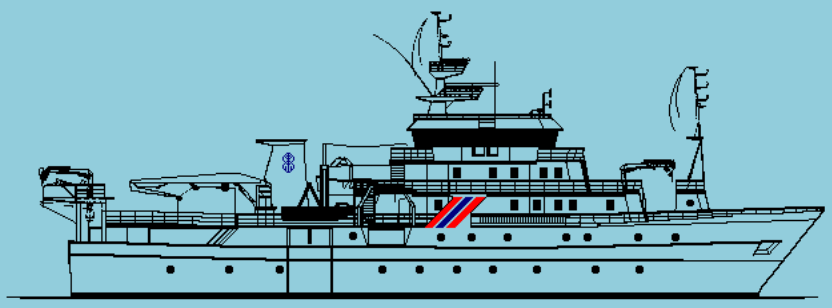

2007 SURVEYS OF THE FISH RESOURCES OF THE WESTERN GULF OF GUINEA
Guinea Bissau, Guinea, Sierra Leone and Liberia

SURVEY OF THE PELAGIC AND DEMERSAL RESOURCES

Cruise report No 5/2007

5 May – 29 May 2007

Institute of Marine Research – IMR
Norway

Ministry of Fisheries and Marine Resources
Sierra Leone

Centro de Investigação Pesqueira Aplicada (CIPA)
Guinea Bissau

Ministry of Fisheries and Marine Resources
Liberia

Centre National des Sciences Halieutiques (CNSHB)
Guinea

Marine Fisheries Research Division
Ghana

University of Ghana
Ghana

Bergen November 2008

THE EAF-NANSEN PROJECT

FAO started the implementation of the project “Strengthening the Knowledge Base for and Implementing an Ecosystem Approach to Marine Fisheries in Developing Countries (EAF-Nansen GCP/INT/003/NOR)” in December 2006 with funding from the Norwegian Agency for Development Cooperation (Norad). The EAF-Nansen project is a follow-up to earlier projects/programmes in a partnership involving FAO, Norad and the Institute of Marine Research (IMR), Bergen, Norway on assessment and management of marine fishery resources in developing countries. The project works in partnership with governments and also GEF-supported Large Marine Ecosystem (LME) projects and other projects that have the potential to contribute to some components of the EAF-Nansen project.

The EAF-Nansen project offers an opportunity to coastal countries in sub-Saharan Africa, working in partnership with the project, to receive technical support from FAO for the development of national and regional frameworks for the implementation of Ecosystem Approach to Fisheries management and to acquire additional knowledge on their marine ecosystems for their use in planning and monitoring. The project contributes to building the capacity of national fisheries management administrations in ecological risk assessment methods to identify critical management issues and in the preparation, operationalization and tracking the progress of implementation of fisheries management plans consistent with the ecosystem approach to fisheries.

LE PROJET EAF-NANSEN

La FAO a initié la mise en oeuvre du projet "Renforcement de la base des connaissances pour mettre en œuvre une approche écosystémique des pêcheries marines dans les pays en développement (EAF-Nansen GCP/INT/003/NOR)" en décembre 2006. Le projet est financé par de l'Agence norvégienne de coopération pour le développement (Norad). Le projet EAF-Nansen fait suite aux précédents projets/ programmes dans le cadre du partenariat entre la FAO, Norad et l'Institut de recherche marine (IMR) de Bergen en Norvège, sur l'évaluation et l’aménagement des ressources halieutiques dans les pays en développement. Le projet est mis en oeuvre en partenariat avec les gouvernements et en collaboration avec les projets grands écosystèmes marins (GEM) soutenus par le Fonds pour l’Environnement Mondial (FEM) et d'autres projets régionaux qui ont le potentiel de contribuer à certains éléments du projet EAF-Nansen.

Le projet EAF-Nansen offre l’opportunité aux pays côtiers de l'Afrique subsaharienne partenaires de recevoir un appui technique de la FAO pour le développement de cadres nationaux et régionaux visant une approche écosystémique de l’aménagement des pêches et la possibilité d'acquérir des connaissances complémentaires sur leurs écosystèmes marins. Ces éléments seront utilisés pour la planification et le suivi des pêcheries et de leurs écosystèmes. Le projet contribue à renforcer les capacités des administrations nationales responsables de l’aménagement des pêches en introduisant des méthodes d'évaluation des risques écologiques pour identifier les questions d’aménagement d’importance majeure ainsi que la préparation, la mise en œuvre et le suivi des progrès de la mise en œuvre de plans d’aménagement des ressources marines conformes à l'approche écosystémique des pêches.

The *R/V Dr Fridtjof Nansen* has previously conducted the following surveys in 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
Benin, Togo, Ghana and Côte d'Ivoire	29 August - 17 September 2000
Benin, Togo, Ghana and Côte d'Ivoire	6 July - 09 August 2002
Benin, Togo, Ghana and Côte d'Ivoire	14 May - 08 June 2004
Nigeria, Cameroon, São Tomé and Principe	11 June – 13 July 2004
Benin, Togo, Ghana and Côte d'Ivoire	03 May - 29 May 2005
Nigeria, Cameroon, São Tom, Principe, Gabon and Congo	04 June – 15 July 2005
Guinea Bissau, Guinea, Sierra Leone and Liberia	29 April - 16 May 2006
Benin, Togo, Ghana and Côte d'Ivoire	19 May - 7 June 2006
Nigeria, Cameroon, São Tom, Principe, Gabon and Congo	9 June – 20 July 2006

CRUISE REPORTS "DR. FRIDTJOF NANSEN"

SURVEYS OF THE FISH RESOURCES OF THE WESTERN GULF OF GUINEA (Guinea Bissau, Guinea, Sierra Leone and Liberia)

Survey of the pelagic and demersal resources 5 - 29 May 2007

by

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Bergen, 2007

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CHAPTER 1 INTRODUCTION

The survey was organised by GCLME in cooperation with IMR and FAO under the FAO project GCP/INT/730/NOR: International cooperation with the Nansen Programme: Fisheries Management and Marine Environment, and the agreement between GCLME and IMR. 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 and technical aspects of the survey was discussed and agreed upon during a pre-survey meeting held onboard "Dr. Fridtjof Nansen" in Bissau, Guinea Bissau, on 5th May 2007 where representatives from Guinea Bissau, Guinea, Sierra Leone, Liberia, Ghana and IMR participated.

1.1 Objectives

Following the instructions from the GCLME and the recommendations from the pre survey meeting in Bissau, Guinea Bissau, the main objectives of the survey were:

- to map the distribution and estimate the acoustic abundance of the main pelagic species / groups in the region
- to describe the distribution, composition and estimate the abundance of the main demersal species on the shelf by a swept-area trawl programme
- to collect bottom sediment samples to map the benthic biodiversity in the region.
- to collect zooplankton samples for distribution and species identification
- to map the general hydrographic regime by using a CTD-sonde to monitor the temperature, salinity and oxygen at bottom trawl stations
- on-the-job training on the main survey routines

1.2 Participation

Participants for the survey arrived in Bissau, Guinea-Bissau 3-5 May. All participants stayed onboard for the whole duration of the survey. The African participants represented the countries in the region covered by the survey, and two-invited participant from Ghana.

From Guinea Bissau:

Luis Malabe da Fonseca and Amadeu Mendes de Almeida

From Guinea:

Amadou Bah and Ousmane Tagbé Camara

From Sierra Leone:

Sheku Sei (Team Leader) and Ibrahim Turay (Local Cruise Leader)

From Liberia:

Alvin Jueseah and D.Wesseh Kay (Team Leader)

From Marine Fisheries Research Division, Tema, Ghana:

Kofi Debrah-Mireku

From Department of Oceanography and Fisheries, University of Ghana:

Emmanuel Lamptey

From Institute of Marine Research, Norway:

Inger Marie Beck, Ole Sverre Fossheim, Thor Egil Johansson, Elisabeth Lundsør and Sigbjørn Mehl (Cruise Leader).

1.3 Narrative

The vessel left Bissau (Guinea Bissau) at 1400 on 5 May. The survey started at 0600 the next day after the vessel arrived at the border between Senegal and Guinea Bissau. The border between Guinea Bissau and Guinea was reached on 10 May, between Guinea and Sierra Leone on 16 May, and between Sierra Leone and Liberia on 23 May. The survey continued through Liberian waters until the border with Cote d'Ivoire was reached 29 May at 1800, where the survey was discontinued. The vessel docked in Tema, Ghana on 31 June at 0930.

The shelf was surveyed during daytime (mainly 0600 to 1800) by transects perpendicular to the general direction of the coastline, 20 NM (nautical miles) apart. Transects and stations were chosen such that most of the shelf area was covered. The number of stations on each transect depended on the trawlability of the ground and width of the shelf. Stratified semi-random swept-area hauls were carried out within the depth zones 20-30 m, 31-50 m and 51-100 m. In Guinea Bissau and Guinea a few additional trawl hauls were made deeper than 100 m, also in dark hours. The trawl gear was often towed in the current direction along the selected isobath. Each haul lasted for 30 minutes, except when schools of fish or jellyfish were encountered or if the bottom was not trawlable. Experimental bottom trawling for shrimp was carried out at nighttime in Sierra Leone and Liberia. Continuous acoustic recording and analysis was carried out throughout the survey. To obtain a denser acoustic coverage, nighttime 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.

CTD-stations were taken at the bottom trawl stations. Zooplankton samples were taken during daytime at 30 and 50 m depth with a 1 m diameter ICITA net in step oblique hauls and at 50

m depth with Hydrobios Multinet plankton sampler. Grab samples were taken both during day and night at the same positions as in the 2006 survey.

1.4 Survey effort

Figure 1.1 shows the cruise tracks with bottom trawls, pelagic trawls and hydrographic stations, and Figure 1.2 shows the cruise tracks with plankton and grab stations. Table 1.1 summarises the survey effort in each country.

Table 1.1. Number of hydrographic (CTD), plankton (P), grab (G), pelagic trawl (PT) and bottom trawl (BT) stations, successful swept-area hauls, distance surveyed (NM) and size of survey area (NM^2).

						Swept area hauls (depth in m)						Distance surveyed
Region	CTD	P	G	PT	BT	0-30	20-30	31-50	51-100	101-200	>200	
Guinea Bissau	20	7	8	4	21		5	6	5	3	1	660
Area (NM^2)						4550	1000	1600	1560	1270	2500	
Guinea	33	8	5	7	36		8	14	5	2	2	1050
Area (NM^2)						4600	1350	4100	1110	700	250	
Sierra Leone	35	7	9	5	34		9	9	7			930
Area (NM^2)						4160	1640	2160	2220	440	-	
Liberia	38	9	12	3	36		5	8	20			1110
Area (NM^2)						850	-	990	3140	500	-	
Total	126	31	34	19	127		27	37	37	5	3	3750

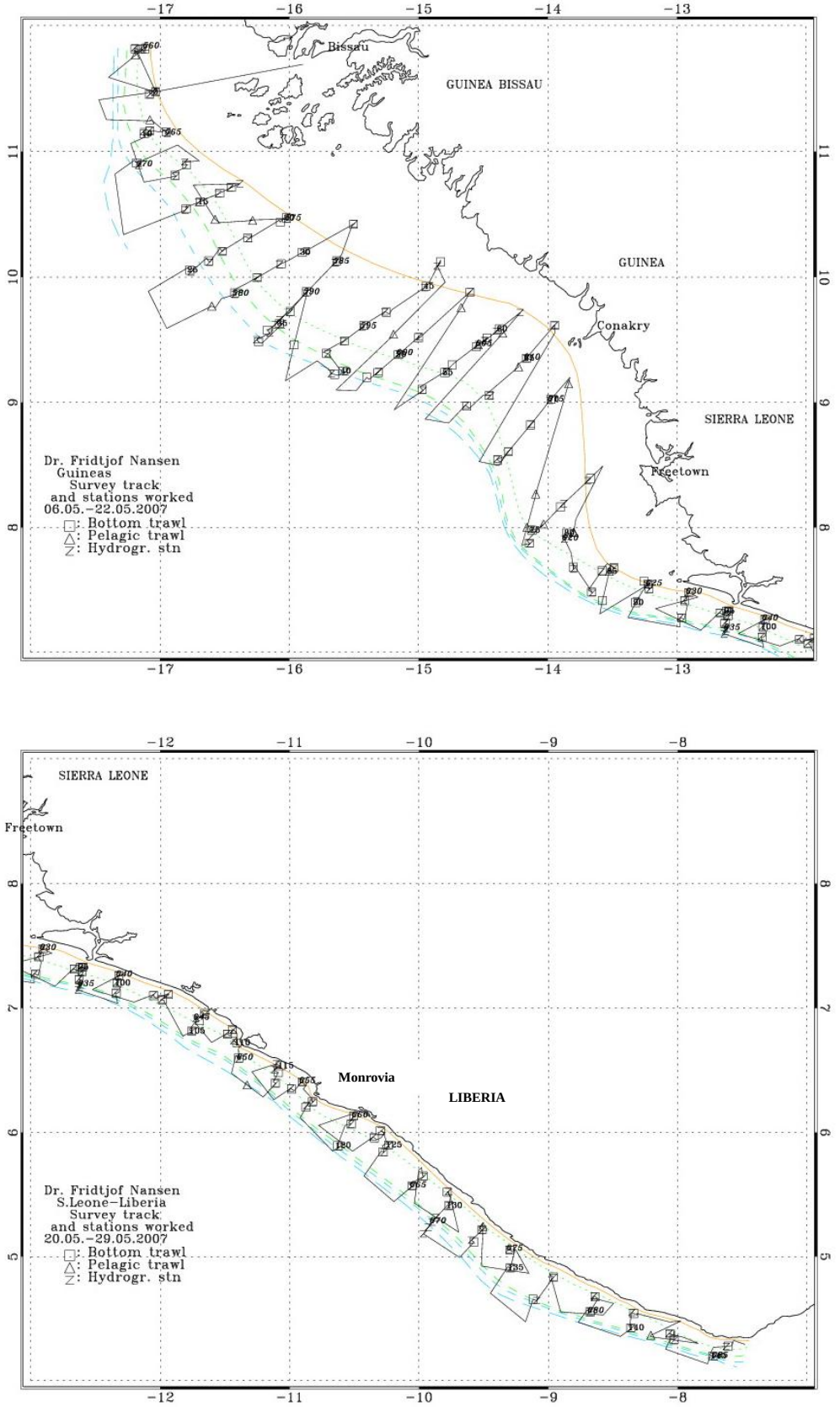


Figure 1.1. Course tracks with bottom trawl, pelagic trawl and hydrographic stations for Guinea Bissau-Guinea-Sierra Leone West (top) Sierra Leone East-Liberia (bottom). Depth contours are indicated.

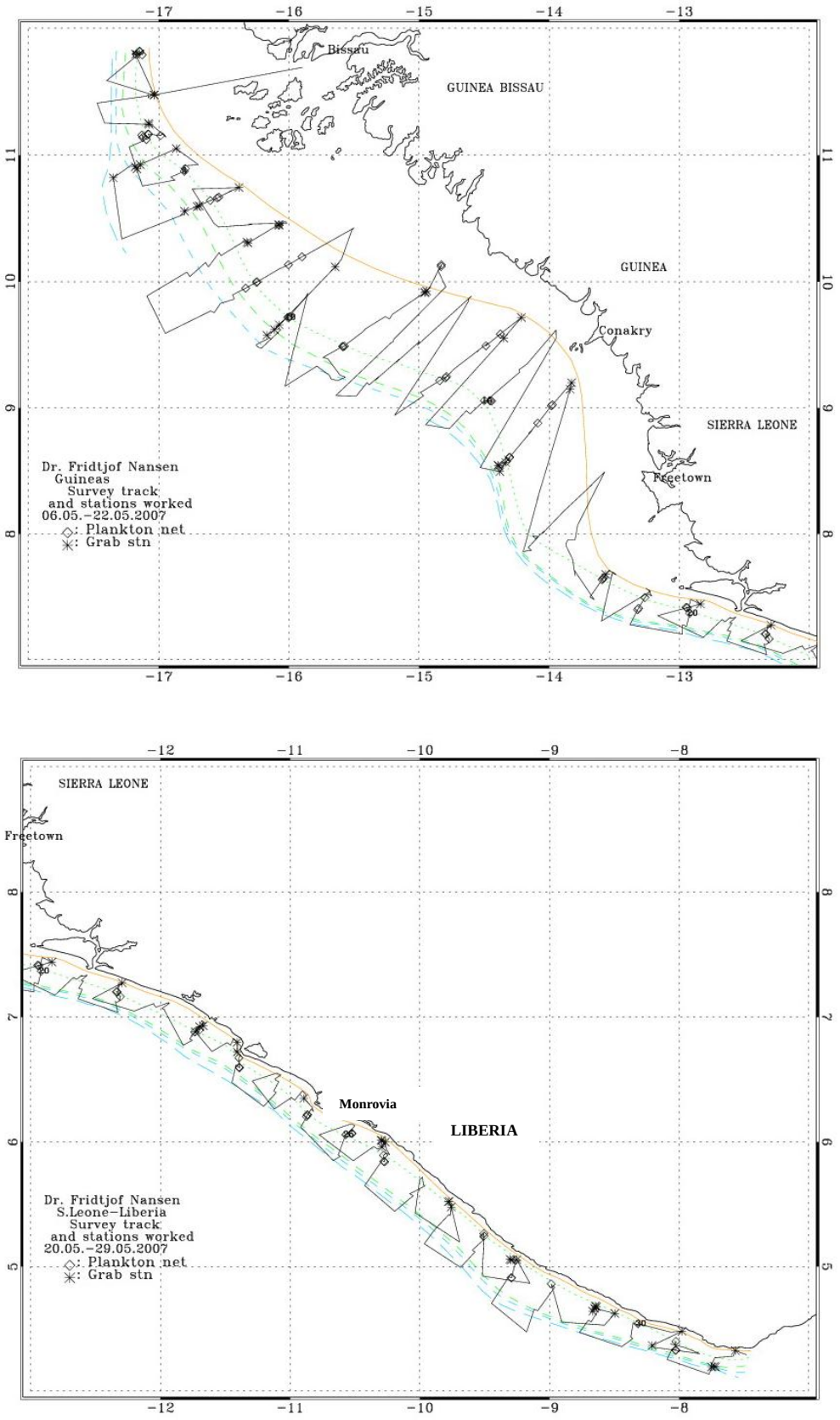


Figure 1.2. Course tracks with plankton and grab sample stations for the survey area. Depth contours are indicated.

CHAPTER 2 METHODS

2.1 Meteorological and hydrographical sampling

Temperature, salinity and oxygen
CTD stations were taken in connection with all swept-area bottom trawl stations. Figure 1.1 presents positions for the CTD stations. 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 normally not deeper than 500 m. The new oxygen sensor has shown to be very stable, and no calibration was conducted during the survey. The average differences between the salinometer and CTD values have also been very small in the previous surveys and the CTD values were accepted.

Thermosalinograph
The SBE 21 Seacat thermosalinograph was running routinely during the survey, obtaining samples of sea surface salinity and relative temperature (5 m depth) every 10 sec.

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 400 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 Zooplankton sampling

Zooplankton samples were taken at 23 locations at about 30 and 50 m depth (Figures 1.2) with a 1 m diameter ICITA net in step oblique hauls. The net was towed for five minutes at the surface at a speed of 1.0 knots, and thereafter it was brought to 10 and 20 m at all stations and to 30 and 40 m at the deepest stations and towed at these depths for five minutes. At the end of the tow the net was retrieved onto the deck. Flow meter readings were done before and after the tow. In addition, at 8 locations samples were collected with the Hydrobios Multinet zooplankton sampler that takes up to five discrete samples at predefined depths while measuring the water flow through the net. The samples were then rinsed into the cod end and preserved in buffered formaldehyde and sent to the GCLME plankton laboratory at the Department of Oceanography & Fisheries, University of Ghana for analyses.

2.3 Benthos grab sampling

The soft-bottom benthic macrofauna sampling was carried out from pre-determined stations based on the 2006 sampling locations from Guinea-Bissau to Liberia in the Guinea Current Large Marine Ecosystem. At each of these pre-determined stations (Figure 1.2), a long-arm van Veen grab with a surface area of 0.1 m^2 was deployed from an operated winch to collect the sediment samples. Five replicate samples were collected at each of the stations to ascertain the patchiness of infauna and to maximize spatial coverage. The sediment samples were washed on a sediment-washing table through 0.5 mm mesh size sieve. The remaining sieved sediments were transferred in turns into inner and outer-labelled plastic sample holding containers. The containers were labelled using the prefix of the year, station numbers (i.e. country initials using the two first letters), replicate type, date and the type of preservative used (e.g. 7GB05C, 08/05/07, 1/3, Formalin). Four (4) out of the replicate samples were fixed in 10 % borax pre-buffered formaldehyde solution for taxonomic resolution later in the laboratory. The other replicate sample was preserved in 90 % ethanol. The ethanol in these samples were separately decanted and refilled with fresh ethanol solution after 48 hours to avoid sample deterioration. The samples were packed into carton boxes with reinforced under parts. The samples were packed by putting three (3) samples from each station including the ethanol sample into one box. These samples were to be delivered to the University of Bergen Museum in Norway. The two other samples from each station were also packed into separate boxes and sent to the Department of Oceanography & Fisheries, University of Ghana.

Epibentic megafauna were also collected from demersal trawl catches and were fixed or preserved in formaldehyde or ethanol solutions respectively where appropriate and labelled using the trawl station number and date.

2.4 Biological fish 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 most target species on most stations. The Electronic Fish Meter (SCANTROL) coupled to Windows version computer software (Nansis) was used for length measurement. 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. Biological samples of target species were taken at some trawl stations, preferably near the zooplankton/benthos locations, and included total length (cm), body weight (g), sex, reproductive stages and stomach samples. Reproductive stages were determined by means of macroscopic examination, scoring each fish according to a five-point classification scale. The stomach content samples were stored in 4 % formaldehyde solution and the bottle labelled with the station number and fish species code. Other necessary information (e.g. station number, species code, date, sex, gonad stage and country code) was written on a piece of acetate paper and inserted into each sample bottle. 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 country are shown in Annex II. Swept-area densities and biomass estimates are presented in Annex III and IV, respectively.

2.5 Biomass estimates

Acoustic abundance estimation

A SIMRAD ER 60 Echo sounder was used and the echograms were stored on files. The acoustic biomass estimates were based on the integration technique. The Large Scale Survey System (LSSS) from Christian Michelsen Research (CMR) was used for intergration 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, LSSS analysis and the catch composition. The mean integrator value in each sampling unit (s_A-values) was divided between the following standard categories/groups of fish:

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

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):

$$TS = 20 \log L - 72 \, dB \qquad (1)$$

or in the form

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

where L is the 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:

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

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:

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

The length distribution of a given species within an area was computed by simple adding of the length frequencies obtained in the pelagic 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:

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

The number and biomass per length group in each concentration were then added up to obtain totals for each country.

Biomass estimates based on swept-area method
In the bottom trawl survey, stock biomasses were estimated by the swept-area method with catch per haul as the index of abundance (see Strømme 1992). In most hauls the trawl bottom time was around 30 minutes. This was a prerequisite for the trawl data to be included in the analysis. The area swept by the trawl net within 30 minutes trawl time was 0.015 NM² and it corresponds to an average horizontal opening of 18.5 m towing at 3.0 knots. Diagrams of the bottom trawl used are shown in Annex VI.

The general formula to estimate biomass B, using this method is:

$$B = \frac{A}{a} \cdot \frac{\overline{X}}{\mathrm{q}} \qquad (6)$$

A is the total area surveyed, a is the swept area of the net per haul, $\overline{X}$ is the average catch per haul (the index of abundance) and q (trawl catchability) is the proportion of fish in the path of the net that are actually caught - vulnerability of fish to the trawl gear. 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 $\overline{X}_i$ and s_i^2 respectively, then an unbiased estimate of the population mean $\overline{X}$ is the stratified mean $\overline{X}_{st}$, which is given by:

$$\overline{X}_{st} = \frac{1}{N}\sum_{i=1}^{k} N_i \overline{X_i} = \sum_{i=1}^{k} W_i \overline{X_i} \qquad (7)$$

where $Wi = \frac{Ni}{N} = \frac{A_i}{A}$ is the relative size of the ith stratum (A_i is the area of the ith stratum and A is the total area surveyed). The variance of the stratified mean is given by

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

where n_i is number of hauls in the ith 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 biomasses for the different countries. 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 m (traditionally applied wing spread for the "Nansen" bottom trawl) times the distance trawled, raised to NM²/hour. The catchability coefficient (q), i.e the fraction of the fish encountered by the 18.5 m horizontal opening of the trawl that was actually caught, was assumed equal to 1, which leads to an estimation of the minimum biomass for comparison with previous surveys. Catchability may vary, depending on the type of gear used and the type of species (e.g. gears with bobbins are apparently less efficient for species such as flat fishes and octopus, while gears without bobbins and with footrope touching the bottom are more efficient for benthic species). Departures of q from 1 can introduce biases in biomass estimates leading to wrong fisheries management advices (Somerton *et al.* 1999). Mean fish densities by species and strata, were calculated by the swept-area module in NAN-SIS.

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

CHAPTER 3 OCEANOGRAPHIC CONDITIONS

3.1 Surface distribution

The surface layer temperature (5 m depth) was continuously recorded during the cruise. Figure 3.1 shows the horizontal distribution of sea surface temperatures (SST) for the survey area.

Guinea Bissau and Guinea

The sea surface temperatures outside Guinea Bissau and Guinea were characterised by water masses with temperatures ranging from 23^{o} C in the northwest to 28 °C in the southeast towards the border of Sierra Leone. This water was assumed to be influenced by water from the Canary Current as an upwelling flowing in across the wide shelf area in this region. On the southeastern part of the wide shelf area towards Sierra Leone, tropical water masses (>29 °C) were encountered.

Sierra Leone and Liberia

Here the tropical water masses (>29°C) dominated the SST throughout the area.

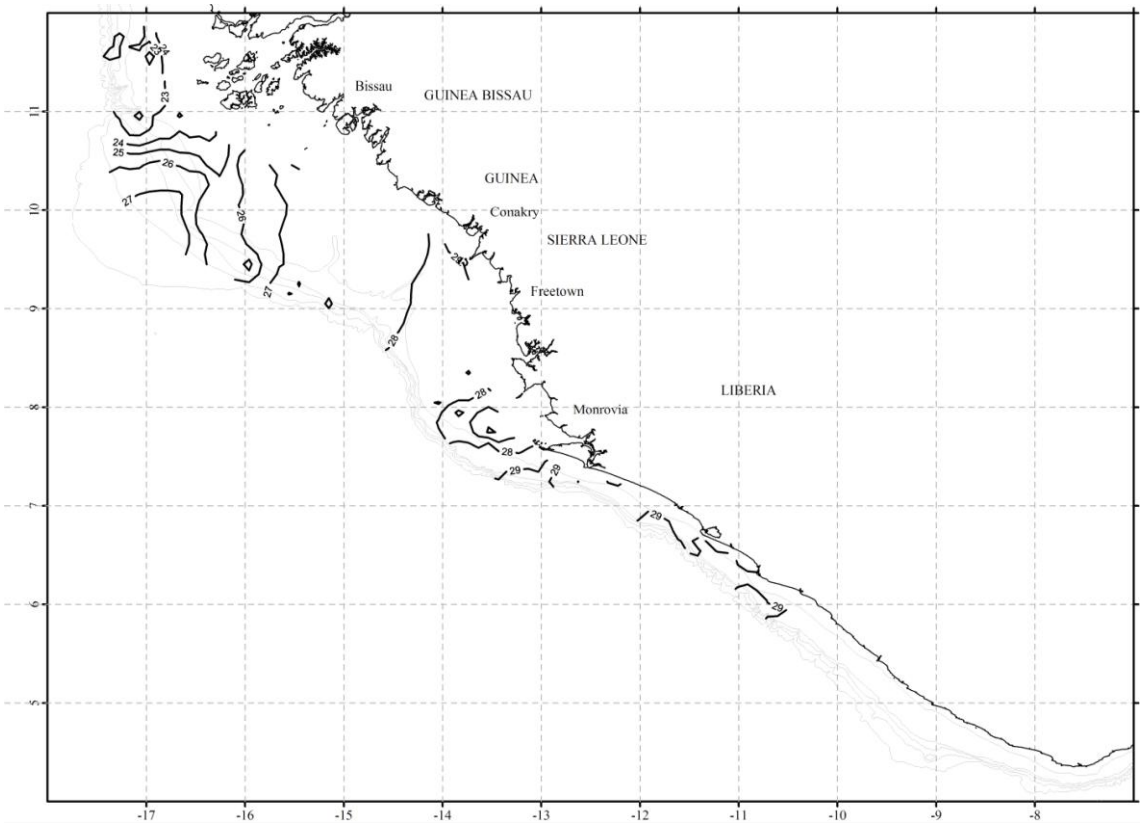


Figure 3.1. Horizontal distribution of surface temperature (5 m depth) in the survey area

The surface salinity (Figure 3.2) was recorded from the Thermosalinograph at 5 m depth. The salinity was characterised by oceanic water in the west, and by coastal influence in the east.

Guinea Bissau and Guinea

Generally the salinity was corresponding with temperature in these countries, in the sense that the upwelling of deeper oceanic water was also identifiable in the salinity regimes. In Guinea Bissau the upwelling could be traced directly by a deep intrusion at 35.9 ppt, being reduced to 35.5 ppt towards the shore. These saline water masses also penetrated from the deep into most of the Guinean shelf, with salinities of 35.6 ppt still measured at the western shelf of Sierra Leone.

Sierra Leone and Liberia

The sea surface salinity in these two countries was more typical of a coastal narrow shelf tropical situation, with salinities ranging between 34.8 and 35.2 ppt, decreasing even further to 34.2 ppt in areas with river outlets.

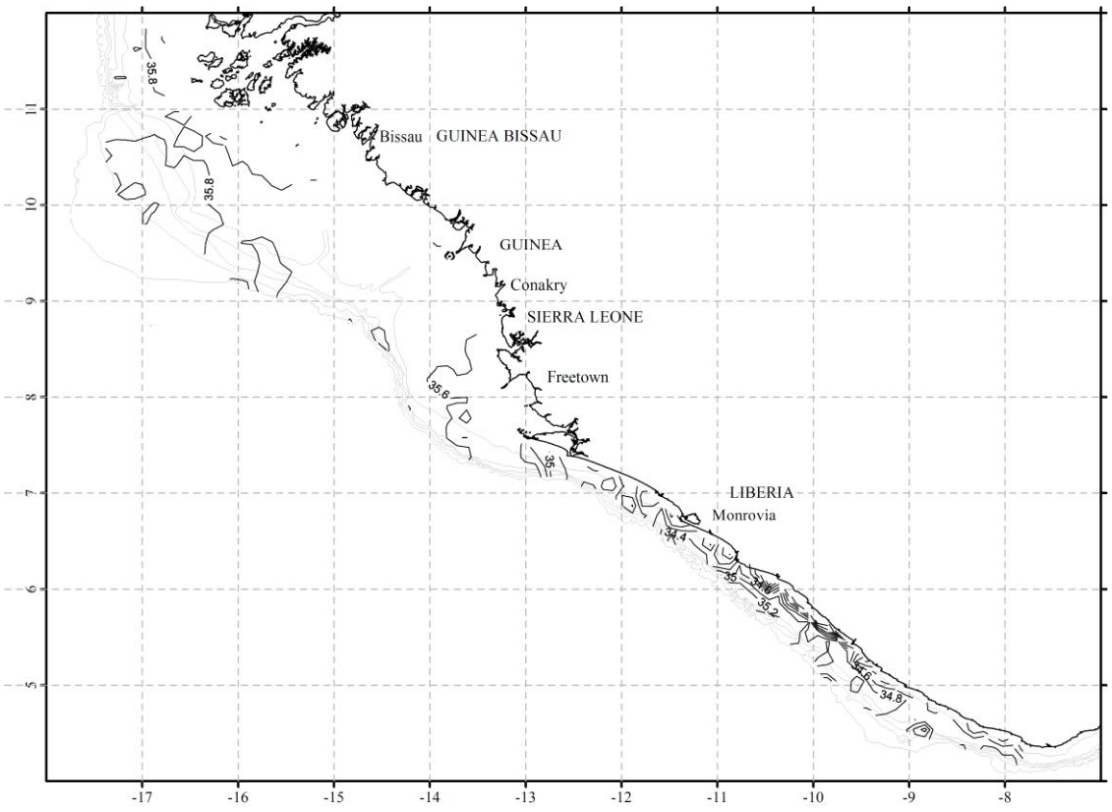
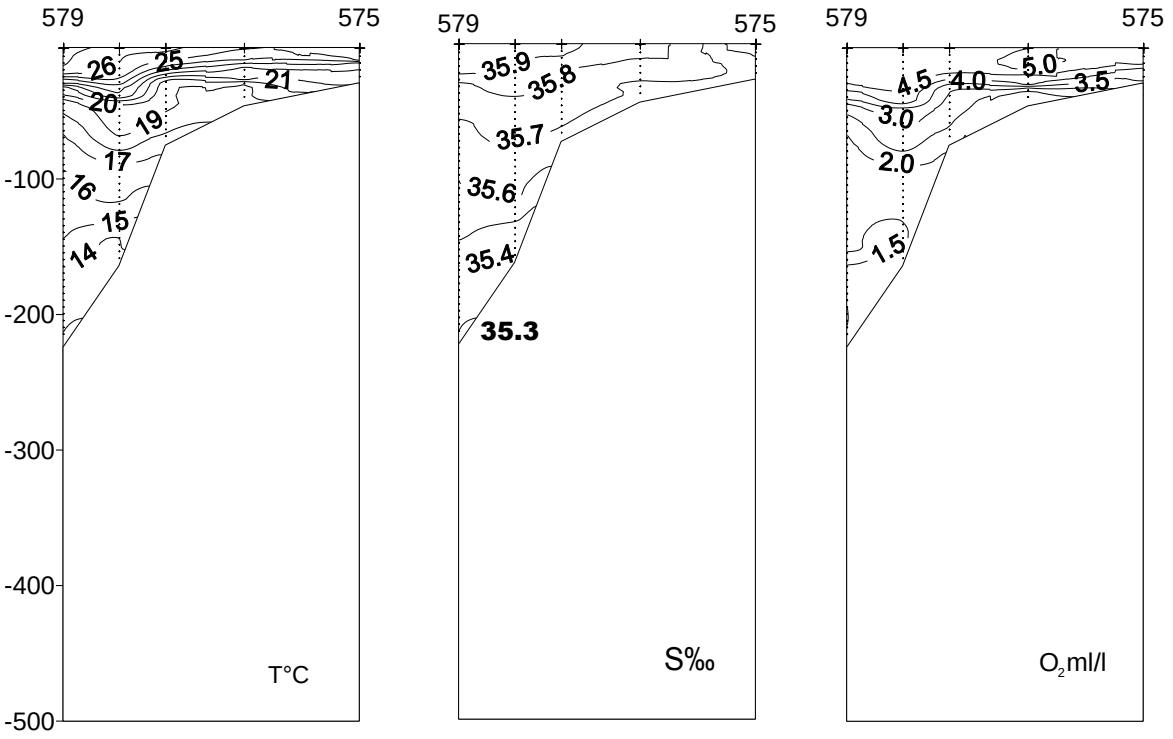


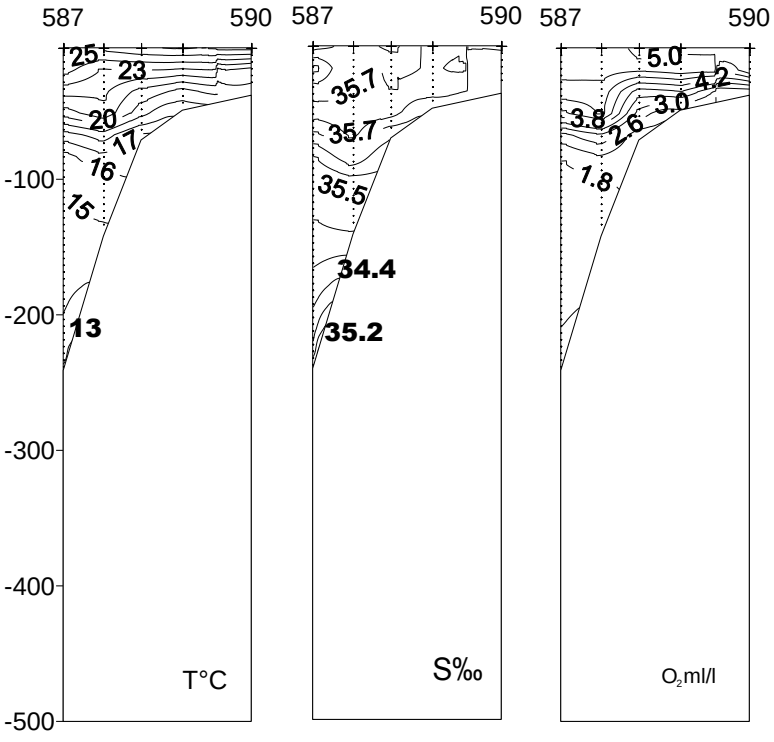
Figure 3.2. Horizontal distribution of surface salinity (5 m depth) in the survey area

3.2 Vertical distribution

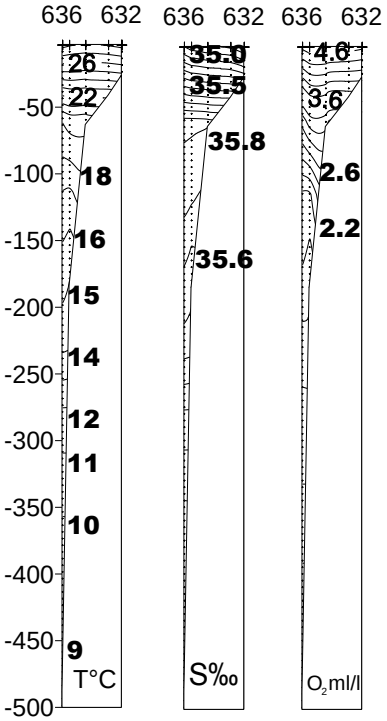
Figures 3.3a-d show the vertical distribution of temperature, salinity and dissolved oxygen as recorded on hydrographic transects worked during the survey. There were relatively small differences between the profiles. The thermocline was found between 25 and 50 m depth. A relatively flat structure was observed in most sections with no clear signs of vertical water displacement and upwelling. There was no sign of low bottom oxygen content on the shelf.



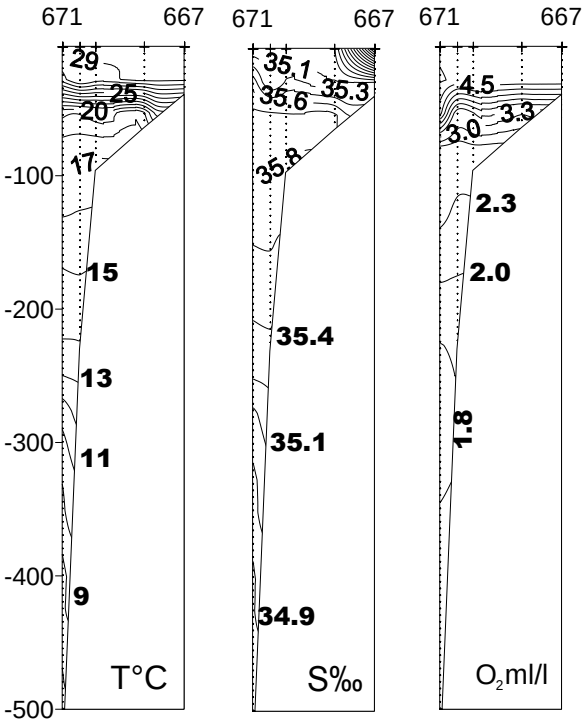
a) Guinea Bissau



b) Guinea



c) Sierra Leone



d) Liberia

Figure 3.3a-d. Vertical sections of temperature, salinity and oxygen

CHAPTER 4 RESULTS OF THE ACOUSTIC SURVEY

The hydroacoustic survey covered the shelf and slope to 300-500 m bottom depth. Continuous acoustic recording and analysis was carried throughout the survey. To obtain a denser acoustic coverage, nighttime registrations were made in between the daytime course tracks. In addition to bottom trawling, mainly in day light, pelagic trawling was carried out for pelagic species identification, mainly 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. Generally low to medium acoustic densities were found over most of the shelf and only plankton was found in the water column from the shelf break and further offshore. Most pelagic fish were found inshore of 100 m depth. The dispersed fish distribution and high abundance of plankton made acoustic detection and separation very difficult.

