437
Galeoides decadactylus	49.82	981	15.03	3440
Brachydeuterus auritus	41.81	2903	12.62	3442
Polydactylus quadrifilis	22.41	2	6.76	
Sardinella maderensis	18.12	958	5.47	3441
Selene dorsalis	16.32	331	4.93	3438
Sphyraena sphyraena	13.65	122	4.12	
Epinephelus aeneus	11.50	6	3.47	
Parapanaeus longirostris	11.26	755	3.40	
Pteroscion peli	11.09	494	3.35	
Scomberomorus tritor	7.43	35	2.24	
Balistes capricus	6.83	12	2.06	
Pseudotolithus typus	6.68	75	2.02	
Alectis alexandrinus	6.33	2	1.91	
Ilisha africana	3.83	406	1.16	3439
Eucinostomus melanopterus	3.31	23	1.00	
Pseudupeneus prayensis	2.44	6	0.74	
Lethrinus atlanticus	2.30	2	0.69	
Panulirus regius	2.21	2	0.67	
Balistes punctatus	1.80	2	0.54	
Zanobatus shoeneleini	1.57	2	0.47	
Dasyatis margarita	1.49	2	0.45	
Lutjanus goreensis	1.08	2	0.33	
Pythonichthys microphthalmus	0.99	2	0.30	
Cynoponticus ferox	0.89	2	0.27	
Pomadasy peroteti	0.87	2	0.26	
Total	331.38		100.02	

R/V "DR. FRIDTJOF NANSEN" PROJECT:IG PROJECT STATION: 817
 DATE:24/ 5/05 GEAR TYPE: BT No:15 POSITION:Lat N 501
 start stop duration Long W 541
 TIME :12:18:40 12:48:31 30 (min) Purpose code: 3
 LOG :3722.86 3724.21 1.35 Area code : 1
 FDEPTH: 21 21 GearCond.code:
 BDEPTH: 21 21 Validity code:
 Towing dir: 265ø Wire out: 117 m Speed: 30 kn*10

Sorted: Kg Total catch: 138.58 CATCH/HOUR: 277.16

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Ilisha africana	60.40	4248	21.79	3443
Brachydeuterus auritus	41.44	1200	14.95	3447
Sphyraena guachancho	40.48	1912	14.61	3449
Polydactylus quadrifilis	20.96	2	7.56	
Pseudotolithus senegalensis	18.48	200	6.67	3450
Chloroscombrus chrysurus	14.24	296	5.14	3446
Galeoides decadactylus	14.08	320	5.08	3448
Elops lacerta	10.56	40	3.81	
Parapanaeopsis atlantica	10.16	1232	3.67	
Selene dorsalis	9.44	664	3.41	
Sardinella maderensis	8.56	976	3.09	3445
Pteroscion peli	6.96	376	2.51	3444
Panulirus regius	4.64	34	1.67	
Scomberomorus tritor	2.88	16	1.04	
Portunus validus	2.66	6	0.96	
Sepia officinalis hierredda	2.16	1192	0.78	
Torpedo nobiliana	2.06	4	0.74	
Trichurus lepturus	1.20	56	0.43	
Calappa rubroguttata	1.20	8	0.43	
Eucinostomus melanopterus	0.96	8	0.35	
DIAGENIDAE	0.84	2	0.30	
Pythonichthys microphthalmus	0.58	4	0.21	
Pomadasy peroteti	0.56	8	0.20	
Pomadasys myops	0.56	8	0.20	
Epinephelus aeneus	0.54	4	0.19	
Perulibatrachus elminensis	0.32	24	0.12	
Pentanemus quinquarius	0.24	32	0.09	
Total	277.16		100.00	

R/V "DR. FRIDTJOF NANSEN" PROJECT:IG PROJECT STATION: 818
 DATE:24/ 5/05 GEAR TYPE: BT No:15 POSITION:Lat N 457
 start stop duration Long W 541
 TIME :13:44:22 14:14:37 30 (min) Purpose code: 3
 LOG :3729.08 3730.28 1.18 Area code : 1
 FDEPTH: 45 46 GearCond.code:
 BDEPTH: 45 46 Validity code:
 Towing dir: 254ø Wire out: 166 m Speed: 30 kn*10

Sorted: Kg Total catch: 309.32 CATCH/HOUR: 618.64

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Brachydeuterus auritus	314.64	25164	50.86	3454
Galeoides decadactylus	94.50	1152	15.28	3452
Pagellus bellottii	31.14	324	5.03	3451
Pomadasy peroteti	28.52	78	4.61	
Grammolites gruvelli	25.56	1728	4.13	
Selene dorsalis	18.90	306	3.06	3453
Sepia officinalis hierredda	12.26	24	1.98	
Syacium micrurum	12.06	666	1.95	
Citharus linguatula	11.70	612	1.89	
Saurida brasiliensis	10.80	1674	1.75	
Sphyraena guachancho	9.18	162	1.48	
Perulibatrachus elminensis	9.18	18	1.48	
Raja miraletus	7.32	16	1.18	
Chloroscombrus chrysurus	5.76	90	0.93	
Cynoglossus canariensis	4.14	36	0.67	
Chelidichthys gabonensis	3.96	36	0.64	
Serranus accraensis	3.24	126	0.52	
Stromateus fiatola	2.78	4	0.45	
Aluterus monoceros	2.26	2	0.37	
Torpedo torpedo	2.20	4	0.36	
Caranx crysos	1.84	4	0.30	
Dicologlossa cuneata	1.62	18	0.26	
Panulirus regius	1.26	4	0.20	
Penaeus notialis	1.08	36	0.17	
Octopus vulgaris	1.08	2	0.17	
Dicologlossa hexophthalma	0.90	54	0.15	
Epinephelus aeneus	0.76	6	0.12	
Total	618.64		99.99	

R/V "DR. FRIDTJOF NANSEN" PROJECT:IG PROJECT STATION: 819
 DATE:24/ 5/05 GEAR TYPE: BT No:15 POSITION:Lat N 454
 start stop duration Long W 541
 TIME :15:43:00 16:13:08 30 (min) Purpose code: 3
 LOG :3735.78 3737.15 1.37 Area code : 1
 FDEPTH: 66 65 GearCond.code:
 BDEPTH: 66 65 Validity code:
 Towing dir: 250ø Wire out: 225 m Speed: 30 kn*10

Sorted: Kg Total catch: 240.01 CATCH/HOUR: 480.02

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Pagellus bellottii	306.88	3344	63.93	3457
Brachydeuterus auritus	30.08	512	6.27	3456
Pseudupeneus prayensis	27.04	432	5.63	3455
Dentex canariensis	20.48	160	4.27	
Fomadasy inclisus	17.44	112	3.63	
Sardinella aurita	12.80	192	2.67	
Dentex angolensis	9.60	192	2.00	
Raja miraletus	8.42	20	1.75	
Mustelus mustelus	6.54	6	1.36	
Squilla acuelata calmani	6.54	2	1.36	
Grammolites gruvelli	5.60	160	1.17	
Umbrina canariensis	5.28	32	1.10	
Epinephelus aeneus	5.14	2	1.07	
Sepia officinalis hierredda	3.66	10	0.80	
Dentex gibbosus	3.20	16	0.67	
Decapterus rhonchus	2.40	32	0.50	
Trachurus trecae	1.60	48	0.33	
Sphoeroides marmoratus	1.44	64	0.30	
Scorpaena scrofa	1.28	16	0.27	
Dicologlossa hexophthalma	1.28	32	0.27	
Chelidichthys gabonensis	1.12	48	0.23	
Syacium micrurum	0.80	128	0.17	
Fistularia petimba	0.58	6	0.12	
Cynoglossus canariensis	0.40	2	0.08	
Zeus faber	0.22	2	0.05	
Total	480.02		100.00	

R/V "DR. FRIDTJOF NANSEN" PROJECT:IG PROJECT STATION: 820
 DATE:24/ 5/05 GEAR TYPE: PT No: 5 POSITION:Lat N 457
 start stop duration Long E 532
 TIME :20:08:11 20:38:45 31 (min) Purpose code: 1
 LOG :3762.62 3764.54 1.91 Area code : 1
 FDEPTH: 5 5 GearCond.code:
 BDEPTH: 55 50 Validity code:
 Towing dir: 15ø Wire out: 15 m Speed: 32 kn*10
 Sorted: 79 Kg Total catch: 79.62 CATCH/HOUR: 154.10

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Sardinella aurita	81.79	548	53.08	
Trachinotus ovatus	15.21	70	9.87	
Scomberomorus tritor	14.01	21	9.09	
Auxis thazard	13.59	31	8.82	
Scomber japonicus	9.91	39	6.43	
Decapterus punctatus	6.00	236	3.89	3458
Sphyraena guachancho	5.77	27	3.74	3459
Selar crumenophthalmus	2.50	19	1.62	
Acanthocybium solandri	1.68	4	1.09	
Euthynnus alletteratus	1.65	2	1.07	
Caranx cryos	0.91	6	0.59	
Selene dorsalis	0.50	6	0.32	
Sardinella maderensis	0.35	2	0.23	
Chloroscombrus chrysurus	0.23	4	0.15	
Total	154.10		99.99	

R/V "DR. FRIDTJOF NANSEN" PROJECT:IG PROJECT STATION: 821
 DATE:25/ 5/05 GEAR TYPE: PT No: 5 POSITION:Lat N 449
 start stop duration Long W 555
 TIME :01:06:43 01:36:24 30 (min) Purpose code: 1
 LOG :3797.29 3798.31 1.02 Area code : 1
 FDEPTH: 5 5 GearCond.code:
 BDEPTH: 71 75 Validity code:
 Towing dir: 210ø Wire out: 150 m Speed: 30 kn*10
 Sorted: Kg Total catch: 0.69 CATCH/HOUR: 1.38

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Sphyraena guachancho	0.72	2	52.17	
Trachinotus ovatus	0.42	2	30.43	
Sardinella aurita	0.24	2	17.39	
Total	1.38		99.99	

R/V "DR. FRIDTJOF NANSEN" PROJECT:IG PROJECT STATION: 822
 DATE:25/ 5/05 GEAR TYPE: BT No:15 POSITION:Lat N 442
 start stop duration Long W 600
 TIME :06:03:37 06:34:33 31 (min) Purpose code: 3
 LOG :3816.11 3817.72 1.60 Area code : 1
 FDEPTH: 96 96 GearCond.code:
 BDEPTH: 96 96 Validity code:
 Towing dir: 75ø Wire out: 323 m Speed: 31 kn*10
 Sorted: 21 Kg Total catch: 48.44 CATCH/HOUR: 93.75

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Dentex angolensis	42.89	306	45.75	3460
Protula barbata	11.30	12	12.05	
Lepidotrigla carolae	6.74	62	7.19	
Priacanthus arenatus	6.54	205	6.98	3461
Zeus faber	4.47	14	4.77	
Sphyraena sphyraena	2.98	15	3.18	
Umbrina canariensis	2.48	12	2.65	
Citharus linguatula	2.48	85	2.65	
Octopus vulgaris	2.32	8	2.47	
Ariomma bondi	2.21	31	2.36	
Uranoscopus polli	1.86	8	1.98	
Sepia officinalis hierreda	1.63	4	1.74	
Fistularia petimba	1.06	10	1.13	
Raja miraletus	1.03	6	1.10	
Dactylopterus volitans	1.01	4	1.08	
Pentheroscion mbizi	0.89	4	0.95	
Perulibatrachus elminensis	0.46	2	0.49	
Trachurus trecae	0.39	12	0.42	
Todarodes sagittatus	0.37	2	0.39	
Sardinella aurita	0.35	4	0.37	
Microchirus frechkopi	0.31	8	0.33	
Total	93.77		100.03	

R/V "DR. FRIDTJOF NANSEN" PROJECT:IG PROJECT STATION: 823
 DATE:25/ 5/05 GEAR TYPE: BT No:15 POSITION:Lat N 447
 start stop duration Long W 602
 TIME :08:24:59 08:54:30 30 (min) Purpose code: 3
 LOG :3827.37 3828.96 1.58 Area code : 1
 FDEPTH: 60 59 GearCond.code:
 BDEPTH: 60 59 Validity code:
 Towing dir: 65ø Wire out: 220 m Speed: 31 kn*10
 Sorted: 47 Kg Total catch: 47.99 CATCH/HOUR: 95.98

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Selar crumenophthalmus	36.54	324	38.07	3463
Pseudupeneus prayensis	10.84	222	11.29	3464
Squatina oculata	8.88	2	9.25	
Sepia officinalis hierreda	3.94	32	4.11	
Trachurus trecae	3.64	66	3.79	3465
Alloteuthis africana	2.94	928	3.06	
Brotula barbata	2.74	6	2.85	
Raja miraletus	2.68	10	2.79	
Sphyraena sphyraena	2.44	14	2.54	
Mustelus mustelus	2.24	2	2.33	
Pagellus bellottii	2.16	42	2.25	3462
Grammolites gruvelli	1.88	62	1.96	
Sardinella maderensis	1.52	40	1.58	
Octopus vulgaris	1.44	6	1.50	
Citharus linguatula	1.34	44	1.40	
Scorpaena scrofa	1.32	2	1.38	
Cynoglossus senegalensis	1.14	6	1.19	
Dentex angolensis	1.08	32	1.13	
Serranus scriba	0.96	24	1.00	
Microchirus frechkopi	0.80	24	0.83	
Priacanthus arenatus	0.72	22	0.75	
Brachydeuterus auritus	0.68	18	0.71	
Umbrina canariensis	0.58	2	0.60	
Chilomycterus spinosus mauret.	0.50	4	0.52	
Stephanolepis hispidus	0.42	4	0.44	
Trichurus lepturus	0.42	10	0.44	
Decapterus punctatus	0.38	24	0.40	
Lepidotrigla carolae	0.22	2	0.23	
Dicologlossa hexophthalma	0.22	12	0.23	
Dentex canariensis	0.20	2	0.21	
Saurida brasiliensis	0.20	32	0.21	
Antennarius sp.	0.18	2	0.19	
Syacium micrum	0.18	20	0.19	
Lepidotrigla cadmani	0.18	2	0.19	
Ariomma bondi	0.14	2	0.15	
Blennius normani	0.10	4	0.10	
Sphoeroides marmoratus	0.10	6	0.10	
Fistularia petimba	0.04	2	0.04	
Total	95.98		100.00	

R/V "DR. FRIDTJOF NANSEN" PROJECT:IG PROJECT STATION: 824
 DATE:25/ 5/05 GEAR TYPE: BT No:15 POSITION:Lat N 450
 start stop duration Long W 604
 TIME :10:00:37 10:31:10 31 (min) Purpose code: 3
 LOG :3835.28 3836.85 1.56 Area code : 1
 FDEPTH: 41 39 GearCond.code:
 BDEPTH: 41 39 Validity code:
 Towing dir: 70ø Wire out: 200 m Speed: 32 kn*10
 Sorted: 46 Kg Total catch: 579.20 CATCH/HOUR: 1121.03

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Brachydeuterus auritus	529.08	15468	47.20	3466
Sphyraena guachancho	425.96	1231	38.00	
Selene dorsalis	70.14	697	6.26	3467
Chloroscombrus chrysurus	26.71	372	2.38	
Galeoides decadactylus	15.56	627	1.39	
Pagellus bellottii	12.25	48	1.09	3468
Stromateus fiatola	7.78	17	0.69	
Balistes capricus	5.11	70	0.46	
Sardinella maderensis	4.65	279	0.41	
Sepia officinalis hierreda	4.10	4	0.37	
Pomadoury peroteti	4.03	14	0.36	
Raja miraletus	3.58	12	0.32	
Gymnura altavela	1.86	2	0.17	
Blennius normani	1.86	302	0.17	
Eucinostomus melanopterus	1.86	23	0.17	
Portunus validus	1.35	2	0.12	
NETASTOMATIDAE	1.16	23	0.10	
Fistularia petimba	1.16	23	0.10	
Octopus vulgaris	0.75	2	0.07	
Serranus accraensis	0.70	23	0.06	
Alectis alexandrinus	0.60	2	0.05	
Cynoglossus senegalensis	0.58	2	0.05	
Penaeus notialis	0.12	2	0.01	
Squilla mantis	0.08	2	0.01	
Total	1121.03		100.01	

R/V "DR. FRIDTJOF NANSEN" PROJECT:IG PROJECT STATION: 825
 DATE:25/ 5/05 GEAR TYPE: BT No:15 POSITION:Lat N 453
 start stop duration Long W 604
 TIME :11:27:58 11:58:18 30 (min) Purpose code: 3
 LOG :3841.07 3842.54 1.45 Area code : 1
 FDEPTH: 23 23 GearCond.code:
 BDEPTH: 23 23 Validity code:
 Towing dir: 260ø Wire out: 180 m Speed: 29 kn*10