The distribution area of main groups of pelagic fish in the region, i.e. sardinellas, anchovy, PEL 1 (unidentified or other clupeids) and PEL 2 (mainly carangids) are depicted in the following figures using the integrator values from the LSSS echo-integration system. The acoustic densities (in m^2/NM^2) are illustrated by a scale normally used on acoustic surveys with "Dr. Fridtjof Nansen". Detailed acoustic estimates by country are presented in Annex V.

4.1 Guinea Bissau

Clupeids

Both juvenile and adult *Sardinella aurita* (8-37 cm) and adult *S. maderensis* (20-30 cm) were caught in pelagic trawl hauls and bottom trawl hauls (Figure 4.1), *S. aurita* being the most abundant. Dense concentrations of sardinellas were found on the northern part of the shelf of Guinea Bissau (Figure 4.2). The biomass of sardinella was estimated to be about 200 000 tonnes (60 % *S. aurita*), applying added and weighted length distributions from bottom and pelagic trawl hauls and a measured condition factor of 0.98 for *S. aurita* and 0.96 for *S. maderensis.*

A few registrations of *Ilisha africana* were made in a limited area in the northern part of Guinea Bissau and one relatively large catch was taken by bottom trawl. No biomass estimate was made for this species.

Anchovy

No acoustic registrations of anchovy were made in Guinea Bissau waters and only small amounts of *Engraulis encrasicolus* was caught in one bottom trawl haul in the northern part of Guinea Bissau.

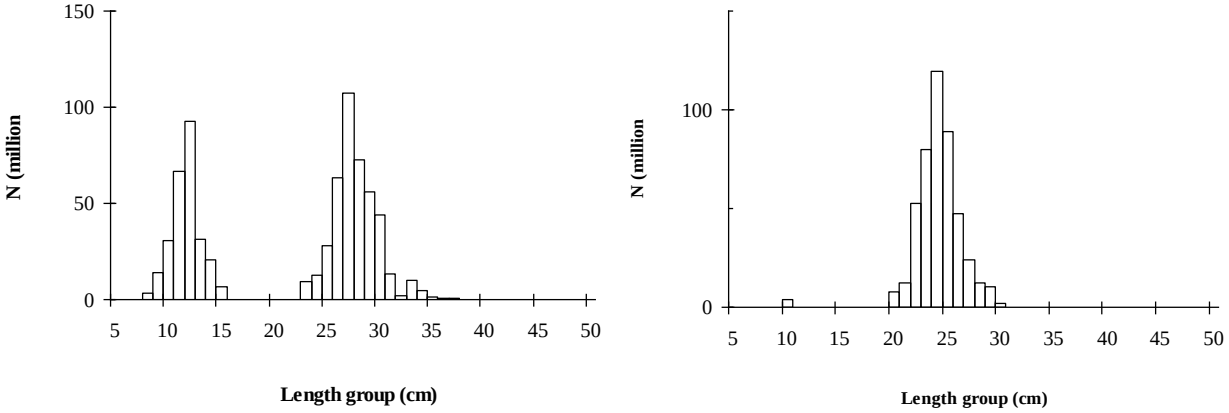


Figure 4.1. Length distributions of *Sardinella aurita* and *S. maderensis* in Guinea Bissau

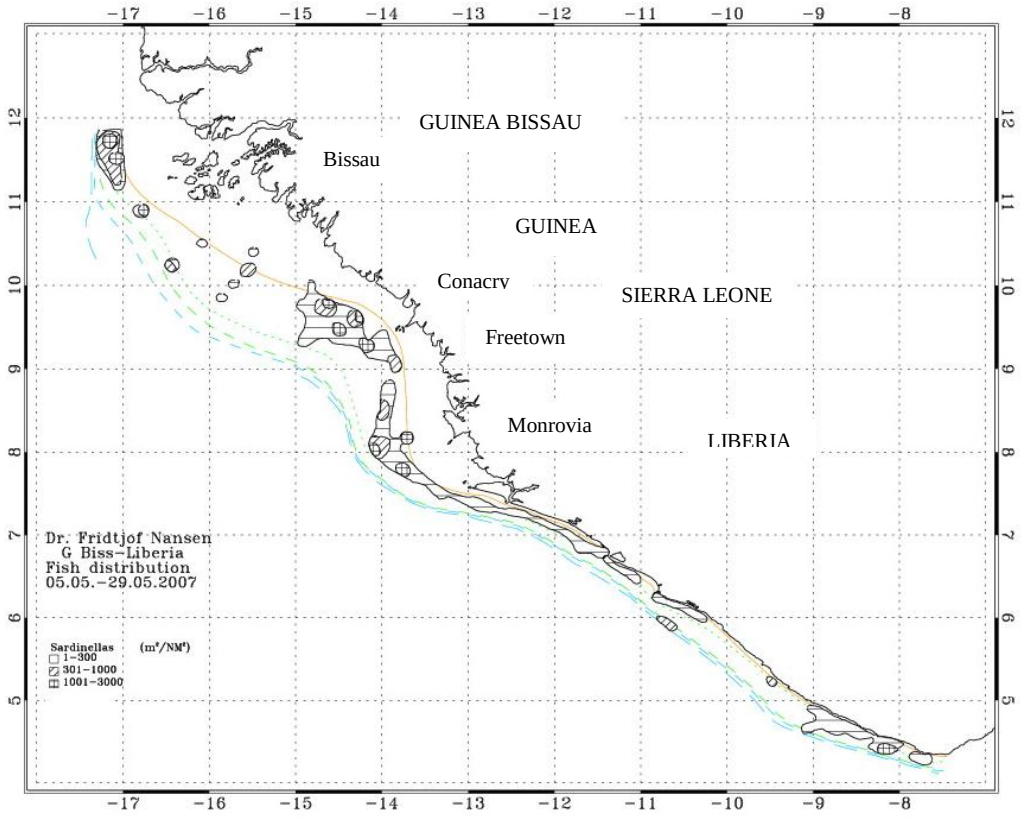


Figure 4.2. Distribution of sardinellas in the survey area

PEL 2 (carangids, scombrids, barracudas and hairtail)

The species category PEL 2 consisted of Carangidae, Scombridae, Trichiuridae and Sphyraenidae. The most abundant PEL 2 species in the trawl catches were the carangids C*hloroscombrus chrysurus, Decapterus rhonchus, D. punctatus* and *Selene dorsalis.* Schools of PEL 2 species, mainly of low density, were found along the whole coastline (Figure 4.3). A substantial part of the registrations were made on the mid and outer part of the shelf area. The biomass of PEL 2 was estimated to be about 45 000 tonnes, applying added length distributions from bottom and pelagic trawl hauls and a measured condition factor of 1.03 from *D. rhonchus*. Length frequencies of the species can be found in Annex II. As opposed to last years estimate, there was a sudden disappearance of horse mackerel (*Trachurus trecae*) across the shelf range in Guinea Bissau. Very few registrations were made and no separate biomass estimate was done for this species.

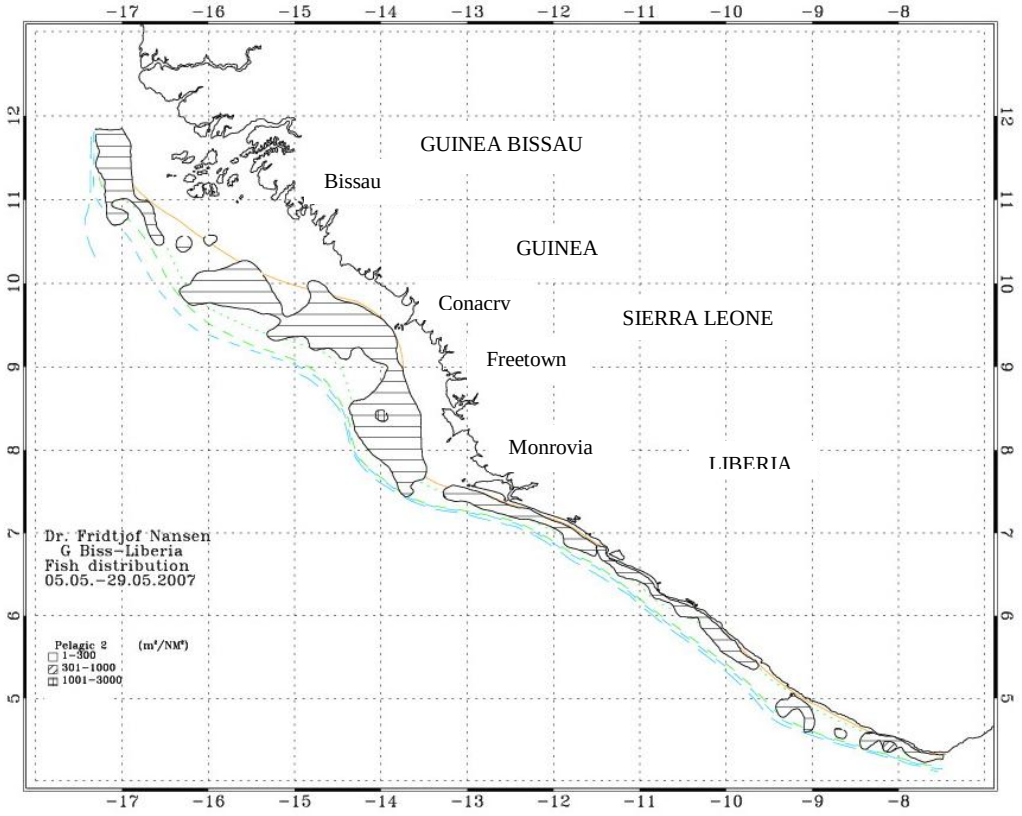


Figure 4.3. Distribution of PEL 2 (carangids, scombrids, barracudas and hairtail) in the survey area

4.2 Guinea

Clupeids

Juvenile (6-9 cm) and adult (23-28 cm) *Sardinella aurita* and *S. maderensis* (7-28 cm) were caught in pelagic trawl hauls and bottom trawl hauls (Figure 4.4), *S. maderensis* being the most abundant. Medium and some dense concentrations of sardinellas were found on the southern inner part of the shelf of Guinea (Figure 4.2). The biomass of sardinella was estimated to be about 190 000 tonnes (60 % *S. maderensis*), applying added and weighted length distributions from bottom and pelagic trawl hauls and a measureded condition factor of 0.87 for *S. aurita* and 0.84 for *S. maderensis.*

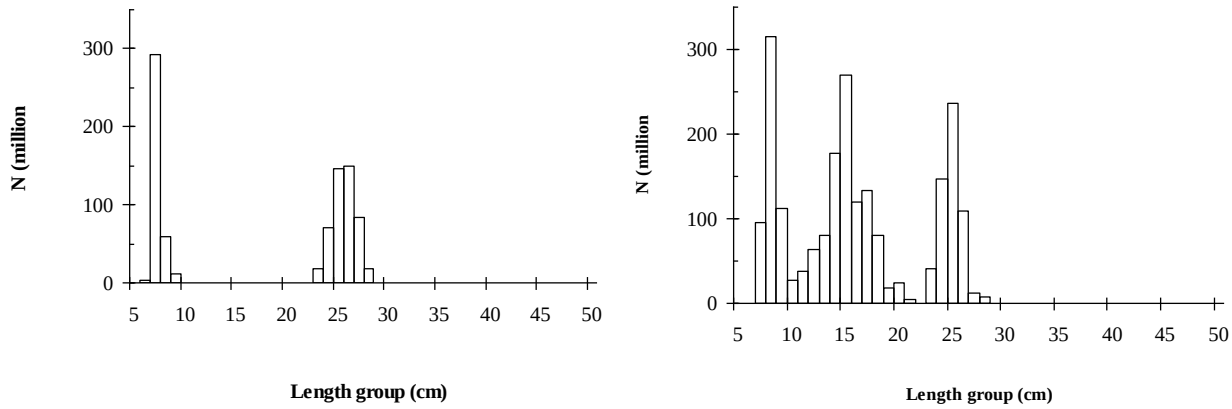


Figure 4.4. Length distributions of *Sardinella aurita* and *S. maderensis* in Guinea

Small amounts of *Ilisha africana* were caught in a couple of bottom trawl hauls. No acoustic registrations were allocated to this species in Guinea and no biomass estimate was made.

Anchovy

Engraulis encrasicolus was not caught in the trawl hauls in Guinea and no acoustic registrations were allocated to anchovy.

PEL 2 (carangids, scombrids, barracudas and hairtail)

The most abundant PEL 2 species in the trawl catches in Guinea were C*hloroscombrus chrysurus, Decapterus rhonchus* and *D. punctatuss.* Low-density schools of PEL 2 species were found along the whole coastline (Figure 4.3). Most of the registrations were made on the inner and mid part of the shelf area. Very few registrations were made for the horse mackerel, *Trachurus trecae*. There appear to be a sudden disaapearance of this species across the shelf range of Guinea, similar to what was observed in Guinea Bissau. No separate biomass

estimate was made for this species. The biomass of PEL 2 was estimated to be about 60 000 tonnes, applying added length distributions from bottom and pelagic trawl hauls and a measured condition factor of 1.03 from *D. rhonchus*. Length frequencies of the species can be found in Annex II.

4.3 Sierra Leone

Clupeids

Juvenile and adult *Sardinella maderensis* (7-26 cm) and adult *S. aurita* (19-24 cm) were caught in pelagic trawl hauls and bottom trawl hauls (Figure 4.5), *S. maderensis* being the most abundant. Medium and some dense concentrations of sardinellas were found on the mid part of the broad shelf in northwest, and continous scattered registration along the inner part of the narrow shelf in the south (Figure 4.2). Juvenile *S. maderensis* were found on the southern part of the shelf. The biomass of sardinella was estimated to be about 140 000 tonnes (84 % *S. maderensis*), applying added and weighted length distributions from bottom and pelagic trawl hauls and the same condition factor as in Guinea (0.87 for *S. aurita* and 0.84 for *S. maderensis.*)

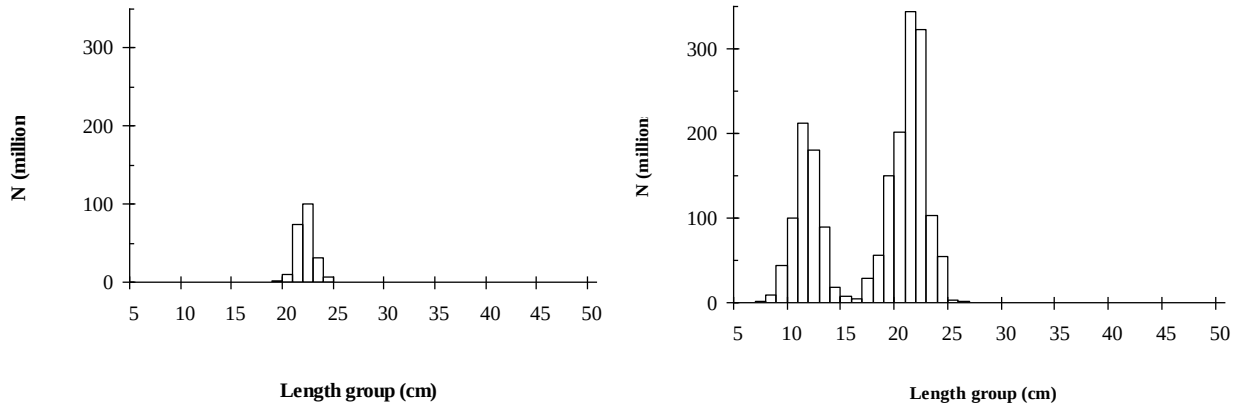


Figure 4.5. Length distributions of *Sardinella aurita* and *S. maderensis* in Sierra Leone

Ilisha africana was caught regularely by the bottom trawl in the southern part of Sierra Leone. Only a few scattered acoustic registrations were allocated to this species, and no biomass estimate was made.

Anchovy

Engraulis encrasicolus was not caught in the trawl in Sierra Leone and no acoustic registrations were allocated to anchovy.

PEL 2 (carangids, scombrids, barracudas and hairtail)

The most abundant PEL 2 species in the trawl catches in Sierra Leone were C*hloroscombrus chrysurus, Decapterus rhonchus* and *Selene Dorsalis.* In the southern areas most of the carangids were juvenile. Low-density schools of PEL 2 species were found along the whole coastline (Figure 4.3), on the mid part of the shelf area in the north and mainly on the inner part in the south. The biomass of PEL 2 was estimated to be about 100 000 tonnes, applying added length distributions from bottom and pelagic trawl hauls and a measured condition factor of 0.91 from *D. rhonchus*. Length frequencies of the species can be found in Annex II.

4.4 Liberia

Clupeids

Mainly juvenile *Sardinella maderensis* (6-16 cm) and *S. aurita* (9-21 cm) were caught in pelagic trawl hauls and bottom trawl hauls (Figure 4.6), *S. maderensis* being caught most frequently. Mainly low-density and a few medium and high density concentrations (*S. aurita*) were found along the whole shelf of Liberia, mainly on the inner part except in the in the south where a few dense registrations were made on the outer shelf (Figure 4.2). The biomass of sardinella was estimated to be about 50 000 tonnes (36 % *S. maderensis*), applying added and weighted length distributions from bottom and pelagic trawl hauls and a measured condition factor of 0.91 for *S. aurita* and the same condition factor as in Guinea (0.84) for *S. maderensis.*

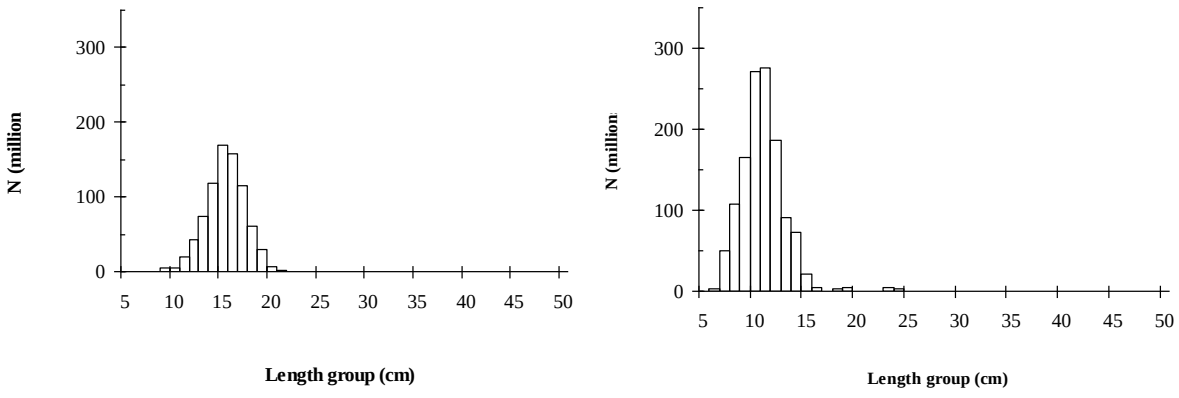


Figure 4.6. Length distributions of *Sardinella aurita* and *S. maderensis* in Liberia

Ilisha africana was caught in about one third of the trawl hauls along the whole inner shelf of Liberia. Only a few scattered acoustic registrations were allocated to this species since it normally was found together with sardinellas and was difficult to separate acoustically. No biomass estimate was made for this species.

Anchovy
Engraulis encrasicolus was caught in a few trawl hauls along the whole shelf of Liberia, with highest abundance in the south. Here it was mixed with sardinellas and no acoustic registrations were allocated to anchovy.

PEL 2 (carangids, scombrids, barracudas and hairtail)
The most abundant PEL 2 species in the trawl catches in Liberia were C*hloroscombrus chrysurus, Decapterus punctatus, Trachurus trachurus, T. trecae* and *Selene Dorsalis.* Most of the carangids were juvenile. Low-density schools of PEL 2 species were found along the whole coastline (Figure 4.3). The biomass of PEL 2 was estimated to be about 17 000 tonnes, applying added length distributions from bottom and pelagic trawl hauls and a measured condition factor of 1.04 for fish < 14 cm (from T. *trecae*) and 0.93 for larger fish (from *D. punctatus*. Length frequencies of the species can be found in Annex II.

4.5 Review of results

Pelagic fish were present over large parts of the region. The main densities of pelagic fish were found inshore of 50 m bottom depth, extending inshore into < 20 m depth (inshore of the survey area). Some pelagic hauls at night were taken as blind hauls, as relatively few schools were seen on the echo sounder. This was partly due to a dispersed distribution, and partly due to high abundance of plankton that made acoustic detection and separation difficult. Sardinellas and small carangids dominated on the inner shelf, while larger carangids, scombrids and barracudas were more widely distributed over the entire shelf.

Table 4.1 summarises the estimated biomasses of the main pelagic groups in 2006 and 2007. The estimated biomass of sardinellas in Guinea was much lower in the present survey compared to 2006, while the estimates for the other countries were more similar.

For all countries the estimated biomasses of PEL2 species, mainly carangids, were much lower than in 2006, especially in Guinea Bissau. As opposed to last years estimate (60 000 tonnes), there was a sudden disappearance of horse mackerel (*Trachurus trecae*) across the shelf range, especially in Guinea Bissau and Guinea. Very few registrations were made and no seperate biomass estimates were done for this species. This sudden disappearance may be attributed to ‘dwarf breeding’ or the fact that the juveniles after breeding, remained in the nursery until first maturation and then migrate with the adults as far as Mauritania. Second spawning migration for *T. trecae* usually occurs between February and May (Boely *et al*.

1973, Garcia 1982). However, the disappearance of *T. trecae* can not alone explain the differt acoustic estimates of PEL2 species in 2006 and 2007.

There were consistent acoustic recordings of relatively dense concentrations of demersal fish towards the shelf break. These were mainly *Dentex congoensis*, *Dentex angolensis* and *Ariomma bondi*.

Table 4.1. Acoustic biomass estimates of main pelagic groups (tonnes) a) Sardinellas, anchovies and PEL 1 and b) carangids, scombrids, barracudas and hairtails (PEL 2) in 2006 and 2007.

a) Sardinellas, anchovies and PEL 1

Survey Year	Survey period	Guinea Bissau	Guinea	Sierra Leone	Liberia	Total
2006	29.4 - 14.5	177 000	1 083 000	97 000	25 000	1 382 000
2007	5.5 - 29.5	197 000	192 000	138 000	48 000	575 000

b) Carangids, scombrids, barracudas and hairtails (PEL 2)

Survey Year	Survey period	Guinea Bissau	Guinea	Sierra Leone	Liberia	Total
2006	29.4 - 14.5	566 000	185 000	269 000	127 000	1 147 000
2007	5.5 - 29.5	45 000	63 000	100 000	17 000	225 000

CHAPTER 5 RESULTS FROM THE SWEPT AREA TRAWL SURVEY

The composition of the fish fauna on the continental shelf and slope of the Gulf of Guinea changes with depth (Williams 1968). The catch-distribution analyses were therefore performed for three depth strata on the shelf, 0-50 m (inner shelf) and 51-100 m (outer shelf) and 101-250 m depth (slope). Table 5.1 gives the main species groups with common species in the region. For the different analysis the "other" group includes all species not accounted for in the other groups. 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 about 300 m was included, divided into 0-30 m, 31-50 m, 51-100 m and 101-300 m. Mean densities of the main demersal species by depth strata, occurrence and catch distributions are shown in Annex III.

Table 5.1. Main groups of species included in the analyses of diversity in the Western Gulf of Guinea

Main Groups	Main Families	Typical Species
Demersal	Sciaenidae	*Pentheroscion mbizi*
		Pseudotolithus brachygnatus
		Pseudotolithus senegalensis
		Pseudotolithus elongatus
		Pseudotolithus typus
		Pterecion peli
		Umbrina canariensis
	Sparidae	*Dentex angolensis*
		Dentex congoensis
		Pagellus bellottii
		Pagrus caeruleostictus
		Boops boops
	Ariidae	*Arius latiscutatus*
	Serranidae	*Serranus accraensis*
		Epinephelus aeneus
		Epinephelus haifensis
	Lutjanidae	*Lutjanus fulgens*
		Lutjanus dentatus
	Polynemidae	*Galeoides decadactylus*
	Haemulidae (=Pomadasyidae)	*Brachydeuterus auritus*
		Pomadasys jubelini
	Ophidiidae	*Brotula barbata*
	Lethrinidae	*Lethrinus atlanticus*
Pelagic	Clupeidae	*Sardinella maderensis*

		Sardinella aurita
		Ilisha africana
		Engraulis encrasicolus
	Carangidae	*Selene dorsalis*
		Chloroscombrus chrysurus
		Decapterus punctatus
		Selar crumenophthalmus
		Caranx hippos
		Caranx crysos
		Alectis alexandrinus
		Stromatus fiatula
	Scombridae	*Scomberomorus tritor*
		Scomber japonicus
	Trichiuridae	*Trichiurus lepturus*
	Sphyraenidae	*Sphyraena guachancho*
		Sphyraena afra
Shrimps		*Parapenaeus longirostris*
		Parapeneopsis atlantica
		Penaeus notialis
		Penaeus kerathurus
		Sicyonia galeata
Cephalopods		*Sepia officinalis hierredda*
		Illex coindetii
		Alloteuthis africana
		Sepiella ornata
		Octopus vulgaris
Sharks and Rays		*Raja miraletus*
		Cacharhinus plumbeus
		Squatina oculata
		Mustelus mustelus
		Dasyatis pastinaca
Others	Priacanthidae	*Priacanthus arenatus*
	Citharidae	*Citharus linguatula*
	Platycephalidae	*Grammoplites gruveli*
	Synodontidae	*Saurida brasiliensis*
	Triglidae	*Lepidotrigla cadmani*
		Lepidotrigla carolae
	Bothidae	*Syacium micrurum*
	Ariommatidae	*Ariomma bondi*
	Tetraodontidae	*Lagocephalus laevigatus*
	Uranoscopidae	*Uranoscopus albesca*
	Mullidae	*Pseudupeneus prayensis*
	Fistulariidae	*Fistularia petimba*
	Cynoglossidae	*Cynoglossus canariensis*
		Cynoglossus senegalensis
	Drepanidae	*Drepane africana*

5.1 Guinea Bissau

A total of 20 swept-area trawl hauls were made on the Guinea Bissauan shelf. Table 5.2 a-c and Figure 5.1 a-c shows catch rates by main groups for the inner shelf (0-50 m), mid shelf (51-100 m) and outer shelf and slope (101-250 m), respectively. Average catches were around 692 kg/h on the inner shelf, 458 kg/h on the mid shelf and 279 kg/h on the outer shelf and slope. The pelagic group contributed 69 % of the total catch and an average catch of 479 kg/h on the inner shelf, while the demersal group accounted for 21 % of the catch. On the mid shelf, demersal and pelagic species contributed 14 and 72 % or 66 and 331 kg/h, respectively. On the outer shelf and slope the "other" group constituted 82 % of the catch. The demersal group contributed 4 %, or 11 kg/h. Prawns/shrimps were not caught in commercial quantities. Sharks, rays and cephalopods had somewhat higher catch rates, especially on the outer shelf and slope.

Table 5.2. Guinea Bissau. Catch rates (kg/h) by main groups in swept-area bottom-trawl hauls on the a) inner shelf (0-50 m), b) mid shelf (51-100 m) and c) outer shelf and slope (101-250m).

a) Inner shelf, 0-50 m

Sta. no.	Depth	Demersal	Pelagic	Shrimps	Cephalopod	Sharks-rays	Other	Total
1	27.5	21.8	560.5	2.1	0.0	0.0	302.5	886.9
2	38.5	1403.4	31.8	0.5	0.0	0.0	11.6	1447.4
5	30.0	2.1	3847.8	0.0	2.2	0.0	20.4	3872.5
6	38.5	0.2	212.8	3.6	3.1	0.0	16.1	235.7
8	27.0	173.2	267.5	0.2	1.4	0.0	30.1	472.4
9	45.0	0.4	112.3	0.0	4.5	0.0	111.6	228.8
12	46.5	4.2	229.7	0.1	17.7	2.7	44.7	299.2
16	38.5	0.0	0.0	0.0	0.9	0.0	18.1	19.0
17	25.5	0.1	3.1	5.4	12.8	26.8	17.1	65.4
21	28.0	4.9	0.4	0.0	0.0	0.0	14.6	19.9
22	45.0	0.7	6.5	0.0	0.7	0.0	59.8	67.8
Mean	35.5	146.5	479.3	1.1	3.9	2.7	58.8	692.3
% catch		21.2	69.2	0.2	0.6	0.4	8.5	100.0

b) Mid shelf, 51-100 m

Sta. no.	Depth	Demersal	Pelagic	Shrimps	Cephalopod	Sharks-rays	Other	Total
3	63.0	102.0	1642.9	1.5	0.2	0.0	13.1	1759.6
10	73.0	4.7	11.3	0.0	3.4	0.0	14.2	33.6
11	88.5	197.0	1.7	0.0	13.8	0.0	81.2	293.6
15	65.5	27.5	0.0	0.0	3.0	0.0	57.7	88.1
23	78.0	0.1	0.0	0.0	0.0	0.0	115.0	115.2
Mean	73.6	66.3	331.2	0.3	4.1	0.0	56.2	458.0
% catch		14.5	72.3	0.1	0.9	0.0	12.3	100.0

c) Outer shelf and slope, 101-250 m

Sta. no.	Depth	Demersal	Pelagic	Shrimps	Cephalopod	Sharks-rays	Other	Total
13	156.5	33.8	6.9	0.0	11.8	7.4	164.4	224.3
14	145.0	2.1	0.0	0.0	4.4	0.0	79.0	85.6
24	164.0	0.9	4.2	0.0	2.2	39.2	197.3	243.7
25	220.0	9.0	0.0	3.4	47.6	19.1	482.9	562.1
Mean	171.4	11.5	2.8	0.9	16.5	16.4	230.9	278.9
% catch		4.1	1.0	0.3	5.9	5.9	82.8	100.0

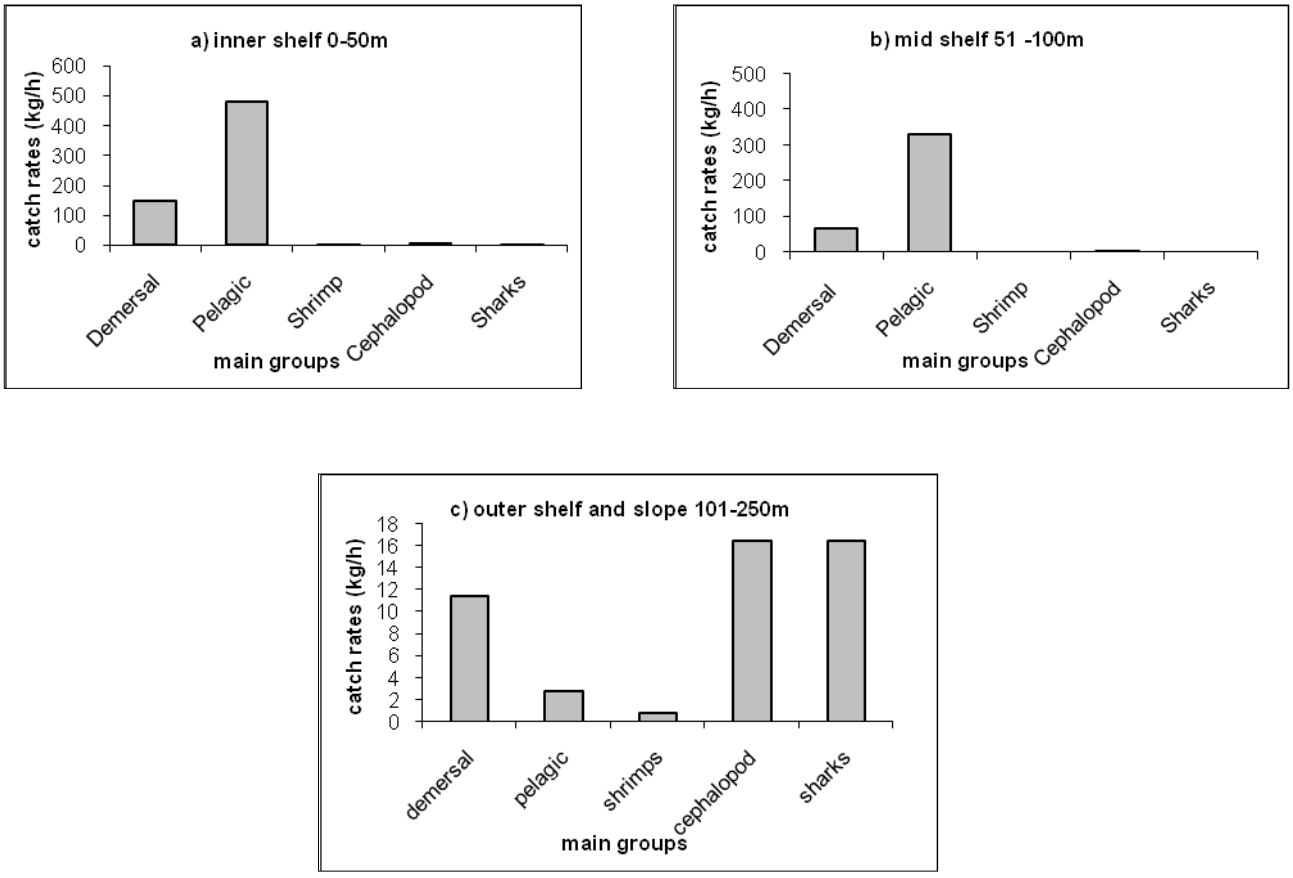


Figure 5.1. Guinea Bissau. Mean catch rates (kg/h) by main groups in swept-area bottom-trawl hauls on the a) inner shelf (0-50 m), b) mid shelf (51-100 m) and c) outer shelf and slope (101-250m).

Table 5.3 a-c shows the catch rates of the main pelagic families caught in the bottom trawl on the inner, mid and outer shelf/slope, respectively. Corresponding mean catch rates are represented in Figure 5.2 a-c. The dominant species on the inner and mid shelf were carangids, represented by *Chloroscombrus chrysurus* and *Decapterus punctatus*. One large catch (> 10 tonnes) of *Alectis alexandrinus* on the inner shelf unfortunately had to be released because the catch was too large to bring on deck. The clupeid species that dominate the shallow water pelagic ecosystems in large parts of western Africa were patchily represented on the inner shelf and scarce on the mid shelf. Those that occurred most frequently were *Sardinella aurita* and *Ilisha africana*. Scombrids were caught on a couple of stations on both the inner and mid shelf, while barracudas were only caught on one station on the inner shelf. Hairtails (*Trichiurus lepturus*) were somewhat more abundant and were found on both the inner and mid part of the shelf.

Table 5.3. Guinea Bissau. Catch rates (kg/h) by main pelagic families in swept-area bottom-trawl hauls on the a) inner shelf (0-50 m), b) mid shelf (51-100 m) and c) outer shelf and slope (101-250).

a) Inner shelf, 0-50 m

Sta. no.	Depth	Clupeids	Carangids	Scombrids	Hairtails	Barracudas	Other	Total
1	27.5	485.7	5.2	0.0	62.7	7.0	326.3	886.9
2	38.5	10.0	16.7	0.5	4.7	0.0	1415.5	1447.4
5	30.0	0.0	3847.8	0.0	0.0	0.0	24.7	3872.5
6	38.5	0.2	212.6	0.0	0.0	0.0	22.9	235.7
8	27.0	13.3	254.1	0.2	0.0	0.0	204.9	472.4
9	45.0	0.0	112.3	0.0	0.0	0.0	116.5	228.8
12	46.5	0.0	229.7	0.0	0.0	0.0	69.5	299.2
16	38.5	0.0	0.0	0.0	0.0	0.0	19.0	19.0
17	25.5	0.0	3.1	0.0	0.0	0.0	62.3	65.4
21	28.0	0.0	0.4	0.0	0.0	0.0	19.6	19.9
22	45.0	0.0	5.9	0.0	0.7	0.0	61.2	67.8
Mean	35.5	46.3	426.1	0.1	6.2	0.6	212.9	692.3
% catch		6.7	61.5	0.0	0.9	0.1	30.8	100.0

b) Mid shelf, 51-100 m

Sta. no.	Depth	Clupeids	Carangids	Scombrids	Hairtails	Barracudas	Other	Total
3	63.0	12.6	1256.1	3.8	370.4	0.0	116.7	1759.6
10	73.0	0.0	4.4	6.9	0.0	0.0	22.3	33.6
11	88.5	0.0	0.7	0.9	0.0	0.0	291.9	293.6
15	65.5	0.0	0.0	0.0	0.0	0.0	88.1	88.1
23	78.0	0.0	0.0	0.0	0.0	0.0	115.2	115.2
Mean	73.6	2.5	252.2	2.3	74.1	0.0	126.9	458.0
% catch		0.5	55.1	0.5	16.2	0.0	27.7	100.0

c) Outer shelf and slope, 101-250 m

Sta. no.	Depth	Clupeids	Carangids	Scombrids	Hairtails	Barracudas	Other	Total
13	156.5	0.0	1.0	0.0	6.0	0.0	217.4	224.3
14	145.0	0.0	0.0	0.0	0.0	0.0	85.6	85.6
24	164.0	0.0	4.2	0.0	0.0	0.0	239.5	243.7
25	220.0	0.0	0.0	0.0	0.0	0.0	562.1	562.1
Mean	171.4	0.0	1.3	0.0	1.5	0.0	276.1	278.9
% catch		0.0	0.5	0.0	0.5	0.0	99.0	100.0

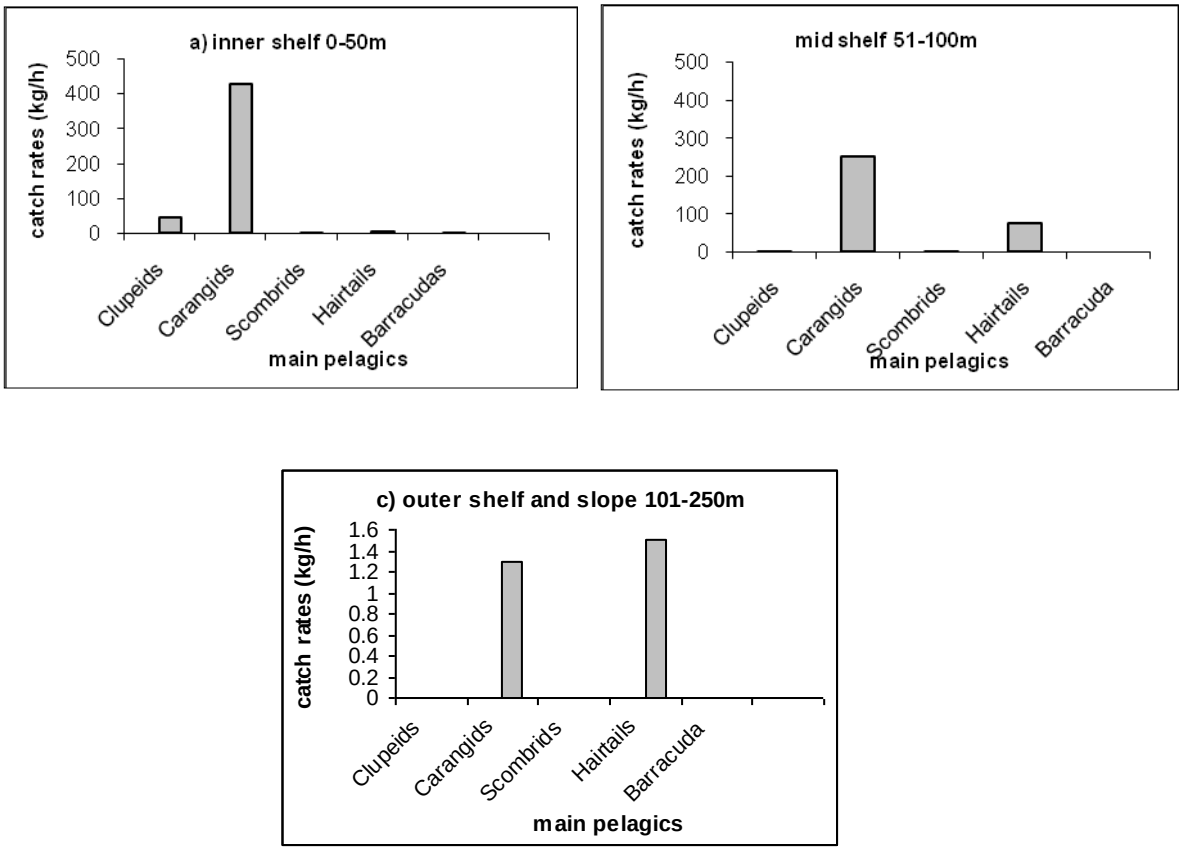


Figure 5.2. Guinea Bissau. Mean catch rates (kg/h) by main pelagic families in swept-area bottom-trawl hauls on the a) inner shelf (0-50 m), b) mid shelf (51-100 m) and c) outer shelf and slope (101-250m).

Catch rates of the commercially most important demersal fish groups on the shelf and slope are presented in Table 5.4 a-c. Corresponding mean catch rates are shown in Figure 5.3 a-c. The catch rates were in general highest on the mid shelf and lowest on the inner shelf and outer shelf/slope. Sparids (seabreams) dominated the mid shelf catches with an average of 46 kg/h, constituting 10 % of the total catch in this area. *Pagellus bellottii* was the most abundant

sparid. Sciaenids (croakers) were also most abundant on the mid shelf with 19 kg/h, constituting 4 %. Lutjanids (snappers), Serranids (groupers) and Haemulids (grunts excluding *Brachydeuterus auritus*) were only sparingly represented, except for one catch of *Pomadasys jubelini* on the inner shelf.

Table 5.4. Guinea Bissau. Catch rates (kg/h) of main demersal species grouped by families in swept-area bottom-trawl hauls on the a) inner shelf (0-50 m), b) mid shelf (51-100 m) and c) outer shelf and slope (101-250).

a) Inner shelf, 0-50 m

Sta. no.	Depth	Sparids	Lutjanids	Serranids	Haemulids	Sciaenids	Other	Total
1	27.5	0.0	0.0	0.0	0.0	12.2	874.6	886.9
2	38.5	0.0	0.0	0.0	0.0	0.0	1447.4	1447.4
5	30.0	2.1	0.0	0.0	0.0	0.0	3870.5	3872.5
6	38.5	0.2	0.0	0.0	0.0	0.0	235.5	235.7
8	27.0	6.8	0.0	0.0	165.0	0.0	300.5	472.4
9	45.0	0.4	0.0	0.0	0.0	0.0	228.3	228.8
12	46.5	3.4	0.8	0.0	0.0	0.0	295.0	299.2
16	38.5	0.0	0.0	0.0	0.0	0.0	19.0	19.0
17	25.5	0.0	0.0	0.1	0.0	0.0	65.3	65.4
21	28.0	4.9	0.0	0.0	0.0	0.0	15.0	19.9
22	45.0	0.0	0.0	0.7	0.0	0.0	67.1	67.8
Mean	35.5	1.6	0.1	0.1	15.0	1.1	674.4	692.3
% catch		0.2	0.0	0.0	2.2	0.2	97.4	100.0

b) Mid shelf, 51-100 m

Sta. no.	Depth	Sparids	Lutjanids	Serranids	Haemulids	Sciaenids	Other	Total
3	63.0	6.1	0.0	1.6	0.0	90.4	1661.4	1759.6
10	73.0	2.6	0.0	0.0	0.0	2.1	28.9	33.6
11	88.5	196.1	0.0	0.1	0.0	0.8	96.7	293.6
15	65.5	26.1	0.0	0.0	0.0	0.0	62.0	88.1
23	78.0	0.1	0.0	0.0	0.0	0.0	115.0	115.2
Mean	73.6	46.2	0.0	0.3	0.0	18.7	392.8	458.0
% catch		10.1	0.0	0.1	0.0	4.1	85.8	100.0

c) Outer shelf and slope, 101-250 m

Sta. no.	Depth	Sparids	Lutjanids	Serranids	Haemulids	Sciaenids	Other	Total
13	156.5	20.4	0.0	0.0	0.0	13.4	190.6	224.3
14	145.0	2.1	0.0	0.0	0.0	0.0	83.4	85.6
24	164.0	0.2	0.0	0.0	0.0	0.0	243.5	243.7
25	220.0	0.0	0.0	0.0	0.0	0.0	562.1	562.1
Mean	171.4	5.7	0.0	0.0	0.0	3.4	269.9	278.9
% catch		2.0	0.0	0.0	0.0	1.2	96.8	100.0

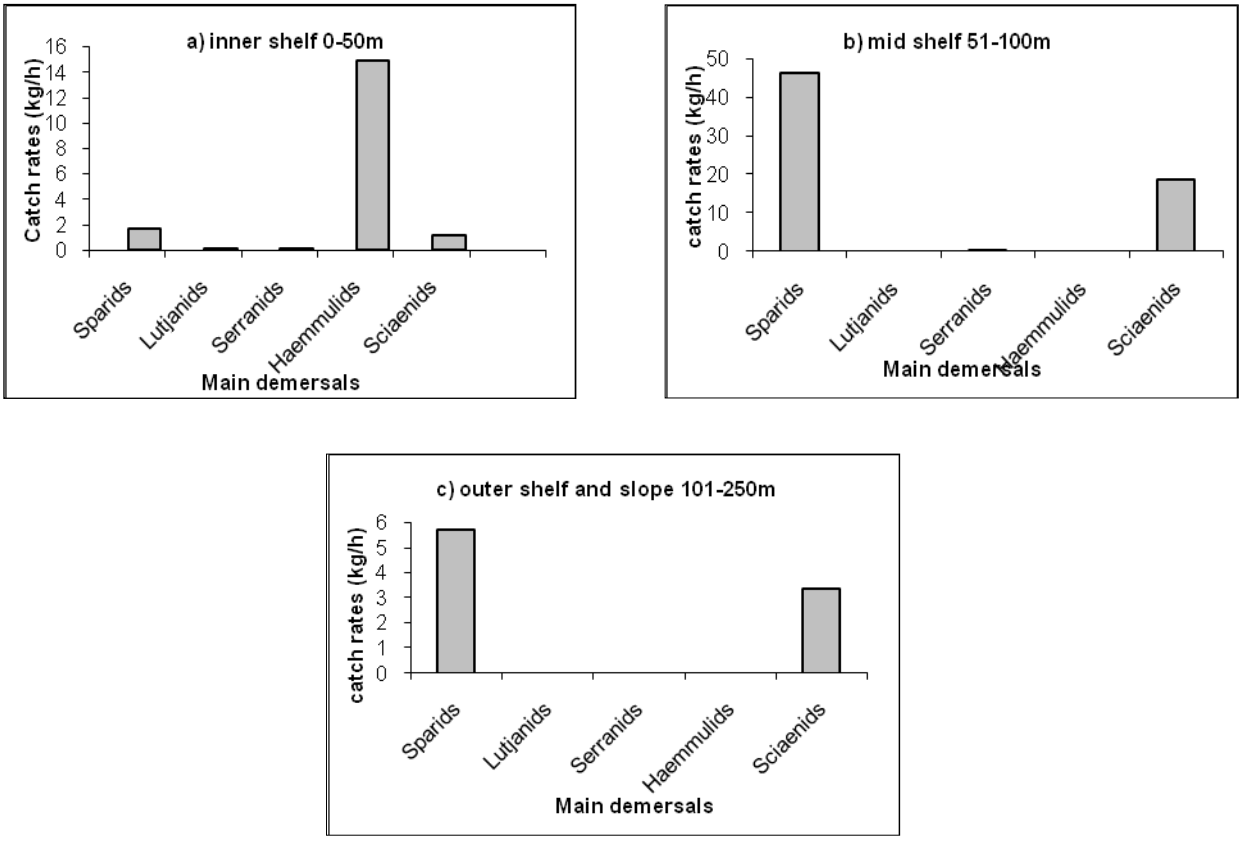


Figure 5.3. Guinea Bissau. Mean catch rates (kg/h) of main demersal species grouped by families in swept-area bottom-trawl hauls on the a) inner shelf (0-50 m), b) mid shelf (51-100 m) and c) outer shelf and slope (101-250m).

5.2 Guinea

A total of 31 swept-area trawl hauls were made on the shelf off Guinea. The shelf was mainly even, with sandy substrate, and suited for bottom trawling, but with occasional hard spots towards the southeast. Table 5.5 a-c shows catch rates by main groups for the inner (0-50 m), mid (51-100 m) and outer shelf and slope (101-300 m) respectively. Figure 5.4 a-c shows the corresponding mean catch rates. The mean catch rates of pelagic species from 0-50 m depth were 526 kg/h or 70 % of the total catch while demersal species contributed 125 kg/h or 17 % of the total catch. Prawns/shrimps, cephalopods and sharks and rays contributed only marginally to the total catch in this depth region. The group of "other" species had a mean catch rate of 94 kg/h or 12 % of the total.

The average catch rate at mid shelf was 835 kg/h. Also here pelagic fish was the most abundant group with 69 % of the mean total catch. This was mainly due to the contribution from one single catch of *Trachurus trachurus*. Demersal species had an average catch rate of

only 156 kg/h. On the outer shelf and slope cephalopods and sharks had the highest catch rates of the main groups with about 25 kg/h each, constituting 5 %. “Other” constituted 88 %.

Table 5.5. Guinea. Catch rates (kg/h) by main groups in swept-area bottom-trawl hauls on the a) inner shelf (0-50 m), b) mid shelf (51-100 m) and c) outer shelf and slope (101-300).

a) Inner shelf, 0-50 m

Sta. no.	Depth	Demersal	Pelagic	Shrimps	Cephalopod	Sharks-rays	Other	Total
28	46	0.0	145.5	0.0	0.7	0.0	17.7	163.9
29	36	154.9	214.2	0.0	2.8	0.0	24.7	396.6
30	29	50.3	37.1	0.0	5.9	0.0	23.5	116.8
31	28	62.1	7.5	0.0	0.9	0.0	27.6	98.1
32	27	120.2	37.4	1.2	2.8	0.0	270.8	432.4
36	48	0.3	0.0	0.0	2.6	0.0	33.1	36.0
37	37	151.3	3299.2	0.0	5.0	0.0	35.0	3490.5
42	49	0.0	0.8	0.0	0.3	0.0	23.1	24.2
43	37	109.0	314.1	0.0	0.4	0.0	68.9	492.5
44	36	0.4	0.6	0.0	6.1	0.0	1.1	8.3
45	46	6.8	46.9	0.0	3.8	0.0	4.4	61.9
46	30	13.3	38.9	2.0	7.7	0.0	51.0	112.9
50	49	0.0	0.0	0.0	0.0	0.0	12.6	12.6
51	39	0.0	22.4	0.0	13.8	0.0	12.0	48.3
52	27	203.4	1881.8	0.0	6.9	0.0	124.5	2216.7
56	42	335.2	75.4	0.0	11.9	3.2	213.6	639.2
59	34	56.0	31.7	0.0	0.4	0.0	58.4	146.5
60	29	744.7	436.7	0.0	0.0	0.0	877.6	2059.0
63	46	0.0	0.0	0.0	2.6	0.0	15.2	17.8
65	35	639.1	4904.1	0.0	0.0	0.0	90.9	5634.1
66	25	80.8	39.2	1.6	0.1	0.0	29.7	151.4
70	27	33.2	42.9	0.0	9.9	0.0	53.1	139.1
Mean	36	125.5	526.2	0.2	3.8	0.1	94.0	749.9
% catch		16.7	70.2	0.0	0.5	0.0	12.5	100.0

b) Mid shelf, 51-100 m

Sta. no.	Depth	Demersal	Pelagic	Shrimps	Cephalopod	Sharks-rays	Other	Total
27	59	0.0	0.2	0.0	3.9	10.8	90.4	105.3
35	71	3.7	0.0	0.0	1.6	8.8	41.6	55.7
41	83	513.6	283.7	0.0	4.8	0.0	113.8	915.8
49	85	265.3	2582.9	0.0	0.7	0.0	78.8	2927.7
54	79	0.0	0.0	0.0	3.0	0.0	165.6	168.6
Mean	75	156.5	573.4	0.0	2.8	3.9	98.0	834.6
% catch		18.8	68.7	0.0	0.3	0.5	11.7	100.0

c) Outer shelf and slope, 101-300 m

Sta. no.	Depth	Demersal	Pelagic	Shrimps	Cephalopod	Sharks-rays	Other	Total
33	142	0.4	1.0	0.5	34.8	0.0	159.2	195.9
34	251	0.9	0.0	0.3	3.8	0.0	33.0	38.0
39	272	5.2	0.0	1.6	19.6	0.5	177.0	203.9
40	167	0.7	0.0	8.6	41.0	100.0	1234.3	1384.6
Mean	208	1.8	0.2	2.8	24.8	25.1	400.9	455.6
% catch		0.4	0.0	0.6	5.4	5.5	88.0	100.0

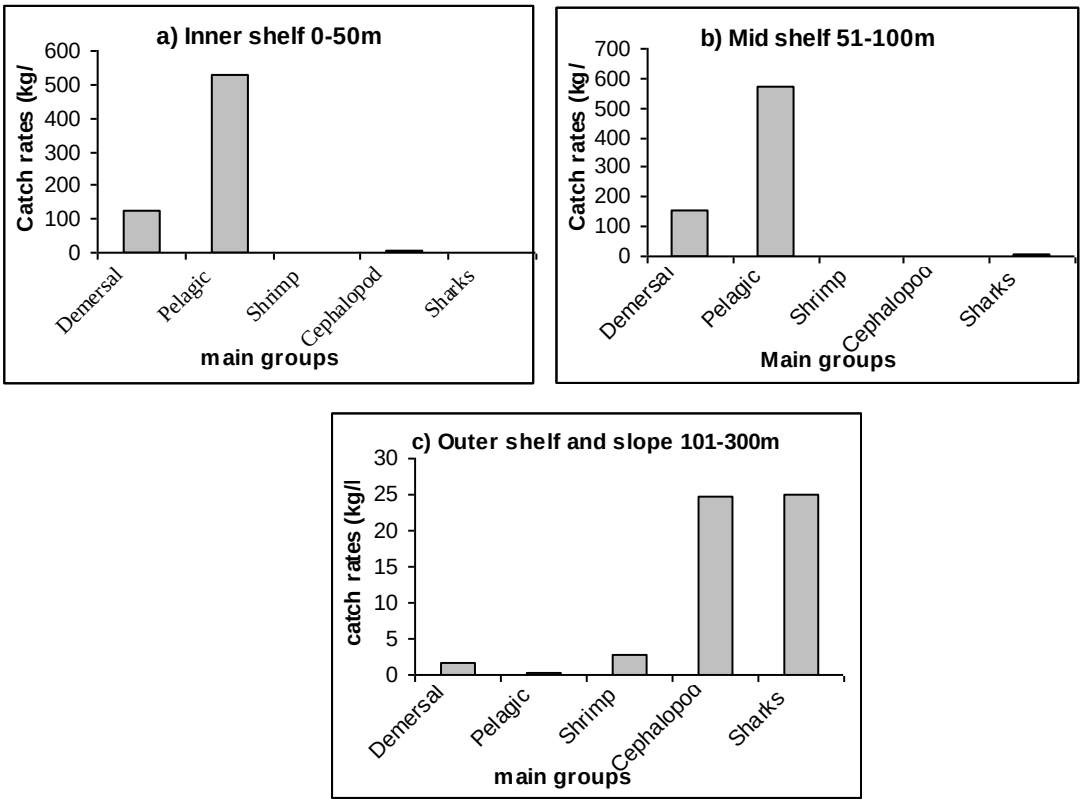


Figure 5.4. Guinea. Mean catch rates (kg/h) by main groups in swept-area bottom-trawl hauls on the a) inner shelf (0-50 m), b) mid shelf (51-100 m) and c) outer shelf and slope (101-300m).

The catches of the different pelagic groups in the bottom trawl survey off Guinea is described in Table 5.6a-c. Corresponding mean catch rates are shown in Figure 5.5 a-c. Carangids dominated the pelagic part of the catches on all shelf areas. Catches of carangids comprised 69 % on the inner shelf, with an average catch of 520 kg/h. The catches increased to 572 kg/h on the mid shelf, mainly due to one big catch of *Trachurus trachurus*.

Clupeids had an average catch rate of 2.1 kg/h on the inner shelf, decreasing to 0.3 kg/h on the mid shelf. Barracudas were represented on some stations on the inner shelf, but absent on the mid and outer shelves. Scombrids was caught in only one haul on the inner and mid shelf

with low catch rates. The dominating carangids in Guinea were *Chloroscombrus chrysurus, Decapterus punctatus, D. rhonchus* and *Trachurus trachurus.*

Table 5.6. Guinea. Catch rates (kg/h) by main pelagic families in swept-area bottom-trawl hauls on the a) inner shelf (0-50 m), b) mid shelf (51-100 m), c) outer shelf and slope (101-300 m).

a) Inner shelf, 0-50 m

Sta. no.	Depth	Clupeids	Carangids	Scombrids	Hairtails	Barracudas	Other	Total
28	46	0.0	145.5	0.0	0.0	0.0	18.5	163.9
29	36	0.5	213.6	0.0	0.0	0.0	182.4	396.6
30	29	0.5	36.6	0.0	0.0	0.0	79.7	116.8
31	28	1.1	2.9	3.6	0.0	0.0	90.6	98.1
32	27	0.7	25.8	0.0	0.0	10.9	395.0	432.4
36	48	0.0	0.0	0.0	0.0	0.0	36.0	36.0
37	37	0.0	3262.4	0.0	0.0	36.9	191.3	3490.5
42	49	0.0	0.8	0.0	0.0	0.0	23.4	24.2
43	37	0.0	314.1	0.0	0.0	0.0	178.4	492.5
44	36	0.0	0.6	0.0	0.0	0.0	7.6	8.3
45	46	0.0	46.9	0.0	0.0	0.0	15.0	61.9
46	30	0.0	36.1	0.0	0.0	2.8	74.0	112.9
50	49	0.0	0.0	0.0	0.0	0.0	12.6	12.6
51	39	0.0	22.4	0.0	0.0	0.0	25.8	48.3
52	27	15.5	1866.3	0.0	0.0	0.0	334.9	2216.7
56	42	0.0	75.4	0.0	0.0	0.0	563.9	639.2
59	34	0.0	31.7	0.0	0.0	0.0	114.8	146.5
60	29	4.1	432.7	0.0	0.0	0.0	1622.3	2059.0
63	46	0.0	0.0	0.0	0.0	0.0	17.8	17.8
65	35	4.9	4899.2	0.0	0.0	0.0	730.0	5634.1
66	25	19.5	8.1	0.0	1.3	10.2	112.3	151.4
70	27	0.0	23.7	0.0	0.0	19.2	96.2	139.1
Mean	36	2.1	520.2	0.2	0.1	3.6	223.7	749.9
% catch		0.3	69.4	0.0	0.0	0.5	29.8	100.0

b) Mid shelf, 51-100 m

Sta. no.	Depth	Clupeids	Carangids	Scombrids	Hairtails	Barracudas	Other	Total
27	58.5	0.0	0.2	0.0	0.0	0.0	105.1	105.3
35	71.0	0.0	0.0	0.0	0.0	0.0	55.7	55.7
41	82.5	1.5	282.2	0.0	0.0	0.0	632.1	915.8
49	85.0	0.0	2579.1	3.8	0.0	0.0	344.8	2927.7
54	79.0	0.0	0.0	0.0	0.0	0.0	168.6	168.6
Mean	75.2	0.3	572.3	0.8	0.0	0.0	261.3	834.6
% catch		0.0	68.6	0.1	0.0	0.0	31.3	100.0

c) Outer shelf and slope, 101-300 m

Sta. no.	Depth	Clupeids	Carangids	Scombrids	Hairtails	Barracudas	Other	Total
33	142	0.0	1.0	0.0	0.0	0.0	195.0	195.9
34	251	0.0	0.0	0.0	0.0	0.0	38.0	38.0
39	272	0.0	0.0	0.0	0.0	0.0	203.9	203.9
40	167	0.0	0.0	0.0	0.0	0.0	1384.6	1384.6
Mean	208	0.0	0.2	0.0	0.0	0.0	455.4	455.6
% catch	142	0.0	1.0	0.0	0.0	0.0	195.0	195.9

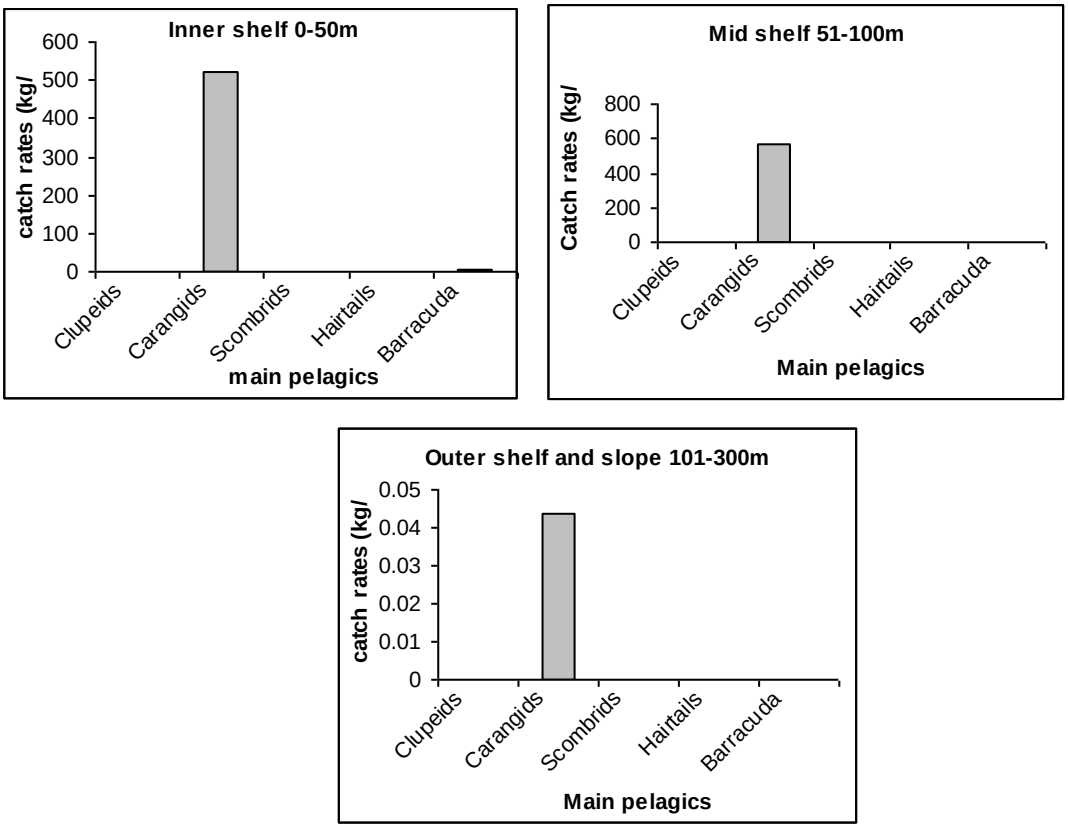


Figure 5.5. Guinea. Mean catch rates (kg/h) by main pelagic families in swept-area bottom-trawl hauls on the a) inner shelf (0-50 m), b) mid shelf (51-100 m) and c) outer shelf and slope (101-300m).

Catch rates of commercial demersal fish groups in Guinea are presented in Table 5.7 a-c. Corresponding mean catch rates are shown in Figure 5.6 a-c. The dominant group was sparids (seabreams) with a mean catch rate of 60 kg/h on the inner shelf, 100 kg/h on the mid shelf and small catches on the outer shelf/slope. The two most important species in this group were *Pagrus caeruleostictus* and *Pagellus bellottii*. Lutjanids (snappers) contributed 0.6 % of the total catch on the inner shelf, and 2 % on the mid shelf due to one relatively large catch of *Lutjanus dentatus* (100 kg/h).

Table 5.7. Guinea. Catch rates (kg/h) of main demersal species grouped by families in swept-area bottom-trawl hauls on the a) inner shelf (0-50 m), b) mid shelf (51-100 m) and c) outer shelf and slope (101-300).

a) Inner shelf, 0-50 m

Sta. no.	Depth	Sparids	Lutjanids	Serranids	Haemulids	Sciaenids	Other	Total
28	46	0.0	0.0	0.0	0.0	0.0	163.9	163.9
29	36	154.9	0.0	0.0	0.0	0.0	241.6	396.6
30	29	50.3	0.0	0.0	0.0	0.0	66.5	116.8
31	28	62.1	0.0	0.0	0.0	0.0	36.0	98.1
32	27	14.3	0.0	0.0	1.4	0.0	416.7	432.4
36	48	0.3	0.0	0.0	0.0	0.0	35.7	36.0
37	37	151.3	0.0	0.0	0.0	0.0	3339.3	3490.5
42	49	0.0	0.0	0.0	0.0	0.0	24.2	24.2
43	37	109.0	0.0	0.0	0.0	0.0	383.4	492.5
44	36	0.4	0.0	0.0	0.0	0.0	7.9	8.3
45	46	6.8	0.0	0.0	0.0	0.0	55.1	61.9
46	30	12.3	0.0	0.0	0.0	0.0	100.6	112.9
50	49	0.0	0.0	0.0	0.0	0.0	12.6	12.6
51	39	0.0	0.0	0.0	0.0	0.0	48.3	48.3
52	27	114.5	0.0	0.0	0.0	0.0	2102.2	2216.7
56	42	326.0	9.2	0.0	0.0	0.0	304.0	639.2
59	34	55.8	0.0	0.0	0.0	0.0	90.7	146.5
60	29	121.2	0.0	0.0	0.0	0.0	1937.8	2059.0
63	46	0.0	0.0	0.0	0.0	0.0	17.8	17.8
65	35	71.6	0.0	0.0	0.0	0.0	5562.5	5634.1
66	25	39.3	0.0	3.3	2.4	0.0	106.4	151.4
70	27	26.4	4.8	0.0	2.0	0.0	105.9	139.1
Mean	36	59.8	0.6	0.2	0.3	0.0	689.0	749.9
% catch		8.0	0.1	0.0	0.0	0.0	91.9	100.0

b) Mid shelf, 51-100 m

Sta.no.	Depth	Sparids	Lutjanids	Serranids	Haemulids	Sciaenids	Other	Total
27	59	0.0	0.0	0.0	0.0	0.0	105.3	105.3
35	71	3.7	0.0	0.0	0.0	0.0	52.0	55.7
41	83	413.1	100.5	0.0	0.0	0.0	402.2	915.8
49	85	82.6	0.0	0.0	0.0	0.0	2845.1	2927.7
54	79	0.0	0.0	0.0	0.0	0.0	168.6	168.6
Mean	75	99.9	20.1	0.0	0.0	0.0	714.6	834.6
% catch		12.0	2.4	0.0	0.0	0.0	85.6	100.0

c) Outer shelf and slope, 101-300 m

Sta. no.	Depth	Sparids	Lutjanids	Serranids	Haemulids	Sciaenids	Other	Total
33	142	0.0	0.0	0.0	0.0	0.0	195.9	195.9
34	251	0.0	0.0	0.0	0.0	0.0	38.0	38.0
39	272	0.0	0.0	0.0	0.0	0.0	203.9	203.9
40	167	0.7	0.0	0.0	0.0	0.0	1383.9	1384.6
Mean	208	0.2	0.0	0.0	0.0	0.0	455.4	455.6
% catch		0.0	0.0	0.0	0.0	0.0	100.0	100.0

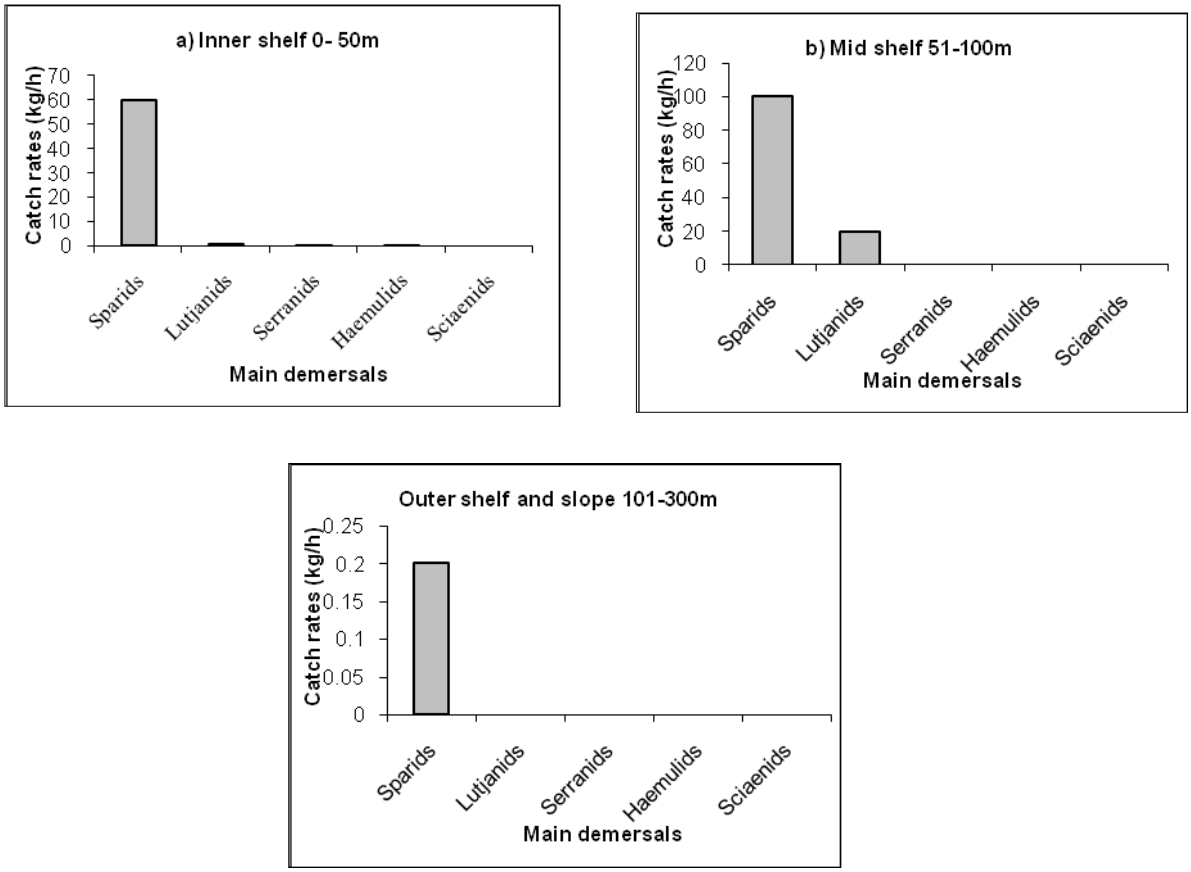


Figure 5.6. Guinea. Mean catch rates (kg/h) of main demersal species grouped by families in swept-area bottom-trawl hauls on the a) inner shelf (0-50 m), b) mid shelf (51-100 m) and c) outer shelf and slope (101-300m).

5.3 Sierra Leone

A total of 25 swept-area trawl hauls were made on the shelf off Sierra Leone. The shelf in Sierra Leone is characterised by being wide, with at times hard bottom in northwest, narrowing down in southeast towards Liberia.

Table 5.8 a-b shows catch rates by main groups for the inner (0-50 m) and outer shelf (51-100 m) respectively. Figure 5.7 a-b shows corresponding mean catch rates. The mean catch rates of pelagic species from 0-50 m depth were 279 kg/h or 8 % of the total catch while demersal species contributed 107 kg/h or 3 % of the total catch. Prawns/shrimps, cephalopods and sharks and rays contributed little to the total catch with 5.0 kg/h, 1.7 kg/h and 1.5 kg/h respectively on the inner shelf. The group of "other" species had a mean catch rate of about 2900 kg/h or 88 % of the total on the inner shelf. Most of this was jellyfish, which were much more abundant in Sierra Leone than in Guinea and Guinea Bissau.

Table 5.8. Sierra Leone. Catch rates (kg/h) of main groups caught on the inner a) (0-50 m) and b) outher shelf (51-100 m).

a) Inner shelf, 0-50 m

Sta. no.	Depth	Demersal	Pelagic	Shrimps	Cephalopod	Sharks-rays	Other	Total
68	44.5	0.0	1.2	0.0	0.2	11.0	37.3	49.7
69	38.0	337.7	36.3	0.0	1.5	0.0	246.5	621.9
75	43.0	7.3	18.3	0.0	0.0	4.1	1052.8	1082.5
77	28.5	109.4	2066.2	0.0	0.0	0.0	94.2	2269.7
78	28.0	276.7	166.9	0.0	4.0	0.0	264.4	711.9
83	43.0	7.9	274.8	0.0	0.4	9.2	0.6	292.9
84	20.5	252.0	22.5	0.0	0.2	0.0	233.2	507.9
88	22.5	10.8	61.9	0.0	0.0	0.0	3.1	75.8
89	41.0	4.6	15.9	0.0	0.0	0.0	6093.6	6114.2
92	45.0	218.6	258.7	1.9	0.0	0.0	11113.8	11592.9
93	23.5	35.1	8.6	0.0	0.0	0.0	19477.4	19521.1
96	27.0	39.2	613.9	1.3	0.0	0.0	1338.9	1993.4
97	41.0	32.1	54.0	0.3	0.0	0.0	1614.8	1701.1
100	45.0	66.3	163.1	0.0	0.0	0.0	2297.1	2526.5
101	24.0	84.9	83.5	2.2	6.5	2.1	4769.9	4949.1
103	23.5	75.0	120.8	3.2	14.0	0.0	3738.8	3951.9
106	43.0	264.0	326.3	24.6	3.3	0.0	91.2	709.4
107	23.5	108.5	722.5	56.3	0.0	0.0	62.0	949.4
Mean	33.6	107.2	278.6	5.0	1.7	1.5	2918.3	3312.3
% catch		3.2	8.4	0.2	0.1	0.0	88.1	100.0

b) Outer shelf, 51-100 m

Sta. no.	Depth	Demersal	Pelagic	Shrimps	Cephalopod	Sharks-rays	Other	Total
67	77.0	282.9	108.3	0.0	1.2	29.4	179.8	601.6
74	83.0	89.2	3.9	0.0	7.9	9.9	73.9	184.8
82	86.0	60.3	33.3	0.0	0.3	8.4	74.3	176.5
91	74.0	623.3	0.1	0.0	4.1	0.0	5139.6	5767.1
98	63.5	9.1	6.5	0.0	0.0	0.0	1171.9	1187.4
99	73.5	0.5	2.1	0.0	2.4	8.8	3712.4	3726.3
105	72.5	15.5	32.4	0.0	1.4	0.0	3001.0	3050.2
Mean	75.6	154.4	26.7	0.0	2.5	8.1	1907.5	2099.1
% catch		7.4	1.3	0.0	0.1	0.4	90.9	100.0

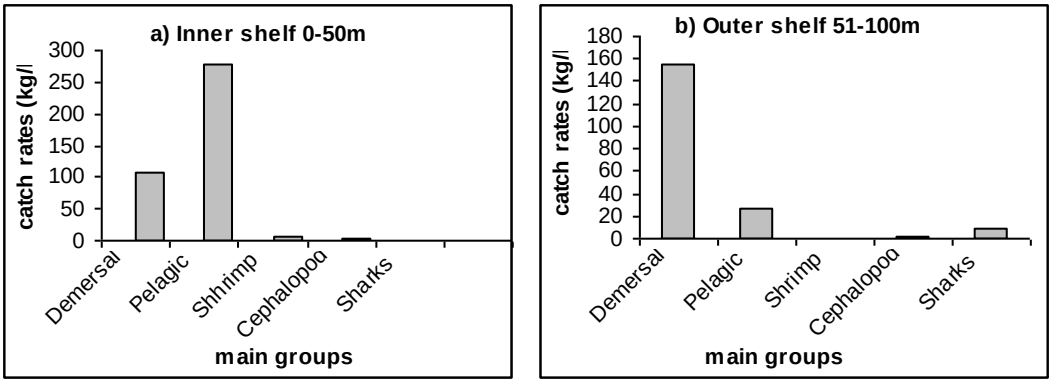


Figure 5.7. Sierra Leone. Mean catch rates (kg/h) by main groups in swept-area bottom-trawl hauls on the a) inner shelf (0-50 m), b) outer shelf (51-100 m).

The average catch rate on the outer shelf was about 2100 kg/h. Table 5.5 b shows that the group "other", mainly jellyfish, was the most abundant group also here with 91 % of the mean total catch. Demersal species had an average catch rate of 154 kg/h, constituting 7%, while pelagic species had an average catch rate of 27 kg/h, constituting 1. 3%.

Table 5.9. Sierra Leone. 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

Sta. no.	Depth	Clupeids	Carangids	Scombrids	Hairtails	Barracudas	Other	Total
68	44.5	0.0	1.2	0.0	0.0	0.0	48.5	49.7
69	38.0	0.0	33.3	1.1	0.0	1.9	585.6	621.9
75	43.0	0.0	18.3	0.0	0.0	0.0	1064.2	1082.5
77	28.5	3.1	2060.6	0.0	0.0	2.5	203.5	2269.7
78	28.0	0.1	132.1	0.0	0.0	34.6	545.1	711.9
83	43.0	0.0	254.0	0.0	0.3	20.5	18.2	292.9
84	20.5	0.0	6.9	0.0	0.0	15.6	485.4	507.9
88	22.5	0.4	49.8	0.0	0.0	11.7	13.9	75.8
89	41.0	0.0	12.1	0.0	0.0	3.9	6098.2	6114.2
92	45.0	12.2	15.8	0.0	17.7	213.1	11334.3	11592.9
93	23.5	0.4	0.0	4.7	0.0	3.5	19512.5	19521.1
96	27.0	78.2	402.6	0.0	2.4	130.7	1379.5	1993.4
97	41.0	8.9	3.8	0.0	4.6	36.7	1647.2	1701.1
100	45.0	2.3	71.4	0.0	0.0	89.4	2363.4	2526.5
101	24.0	22.4	32.6	2.8	0.0	25.7	4865.6	4949.1
103	23.5	21.4	40.3	0.0	49.2	9.9	3831.1	3951.9
106	43.0	144.9	66.6	13.4	34.0	67.4	383.1	709.4
107	23.5	170.6	507.3	0.0	6.8	37.9	226.9	949.4
Mean	33.6	25.8	206.0	1.2	6.4	39.2	3033.7	3312.3
% catch		0.8	6.2	0.0	0.2	1.2	91.6	100.0

b) Outer shelf, 51-100 m

Sta. no.	Depth	Clupeids	Carangids	Scombrids	Hairtails	Barracudas	Other	Total
67	77.0	0.0	104.5	3.8	0.0	0.0	493.3	601.6
74	83.0	0.0	3.9	0.0	0.0	0.0	180.9	184.8
82	86.0	1.4	31.3	0.7	0.0	0.0	143.2	176.5
91	74.0	0.0	0.1	0.0	0.0	0.0	5767.0	5767.1
98	63.5	0.5	1.6	1.7	0.0	2.7	1181.0	1187.4
99	73.5	0.9	0.2	0.0	0.0	1.0	3724.1	3726.3
105	72.5	1.2	2.2	0.0	28.2	0.8	3017.8	3050.2
Mean	75.6	0.6	20.5	0.9	4.0	0.7	2072.5	2099.1
% catch		0.0	1.0	0.0	0.2	0.0	98.7	100.0

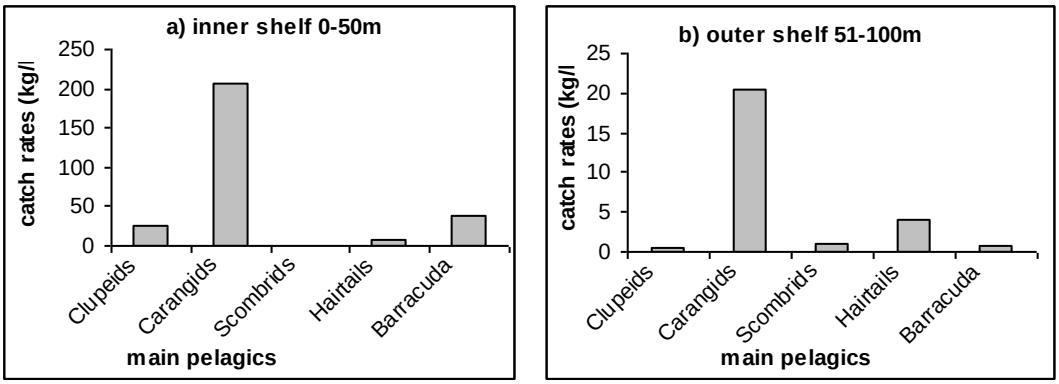


Figure 5.8. Sierra Leone. Mean catch rates (kg/h) by main pelagic families in swept-area bottom-trawl hauls on the a) inner shelf (0-50 m), b) outer shelf (51-100 m).