Sorted: Kg Total catch: 246.21 CATCH/HOUR: 492.42

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
J E L L Y F I S H	361.44	252	73.40	
Chloroscombrus chrysurus	26.04	1752	5.29	3471
Pseudotolithus senegalensis	22.80	32	4.63	
Galeoides decadactylus	22.08	36	4.48	
Sepia officinalis hierredda	8.00	12	1.62	
Penaeus kerathurus	6.96	204	1.41	
Drepane africana	6.80	12	1.38	
Ilisha africana	3.48	348	0.71	3470
Sardinella maderensis	3.48	312	0.71	3469
Sphyraena guachancho	3.20	38	0.65	3472
Dasyatis margarita	3.16	10	0.64	
Selene dorsalis	3.12	168	0.63	
Sepia off. h. eggs	2.94	3000	0.60	
Brachydeuterus auritus	2.64	72	0.54	
Parapanaeopsis atlantica	2.40	288	0.49	
Portunus validus	1.60	4	0.32	
Raja miraletus	1.28	2	0.26	
Elops laeeta	1.10	2	0.22	
Pteroscion pelli	0.96	72	0.19	
Pomadasy peroteti	0.94	4	0.19	
Pythonichthys microphthalmus	0.92	8	0.19	
Pomadasy incisus	0.86	4	0.17	
Scomberomorus tritor	0.84	12	0.17	
Pisodonophis semicinctus	0.80	2	0.16	
Trachinocephalus myops	0.78	14	0.16	
Callinectes pallidus	0.72	48	0.15	
Calappa rubroguttata	0.66	4	0.13	
Trichiurus lepturus	0.60	16	0.12	
Caranx senegallus	0.48	312	0.10	
Pentanemus quinquarius	0.48	12	0.10	
Ephippion guttifer	0.38	2	0.08	
Synaptura cadenati	0.16	2	0.03	
Alectis alexandrinus	0.12	4	0.02	
Total	492.22		99.94	

R/V "DR. FRIDTJOF NANSEN" PROJECT:IG PROJECT STATION: 826
 DATE:25/ 5/05 GEAR TYPE: BT No:15 POSITION:Lat N 450
 start stop duration Long W 614
 TIME :13:42:30 14:12:28 30 (min) Purpose code: 3
 LOG :3852.37 3853.65 1.25 Area code : 1
 FDEPTH: 29 27 GearCond.code:
 BDEPTH: 29 27 Validity code:
 Towing dir: 260ø Wire out: 125 m Speed: 30 kn*10

Sorted: 21 Kg Total catch: 254.33 CATCH/HOUR: 508.66

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
J E L L Y F I S H	128.40	220	25.24	
Pomadasy peroteti	110.60	340	21.74	
Galeoides decadactylus	72.40	240	14.23	3475
Parapanaeopsis atlantica	60.60	22120	11.91	
Pseudotolithus senegalensis	27.58	290	5.42	3476
Pteroscion pelli	14.80	620	2.91	3473
Trichiurus lepturus	14.60	680	2.87	3474
Pisodonophis semicinctus	12.80	60	2.52	
Dasyatis margarita	11.32	12	2.23	
Cynoglossus canariensis	8.40	120	1.65	
Ilisha africana	7.20	440	1.42	3477
Cynoponticus ferox	6.16	8	1.21	
Cymbium cymbium	5.80	120	1.14	
Portunus validus	5.28	22	1.04	
Brachydeuterus auritus	3.80	16	0.75	
Sphyraena guachancho	3.00	20	0.59	
Panulirus regius	2.68	20	0.53	
Drepane africana	2.60	2	0.51	
Calappa rubroguttata	2.20	20	0.43	
Torpedo nobiliana	1.92	6	0.38	
Pentanemus quinquarius	1.60	120	0.31	
Chloroscombrus chrysurus	1.20	100	0.24	
Perullibatrachus elminensis	0.98	34	0.19	
Squilla acuelata calmani	0.80	40	0.16	
Lagocephalus laevigatus	0.68	4	0.13	
Pythonichthys microphthalmus	0.46	8	0.09	
Brotula barbata	0.40	40	0.08	
Sardinella maderensis	0.40	40	0.08	
Total	508.66		100.00	

R/V "DR. FRIDTJOF NANSEN" PROJECT:IG PROJECT STATION: 827
 DATE:25/ 5/05 GEAR TYPE: BT No:15 POSITION:Lat N 446
 start stop duration Long W 617
 TIME :15:33:45 16:03:41 30 (min) Purpose code: 3
 LOG :3858.93 3860.29 1.36 Area code : 1
 FDEPTH: 45 45 GearCond.code:
 BDEPTH: 45 45 Validity code:
 Towing dir: 255ø Wire out: 166 m Speed: 30 kn*10

Sorted: Kg Total catch: 209.31 CATCH/HOUR: 418.62

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Brachydeuterus auritus	134.40	1160	32.11	3480
Cymbium cymbium	128.00	80	30.58	
Raja miraletus	16.36	40	3.91	
Parapanaeopsis atlantica	15.20	3640	3.63	
Pisodonophis semicinctus	14.40	120	3.44	
Ilisha africana	14.00	1480	3.34	3481
Pteroscion pelli	12.40	840	2.96	3478
Trichiurus lepturus	12.00	840	2.87	3479
Cynoglossus senegalensis	10.80	280	2.58	
Galeoides decadactylus	10.00	160	2.39	
Sepia officinalis hierredda	8.40	40	2.01	
Chloroscombrus chrysurus	8.00	160	1.91	
Selene dorsalis	6.40	280	1.53	
Brotula barbata	4.80	80	1.15	
Pomadasy incisus	4.40	40	1.05	
Sardinella maderensis	4.40	280	1.05	
Dasyatis margarita	2.84	2	0.68	
Ephippion guttifer	2.64	2	0.63	
Torpedo torpedo	2.32	6	0.55	
Calappa rubroguttata	2.00	200	0.48	
Grammolites gruvelli	2.00	200	0.48	
Pseudotolithus senegalensis	0.80	40	0.19	
Gobius sp	0.80	200	0.19	
Panulirus regius	0.46	2	0.11	
Sicyonia galeata	0.40	120	0.10	
Bothus podas africanus	0.40	40	0.10	
Total	418.62		100.02	

R/V "DR. FRIDTJOF NANSEN" PROJECT:IG PROJECT STATION: 828
 DATE:25/ 5/05 GEAR TYPE: BT No:15 POSITION:Lat N 439
 start stop duration Long W 617
 TIME :17:24:49 17:54:22 30 (min) Purpose code: 3
 LOG :3868.83 3870.06 1.21 Area code : 1
 FDEPTH: 80 82 GearCond.code:
 BDEPTH: 80 82 Validity code:
 Towing dir: 265ø Wire out: 266 m Speed: 30 kn*10

Sorted: 31 Kg Total catch: 470.85 CATCH/HOUR: 941.70

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Priacanthus arenatus	240.00	14640	25.49	3486
Trachurus trecae	201.00	8490	21.34	3483
Pagellus bellottii	123.00	2580	13.06	3487
Dentex angolensis	85.50	1950	9.08	3482
Boops boops	79.50	2610	8.44	3485
Pseudupeneus prayensis	44.70	450	4.75	
Sepia officinalis hierredda	35.40	60	3.76	
Dentex congoensis	31.50	1560	3.35	3484
Saurida brasiliensis	20.40	3300	2.17	
Uranoscopus cadenati	16.50	90	1.75	
Sardinella aurita	13.50	90	1.43	
Citharus linguatula	12.00	240	1.27	
Sphaeroides pachygaster	7.50	60	0.80	
Branchiostegus semifasciatus	7.40	30	0.57	
Fistularia petimba	4.50	60	0.48	
Sphyraena sphyraena	4.20	30	0.45	
Brotula barbata	3.60	60	0.38	
Octopus vulgaris	3.30	30	0.35	
Dicologlossa cuneata	3.00	30	0.32	
Lepidotrigla carolae	2.40	90	0.25	
Todarodes sagittatus	1.80	30	0.19	
Grammolites gruvelli	1.50	30	0.16	
Decapterus punctatus	1.50	120	0.16	
Total	941.70		100.00	

R/V "DR. FRIDTJOF NANSEN" PROJECT:IG PROJECT STATION: 829
 DATE:25/ 5/05 GEAR TYPE: PT No: 5 POSITION:Lat N 446
 start stop duration Long E 610
 TIME :20:43:02 21:14:53 32 (min) Purpose code: 1
 LOG :3892.78 3894.54 1.76 Area code : 1
 FDEPTH: 5 5 GearCond.code:
 BDEPTH: 53 46 Validity code:
 Towing dir: 28ø Wire out: 150 m Speed: 32 kn*10

Sorted: 25 Kg Total catch: 161.58 CATCH/HOUR: 302.96

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Brachydeuterus auritus	220.13	4903	72.66	3490
Lutjanus dentatus	40.39	4	13.33	
Chloroscombrus chrysurus	9.75	206	3.22	3488
Sardinella aurita	8.83	79	2.91	3491
Sardinella maderensis	8.19	126	2.70	3489
Selene dorsalis	6.94	75	2.29	
Sphyraena guachancho	3.51	11	1.16	
Selar crumenophthalmus	1.44	6	0.48	
Scomberomorus tritor	1.28	2	0.42	
Ilisha africana	0.94	28	0.31	
Scomber japonicus	0.92	4	0.30	
Trichiurus lepturus	0.66	28	0.22	
Total	302.98		100.00	

R/V "DR. FRIDTJOF NANSEN" PROJECT:IG PROJECT STATION: 830
 DATE:26/ 5/05 GEAR TYPE: BT No:5 POSITION:Lat N 438
 start stop duration Long W 629
 TIME :01:09:30 01:39:18 30 (min) Purpose code: 1
 LOG :3920.29 3921.40 1.10 Area code : 1
 FDEPTH: 5 5 GearCond.code:
 BDEPTH: 74 77 Validity code:
 Towing dir: 225ø Wire out: 150 m Speed: 30 kn*10

Sorted: Kg Total catch: 6.40 CATCH/HOUR: 12.80

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Sardinella maderensis	3.62	198	28.28	
Ariomma bondi	3.14	56	24.53	
Sardinella aurita	2.58	108	20.16	
Sphyræna guachancho	1.98	20	15.47	
Chloroscombrus chrysurus	0.66	14	5.16	
Decapterus punctatus	0.40	24	3.13	
Selene dorsalis	0.36	8	2.81	
Alloteuthis africana	0.06	32	0.47	
Total	12.80		100.01	

R/V "DR. FRIDTJOF NANSEN" PROJECT:IG PROJECT STATION: 831
 DATE:26/ 5/05 GEAR TYPE: BT No:15 POSITION:Lat N 434
 start stop duration Long W 635
 TIME :06:05:35 06:25:50 20 (min) Purpose code: 3
 LOG :3932.64 3933.68 1.03 Area code : 1
 FDEPTH: 84 83 GearCond.code:
 BDEPTH: 84 83 Validity code:
 Towing dir: 70ø Wire out: 265 m Speed: 31 kn*10

Sorted: 25 Kg Total catch: 354.38 CATCH/HOUR: 1063.14

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Priacanthus arenatus	680.04	43368	63.97	3494
Trachurus trecae	171.36	8496	16.12	3492
Dentex angolensis	39.42	171	3.71	3493
Sepia officinalis hierredda	17.76	42	1.67	
Raja miraletus	17.28	72	1.63	
Brotula barbata	17.16	45	1.61	
Alloteuthis africana	13.68	3996	1.29	
Umbrina canariensis	13.20	39	1.24	
Citharus linguatula	10.44	324	0.98	
Lepidotrigla carolae	8.28	144	0.78	
Uranoscopus polli	7.92	288	0.74	
Scorpaena scrofa	6.93	15	0.65	
Pagellus bellottii	6.60	48	0.62	
Boops boops	6.48	252	0.61	
Dentex canariensis	6.30	9	0.59	
Uranoscopus albesca	6.12	18	0.58	
Todarodes sagittatus	6.12	72	0.58	
Pentheroscion mbizi	5.61	30	0.53	
Squatina oculata	4.29	3	0.40	
Selar crumenophthalmus	3.96	36	0.37	
Dicologlossa hexophthalma	3.60	36	0.34	
Sphyræna guachancho	2.52	9	0.24	
Microchirus frechkopi	2.16	72	0.20	
Lophodes kempi	2.80	3	0.17	
Sphoeroides pachygaster	1.56	6	0.15	
Zeus faber	0.93	3	0.09	
Fistularia petimba	0.90	6	0.08	
Saurida brasiliensis	0.72	180	0.07	
Total	1063.14		100.01	

R/V "DR. FRIDTJOF NANSEN" PROJECT:IG PROJECT STATION: 832
 DATE:26/ 5/05 GEAR TYPE: BT No:15 POSITION:Lat N 438
 start stop duration Long W 634
 TIME :08:24:33 08:55:27 31 (min) Purpose code: 3
 LOG :3939.85 3941.37 1.51 Area code : 1
 FDEPTH: 57 55 GearCond.code:
 BDEPTH: 57 55 Validity code:
 Towing dir: 260ø Wire out: 220 m Speed: 30 kn*10

Sorted: 33 Kg Total catch: 484.83 CATCH/HOUR: 938.38

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Brachydeuterus auritus	470.67	11706	50.16	3495
Sphyræna guachancho	104.05	434	11.09	
Trichiurus lepturus	46.34	1951	4.94	
Selene dorsalis	45.25	488	4.82	
Pagellus bellottii	42.54	244	4.53	
Raja miraletus	22.22	135	2.37	
Chloroscombrus chrysurus	22.22	298	2.37	
Sardinella maderensis	21.41	1490	2.28	3496
Brotula barbata	18.70	135	1.99	
Umbrina canariensis	17.34	54	1.85	
Cynoglossus senegalensis	17.07	108	1.82	
Pteroscion peli	13.01	461	1.39	
Cymbium sp.	10.06	10	1.07	
Stromateus fiatola	7.88	12	0.84	
Cynoponticus ferox	7.24	4	0.77	
Pentheroscion mbizi	7.05	27	0.75	
Pomadasys incisus	7.05	81	0.75	
Grammolites gruvelli	6.77	298	0.72	
Citharus linguatula	6.23	352	0.66	
Octopus vulgaris	6.15	10	0.66	
Penaeus notialis	6.10	240	0.65	
Galeoides decadactylus	5.42	190	0.58	
Ilisha africana	4.88	135	0.52	
Serranus scriba	4.34	217	0.46	
Syacium micrurum	3.25	190	0.35	
Antennarius sp.	2.98	27	0.32	
Microchirus frechkopi	2.71	163	0.29	
Dicologlossa cuneata	2.71	27	0.29	
Eucinostomus melanopterus	2.17	54	0.23	
Gobius sp	1.90	244	0.20	
Squilla mantis	1.08	54	0.12	
Ferulibatrachus elminensis	0.91	4	0.10	
Epinephelus aeneus	0.43	4	0.05	
Paronchellius stauchi	0.27	81	0.03	
Total	938.40		100.02	

R/V "DR. FRIDTJOF NANSEN" PROJECT:IG PROJECT STATION: 833
 DATE:26/ 5/05 GEAR TYPE: BT No:15 POSITION:Lat N 441
 start stop duration Long W 637
 TIME :09:48:42 10:18:42 30 (min) Purpose code: 3
 LOG :3945.46 3947.59 2.06 Area code : 1
 FDEPTH: 37 35 GearCond.code:
 BDEPTH: 37 35 Validity code:
 Towing dir: 70ø Wire out: 200 m Speed: 30 kn*10

Sorted: 18 Kg Total catch: 226.95 CATCH/HOUR: 453.90

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Pomadasys jubelini	95.04	100	20.94	3501
Ilisha africana	74.20	3660	16.35	3500
Pseudotolithus typus	43.94	82	9.68	
Dasyatis margarita	42.68	44	9.40	
Ephippion guttifer	26.52	6	5.84	
Brachydeuterus auritus	26.10	540	5.75	3499
Galeoides decadactylus	26.00	62	5.73	3502
Pomadasys incisus	15.04	86	3.31	3497
Sardinella maderensis	13.20	1130	2.91	3503
Fanulirus regius	10.08	24	2.22	
Penaeus notialis	10.00	1820	2.20	
Epinephelus aeneus	9.52	4	2.10	
Trichiurus lepturus	8.30	220	1.83	
Chloroscombrus chrysurus	7.70	180	1.70	
Selene dorsalis	7.42	102	1.63	3498
Sphyræna guachancho	7.30	140	1.61	
Dasyatis marmorata	5.98	6	1.32	
Pomadasys peroteti	5.44	22	1.20	
Scyllarides herklotsii	5.20	810	1.15	
Elops senegalensis	5.10	10	1.12	
Torpedo torpedo	4.90	16	1.08	
Stromateus fiatola	1.64	4	0.36	
Grammolites gruvelli	1.00	80	0.22	
Pteroscion peli	1.00	80	0.22	
Raja miraletus	0.60	4	0.13	
Total	453.90		100.00	

R/V "DR. FRIDTJOF NANSEN" PROJECT:IG PROJECT STATION: 834
 DATE:26/ 5/05 GEAR TYPE: BT No:15 POSITION:Lat N 437
 start stop duration Long W 653
 TIME :13:10:12 13:40:43 31 (min) Purpose code: 3
 LOG :3967.68 3968.95 1.23 Area code : 1
 FDEPTH: 28 27 GearCond.code: 8
 BDEPTH: 28 27 Validity code:
 Towing dir: 255ø Wire out: 134 m Speed: 30 kn*10

Sorted: 30 Kg Total catch: 251.42 CATCH/HOUR: 486.62

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
J E L L Y F I S H	113.11	627	23.24	
Ilisha africana	80.13	5899	16.47	3505
Pseudotolithus typus	48.89	15	10.05	
Parapenaeopsis atlantica	44.36	17535	9.12	
Dasyatis margarita	36.93	45	7.59	
Pseudotolithus senegalensis	32.17	279	6.61	3510
Pteroscion peli	30.43	2055	6.25	3508
Brachydeuterus auritus	11.96	1335	2.46	3507
Cynoglossus cadenati	11.65	23	2.39	
Drepane africana	10.14	48	2.08	
Trichiurus lepturus	9.29	302	1.91	3506
Epinephelus aeneus	8.03	2	1.65	
Galeoides decadactylus	8.01	70	1.65	
Selene dorsalis	7.43	302	1.53	3509
Pomadasys peroteti	7.06	37	1.45	
Cynoponticus ferox	6.77	4	1.39	
Sardinella maderensis	5.92	720	1.22	3504
Pisodonophis semicinctus	3.79	14	0.78	
Sphyræna sphyraena	1.97	58	0.40	
Raja miraletus	1.80	6	0.37	
Rhinobatos albomaculatus	1.74	12	0.36	
Pentaneus quinquarius	1.51	35	0.31	
Fanulirus regius	1.10	2	0.23	
Squilla mantis	1.05	35	0.22	
Ephippion guttifer	0.56	2	0.12	
Pomadasys incisus	0.52	6	0.11	
Sepia officinalis hierredda	0.23	151	0.05	
Torpedo torpedo	0.04	2	0.01	
Total	486.59		100.02	

R/V "DR. FRIDTJOF NANSEN" PROJECT:IG PROJECT STATION: 835
 DATE:26/ 5/05 GEAR TYPE: BT No:16 POSITION:Lat N 434
 start stop duration Long W 655
 TIME :14:54:45 15:24:37 30 (min) Purpose code: 3
 LOG :3974.19 3975.50 1.30 Area code : 1
 FDEPTH: 43 44 GearCond.code:
 BDEPTH: 43 44 Validity code:
 Towing dir: 240ø Wire out: 154 m Speed: 30 kn*10
 Sorted: 32 Kg Total catch: 208.93 CATCH/HOUR: 417.86

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Trichiurus lepturus	64.00	2630	15.32	3514
Scyllarides herklotsii	56.00	1120	13.40	
Pseudotolithus senegalensis	55.00	2300	13.16	3516
Brachydeuterus auritus	45.00	2330	10.77	3511
Sphyræna guachancho	37.48	110	8.97	3512
Pteroscion pelli	27.60	1340	6.61	3515
Pomadasy peroteti	25.70	48	6.15	
Galeoides decadactylus	15.10	80	3.61	
J E L Y F I S H	11.00	170	2.63	
Dasyatis marmorata	10.48	4	2.51	
Selene dorsalis	7.40	180	1.77	3518
Pomadasy incisus	7.16	34	1.71	
Cynoponticus ferox	7.08	20	1.69	
Penaeus notialis	6.90	220	1.65	
Sardinella maderensis	6.70	540	1.60	3513
Chloroscombrus chrysurus	5.80	50	1.39	
Grammolites gruvelli	5.20	290	1.24	
Parapenaeopsis atlantica	3.80	950	0.91	
Ilisha africana	3.30	290	0.79	3517
Sepia officinalis hierredda	2.38	10	0.57	
Torpedo torpedo	2.24	12	0.54	
Perulibrachius elminensis	2.20	80	0.53	
Dasyatis margarita	1.48	6	0.35	
Antennarius sp.	1.40	40	0.34	
Raja miraletus	1.32	8	0.32	
Elops lacerta	1.28	2	0.31	
Cynoglossus cadenati	1.28	2	0.31	
'Spider crab 2'	0.60	40	0.14	
Paronchelius stauchi	0.60	120	0.14	
Lagocephalus laevigatus	0.50	2	0.12	
Pisodanophis semicinctus	0.44	2	0.11	
Syacium micrurum	0.40	40	0.10	
Alectis alexandrinus	0.30	10	0.07	
Gobius sp	0.28	70	0.07	
Squilla cadenati	0.20	20	0.05	
Sicyonia galeata	0.10	30	0.02	
Brotula barbata	0.10	30	0.02	
Total	417.80		99.99	

R/V "DR. FRIDTJOF NANSEN" PROJECT:IG PROJECT STATION: 836
 DATE:26/ 5/05 GEAR TYPE: BT No:16 POSITION:Lat N 429
 start stop duration Long W 651
 TIME :17:20:47 17:50:38 30 (min) Purpose code: 3
 LOG :3988.81 3990.23 1.41 Area code : 1
 FDEPTH: 81 82 GearCond.code:
 BDEPTH: 81 82 Validity code:
 Towing dir: 247ø Wire out: 265 m Speed: 30 kn*10
 Sorted: 44 Kg Total catch: 44.27 CATCH/HOUR: 88.54

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Priacanthus arenatus	15.98	986	18.05	3519
Sepia officinalis hierredda	14.72	24	16.63	
Squatina oculata	12.56	2	14.19	
Epinephelus aeneus	12.28	2	13.87	
Dentex angolensis	12.12	104	13.69	3520
Raja miraletus	9.02	22	10.19	
Trachurus trecae	2.78	126	3.14	3521
Alloteuthis africana	2.14	552	2.42	
Sphyræna sphyraena	1.68	10	1.90	
Umbalina canariensis	1.62	6	1.83	
Uranoscopus polli	0.70	4	0.79	
Pagellus bellottii	0.54	4	0.61	
Dentex canariensis	0.50	2	0.56	
Zeus faber	0.48	2	0.54	
Todarodes sagittatus	0.36	4	0.41	
Dibranchius atlanticus	0.24	2	0.27	
Chaetodon hoefleri	0.20	2	0.23	
Boops boops	0.18	6	0.20	
Scyllarides herklotsii	0.16	14	0.18	
Grammolites gruvelli	0.14	2	0.16	
Lagocephalus laevigatus	0.12	2	0.14	
Fistularia petimba	0.02	2	0.02	
Total	88.54		100.02	

R/V "DR. FRIDTJOF NANSEN" PROJECT:IG PROJECT STATION: 837
 DATE:27/ 5/05 GEAR TYPE: PT No: 5 POSITION:Lat N 422
 start stop duration Long W 705
 TIME :02:39:24 03:09:21 30 (min) Purpose code: 1
 LOG :4052.06 4053.07 1.00 Area code : 1
 FDEPTH: 5 5 GearCond.code:
 BDEPTH: 75 75 Validity code:
 Towing dir: 206ø Wire out: 150 m Speed: 35 kn*10
 Sorted: Kg Total catch: 0.07 CATCH/HOUR: 0.14

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Sardinella aurita	0.10	2	71.43	
Priacanthus arenatus	0.04	4	28.57	
Total	0.14		100.00	

R/V "DR. FRIDTJOF NANSEN" PROJECT:IG PROJECT STATION: 838
 DATE:27/ 5/05 GEAR TYPE: BT No:16 POSITION:Lat N 414
 start stop duration Long W 727
 TIME :07:06:01 07:37:40 32 (min) Purpose code: 3
 LOG :4082.66 4084.23 1.56 Area code : 1
 FDEPTH: 76 75 GearCond.code:
 BDEPTH: 76 75 Validity code:
 Towing dir: 70ø Wire out: 230 m Speed: 30 kn*10
 Sorted: 16 Kg Total catch: 107.65 CATCH/HOUR: 201.84

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Brachydeuterus auritus	79.20	10815	39.24	3525
Brotula barbata	45.71	98	22.65	
Trachurus trecae	25.58	1095	12.67	3524
Uranoscopus cadenati	9.77	43	4.84	
Trichiurus lepturus	9.38	338	4.65	
Dentex angolensis	9.23	71	4.57	3522
Saurida brasiliensis	3.30	563	1.63	
Octopus vulgaris	3.08	6	1.53	
Pagellus bellottii	2.27	39	1.12	3523
Sphyræna guachancho	2.16	36	1.07	
Umbalina canariensis	1.88	6	0.93	
Citharus linguatula	1.80	30	0.89	
Scorpaena scrofa	1.46	2	0.72	
Lepidotrigla carolae	1.41	13	0.70	
Alloteuthis africana	1.28	390	0.63	
Raja miraletus	0.94	2	0.47	
Pentheroscion mbizi	0.84	6	0.42	
Branchiostegus semifasciatus	0.71	2	0.35	
Priacanthus arenatus	0.64	6	0.32	
Perulibrachius elminensis	0.49	2	0.24	
Boops boops	0.30	53	0.15	
Selene dorsalis	0.23	8	0.11	
Gobius sp	0.15	23	0.07	
Sardinella maderensis	0.08	15	0.04	
Total	201.89		100.01	

R/V "DR. FRIDTJOF NANSEN" PROJECT:IG PROJECT STATION: 839
 DATE:27/ 5/05 GEAR TYPE: BT No:16 POSITION:Lat N 417
 start stop duration Long W 727
 TIME :08:37:53 09:07:15 29 (min) Purpose code: 3
 LOG :4090.34 4091.90 1.53 Area code : 1
 FDEPTH: 42 45 GearCond.code:
 BDEPTH: 42 45 Validity code:
 Towing dir: 80ø Wire out: 180 m Speed: 31 kn*10
 Sorted: 27 Kg Total catch: 122.43 CATCH/HOUR: 253.30

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Pseudotolithus typus	45.35	64	17.90	
Trichiurus lepturus	37.66	898	14.87	
Sphyræna guachancho	36.08	139	14.24	3533
Brachydeuterus auritus	23.71	737	9.36	3526
Pteroscion pelli	19.49	708	7.69	3532
Galeoides decadactylus	17.96	103	7.09	3530
Rhizoprionodon acutus	10.30	2	4.07	
Chloroscombrus chrysurus	8.86	141	3.50	3527
Drepane africana	7.92	17	3.13	
Penaeus notialis	7.03	2512	2.78	
Selene dorsalis	6.70	72	2.65	3528
Portunus validus	6.04	14	2.38	
Sardinella maderensis	4.22	271	1.67	3529
Pomadasy jubelini	4.12	4	1.63	
Ilisha africana	3.97	248	1.57	3531
Dasyatis marmorata	3.39	8	1.34	
Raja miraletus	2.63	6	1.04	
Psettodes belcheri	1.20	2	0.47	
Cynoglossus canariensis	1.18	2	0.47	
Stromateus fiatola	1.18	4	0.47	
Scyllarides herklotsii	0.91	112	0.36	
Pomadasy incisus	0.81	4	0.32	
Alectis alexandrinus	0.62	4	0.24	
Syacium micrurum	0.50	66	0.20	
Epinephelus aeneus	0.35	4	0.14	
Sepia officinalis hierredda	0.29	2	0.11	
Gobius sp	0.29	116	0.11	
Grammolites gruvelli	0.29	12	0.11	
Uranoscopus polli	0.25	8	0.10	
Total	253.30		100.01	

R/V "DR. FRIDTJOF NANSEN" PROJECT:IG PROJECT STATION: 840
 DATE:27/ 5/05 GEAR TYPE: BT No:16 POSITION:Lat N 419
 start stop duration Long W 729
 TIME :10:05:05 10:36:04 31 (min) Purpose code: 3
 LOG :4097.65 4099.38 1.72 Area code : 1
 FDEPTH: 28 29 GearCond.code:
 BDEPTH: 28 29 Validity code:
 Towing dir: 80ø Wire out: 150 m Speed: 30 kn*10
 Sorted: 39 Kg Total catch: 45.99 CATCH/HOUR: 89.01

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Chloroscombrus chrysurus	25.37	269	28.50	3536
Pseudotolithus typus	25.24	58	28.36	3534
Galeoides decadactylus	10.86	46	12.20	3538
Selene dorsalis	6.99	60	7.85	3537
Sphyræna guachancho	4.88	27	5.48	
Pomadasy jubelini	4.01	6	4.51	
Ilisha africana	3.48	110	3.91	3535
Drepane africana	1.92	8	2.16	
Parapenaeopsis atlantica	1.59	265	1.79	
Cynoglossus senegalensis	0.79	2	0.89	
Trichiurus lepturus	0.74	33	0.83	
Pentaneus quinquarius	0.74	6	0.83	
Sardinella maderensis	0.72	37	0.81	
Scomberomorus tritor	0.64	2	0.72	
Brachydeuterus auritus	0.35	10	0.39	
Portunus validus	0.33	2	0.37	
Psettodes belcheri	0.27	2	0.30	
Scyllarides herklotsii	0.06	8	0.07	
Lutjanus fulgens	0.06	2	0.07	
Total	89.04		100.04	

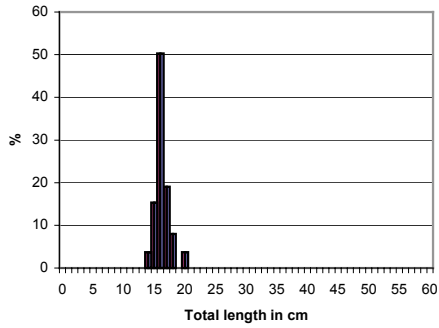
R/V "DR. FRIDTJOF NANSEN" PROJECT:IG PROJECT STATION: 841
 DATE:27/ 5/05 GEAR TYPE: BT No:16 POSITION:Lat N 417
 start stop duration Long W 712
 TIME :12:22:34 12:39:41 17 (min) Purpose code: 3
 LOG :4115.27 4116.15 0.87 Area code : 1
 FDEPTH: 83 82 GearCond.code:
 BDEPTH: 83 82 Validity code:
 Towing dir: 75ø Wire out: 285 m Speed: 30 kn*10
 Sorted: 34 Kg Total catch: 7845.54 CATCH/HOUR: 27690.14

SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
Priacanthus arenatus	23826.78	812277	86.05	3540
Trachurus trecae	986.05	51727	3.56	
Sphyraena sphyraena	905.22	4849	3.27	
Sardinella aurita	743.58	24247	2.69	3539
Pagellus bellottii	727.41	6466	2.63	
Boops boops	323.29	1616	1.17	
Sphoeroides marmoratus	177.81	1616	0.64	
Total	27690.14		100.01	

R/V "DR. FRIDTJOF NANSEN" PROJECT:IG PROJECT STATION: 842
 DATE:27/ 5/05 GEAR TYPE: BT No:16 POSITION:Lat N 422
 start stop duration Long W 713
 TIME :13:55:16 14:15:34 20 (min) Purpose code: 3
 LOG :4123.74 4124.70 0.95 Area code : 1
 FDEPTH: 65 66 GearCond.code: 8
 BDEPTH: 65 66 Validity code:
 Towing dir: 65ø Wire out: 245 m Speed: 30 kn*10
 Sorted: Kg Total catch: 252.51 CATCH/HOUR: 757.53