The catches of the different pelagic groups in the bottom trawl survey off Sierra Leone is described in Table 5.9 a-b. Corresponding mean catch rates are shown in Figure 5.8 a-b. Carangids dominated the pelagic part of the catches on the inner shelf, with an average catch of 206 kg/h. The catches decreased to 20.5 kg/h on the outer shelf. The dominating carangids were *Chloroscombrus chrysurus, Decapterus rhonchus, D. punctatus* and *Selene dorsalis.*

Clupeids had an average catch rate of 26 kg/h on the inner shelf, decreasing to only 0.6 kg/h on the outer shelf. Barracudas were well represented on the inner shelf (39 kg/h), but were practically absent on the outer shelf. Scombrids had low catch rates on both the inner and outer shelf. Hairtails (*Trichurus lepturus*) were mainly caught on the inner shelf in the southeastern part of Sierra Leone.

Catch rates of commercial demersal fish groups in Sierra Leone are presented in Table 5.10 a-b. Figure 5.9 a-b shows the corresponding mean catch rates. The dominant group was sparids (seabreams) with mean catches of 31 kg/h on the inner shelf and 138 kg/h on the outert shelf. The most important species in this group were *Pagrus caeruleostictus* and *Pagellus* bellottii. There was a good catch (215 kg/h) of lutjanids (snappers) on one station on the inner shelf. Sciaenids (croakers) were also caught in relatively high numbers (16 kg/h) on the southeastern part of the inner shelf, while haemulids (grunts excluding *Brachydeuterus auritus*) and Serranids (groupers) were less abundant. Further out these groups were more or less missing.

Table 5.10. Sierra Leone. Catch rates (kg/h) of main 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

Sta. no.	Depth	Sparids	Lutjanids	Serranids	Haemulids	Sciaenids	Other	Total
68	44.5	0.0	0.0	0.0	0.0	0.0	49.7	49.7
69	38.0	336.3	0.0	1.4	0.0	0.0	284.2	621.9
75	43.0	3.5	0.0	0.0	0.2	0.0	1078.8	1082.5
77	28.5	109.4	0.0	0.0	0.0	0.0	2160.4	2269.7
78	28.0	107.8	0.0	0.0	10.3	0.0	593.8	711.9
83	43.0	0.0	0.0	0.0	0.0	0.0	292.9	292.9
84	20.5	3.6	215.3	0.0	33.1	0.0	255.9	507.9
88	22.5	0.0	0.0	0.0	0.0	0.0	75.8	75.8
89	41.0	1.3	0.0	0.0	0.0	0.0	6112.9	6114.2
92	45.0	0.0	0.0	0.8	0.0	12.2	11579.9	11592.9
93	23.5	0.0	0.0	23.8	10.2	0.0	19487.1	19521.1
96	27.0	0.0	0.0	0.0	0.0	14.2	1979.1	1993.4
97	41.0	0.0	1.6	0.0	0.0	29.1	1670.5	1701.1
100	45.0	0.0	0.0	0.0	0.0	0.0	2526.5	2526.5
101	24.0	0.0	0.0	0.0	0.0	75.3	4873.8	4949.1
103	23.5	2.3	0.0	0.0	11.0	50.4	3888.2	3951.9
106	43.0	0.0	0.0	0.0	0.0	25.9	683.5	709.4
107	23.5	0.0	0.0	0.0	11.9	80.5	857.0	949.4
Mean	33.6	31.3	12.1	1.4	4.3	16.0	3247.2	3312.3
% catch		0.9	0.4	0.0	0.1	0.5	98.0	100.0

b) Outer shelf, 51-100 m

Sta. no.	Depth	Sparids	Lutjanids	Serranids	Haemulids	Sciaenids	Other	Total
67	77.0	185.8	0.0	12.7	0.0	0.0	403.2	601.6
74	83.0	76.4	0.0	12.8	0.0	0.0	95.6	184.8
82	86.0	60.3	0.0	0.0	0.0	0.0	116.3	176.5
91	74.0	623.3	0.0	0.0	0.0	0.0	5143.8	5767.1
98	63.5	8.4	0.0	0.0	0.0	0.0	1179.0	1187.4
99	73.5	0.5	0.0	0.0	0.0	0.0	3725.8	3726.3
105	72.5	13.5	0.0	0.0	0.0	0.7	3036.0	3050.2
Mean	75.6	138.3	0.0	3.6	0.0	0.1	1957.1	2099.1
% catch		6.6	0.0	0.2	0.0	0.0	93.2	100.0

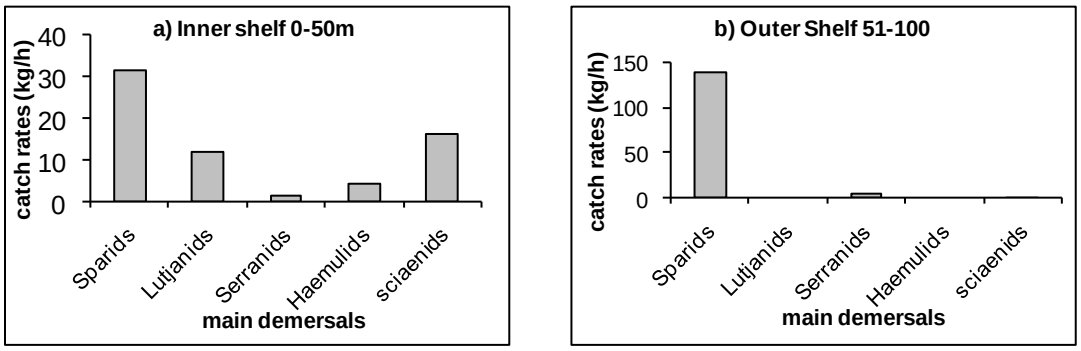


Figure 5.9. Sierra Leone. Mean catch rates (kg/h) of main demersal species grouped by families in swept-area bottom-trawl hauls on the a) inner shelf (0-50 m), b) outer shelf (51-100 m)

5.4 Liberia

The coast of Liberia is generally characterised by a narrow shelf that breaks at around 100 m depth. A total of 33 swept-area trawl hauls were carried out. Trawling was made difficult towards the shelf break and shore due to rough bottom conditions, particularly in the southeast. Table 5.11 a-b shows catch rates by main groups for the inner (0-50 m) and outer (51-100 m) shelf respectively. Figure 5.10 a-b illustrates the corresponding mean catch rates.

Table 5.11. Liberia. 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

Sta. no.	Depth	Demersal	Pelagic	Shrimps	Cephalopod	Sharks-rays	Other	Total
109	28	49.9	178.5	3.0	1.4	0.0	1970.1	2203.0
110	43	146.2	40.9	0.0	2.6	0.0	16.8	206.5
114	43	251.3	205.1	10.5	0.0	0.0	21.5	488.5
115	26	62.3	67.7	34.2	0.0	0.0	14.9	179.1
117	25	148.3	158.5	3.3	0.3	0.0	31.7	342.1
118	35	60.5	111.8	0.7	0.0	0.0	26.7	199.6
121	45	109.9	23.4	2.9	2.5	8.1	1601.3	1748.0
122	27	66.4	229.4	1.9	0.0	0.0	50.0	347.7
124	28	115.9	75.3	49.5	0.0	0.0	62.7	303.4
125	42	33.0	91.2	1.0	1.4	0.0	31.7	158.3
128	47	60.4	180.2	11.6	3.3	6.0	1948.0	2209.5
129	44	101.9	405.8	8.3	0.8	0.0	769.1	1285.8
146	41	93.4	319.5	0.0	0.6	0.0	37.1	450.5
Mean	36	99.9	160.6	9.8	1.0	1.1	506.3	778.6
% catch		12.8	20.6	1.3	0.1	0.1	65.0	100.0

b) Outer shelf, 51-100 m

Sta. no.	Depth	Demersal	Pelagic	Shrimps	Cephalopod	Sharks-rays	Other	Total
111	70	103.6	70.4	0.0	16.5	5.9	2068.4	2264.8
113	67	66.0	14.8	0.4	22.4	22.7	403.4	529.6
119	66	68.3	22.5	2.3	21.2	0.0	32.6	146.9
120	73	334.8	646.9	0.0	0.0	0.0	2172.4	3154.1
126	60	3.7	13.3	0.0	0.4	0.0	5893.5	5911.0
127	70	107.9	2443.3	0.0	4.2	0.0	82.6	2638.0
130	64	4.3	2.4	0.0	0.0	0.0	5469.5	5476.2
131	77	87.7	11.5	0.0	5.5	19.1	15.6	139.3
132	64	44.5	8.1	0.0	2.5	4.4	6.6	66.1
134	62	106.5	54.7	0.0	8.2	4.4	20.7	194.6
135	71	157.7	126.0	0.0	2.1	6.1	27.8	319.7
136	89	243.0	461.4	0.0	1.2	0.0	52.0	757.6
137	62	73.3	47.0	0.0	1.4	4.5	101.6	227.8
138	58	66.7	61.2	0.0	2.6	4.6	15.4	150.4
139	75	236.3	1079.3	0.0	0.0	10.6	97.9	1424.1
140	80	693.9	2905.8	0.0	5.0	23.9	1596.5	5225.0
141	63	360.6	191.8	0.0	1.1	0.0	0.0	553.5
143	74	1116.0	357.8	0.5	24.8	10.9	77.8	1587.9
144	79	230.8	238.1	0.0	5.2	28.7	764.9	1267.6
145	85	20.8	67.0	1.9	7.9	65.1	33.3	195.9
Mean	70	206.3	441.2	0.3	6.6	10.5	946.6	1611.5
% catch		12.8	27.4	0.0	0.4	0.7	58.7	100.0

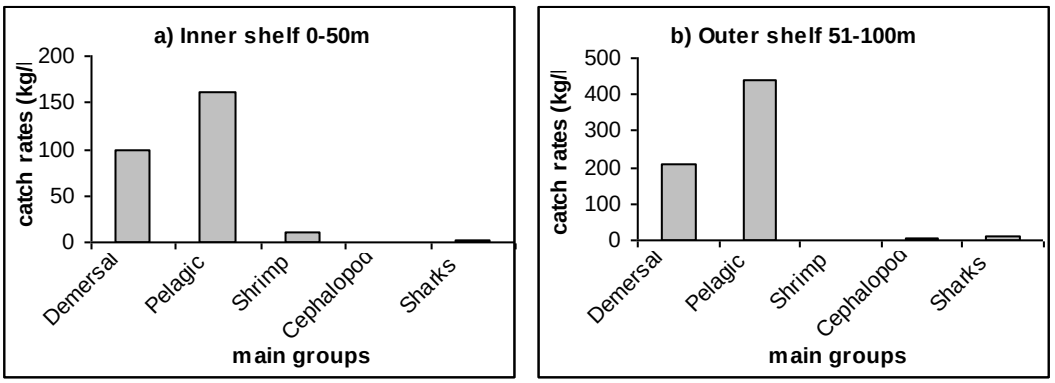


Figure 5.10. Liberia. Mean catch rates (kg/h) of main groups in swept-area bottom-trawl hauls on the a) inner shelf (0-50 m), b) outer shelf (51-100 m).

Pelagic species dominated in the inshore region with 161 kg/h or 20 % of the catches. The second most important group was demersal species which contributed 100 kg/h and 13 % of the catches. Prawns/shrimps contributed 10 kg/h (1.3%) while cephalopods and sharks only contributed smaller amounts. The group of "other species", dominated by jellyfish, had a mean catch rate of 506 kg/h or 65 % of the total. Also on the outer shelf pelagic species

dominated with 441 kg/h and 27 %, followed by demersal species with 206 kg/h and 13 %. The group of "other" species gave 946 kg/h and 58 % of the catches, and like on the inner shelf jellyfish made up most of this. Prawns and shrimps, cephalopods and sharks and rays only contributed small amounts to the total catches.

Pelagic species (Table 5.12 a-b) were fairly abundant on the Liberian shelf. Figure 5.11 a-b shows corresponding mean catch rates. Clupeids dominated the inner shelf (47 kg/h, 6 %), while Carangids dominated the outer shelf (320 kg/h, 20 %). The dominant clupeids were *Sardinella maderensis, S. aurita* and *Ilisha africana*. The carangids were dominated by *Selene dorsalis, Chloroscombrus chrysurus, Trachurus trachurus* and *Decapterus punctatus.*

Table 5.12 Liberia. Catch rates (kg/h) by main pelagic families in swept-area bottom-trawl hauls on the a) inner shelf (0-50 m), b) outer shelf (51-100 m).

a) Inner shelf, 0-50 m

Sta. no.	Depth	Clupeids	Carangids	Scombrids	Hairtails	Barracudas	Other	Total
109	28	14.1	11.9	7.3	58.1	87.0	2024.5	2203.0
110	43	3.7	8.5	15.0	0.7	13.1	165.6	206.5
114	43	88.8	30.9	1.7	46.3	31.1	289.6	488.5
115	26	14.8	23.0	0.0	11.6	7.3	122.5	179.1
117	25	27.4	25.1	0.0	93.1	12.8	183.7	342.1
118	35	4.3	10.0	0.0	77.3	12.1	95.9	199.6
121	45	1.4	0.0	0.0	13.2	8.8	1724.6	1748.0
122	27	60.0	16.5	0.0	1.3	146.3	123.6	347.7
124	28	36.4	6.0	2.1	28.2	2.6	228.0	303.4
125	42	15.9	41.0	0.0	15.3	13.9	72.2	158.3
128	47	87.7	65.0	0.0	4.3	17.4	2035.1	2209.5
129	44	192.8	76.6	17.0	3.2	114.1	882.0	1285.8
146	41	60.3	149.0	0.0	39.9	45.1	156.1	450.5
Mean	36	46.7	35.7	3.3	30.2	39.4	623.3	778.6
% catch		6.0	4.6	0.4	3.9	5.1	80.1	100.0

b) Outer shelf, 51-100 m

Sta. no.	Depth	Clupeids	Carangids	Scombrids	Hairtails	Barracudas	Other	Total
111	70	9.6	7.1	0.0	52.4	1.3	2194.4	2264.8
113	67	1.7	2.2	0.0	10.9	0.0	514.8	529.6
119	66	7.9	3.2	0.0	2.9	8.4	124.4	146.9
120	73	464.4	177.7	4.9	0.0	0.0	2507.2	3154.1
126	60	0.0	12.1	0.0	0.6	0.0	5898.3	5911.0
127	70	0.0	2432.7	0.0	0.0	10.6	194.7	2638.0
130	64	0.0	1.5	0.0	0.4	0.0	5474.3	5476.2
131	77	6.4	1.9	0.0	0.0	1.4	129.6	139.3
132	64	1.0	5.8	0.0	0.0	1.3	58.0	66.1
134	62	3.3	50.5	0.0	0.0	0.6	140.2	194.6

135	71	22.9	102.9	0.1	0.0	0.0	193.7	319.7
136	89	339.8	88.7	32.9	0.0	0.0	296.2	757.6
137	62	29.9	11.9	0.0	0.0	5.2	180.9	227.8
138	58	14.0	42.8	0.0	0.0	4.4	89.2	150.4
139	75	110.9	778.5	189.9	0.0	0.0	344.8	1424.1
140	80	455.1	2404.8	31.7	0.0	14.2	2319.2	5225.0
141	63	45.4	54.7	0.0	0.0	91.6	361.7	553.5
143	74	13.9	136.8	0.0	0.0	207.1	1230.0	1587.9
144	79	8.9	67.9	0.0	0.0	161.3	1029.5	1267.6
145	85	0.3	20.4	0.0	17.7	27.5	129.9	195.9
Mean	70	76.8	320.2	13.0	4.2	26.7	1170.6	1611.5
% catch		4.8	19.9	0.8	0.3	1.7	72.6	100.0

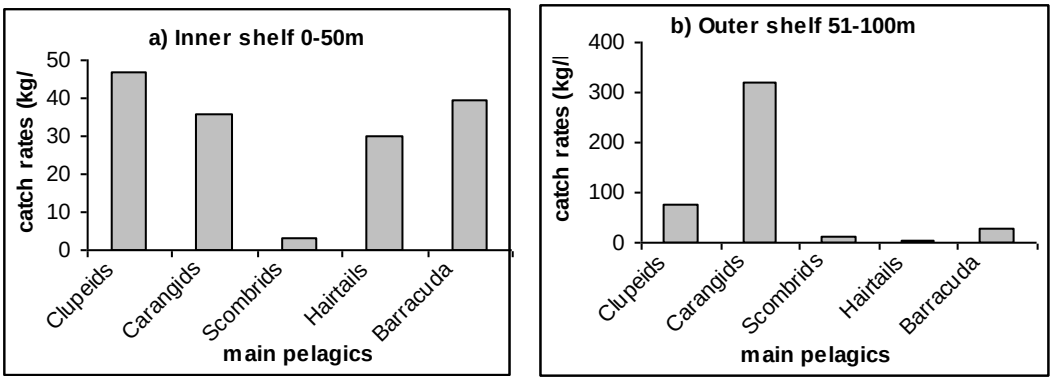


Figure 5.11. Guinea. Mean catch rates (kg/h) by main pelagic families in swept-area bottom-trawl hauls on the a) inner shelf (0-50 m), b) outer shelf (51-100 m).

Table 5.13 a-b presents commercial demersal fish groups in Liberia. Figure 5.12 a-b illustrates corresponding mean catch rates. The dominating group on the inner shelf was sciaenids (croakers), with 44 kg/h and 6 % of the mean catches. Haemulids (grunts excluding *Brachydeuterus auritus*) were caught on some stations, while no sparids (seabreams), serranids (groupers) and lutjanids (snappers) were caught here.

On the outer shelf the sparids (seabreams) dominated, with a mean catch rate of 78 kg/h and 5 % of the mean total catch. The main species were *Dentex congoensis* and *D. angolensis*. Sciaenids (croakers) were less abundant here, with a mean catch rate of 21 kg/h, mainly due to one large catch of *Umbrina canariensis* (395 kg/h). Serranids (groupers) were caught on about half of the stations on the outer shelf (8 kg/h), haemulids (grunts) on just a couple, while no lutjanids (snappers) were caught here either.

Table 5.13. Liberia. 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

Sta.no.	Depth	Sparids	Lutjanids	Serranids	Haemulids	Sciaenids	Other	Total
109	28	0.0	0.0	0.0	0.0	43.0	2160.0	2203.0
110	43	0.0	0.0	0.0	2.6	6.0	197.9	206.5
114	43	0.0	0.0	0.0	0.0	54.8	433.6	488.5
115	26	0.0	0.0	0.0	0.0	42.8	136.3	179.1
117	25	0.0	0.0	0.0	0.0	146.3	195.8	342.1
118	35	0.0	0.0	0.0	0.0	44.8	154.8	199.6
121	45	0.0	0.0	0.2	0.0	10.8	1737.0	1748.0
122	27	0.0	0.0	0.0	0.0	41.0	306.7	347.7
124	28	0.0	0.0	0.0	0.0	59.4	244.0	303.4
125	42	0.0	0.0	0.3	0.5	26.5	131.0	158.3
128	47	0.0	0.0	0.0	7.6	19.1	2182.8	2209.5
129	44	0.5	0.0	0.0	12.1	55.6	1217.7	1285.8
146	41	0.0	0.0	0.0	13.7	21.4	415.5	450.5
Mean	36	0.0	0.0	0.0	2.8	44.0	731.8	778.6
% catch		0.0	0.0	0.0	0.4	5.7	94.0	100.0

b) Outer shelf, 51-100 m

Sta.no.	Depth	Sparids	Lutjanids	Serranids	Haemulids	Sciaenids	Other	Total
111	70	8.5	0.0	39.3	0.0	0.0	2217.1	2264.8
113	67	11.2	0.0	32.1	0.0	0.0	486.3	529.6
119	66	22.6	0.0	0.0	0.0	0.0	124.3	146.9
120	73	286.2	0.0	0.0	0.0	0.0	2867.9	3154.1
126	60	3.7	0.0	0.0	0.0	0.0	5907.3	5911.0
127	70	107.9	0.0	0.0	0.0	0.0	2530.1	2638.0
130	64	2.7	0.0	0.0	0.0	0.0	5473.5	5476.2
131	77	85.9	0.0	0.0	0.0	0.0	53.4	139.3
132	64	30.9	0.0	5.9	0.0	0.0	29.3	66.1
134	62	38.5	0.0	0.0	7.6	12.3	136.1	194.6
135	71	111.9	0.0	45.2	0.0	0.0	162.6	319.7
136	89	68.0	0.0	0.0	0.0	0.0	689.6	757.6
137	62	27.5	0.0	4.2	0.0	0.0	196.1	227.8
138	58	24.1	0.0	1.2	0.0	0.0	125.1	150.4
139	75	189.5	0.0	0.0	0.0	0.0	1234.6	1424.1
140	80	230.5	0.0	0.0	0.0	0.0	4994.6	5225.0
141	63	8.6	0.0	0.0	2.6	0.0	542.4	553.5
143	74	117.6	0.0	0.0	0.0	395.3	1075.0	1587.9
144	79	181.7	0.0	21.3	0.0	3.9	1060.7	1267.6
145	85	6.0	0.0	6.3	0.0	2.3	181.3	195.9
Mean	70	78.2	0.0	7.8	0.5	20.7	1504.4	1611.5
% catch		4.9	0.0	0.5	0.0	1.3	93.4	100.0

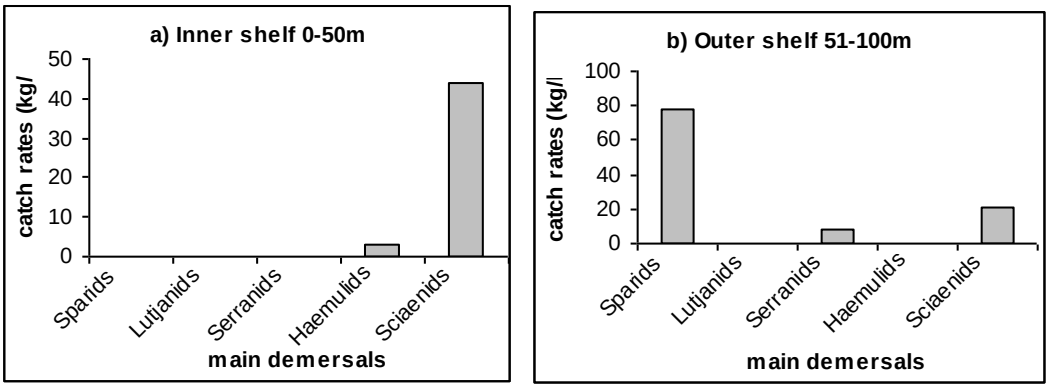


Figure 5.12. Liberia. Mean catch rates (kg/h) of main demersal species grouped by families in swept-area bottom-trawl hauls on the a) inner shelf (0-50 m), b) outer shelf (51-100 m)

5.5 Swept area biomass estimates

Swept area biomass estimates for some important groups based on the demersal trawl data are presented in Tables 5.14-5.18, and in further detail in Appendix III and IV. In Guinea Bissau (Table 5.14) the biomass estimates for most groups were generally much lower compared to 2006. Of the more valuable demersal families, sparids had the highest biomass estimate, followed by heamulids (Grunts excluding *Brachydeuterus auritus*) and sciaenids. Only haemulids had a higher estimated biommass than in the previous survey. Of the other species/groups *B. auritus* had a similar estimated biomass as last year, while those for sharks, rays and cephalopods were all lower. In total the biomass of all these groups was less than half of what was estimated in the 2006 survey.

Table 5.14 Total swept area estimates in tonnes in Guinea Bissau 2006-2007

Year	Sparids	Haemulids	Sciaenids	Serranids	Lutjanids	*B. auritus*	Sharks	Rays	Cephalop.	**Total**
2006	15907	142	11736	128	0	11622	1809	1865	3837	47047
2007	2600	1205	1157	23	8	11235	858	318	1251	18654

In Guinea (Table 5.15) the total biomass estimate of the presented groups were more comparable to the 2006 result. The estimated biomass of sparids was almost twice of what was estimate in the previous survey, while for the other valuable demersal fish groups the estimates were lower than in the previous survey. *B. auritus* had an estimated biomass less than half of what was found in 2006. The results for sharks and rays were higher, while it was lower for cephalopods, compared to last year.

Table 5.15 Total swept area estimates in tonnes in Guinea 2006-2007

Year	Sparids	Haemulids	Sciaenids	Serranids	Lutjanids	*B. auritus*	Sharks	Rays	Cephalop.	**Total**
2006	7873	41	0	287	1804	19823	189	358	1932	32306
2007	13810	28	0	18	860	9957	791	1089	1338	27889

In Sierra Leone (Table 5.16) the situation was the same, lower total estimated biomass than in 2006. Sparids constituted the most frequent catch of valuable commercial species. The low total estimated biomass this year could be attributed to the dominance of jellyfish on most trawl stations. The trawl durations were most times shortened as jellyfish clogged the net which made the estimation difficult and somewhat uncertain.

Table 5.16 Total swept area estimates in tonnes in Sierra Leone 2006-2007

Year	Sparids	Haemulids	Sciaenids	Serranids	Lutjanids	*B. auritus*	Sharks	Rays	Cephalop.	**Total**
2006	21362	2131	2897	440	191	5940	2144	298	260	35663
2007	13084	430	1720	417	1170	5150	748	970	356	24044

Liberia (Table 5.17) had just slightly lower total estimated biomass than in 2006 and comparable abundances to Sierra Leone and Guinea. Also here, sparids were the dominant group, followed by sciaenids in terms of valuable commercial species.

Table 5.17 Total swept area estimates in tonnes in Liberia 2006-2007

Year	Sparids	Haemulids	Sciaenids	Serranids	Lutjanids	*B. auritus*	Sharks	Rays	Cephalop.	**Total**
2006	13031	369	9535	440	297	1628	1056	306	407	27068
2007	7802	189	4615	715	0	8371	1067	1951	684	25394

Table 5.18 presents the swept area biomass estimates by depth zone for the whole region. Of the main demersal groups, sparids and serranids had the highest abundances in the 50-100 m depth zone, and haemulids, scianids and lutjanids in the shallowest zone (20-30 m). B. auritus had the highest abundance in the 30-50 m depth zone, while sharks and cephalops had higher abundances in the deeper zones. The highest total estimated biomasses were found in the 30-50 m and 50-100 m depth zones.

Table 5.18. Total swept area biomass estimates (tonnes) in 2007 by depth zone

Depth	20-30 m	30-50 m	50-100 m	100-200 m	Total
Sparids	3600	10264	23201	230	37295
Haemulids	1649	139	64	0	1852
Sciaenids	3039	1382	2937	133	7491
Serranids	163	24	986	0	1172
Lutjanids	1181	109	748	0	2038
B. auritus	6579	22332	5800	2	34713
Sharks	189	282	1720	1273	3463
Rays	1232	1834	1071	190	4327
Cephalopods	429	814	1112	1275	3629
Total	18061	37178	37640	3103	95982

5.6 Review of results

The total swept area biomass for the shelf of the four countries in question was measured to be around 96,000 tonnes (Table 5.19), which is only two thirds of what was estimated in 2006. A number of uncertainties should be considered when applying this and other abundance estimates in this report, particularly regarding trawl catchability, patchiness, interpolation and area calculations. Also, the relatively low number of trawl-hauls per unit area, relative to the degree of variability in fish concentrations should be remembered.

Table 5.19 Total swept area estimates in tonnes in 2006 and 2007

Country	Sparids	Haemulids[1]	Sciaenids	Serranids	Lutjanids	*B. auritus*	Sharks	Rays	Cephalop.	**Total**
2006	58173	2683	24168	1295	2292	39013	5198	2826	6435	142084
2007	37295	1852	7491	1172	2038	34713	3463	4327	3629	95982

[1] Grunts excluding *Brachydeuterus auritus*.

CHAPTER 6 CONCLUSIONS

The 2007 acoustic estimates of sardinellas in Guinea are much lower than in 2006, the other sardinella estimates are more similar to the results obtained last year. The total acoustic estimate of PEL 2 (mainly carangids) are much lower than in 2006 for all countries.

The total swept-area biomass estimate of main demersal species are also lower than in 2006, especially in Guinea Bissau and for sparids and sciaenids in general. For other species and countries the estimates from the two surveys are more comparable.

The large quantity of jellyfish caught during trawl hauls is an indicator of ecosystem disturbance that may have affected the abundance of both pelagic and demersal resources. Jellyfish feeds on larvae and juvenile fish that otherwise may have recruited into the fishery (Mayell 2000) and competes for space and food with fishes. The mucous secreted by jellies makes the environment viscous, causing decline in fish food such as small crustaceans, zooplankton and fish larvae. Blooms of jellyfish can therefore displace fish assemblages.

A rigorous environmental study is recommended, to evaluate the causes of jellyfish outbreak along the Gulf of Guinea. Temperature, salinity and food availability will be important to look at. Studies have shown that ephyra production increases when polyps are provided with more food (Purcell *et al*., 1999). This may account for the variations in jellyfish abundance in trawl hauls, with high abundances in Sierra Leone and Liberia, where more juvenile fish were

caught. Fish thrives more in areas where there is high food abundance. The highest temperature and salinities during the present survey was 29º C and 35.9 ppt, respectively. This is the same as what was obtained in 2006 and can therefore not alone explain the medusa bloom in 2007. If the outbreak is seasonal, then there may not be a scary concern but invesitigations are still required.

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Annex I Records of fishing stations

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 1
DATE :06.05.2007 GEAR TYPE: BT NO: 18 POSITION:Lat N 11°48.84
start stop duration Lon W 17°6.99
TIME :07:06:04 07:17:18 11.2 (min) Purpose : 3
LOG : 8235.15 8235.57 0.4 Region : 2100
FDEPTH: 27 28 Gear cond.: 0
BDEPTH: 27 28 Validity : 0
Towing dir: 0° Wire out : 110 m Speed : 2.3 kn
Sorted : 97 Total catch: 165.99 Catch/hour: 886.86

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Ilisha africana	351.56	6844	39.64	3
MISCELLANEOUS	254.32	0	28.68	
Sardinella maderensis	134.16	1090	15.13	1
Trichiurus lepturus	62.67	1394	7.07	
Cynoglossus senegalensis	26.45	2645	2.98	
Pteroscion peli	11.86	11	1.34	
Dicologoglossa cuneata	9.24	230	1.04	
Sphyraena guachancho	7.00	11	0.79	
Galeoides decadactylus	5.98	21	0.67	
Chloroscombrus chrysurus	4.97	11	0.56	2
Arius parkii	4.86	11	0.55	
Brachydeuterus auritus	4.70	85	0.53	
Echelus myrus	4.11	53	0.46	
Syacium micrurum	2.35	102	0.27	
Penaeus notialis	1.12	27	0.13	
Penaeus kerathurus	0.96	11	0.11	
Pseudotolithus senegalensis	0.37	48	0.04	
Selene dorsalis	0.19	27	0.02	
Total	886.88		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 2
DATE :06.05.2007 GEAR TYPE: BT NO: 18 POSITION:Lat N 11°48.87
start stop duration Lon W 17°8.75
TIME :09:44:02 10:05:41 21.7 (min) Purpose : 3
LOG : 8243.08 8244.29 1.2 Region : 2100
FDEPTH: 39 38 Gear cond.: 0
BDEPTH: 39 38 Validity : 0
Towing dir: 0° Wire out : 120 m Speed : 3.4 kn
Sorted : 0 Total catch: 522.26 Catch/hour: 1447.37

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Brachydeuterus auritus	1403.42	105256	96.96	8
Decapterus rhonchus	13.22	36	0.91	5
Sardinella aurita	10.00	624	0.69	4
Dicologoglossa cuneata	6.96	39	0.48	
Trichiurus lepturus	3.19	152	0.22	0
Decapterus rhonchus	2.24	624	0.16	7
Galeoides decadactylus	1.52	3	0.11	
Trichiurus lepturus	1.50	3	0.10	
Syacium micrurum	1.19	25	0.08	
Selene dorsalis	1.19	188	0.08	
Pseudupeneus prayensis	1.16	8	0.08	6
Engraulis encrasicolus	0.80	55	0.06	
Scomber japonicus	0.50	100	0.03	
Penaeus notialis	0.47	25	0.03	
Total	1447.37		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 3
DATE :06.05.2007 GEAR TYPE: BT NO: 18 POSITION:Lat N 11°48.72
start stop duration Lon W 17°11.73
TIME :11:12:15 11:41:59 29.7 (min) Purpose : 3
LOG : 8251.16 8252.74 1.6 Region : 2100
FDEPTH: 64 62 Gear cond.: 0
BDEPTH: 64 62 Validity : 0
Towing dir: 0° Wire out : 170 m Speed : 3.2 kn
Sorted : 143 Total catch: 872.16 Catch/hour: 1759.57

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Trachurus trecae	838.00	6936	47.63	10
Selene dorsalis	395.10	3726	22.45	11
Trichiurus lepturus	370.41	582	21.05	
Pteroscion peli	76.26	1709	4.33	9
Decapterus rhonchus	22.95	59	1.30	
Pseudotolithus brachygnathus	14.02	10	0.80	
Raja miraletus	8.86	14	0.50	
Sardinella aurita	7.12	218	0.40	
Dentex congoensis	6.10	28	0.35	
Sardinella aurita	5.52	218	0.31	0
Scomber japonicus	3.75	125	0.21	
Brachydeuterus auritus	3.33	151	0.19	
Zeus faber	1.63	4	0.09	
Epinephelus aeneus	1.61	2	0.09	
Trachinocephalus myops	1.17	30	0.07	
Penaeus notialis	0.73	59	0.04	
Parapenaeopsis atlantica	0.73	59	0.04	
Bathygobius paganellus	0.73	59	0.04	
Pseudupeneus prayensis	0.67	4	0.04	
Brotula barbata	0.48	2	0.03	
Illex coindetii	0.24	107	0.01	
Argyrosomus regius	0.14	2	0.01	
Total	1759.56		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 4
DATE :06.05.2007 GEAR TYPE: PT NO: 2 POSITION:Lat N 11°46.04
start stop duration Lon W 17°11.44
TIME :12:51:27 13:31:59 40.5 (min) Purpose : 1
LOG : 8256.42 8258.67 2.3 Region : 2100
FDEPTH: 25 25 Gear cond.: 0
BDEPTH: 60 65 Validity : 0
Towing dir: 0° Wire out : 125 m Speed : 3.3 kn
Sorted : 51 Total catch: 51.36 Catch/hour: 76.05

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Chloroscombrus chrysurus	26.58	188	34.95	14
Decapterus rhonchus	24.43	249	32.13	12
Selene dorsalis	11.33	90	14.89	13
Sardinella maderensis	7.05	46	9.27	16
Sardinella aurita	6.66	41	8.76	15
Total	76.05		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 5
DATE :06.05.2007 GEAR TYPE: BT NO: 18 POSITION:Lat N 11°28.45
start stop duration Lon W 17°2.08
TIME :17:42:52 18:12:39 29.8 (min) Purpose : 3
LOG : 8285.98 8287.56 1.6 Region : 2100
FDEPTH: 30 30 Gear cond.: 0
BDEPTH: 30 30 Validity : 0
Towing dir: 0° Wire out : 115 m Speed : 3.2 kn
Sorted : 131 Total catch: 1922.72 Catch/hour: 3872.55

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Chloroscombrus chrysurus	3698.69	44594	95.51	18
Decapterus rhonchus	105.76	387	2.73	17
Selene dorsalis	36.54	387	0.94	
Cymbium sp.	15.81	4	0.41	
Decapterus punctatus	6.85	89	0.18	
Pseudupeneus prayensis	3.56	60	0.09	
Sepia officinalis hierredda	2.22	6	0.06	
Pagellus bellottii	2.07	60	0.05	
Psettodes belcheri	1.05	2	0.03	
Total	3872.55		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 6
DATE :06.05.2007 GEAR TYPE: BT NO: 18 POSITION:Lat N 11°27.28
start stop duration Lon W 17°4.88
TIME :19:13:43 19:43:21 29.6 (min) Purpose : 3
LOG : 8294.49 8295.98 1.5 Region : 2100
FDEPTH: 38 39 Gear cond.: 0
BDEPTH: 38 39 Validity : 0
Towing dir: 0° Wire out : 140 m Speed : 3.0 kn
Sorted : 0 Total catch: 116.27 Catch/hour: 235.52

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Decapterus punctatus	197.10	1217	83.68	20
Decapterus rhonchus	14.28	47	6.06	19
C R U S T A C E A N S	8.51	0	3.61	
Fistularia petimba	4.25	8	1.81	
Penaeus notialis	3.57	113	1.51	
Sepia officinalis hierredda	2.47	18	1.05	
Syacium micrurum	1.13	16	0.48	
Echelus myrus	0.99	4	0.42	
Chloroscombrus chrysurus	0.77	8	0.33	
Illex coindetii	0.61	6	0.26	
Grammoplites gruveli	0.55	34	0.23	
Selene dorsalis	0.45	2	0.19	
Calappa sp.	0.24	2	0.10	
Sardinella maderensis	0.20	2	0.09	
Bothus podas africanus	0.20	2	0.09	
Pseudupeneus prayensis	0.18	2	0.08	
Pagellus bellottii	0.16	2	0.07	
Total	235.67		100.06	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 7
DATE :07.05.2007 GEAR TYPE: PT NO: 7 POSITION:Lat N 11°15.11
start stop duration Lon W 17°4.73
TIME :03:19:31 03:59:02 39.5 (min) Purpose : 1
LOG : 8359.72 8361.66 1.9 Region : 2100
FDEPTH: 6 6 Gear cond.: 0
BDEPTH: 39 35 Validity : 0
Towing dir: 0° Wire out : 140 m Speed : 2.9 kn
Sorted : 199 Total catch: 1293.05 Catch/hour: 1963.13

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Sardinella aurita	844.74	5293	43.03	21
Chloroscombrus chrysurus	816.35	6975	41.58	22
Selene dorsalis	121.15	609	6.17	
Sardinella maderensis	105.29	837	5.36	23
Decapterus rhonchus	27.40	115	1.40	24
Carcharhinus plumbeus	25.96	9	1.32	
Rhizoprionodon acutus	16.93	18	0.86	
Sphyrna mokarran	5.31	2	0.27	
Total	1963.13		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 8
DATE :07.05.2007 GEAR TYPE: BT NO: 18 POSITION:Lat N 11°9.28
start stop duration Lon W 16°57.15
TIME :06:54:10 07:24:30 30.3 (min) Purpose : 3
LOG : 8381.70 8383.11 1.4 Region : 2100
FDEPTH: 27 27 Gear cond.: 0
BDEPTH: 27 27 Validity : 0
Towing dir: 0° Wire out : 115 m Speed : 2.8 kn
Sorted : 0 Total catch: 238.72 Catch/hour: 472.40

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Pomadasys jubelini	165.04	146	34.94	29
Decapterus punctatus	145.55	976	30.81	26
Decapterus rhonchus	108.05	447	22.87	25
Sardinella aurita	13.26	75	2.81	30
Dactylopterus volitans	8.91	8	1.89	
Pagellus bellottii	6.49	53	1.37	28
Balistes capriscus	6.37	6	1.35	
Ephippion guttifer	4.33	2	0.92	
Fistularia petimba	3.98	16	0.84	
Pseudupeneus prayensis	3.03	18	0.64	27
Raja miraletus	1.42	2	0.30	
Sepia officinalis hierredda	1.37	10	0.29	
Arius latiscutatus	1.35	14	0.28	
Priacanthus arenatus	1.11	4	0.23	
Syacium micrurum	0.51	2	0.11	
Chloroscombrus chrysurus	0.49	4	0.10	
Pagrus caeruleostictus	0.34	2	0.07	
Bothus podas africanus	0.24	2	0.05	
Trachinocephalus myops	0.20	2	0.04	
Scomberomorus tritor	0.20	2	0.04	
Penaeus kerathurus	0.18	2	0.04	
Total	472.40		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 9
DATE :07.05.2007 GEAR TYPE: BT NO: 18 POSITION:Lat N 11°9.86
start stop duration Lon W 17°4.74
TIME :09:26:34 09:56:28 29.9 (min) Purpose : 3
LOG : 8393.32 8395.01 1.7 Region : 2100
FDEPTH: 45 45 Gear cond.: 0
BDEPTH: 45 45 Validity : 0
Towing dir: 0° Wire out : 150 m Speed : 3.4 kn
Sorted : 0 Total catch: 114.00 Catch/hour: 228.76

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Decapterus rhonchus	108.56	333	47.46	
J E L L Y F I S H	67.22	0	29.39	
MUD/SHELL	41.24	0	18.03	
Decapterus punctatus	3.71	22	1.62	
Sepia officinalis hierredda	3.19	14	1.39	
Octopus vulgaris	1.30	2	0.57	
Trachinocephalus myops	0.78	6	0.34	
Syacium micrurum	0.72	4	0.32	
Grammoplites gruveli	0.48	10	0.21	
Trigla lyra	0.46	4	0.20	
Pagellus acarne	0.42	4	0.18	
Lagocephalus laevigatus	0.36	4	0.16	
Dicologoglossa cuneata	0.30	2	0.13	
Total	228.76		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 10
DATE :07.05.2007 GEAR TYPE: BT NO: 18 POSITION:Lat N 11°8.36
start stop duration Lon W 17°7.38
TIME :11:46:15 12:16:33 30.3 (min) Purpose : 3
LOG : 8404.17 8405.70 1.5 Region : 2100
FDEPTH: 73 73 Gear cond.: 0
BDEPTH: 73 73 Validity : 0
Towing dir: 0° Wire out : 200 m Speed : 3.0 kn
Sorted : 0 Total catch: 16.98 Catch/hour: 33.62

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Scomber japonicus	6.87	390	20.44	35
Caranx crysos	4.06	4	12.07	
Scorpaena stephanica	3.27	10	9.72	
Illex coindetii	3.05	990	9.07	
Dactylopterus volitans	2.73	4	8.13	
Pagellus bellottii	2.59	125	7.71	33
Pseudupeneus prayensis	2.16	18	6.42	34
Umbrina canariensis	2.12	6	6.30	
Citharus linguatula	1.25	113	3.71	
Chelidonichthys lastoviza	1.25	22	3.71	
Scorpaena scrofa	0.75	6	2.24	
Saurida brasiliensis	0.67	2	2.00	
Arnoglossus imperialis	0.53	53	1.59	
Grammoplites gruveli	0.50	10	1.47	
Priacanthus arenatus	0.42	2	1.24	
Trachurus trecae	0.38	50	1.12	
Uranoscopus cadenati	0.38	2	1.12	
Sepia officinalis hierredda	0.22	2	0.65	
Octopus vulgaris	0.16	2	0.47	
Ariomma bondi	0.14	4	0.41	
Fistularia tabacaria	0.14	2	0.41	
Total	33.62		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 11
DATE :07.05.2007 GEAR TYPE: BT NO: 18 POSITION:Lat N 10°48.61
start stop duration Lon W 16°53.10
TIME :16:57:48 17:28:16 30.5 (min) Purpose : 3
LOG : 8450.00 8451.64 1.6 Region : 2100
FDEPTH: 89 88 Gear cond.: 0
BDEPTH: 89 88 Validity : 0
Towing dir: 0° Wire out : 250 m Speed : 3.2 kn
Sorted : 0 Total catch: 149.12 Catch/hour: 293.64

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Dentex congoensis	148.08	1059	50.43	38
Dentex angolensis	45.49	370	15.49	37
Scorpaena stephanica	21.86	61	7.44	
Illex coindetii	12.80	4779	4.36	
Fistularia petimba	12.60	33	4.29	
Priacanthus arenatus	10.73	37	3.65	
SEA URCHINS	6.70	0	2.28	
Dactylopterus volitans	5.95	10	2.03	
Raja miraletus	4.67	16	1.59	
Anthias anthias	3.33	49	1.13	
Pseudupeneus prayensis	2.84	28	0.97	36
Lagocephalus laevigatus	2.68	16	0.91	
Ariomma bondi	2.42	30	0.82	
Chaetodon hoefleri	1.67	14	0.57	
Torpedo marmorata	1.50	2	0.51	
Uranoscopus cadenati	1.48	2	0.50	
Pagrus pagrus	1.42	2	0.48	
Pagellus bellottii	1.10	6	0.38	
Octopus vulgaris	1.00	2	0.34	
Scomber japonicus	0.95	49	0.32	
Umbrina canariensis	0.83	2	0.28	
Decapterus punctatus	0.75	6	0.25	
Trigla lyra	0.69	20	0.23	
Sargocentron hastatus	0.57	2	0.19	
Syacium micrurum	0.45	30	0.15	
Citharus linguatula	0.41	6	0.14	
Zeus faber	0.33	2	0.11	
Chaetodon marcellae	0.30	6	0.10	
Serranus cabrilla *	0.06	4	0.02	
Total	293.64		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 12
DATE :07.05.2007 GEAR TYPE: BT NO: 18 POSITION:Lat N 10°53.68
start stop duration Lon W 16°47.73
TIME :19:12:39 19:42:20 29.5 (min) Purpose : 3
LOG : 8462.44 8463.84 1.4 Region : 2100
FDEPTH: 47 46 Gear cond.: 0
BDEPTH: 47 46 Validity : 0
Towing dir: 0° Wire out : 160 m Speed : 2.8 kn
Sorted : 0 Total catch: 147.05 Catch/hour: 299.19

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Decapterus rhonchus	188.00	592	62.84	40
Decapterus punctatus	41.71	189	13.94	41
C R U S T A C E A N S	34.38	0	11.49	
Sepia officinalis hierredda	15.36	85	5.13	
Pagellus bellottii	3.42	24	1.14	39
Rhizoprionodon acutus	2.75	2	0.92	
Octopus vulgaris	2.34	4	0.78	
Fistularia petimba	2.03	6	0.68	
Trachinocephalus myops	1.83	10	0.61	
Trigla lyra	1.46	12	0.49	
Paraconger notialis	1.08	2	0.36	
Raja miraletus	1.02	2	0.34	
Lutjanus agennes	0.81	2	0.27	
Nicholsina usta	0.69	2	0.23	
Syacium micrurum	0.61	6	0.20	
Trachinus armatus	0.61	81	0.20	
Priacanthus arenatus	0.55	4	0.18	
Bothus podas africanus	0.39	18	0.13	
Penaeus kerathurus	0.10	4	0.03	
Penaeus notialis	0.04	2	0.01	
Total	299.19		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 13
DATE :08.05.2007 GEAR TYPE: BT NO: 18 POSITION:Lat N 10°54.52
start stop duration Lon W 17°10.85
TIME :02:44:28 03:15:55 31.5 (min) Purpose : 3
LOG : 8510.02 8511.70 1.7 Region : 2100
FDEPTH: 155 158 Gear cond.: 0
BDEPTH: 155 158 Validity : 0
Towing dir: 0° Wire out : 370 m Speed : 3.2 kn
Sorted : 154 Total catch: 117.58 Catch/hour: 224.32

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Spicara alta	39.40	311	17.56	42
Chelidonichthys lastoviza	20.99	139	9.36	
Priacanthus arenatus	17.02	67	7.59	
Diretmoides parini	16.69	10	7.44	
Lepidotrigla carolae	16.22	954	7.23	
Setarches guentheri	15.11	254	6.74	
Trachinocephalus myops	13.41	216	5.98	
Umbrina canariensis	12.21	76	5.44	43
Dentex angolensis	11.35	82	5.06	45
Illex coindetii	9.98	99	4.45	
ECHINOMETRIDAE	9.41	261	4.19	
Dentex congoensis	9.00	72	4.01	44
Oxynotus centrina	6.26	4	2.79	
Trichiurus lepturus	5.95	8	2.65	
Zenopsis conchifer	4.25	2	1.90	
Scorpaena stephanica	4.25	34	1.90	
Octopus vulgaris	1.81	2	0.81	
Peristedion cataphractum	1.66	99	0.74	
Chelidonichthys gabonensis	1.62	44	0.72	
Pentheroscion mbizi	1.20	10	0.54	
Scyliorhinus cervigoni	1.14	4	0.51	
Diodon holocanthus	1.11	4	0.49	
Chlorophthalmus atlanticus	1.05	53	0.47	
Decapterus rhonchus	0.99	4	0.44	
Scorpaena scrofa	0.67	13	0.30	
Pterothrissus belloci	0.57	4	0.26	
Uranoscopus cadenati	0.52	2	0.23	
Dicologoglossa hexophthalma	0.48	4	0.21	
Total	224.32		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 14
DATE :08.05.2007 GEAR TYPE: BT NO: 18 POSITION:Lat N 10°32.65
start stop duration Lon W 16°47.93
TIME :12:47:35 13:17:48 30.2 (min) Purpose : 3
LOG : 8584.98 8586.57 1.6 Region : 2100
FDEPTH: 143 147 Gear cond.: 0
BDEPTH: 143 147 Validity : 0
Towing dir: 0° Wire out : 350 m Speed : 3.2 kn
Sorted : 52 Total catch: 43.09 Catch/hour: 85.55

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Antigonia capros	17.67	264	20.65	
Scorpaena scrofa	16.58	111	19.38	
Scorpaena stephanica	14.00	135	16.36	
Illex coindetii	4.41	191	5.15	
Ariomma bondi	4.05	107	4.73	46
B I V A L V E S	3.55	0	4.15	
Chlorophthalmus atlanticus	3.40	173	3.97	
Raja miraletus	2.82	10	3.30	
Citharus linguatula	2.82	60	3.30	
Lagocephalus laevigatus	2.54	8	2.97	
Chelidonichthys lastoviza	2.24	8	2.62	
Priacanthus arenatus	2.08	8	2.44	
Sea urchins (waek spines)	2.03	91	2.37	
Pterothrissus belloci	1.71	14	2.00	
Perestedion cataphractum *	1.33	68	1.55	
Dentex congoensis	1.33	12	1.55	
Fistularia petimba	1.29	2	1.51	
Dentex macrophthalmus	0.81	2	0.95	
Zeus faber	0.73	4	0.86	
Saurida brasiliensis	0.14	10	0.16	
Synchiropus phaeton	0.02	6	0.02	
Total	85.55		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 15
DATE :08.05.2007 GEAR TYPE: BT NO: 18 POSITION:Lat N 10°35.97
start stop duration Lon W 16°41.33
TIME :16:03:38 16:34:47 31.2 (min) Purpose : 3
LOG : 8596.52 8598.13 1.6 Region : 2100
FDEPTH: 70 61 Gear cond.: 0
BDEPTH: 70 61 Validity : 0
Towing dir: 0° Wire out : 200 m Speed : 3.1 kn
Sorted : 48 Total catch: 45.76 Catch/hour: 88.14

SPECIES	CATCH/HOUR weight	% OF TOT. C numbers	SAMP
Pagellus bellottii	22.25	196 25.24	47
Liocarcinus sp	20.61	6896 23.38	
Fistularia petimba	7.80	21 8.85	
Priacanthus arenatus	6.45	21 7.32	
MUD/SHELL	5.93	0 6.73	
Pseudupeneus prayensis	5.07	46 5.75	49
Raja miraletus	4.45	13 5.05	
Pagrus caeruleostictus	3.89	15 4.41	48
Illex coindetii	2.99	362 3.39	
Sphoeroides pachgaster	2.66	13 3.02	
ECHINOMETRIDAE	1.35	64 1.53	
Parapristipoma octolineatum	1.35	6 1.53	
Calappa sp.	1.14	85 1.29	
Scorpaena stephanica	0.62	8 0.70	
Chelidonichthys lastoviza	0.62	8 0.70	
Bothus podas africanus	0.40	12 0.46	
Monolene microstoma	0.15	12 0.17	
Arnoglossus imperialis	0.12	12 0.13	
Uranoscopus polli	0.12	2 0.13	
Chaetodon hoefleri	0.08	2 0.09	
Grammoplites gruveli	0.06	6 0.07	
Scorpaena scrofa	0.04	4 0.04	
Saurida brasiliensis	0.02	10 0.02	
Total	88.14	100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 16
DATE :08.05.2007 GEAR TYPE: BT NO: 18 POSITION:Lat N 10°40.13
start stop duration Lon W 16°32.25
TIME :18:15:10 18:45:00 29.8 (min) Purpose : 3
LOG : 8606.60 8608.01 1.4 Region : 2100
FDEPTH: 40 37 Gear cond.: 0
BDEPTH: 40 37 Validity : 0
Towing dir: 0° Wire out : 120 m Speed : 2.8 kn
Sorted : 10 Total catch: 9.46 Catch/hour: 19.03

SPECIES	CATCH/HOUR weight	% OF TOT. C numbers	SAMP
C R U S T A C E A N S	5.53	0 29.07	
Zeus faber	4.49	4 23.57	
J E L L Y F I S H	1.97	4 10.36	
Portunus validus	1.53	0 8.03	
Torpedo torpedo	1.09	2 5.71	
Fistularia petimba	1.01	2 5.29	
Sepia officinalis hierredda	0.91	2 4.76	
Syacium micrurum	0.52	4 2.75	
E C H I N O D E R M A T A	0.50	18 2.64	
Priacanthus arenatus	0.48	2 2.54	
Xyrichthys novacula *	0.38	2 2.01	
Trigla lyra	0.32	2 1.69	
Trachinocephalus myops	0.16	2 0.85	
Calappa rubroguttata	0.06	2 0.32	
Grammoplites gruveli	0.04	2 0.21	
Peristedion cataphractum	0.04	2 0.21	
Total	19.03	100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 17
DATE :08.05.2007 GEAR TYPE: BT NO: 18 POSITION:Lat N 10°42.94
start stop duration Lon W 16°26.91
TIME :19:25:14 19:40:13 15.0 (min) Purpose : 3
LOG : 8612.58 8613.34 0.8 Region : 2100
FDEPTH: 27 24 Gear cond.: 0
BDEPTH: 27 24 Validity : 0
Towing dir: 0° Wire out : 100 m Speed : 3.1 kn
Sorted : 16 Total catch: 16.33 Catch/hour: 65.36

SPECIES	CATCH/HOUR weight	% OF TOT. C numbers	SAMP
Carcharhinus plumbeus	26.82	4 41.03	
Sepia officinalis hierredda	11.89	96 18.19	
N O C A T C H	6.08	0 9.31	
Penaeus kerathurus	3.08	0 4.72	
Bothus podas africanus	2.84	92 4.35	
Rhinobatos rhinobatos	2.64	4 4.04	
Penaeus kerathurus	2.32	84 3.55	0
Scorpaena maderensis *	1.96	4 3.00	
Syacium micrurum	1.80	12 2.76	
Decapterus rhonchus	1.60	16 2.45	
Trachinocephalus myops	1.24	40 1.90	
Decapterus punctatus	1.00	12 1.53	
Illex coindetii	0.96	172 1.47	
Trachurus trachurus	0.48	4 0.73	
Calappa rubroguttata	0.48	8 0.73	
Serranus cabrilla	0.08	8 0.12	
Portunus validus	0.08	28 0.12	
Total	65.36	100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 18
DATE :09.05.2007 GEAR TYPE: PT NO: 2 POSITION:Lat N 10°27.66
start stop duration Lon W 16°34.48
TIME :01:15:03 02:00:30 45.4 (min) Purpose : 1
LOG : 8661.47 8664.06 2.6 Region : 2100
FDEPTH: 10 10 Gear cond.: 0
BDEPTH: 60 59 Validity : 0
Towing dir: 0° Wire out : 120 m Speed : 3.4 kn
Sorted : 0 Total catch: 4.99 Catch/hour: 6.59

SPECIES	CATCH/HOUR weight	% OF TOT. C numbers	SAMP
N O C A T C H	4.69	0 71.14	
Caranx crysos	1.12	1 17.03	
Saurida brasiliensis	0.67	99 10.22	
Selene dorsalis	0.09	4 1.40	
Illex coindetii	0.01	7 0.20	
Total	6.59	100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 19
DATE :09.05.2007 GEAR TYPE: PT NO: 1 POSITION:Lat N 10°27.09
start stop duration Lon W 16°17.03
TIME :03:58:50 04:19:05 20.3 (min) Purpose : 1
LOG : 8680.81 8682.17 1.4 Region : 2100
FDEPTH: 10 20 Gear cond.: 0
BDEPTH: 35 36 Validity : 0
Towing dir: 0° Wire out : 140 m Speed : 4.1 kn
Sorted : 6 Total catch: 5.43 Catch/hour: 16.09

SPECIES	CATCH/HOUR weight	% OF TOT. C numbers	SAMP
Decapterus rhonchus	6.16	24 38.31	50
Scomberomorus tritor	5.99	3 37.20	
N O C A T C H	2.01	0 12.52	
Psettodes bennetti	0.89	3 5.52	
Sepia officinalis hierredda	0.68	9 4.24	
Octopus vulgaris	0.30	3 1.84	
Illex coindetii	0.06	3 0.37	
Total	16.09	100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 20
DATE :09.05.2007 GEAR TYPE: BT NO: 20 POSITION:Lat N 10°28.29
start stop duration Lon W 16°1.35
TIME :06:43:17 06:57:33 14.3 (min) Purpose : 3
LOG : 8702.91 8703.64 0.7 Region : 2100
FDEPTH: 27 25 Gear cond.: 0
BDEPTH: 27 25 Validity : 0
Towing dir: 0° Wire out : 125 m Speed : 3.1 kn
Sorted : 0 Total catch: 10000.00 Catch/hour: 42046.25

SPECIES	CATCH/HOUR weight	% OF TOT. C numbers	SAMP
Alectis alexandrinus	22.28	4 0.05	
Sphyraena guachancho	14.72	4 0.03	
Sardinella aurita	0.42	93 0.00	51
Total	37.42	0.09	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 21
DATE :09.05.2007 GEAR TYPE: BT NO: 18 POSITION:Lat N 10°26.29
start stop duration Lon W 16°4.21
TIME :09:26:53 09:48:18 21.4 (min) Purpose : 3
LOG : 8723.54 8724.73 1.2 Region : 2100
FDEPTH: 28 28 Gear cond.: 0
BDEPTH: 28 28 Validity : 0
Towing dir: 0° Wire out : 110 m Speed : 3.3 kn
Sorted : 8 Total catch: 7.12 Catch/hour: 19.94

SPECIES	CATCH/HOUR weight	% OF TOT. C numbers	SAMP
Pseudupeneus prayensis	7.98	171 40.03	54
Pagrus caeruleostictus	3.03	81 15.17	52
ANTHOZOA (Sea anemones)	2.52	0 12.64	
Echeneis naucrates	2.41	3 12.08	
Pagellus bellottii	1.90	132 9.55	53
Diodon holocanthus	1.29	3 6.46	
Trachinocephalus myops	0.45	8 2.25	
Decapterus rhonchus	0.36	8 1.83	
Total	19.94	100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 22
DATE :09.05.2007 GEAR TYPE: BT NO: 18 POSITION:Lat N 10°18.83
start stop duration Lon W 16°19.31
TIME :12:54:43 13:24:52 30.2 (min) Purpose : 3
LOG : 8744.25 8745.83 1.6 Region : 2100
FDEPTH: 45 45 Gear cond.: 0
BDEPTH: 45 45 Validity : 0
Towing dir: 0° Wire out : 135 m Speed : 3.1 kn
Sorted : 0 Total catch: 34.06 Catch/hour: 67.78

SPECIES	CATCH/HOUR weight	% OF TOT. C numbers	SAMP
Balistes capriscus	18.81	14 27.75	54
Fistularia petimba	12.94	62 19.08	
Lagocephalus laevigatus	7.78	8 11.48	
J E L L Y F I S H	4.24	0 6.25	
Zeus faber	4.24	10 6.25	
Dactylopterus volitans	3.62	8 5.34	
ANTHOZOA (Sea anemones)	3.62	40 5.34	
Alectis alexandrinus	3.06	2 4.52	
Caranx crysos	2.59	2 3.82	
Diodon holocanthus	1.29	4 1.91	
Trachinocephalus myops	0.94	4 1.38	
Pisodonophis semicinctus	0.74	2 1.09	
Epinephelus aeneus	0.72	2 1.06	
Priacanthus arenatus	0.72	2 1.06	
Sepia officinalis hierredda	0.70	4 1.03	
Trichiurus lepturus	0.66	2 0.97	
Syacium micrurum	0.56	2 0.82	
E C H I N O D E R M A T A	0.26	0 0.38	
Decapterus rhonchus	0.24	2 0.35	
Calappa rubroguttata	0.06	2 0.09	
Bothus podas africanus	0.02	2 0.03	
Total	67.78	100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 23
DATE :09.05.2007 GEAR TYPE: BT NO: 18 POSITION:Lat N 10°12.36
start stop duration Lon W 16°31.23
TIME :15:06:54 15:39:29 32.6 (min) Purpose : 3
LOG : 8760.06 8761.80 1.7 Region : 2100
FDEPTH: 76 80 Gear cond.: 0
BDEPTH: 76 80 Validity : 0
Towing dir: 0° Wire out : 190 m Speed : 3.2 kn
Sorted : 0 Total catch: 62.57 Catch/hour: 115.19

SPECIES	CATCH/HOUR weight	% OF TOT. C numbers	SAMP
Fistularia petimba	86.99	414 75.52	
Sphoeroides pachgaster	7.38	29 6.41	
Balistes capriscus	4.73	4 4.11	56
Chelidonichthys lucerna	1.88	18 1.63	
Trachinus armatus	1.88	26 1.63	
Trachinocephalus myops	1.77	7 1.53	
Torpedo torpedo	1.05	2 0.91	
Scorpaena scrofa	0.92	2 0.80	
Sea urchins (waek spines)	0.83	9 0.72	
Dactylopterus volitans	0.81	2 0.70	
Calappa sp.	0.75	64 0.66	
Sea urchins (strong spines)	0.72	79 0.62	
Pseudupeneus prayensis	0.68	6 0.59	
Bothus podas africanus	0.64	28 0.56	
URCHINS	0.61	6 0.53	
Priacanthus arenatus	0.61	2 0.53	
Zeus faber	0.59	2 0.51	
Diodon holocanthus	0.50	2 0.43	
Echeneis naucrates	0.50	2 0.43	
B I V A L V E S	0.44	0 0.38	
Scorpaena stephanica	0.41	4 0.35	
CORAL	0.24	7 0.21	
Pagellus bellottii	0.15	2 0.13	
Grammoplites gruveli	0.13	2 0.11	
Total	115.19	100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 24
DATE :09.05.2007 GEAR TYPE: BT NO: 18 POSITION:Lat N 10°7.74
start stop duration Lon W 16°37.53
TIME :17:11:51 17:41:54 30.1 (min) Purpose : 3
LOG : 8772.75 8774.41 1.7 Region : 2100
FDEPTH: 164 164 Gear cond.: 0
BDEPTH: 164 164 Validity : 0
Towing dir: 0° Wire out : 450 m Speed : 3.3 kn
Sorted : 0 Total catch: 122.68 Catch/hour: 244.95

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Antigonia capros	157.54	3299	64.31	
Paragaleus pectoralis	31.85	8	13.00	
Scorpaena stephanica	13.38	50	5.46	
Squatina oculata	7.35	2	3.00	
Raja miraletus	4.33	10	1.77	
MUD/SHELL	4.15	0	1.70	
Decapterus punctatus	4.15	4	1.70	57
Zeus faber	3.85	12	1.57	
Priacanthus arenatus	3.83	14	1.57	58
Pterothrissus belloci	3.11	26	1.27	
Sphoeroides pachgaster	2.90	4	1.18	
Illex coindetii	2.18	98	0.89	
Trigla lyra	1.32	20	0.54	
Fistularia petimba	1.22	4	0.50	
Brotula barbata	0.66	2	0.27	
Dactylopterus volitans	0.48	2	0.20	
Pontinus kuhlii	0.36	8	0.15	
Dentex angolensis	0.24	2	0.10	
Zenopsis conchifer	0.22	6	0.09	
Chlorophthalmus atlanticus	0.14	26	0.06	
Sea urchins (strong spines)	0.14	14	0.06	
Peristedion cataphractum	0.10	4	0.04	
Monolene microstoma	0.08	8	0.03	
Bothus podas africanus	0.04	2	0.02	
Synchiropus phaeton	0.04	2	0.02	
Dicologoglossa cuneata	0.04	2	0.02	
Total	243.69		99.49	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 25
DATE :09.05.2007 GEAR TYPE: BT NO: 18 POSITION:Lat N 10°3.39
start stop duration Lon W 16°46.21
TIME :19:31:52 20:01:23 29.5 (min) Purpose : 3
LOG : 8787.89 8789.33 1.4 Region : 2100
FDEPTH: 221 219 Gear cond.: 0
BDEPTH: 221 219 Validity : 0
Towing dir: 0° Wire out : 600 m Speed : 2.9 kn
Sorted : 63 Total catch: 276.54 Catch/hour: 562.07

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Chlorophthalmus atlanticus	365.45	21854	65.02	
Illex coindetii	47.56	1138	8.46	
Pterothrissus belloci	30.00	244	5.34	
Squatina oculata	19.11	2	3.40	
Synagrops microlepis	15.61	846	2.78	
Peristedion cataphractum	12.36	374	2.20	
Brotula barbata	9.04	10	1.61	
Priacanthus arenatus	8.05	16	1.43	
MUD/SHELL	7.56	0	1.35	
Antigonia capros	6.91	73	1.23	
Aulopus cadenati	6.10	33	1.08	
Trigla lyra	4.96	65	0.88	
Bembrops greyi	4.15	49	0.74	
Pontinus kuhlii	3.82	16	0.68	
Portunus validus	3.74	122	0.67	
Uranoscopus cadenati	3.58	8	0.64	
Parapenaeopsis atlantica	3.41	447	0.61	
Calappa sp.	3.41	8	0.61	
Cynoponticus ferox	3.25	8	0.58	
Syacium micrurum	2.36	33	0.42	
Sphoeroides pachgaster	1.24	2	0.22	
Paraconger notialis	0.41	16	0.07	
Total	562.07		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 26
DATE :10.05.2007 GEAR TYPE: PT NO: 2 POSITION:Lat N 9°46.18
start stop duration Lon W 16°36.01
TIME :03:04:34 03:36:02 31.5 (min) Purpose : 1
LOG : 8856.35 8858.15 1.8 Region : 2200
FDEPTH: 10 20 Gear cond.: 0
BDEPTH: 267 250 Validity : 0
Towing dir: 0° Wire out : 140 m Speed : 3.4 kn
Sorted : 0 Total catch: 3.60 Catch/hour: 6.87

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Ariomma bondi	3.34	198	48.61	62
Illex coindetii	1.09	193	15.83	
Epigonus sp.	0.67	105	9.72	
Trichiurus lepturus	0.63	6	9.17	
Scomberomorus tritor	0.61	135	8.89	61
Hypoclydonia bella	0.34	109	5.00	
Lestidiops sp.	0.15	10	2.22	
Selene dorsalis	0.02	2	0.28	
Caranx hippos	0.02	2	0.28	
Total	6.87		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 27
DATE :10.05.2007 GEAR TYPE: BT NO: 18 POSITION:Lat N 9°52.49
start stop duration Lon W 16°25.38
TIME :06:48:15 07:18:02 29.8 (min) Purpose : 3
LOG : 8883.24 8884.68 1.4 Region : 2200
FDEPTH: 59 58 Gear cond.: 0
BDEPTH: 59 58 Validity : 0
Towing dir: 0° Wire out : 180 m Speed : 2.9 kn
Sorted : 0 Total catch: 52.28 Catch/hour: 105.30

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
MUD/SHELL	20.24	0	19.22	
Starfish, mixed	19.34	0	18.36	
Dactylopterus volitans	15.31	44	14.54	
Sphoeroides pachgaster	14.90	137	14.15	
Paragaleus pectoralis	10.78	2	10.23	
Trigla lyra	5.64	70	5.36	
Peristedion cataphractum	4.97	193	4.72	
Illex coindetii	2.96	103	2.81	
Raja miraletus	2.50	6	2.37	
Ariomma bondi	1.79	20	1.70	
Fistularia petimba	1.65	10	1.57	
Sepia officinalis hierredda	0.97	8	0.92	
Pseudupeneus prayensis	0.66	6	0.63	
Trachinus armatus	0.62	10	0.59	
URCHINS	0.54	6	0.52	
Bothus podas africanus	0.50	10	0.48	
Diodon holocanthus	0.44	4	0.42	
Sea urchins (waek spines)	0.32	16	0.31	
Scorpaena maderensis *	0.32	2	0.31	
Dicologoglossa hexophthalma	0.28	4	0.27	
Decapterus rhonchus	0.24	6	0.23	
Grammoplites gruveli	0.14	2	0.13	
Liocarcinus corrugatus	0.12	18	0.11	
PORIFERA (Sponges)	0.04	4	0.04	
Total	105.30		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 28
DATE :10.05.2007 GEAR TYPE: BT NO: 18 POSITION:Lat N 9°59.75
start stop duration Lon W 16°14.99
TIME :09:26:30 09:58:25 31.9 (min) Purpose : 3
LOG : 8898.92 8900.73 1.8 Region : 2200
FDEPTH: 44 47 Gear cond.: 0
BDEPTH: 44 47 Validity : 0
Towing dir: 0° Wire out : 140 m Speed : 3.4 kn
Sorted : 0 Total catch: 87.19 Catch/hour: 163.89

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Decapterus rhonchus	144.17	378	87.97	63
Balistes capriscus	6.65	6	4.06	64
Fistularia petimba	5.79	32	3.53	
Starfish, mixed	3.05	0	1.86	
Dactylopterus volitans	2.24	6	1.36	
Caranx crysos	1.30	2	0.79	
Octopus vulgaris	0.73	2	0.45	
Total	163.93		100.02	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 29
DATE :10.05.2007 GEAR TYPE: BT NO: 18 POSITION:Lat N 10°6.40
start stop duration Lon W 16°3.75
TIME :11:45:23 12:15:29 30.1 (min) Purpose : 3
LOG : 8916.48 8918.32 1.8 Region : 2200
FDEPTH: 36 35 Gear cond.: 0
BDEPTH: 36 35 Validity : 0
Towing dir: 0° Wire out : 120 m Speed : 3.7 kn
Sorted : 0 Total catch: 199.56 Catch/hour: 397.79

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Pagellus bellottii	154.19	839	38.76	66
Decapterus rhonchus	111.63	594	28.06	65
Selar crumenophthalmus	102.02	578	25.65	69
Aluterus blankerti	6.96	6	1.75	
Pseudupeneus prayensis	5.18	42	1.30	68
Trachinocephalus myops	3.83	22	0.96	
Sepia orbignyana	2.79	6	0.70	
Lagocephalus laevigatus	1.48	4	0.37	
Fistularia petimba	1.20	8	0.30	
Priacanthus arenatus	1.14	6	0.29	
Galeoides decadactylus	1.08	8	0.27	67
Zeus faber	1.06	2	0.27	
Pagrus caeruleostictus	0.76	4	0.19	
Diodon holocanthus	0.72	2	0.18	
Xyrichtys novacula	0.60	10	0.15	
Eucinostomus melanopterus	0.58	6	0.15	
Sardinella aurita	0.52	4	0.13	
Dactylopterus volitans	0.48	2	0.12	
Uranoscopus cadenati	0.32	2	0.08	
Bothus podas africanus	0.04	2	0.01	
Peristedion cataphractum	0.02	2	0.01	
Total	396.56		99.69	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 30
DATE :10.05.2007 GEAR TYPE: BT NO: 18 POSITION:Lat N 10°11.86
start stop duration Lon W 15°53.96
TIME :13:58:45 14:28:48 30.1 (min) Purpose : 3
LOG : 8928.71 8930.39 1.7 Region : 2200
FDEPTH: 29 29 Gear cond.: 0
BDEPTH: 29 29 Validity : 0
Towing dir: 0° Wire out : 110 m Speed : 3.4 kn
Sorted : 0 Total catch: 58.51 Catch/hour: 116.83

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Decapterus punctatus	36.64	309	31.36	70
Pagellus bellottii	26.56	549	22.73	72
Pagrus caeruleostictus	23.76	567	20.34	71
Lagocephalus laevigatus	9.08	2	7.78	
Sepia officinalis hierredda	5.85	10	5.01	
Pseudupeneus prayensis	5.33	395	4.56	73
Cymbium sp.	4.37	2	3.74	
Aluterus blankerti	2.74	2	2.34	
Dactylopterus volitans	1.16	10	0.99	
Xyrichtys novacula	0.56	12	0.48	
Sardinella aurita	0.50	6	0.43	
Priacanthus arenatus	0.22	2	0.19	
Cronius ruber	0.04	4	0.03	
Hippocampus hippocampus	0.02	2	0.02	
Total	116.83		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 31
DATE :10.05.2007 GEAR TYPE: BT NO: 18 POSITION:Lat N 10°25.26
start stop duration Lon W 15°30.22
TIME :17:31:50 17:47:44 15.9 (min) Purpose : 3
LOG : 8957.04 8958.00 1.0 Region : 2200
FDEPTH: 25 30 Gear cond.: 0
BDEPTH: 25 30 Validity : 0
Towing dir: 0° Wire out : 110 m Speed : 3.6 kn
Sorted : 0 Total catch: 26.00 Catch/hour: 98.11

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Pagrus caeruleostictus	53.96	1392	55.00	74
Rachycentron canadum	26.42	4	26.92	
Pagellus bellottii	8.11	872	8.27	75
Scomberomorus tritor	3.58	4	3.65	
Decapterus rhonchus	2.87	38	2.92	77
Sardinella aurita	1.06	23	1.08	
Sepia orbignyana	0.91	8	0.92	
Trachinocephalus myops	0.49	4	0.50	
Pseudupeneus prayensis	0.38	75	0.38	76
Chaetodipterus goreensis	0.34	11	0.35	
Total	98.12		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 32
DATE :10.05.2007 GEAR TYPE: BT NO: 18 POSITION:Lat N 10°7.86
start stop duration Lon W 15°38.01
TIME :19:34:39 20:03:30 28.9 (min) Purpose : 3
LOG : 8976.26 8977.80 1.5 Region : 2200
FDEPTH: 26 27 Gear cond.: 0
BDEPTH: 26 27 Validity : 0
Towing dir: 0° Wire out : 100 m Speed : 3.2 kn
Sorted : 0 Total catch: 207.91 Catch/hour: 432.38

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Cymbium cymbium	123.12	27	28.47	
Brachydeuterus auritus	104.51	1805	24.17	79
Chlamys purpuratus	74.35	0	17.20	
Galeoides decadactylus	24.08	204	5.57	78
Priacanthus arenatus	18.41	69	4.26	82
Eucinostomus melanopterus	17.74	214	4.10	
Decapterus rhonchus	16.22	46	3.75	80
Pagrus caeruleostictus	11.65	287	2.69	84
Sphyraena guachancho	10.92	31	2.53	83
Selar crumenophthalmus	8.21	25	1.90	81
Cronius ruber	5.10	131	1.18	
Sepia orbignyana	2.77	21	0.64	
Pisodonophis semicinctus	2.70	6	0.63	
Pagellus bellottii	2.66	187	0.62	85
Calappa rubroguttata	1.41	6	0.33	
Caranx crysos	1.37	2	0.32	
Pomadasys jubelini	1.37	2	0.32	
Parapenaeopsis atlantica	1.14	343	0.26	
Syacium micrurum	0.58	21	0.13	
Ilisha africana	0.52	10	0.12	
Calappa pelii	0.52	6	0.12	
Aluterus blankerti	0.52	17	0.12	
Antennarius occidentalis	0.52	6	0.12	
Pseudupeneus prayensis	0.48	73	0.11	
Portunus validus	0.42	52	0.10	
Grammoplites gruveli	0.31	17	0.07	
Trachinocephalus myops	0.31	6	0.07	
Sardinella maderensis	0.16	6	0.04	
C R A B S	0.10	10	0.02	
Penaeus kerathurus	0.10	10	0.02	
C R A B S	0.05	6	0.01	
Dicologoglossa cuneata	0.05	6	0.01	
Total	432.38		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 33
DATE :11.05.2007 GEAR TYPE: BT NO: 18 POSITION:Lat N 9°34.61
start stop duration Lon W 16°10.12
TIME :03:23:39 03:53:22 29.7 (min) Purpose : 3
LOG : 9027.64 9029.21 1.6 Region : 2200
FDEPTH: 142 142 Gear cond.: 0
BDEPTH: 142 142 Validity : 0
Towing dir: 0° Wire out : 370 m Speed : 3.2 kn
Sorted : 0 Total catch: 97.05 Catch/hour: 195.93

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Antigonia capros	61.37	808	31.32	
Setarches guentheri	30.18	606	15.40	
Illex coindetii	25.34	808	12.93	
Aulopus cadenati	20.59	81	10.51	
Peristedion cataphractum	11.61	581	5.92	
Pontinus accraensis	11.47	1009	5.85	
Octopus vulgaris	9.29	4	4.74	
Cronius ruber	5.96	646	3.04	
Chelidonichthys gabonensis	4.24	416	2.16	
Citharus linguatula	3.15	30	1.61	
Scorpaena stephanica	2.99	26	1.52	
Scorpaena scrofa	2.32	16	1.18	
Sphoeroides pachgaster	1.57	20	0.80	
Scorpaena normani	1.21	2	0.62	
Grammoplites gruveli	1.05	20	0.54	
Saurida brasiliensis	0.97	30	0.49	
Decapterus rhonchus	0.97	2	0.49	
Parapenaeus longirostris, male	0.52	50	0.27	
Brachydeuterus auritus	0.38	4	0.20	
Sepia officinalis hierredda	0.20	2	0.10	
Arnoglossus imperialis	0.16	4	0.08	
Trachinus pellegrini	0.14	6	0.07	
Priacanthus arenatus	0.10	2	0.05	
Cronius ruber	0.08	2	0.04	
Ariomma bondi	0.04	6	0.02	86
Monochirus hispidus	0.02	6	0.01	
Total	195.93		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 34
DATE :11.05.2007 GEAR TYPE: BT NO: 18 POSITION:Lat N 9°29.04
start stop duration Lon W 16°14.24
TIME :05:36:51 06:06:33 29.7 (min) Purpose : 3
LOG : 9038.95 9040.56 1.6 Region : 2200
FDEPTH: 256 246 Gear cond.: 0
BDEPTH: 256 246 Validity : 0
Towing dir: 0° Wire out : 650 m Speed : 3.3 kn
Sorted : 0 Total catch: 18.79 Catch/hour: 37.96