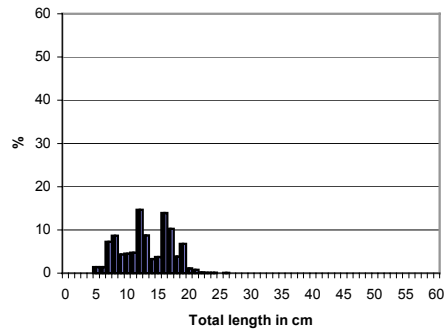
SPECIES	CATCH/HOUR		% OF TOT. C	SAMP
	weight	numbers		
J E L L Y F I S H	672.00	3000	88.71	
Selene dorsalis	19.83	153	2.62	3542
Trachurus trecae	16.65	636	2.20	3543
Pagellus bellottii	12.24	96	1.62	3541
Dentex canariensis	8.04	24	1.06	
Epinephelus aeneus	5.61	3	0.74	
Sepia officinalis hierredda	3.63	18	0.48	
Umbrina canariensis	2.91	6	0.38	
Brotula barbata	2.79	12	0.37	
Pseudupeneus prayensis	2.22	27	0.29	
Chilomycterus spinosus mauret.	1.62	6	0.21	
Priacanthus arenatus	1.50	3	0.20	
Decapterus punctatus	1.47	39	0.19	
Sardinella aurita	1.32	36	0.17	
Dactylopterus volitans	1.20	3	0.16	
Raja miraletus	1.17	3	0.15	
Sphyraena guachancho	1.02	6	0.13	
Scorpaena scrofa	0.75	6	0.10	
Grammolites gruvelli	0.33	6	0.04	
Chelidonichthys gabonensis	0.30	3	0.04	
Alloteuthis africana	0.24	78	0.03	
Illex coindetii	0.24	6	0.03	
Chaetodon marcellae	0.21	3	0.03	
Pagrus caeruleostictus	0.18	3	0.02	
Saurida brasiliensis	0.06	12	0.01	
Total	757.53		99.98	

Annex II Length distributions of main species



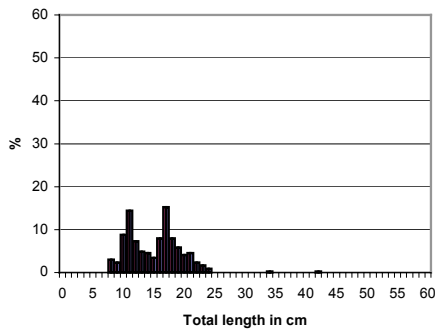
Boops boops
Mean length = 16.7 cm

Benin
N = 26



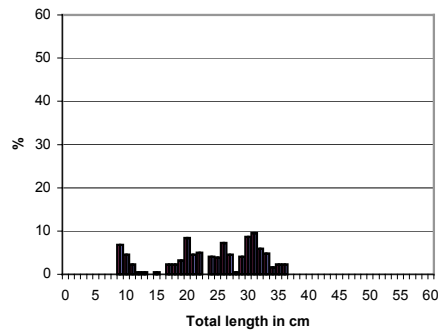
Pagellus bellottii
Mean length = 13.6 cm

Benin
N = 133



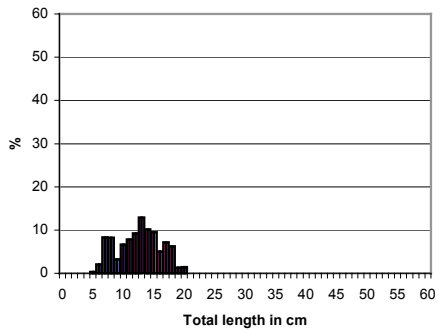
Dentex angolensis
Mean length = 15.6 cm

Benin
N = 250



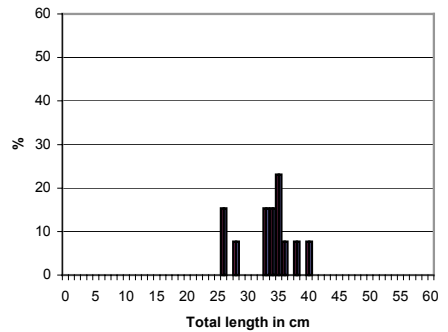
Pagrus caeruleostictus
Mean length = 24.7 cm

Benin
N = 87



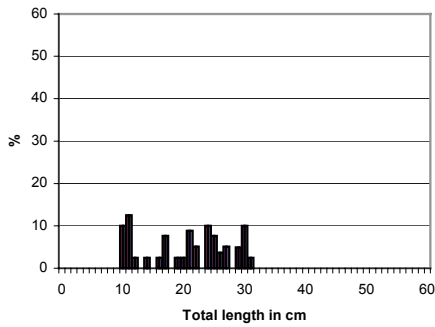
Dentex congolensis
Mean length = 13.1 cm

Benin
N = 270

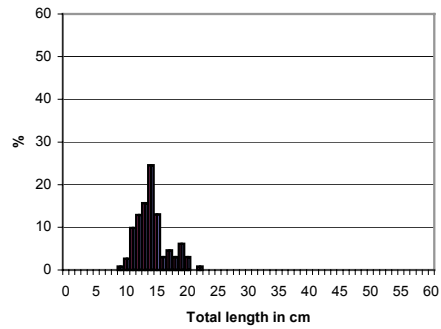


Dentex canariensis
Mean length = 33.8 cm

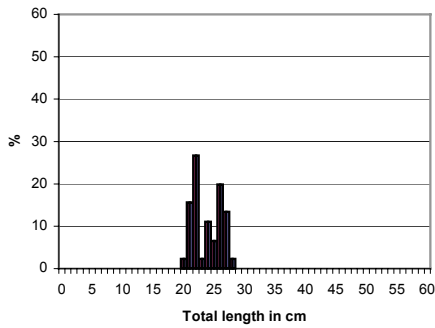
Benin
N = 13



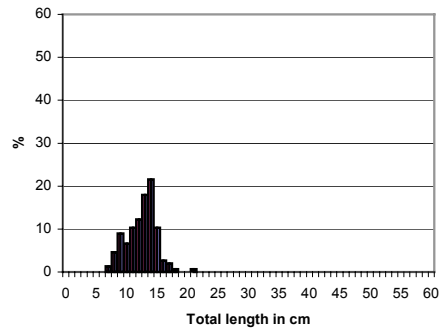
Pseudotolithus senegalensis Benin
Mean length = 20.9 cm N = 43



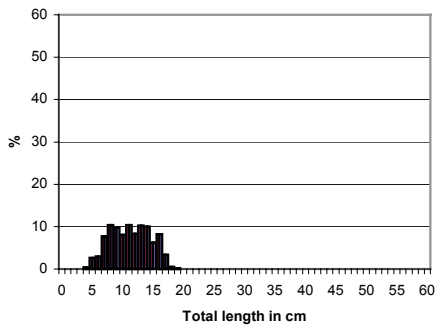
Priacanthus arenatus Benin
Mean length = 14.6 cm N = 76



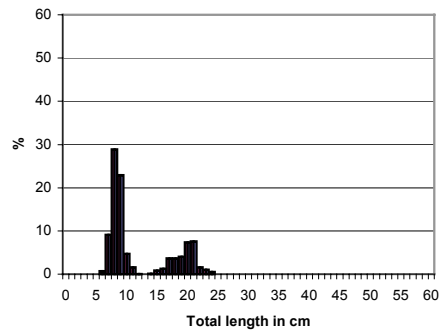
Pentheroscion mbizi Benin
Mean length = 24.3 cm N = 45



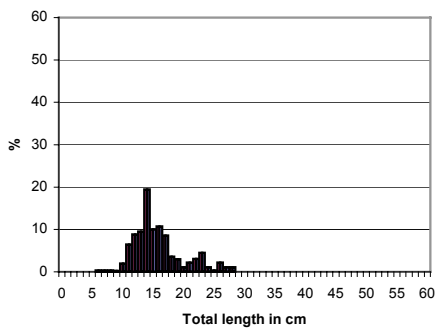
Ilisha africana Benin
Mean length = 13.0 cm N = 153



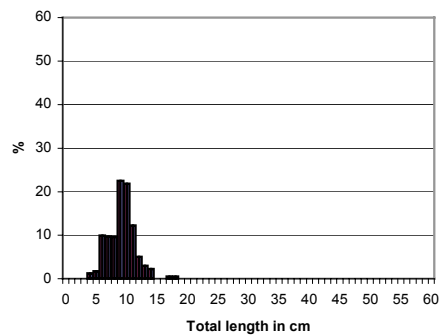
Brachydeuterus auritus Benin
Mean length = 11.7 cm N = 451



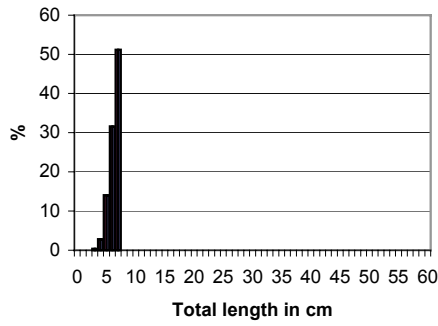
Sardinella aurita Benin
Mean length = 12.4 cm N = 399



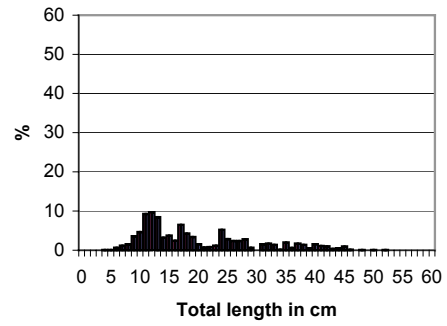
Galeoides decadctylus Benin
Mean length = 16.3 cm N = 159



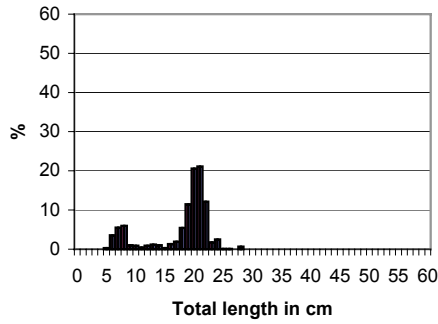
Sardinella maderensis Benin
Mean length = 9.7 cm N = 204



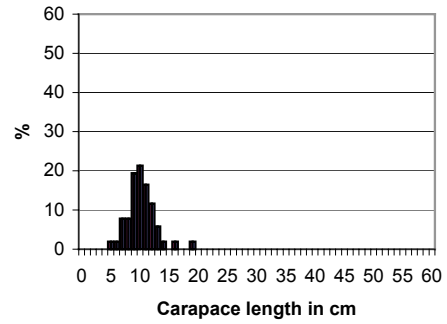
Engraulis encrasicolus Benin
Mean length = 6.8 cm N = 204



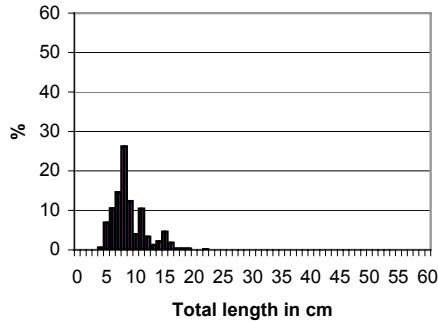
Sphyraena guachancho Benin
Mean length = 20.1 cm N = 522



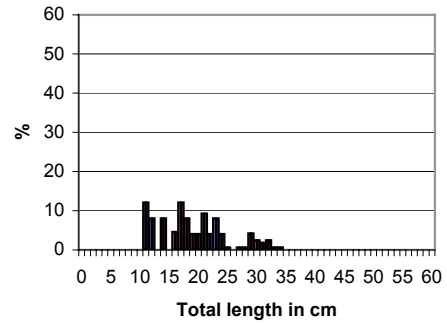
Chloroscombrus chrysurus Benin
Mean length = 18.4 cm N = 395



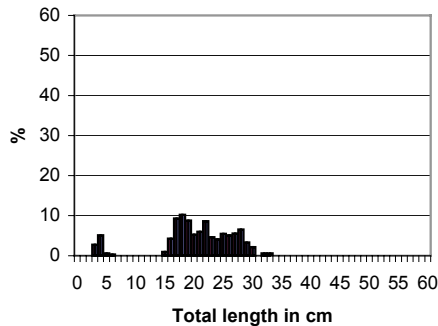
Sepia officinalis hierredda Benin
Mean length = 10.7 cm N = 52



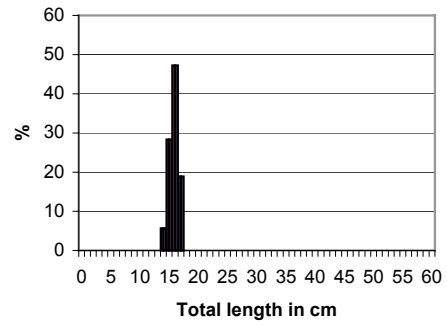
Decapterus punctatus Benin
Mean length = 9.3 cm N = 199



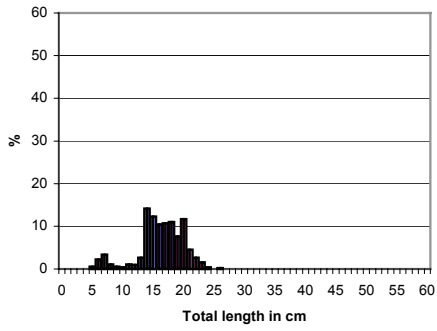
Dentex angolensis Togo
Mean length = 19.5 cm N = 47



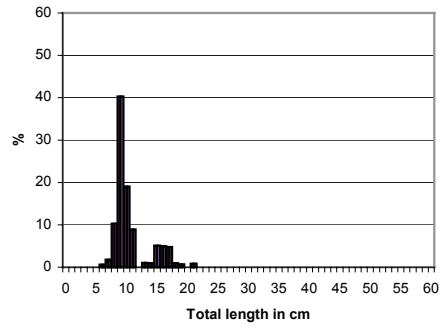
Selene dorsalis Benin
Mean length = 21.0 cm N = 209



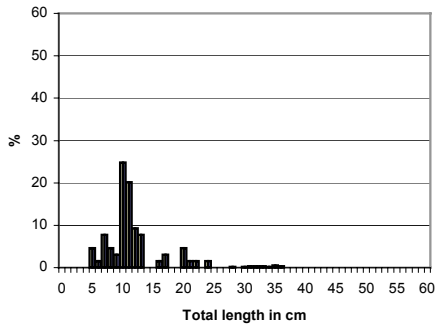
Boops boops Togo
Mean length = 16.3 cm N = 53



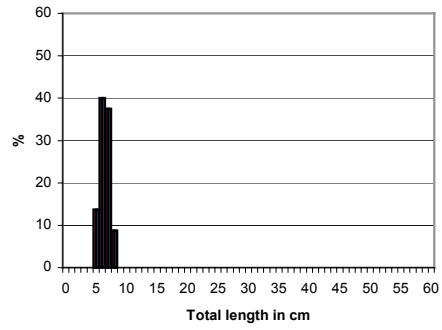
Pagellus bellottii Togo
Mean length = 16.8 cm N = 209



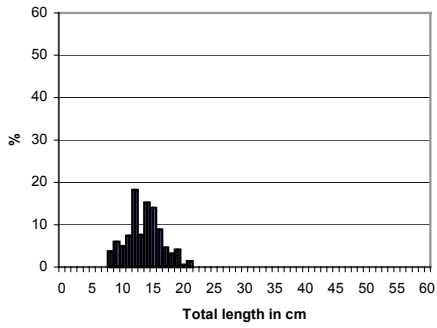
Sardinella aurita Togo
Mean length = 11.1 cm N = 227



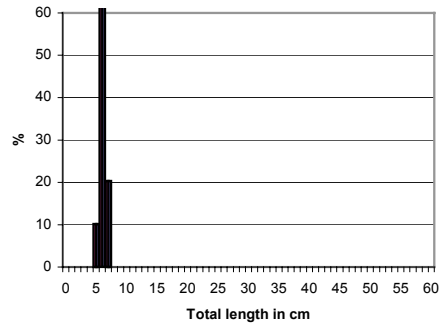
Pagrus caeruleostictus Togo
Mean length = 12.4 cm N = 77



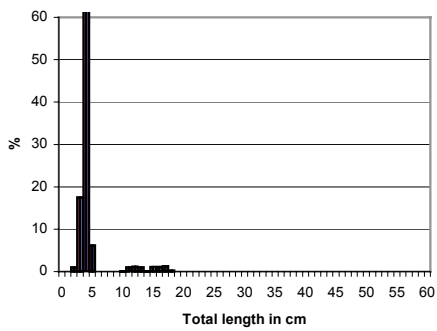
Sardinella maderensis Togo
Mean length = 7.9 cm N = 80



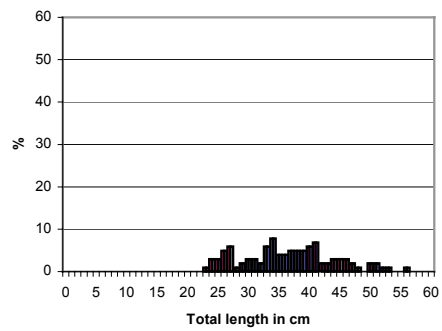
Pseudupeneus prayensis Togo
Mean length = 14.0 cm N = 155



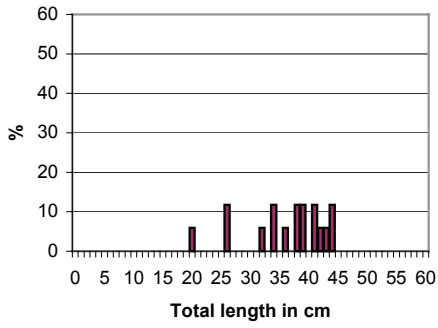
Engraulis encrasicolus Togo
Mean length = 6.6 cm N = 59