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Chlorophthalmus atlanticus	16.36	4	43.11	
Aulopus cadenati	5.47	36	14.42	
Illex coindetii	3.78	85	9.95	
Peristedion cataphractum	3.58	162	9.42	
Synagrops microlepis	1.80	79	4.74	
Portunus validus	1.78	226	4.68	
Antigonia capros	1.49	36	3.94	
Brotula barbata	0.89	2	2.34	
Lophius budegassa	0.69	4	1.81	
Hypoclydonia bella	0.42	20	1.12	
Pontinus kuhlii	0.38	6	1.01	
Grammoplites gruveli	0.30	4	0.80	
Syacium micrurum	0.20	2	0.53	
Penaeus notialis	0.16	30	0.43	
Pontinus accraensis	0.14	4	0.37	
Trigla lyra	0.12	6	0.32	
Parapenaeopsis atlantica	0.12	42	0.32	
Uranoscopus cadenati	0.12	2	0.32	
Ariomma bondi	0.08	6	0.21	
Dibranchus atlanticus	0.06	2	0.16	
Total	37.96		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 35
DATE :11.05.2007 GEAR TYPE: BT NO: 18 POSITION:Lat N 9°37.84
start stop duration Lon W 16°4.59
TIME :08:17:31 08:47:26 29.9 (min) Purpose : 3
LOG : 9057.55 9059.17 1.6 Region : 2200
FDEPTH: 71 71 Gear cond.: 0
BDEPTH: 71 71 Validity : 0
Towing dir: 0° Wire out : 210 m Speed : 3.3 kn
Sorted : 0 Total catch: 27.74 Catch/hour: 55.67

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Sphoeroides pachgaster	12.04	82	21.63	
Leptocharias smithii	8.83	18	15.86	
Dactylopterus volitans	6.08	22	10.92	
Fistularia petimba	4.82	8	8.65	
Raja miraletus	4.45	16	8.00	
Pagellus bellottii	3.69	60	6.63	87
Sea urchins (strong spines)	3.61	205	6.49	
Torpedo torpedo	1.93	2	3.46	
Scorpaena scrofa	1.83	24	3.28	
Illex coindetii	1.22	12	2.20	
Pseudupeneus prayensis	1.08	10	1.95	88
Trigla lyra	1.08	40	1.95	
Zeus faber	0.88	2	1.59	
Trachinus armatus	0.70	10	1.26	
Peristedion cataphractum	0.64	26	1.15	
Portunus validus	0.52	78	0.94	
Grammoplites gruveli	0.36	10	0.65	
Aulopus cadenati	0.30	2	0.54	
Diodon holocanthus	0.30	2	0.54	
Bothus podas africanus	0.30	6	0.54	
Priacanthus arenatus	0.28	4	0.50	
Sepia orbignyana	0.18	6	0.32	
Chelidonichthys lastoviza	0.18	2	0.32	
Octopus vulgaris	0.18	2	0.32	
Ariomma bondi	0.08	2	0.14	
Blennius normani	0.08	2	0.14	
Total	55.67		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 36
DATE :11.05.2007 GEAR TYPE: BT NO: 18 POSITION:Lat N 9°43.59
start stop duration Lon W 15°59.46
TIME :10:26:00 10:58:02 32.0 (min) Purpose : 3
LOG : 9068.25 9070.00 1.8 Region : 2200
FDEPTH: 48 48 Gear cond.: 0
BDEPTH: 48 48 Validity : 0
Towing dir: 0° Wire out : 150 m Speed : 3.3 kn
Sorted : 0 Total catch: 18.76 Catch/hour: 35.13

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
MUD/SHELL	16.95	6	48.24	
J E L L Y F I S H	5.49	2	15.62	
Sepia orbignyana	1.89	11	5.38	
Trachinus armatus	1.74	9	4.96	
Raja miraletus	1.61	7	4.58	
Trachinocephalus myops	1.55	9	4.42	
Trigla lyra	1.42	11	4.05	
Dactylopterus volitans	1.10	4	3.14	
Sphoeroides pachgaster	0.96	4	2.72	
Illex coindetii	0.69	6	1.97	
Aluterus blankerti	0.56	2	1.60	
Bothus podas africanus	0.54	11	1.55	
Uranoscopus polli	0.39	4	1.12	
Fistularia petimba	0.37	2	1.07	
Pagellus bellottii	0.30	2	0.85	
Xyrichtys novacula	0.22	2	0.64	
E C H I N O D E R M A T A	0.15	6	0.43	
Trachurus trachurus	0.02	2	0.05	
Total	35.97		102.40	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 37
DATE :11.05.2007 GEAR TYPE: BT NO: 18 POSITION:Lat N 9°53.08
start stop duration Lon W 15°52.06
TIME :12:19:47 12:50:13 30.4 (min) Purpose : 3
LOG : 9080.34 9082.07 1.7 Region : 2200
FDEPTH: 38 36 Gear cond.: 0
BDEPTH: 38 36 Validity : 0
Towing dir: 0° Wire out : 120 m Speed : 3.4 kn
Sorted : 0 Total catch: 1770.87 Catch/hour: 3490.55

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Selene dorsalis	2194.22	12883	62.86	90
Chloroscombrus chrysurus	1016.29	7159	29.12	91
Pagellus bellottii	140.24	745	4.02	92
Decapterus rhonchus	51.84	181	1.49	89
Sphyraena guachancho	36.86	75	1.06	94
Balistes punctatus	23.81	16	0.68	
Pagrus caeruleostictus	11.04	71	0.32	93
Sepia officinalis hierredda	5.05	12	0.14	
Aluterus blankerti	4.89	16	0.14	
Pseudupeneus prayensis	3.31	16	0.09	
Trachinocephalus myops	3.00	16	0.09	
Total	3490.55		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 38
DATE :11.05.2007 GEAR TYPE: BT NO: 18 POSITION:Lat N 9°27.67
start stop duration Lon W 15°57.81
TIME :16:09:47 16:29:32 19.8 (min) Purpose : 1
LOG : 9112.26 9113.34 1.1 Region : 2200
FDEPTH: 126 120 Gear cond.: 0
BDEPTH: 126 120 Validity : 0
Towing dir: 0° Wire out : 390 m Speed : 3.3 kn
Sorted : 81 Total catch: 557.48 Catch/hour: 1693.61

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Antigonia capros	1632.79	44382	96.41	
Ariomma bondi	31.47	22050	1.86	95
Illex coindetii	10.42	85	0.62	
Sphoeroides pachgaster	8.93	128	0.53	
Trachinocephalus myops	5.32	64	0.31	
Dentex macrophthalmus	1.70	43	0.10	
Chelidonichthys gabonensis	1.70	43	0.10	
Peristedion cataphractum	0.85	21	0.05	
Citharus linguatula	0.43	21	0.03	
Total	1693.61		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 39
DATE :11.05.2007 GEAR TYPE: BT NO: 18 POSITION:Lat N 9°13.43
start stop duration Lon W 15°38.99
TIME :21:30:40 21:59:46 29.1 (min) Purpose : 3
LOG : 9161.30 9162.76 1.5 Region : 2200
FDEPTH: 269 275 Gear cond.: 0
BDEPTH: 269 275 Validity : 0
Towing dir: 0° Wire out : 700 m Speed : 3.0 kn
Sorted : 49 Total catch: 98.96 Catch/hour: 204.11

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Chlorophthalmus atlanticus	87.87	2339	43.05	
Illex coindetii	19.59	202	9.60	
Sea cucumbers	14.11	45	6.91	
CHIROSTYLIDAE	12.17	1085	5.96	
Chelidonichthys lucerna	11.88	58	5.82	
Lophiodes kempi	9.82	8	4.81	
Peristedion cataphractum	9.78	450	4.79	
Pterothrissus belloci	8.54	78	4.18	
Aulopus cadenati	5.86	45	2.87	
Merluccius senegalensis	5.24	25	2.57	
Maurolicus muelleri	4.99	891	2.45	
Chascanopsetta lugubris	4.37	45	2.14	
Trigla lyra	3.84	103	1.88	
Grammoplites gruveli	3.34	45	1.64	
Penaeus notialis	1.57	231	0.77	
Haploblepharus pictus	0.54	17	0.26	
Calappa sp.	0.41	17	0.20	
Total	203.91		99.90	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 40
DATE :11.05.2007 GEAR TYPE: BT NO: 18 POSITION:Lat N 9°15.06
start stop duration Lon W 15°35.08
TIME :23:21:22 23:51:13 29.9 (min) Purpose : 3
LOG : 9168.69 9170.11 1.4 Region : 2200
FDEPTH: 165 168 Gear cond.: 0
BDEPTH: 165 168 Validity : 0
Towing dir: 0° Wire out : 450 m Speed : 2.9 kn
Sorted : 0 Total catch: 688.85 Catch/hour: 1384.62

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Antigonia capros	633.17	17206	45.73	
Saurida brasiliensis	306.03	15749	22.10	
Aulopus cadenati	115.08	1477	8.31	
Carcharhinus plumbeus	100.00	4	7.22	
Illex coindetii	40.00	874	2.89	
Pontinus accraensis	30.15	834	2.18	
Lepidotrigla carolae	28.64	1608	2.07	
Sphoeroides pachgaster	27.54	191	1.99	
Ariomma bondi	24.42	553	1.76	96
Synagrops microlepis	19.70	523	1.42	
Peristedion cataphractum	11.26	724	0.81	
Cronius ruber	9.25	1176	0.67	
Parapenaeus longirostris	8.64	372	0.62	
Raja miraletus	8.54	20	0.62	
Raja alba	7.04	10	0.51	
Torpedo torpedo	3.92	10	0.28	
Trigla lyra	3.62	20	0.26	
Parasudis fraser-bruenneri	2.11	60	0.15	
Hypoclydonia bella	1.91	111	0.14	
Sepia officinalis hierredda	1.01	20	0.07	
Dentex congoensis	0.70	60	0.05	
Panulirus sp.	0.60	20	0.04	
Syacium micrurum	0.50	80	0.04	
Paraconger notialis	0.40	70	0.03	
Microchirus boscanion	0.40	151	0.03	
Total	1384.62		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 41
DATE :12.05.2007 GEAR TYPE: BT NO: 18 POSITION:Lat N 9°23.64
start stop duration Lon W 15°42.83
TIME :06:48:24 07:18:11 29.8 (min) Purpose : 3
LOG : 9205.17 9206.65 1.5 Region : 2200
FDEPTH: 81 84 Gear cond.: 0
BDEPTH: 81 84 Validity : 0
Towing dir: 0° Wire out : 250 m Speed : 3.0 kn
Sorted : 0 Total catch: 454.39 Catch/hour: 915.80

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Trachurus trachurus	282.16	5984	30.81	99
Pagellus bellottii	251.19	2104	27.43	101
Dentex congoensis	120.52	820	13.16	98
Lutjanus dentatus	100.47	24	10.97	100
Pagrus pagrus	37.47	131	4.09	103
Scorpaena stephanica	23.84	44	2.60	
Erythrocles monodi	15.12	2568	1.65	
Pseudupeneus prayensis	8.30	60	0.91	97
Raja miraletus	7.52	18	0.82	
Scorpaena scrofa	7.34	18	0.80	
Chromis cadenati	7.15	87	0.78	
Zeus faber	6.37	8	0.70	
Trigla capensis *	5.84	113	0.64	
Priacanthus arenatus	5.32	26	0.58	
Sea urchins (strong spines)	5.32	0	0.58	
Sphoeroides pachgaster	4.90	26	0.53	
Dactylopterus volitans	4.80	18	0.52	
Sepia officinalis hierredda	4.80	18	0.52	
Pagrus pagrus	3.93	4	0.43	102
Anthias anthias	3.67	131	0.40	
Fistularia petimba	2.88	8	0.31	
Ariomma bondi	2.10	26	0.23	
Peristedion cataphractum	2.10	187	0.23	
Sardinella maderensis	1.49	8	0.16	
Chaetodon marcellae	0.87	8	0.09	
Blennius normani	0.34	4	0.04	
Total	915.80		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 42
DATE :12.05.2007 GEAR TYPE: BT NO: 18 POSITION:Lat N 9°29.47
start stop duration Lon W 15°34.39
TIME :09:25:32 09:55:59 30.5 (min) Purpose : 3
LOG : 9219.22 9221.06 1.8 Region : 2200
FDEPTH: 49 49 Gear cond.: 0
BDEPTH: 49 49 Validity : 0
Towing dir: 0° Wire out : 160 m Speed : 3.6 kn
Sorted : 0 Total catch: 12.28 Catch/hour: 24.20

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Zeus faber	4.51	8	18.65	
Torpedo torpedo	3.88	4	16.04	
Balistes capriscus	3.47	2	14.33	
Raja miraletus	2.58	10	10.67	
Priacanthus arenatus	1.95	18	8.06	
Trachinocephalus myops	1.30	6	5.37	
Dactylopterus volitans	0.91	2	3.75	
J E L L Y F I S H	0.91	10	3.75	
Trachurus trachurus	0.81	18	3.34	
Xyrichtys novacula	0.77	12	3.18	
Trigla lyra	0.69	6	2.85	
E C H I N O D E R M A T A	0.61	81	2.52	
Dicologoglossa cuneata	0.35	4	1.47	
Ariomma bondi	0.35	4	1.47	
Bothus myriaster	0.32	12	1.30	
Uranoscopus polli	0.30	2	1.22	
Lagocephalus laevigatus	0.20	2	0.81	
Sepia officinalis hierredda	0.16	2	0.65	
Illex coindetii	0.14	2	0.57	
Total	24.20		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 43
DATE :12.05.2007 GEAR TYPE: BT NO: 18 POSITION:Lat N 9°36.90
start stop duration Lon W 15°25.35
TIME :11:34:45 11:57:27 22.7 (min) Purpose : 3
LOG : 9231.36 9232.67 1.3 Region : 2200
FDEPTH: 37 36 Gear cond.: 0
BDEPTH: 37 36 Validity : 0
Towing dir: 0° Wire out : 140 m Speed : 3.5 kn
Sorted : 0 Total catch: 186.32 Catch/hour: 492.48

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Decapterus rhonchus	310.31	1610	63.01	104
Pagellus bellottii	84.98	584	17.26	105
Pseudupeneus prayensis	33.96	85	6.90	106
Pagrus caeruleostictus	24.05	127	4.88	107
Cymbium cymbium	7.43	3	1.51	
Cymbium glans	7.27	3	1.48	
Trachinocephalus myops	7.08	32	1.44	
Fistularia petimba	5.21	29	1.06	
Aluterus blankerti	4.15	11	0.84	
Caranx crysos	3.81	13	0.77	108
Diodon holocanthus	1.43	5	0.29	
Nicholsina usta	1.22	5	0.25	
Bothus podas africanus	0.53	8	0.11	
Sepia officinalis hierredda	0.45	5	0.09	
Priacanthus arenatus	0.26	3	0.05	
Coris julis	0.19	3	0.04	
Dactylopterus volitans	0.16	3	0.03	
Total	492.48		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 44
DATE :12.05.2007 GEAR TYPE: BT NO: 18 POSITION:Lat N 9°43.22
start stop duration Lon W 15°14.94
TIME :13:24:26 13:54:38 30.2 (min) Purpose : 3
LOG : 9243.82 9245.40 1.6 Region : 2200
FDEPTH: 35 36 Gear cond.: 0
BDEPTH: 35 36 Validity : 0
Towing dir: 0° Wire out : 110 m Speed : 3.1 kn
Sorted : 0 Total catch: 4.16 Catch/hour: 8.27

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Octopus vulgaris	3.38	2	40.87	
Illex coindetii	2.76	12	33.41	
Decapterus rhonchus	0.64	4	7.69	
Diodon holocanthus	0.62	2	7.45	
Trachinocephalus myops	0.38	2	4.57	
Pagellus bellottii	0.24	2	2.88	
Bothus podas africanus	0.14	6	1.68	
Pagrus caeruleostictus	0.12	2	1.44	
Total	8.27		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 45
DATE :12.05.2007 GEAR TYPE: BT NO: 18 POSITION:Lat N 9°55.69
start stop duration Lon W 14°56.49
TIME :16:51:19 17:21:06 29.8 (min) Purpose : 3
LOG : 9267.67 9269.30 1.6 Region : 2200
FDEPTH: 46 46 Gear cond.: 0
BDEPTH: 46 46 Validity : 0
Towing dir: 0° Wire out : 150 m Speed : 3.3 kn
Sorted : 0 Total catch: 30.73 Catch/hour: 61.89

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Decapterus rhonchus	46.93	304	75.82	112
Pagrus caeruleostictus	4.13	50	6.67	111
Sepia officinalis hierredda	3.81	16	6.15	
Pagellus bellottii	2.64	22	4.26	109
Trachinocephalus myops	1.17	10	1.89	
Pseudupeneus prayensis	0.95	50	1.53	110
Aluterus blankerti	0.66	2	1.07	
Bothus podas africanus	0.44	10	0.72	
Citharus linguatula	0.32	2	0.52	
Sphoeroides marmoratus	0.28	2	0.46	
Trachinus armatus	0.24	2	0.39	
Grammoplites gruveli	0.16	8	0.26	
Xyrichtys novacula	0.16	2	0.26	
Total	61.89		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 46
DATE :12.05.2007 GEAR TYPE: BT NO: 18 POSITION:Lat N 10°7.28
start stop duration Lon W 14°49.80
TIME :19:31:32 20:01:13 29.7 (min) Purpose : 3
LOG : 9283.89 9285.58 1.7 Region : 2200
FDEPTH: 29 31 Gear cond.: 0
BDEPTH: 29 31 Validity : 0
Towing dir: 0° Wire out : 90 m Speed : 3.4 kn
Sorted : 0 Total catch: 55.88 Catch/hour: 112.93

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Decapterus rhonchus	36.07	1687	31.94	115
Galeoides decadactylus	18.59	236	16.46	116
Pagrus caeruleostictus	12.33	267	10.92	114
Cymbium sp.	10.10	4	8.95	
Sepia officinalis hierredda	7.68	79	6.80	
Trachinocephalus myops	4.14	61	3.67	
Rhinobatos rhinobatos	3.29	2	2.92	
Sphyraena guachancho	2.85	6	2.52	
Rachycentron canadum	2.55	2	2.25	
Penaeus kerathurus	1.96	57	1.74	
Psettodes belcheri	1.92	4	1.70	
Syacium micrurum	1.90	38	1.68	
Torpedo torpedo	1.66	4	1.47	
Bothus podas africanus	1.43	30	1.27	
Lethrinus atlanticus	1.41	16	1.25	113
Calappa rubroguttata	1.11	4	0.98	
Brachydeuterus auritus	1.01	49	0.89	
Priacanthus arenatus	0.89	6	0.79	
Pseudupeneus prayensis	0.75	16	0.66	
Cynoglossus senegalensis	0.36	2	0.32	
Mugil bananensis	0.32	2	0.29	
Grammoplites gruveli	0.28	16	0.25	
Callinectes amnicola	0.24	2	0.21	
Dicologoglossa hexophthalma	0.04	2	0.04	
Trachinus armatus	0.02	2	0.02	
Total	112.93		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 47
DATE :13.05.2007 GEAR TYPE: PT NO: 2 POSITION:Lat N 9°32.72
start stop duration Lon W 15°11.61
TIME :01:04:12 01:34:20 30.1 (min) Purpose : 1
LOG : 9330.72 9332.04 1.3 Region : 2200
FDEPTH: 10 10 Gear cond.: 0
BDEPTH: 39 39 Validity : 0
Towing dir: 0° Wire out : 130 m Speed : 2.6 kn
Sorted : 2 Total catch: 1.77 Catch/hour: 3.52

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Scomber japonicus	0.88	42	24.86	
Euthynnus alletteratus	0.84	2	23.73	
Decapterus rhonchus	0.78	364	22.03	117
Sepia officinalis hierredda	0.34	2	9.60	
Fistularia tabacaria	0.26	4	7.34	
Sardinella aurita	0.24	2	6.78	
Caranx hippos	0.16	2	4.52	
Selene dorsalis	0.04	24	1.13	
Total	3.52		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 48
DATE :13.05.2007 GEAR TYPE: BT NO: 18 POSITION:Lat N 9°12.06
start stop duration Lon W 15°24.02
TIME :07:44:40 08:10:56 26.3 (min) Purpose : 1
LOG : 9389.95 9391.39 1.4 Region : 2200
FDEPTH: 116 127 Gear cond.: 0
BDEPTH: 116 127 Validity : 0
Towing dir: 0° Wire out : 350 m Speed : 3.3 kn
Sorted : 0 Total catch: 90.21 Catch/hour: 206.04

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Ariomma bondi	68.06	1274	33.03	121
Dentex congoensis	22.38	217	10.86	122
Dentex angolensis	20.67	96	10.03	125
Scorpaena stephanica	18.61	59	9.03	
Sphoeroides pachgaster	16.44	30	7.98	
Antigonia capros	14.16	507	6.87	
Oxynotus centrina	8.84	2	4.29	
Anthias anthias	5.25	98	2.55	
Priacanthus arenatus	4.50	27	2.18	120
Spicara alta	3.72	30	1.81	118
Rachycentron canadum	3.72	2	1.81	124
Boops boops	3.65	32	1.77	119
Epinephelus aeneus	2.60	2	1.26	123
Octopus vulgaris	2.51	2	1.22	
Erythrocles monodi	2.49	11	1.21	
Illex coindetii	2.01	16	0.98	
Trachurus trachurus	1.67	7	0.81	
Zeus faber	1.26	5	0.61	
Aulopus cadenati	0.98	9	0.48	
Raja miraletus	0.73	2	0.35	
Calappa rubroguttata	0.71	2	0.34	
Pontinus kuhlii	0.59	11	0.29	
Trigla lyra	0.46	2	0.22	
Total	206.04		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 49
DATE :13.05.2007 GEAR TYPE: BT NO: 18 POSITION:Lat N 9°14.35
start stop duration Lon W 15°18.83
TIME :09:21:17 09:51:05 29.8 (min) Purpose : 3
LOG : 9398.89 9400.75 1.9 Region : 2200
FDEPTH: 80 90 Gear cond.: 0
BDEPTH: 80 90 Validity : 0
Towing dir: 0° Wire out : 250 m Speed : 3.8 kn
Sorted : 0 Total catch: 1454.09 Catch/hour: 2927.70

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Trachurus trachurus	2579.09	35946	88.09	126
Boops boops	182.72	2015	6.24	129
Dentex congoensis	46.51	443	1.59	127
Torpedo torpedo	43.63	133	1.49	
Pagellus bellottii	36.10	354	1.23	128
Priacanthus arenatus	29.01	576	0.99	
Scomber japonicus	3.77	22	0.13	
Trigla lyra	3.32	66	0.11	
Pseudupeneus prayensis	1.99	22	0.07	
Chaetodon marcellae	0.89	44	0.03	
Sepia officinalis hierredda	0.66	22	0.02	
Total	2927.70		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 50
DATE :13.05.2007 GEAR TYPE: BT NO: 18 POSITION:Lat N 9°22.94
start stop duration Lon W 15°9.39
TIME :11:53:46 12:21:45 28.0 (min) Purpose : 3
LOG : 9417.32 9418.84 1.5 Region : 2200
FDEPTH: 48 49 Gear cond.: 0
BDEPTH: 48 49 Validity : 0
Towing dir: 0° Wire out : 150 m Speed : 3.3 kn
Sorted : 0 Total catch: 5.86 Catch/hour: 12.56

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Balistes capriscus	4.22	4	33.62	
Bothus podas africanus	1.80	47	14.33	
Trachinocephalus myops	1.46	17	11.60	
Torpedo torpedo	1.33	2	10.58	
Aluterus blankerti	1.16	2	9.22	
Diodon holocanthus	1.14	2	9.04	
Calappa sp.	0.79	4	6.31	
Chelidonichthys gabonensis	0.26	2	2.05	
Pseudupeneus prayensis	0.21	2	1.71	
Uranoscopus cadenati	0.15	2	1.19	
Xyrichtys novacula	0.04	2	0.34	
Total	12.56		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 51
DATE :13.05.2007 GEAR TYPE: BT NO: 18 POSITION:Lat N 9°31.00
start stop duration Lon W 15°0.06
TIME :14:14:50 14:44:54 30.1 (min) Purpose : 3
LOG : 9434.56 9435.82 1.3 Region : 2200
FDEPTH: 38 39 Gear cond.: 0
BDEPTH: 38 39 Validity : 0
Towing dir: 0° Wire out : 130 m Speed : 2.5 kn
Sorted : 0 Total catch: 24.19 Catch/hour: 48.27

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Decapterus rhonchus	11.77	52	24.39	131
Caranx senegallus	10.68	12	22.12	130
Sepia officinalis hierredda	9.54	36	19.76	
Octopus vulgaris	4.27	4	8.85	
Bothus podas africanus	2.00	40	4.13	
Balistes capriscus	1.94	2	4.01	
Echeneis naucrates	1.50	2	3.10	
Rhinobatos rhinobatos	1.38	2	2.85	
Trachinocephalus myops	1.06	4	2.19	
Uranoscopus cadenati	1.06	6	2.19	
Aluterus blankerti	0.72	2	1.49	
Diodon holocanthus	0.58	2	1.20	
Priacanthus arenatus	0.50	2	1.03	
Raja miraletus	0.40	2	0.83	
Scyllarides herklotsii	0.36	2	0.74	
Trachinus armatus	0.30	4	0.62	
Xyrichtys novacula	0.20	2	0.41	
Calappa sp.	0.04	4	0.08	
Total	48.27		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 52
DATE :13.05.2007 GEAR TYPE: BT NO: 18 POSITION:Lat N 9°52.74
start stop duration Lon W 14°36.20
TIME :18:25:52 18:48:52 23.0 (min) Purpose : 3
LOG : 9471.09 9472.35 1.3 Region : 2200
FDEPTH: 27 26 Gear cond.: 0
BDEPTH: 27 26 Validity : 0
Towing dir: 0° Wire out : 100 m Speed : 3.3 kn
Sorted : 0 Total catch: 849.74 Catch/hour: 2216.71

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Chloroscombrus chrysurus	1687.30	81913	76.12	136
Decapterus rhonchus	151.57	1552	6.84	137
Brachydeuterus auritus	88.93	5442	4.01	
Pagrus caeruleostictus	87.83	1534	3.96	135
Dasyatis centroura	54.97	18	2.48	
Pseudupeneus prayensis	53.14	950	2.40	132
Caranx crysos	27.39	73	1.24	
Pagellus bellottii	26.66	258	1.20	134
Sardinella maderensis	15.55	530	0.70	133
Eucinostomus melanopterus	13.51	183	0.61	
Sepia officinalis hierredda	6.94	164	0.31	
Trachinocephalus myops	1.46	18	0.07	
Bothus podas africanus	1.10	18	0.05	
Syacium micrurum	0.37	18	0.02	
Total	2216.71		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 53
DATE :13.05.2007 GEAR TYPE: PT NO: 7 POSITION:Lat N 9°45.49
start stop duration Lon W 14°40.21
TIME :20:18:40 20:22:50 4.2 (min) Purpose : 1
LOG : 9481.08 9481.25 0.2 Region : 2200
FDEPTH: 0 0 Gear cond.: 0
BDEPTH: 29 28 Validity : 0
Towing dir: 0° Wire out : 125 m Speed : 2.6 kn
Sorted : 0 Total catch: 259.08 Catch/hour: 3727.77

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Sardinella maderensis	2051.80	56403	55.04	138
Chloroscombrus chrysurus	1634.53	58993	43.85	140
Decapterus rhonchus	35.68	978	0.96	139
Brachydeuterus auritus	3.45	288	0.09	
Sepia officinalis hierredda	1.73	58	0.05	
Pseudupeneus prayensis	0.58	115	0.02	
Total	3727.77		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 54
DATE :14.05.2007 GEAR TYPE: BT NO: 18 POSITION:Lat N 9°6.31
start stop duration Lon W 14°58.34
TIME :06:48:25 07:18:20 29.9 (min) Purpose : 3
LOG : 9574.58 9576.04 1.5 Region : 2200
FDEPTH: 80 78 Gear cond.: 0
BDEPTH: 80 78 Validity : 0
Towing dir: 0° Wire out : 220 m Speed : 2.9 kn
Sorted : 24 Total catch: 84.10 Catch/hour: 168.65

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Antigonia capros	86.69	3209	51.40	
Ariomma bondi	33.55	1131	19.89	141
Sphoeroides pachgaster	29.14	443	17.28	
Trigla lyra	6.25	64	3.70	
Diodon holocanthus	3.51	14	2.08	
Sepia officinalis hierredda	3.03	22	1.80	
Pseudupeneus prayensis	2.46	36	1.46	
Trachinus armatus	0.84	14	0.50	
Priacanthus arenatus	0.70	14	0.42	
Trachinocephalus myops	0.70	8	0.42	
Arnoglossus imperialis	0.64	36	0.38	
Bothus podas africanus	0.42	28	0.25	
Syacium micrurum	0.36	28	0.21	
Grammoplites gruveli	0.36	14	0.21	
Total	168.65		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 55
DATE :14.05.2007 GEAR TYPE: BT NO: 0 POSITION:Lat N 9°14.36
start stop duration Lon W 14°47.78
TIME :09:46:49 09:56:57 10.1 (min) Purpose : 3
LOG : 9592.60 9593.32 0.7 Region : 2200
FDEPTH: 45 46 Gear cond.: 9
BDEPTH: 45 46 Validity : 4
Towing dir: 0° Wire out : 150 m Speed : 4.3 kn
Sorted : 0 Total catch: 3.30 Catch/hour: 19.53

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Balistes capriscus	12.78	12	65.45	
Raja miraletus	1.78	12	9.09	
Diodon holocanthus	1.78	6	9.09	
Bothus podas africanus	1.24	36	6.36	
Xyrichtys novacula	0.59	18	3.03	
Sepia officinalis hierredda	0.41	6	2.12	
Sphoeroides spengleri	0.36	12	1.82	
Trachinus armatus	0.36	6	1.82	
Trachinocephalus myops	0.24	6	1.21	
Total	19.53		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 56
DATE :14.05.2007 GEAR TYPE: BT NO: 18 POSITION:Lat N 9°18.00
start stop duration Lon W 14°44.36
TIME :10:52:05 11:21:13 29.1 (min) Purpose : 3
LOG : 9599.99 9601.44 1.5 Region : 2200
FDEPTH: 43 40 Gear cond.: 0
BDEPTH: 43 40 Validity : 0
Towing dir: 0° Wire out : 130 m Speed : 3.0 kn
Sorted : 0 Total catch: 310.45 Catch/hour: 639.22

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Pagrus caeruleostictus	181.91	760	28.46	144
Pagellus bellottii	138.88	966	21.73	145
Decapterus rhonchus	75.36	344	11.79	147
Pseudupeneus prayensis	66.20	500638	10.36	143
Lethrinus atlanticus	42.11	51	6.59	142
Acanthurus monroviae	20.59	41	3.22	150
Aluterus blankerti	15.55	39	2.43	
Sparisoma rubripinne	10.50	4	1.64	
bodianus speciosus	9.99	4	1.56	
Balistes punctatus	9.45	8	1.48	148
Lutjanus goreensis	9.16	23	1.43	146
Trachinus armatus	9.12	33	1.43	0
Octopus vulgaris	8.05	8	1.26	
Dentex canariensis	5.25	10	0.82	149
Rhinobatos rhinobatos	4.76	6	0.74	
Torpedo torpedo	3.85	2	0.60	
Sepia officinalis hierredda	3.85	19	0.60	
Carcharhinus limbatus	3.19	2	0.50	
Priacanthus arenatus	2.94	14	0.46	
Fistularia petimba	2.78	16	0.43	
Raja miraletus	2.45	10	0.38	
Diodon holocanthus	2.24	4	0.35	
Balistes capriscus	2.14	2	0.33	
Xyrichtys novacula	1.69	16	0.26	
Chromis cadenati	1.32	27	0.21	
Nicholsina usta	1.01	2	0.16	
Chelidonichthys gabonensis	0.99	2	0.15	
Trachinus armatus	0.95	2	0.15	
Citharus linguatula	0.84	2	0.13	
Bothus podas africanus	0.72	4	0.11	
Coris julis	0.70	2	0.11	
Dicologoglossa hexophthalma	0.68	2	0.11	
Total	639.22		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 57
DATE :14.05.2007 GEAR TYPE: PT NO: 1 POSITION:Lat N 9°27.66
start stop duration Lon W 14°32.35
TIME :13:27:57 13:59:46 31.8 (min) Purpose : 1
LOG : 9617.33 9618.72 1.4 Region : 2200
FDEPTH: 15 15 Gear cond.: 0
BDEPTH: 34 36 Validity : 0
Towing dir: 0° Wire out : 240 m Speed : 2.6 kn
Sorted : 0 Total catch: 1.94 Catch/hour: 3.66

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Decapterus rhonchus	1.98	8	54.12	151
Raja miraletus	0.96	2	26.29	
Pseudupeneus prayensis	0.72	2	19.59	
Total	3.66		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 58
DATE :14.05.2007 GEAR TYPE: BT NO: 18 POSITION:Lat N 9°26.70
start stop duration Lon W 14°33.07
TIME :14:29:44 14:37:39 7.9 (min) Purpose : 1
LOG : 9620.37 9620.87 0.5 Region : 2200
FDEPTH: 37 36 Gear cond.: 0
BDEPTH: 37 36 Validity : 0
Towing dir: 0° Wire out : 120 m Speed : 3.8 kn
Sorted : 0 Total catch: 5328.18 Catch/hour: 40365.00

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Chloroscombrus chrysurus	26223.48	775132	64.97	
Brachydeuterus auritus	8433.33	193899	20.89	
Galeoides decadactylus	5122.73	54364	12.69	152
Decapterus rhonchus	243.94	2788	0.60	153
Pagellus bellottii	104.55	1045	0.26	
Pagrus caeruleostictus	69.70	697	0.17	
Sphyraena guachancho	55.76	348	0.14	
Sardinella aurita	38.33	348	0.09	
Sardinella maderensis	34.85	348	0.09	
Selene dorsalis	24.39	348	0.06	
Xyrichtys novacula	13.94	348	0.03	
Total	40365.00		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 59
DATE :14.05.2007 GEAR TYPE: BT NO: 18 POSITION:Lat N 9°30.96
start stop duration Lon W 14°28.14
TIME :16:00:36 16:31:30 30.9 (min) Purpose : 3
LOG : 9629.23 9630.70 1.5 Region : 2200
FDEPTH: 33 35 Gear cond.: 0
BDEPTH: 33 35 Validity : 0
Towing dir: 0° Wire out : 120 m Speed : 2.9 kn
Sorted : 0 Total catch: 75.45 Catch/hour: 146.55

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Pseudupeneus prayensis	56.81	728	38.77	156
Pagrus caeruleostictus	36.91	394	25.18	154
Decapterus rhonchus	27.95	202	19.07	158
Pagellus bellottii	18.94	204	12.92	155
Chloroscombrus chrysurus	3.30	43	2.25	
Xyrichtys novacula	0.72	14	0.49	
Lagocephalus laevigatus	0.49	2	0.33	
Caranx crysos	0.43	2	0.29	
Sepia officinalis hierredda	0.37	4	0.25	
Bothus podas africanus	0.35	10	0.24	
Brachydeuterus auritus	0.17	4	0.12	157
Aluterus blankerti	0.06	2	0.04	
Total	146.49		99.96	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 60
DATE :14.05.2007 GEAR TYPE: BT NO: 18 POSITION:Lat N 9°35.20
start stop duration Lon W 14°22.47
TIME :18:18:13 18:39:33 21.3 (min) Purpose : 3
LOG : 9641.06 9642.17 1.1 Region : 2200
FDEPTH: 29 28 Gear cond.: 0
BDEPTH: 29 28 Validity : 0
Towing dir: 0° Wire out : 90 m Speed : 3.1 kn
Sorted : 0 Total catch: 731.64 Catch/hour: 2059.02

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Galeoides decadactylus	645.93	7531	31.37	162
Brachydeuterus auritus	623.47	14296	30.28	
Decapterus rhonchus	205.33	2862	9.97	161
Decapterus punctatus	167.90	4390	8.15	163
PECTINIDAE	156.14	0	7.58	
Pagrus caeruleostictus	91.74	1027	4.46	165
Chloroscombrus chrysurus	59.47	1753	2.89	
Pseudupeneus prayensis	37.43	428	1.82	164
Pagellus bellottii	29.49	321	1.43	160
Aluterus heudelotii	20.97	42	1.02	
Zanobatus shoenleinii	8.78	23	0.43	
Psettodes belcheri	7.49	23	0.36	
Sardinella maderensis	4.05	149	0.20	
Bothus podas africanus	0.84	23	0.04	
Total	2059.02		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 61
DATE :14.05.2007 GEAR TYPE: PT NO: 7 POSITION:Lat N 9°33.22
start stop duration Lon W 14°20.91
TIME :22:38:46 22:42:01 3.3 (min) Purpose : 1
LOG : 9670.92 9671.13 0.2 Region : 2200
FDEPTH: 0 0 Gear cond.: 0
BDEPTH: 35 33 Validity : 0
Towing dir: 0° Wire out : 115 m Speed : 3.8 kn
Sorted : 0 Total catch: 95.61 Catch/hour: 1765.11

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Sardinella aurita	1556.31	17945	88.17	167
Sardinella maderensis	138.46	1274	7.84	166
Chloroscombrus chrysurus	39.88	997	2.26	
Decapterus punctatus	15.51	388	0.88	
Decapterus rhonchus	8.86	111	0.50	
Brachydeuterus auritus	6.09	111	0.35	
Total	1765.11		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 62
DATE :15.05.2007 GEAR TYPE: BT NO: 18 POSITION:Lat N 8°58.24
start stop duration Lon W 14°37.60
TIME :07:16:16 07:46:02 29.8 (min) Purpose : 3
LOG : 9750.24 9751.82 1.6 Region : 2200
FDEPTH: 86 93 Gear cond.: 8
BDEPTH: 86 93 Validity : 4
Towing dir: 0° Wire out : 220 m Speed : 3.2 kn
Sorted : 0 Total catch: 40.11 Catch/hour: 80.84

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Pagellus bellottii	64.09	427	79.28	170
Pagrus caeruleostictus	5.89	18	7.28	168
Sphoeroides pachgaster	3.87	10	4.79	
Dentex canariensis	3.24	2	4.01	169
Scorpaena stephanica	3.12	6	3.86	
Trigla lyra	0.38	4	0.47	
Illex coindetii	0.18	2	0.22	
Anthias anthias	0.04	2	0.05	
Sepia officinalis hierredda	0.02	2	0.02	
Total	80.84		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 63
DATE :15.05.2007 GEAR TYPE: BT NO: 20 POSITION:Lat N 9°3.40
start stop duration Lon W 14°27.23
TIME :10:23:03 10:51:03 28.0 (min) Purpose : 3
LOG : 9765.99 9767.79 1.8 Region : 2200
FDEPTH: 46 46 Gear cond.: 0
BDEPTH: 46 46 Validity : 0
Towing dir: 0° Wire out : 150 m Speed : 3.9 kn
Sorted : 0 Total catch: 8.32 Catch/hour: 17.83