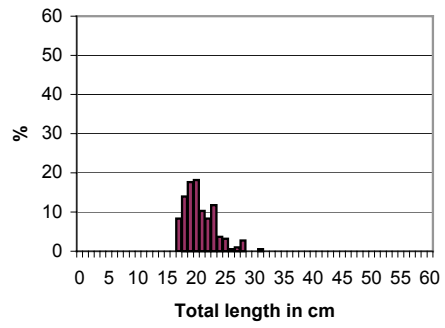
Brachydeuterus auritus Togo
Mean length = 5.1 cm N = 120



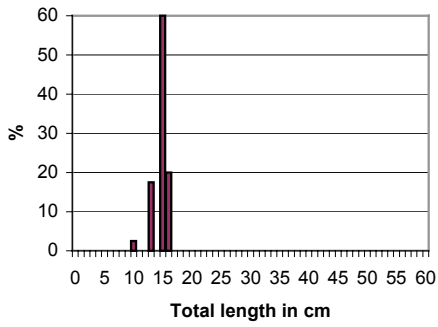
Sphyraena guachancho Togo
Mean length = 37.03 cm N = 102



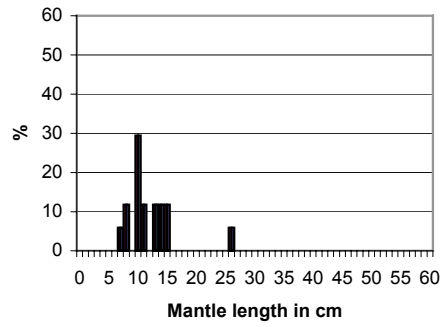
Sphyraena sphyraena Togo
Mean length = 36.8 cm N = 17



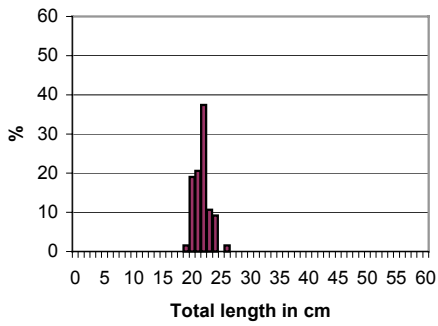
Selene dorsalis Togo
Mean length = 21.1 cm N = 75



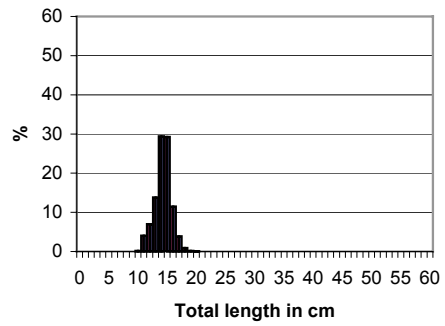
Decapterus rhonchus Togo
Mean length = 15.23 cm N = 40



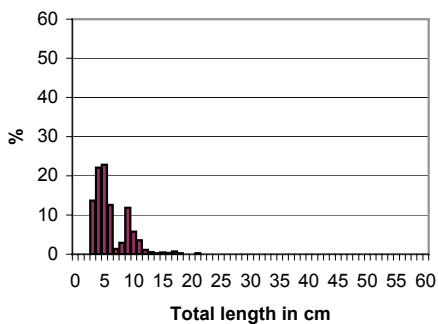
Sepia officinalis Togo
Mean length = 12.6 cm N = 17



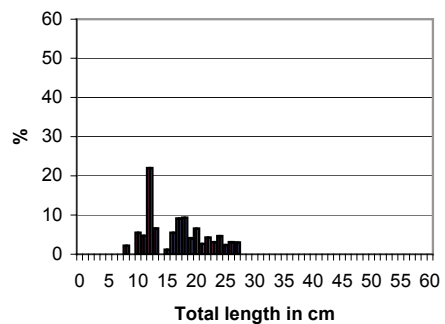
Chloroscombrus chrysurus Togo
Mean length = 22.2 cm N = 67



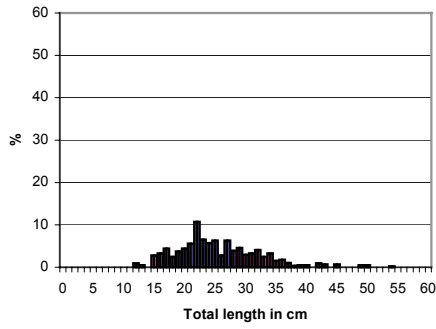
Boops boops Ghana
Mean length = 14.8 cm N = 269



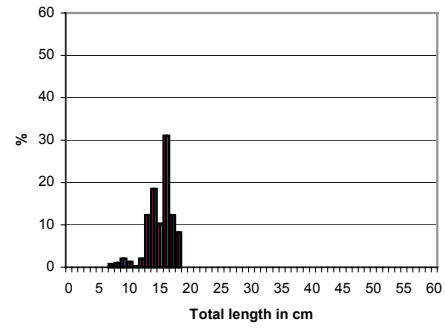
Decapterus punctatus Togo
Mean length = 6.57 cm N = 567



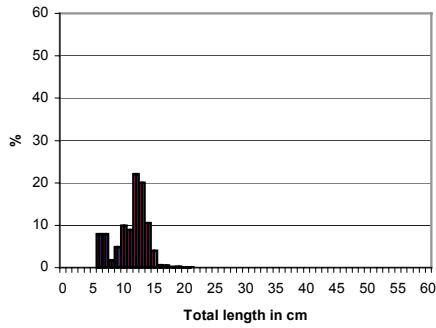
Dentex angolensis Ghana
Mean length = 17.2 cm N = 122



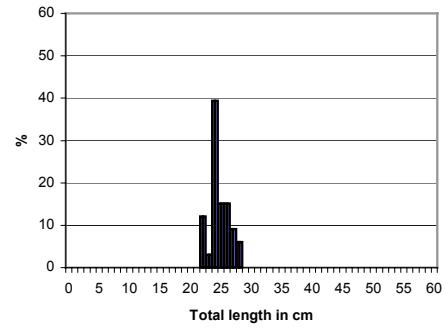
Dentex canariensis Ghana
Mean length = 26.0 cm N = 318



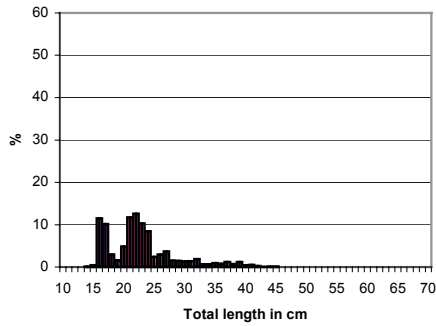
Pomadasys incisis Ghana
Mean length = 20.5 cm N = 68



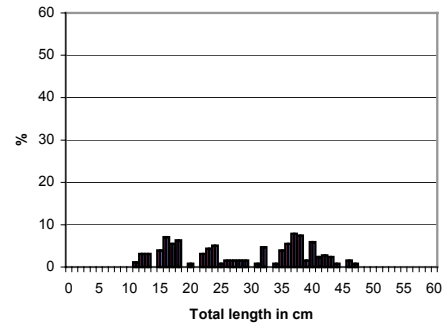
Dentex congoensis Ghana
Mean length = 11.8 cm N = 152



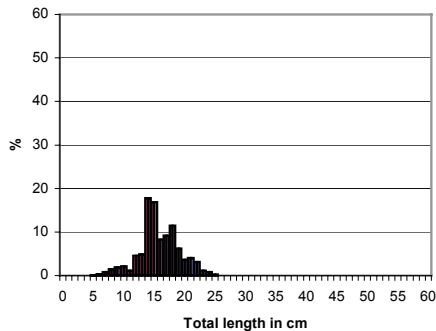
Lutjanus fulgens Ghana
Mean length = 25.2 cm N = 33



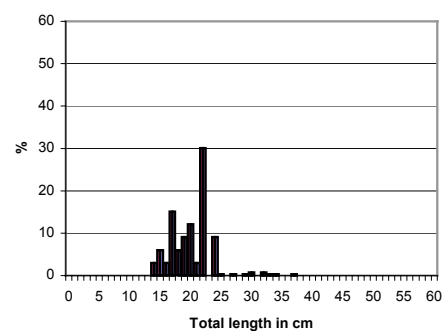
Pagrus caeruleostictus Ghana
Mean length = 13.4 cm N = 515



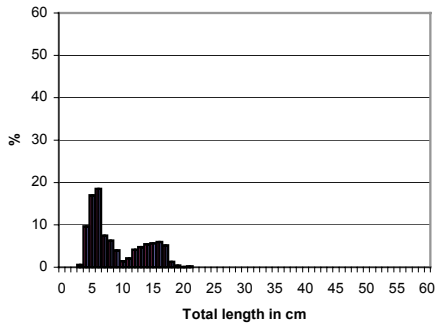
Pseudotolithus senegalensis Ghana
Mean length = 28.9 cm N = 104



Pagellus bellottii Ghana
Mean length = 16.3 cm N = 756

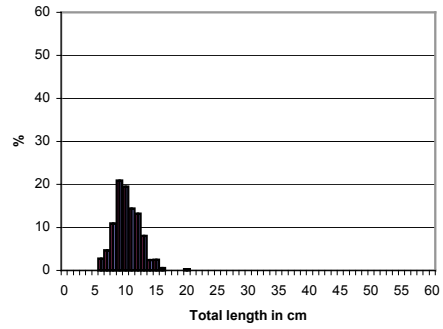


Lethrinus atlanticus Ghana
Mean length = 20.6 cm N = 42



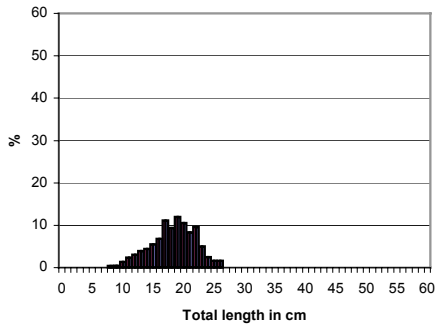
Brachydeuterus auritus
Mean length = 9.6 cm

Ghana
N = 1565



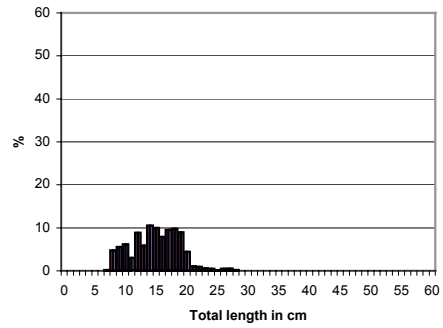
Ilisha africana
Mean length = 10.8 cm

Ghana
N = 165



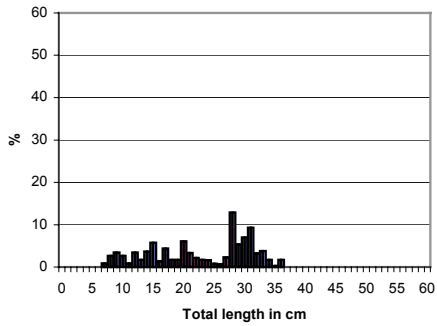
Pseudupeneus prayensis
Mean length = 18.8 cm

Ghana
N = 475



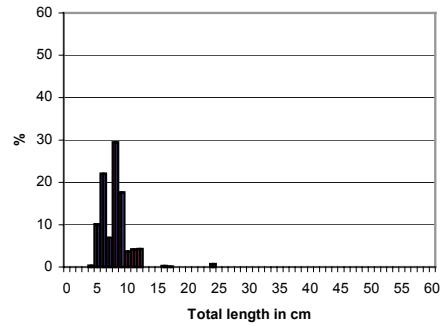
Sardinella aurita
Mean length = 15.4 cm

Ghana
N = 1056



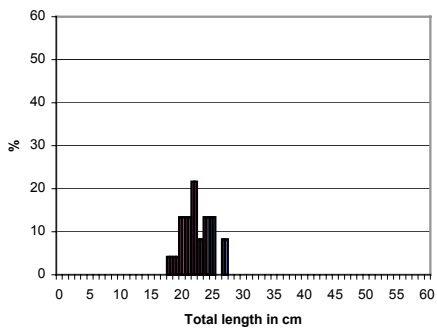
Galeoides decadactylus
Mean length = 23.9 cm

Ghana
N = 134



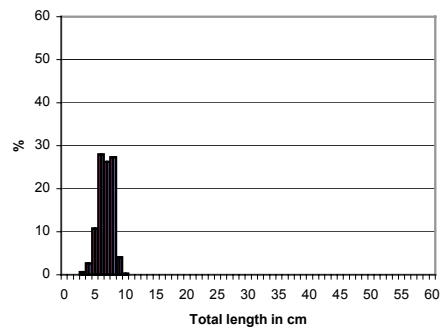
Sardinella maderensis
Mean length = 8.4 cm

Ghana
N = 360



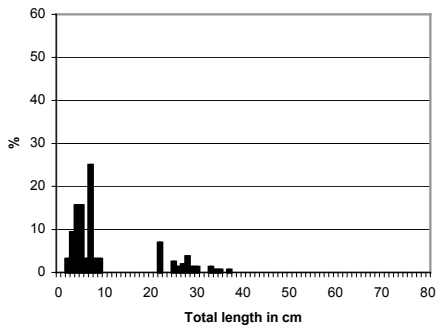
Priacanthus arenatus
Mean length = 23.0 cm

Ghana
N = 23



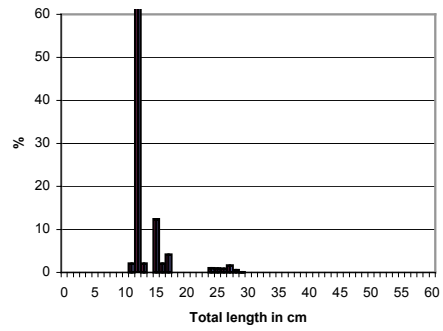
Engraulis encrasicolus
Mean length = 7.3 cm

Ghana
N = 1242



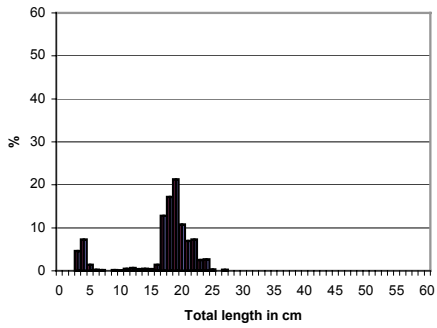
Alectis alexandrinus
Mean length = 10.6 cm

Ghana
N = 52



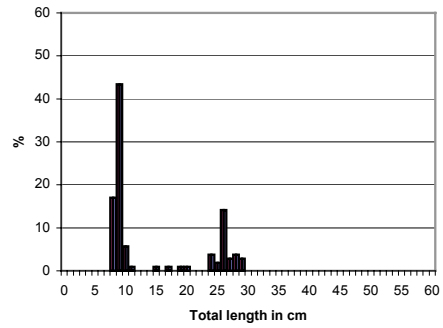
Decapterus rhonchus
Mean length = 13.9 cm

Ghana
N = 116



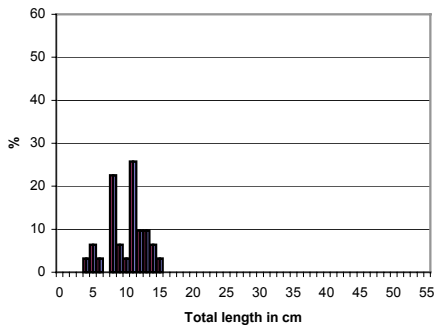
Chloroscombrus chrysurus
Mean length = 17.5 cm

Ghana
N = 594



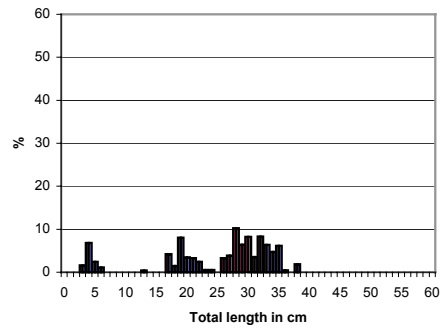
Selar crumenophthalmus
Mean length = 14.8 cm

Ghana
N = 106



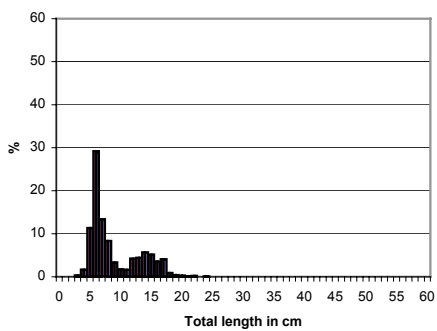
Pteroscion peli
Mean length = 10.5 cm

Ghana
N = 31



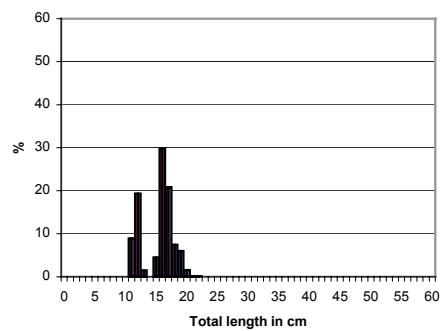
Selene dorsalis
Mean length = 25.4 cm

Ghana
N = 171



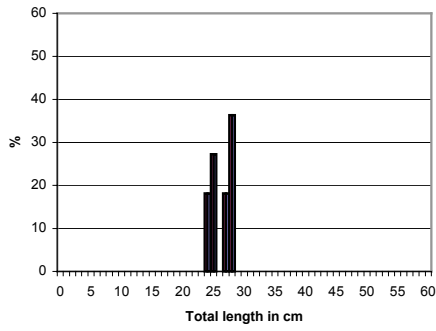
Decapterus punctatus
Mean length = 9.4 cm

Ghana
N = 1252

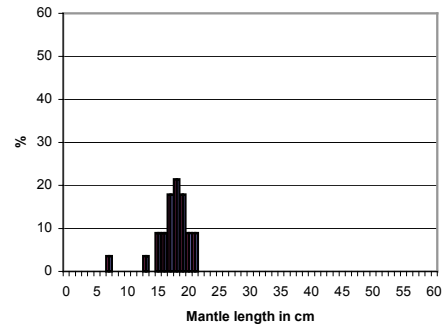


Trachurus trecae
Mean length = 15.8 cm

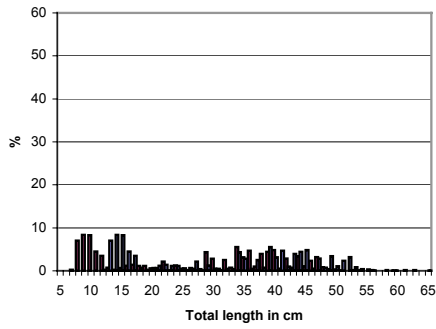
Ghana
N = 115



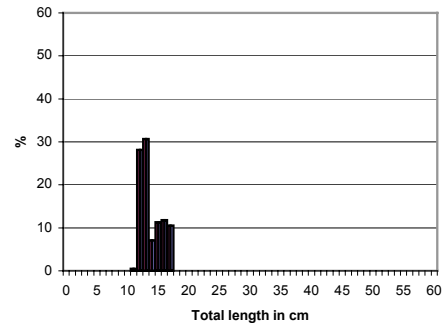
Scomber japonicus Ghana
Mean length = 26.8 cm N = 11



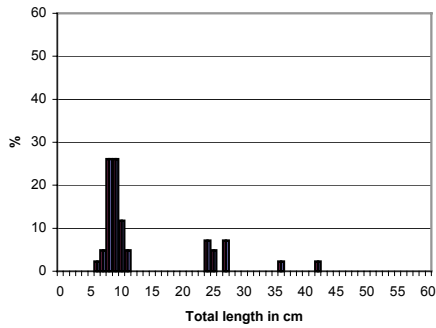
Sepia officinalis Ghana
Mean length = 17.9 cm N = 23



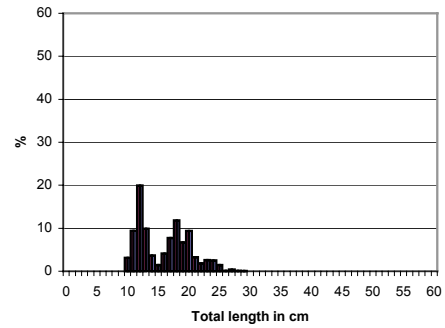
Sphyræna guachancho Ghana
Mean length = 27.2 cm N = 288



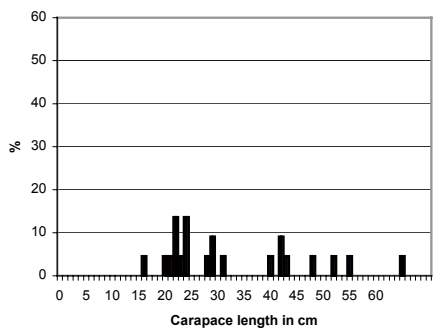
Boops boops Côte d'Ivoire
Mean length = 14.3 cm N = 84



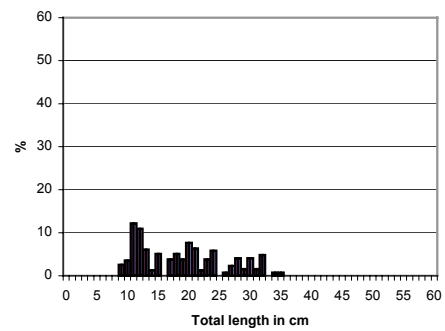
Sphyræna sphyraena Ghana
Mean length = 13.8 cm N = 42



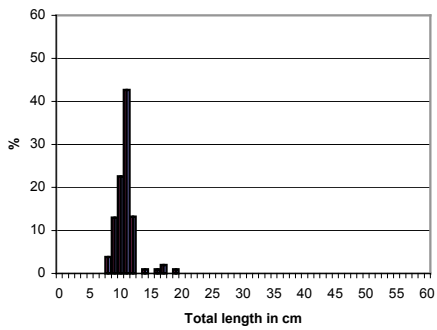
Dentex angolensis Côte d'Ivoire
Mean length = 16.4 cm N = 298



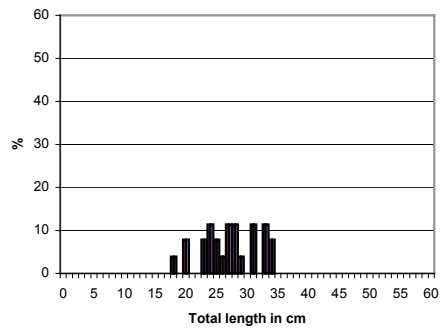
Trichiurus lepturus Ghana
Mean length = 33.3 cm N = 22



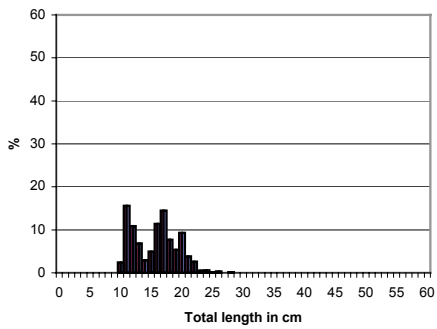
Dentex canariensis Côte d'Ivoire
Mean length = 19.4 cm N = 90



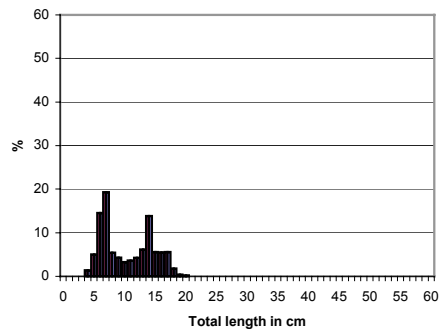
Dentex congolensis Côte d'Ivoire
Mean length = 11.3 cm N = 86



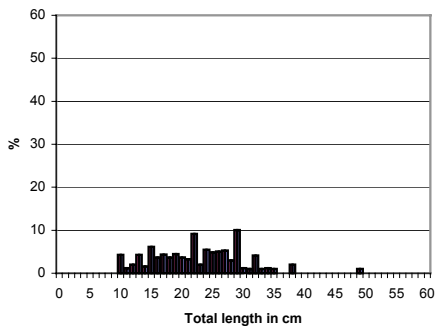
Umbrina canariensis Côte d'Ivoire
Mean length = 27.6 cm N = 26



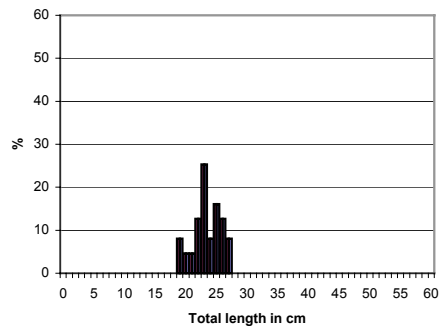
Pagellus bellottii Côte d'Ivoire
Mean length = 16.2 cm N = 388



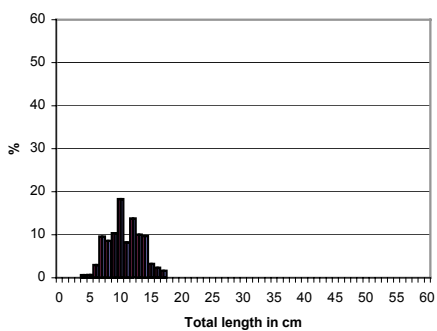
Brachydeuterus auritus Côte d'Ivoire
Mean length = 10.9 cm N = 1423



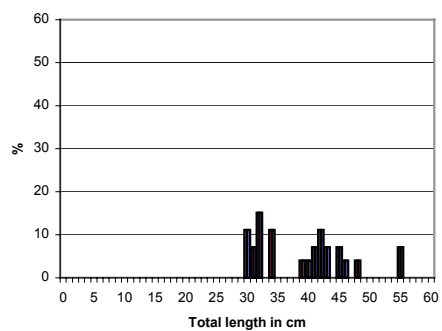
Pseudotolithus senegalensis Côte d'Ivoire
Mean length = 23.1 cm N = 10



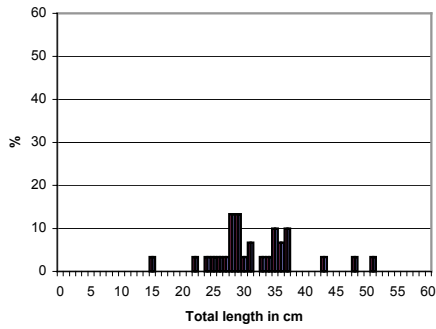
Pomadasys incisus Côte d'Ivoire
Mean length = 23.9 cm N = 24



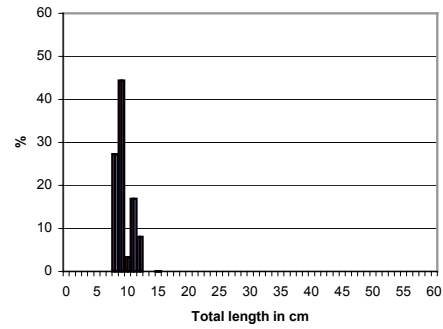
Pteroscion peli Côte d'Ivoire
Mean length = 11.2 cm N = 201



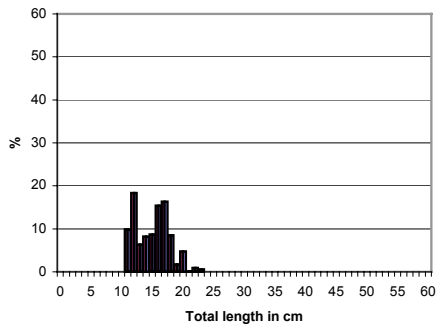
Pomadasys jubelini Côte d'Ivoire
Mean length = 39.3 cm N = 27



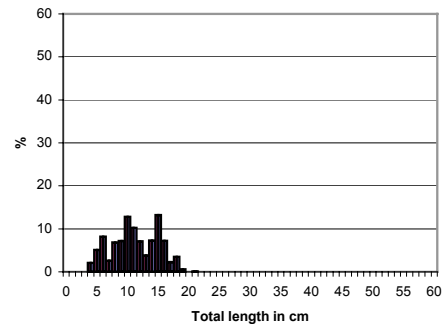
Pseudotolithus typus Côte d'Ivoire
Mean length = 32.4 cm N = 30



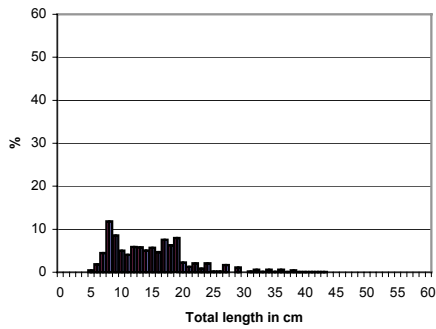
Priacanthus arenatus Côte d'Ivoire
Mean length = 9.9 cm N = 441



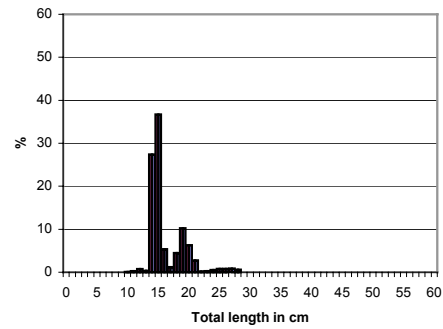
Pseudupeneus prayensis Côte d'Ivoire
Mean length = 15.5 cm N = 146



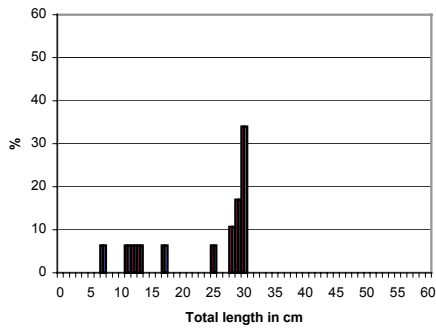
Ilisha africana Côte d'Ivoire
Mean length = 11.8 cm N = 477



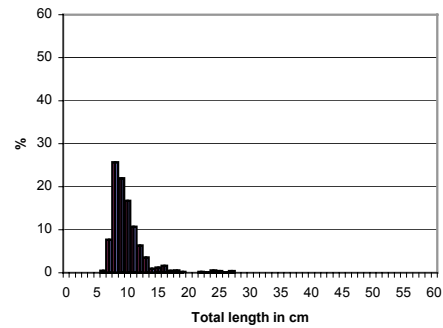
Galeoides decadactylus Côte d'Ivoire
Mean length = 15.1 cm N = 382



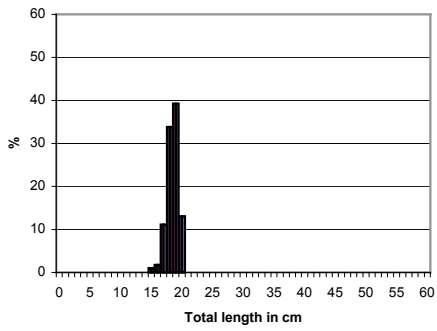
Sardinella aurita Côte d'Ivoire
Mean length = 16.7 cm N = 257



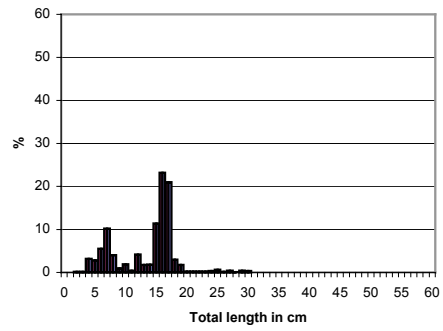
Pagrus caeruleostictus Côte d'Ivoire
Mean length = 24.1 cm N = 17



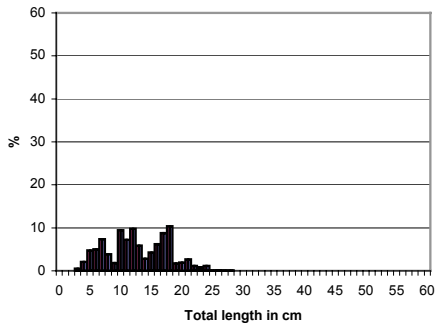
Sardinella maderensis Côte d'Ivoire
Mean length = 10.4 cm N = 944



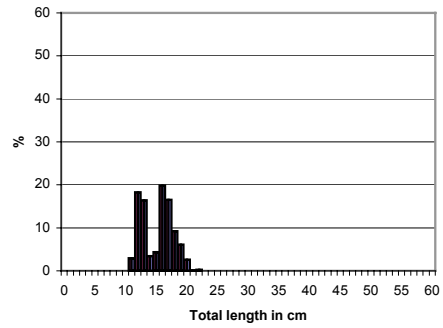
Selar crumenophthalmus Côte d'Ivoire
Mean length = 20.9 cm N = 55