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Dactylopterus volitans	3.30	4	18.51	
Sepia officinalis hierredda	2.61	11	14.66	
Pseudupeneus prayensis	1.91	19	10.70	171
Zeus faber	1.44	2	8.05	
Bothus podas africanus	1.41	32	7.93	
Trachinus armatus	1.18	15	6.61	
Trigla lyra	1.18	118	6.61	
Balistes capriscus	1.14	2	6.37	
Stephanolepis hispidus	1.07	4	6.01	
Raja miraletus	1.01	4	5.65	
Trachinocephalus myops	0.60	6	3.37	
Grammoplites gruveli	0.30	9	1.68	
Xyrichtys novacula	0.17	4	0.96	
Dicologoglossa hexophthalma	0.17	2	0.96	
Priacanthus arenatus	0.15	2	0.84	
Sphoeroides spengleri	0.13	17	0.72	
Syacium micrurum	0.06	2	0.36	
Total	17.83		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 64
DATE :15.05.2007 GEAR TYPE: PT NO: 2 POSITION:Lat N 9°17.08
start stop duration Lon W 14°13.56
TIME :14:17:03 14:34:28 17.4 (min) Purpose : 1
LOG : 9796.07 9797.28 1.2 Region : 2200
FDEPTH: 20 25 Gear cond.: 0
BDEPTH: 34 44 Validity : 0
Towing dir: 0° Wire out : 80 m Speed : 4.2 kn
Sorted : 0 Total catch: 0.18 Catch/hour: 0.62

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Pagrus caeruleostictus	0.62	7	0.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 65
DATE :15.05.2007 GEAR TYPE: BT NO: 20 POSITION:Lat N 9°21.14
start stop duration Lon W 14°9.89
TIME :15:33:25 15:40:48 7.4 (min) Purpose : 3
LOG : 9803.52 9803.90 0.4 Region : 2200
FDEPTH: 35 35 Gear cond.: 0
BDEPTH: 35 35 Validity : 0
Towing dir: 0° Wire out : 120 m Speed : 3.1 kn
Sorted : 0 Total catch: 693.93 Catch/hour: 5634.07

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Chloroscombrus chrysurus	4883.63	163981	86.68	172
Brachydeuterus auritus	567.52	11675	10.07	173
Pseudupeneus prayensis	48.23	877	0.86	175
Pagellus bellottii	47.25	828	0.84	174
Psettodes belcheri	36.05	8	0.64	
Pagrus caeruleostictus	24.36	390	0.43	176
Decapterus rhonchus	15.59	146	0.28	178
Bothus podas africanus	4.87	8	0.09	
Sardinella maderensis	4.87	195	0.09	177
Raja miraletus	1.71	8	0.03	
Total	5634.07		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 66
DATE :15.05.2007 GEAR TYPE: BT NO: 20 POSITION:Lat N 9°36.89
start stop duration Lon W 13°56.83
TIME :18:51:23 19:11:14 19.9 (min) Purpose : 3
LOG : 9831.39 9832.42 1.0 Region : 2200
FDEPTH: 24 26 Gear cond.: 0
BDEPTH: 24 26 Validity : 0
Towing dir: 0° Wire out : 90 m Speed : 3.1 kn
Sorted : 0 Total catch: 50.10 Catch/hour: 151.44

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Pagrus caeruleostictus	39.29	402	25.95	181
Brachydeuterus auritus	33.70	10050	22.26	
Galeoides decadactylus	16.32	66	10.78	183
Sphyraena guachancho	10.25	118	6.77	182
Sardinella aurita	6.56	1460	4.33	180
Sardinella maderensis	6.56	617	4.33	179
Ilisha africana	6.41	435	4.23	
Psettodes belcheri	4.87	15	3.21	
Bothus podas africanus	3.48	45	2.30	
Alectis alexandrinus	3.45	9	2.28	
Epinephelus aeneus	3.32	6	2.20	
Selene dorsalis	2.90	27	1.92	
Pomadasys jubelini	2.45	6	1.62	
Ephippion guttifer	2.12	6	1.40	
Arius parkii	2.03	3	1.34	
Penaeus notialis	1.60	154	1.06	184
Chloroscombrus chrysurus	1.42	48	0.94	
Trichiurus lepturus	1.33	79	0.88	
Syacium micrurum	1.21	30	0.80	
Chaetodipterus goreensis	0.76	3	0.50	
Callinectes amnicola	0.54	9	0.36	
Decapterus rhonchus	0.30	3	0.20	
Grammoplites gruveli	0.27	15	0.18	
Eucinostomus melanopterus	0.18	3	0.12	
Sepia officinalis hierredda	0.12	6	0.08	
Total	151.44		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 67
DATE :16.05.2007 GEAR TYPE: BT NO: 20 POSITION:Lat N 8°32.43
start stop duration Lon W 14°23.21
TIME :06:48:44 07:18:26 29.7 (min) Purpose : 3
LOG : 9929.43 9930.99 1.6 Region : 2300
FDEPTH: 79 75 Gear cond.: 0
BDEPTH: 79 75 Validity : 0
Towing dir: 0° Wire out : 240 m Speed : 3.1 kn
Sorted : 0 Total catch: 297.79 Catch/hour: 601.60

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Pagellus bellottii	106.06	976	17.63	191
Ariomma bondi	104.24	1947	17.33	189
Trachurus trachurus	104.24	2164	17.33	190
Boops boops	80.00	1642	13.30	188
Pagrus caeruleostictus	75.15	291	12.49	192
Pseudupeneus prayensis	37.58	594	6.25	193
Squatina oculata	29.39	4	4.89	
Priacanthus arenatus	12.42	303	2.07	187
Epinephelus alexandrinus *	10.00	2	1.66	195
Chelidonichthys gabonensis	9.64	32	1.60	
Sphoeroides pachgaster	7.03	127	1.17	
Dentex canariensis	4.55	12	0.76	185
Chromis cadenati	4.18	55	0.70	
Scomber japonicus	3.82	61	0.63	186
Arius parkii	2.73	6	0.45	
Epinephelus aeneus	2.67	4	0.44	194
Brotula barbata	1.76	6	0.29	
Arnoglossus imperialis	1.45	115	0.24	
Erythrocles monodi	1.31	113	0.22	
Sepia officinalis hierredda	1.21	6	0.20	
Anthias anthias	0.83	71	0.14	
Trachinocephalus myops	0.48	6	0.08	
Decapterus rhonchus	0.24	6	0.04	
Chaetodon marcellae	0.24	6	0.04	
Antigonia rubescens	0.18	24	0.03	
Syacium micrurum	0.12	6	0.02	
Dicologoglossa cuneata	0.06	6	0.01	
Total	601.60		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 68
DATE :16.05.2007 GEAR TYPE: BT NO: 20 POSITION:Lat N 8°36.45
start stop duration Lon W 14°18.35
TIME :09:01:34 09:31:49 30.3 (min) Purpose : 3
LOG : 9938.94 9940.83 1.9 Region : 2300
FDEPTH: 42 47 Gear cond.: 0
BDEPTH: 42 47 Validity : 0
Towing dir: 0° Wire out : 140 m Speed : 3.7 kn
Sorted : 25 Total catch: 25.06 Catch/hour: 49.69

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Dactylopterus volitans	23.60	42	47.49	
Mustelus mustelus	11.00	44	22.15	
Aluterus heudelotii	7.44	24	14.96	
Lagocephalus laevigatus	1.51	12	3.03	
Raja miraletus	1.23	6	2.47	
Selene dorsalis	1.23	12	2.47	196
Trachinocephalus myops	1.15	6	2.31	
Diodon holocanthus	0.75	4	1.52	
J E L L Y F I S H	0.40	2	0.80	
Pseudupeneus prayensis	0.32	2	0.64	
Syacium micrurum	0.26	2	0.52	
Sea urchins (strong spines)	0.26	12	0.52	
Xyrichtys novacula	0.22	4	0.44	
Sepia officinalis hierredda	0.20	2	0.40	
Bothus podas africanus	0.14	2	0.28	
Total	49.69		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 69
DATE :16.05.2007 GEAR TYPE: BT NO: 20 POSITION:Lat N 8°49.20
start stop duration Lon W 14°8.05
TIME :11:54:06 12:24:26 30.3 (min) Purpose : 3
LOG : 9961.50 9963.33 1.8 Region : 2300
FDEPTH: 36 40 Gear cond.: 0
BDEPTH: 36 40 Validity : 0
Towing dir: 0° Wire out : 135 m Speed : 3.6 kn
Sorted : 0 Total catch: 314.27 Catch/hour: 621.91

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Pagrus caeruleostictus	174.54	813	28.07	197
Pagellus bellottii	161.77	1071	26.01	200
Pseudupeneus prayensis	98.05	675	15.77	198
Dactylopterus volitans	75.69	121	12.17	
Aluterus heudelotii	32.45	53	5.22	
Decapterus rhonchus	25.82	164	4.15	199
Lethrinus atlanticus	7.88	8	1.27	202
Bodianus speciosus	6.63	8	1.07	
Balistes punctatus	6.25	4	1.01	201
Fistularia petimba	5.58	42	0.90	
Alectis alexandrinus	5.03	4	0.81	
Rhinobatos rhinobatos	2.77	4	0.45	
Acanthurus monroviae	2.51	2	0.40	
Trachurus trecae	1.94	12	0.31	206
Sphyraena guachancho	1.92	14	0.31	203
Trachinocephalus myops	1.66	10	0.27	
Sepia officinalis hierredda	1.46	4	0.24	
Coris julis	1.44	14	0.23	
Diodon holocanthus	1.39	4	0.22	
Priacanthus arenatus	1.21	8	0.19	
Scomber japonicus	1.11	4	0.18	204
Epinephelus goreensis	0.91	2	0.15	207
Sphoeroides pachgaster	0.85	2	0.14	
Fistularia tabacaria	0.65	2	0.11	
Epinephelus haifensis	0.46	2	0.07	
Citharus linguatula	0.46	4	0.07	
Xyrichtys novacula	0.44	6	0.07	
Raja miraletus	0.42	2	0.07	
Decapterus punctatus	0.32	32	0.05	205
Chloroscombrus chrysurus	0.18	2	0.03	
Bothus podas africanus	0.08	2	0.01	
Chaetodon hoefleri	0.04	2	0.01	
Total	621.91		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 70
DATE :16.05.2007 GEAR TYPE: BT NO: 20 POSITION:Lat N 9°1.59
start stop duration Lon W 13°58.51
TIME :15:00:26 15:30:35 30.2 (min) Purpose : 3
LOG : 9981.83 9983.78 2.0 Region : 2200
FDEPTH: 28 26 Gear cond.: 0
BDEPTH: 28 26 Validity : 0
Towing dir: 0° Wire out : 105 m Speed : 3.9 kn
Sorted : 0 Total catch: 69.88 Catch/hour: 139.06

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Cymbium cymbium	26.27	8	18.89	
Pagrus caeruleostictus	23.58	137	16.96	208
Alectis alexandrinus	21.59	8	15.53	209
Sphyraena afra	19.20	2	13.81	214
Sepia officinalis hierredda	9.89	12	7.11	
Lethrinus atlanticus	7.36	14	5.29	207
Aluterus blankerti	6.01	14	4.32	
Lutjanus fulgens	4.82	20	3.46	215
Aluterus heudelotii	4.78	14	3.43	
Pagellus bellottii	2.87	22	2.06	210
Diodon holocanthus	2.05	2	1.47	
Pomadasys rogeri	1.95	2	1.40	216
Decapterus rhonchus	1.57	10	1.13	212
Dactylopterus volitans	1.37	2	0.99	
Pseudupeneus prayensis	1.35	10	0.97	211
Fistularia tabacaria	1.19	10	0.86	
Rhinobatos rhinobatos	1.01	2	0.73	
Raja miraletus	0.84	2	0.60	
Decapterus punctatus	0.54	213	0.39	213
Bodianus speciosus	0.50	2	0.36	
Calappa sp.	0.24	2	0.17	
Sphoeroides marmoratus	0.08	2	0.06	
Total	139.06		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 71
DATE :16.05.2007 GEAR TYPE: PT NO: 7 POSITION:Lat N 9°8.94
start stop duration Lon W 13°50.31
TIME :19:17:11 19:38:58 21.8 (min) Purpose : 1
LOG : 7.39 8.62 1.2 Region : 2200
FDEPTH: 29 30 Gear cond.: 0
BDEPTH: 29 30 Validity : 0
Towing dir: 0° Wire out : 120 m Speed : 3.4 kn
Sorted : 0 Total catch: 5.89 Catch/hour: 16.22

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Sardinella maderensis	13.91	182	85.74	217
Brachydeuterus auritus	1.82	33	11.21	
Sardinella aurita	0.50	8	3.06	
Total	16.22		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 72
DATE :17.05.2007 GEAR TYPE: PT NO: 1 POSITION:Lat N 8°16.06
start stop duration Lon W 14°5.60
TIME :01:08:15 01:38:30 30.3 (min) Purpose : 1
LOG : 63.78 65.59 1.8 Region : 2300
FDEPTH: 15 15 Gear cond.: 0
BDEPTH: 28 28 Validity : 0
Towing dir: 0° Wire out : 180 m Speed : 3.6 kn
Sorted : 127 Total catch: 1402.39 Catch/hour: 2781.60

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Chloroscombrus chrysurus	2602.25	55146	93.55	219
Sardinella maderensis	85.53	851	3.07	220
Sardinella aurita	64.80	698	2.33	222
Sphyraena guachancho	19.42	87	0.70	221
Selar crumenophthalmus	8.29	65	0.30	218
Decapterus rhonchus	1.31	22	0.05	223
Total	2781.60		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 73
DATE :17.05.2007 GEAR TYPE: PT NO: 2 POSITION:Lat N 8°0.00
start stop duration Lon W 14°9.67
TIME :04:42:37 05:00:51 18.2 (min) Purpose : 1
LOG : 91.51 92.63 1.1 Region : 2300
FDEPTH: 20 25 Gear cond.: 0
BDEPTH: 49 62 Validity : 0
Towing dir: 0° Wire out : 80 m Speed : 3.7 kn
Sorted : 134 Total catch: 1139.18 Catch/hour: 3747.30

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Chloroscombrus chrysurus	2983.39	62760	79.61	224
Sardinella aurita	320.16	3273	8.54	226
Sardinella maderensis	308.98	3161	8.25	225
Brachydeuterus auritus	105.13	1566	2.81	227
Selene dorsalis	15.10	280	0.40	229
Decapterus punctatus	14.54	30	0.39	228
Total	3747.30		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 74
DATE :17.05.2007 GEAR TYPE: BT NO: 20 POSITION:Lat N 7°52.44
start stop duration Lon W 14°8.54
TIME :06:49:19 07:19:11 29.9 (min) Purpose : 3
LOG : 107.04 108.60 1.6 Region : 2300
FDEPTH: 84 82 Gear cond.: 0
BDEPTH: 84 82 Validity : 0
Towing dir: 0° Wire out : 250 m Speed : 3.1 kn
Sorted : 57 Total catch: 92.00 Catch/hour: 184.79

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Ariomma bondi	54.84	1259	29.68	232
Dentex angolensis	42.38	360	22.94	237
Dentex congoensis	15.53	227	8.40	233
Epinephelus aeneus	12.76	4	6.90	231
Pagrus caeruleostictus	11.85	36	6.41	235
Squatina oculata	9.92	10	5.37	
Scorpaena stephanica	9.26	48	5.01	
Illex coindetii	4.56	311	2.47	
Pagellus bellottii	4.31	42	2.33	230
Pseudupeneus prayensis	4.26	44	2.30	236
Sepia officinalis hierredda	3.29	12	1.78	
Decapterus rhonchus	2.53	12	1.37	
Dentex canariensis	2.35	4	1.27	234
Raja miraletus	2.17	6	1.17	
Decapterus punctatus	1.39	24	0.75	
Priacanthus arenatus	1.27	18	0.68	
Fistularia petimba	1.19	6	0.64	
Trigla lyra	0.36	18	0.20	
Chaetodon marcellae	0.34	4	0.18	
Arnoglossus imperialis	0.24	48	0.13	
Total	184.79		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 75
DATE :18.05.2007 GEAR TYPE: BT NO: 16 POSITION:Lat N 7°58.64
start stop duration Lon W 14°7.24
TIME :12:22:37 12:52:47 30.2 (min) Purpose : 3
LOG : 131.88 133.31 1.4 Region : 2300
FDEPTH: 43 43 Gear cond.: 0
BDEPTH: 43 43 Validity : 0
Towing dir: 0° Wire out : 130 m Speed : 2.8 kn
Sorted : 0 Total catch: 543.96 Catch/hour: 1082.51

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Dactylopterus volitans	1038.51	3134	95.94	
Decapterus rhonchus	10.21	74	0.94	240
Balistes punctatus	9.85	8	0.91	239
Caranx crysos	6.51	14	0.60	243
Mustelus mustelus	4.08	2	0.38	
Brachydeuterus auritus	3.60	42	0.33	242
Pagellus bellottii	3.48	26	0.32	238
Aluterus monoceros	3.00	2	0.28	
Chloroscombrus chrysurus	1.63	16	0.15	241
Albula vulpes	1.41	2	0.13	245
Pomadasys incisus	0.22	2	0.02	244
Total	1082.51		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 76
DATE :18.05.2007 GEAR TYPE: PT NO: 1 POSITION:Lat N 8°1.63
start stop duration Lon W 14°1.95
TIME :14:20:18 14:50:36 30.3 (min) Purpose : 1
LOG : 142.41 144.39 2.0 Region : 2300
FDEPTH: 15 15 Gear cond.: 0
BDEPTH: 24 25 Validity : 0
Towing dir: 0° Wire out : 200 m Speed : 3.9 kn
Sorted : 0 Total catch: 15.32 Catch/hour: 30.35

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Sphyraena guachancho	17.23	42	56.79	246
Sardinella maderensis	11.33	125	37.34	247
Decapterus rhonchus	0.95	6	3.13	248
Chaetodipterus lippei	0.83	2	2.74	
Total	30.35		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 77
DATE :18.05.2007 GEAR TYPE: BT NO: 16 POSITION:Lat N 8°9.88
start stop duration Lon W 13°54.12
TIME :16:31:21 16:56:09 24.8 (min) Purpose : 3
LOG : 158.86 160.53 1.7 Region : 2300
FDEPTH: 27 30 Gear cond.: 0
BDEPTH: 27 30 Validity : 0
Towing dir: 0° Wire out : 110 m Speed : 4.0 kn
Sorted : 102 Total catch: 938.19 Catch/hour: 2269.81

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Chloroscombrus chrysurus	1887.10	26586	83.14	251
Decapterus rhonchus	157.02	796	6.92	252
Pagrus caeruleostictus	99.19	377	4.37	250
Albula vulpes	62.27	148	2.74	255
Pagellus bellottii	10.16	77	0.45	253
Chaetodipterus lippei	9.92	22	0.44	260
Eucinostomus melanopterus	6.77	44	0.30	
Trachinotus ovatus	6.07	41	0.27	
Selar crumenophthalmus	5.88	203	0.26	261
Balistes capriscus	5.73	7	0.25	254
Caranx crysos	4.50	5	0.20	257
Aluterus monoceros	4.40	2	0.19	
Sardinella maderensis	3.15	41	0.14	259
Galeoides decadactylus	3.15	22	0.14	258
Sphyraena guachancho	2.49	7	0.11	256
Dactylopterus volitans	2.01	2	0.09	
Total	2269.81		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 78
DATE :18.05.2007 GEAR TYPE: BT NO: 16 POSITION:Lat N 8°23.56
start stop duration Lon W 13°40.16
TIME :19:15:40 19:45:33 29.9 (min) Purpose : 3
LOG : 180.05 181.38 1.3 Region : 2300
FDEPTH: 28 28 Gear cond.: 0
BDEPTH: 28 28 Validity : 0
Towing dir: 0° Wire out : 120 m Speed : 2.7 kn
Sorted : 92 Total catch: 354.69 Catch/hour: 711.99

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Galeoides decadactylus	183.27	2319	25.74	265
Brachydeuterus auritus	158.58	2899	22.27	267
Decapterus rhonchus	119.98	887	16.85	266
Pagrus caeruleostictus	56.01	120	7.87	264
Pagellus bellottii	51.89	412	7.29	268
Sphyraena guachancho	34.59	163	4.86	270
Rachycentron canadum	26.20	2	3.68	262
Torpedo marmorata	13.33	8	1.87	
Eucinostomus melanopterus	11.84	155	1.66	
Balistes punctatus	10.74	8	1.51	
Pseudupeneus prayensis	7.43	84	1.04	269
Pomadasys rogeri	6.02	14	0.85	271
Diodon holocanthus	5.16	14	0.72	
Caranx crysos	5.08	22	0.71	
Pomadasys jubelini	4.03	4	0.57	263
Sepia officinalis hierredda	3.97	8	0.56	
Priacanthus arenatus	2.87	130	0.40	
Selar crumenophthalmus	2.57	8	0.36	
Chloroscombrus chrysurus	2.29	30	0.32	
Decapterus punctatus	2.21	74	0.31	273
Lethrinus atlanticus	1.22	6	0.17	272
Grammoplites gruveli	0.88	14	0.12	
Chaetodipterus goreensis	0.88	8	0.12	
Aluterus blankerti	0.36	14	0.05	
Bothus podas africanus	0.22	8	0.03	
Pomadasys incisus	0.22	8	0.03	
Sardinella maderensis	0.14	8	0.02	
Total	711.99		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 79
DATE :19.05.2007 GEAR TYPE: PT NO: 1 POSITION:Lat N 7°57.64
start stop duration Lon W 13°47.98
TIME :01:23:55 01:38:27 14.5 (min) Purpose : 1
LOG : 234.20 235.17 1.0 Region : 2300
FDEPTH: 10 10 Gear cond.: 0
BDEPTH: 24 23 Validity : 0
Towing dir: 0° Wire out : 200 m Speed : 4.9 kn
Sorted : 90 Total catch: 179.62 Catch/hour: 741.72

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Sardinella maderensis	447.21	8924	60.29	275
Chloroscombrus chrysurus	236.61	4307	31.90	274
Brachydeuterus auritus	38.49	652	5.19	276
Caranx crysos	9.91	33	1.34	278
Sphyraena guachancho	4.46	33	0.60	277
Decapterus rhonchus	3.22	17	0.43	280
Selene dorsalis	0.91	17	0.12	279
Eucinostomus melanopterus	0.74	8	0.10	
Penaeus kerathurus	0.08	8	0.01	
Citharus linguatula	0.08	8	0.01	
Total	741.72		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 80
DATE :19.05.2007 GEAR TYPE: BT NO: 16 POSITION:Lat N 7°57.27
start stop duration Lon W 13°51.28
TIME :02:17:44 02:47:50 30.1 (min) Purpose : 2
LOG : 239.32 241.05 1.7 Region : 2300
FDEPTH: 23 24 Gear cond.: 0
BDEPTH: 23 24 Validity : 0
Towing dir: 0° Wire out : 95 m Speed : 3.4 kn
Sorted : 0 Total catch: 48.19 Catch/hour: 96.06

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Sardinella maderensis	27.71	383	28.84	281
Galeoides decadactylus	24.92	498	25.94	283
Eucinostomus melanopterus	6.70	90	6.97	287
Chloroscombrus chrysurus	6.68	136	6.95	282
Sphyraena guachancho	6.56	36	6.83	292
Brachydeuterus auritus	6.16	104	6.41	288
Penaeus kerathurus	3.67	165	3.82	284
Decapterus rhonchus	3.03	12	3.15	285
Echelus myrus	2.49	20	2.59	
Trachinocephalus myops	1.69	26	1.76	
Pomadasys incisus	1.14	8	1.18	294
Pagrus caeruleostictus	1.12	12	1.16	291
Scomber japonicus	0.80	333	0.83	295
Rachycentron canadum	0.74	2	0.77	
Sepia officinalis hierredda	0.56	6	0.58	
Pomadasys rogeri	0.54	2	0.56	290
Bothus podas africanus	0.50	14	0.52	
Chaetodipterus goreensis	0.42	2	0.44	286
Selene dorsalis	0.22	8	0.23	
Citharus linguatula	0.16	2	0.17	
Pseudupeneus prayensis	0.10	4	0.10	289
Sphoeroides marmoratus	0.08	4	0.08	
Solenocera africana	0.04	48	0.04	293
Pteroscion peli	0.04	2	0.04	
Pagellus bellottii	0.02	2	0.02	
Total	96.06		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 81
DATE :19.05.2007 GEAR TYPE: BT NO: 16 POSITION:Lat N 7°40.90
start stop duration Lon W 13°48.13
TIME :05:11:59 05:41:58 30.0 (min) Purpose : 2
LOG : 258.98 260.74 1.8 Region : 2300
FDEPTH: 73 65 Gear cond.: 0
BDEPTH: 73 65 Validity : 0
Towing dir: 0° Wire out : 190 m Speed : 3.5 kn
Sorted : 0 Total catch: 67.68 Catch/hour: 135.41

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Pagrus caeruleostictus	55.52	212	41.00	306
Saurida brasiliensis	22.51	704	16.62	
Dentex angolensis	6.84	74	5.05	296
Dentex canariensis	6.80	10	5.02	305
Pagellus bellottii	6.18	106	4.57	303
Brachydeuterus auritus	5.58	88	4.12	300
Decapterus rhonchus	3.92	12	2.90	299
Chelidonichthys gabonensis	2.98	130	2.20	
Dentex congoensis	2.96	42	2.19	297
Citharus linguatula	2.92	106	2.16	
Pseudupeneus prayensis	2.68	130	1.98	301
Sepia officinalis hierredda	2.36	112	1.74	
Dactylopterus volitans	1.94	10	1.43	
NETTASTOMATIDAE	1.42	74	1.05	
Serranus cabrilla	1.40	274	1.03	
Priacanthus arenatus	1.24	56	0.92	
Sardinella maderensis	1.14	14	0.84	
Grammoplites gruveli	1.06	38	0.78	
Branchiostegus semifasciatus	0.84	2	0.62	
Anthias anthias	0.78	16	0.58	
Galeoides decadactylus	0.46	10	0.34	304
Arnoglossus imperialis	0.46	54	0.34	
Ariomma bondi	0.44	26	0.33	298
Parapenaeus longirostris	0.44	168	0.33	307
Parapenaeus longirostris	0.42	168	0.31	
Scorpaena stephanica	0.34	2	0.25	
Chloroscombrus chrysurus	0.28	4	0.21	
Cephalopholis boenak	0.26	2	0.19	
Echeneis naucrates	0.26	2	0.19	
Echelus myrus	0.24	2	0.18	
Fistularia petimba	0.24	6	0.18	
Decapterus punctatus	0.22	6	0.16	302
Raja miraletus	0.16	2	0.12	
Sphoeroides marmoratus	0.06	4	0.04	
Illex coindetii	0.04	6	0.03	
Total	135.41		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 82
DATE :19.05.2007 GEAR TYPE: BT NO: 16 POSITION:Lat N 7°28.92
start stop duration Lon W 13°39.69
TIME :08:50:20 09:20:36 30.3 (min) Purpose : 3
LOG : 290.26 292.01 1.8 Region : 2300
FDEPTH: 84 88 Gear cond.: 0
BDEPTH: 84 88 Validity : 0
Towing dir: 0° Wire out : 260 m Speed : 3.5 kn
Sorted : 0 Total catch: 88.99 Catch/hour: 176.51

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Ariomma bondi	64.46	1373	36.52	308
Dentex angolensis	56.23	300	31.86	309
Decapterus rhonchus	15.77	26	8.93	313
Trachurus trachurus	15.49	93	8.78	310
Mustelus mustelus	4.82	2	2.73	
Squatina oculata	3.55	2	2.01	
Fistularia petimba	3.51	18	1.99	
Scorpaena stephanica	3.05	10	1.73	
Dentex congoensis	2.00	26	1.13	312
Dentex canariensis	1.90	2	1.08	311
Sardinella maderensis	1.39	2	0.79	
Priacanthus arenatus	1.35	14	0.76	
Dactylopterus volitans	0.85	2	0.48	
Scomber japonicus	0.67	4	0.38	
Zeus faber	0.46	2	0.26	
Illex coindetii	0.30	20	0.17	
Pseudupeneus prayensis	0.28	2	0.16	
Trigla lyra	0.16	4	0.09	
Grammoplites gruveli	0.14	4	0.08	
Pagellus bellottii	0.12	2	0.07	
Total	176.51		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 83
DATE :19.05.2007 GEAR TYPE: BT NO: 16 POSITION:Lat N 7°39.26
start stop duration Lon W 13°34.72
TIME :15:17:11 15:36:41 19.5 (min) Purpose : 3
LOG : 307.73 308.81 1.1 Region : 2300
FDEPTH: 47 39 Gear cond.: 0
BDEPTH: 47 39 Validity : 0
Towing dir: 0° Wire out : 130 m Speed : 3.3 kn
Sorted : 0 Total catch: 95.20 Catch/hour: 292.92

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Chloroscombrus chrysurus	171.54	2458	58.56	319
Selene dorsalis	74.92	689	25.58	315
Sphyraena guachancho	20.46	37	6.99	314
Mustelus mustelus	9.23	3	3.15	
Brachydeuterus auritus	7.94	237	2.71	320
Selar crumenophthalmus	5.72	111	1.95	316
Decapterus rhonchus	1.78	15	0.61	317
Raja miraletus	0.62	3	0.21	
Illex coindetii	0.37	86	0.13	
Trichiurus lepturus	0.28	3	0.09	
Caranx hippos	0.06	34	0.02	318
Total	292.92		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 84
DATE :19.05.2007 GEAR TYPE: BT NO: 16 POSITION:Lat N 7°40.68
start stop duration Lon W 13°29.28
TIME :17:11:44 17:41:42 30.0 (min) Purpose : 3
LOG : 316.70 318.39 1.7 Region : 2300
FDEPTH: 21 20 Gear cond.: 0
BDEPTH: 21 20 Validity : 0
Towing dir: 0° Wire out : 110 m Speed : 3.4 kn
Sorted : 0 Total catch: 253.69 Catch/hour: 507.89

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Lutjanus goreensis	155.26	90	30.57	330
Dasyatis pastinaca	128.03	4	25.21	
Rachycentron canadum	42.54	10	8.38	329
Lutjanus dentatus	41.24	4	8.12	332
Lethrinus atlanticus	40.34	68	7.94	327
Pomadasys rogeri	33.13	44	6.52	326
Sphyraena guachancho	15.58	44	3.07	323
Lutjanus fulgens	12.21	48	2.40	328
Acanthurus monroviae	8.15	10	1.60	
Chaetodipterus goreensis	6.63	16	1.30	321
Lutjanus agennes	6.61	2	1.30	331
Alectis alexandrinus	5.51	2	1.08	
Pagrus caeruleostictus	3.56	8	0.70	322
Albula vulpes	2.86	4	0.56	324
Elops lacerta	2.38	2	0.47	325
Balistes punctatus	1.88	2	0.37	
Chloroscombrus chrysurus	1.12	14	0.22	
Eucinostomus melanopterus	0.34	6	0.07	
Selene dorsalis	0.30	2	0.06	
Sepia officinalis hierredda	0.22	2	0.04	
Total	507.89		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 85
DATE :19.05.2007 GEAR TYPE: PT NO: 7 POSITION:Lat N 7°38.82
start stop duration Lon W 13°31.45
TIME :18:38:22 19:10:04 31.7 (min) Purpose : 1
LOG : 323.40 325.46 2.1 Region : 2300
FDEPTH: 10 10 Gear cond.: 0
BDEPTH: 40 25 Validity : 0
Towing dir: 0° Wire out : 125 m Speed : 3.9 kn
Sorted : 0 Total catch: 38.79 Catch/hour: 73.42

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Sphyraena guachancho	24.32	61	33.13	333
Chloroscombrus chrysurus	17.89	235	24.36	334
Sardinella maderensis	13.63	95	18.56	338
Selene dorsalis	12.59	322	17.14	336
Decapterus rhonchus	2.95	15	4.02	335
Brachydeuterus auritus	2.04	30	2.78	337
Total	73.42		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 86
DATE :19.05.2007 GEAR TYPE: BT NO: 16 POSITION:Lat N 7°24.83
start stop duration Lon W 13°34.56
TIME :22:08:59 22:39:00 30.0 (min) Purpose : 2
LOG : 349.81 351.30 1.5 Region : 2300
FDEPTH: 85 79 Gear cond.: 0
BDEPTH: 85 79 Validity : 0
Towing dir: 0° Wire out : 250 m Speed : 3.0 kn
Sorted : 38 Total catch: 190.35 Catch/hour: 380.70

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Ariomma bondi	265.60	6286	69.77	339
Trigla lyra	44.30	1670	11.64	
Dentex congoensis	12.60	350	3.31	341
Illex coindetii	10.80	480	2.84	
Scorpaena stephanica	9.30	110	2.44	
Pseudupeneus prayensis	5.80	150	1.52	340
Dentex angolensis	5.60	30	1.47	
Sepia officinalis hierredda	5.20	40	1.37	
Gonostoma elongatum	4.50	1000	1.18	
Brotula barbata	3.50	10	0.92	
Raja miraletus	3.50	10	0.92	
Pagellus bellottii	2.70	40	0.71	
Chlorophthalmus atlanticus	2.30	380	0.60	
Sphoeroides pachgaster	1.10	10	0.29	
Priacanthus arenatus	1.10	20	0.29	
Decapterus punctatus	0.70	20	0.18	
Arnoglossus imperialis	0.70	90	0.18	
Chloroscombrus chrysurus	0.50	10	0.13	
NETTASTOMATIDAE	0.50	20	0.13	
Syacium micrurum	0.40	40	0.11	
Total	380.70		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 87
DATE :20.05.2007 GEAR TYPE: BT NO: 16 POSITION:Lat N 7°32.77
start stop duration Lon W 13°13.50
TIME :03:25:58 03:54:46 28.8 (min) Purpose : 2
LOG : 392.39 393.91 1.5 Region : 2300
FDEPTH: 22 22 Gear cond.: 0
BDEPTH: 22 22 Validity : 0
Towing dir: 0° Wire out : 90 m Speed : 3.2 kn
Sorted : 0 Total catch: 95.44 Catch/hour: 198.90

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Galeoides decadactylus	60.52	875	30.43	350
Arius heudeloti	57.31	31	28.81	353
Sphyraena guachancho	14.44	63	7.26	343
Pseudotolithus brachygnathus	12.71	21	6.39	349
Eucinostomus melanopterus	7.82	140	3.93	342
Sepia officinalis hierredda	6.02	19	3.03	
Arius parkii	5.84	25	2.93	355
Penaeus kerathurus	4.79	192	2.41	356
Scomberomorus tritor	4.40	10	2.21	351
Trachinocephalus myops	4.40	60	2.21	
Rachycentron canadum	4.06	2	2.04	
Arius latiscutatus	2.81	2	1.41	354
Psettodes belcheri	2.29	2	1.15	
Torpedo marmorata	1.79	2	0.90	
Trichiurus lepturus	1.46	4	0.73	
Lagocephalus laevigatus	1.42	10	0.71	
Ephippion guttifer	1.29	4	0.65	
Albula vulpes	0.98	2	0.49	
Chaetodipterus goreensis	0.94	4	0.47	345
Chloroscombrus chrysurus	0.81	15	0.41	352
Citharus linguatula	0.67	10	0.34	
Pomadasys peroteti	0.44	6	0.22	347
Pegusa lascaris	0.40	4	0.20	
Pagrus caeruleostictus	0.31	2	0.16	346
Sardinella maderensis	0.27	2	0.14	344
Selene dorsalis	0.17	8	0.08	348
Parapenaeopsis atlantica	0.17	27	0.08	357
Brachydeuterus auritus	0.15	10	0.07	
Bothus podas africanus	0.15	10	0.07	
Decapterus rhonchus	0.06	2	0.03	
Callinectes amnicola	0.02	2	0.01	
Total	198.90		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 88
DATE :20.05.2007 GEAR TYPE: BT NO: 16 POSITION:Lat N 7°34.14
start stop duration Lon W 13°15.34
TIME :06:40:38 07:10:33 29.9 (min) Purpose : 3
LOG : 404.36 405.82 1.5 Region : 2300
FDEPTH: 22 23 Gear cond.: 0
BDEPTH: 22 23 Validity : 0
Towing dir: 0° Wire out : 90 m Speed : 2.9 kn
Sorted : 4 Total catch: 37.80 Catch/hour: 75.80

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Caranx crysos	41.87	72	55.24	
Sphyraena guachancho	11.73	54	15.48	
Brachydeuterus auritus	10.83	343	14.29	
Selene dorsalis	4.69	36	6.19	
Chloroscombrus chrysurus	3.25	72	4.29	
Eucinostomus melanopterus	2.71	72	3.57	
Chaetodipterus goreensis	0.36	18	0.48	
Sardinella maderensis	0.36	18	0.48	
Total	75.80		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 89
DATE :20.05.2007 GEAR TYPE: BT NO: 16 POSITION:Lat N 7°30.57
start stop duration Lon W 13°13.03
TIME :08:20:47 08:50:19 29.5 (min) Purpose : 3
LOG : 411.57 413.15 1.6 Region : 2300
FDEPTH: 42 40 Gear cond.: 0
BDEPTH: 42 40 Validity : 0
Towing dir: 0° Wire out : 140 m Speed : 3.2 kn
Sorted : 0 Total catch: 3010.21 Catch/hour: 6114.17

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
J E L L Y F I S H	6093.43	0	99.66	
Caranx crysos	10.34	26	0.17	358
Sphyraena guachancho	3.86	6	0.06	
Brachydeuterus auritus	1.75	26	0.03	
Arius parkii	1.58	4	0.03	
Pagrus caeruleostictus	1.28	4	0.02	
Decapterus rhonchus	0.89	12	0.01	
Selene dorsalis	0.85	14	0.01	
Syacium micrurum	0.14	2	0.00	
Trachinocephalus myops	0.04	2	0.00	
Total	6114.17		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 90
DATE :20.05.2007 GEAR TYPE: BT NO: 16 POSITION:Lat N 7°23.84
start stop duration Lon W 13°19.21
TIME :10:22:14 10:52:17 30.0 (min) Purpose : 3
LOG : 422.32 423.99 1.7 Region : 2300
FDEPTH: 63 69 Gear cond.: 0
BDEPTH: 63 69 Validity : 9
Towing dir: 0° Wire out : 200 m Speed : 3.3 kn
Sorted : 0 Total catch: 5500000.00 Catch/hour: 10985352.86

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
J E L L Y F I S H	0.00	0	0.00	
Total	0.00		0.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 91
DATE :20.05.2007 GEAR TYPE: BT NO: 16 POSITION:Lat N 7°16.37
start stop duration Lon W 12°57.78
TIME :14:59:42 15:23:05 23.4 (min) Purpose : 3
LOG : 461.48 462.73 1.3 Region : 2300
FDEPTH: 73 75 Gear cond.: 0
BDEPTH: 73 75 Validity : 0
Towing dir: 0° Wire out : 190 m Speed : 3.2 kn
Sorted : 0 Total catch: 2248.21 Catch/hour: 5767.11

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
J E L L Y F I S H	5130.40	0	88.96	
Dentex congoensis	586.15	8701	10.16	360
Dentex angolensis	22.24	213	0.39	359
Dentex canariensis	9.98	921	0.17	362
Priacanthus arenatus	7.67	115	0.13	
Pagrus caeruleostictus	4.93	13	0.09	361
Illex coindetii	4.10	1642	0.07	
Ariomma bondi	0.90	21	0.02	364
Pseudupeneus prayensis	0.54	13	0.01	363
Trachurus trecae	0.13	8	0.00	
Anthias anthias	0.08	8	0.00	
Total	5767.11		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 92
DATE :20.05.2007 GEAR TYPE: BT NO: 16 POSITION:Lat N 7°24.77
start stop duration Lon W 12°56.31
TIME :17:20:47 17:31:35 10.8 (min) Purpose : 3
LOG : 475.04 475.65 0.6 Region : 2300
FDEPTH: 45 45 Gear cond.: 0
BDEPTH: 45 45 Validity : 0
Towing dir: 0° Wire out : 150 m Speed : 3.4 kn
Sorted : 0 Total catch: 2086.73 Catch/hour: 11592.94