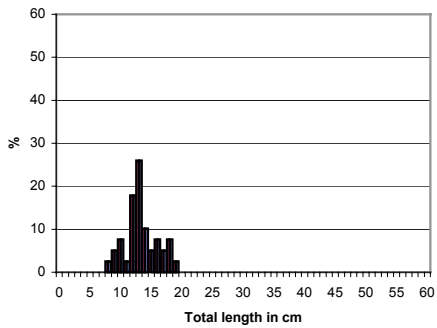
Selene dorsalis Côte d'Ivoire
Mean length = 14.0 cm N = 544



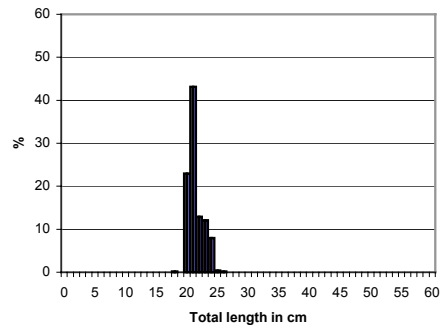
Chloroscombrus chrysurus Côte d'Ivoire
Mean length = 13.3 cm N = 487



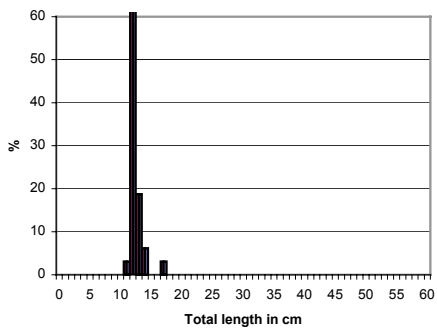
Trachurus trecae Côte d'Ivoire
Mean length = 15.7 cm N = 679



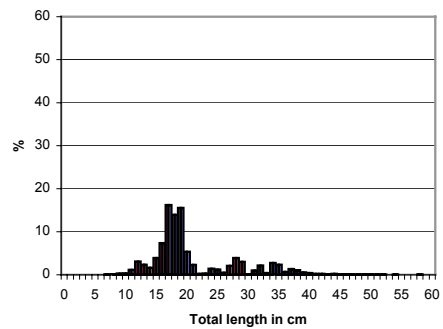
Decapterus punctatus Côte d'Ivoire
Mean length = 13.9 cm N = 39



Scomber japonicus Côte d'Ivoire
Mean length = 21.9 cm N = 70



Decapterus rhonchus Côte d'Ivoire
Mean length = 19.9 cm N = 32



Sphyraena guachancho Côte d'Ivoire
Mean length = 21.6 cm N = 605

Annex III Families/genera in catch analysis and swept area estimates

1) Main groups in swept-area bottom trawl hauls:

Demersal: Sciaenidae, Sparidae, Haemulidae, Ariidae, Serranidae, Lutjanidae, Merluccidae, Ophididae, Lethrinidae

Pelagic:
Carangidae, Scombridae, Sphyraenidae, Trichiuridae, Clupeidae, Engraulididae

Shrimp:
Shrimps

Cephalopods:
Cephalopods

Sharks:
Sharks

2) Main pelagic families in swept-area bottom trawl hauls:

Clupeids:
Clupeidae, Engraulididae

Carangids:
Carangidae

Scombrids:
Scombridae

Hairtails:
Trichiuridae

Barracudas:
Sphyraenidae

3) Commercially important demersal species grouped by families in swept-area bottom trawl hauls:

Seabream: *Dentex* spp., *Diplodus* spp., *Lithognathus* spp., *Pagellus* spp., *Pagrus* spp., *Sparus* spp.

Snappers:
Lutjanidae

Groupers:
Serranidae

Grunts:
Plectorhynchus spp., *Pomadasy* spp.

Croakers:
Sciaenidae

Annex IV Swept-area biomass estimates

SWEPT AREA ANALYSIS FROM STATION 678 TO STATION 699

Benin 2005

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								- 30m	30- 50m	50-100m	100-100m
	>0	10	30	100	300	1000						
Dentex congolensis	1	1	2	1			26	1.61			4.36	
Dentex angolensis			5	1			32	0.73			1.97	
Sardinella aurita	6	2	1				47	0.69		0.18	1.73	
Sphyræna guachancho	10	1	1				63	0.62	0.35	1.57	0.04	
Chloroscombrus chrysurus	7	2	1				53	0.56	0.37	1.38	0.02	
Decapterus punctatus	6	1	2				47	0.52		0.08	1.34	
Sepia officinalis hierredda	13	4					84	0.51	0.05	0.43	0.99	
Selene dorsalis	9	4					68	0.47	0.15	1.33		
Pagrus caeruleostictus	10		1				58	0.33	0.15	0.73	0.13	
Pagellus bellottii	9		1				47	0.33		0.21	0.71	
Brachydeuterus auritus	10	1					58	0.32	0.37	0.47	0.15	
Alectis alexandrinus	6		1				37	0.30	0.06	0.89		
Dactylopterus volitans	8		1				47	0.25	0.02	0.71	0.04	
Epinephelus aeneus	7	1					42	0.23		0.23	0.44	
Priacanthus arenatus	7	1					42	0.20		0.02	0.52	
Galeoides decadactylus	7	1					42	0.20	0.50	0.14		
Trichiurus lepturus	8						42	0.12	0.17	0.06	0.11	
Ephippion guttifer	8						42	0.12	0.33	0.04		
Dentex canariensis	3	1					21	0.12		0.23	0.12	
Fistularia petimba	8						42	0.11		0.05	0.24	
Alloteuthis africana	7						37	0.10		0.06	0.21	
Pentheroscion mbizi	1	1					11	0.10			0.26	
Dasyatis pastinaca		1					5	0.10	0.33			
Lagocephalus laevigatus	6						32	0.08	0.11	0.14		
Aluterus monoceros	4						21	0.08		0.25		
Lethrinus atlanticus	4						21	0.08	0.12	0.12		
Sea cucumbers		1						0.08		0.25		
Boops boops	3						11	0.07			0.19	
Pseudolithus senegalensis	1	1					11	0.07	0.21			
Trigla lyra		1					5	0.06			0.16	
Squatina oculata	3						16	0.06			0.17	
J E L L Y F I S H		1					5	0.06	0.19			
Cymbium cymbium	5						26	0.06	0.08	0.08	0.04	
Sardinella maderensis	10						53	0.06	0.17	0.02		
Selar crumenophthalmus	10						53	0.06	0.03	0.09	0.07	
Brotula barbata	4						21	0.05			0.15	
Penaeus notialis	4						21	0.04		0.12		
Parapenaeopsis atlantica	2						11	0.02	0.04		0.01	
Penaeus kerathurus	1						5	0.01	0.02			
Penaeus monodon	1						5					
Parapenaeus longirostris	1						5					
Aristeus varidens	1						5				0.01	
Other fish								1.22	1.30	1.26	1.12	
Sum all species								10.80	5.12	11.14	15.30	
Sum Snappers								0.03	0.06	0.03		
Sum Groupers								0.26		0.24	0.50	
Sum Grunts								0.37	0.40	0.59	0.15	
Sum Croakers								0.23	0.38		0.29	
Sum Seabreams								3.22	0.15	1.18	7.56	
Sum Sharks								0.08	0.06		0.17	
Sum Rays								0.19	0.39	0.05	0.18	
Sum Squids								0.61	0.05	0.50	1.20	
Sum												
0.12												

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

19

6

6

7

SWEPT AREA ANALYSIS FROM STATION 700 TO STATION 711

Togo 2005

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						- 30m	30- 50m	50-100m	100-100m
	>0	10	30	100 300 1000						
<i>Sepia officinalis hierredda</i>	4	3	1		89	1.37	0.12	1.62	2.37	
<i>Pagellus bellottii</i>	2	5			78	1.06	0.02	0.95	2.21	
<i>Sardinella aurita</i>	2	2			44	0.67		0.02	1.98	
Boops boops			1		11	0.46			1.39	
<i>Priacanthus arenatus</i>	3		1		44	0.43		0.01	1.28	
<i>Pagrus caeruleostictus</i>	8	1			100	0.41	0.17	0.42	0.65	
<i>Dactylopterus volitans</i>	6	1			78	0.34	0.10	0.78	0.14	
<i>Decapterus punctatus</i>	5	1			56	0.28		0.18	0.66	
<i>Dentex angolensis</i>			1			0.27			0.82	
<i>Dentex canariensis</i>	4	1			56	0.26	0.58	0.20		
<i>Pseudupeneus prayensis</i>	8				89	0.26	0.22	0.03	0.53	
<i>Fistularia petimba</i>	8				89	0.25	0.15	0.18	0.41	
<i>Alectis alexandrinus</i>	4	1			56	0.23	0.10	0.60		
<i>Lagocephalus laevigatus</i>	5				56	0.19	0.43	0.15		
<i>Balistes capriscus</i>	4				44	0.17	0.23	0.15	0.14	
<i>Alloteuthis africana</i>	4				44	0.16		0.16	0.31	
Sea urchins (strong spines)	1	1			11	0.16	0.03	0.45		
<i>Scomberomorus tritor</i>	5				44	0.14	0.29	0.07	0.04	
<i>Syacium micrurum</i>	7				67	0.14	0.01	0.23	0.17	
<i>Selene dorsalis</i>	2				22	0.13		0.39		
<i>Aluterus heudelotii</i>	5				56	0.12	0.23	0.13		
Sea cucumbers	2				22	0.10			0.30	
<i>Ephippion guttifer</i>	3				33	0.09	0.24	0.04		
<i>Brachydeuterus auritus</i>	4				33	0.08	0.01	0.18	0.04	
<i>Lethrinus atlanticus</i>	2				22	0.08	0.23			
<i>Sphyræna guachancho</i>	4				44	0.06		0.07	0.12	
<i>Raja miraletus</i>	4				44	0.06		0.10	0.09	
<i>Acanthostracion quadricornis</i>	3				33	0.06	0.18			
<i>Decapterus rhonchus</i>	1				11	0.06			0.17	
<i>Torpedo torpedo</i>	3				33	0.05	0.01	0.11	0.03	
<i>Aluterus monoceros</i>	2				22	0.05		0.14		
<i>Cymbium cymbium</i>	1				11	0.05		0.14		
<i>Acanthurus monroviae</i>	2				22	0.05	0.13	0.02		
Other fish						0.54	0.62	0.54	0.48	
Sum all species						8.83	4.10	8.06	14.33	
Sum Snappers						0.01	0.02		0.01	
Sum Groupers						0.04	0.01	0.06	0.05	
Sum Grunts						0.08	0.01	0.18	0.04	
Sum Croakers						0.01		0.02		
Sum Seabreams						2.49	0.81	1.62	5.08	
Sum Sharks						0.04			0.11	
Sum Rays						0.13	0.06	0.21	0.12	
Sum Squids						1.56	0.16	1.82	2.68	
Sum										

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

9 3 3 3

SWEPT AREA ANALYSIS FROM STATION 712 TO STATION 788

Ghana 2005

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	- 31m	31- 51m	51-101m
Brachydeuterus auritus	13	6	3	3	2	50	3.86	0.70	4.40	6.48	
Boops boops	6	4	1		2	24	1.82		0.07	5.40	
Trachurus trecae	7			1	1	17	1.17			3.49	
Lagocephalus laevigatus	19				1	37	0.97	0.08	0.05	2.76	
J E L L Y F I S H	7	3		3		24	0.91	2.72	0.01		
Sardinella aurita	19		2	1		41	0.75	0.09	0.24	1.93	
Pagellus bellottii	33	5	4			78	0.71	0.03	1.14	0.98	
Dentex congoensis	4	2			1	13	0.66			1.97	
Decapterus punctatus	19	1	2	1		43	0.55	0.29	0.68	0.69	
Selene dorsalis	15	1	1	1		33	0.50	0.15	1.32	0.03	
Chlamys purpuratus	2	1		1		7	0.42	0.12	1.13		
Sphyræna guachancho	20	3	2			46	0.36	0.30	0.74	0.04	
Chromis chromis	4	1		1		11	0.34			1.01	
Pomadasys incisus	7	1		1		17	0.32	0.03	0.73	0.19	
Galeoides decadactylus	11	1	2			26	0.32	0.18	0.77		
Fistularia petimba	30	3	1			63	0.32	0.01	0.17	0.79	
Chloroscombrus chrysurus	21	2	1			44	0.29	0.43	0.08	0.35	
Sepia officinalis hierredda	39	4				80	0.27	0.15	0.28	0.38	
Pseudupeneus prayensis	24	7				57	0.27	0.05	0.28	0.48	
Priacanthus arenatus	18	2	1			39	0.26	0.01	0.08	0.69	
Dentex angolensis	5	4	1			19	0.24	0.01		0.70	
Dentex canariensis	27	3				56	0.19	0.24	0.14	0.19	
Engraulis encrasicolus	4	3	1			15	0.19	0.24	0.32		
Pagrus caeruleostictus	40	1				74	0.18	0.14	0.24	0.15	
Chromis cadenati	1		1			4	0.13			0.38	
Brotula barbata	3		1			7	0.12			0.35	
Dentex gibbosus	9	1	1			20	0.11			0.32	
Squatina oculata	5	1				11	0.09			0.26	
Scomber japonicus	3		1			7	0.08			0.25	
Elops lacerta	5	2				13	0.08	0.11	0.14		
Pseudotolithus senegalensis	9					17	0.07	0.16	0.05		
Raja miraletus	19	1				37	0.07		0.11	0.08	
Cymbium cymbium	3	1				7	0.06	0.05	0.13		
Dactylopterus volitans	21					39	0.06	0.01	0.09	0.09	
Decapterus rhonchus	9	1				19	0.06		0.03	0.16	
Lethrinus atlanticus	4	1				9	0.05	0.14			
Alectis alexandrinus	13					24	0.05	0.10	0.04		
Penaeus notialis	7					13	0.02	0.01	0.04		
Sicyonia sp.	1					2					
Penaeus kerathurus	1					2					
Parapenaeus longirostris	2					4					
Other fish							1.00	0.91	0.87	1.14	
Sum all species							17.92	7.46	14.37	31.73	
Sum Snappers							0.06	0.02	0.04	0.11	
Sum Groupers							0.04	0.02	0.06	0.03	
Sum Grunts							4.22	0.82	5.16	6.67	
Sum Croakers							0.15	0.26	0.06	0.12	
Sum Seabreams							3.93	0.42	1.64	9.71	
Sum Sharks							0.13		0.05	0.35	
Sum Rays							0.09	0.03	0.13	0.09	
Sum Squids							0.32	0.19	0.38	0.41	
Sum											
0.04											

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

54 18 18 18

SWEPT AREA ANALYSIS FROM STATION 789 TO STATION 842

Cote d'Ivoire 2005

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 >0 10 30 100 300 1000								- 30m	30- 50m	50-100m	100-100m
Priacanthus arenatus	11	1	3	1	1	1	41	20.25		0.01	44.54	
Brachydeuterus auritus	12	8	7	4	2		75	5.49	3.46	9.45	4.33	
Trachurus trecae	8	3	3	3	1		41	2.84		0.01	6.24	
Pagellus bellottii	16	6	2	3			61	1.69	0.02	0.66	3.31	
Sphyræna guachancho	17	4	5	2			64	1.35	1.82	2.26	0.53	
J E L L Y F I S H	5		2	2			20	1.08	1.95	0.04	1.19	
Sardinella aurita	8	2	2	1			30	1.01			2.22	
Chloroscombrus chrysurus	16	3	3	1			52	0.95	1.35	2.04	0.05	
Boops boops	7		2	2			25	0.71			1.56	
Sphyræna sphyraena	9			1			23	0.70	0.05		1.52	
Selene dorsalis	22	3	4				66	0.67	0.74	1.36	0.21	
Brotula barbata	13	2	1	1			39	0.66		0.02	1.44	
Dentex angolensis	8	5	4				39	0.64			1.41	
Galeoides decadactylus	16	5	1				50	0.41	0.82	0.68	0.01	
Pseudupeneus prayensis	13	2	2				39	0.36	0.21	0.43	0.40	
Raja miraletus	27		1				64	0.32	0.01	0.11	0.62	
Scomber japonicus	1	1		1			7	0.29			0.63	
Pomadasys peroteti	14	2	1				39	0.25	0.44	0.49		
Trichiurus lepturus	18	4					50	0.24	0.11	0.42	0.22	
Decapterus rhonchus	4		1				11	0.24		0.04	0.50	
Ilisha africana	10	2	1				30	0.21	0.55	0.21	0.01	
Sepia officinalis hierredda	29	1					68	0.19	0.04	0.10	0.33	
Sardinella maderensis	24						55	0.16	0.29	0.23	0.05	
Lepidotrigla carolae	12	2					32	0.15			0.32	
Pegusa lascaris	1	1	1				7	0.15			0.34	
Pseudotolithus senegalensis	8	3					25	0.15	0.38	0.18		
Spherooides marmoratus	3		1				9	0.14			0.30	
Uranoscopus albesca	6		1				16	0.13			0.28	
Parapenaeopsis atlantica	7	2					20	0.13	0.40	0.06		
Pseudotolithus typus	3	3					14	0.13	0.26	0.21		
Citharus linguatula	19	2					48	0.13		0.07	0.24	
Pteroscion peli	11	2					30	0.12	0.23	0.18	0.02	
Cymbium cymbium	2		1				7	0.12	0.04	0.39		
Umbrina canariensis	10	1					25	0.11			0.24	
Grammoplites gruvelli	22	1					52	0.11		0.22	0.11	
Dentex canariensis	15						34	0.10	0.05	0.09	0.14	
Stromateus fiatola	9	1					23	0.09	0.03	0.12	0.12	
Dentex congoensis	4	2					14	0.08			0.18	
Pentheroscion mbizi	7	1					18	0.08			0.17	
Dasyatis margarita	6	2					18	0.08	0.18	0.11		
Dactylopterus volitans	10	1					25	0.08	0.08	0.18	0.02	
Alectis alexandrinus	13	1					32	0.08	0.11	0.19		
Octopus vulgaris	13	1					32	0.07		0.05	0.12	
Squatina oculata	6	1					16	0.07			0.15	
Epinephelus aeneus	16						36	0.07	0.06	0.09	0.06	
Pomadasys jubelini	3	1					9	0.06	0.01	0.20		
Scyllarides herklotsii	5	1					14	0.05		0.19		
Syacium micurum	12						27	0.05		0.18	0.01	
Penaeus notialis	12						27	0.03	0.01	0.07	0.01	
Penaeus kerathurus	1						2	0.01	0.02			
Parapenaeus longirostris	1						2	0.01	0.03			
Sicyonia galeata	2						5					
Other fish								1.14	1.16	1.23	1.14	
Sum all species								44.43	14.91	22.57	75.29	
Sum Snappers												
Sum Groupers								0.11	0.06	0.12	0.12	
Sum Grunts								5.84	3.91	10.21	4.37	
Sum Croakers								0.59	0.87	0.57	0.43	
Sum Seabreams								3.26	0.08	0.83	6.65	
Sum Sharks								0.12		0.03	0.23	
Sum Rays								0.44	0.22	0.32	0.65	
Sum Squids								0.32	0.05	0.18	0.55	
Sum												
0.13												

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

44 12 12 20

Annex V Calculations of mean density and confidence intervals

1. Stratified mean density and confidence intervals

The stratified estimator of mean density in the entire area is calculated as (Cochran, 1977; eq. 5.1, p. 91)

$$\bar{y}_{st} = \sum_{i=1}^L W_i \bar{y}_i, \quad (1)$$

where

L is the number of strata,

$W_i = \frac{area_i}{total\ area}$ is the proportion of the survey area in the i^{th} stratum,

$\bar{y}_i = \frac{\sum_{k=1}^{n_i} y_{i,k}}{n_i}$ is the average catch in the i^{th} stratum

n_i is the number of tows in the i^{th} stratum, and

$y_{i,k}$ is the catch by the k^{th} tow in stratum i (normalized to either kg/hour

or $t/nmi^2 = \frac{y_{ik}}{area\ swept_{ik}}$ for biomass estimates).

The estimated variance of the stratified mean, \bar{y}_{st} , is

$$\text{var}(\bar{y}_{st}) = \sum_{i=1}^L W_i^2 \frac{S_i^2}{n_i}, \quad (2)$$

where

$$S_i^2 = \frac{\sum_{k=1}^{n_i} (y_{i,k} - \bar{y}_i)^2}{n_i - 1}. \quad (3)$$

When \bar{y}_{st} is estimated in t/nmi^2 then an estimate of the total biomass in the area is calculated by

$$B = \bar{y}_{st} \cdot total\ area \quad (4)$$

2. Precision of the estimates of mean density

2.1. Estimates based on the sample mean

The estimate of the standard error for each stratum mean is given by

$$se(\bar{y}_i) = \sqrt{\frac{s_i^2}{n_i}}, \quad (5)$$

where s_i^2 is from equation (3).

The standard error of the stratified mean (\bar{y}_{st} , equation 1), i.e. the square root of the variance of \bar{y}_{st} , is calculated as

$$se(\bar{y}_{st}) = \sqrt{\text{var}(\bar{y}_{st})}, \quad (6)$$

where $\text{var}(\bar{y}_{st})$ is defined by equation (2).

If the sample size is “large” enough, then the Central Limit Theorem states that each time a survey is conducted there is a 95% chance that the true mean lies in the interval (see Cochran, 1977, pp. 39-44)

$$\bar{y}_{st} \pm t_{(n-1)} se(\bar{y}_{st}), \quad (7)$$

where t is from Students t-table with $(n-1)$ degrees of freedom and $\alpha = 0.025$.

2.2. Estimates of the mean based on lognormal theory - The Pennington estimator

Since abundance data from marine surveys usually have a large variance (much higher than the mean) and are highly skewed to the right, the sample sizes are typically not large enough so that equation (2) is a valid 95% confidence interval. In fact, the confidence associated with the interval given by equation (7) is usually much lower than 95% (McConnaughey and Conquest, 1992; Conquest *et al.*, 1996; Pennington, 1996). A major problem to the degree of skewness is due to the high proportion of zero tows often observed. Development of confidence intervals is complicated by the asymmetric distribution, and the occurrence of zero catches confounds an effective normalization transformation. Logarithmic transformation will

stabilize the variance but data will still not be normally distributed and interpretation of re-transformed means is difficult (Pennington and Grosslein 1978).

One way to generate more precise estimates of the mean and more accurate confidence statements for skewed marine data is to base the estimators on the lognormal Delta distribution (Pennington, 1983, 1996; Conquest *et al.*, 1996), in which catches are divided into zero and non-zero units, followed by transformation of the non-zero values to natural logarithms. When it is found that the transformed non-zero data are approximated by a lognormal distribution (*i.e.* the logged values are normally distributed), then a more efficient estimator of mean density, c_i , within each stratum is given by (Pennington, 1983, 1996)

$$c_i = \frac{m_i}{n_i} \exp(\bar{x}_i) G_{m_i}(s_{x,i}^2 / 2), \quad (8)$$

where

m_i is the number of sample values greater than 0 in stratum i ,

\bar{x}_i and $s_{x,i}^2$ are the mean and variance, respectively, of the log transformed values of catches greater than 0, and

$G_m(f)$ is an infinite series function of m and f [for example, $m = m_i$ and $f = s_{x,i}^2 / 2$ in equation (8)] which is used to correct for bias in re-transformation from log to arithmetic scale and is defined by

$$G_m(f) = 1 + \frac{m-1}{m} f + \sum_{j=2}^{\infty} \frac{(m-1)^{2j-1} f^j}{m^j (m+1)(m+3)\cdots(m+2j-3)j!} \quad (9)$$

The variance of c_i is given by

$$\text{var}(c_i) = \frac{m_i}{n_i} \exp(2\bar{x}_i) \left\{ \frac{m_i}{n_i} G_{m_i}^2(s_{x,i}^2 / 2) - \frac{(m_i-1)}{(n_i-1)} G_{m_i} \left(\frac{m_i-2}{m_i-1} s_{x,i}^2 \right) \right\} \quad (10)$$

2.3. The modified Pennington estimator

In contrast to estimates based on the sample mean (equation 1 and 2), which are highly sensitive to a single or a few isolated high catch rates that may account for more than 50% of the total catch, Pennington's estimator (equations 8 and 10) is sensitive to low catch rates which contribute little to the total catch, but when log-transformed may give large negative values resulting in a distribution skewed to the left. In such a case a more precise estimator of mean density within each stratum, $\hat{\mu}_i$, is given by (modified from Pennington, 1983, 1996)

$$\hat{\mu}_i = \frac{(n_i - m_i)}{n_i} \bar{y}'_i + \frac{m_i}{n_i} \exp(\bar{x}_i) G_{m_i}(s_{x,i}^2 / 2), \quad (11)$$

where

m_i is the number of sample values greater than a defined 'cut-level' (rather than 0 as in equation 8) in stratum i ,

\bar{y}'_i denotes the arithmetic mean of the non-transformed values less than the cut-level, and

\bar{x}_i and $s_{x,i}^2$ are the mean and variance, respectively, of the logged values of catches greater than the cut-level.

The variance of $\hat{\mu}_i$ is given by

$$\text{var}(\hat{\mu}_i) = \text{var}(c_i) + \left(\frac{n_i - m_i - 1}{n_i(n_i - 1)} \right) s_i'^2 + \left(\frac{m_i(n_i - m_i)}{n_i^2(n_i - 1)} \right) \bar{y}'_i'^2 - 2 \left(\frac{n_i - m_i}{n_i(n_i - 1)} \right) \bar{y}'_i \times c_i, \quad (12)$$

where

$s_i'^2$ is the variance of the values less than the cut-level (equation 3), and

c_i and $\text{var}(c_i)$ are equations (8) and (10) with m_i bigger than the cut-level.

There is no single objective criterion upon which to define a cut-level bigger than zero. Basically the logged Delta distribution should be viewed (e.g. in GRAFER) in order to determine if it is skewed to the left and/or contains isolated small catches. As a 'rule of thumb' (Pennington pers. com.) the cut-level should be set $= (2\bar{x}_i - x_{\max})$, where \bar{x}_i and x_{\max} are the mean and the largest value, respectively, of the log transformed values of catches greater than 0.

2.4. Stratified mean and confidence interval based on lognormal theory

The stratified estimate of mean density (denoted by $\hat{\mu}_{st}$) in the entire area is calculated by replacing \bar{y}_i with $\hat{\mu}_i$ for each stratum in equation (1). The standard error of $\hat{\mu}_{st}$ is obtained by substituting $\text{var}(\hat{\mu}_i)$ for s_i^2 / n_i (which equals $\text{var}(\bar{y}_i)$) in equation (2) and then

$$\text{se}(\hat{\mu}_{st}) = \sqrt{\text{var}(\hat{\mu}_{st})} \quad (13)$$

Sometimes the $\hat{\mu}_{st}$ -estimator is higher than the one based on the sample mean. This is because, given the sample sizes typical for marine surveys, the sample mean tends to underestimate the true mean most of the time for these highly skewed distributions (Pennington, 1983, 1996; Conquest *et al.*, 1996).

An approximate 95% confidence interval for $\hat{\mu}_{st}$ is given by

$$\hat{\mu}_{st} \pm t_{(n-1)} \text{se}(\hat{\mu}_{st}) \quad (14)$$

Annex VI Excel sheet used for calculations of biomass and confidence intervals

This example is the biomass of seabreams in Benin 2002

This sheet is used to calculate stratified mean density, total biomass, and 95% confidence limits on the total biomass. Inputs are only required in the yellow fields and optionally the t-value can be set. NOTE that the Station field MUST be 1 even if there is no catch Density (t/nm^2) is from NAN-SIS and Coefficient of variation (CV) is from GRAFER using the same depth intervals The underlying assumption is that the CV from the catch (kg/hour) is equal for for the density (t/nm^2), i.a. that the swept area is constant per hour Equation numbers (1) and (2) refers to Appendix in report

Input from NANSIS			GRAFER									
Depth (m)	Area	No Stations	Density (t/nm^2)	CV (kg/hour)	Equation(1)=	SD	Est. Variance	Equation (2)=				
20-30	387	6	0.08	1.83	0.04	0.146	0.021	0.001				
31-50			0.53	1.54	0.09	0.816	0.666	0.003				
51-100	244	5	2.59	1.20	0.83	3.108	9.660	0.197				
Total	5561						Var(strat-mean)=	0.20				
<p>t- value = 2</p> <p style="text-align: center;">Stratified mean = 0.96 SE(strat-mean)= 0.45</p> <p style="text-align: center;">95% Confidence limits:</p> <table border="1" style="margin-left: auto; margin-right: auto; border-collapse: collapse;"> <tr> <td style="background-color: cyan;">Total biomass=</td> <td style="background-color: cyan;">734</td> <td style="background-color: cyan;">48</td> <td style="background-color: cyan;">1420</td> </tr> </table>									Total biomass=	734	48	1420
Total biomass=	734	48	1420									

Annex VII Instruments and fishing gear used

Echo sounder

The SIMRAD EK500/38 kHz scientific sounder was used during the survey for fish abundance estimation. The lowering keel was submerged a few times during the survey. The Bergen Echo Integrator system (BEI) was used to scrutinise the acoustic records. System calibration experiment using a standard copper sphere was performed 30.03.2005. The settings of 38 kHz echo sounder were as follows:

Tranceiver-1 menu (38 kHz, mounted in lowering keel)

Transducer depth	5.5 m (lowering keel not submerged)
Absorption coeff.	10 dB/km
Pulse length	medium (1 ms)
Bandwidth	wide
Max Power	2000 Watt
2-way beam angle	-21.0 dB
Sv Transducer gain	27.17 dB
TS Transducer gain	26.94 dB
Angle sensitivity	21.9
3 dB beamwidth	7.3 ° alongship 7.0 ° athwardship
Alongship offset	-0.09 °
Athwardship effect	0.09 °

Display menu

Echogram	1 (38 kHz)
Bottom range	15 m
Bottom range start	10 m
Sv colour min	-67 dB

Printer menu

Echogram	1 (38 kHz)
Range	50 m, 100 m, 250 m, 500 m
Range start	0
Bottom range	12 m
Bottom range start	10 m
TVG	20 log R
Sv Colour min	- 60 dB

Bottom detection menu Minimum level -50 dB

Fishing gear

The vessel has "Harstad" and "Åkrahamn" pelagic trawls and "Gisund super bottom trawl".

The bottom trawl has a headline of 31 m, footrope 47 m and 20 mm meshsize in the codend with an innernet of 10 mm mesh size. 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 45 - 55 m in average, depending on the depth (least distance at low depths). This distance can be kept constant (about 50 m) at all depths by the use of a 9.5 m strap between the wires at 130 m distance from the doors, normally applied at depths greater than 80 m. On the present survey, however, the strap was not applied because most of the trawl hauls were made in shallower waters.

The SCANMAR system was used on all trawl hauls. 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 and a height sensor is fitted to the bottom trawl to measure the trawl opening and provide information on clearance and bottom contact.

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

**Annex VIII CTD-stations in hydrographic transects and
zooplankton stations**

CTD			
Cotonou	Lat	Lon	Depth (m)
1	06°17.250'N	002°37.210'E	21
2	06°15.000'N	002°37.010'E	25
3	06°11.820'N	002°36.970'E	43
4	06°07.430'N	002°37.030'E	76
5	06°06.100'N	002°36.900'E	322
6	06°00.710'N	002°36.970'E	1390
7	05°55.780'N	002°36.950'E	1808

Accra	Lat	Lon	Depth (m)
1	05°25.880'N	000°20.460'W	21
2	05°20.990'N	000°18.040'W	39
3	05°16.700'N	000°15.870'W	59
4	05°10.780'N	000°12.500'W	278
5	05°08.540'N	000°11.530'W	769
6	05°04.340'N	000°09.800'W	1612

Cape Three Points	Lat	Lon	Depth (m)
1	04°42.130'N	002°06.190'W	35
2	04°36.940'N	002°07.670'W	68
3	04°32.490'N	002°08.950'W	84
4	04°27.080'N	002°10.580'W	209
5	04°21.520'N	002°12.230'W	659
6	04°17.120'N	002°13.510'W	949

Grand Jacques	Lat	Lon	Depth (m)
1	05°10.810'N	004°24.060'W	24
2	05°05.750'N	004°23.560'W	79
3	05°00.680'N	004°23.210'W	409
4	04°55.450'N	004°22.970'W	1938
5	04°50.850'N	004°22.980'W	1702

Grand Berebi	Lat	Lon	Depth (m)
1	04°36.020'N	006°55.250'W	25
2	04°31.370'N	006°54.000'W	56
3	04°26.920'N	006°52.560'W	106
4	04°25.830'N	006°52.310'W	241
5	04°21.890'N	006°50.850'W	1396
6	04°16.800'N	006°49.480'W	> 2000

ZOOPLANKTON			
	Lat	Lon	Country
1	06°13'N	02°37'E	Benin
2	06°02'N	01°34'E	Togo
3	05°58'N	01°05'E	Ghana
4	05°27'N	00°05'E	--
5	04°42'N	00°46'W	--
6	04°40'N	02°07'W	--
7	05°05'N	03°24'W	Cote d'Ivoire
8	05°05'N	04°48'W	--
9	04°14'N	07°28'W	--

Annex IX List of Participants

NAME	INSTITUTION	COUNTRY
Sébastien AHOUANJOGBE	Direction des Pêches, Cotonou.	Bénin
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