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
J E L L Y F I S H	11111.11	0	95.84	
Sphyraena guachancho	213.06	1756	1.84	366
Brachydeuterus auritus	205.56	6544	1.77	365
Trichiurus lepturus	17.67	356	0.15	
Selene dorsalis	14.28	667	0.12	
Pteroscion peli	9.22	344	0.08	
Sardinella maderensis	6.28	361	0.05	
Ilisha africana	4.22	78	0.04	
Pseudotolithus senegalensis	2.94	11	0.03	
Sardinella maderensis	1.67	778	0.01	0
Trachinotus ovatus	1.50	289	0.01	
Balistes capriscus	1.44	6	0.01	
Penaeus notialis	1.22	50	0.01	
Epinephelus aeneus	0.83	6	0.01	
Parapenaeus longirostris	0.67	122	0.01	
Fistularia petimba	0.67	6	0.01	
Galeoides decadactylus	0.50	11	0.00	
Grammoplites gruveli	0.11	6	0.00	
Total	11592.94		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 93
DATE :20.05.2007 GEAR TYPE: BT NO: 16 POSITION:Lat N 7°28.55
start stop duration Lon W 12°54.49
TIME :18:35:40 18:41:50 6.2 (min) Purpose : 3
LOG : 483.30 483.60 0.3 Region : 2300
FDEPTH: 23 24 Gear cond.: 0
BDEPTH: 23 24 Validity : 0
Towing dir: 0° Wire out : 90 m Speed : 3.0 kn
Sorted : 0 Total catch: 2007.42 Catch/hour: 19521.10

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
J E L L Y F I S H	19448.95	0	99.63	
Epinephelus aeneus	23.82	10	0.12	
Galeoides decadactylus	15.75	39	0.08	
Pomadasys jubelini	10.21	10	0.05	
Lethrinus atlanticus	7.29	10	0.04	
Scomberomorus tritor	4.67	10	0.02	
Albula vulpes	4.47	10	0.02	
Sphyraena guachancho	3.50	29	0.02	
Brachydeuterus auritus	1.07	39	0.01	
Pseudupeneus prayensis	0.97	10	0.00	
Ilisha africana	0.39	19	0.00	
Total	19521.10		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 94
DATE :21.05.2007 GEAR TYPE: BT NO: 16 POSITION:Lat N 7°18.85
start stop duration Lon W 12°39.88
TIME :02:24:43 02:50:13 25.5 (min) Purpose : 2
LOG : 548.87 550.16 1.3 Region : 2300
FDEPTH: 40 43 Gear cond.: 0
BDEPTH: 40 43 Validity : 0
Towing dir: 0° Wire out : 120 m Speed : 3.0 kn
Sorted : 0 Total catch: 389.05 Catch/hour: 915.41

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
J E L L Y F I S H	705.88	0	77.11	
Brachydeuterus auritus	54.24	2329	5.92	368
Cynoponticus ferox	41.32	2	4.51	
Pteroscion peli	38.68	1845	4.23	367
Pseudotolithus senegalensis	15.60	108	1.70	370
Trichiurus lepturus	14.49	494	1.58	
Scyllarides herklotsii	9.18	2153	1.00	
Parapenaeopsis atlantica	8.12	1407	0.89	373
Galeoides decadactylus	4.73	99	0.52	376
Portunus validus	4.71	19	0.51	
Penaeus notialis	3.08	115	0.34	372
Ilisha africana	2.82	56	0.31	369
Grammoplites gruveli	2.59	195	0.28	
Cynoglossus senegalensis	1.44	12	0.16	
Sicyonia galeata	1.25	558	0.14	374
Panulirus regius	0.96	2	0.11	
NETTASTOMATIDAE	0.89	24	0.10	
Pagrus caeruleostictus	0.73	2	0.08	
Antennarius oligospilos	0.59	66	0.06	
Uranoscopus cadenati	0.56	101	0.06	
Sphyraena guachancho	0.45	21	0.05	
Paraconger notialis	0.38	9	0.04	
Saurida brasiliensis	0.33	96	0.04	
Octopus vulgaris	0.33	9	0.04	
Lagocephalus laevigatus	0.33	2	0.04	
Brotula barbata	0.33	24	0.04	
Synagrops microlepis	0.26	54	0.03	
Selene dorsalis	0.26	73	0.03	378
Cynoglossus canariensis	0.24	7	0.03	
Synagrops microlepis	0.14	14	0.02	0
Citharus linguatula	0.14	12	0.02	
Sardinella maderensis	0.14	14	0.02	371
Caranx hippos	0.09	38	0.01	375
Paraconger notialis	0.07	12	0.01	0
Scomber japonicus	0.02	12	0.00	
ALEPOCEPHALIDAE	0.02	14	0.00	
Chloroscombrus chrysurus	0.02	19	0.00	377
Total	915.41		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 95
DATE :21.05.2007 GEAR TYPE: BT NO: 16 POSITION:Lat N 7°19.77
start stop duration Lon W 12°36.96
TIME :05:21:34 05:36:59 15.4 (min) Purpose : 1
LOG : 566.36 567.13 0.8 Region : 2300
FDEPTH: 28 28 Gear cond.: 0
BDEPTH: 28 28 Validity : 0
Towing dir: 0° Wire out : 120 m Speed : 3.0 kn
Sorted : 0 Total catch: 380.94 Catch/hour: 1482.26

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
J E L L Y F I S H	1167.32	0	78.75	
Ilisha africana	47.98	1354	3.24	
Chloroscombrus chrysurus	43.19	665	2.91	
Brachydeuterus auritus	41.21	1319	2.78	379
Cynoponticus ferox	36.77	93	2.48	
Penaeus notialis	30.93	7553	2.09	
Cynoglossus senegalensis	19.96	82	1.35	
Pseudotolithus senegalensis	16.58	47	1.12	
Sphyraena guachancho	16.46	350	1.11	
Drepane africana	13.54	12	0.91	
Trichiurus lepturus	10.04	257	0.68	
Caranx senegallus	10.04	35	0.68	
Portunus validus	7.24	82	0.49	
Sardinella maderensis	5.02	397	0.34	
Pteroscion peli	4.20	128	0.28	
Balistes capriscus	4.09	12	0.28	
Selene dorsalis	2.68	397	0.18	
Galeoides decadactylus	1.98	70	0.13	
Pomadasys jubelini	1.40	12	0.09	
Pentanemus quinquarius	1.28	23	0.09	
Trachinotus ovatus	0.35	93	0.02	
Total	1482.26		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 96
DATE :21.05.2007 GEAR TYPE: BT NO: 16 POSITION:Lat N 7°19.85
start stop duration Lon W 12°36.04
TIME :06:45:34 06:54:41 9.1 (min) Purpose : 3
LOG : 570.25 570.67 0.4 Region : 2300
FDEPTH: 27 27 Gear cond.: 0
BDEPTH: 27 27 Validity : 0
Towing dir: 0° Wire out : 100 m Speed : 2.8 kn
Sorted : 0 Total catch: 302.99 Catch/hour: 1993.36

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
J E L L Y F I S H	1315.79	0	66.01	
Chloroscombrus chrysurus	380.26	5526	19.08	383
Sphyraena guachancho	82.37	395	4.13	382
Ilisha africana	57.63	1053	2.89	
Sphyraena afra	48.36	7	2.43	
Brachydeuterus auritus	25.00	789	1.25	
Portunus validus	21.84	105	1.10	
Selene dorsalis	20.79	1316	1.04	
Sardinella maderensis	20.53	868	1.03	381
Pseudotolithus senegalensis	13.42	105	0.67	380
Trichiurus lepturus	2.37	26	0.12	
Trachinotus ovatus	1.58	342	0.08	
Penaeus notialis	1.32	184	0.07	
Galeoides decadactylus	1.32	26	0.07	
Pteroscion peli	0.79	26	0.04	
Total	1993.36		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 97
DATE :21.05.2007 GEAR TYPE: BT NO: 16 POSITION:Lat N 7°17.57
start stop duration Lon W 12°36.33
TIME :08:01:39 08:12:55 11.3 (min) Purpose : 3
LOG : 578.44 579.10 0.7 Region : 2300
FDEPTH: 41 41 Gear cond.: 0
BDEPTH: 41 41 Validity : 0
Towing dir: 0° Wire out : 140 m Speed : 3.5 kn
Sorted : 0 Total catch: 319.53 Catch/hour: 1701.14

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
J E L L Y F I S H	1597.16	0	93.89	
Sphyraena guachancho	36.68	128	2.16	384
Pseudotolithus senegalensis	27.90	43	1.64	385
Drepane africana	9.90	5	0.58	
Ilisha africana	8.36	128	0.49	
Trichiurus lepturus	4.58	91	0.27	
Cynoponticus ferox	3.94	11	0.23	
Portunus validus	2.93	5	0.17	
Selene dorsalis	2.93	37	0.17	
Lutjanus fulgens	1.60	5	0.09	
Brachydeuterus auritus	1.44	32	0.08	
Pteroscion peli	1.17	21	0.07	
Chloroscombrus chrysurus	0.91	11	0.05	
Galeoides decadactylus	0.85	5	0.05	
Sardinella maderensis	0.53	5	0.03	
Penaeus notialis	0.27	5	0.02	
Total	1701.14		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 98
DATE :21.05.2007 GEAR TYPE: BT NO: 16 POSITION:Lat N 7°13.85
start stop duration Lon W 12°37.67
TIME :09:11:50 09:37:36 25.8 (min) Purpose : 3
LOG : 585.77 587.22 1.5 Region : 2300
FDEPTH: 63 64 Gear cond.: 0
BDEPTH: 63 64 Validity : 0
Towing dir: 0° Wire out : 200 m Speed : 3.4 kn
Sorted : 0 Total catch: 510.00 Catch/hour: 1187.43

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
J E L L Y F I S H	1164.14	0	98.04	
Dentex angolensis	7.03	56	0.59	387
Priacanthus arenatus	3.84	19	0.32	388
Sphyraena guachancho	2.72	16	0.23	389
Fistularia petimba	1.98	12	0.17	
Auxis rochei	1.65	7	0.14	
Pagellus bellottii	1.40	12	0.12	
Trachurus trachurus	1.21	16	0.10	
Pseudupeneus prayensis	0.98	16	0.08	
Ariomma bondi	0.70	5	0.06	
Brachydeuterus auritus	0.65	9	0.05	
Decapterus punctatus	0.42	21	0.04	386
Sardinella maderensis	0.33	12	0.03	
Lagocephalus laevigatus	0.23	2	0.02	
Ilisha africana	0.14	12	0.01	
Total	1187.43		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 99
DATE :21.05.2007 GEAR TYPE: BT NO: 16 POSITION:Lat N 7°7.26
start stop duration Lon W 12°20.45
TIME :14:04:06 14:12:12 8.1 (min) Purpose : 3
LOG : 619.91 620.32 0.4 Region : 2300
FDEPTH: 74 73 Gear cond.: 0
BDEPTH: 74 73 Validity : 0
Towing dir: 0° Wire out : 190 m Speed : 3.1 kn
Sorted : 0 Total catch: 503.07 Catch/hour: 3726.44

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
J E L L Y F I S H	3703.70	0	99.39	
Squatina oculata	8.81	7	0.24	
Priacanthus arenatus	5.48	30	0.15	
Illex coindetii	2.44	170	0.07	
Raja miraletus	1.70	7	0.05	
Sphyraena guachancho	1.04	7	0.03	
Sardinella aurita	0.89	22	0.02	390
Pseudupeneus prayensis	0.74	7	0.02	
Dentex angolensis	0.52	7	0.01	
Lagocephalus laevigatus	0.37	7	0.01	
Fistularia petimba	0.37	7	0.01	
Decapterus punctatus	0.15	30	0.00	391
Caranx hippos	0.07	37	0.00	392
Octopus vulgaris	0.00	0	0.00	
Total	3726.30		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 100
DATE :21.05.2007 GEAR TYPE: BT NO: 16 POSITION:Lat N 7°12.15
start stop duration Lon W 12°20.04
TIME :17:15:54 17:23:45 7.9 (min) Purpose : 3
LOG : 630.08 630.68 0.6 Region : 2300
FDEPTH: 45 45 Gear cond.: 0
BDEPTH: 45 45 Validity : 0
Towing dir: 0° Wire out : 150 m Speed : 4.6 kn
Sorted : 0 Total catch: 330.56 Catch/hour: 2526.54

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
J E L L Y F I S H	2292.99	0	90.76	
Sphyraena guachancho	89.43	940	3.54	393
Brachydeuterus auritus	66.27	1529	2.62	395
Alectis alexandrinus	62.48	38	2.47	396
Trachurus trachurus	3.67	46	0.15	
Selene dorsalis	3.32	107	0.13	394
Sardinella maderensis	2.29	84	0.09	397
Selar crumenophthalmus	1.72	15	0.07	
Pseudupeneus prayensis	1.72	15	0.07	
Eucinostomus melanopterus	1.49	15	0.06	
Aluterus blankerti	0.92	15	0.04	
Chloroscombrus chrysurus	0.11	23	0.00	
Caranx hippos	0.11	61	0.00	398
Total	2526.54		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 101
DATE :21.05.2007 GEAR TYPE: BT NO: 16 POSITION:Lat N 7°15.76
start stop duration Lon W 12°19.20
TIME :18:17:58 18:24:19 6.4 (min) Purpose : 3
LOG : 636.99 637.30 0.3 Region : 2300
FDEPTH: 24 24 Gear cond.: 0
BDEPTH: 24 24 Validity : 0
Towing dir: 0° Wire out : 90 m Speed : 2.9 kn
Sorted : 0 Total catch: 523.78 Catch/hour: 4949.10

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
J E L L Y F I S H	4724.41	0	95.46	
Pseudotolithus senegalensis	26.65	293	0.54	400
Sphyraena guachancho	25.70	369	0.52	403
Pseudotolithus elongatus	25.23	104	0.51	399
Trachurus trachurus	21.07	491	0.43	
Ilisha africana	20.88	784	0.42	401
Galeoides decadactylus	17.86	123	0.36	405
Portunus validus	16.72	47	0.34	
Pseudotolithus brachygnathus	15.59	85	0.32	406
Brachydeuterus auritus	9.64	198	0.19	402
Pteroscion peli	7.84	236	0.16	
Pentanemus quinquarius	6.99	151	0.14	404
Selene dorsalis	6.99	435	0.14	
Sepia officinalis hierredda	6.52	9	0.13	
Cynoponticus ferox	3.40	9	0.07	
Chloroscombrus chrysurus	3.31	548	0.07	
Scomberomorus tritor	2.83	9	0.06	
Rhizoprionodon acutus	2.08	9	0.04	
Penaeus notialis	1.70	170	0.03	
Sardinella maderensis	1.51	104	0.03	
Uraspis secunda	0.85	9	0.02	
Penaeus kerathurus	0.47	19	0.01	
Cynoglossus senegalensis	0.47	9	0.01	
Trachinotus ovatus	0.38	66	0.01	
Total	4949.10		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 102
DATE :22.05.2007 GEAR TYPE: BT NO: 16 POSITION:Lat N 7°6.06
start stop duration Lon W 12°3.10
TIME :02:10:30 02:42:37 32.1 (min) Purpose : 2
LOG : 688.35 689.95 1.6 Region : 2300
FDEPTH: 39 42 Gear cond.: 0
BDEPTH: 39 42 Validity : 0
Towing dir: 0° Wire out : 140 m Speed : 3.0 kn
Sorted : 94 Total catch: 172.49 Catch/hour: 322.21

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Brachydeuterus auritus	93.83	2998	29.12	416
Pteroscion peli	75.71	2049	23.50	408
Penaeus notialis	27.52	902	8.54	419
Trichiurus lepturus	19.28	831	5.98	418
Rachycentron canadum	18.98	2	5.89	
Alectis alexandrinus	9.71	7	3.01	410
Grammoplites gruveli	7.45	598	2.31	
Pseudotolithus senegalensis	7.34	49	2.28	407
Parapenaeopsis atlantica	7.25	3831	2.25	420
Saurida brasiliensis	6.97	2083	2.16	
Eucinostomus melanopterus	5.92	86	1.84	415
Portunus validus	5.19	17	1.61	
Ilisha africana	5.19	198	1.61	411
Scyllarides herklotsii	4.33	788	1.35	
Conger conger	4.11	4	1.28	
Sepia officinalis hierredda	3.66	37	1.14	
Chloroscombrus chrysurus	2.88	418	0.89	409
Dicologoglossa cuneata	2.47	4	0.77	
Galeoides decadactylus	2.32	54	0.72	412
Cynoglossus senegalensis	1.81	7	0.56	
Cynoponticus ferox	1.81	4	0.56	
Sphyraena guachancho	1.74	7	0.54	
Selene dorsalis	1.23	280	0.38	417
NETTASTOMATIDAE	0.92	2	0.28	
Serranus cabrilla	0.62	78	0.19	
Citharus linguatula	0.58	21	0.18	
Coloconger cadenati	0.50	4	0.16	
Dentex canariensis	0.49	7	0.15	414
Sardinella maderensis	0.41	28	0.13	413
Stromateus fiatola	0.37	4	0.12	
Panulirus regius	0.34	4	0.10	
Brotula barbata	0.32	15	0.10	
Sicyonia galeata	0.28	73	0.09	421
Microchirus variegatus	0.24	21	0.08	
Scorpaena sp.	0.21	17	0.06	
Arnoglossus imperialis	0.13	13	0.04	
Penaeus kerathurus	0.11	4	0.03	
Total	322.21		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 103
DATE :22.05.2007 GEAR TYPE: BT NO: 16 POSITION:Lat N 7°6.69
start stop duration Lon W 11°56.24
TIME :06:34:58 06:43:18 8.3 (min) Purpose : 3
LOG : 706.41 706.87 0.5 Region : 2300
FDEPTH: 24 23 Gear cond.: 0
BDEPTH: 24 23 Validity : 0
Towing dir: 0° Wire out : 90 m Speed : 3.3 kn
Sorted : 0 Total catch: 548.89 Catch/hour: 3953.59

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
J E L L Y F I S H	3601.44	0	91.09	
Galeoides decadactylus	105.88	684	2.68	427
Trichiurus lepturus	49.20	627	1.24	
Pseudotolithus typus	24.35	43	0.62	426
Caranx senegallus	20.24	22	0.51	
Pseudotolithus brachygnathus	16.64	43	0.42	425
Selene dorsalis	14.84	230	0.38	
Sepia officinalis hierredda	14.05	22	0.36	
Ilisha africana	13.07	432	0.33	
Portunus validus	11.52	36	0.29	
Brachydeuterus auritus	11.24	187	0.28	423
Drepane africana	11.24	14	0.28	
Pomadasys jubelini	11.02	58	0.28	422
Sphyraena guachancho	9.94	22	0.25	
Pteroscion peli	6.91	194	0.17	
Sardinella maderensis	6.48	540	0.16	
Cynoponticus ferox	3.60	14	0.09	
Caranx crysos	3.17	14	0.08	
Pseudotolithus senegalensis	2.52	36	0.06	424
Cynoglossus senegalensis	2.38	14	0.06	
Penaeus kerathurus	2.38	101	0.06	
Pagrus caeruleostictus	2.30	14	0.06	
Ethmalosa fimbriata	1.87	14	0.05	
Chloroscombrus chrysurus	1.66	223	0.04	
Pentanemus quinquarius	1.01	14	0.03	
Penaeus notialis	0.86	187	0.02	
Pseudupeneus prayensis	0.86	14	0.02	
Eucinostomus melanopterus	0.86	14	0.02	
Trachinotus ovatus	0.36	72	0.01	
Total	3951.90		99.96	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 104
DATE :22.05.2007 GEAR TYPE: BT NO: 16 POSITION:Lat N 7°4.09
start stop duration Lon W 11°59.11
TIME :08:18:26 08:40:47 22.4 (min) Purpose : 3
LOG : 715.55 716.66 1.1 Region : 2300
FDEPTH: 40 40 Gear cond.: 8
BDEPTH: 40 40 Validity : 9
Towing dir: 0° Wire out : 135 m Speed : 3.0 kn
Sorted : 0 Total catch: 0.00 Catch/hour: 0.00

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

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 105
DATE :22.05.2007 GEAR TYPE: BT NO: 20 POSITION:Lat N 6°48.98
start stop duration Lon W 11°45.41
TIME :16:50:14 17:10:32 20.3 (min) Purpose : 3
LOG : 756.63 757.81 1.2 Region : 2300
FDEPTH: 73 72 Gear cond.: 0
BDEPTH: 73 72 Validity : 0
Towing dir: 0° Wire out : 220 m Speed : 3.5 kn
Sorted : 0 Total catch: 1031.49 Catch/hour: 3050.24

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
J E L L Y F I S H	2957.12	0	96.95	
Ariomma bondi	39.33	139	1.29	428
Trichiurus lepturus	28.24	677	0.93	
Dentex angolensis	13.10	89	0.43	432
Selene dorsalis	2.16	24	0.07	431
Branchiostegus semifasciatus	2.10	3	0.07	
Sardinella maderensis	1.18	50	0.04	430
Pseudupeneus prayensis	0.95	18	0.03	433
Sepia officinalis hierredda	0.92	3	0.03	
Brotula barbata	0.92	3	0.03	
Sphyraena guachancho	0.80	15	0.03	429
Pentheroscion mbizi	0.71	3	0.02	
Chelidonichthys gabonensis	0.62	9	0.02	
Priacanthus arenatus	0.59	9	0.02	
Illex coindetii	0.44	41	0.01	
Pagellus bellottii	0.41	6	0.01	
Brachydeuterus auritus	0.35	3	0.01	
Fistularia petimba	0.15	3	0.00	
Aluterus blankerti	0.12	3	0.00	
Caranx hippos	0.03	6	0.00	
Total	3050.24		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 106
DATE :22.05.2007 GEAR TYPE: BT NO: 20 POSITION:Lat N 6°53.96
start stop duration Lon W 11°41.88
TIME :18:46:04 19:07:23 21.3 (min) Purpose : 3
LOG : 767.34 768.53 1.2 Region : 2300
FDEPTH: 43 43 Gear cond.: 0
BDEPTH: 43 43 Validity : 0
Towing dir: 0° Wire out : 135 m Speed : 3.3 kn
Sorted : 0 Total catch: 252.08 Catch/hour: 709.40

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Brachydeuterus auritus	238.09	5910	33.56	438
Ethmalosa fimbriata	66.49	380	9.37	
Ilisha africana	52.94	1292	7.46	
Sphyraena guachancho	42.50	118	5.99	437
Pterothrissus belloci	39.77	2685	5.61	
Trichiurus lepturus	31.53	1458	4.45	
Galeoides decadactylus	30.65	861	4.32	435
Selene dorsalis	29.00	903	4.09	441
Pseudotolithus brachygnathus	25.89	51	3.65	443
Sardinella maderensis	25.45	1356	3.59	440
Sphyraena guachancho	24.95	481	3.52	434
Penaeus notialis	24.62	1106	3.47	
Chloroscombrus chrysurus	22.92	2772	3.23	442
Scomberomorus tritor	13.37	20	1.88	436
Raja miraletus	12.03	25	1.70	
Caranx senegallus	9.48	11	1.34	439
Selar crumenophthalmus	5.19	25	0.73	
Torpedo torpedo	3.93	25	0.55	
Grammoplites gruveli	3.04	177	0.43	
Trichiurus lepturus	2.50	3	0.35	
Sepia officinalis hierredda	2.15	633	0.30	
Eucinostomus melanopterus	1.77	25	0.25	
Illex coindetii	1.14	14	0.16	
Total	709.41		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 107
DATE :22.05.2007 GEAR TYPE: BT NO: 20 POSITION:Lat N 6°57.37
start stop duration Lon W 11°39.50
TIME :20:30:52 21:00:28 29.6 (min) Purpose : 3
LOG : 776.15 777.96 1.8 Region : 2300
FDEPTH: 24 23 Gear cond.: 0
BDEPTH: 24 23 Validity : 0
Towing dir: 0° Wire out : 90 m Speed : 3.7 kn
Sorted : 65 Total catch: 468.36 Catch/hour: 949.38

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Chloroscombrus chrysurus	503.72	28713	53.06	
Sardinella maderensis	116.21	1433	12.24	447
Ilisha africana	54.34	1338	5.72	
Parapenaeus longirostris	53.64	12045	5.65	
Pteroscion peli	41.72	882	4.39	
Sphyraena guachancho	37.89	99	3.99	448
Pentanemus quinquarius	24.69	426	2.60	
Pseudotolithus brachygnathus	24.26	114	2.56	446
Drepane africana	21.08	36	2.22	444
Pseudotolithus senegalensis	14.47	270	1.52	445
Pomadasys jubelini	11.92	14	1.26	
Cynoglossus senegalensis	8.80	28	0.93	
Arius parkii	8.21	2	0.86	
Brachydeuterus auritus	7.95	241	0.84	
Trichiurus lepturus	6.81	255	0.72	
Cynoglossus monodi	3.97	57	0.42	
Selene dorsalis	3.55	298	0.37	
Penaeus notialis	2.70	43	0.28	
Galeoides decadactylus	1.56	14	0.16	
Ephippion guttifer	1.28	28	0.13	
Panulirus regius	0.63	4	0.07	
Total	949.38		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 108
DATE :23.05.2007 GEAR TYPE: BT NO: 20 POSITION:Lat N 6°47.51
start stop duration Lon W 11°28.80
TIME :03:51:04 04:21:32 30.5 (min) Purpose : 2
LOG : 817.07 818.60 1.5 Region : 2400
FDEPTH: 40 40 Gear cond.: 0
BDEPTH: 40 40 Validity : 0
Towing dir: 0° Wire out : 140 m Speed : 3.0 kn
Sorted : 0 Total catch: 143.76 Catch/hour: 283.09

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Parapenaeopsis atlantica	41.53	11689	14.67	462
Pseudotolithus senegalensis	37.61	319	13.29	459
Pomadasys jubelini	31.35	49	11.07	450
Trichiurus lepturus	31.29	224	11.05	
Cynoponticus ferox	24.85	39	8.78	
Brachydeuterus auritus	24.48	931	8.65	460
Cynoglossus canariensis	15.44	65	5.45	461
Chloroscombrus chrysurus	12.60	650	4.45	454
Galeoides decadactylus	12.33	95	4.35	449
Pteroscion peli	9.31	333	3.29	458
Arius heudeloti	8.09	2	2.86	
Selene dorsalis	5.38	496	1.90	453
Portunus validus	4.75	10	1.68	
Grammoplites gruveli	2.62	134	0.93	
Scyllarides herklotsii	2.62	608	0.93	
Ilisha africana	2.50	100	0.88	456
Sardinella maderensis	2.07	55	0.73	457
Pseudotolithus typus	1.93	2	0.68	
Sphyraena guachancho	1.73	100	0.61	455
Panulirus regius	1.71	6	0.61	
Drepane africana	1.40	14	0.49	451
Ephippion guttifer	0.81	6	0.29	
Lethrinus atlanticus	0.63	2	0.22	
Uranoscopus polli	0.57	57	0.20	
Coloconger cadenati	0.55	10	0.19	
Mustelus mustelus	0.53	2	0.19	
Octopus vulgaris	0.51	30	0.18	
Pisodonophis semicinctus	0.49	6	0.17	
Sepia officinalis hierredda	0.49	39	0.17	
Antennarius occidentalis	0.45	20	0.16	
Lagocephalus laevigatus	0.41	12	0.15	
Bothus podas africanus	0.35	18	0.13	
Branchiostegus semifasciatus	0.32	2	0.11	
Brotula barbata	0.24	18	0.08	
Antennarius pardalis	0.24	2	0.08	
Callinectes amnicola	0.22	8	0.08	
Pseudupeneus prayensis	0.20	28	0.07	452
Eucinostomus melanopterus	0.20	6	0.07	
Caranx hippos	0.18	4	0.06	
Squilla acuelata calmani	0.12	2	0.04	
Total	283.09		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 109
DATE :23.05.2007 GEAR TYPE: BT NO: 20 POSITION:Lat N 6°49.74
start stop duration Lon W 11°26.58
TIME :06:32:03 06:55:07 23.1 (min) Purpose : 3
LOG : 830.28 831.55 1.3 Region : 2400
FDEPTH: 28 28 Gear cond.: 0
BDEPTH: 28 28 Validity : 0
Towing dir: 0° Wire out : 100 m Speed : 3.3 kn
Sorted : 0 Total catch: 847.05 Catch/hour: 2202.99

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
J E L L Y F I S H	1950.59	0	88.54	
Sphyraena guachancho	87.00	367	3.95	467
Trichiurus lepturus	58.13	1053	2.64	
Pseudotolithus senegalensis	16.38	148	0.74	468
Pseudotolithus typus	13.97	62	0.63	464
Ilisha africana	8.56	148	0.39	
Scomberomorus tritor	7.33	16	0.33	
Pteroscion peli	7.26	250	0.33	
Brachydeuterus auritus	6.94	265	0.32	
Raja miraletus	5.70	16	0.26	
Pseudotolithus brachygnathus	5.38	16	0.24	463
Selene dorsalis	4.37	156	0.20	
Chloroscombrus chrysurus	4.06	250	0.18	466
Pisodonophis semicinctus	3.12	8	0.14	
Penaeus notialis	3.04	70	0.14	
Ethmalosa fimbriata	3.04	8	0.14	
Cynoglossus senegalensis	2.81	16	0.13	
Sardinella maderensis	2.50	86	0.11	465
Galeoides decadactylus	2.37	23	0.11	
Psettodes belcheri	2.11	8	0.10	
Lethrinus atlanticus	1.95	8	0.09	
Caranx hippos	1.56	8	0.07	
Sepia officinalis hierredda	1.40	8	0.06	
Mugil bananensis	1.17	8	0.05	
Trachinotus ovatus	1.01	179	0.05	
Trachurus trachurus	0.94	8	0.04	
Cynoglossus monodi	0.31	8	0.01	
Total	2202.99		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 110
DATE :23.05.2007 GEAR TYPE: BT NO: 20 POSITION:Lat N 6°43.29
start stop duration Lon W 11°24.47
TIME :08:27:46 08:55:11 27.4 (min) Purpose : 3
LOG : 839.88 841.46 1.6 Region : 2400
FDEPTH: 41 44 Gear cond.: 0
BDEPTH: 41 44 Validity : 0
Towing dir: 0° Wire out : 140 m Speed : 3.5 kn
Sorted : 0 Total catch: 94.38 Catch/hour: 206.52

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Brachydeuterus auritus	137.53	7908	66.59	471
Scomberomorus tritor	14.97	22	7.25	469
Sphyraena guachancho	13.13	427	6.36	473
Galeoides decadactylus	7.35	18	3.56	470
Pseudotolithus brachygnathus	6.04	7	2.92	
Selene dorsalis	5.45	105	2.64	
Engraulis encrasicolus	5.05	3893	2.45	
Sardinella maderensis	3.68	263	1.78	472
Alectis alexandrinus	2.78	2	1.35	
Illex coindetii	2.63	1976	1.27	
Pomadasys jubelini	2.60	7	1.26	
Portunus validus	2.56	4	1.24	
Scyllarides herklotsii	1.31	460	0.64	
Trichiurus lepturus	0.66	46	0.32	
Calappa rubroguttata	0.39	2	0.19	
Decapterus rhonchus	0.26	7	0.13	
Grammoplites gruveli	0.07	7	0.03	
Trachinocephalus myops	0.07	20	0.03	
Total	206.52		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 111
DATE :23.05.2007 GEAR TYPE: BT NO: 20 POSITION:Lat N 6°35.94
start stop duration Lon W 11°23.64
TIME :11:03:19 11:33:05 29.8 (min) Purpose : 3
LOG : 854.18 855.95 1.8 Region : 2400
FDEPTH: 69 70 Gear cond.: 0
BDEPTH: 69 70 Validity : 0
Towing dir: 0° Wire out : 220 m Speed : 3.6 kn
Sorted : 0 Total catch: 1123.73 Catch/hour: 2264.82

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
J E L L Y F I S H	2015.45	0	88.99	
Brachydeuterus auritus	55.87	4226	2.47	479
Trichiurus lepturus	52.40	1179	2.31	
Epinephelus caninus	39.30	4	1.74	474
Uranoscopus albesca	11.43	54	0.50	
Fistularia petimba	9.80	73	0.43	
Sardinella maderensis	9.61	472	0.42	476
Scorpaena scrofa	9.25	36	0.41	
Dentex angolensis	8.46	64	0.37	475
Citharus linguatula	8.34	163	0.37	
Illex coindetii	7.98	1596	0.35	
Mustelus mustelus	5.86	2	0.26	
Sepia officinalis hierredda	5.26	36	0.23	
Diodon holocanthus	4.72	18	0.21	
Alectis alexandrinus	3.49	2	0.15	478
Octopus vulgaris	3.27	2	0.14	
Chelidonichthys gabonensis	3.08	54	0.14	
Scorpaena stephanica	2.72	18	0.12	
Selar crumenophthalmus	2.72	73	0.12	477
Grammoplites gruveli	1.45	18	0.06	
Lagocephalus laevigatus	1.27	18	0.06	
Sphyraena guachancho	1.27	36	0.06	
Decapterus rhonchus	0.91	36	0.04	
Saurida brasiliensis	0.54	54	0.02	
Priacanthus arenatus	0.36	18	0.02	
Total	2264.82		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 112
DATE :23.05.2007 GEAR TYPE: PT NO: 2 POSITION:Lat N 6°22.96
start stop duration Lon W 11°19.73
TIME :14:17:14 14:31:41 14.5 (min) Purpose : 1
LOG : 878.78 879.68 0.9 Region : 2400
FDEPTH: 100 100 Gear cond.: 0
BDEPTH: 431 615 Validity : 0
Towing dir: 0° Wire out : 400 m Speed : 3.8 kn
Sorted : 0 Total catch: 1.85 Catch/hour: 7.68

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Maurolicus muelleri	7.68	7682	100.00	480
Total	7.68		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 113
DATE :23.05.2007 GEAR TYPE: BT NO: 20 POSITION:Lat N 6°23.87
start stop duration Lon W 11°6.59
TIME :17:22:14 17:43:32 21.3 (min) Purpose : 3
LOG : 903.37 904.54 1.2 Region : 2400
FDEPTH: 66 67 Gear cond.: 0
BDEPTH: 66 67 Validity : 0
Towing dir: 0° Wire out : 210 m Speed : 3.3 kn
Sorted : 0 Total catch: 188.02 Catch/hour: 529.63

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
J E L L Y F I S H	366.20	0	69.14	
Epinephelus aeneus	31.69	11	5.98	484
Saurida brasiliensis	26.20	4439	4.95	
Illex coindetii	18.17	5079	3.43	
Brotula barbata	13.24	42	2.50	
Squatina oculata	11.97	3	2.26	
Dentex angolensis	11.21	79	2.12	485
Trichiurus lepturus	10.87	223	2.05	
Mustelus mustelus	10.70	6	2.02	
Brachydeuterus auritus	9.41	1363	1.78	483
Syacium micrurum	4.45	99	0.84	
Sepia officinalis hierredda	3.13	14	0.59	
Raja miraletus	2.08	6	0.39	
Scorpaena stephanica	1.77	3	0.34	
Sardinella maderensis	1.72	104	0.32	481
Decapterus rhonchus	1.69	17	0.32	
Octopus vulgaris	1.10	3	0.21	
Aluterus punctata	1.07	3	0.20	
Fistularia petimba	0.76	6	0.14	
Selene dorsalis	0.48	3	0.09	
Serranus accraensis	0.45	11	0.09	
Parapenaeus longirostris	0.42	68	0.08	
Priacanthus arenatus	0.34	23	0.06	
Pseudupeneus prayensis	0.28	14	0.05	482
Grammoplites gruveli	0.20	6	0.04	
Total	529.61		99.99	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 114
DATE :23.05.2007 GEAR TYPE: BT NO: 20 POSITION:Lat N 6°29.05
start stop duration Lon W 11°5.26
TIME :18:41:10 19:11:02 29.9 (min) Purpose : 3
LOG : 912.59 914.26 1.7 Region : 2400
FDEPTH: 42 43 Gear cond.: 0
BDEPTH: 42 43 Validity : 0
Towing dir: 0° Wire out : 150 m Speed : 3.3 kn
Sorted : 25 Total catch: 243.01 Catch/hour: 488.46

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Brachydeuterus auritus	196.28	7065	40.18	488
Ilisha africana	63.68	2653	13.04	489
Trichiurus lepturus	46.31	416	9.48	
Sphyraena guachancho	31.12	235	6.37	492
Pseudotolithus brachygnathus	28.94	74	5.93	486
Pteroscion peli	25.87	687	5.30	
Sardinella maderensis	25.15	1465	5.15	491
Chloroscombrus chrysurus	22.79	1845	4.67	490
Penaeus notialis	10.49	253	2.15	493
Selene dorsalis	7.24	127	1.48	
Drepane africana	5.61	36	1.15	
Galeoides decadactylus	5.25	127	1.07	
Scyllarides latus	3.44	579	0.70	
Stromateus fiatola	3.26	36	0.67	
Stromateus fiatola	3.04	4	0.62	
Portunus validus	2.19	4	0.45	
Lagocephalus laevigatus	1.81	18	0.37	
Grammoplites gruveli	1.81	90	0.37	
Scomberomorus tritor	1.67	2	0.34	487
Ephippion guttifer	0.90	36	0.19	
Decapterus rhonchus	0.90	18	0.19	
Chelidonichthys gabonensis	0.54	18	0.11	
Brotula barbata	0.18	18	0.04	
Total	488.46		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 115
DATE :23.05.2007 GEAR TYPE: BT NO: 20 POSITION:Lat N 6°32.25
start stop duration Lon W 11°4.28
TIME :20:13:00 20:42:51 29.9 (min) Purpose : 3
LOG : 920.19 921.88 1.7 Region : 2400
FDEPTH: 25 26 Gear cond.: 0
BDEPTH: 25 26 Validity : 0
Towing dir: 0° Wire out : 90 m Speed : 3.4 kn
Sorted : 29 Total catch: 89.15 Catch/hour: 179.14

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Parapenaeus longirostris	31.59	11785	17.63	
Brachydeuterus auritus	19.41	802	10.84	500
Pteroscion peli	17.84	934	9.96	503
Chloroscombrus chrysurus	13.14	1694	7.34	502
Trichiurus lepturus	11.57	434	6.46	
Stromateus fiatola	11.03	84	6.16	
Pseudotolithus senegalensis	10.73	102	5.99	497
Sardinella maderensis	10.01	729	5.59	499
Selene dorsalis	9.22	1407	5.15	
Pseudotolithus typus	8.26	24	4.61	496
Sphyraena guachancho	7.29	48	4.07	495
Pseudotolithus brachygnathus	6.01	12	3.35	498
Ilisha africana	4.82	643	2.69	501
Galeoides decadactylus	4.82	84	2.69	494
Cynoglossus senegalensis	4.22	66	2.36	
Penaeus notialis	2.65	66	1.48	
Portunus validus	2.35	6	1.31	
Pentanemus quinquarius	1.15	18	0.64	
Callinectes amnicola	0.90	151	0.50	
Raja miraletus	0.84	6	0.47	
Caranx crysos	0.60	12	0.34	
Grammoplites gruveli	0.24	18	0.13	
Uranoscopus polli	0.24	6	0.13	
Antennarius occidentalis	0.12	6	0.07	
Dicologoglossa cuneata	0.06	6	0.03	
Total	179.14		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 116
DATE :24.05.2007 GEAR TYPE: BT NO: 20 POSITION:Lat N 6°21.01
start stop duration Lon W 10°59.12
TIME :02:07:54 02:37:55 30.0 (min) Purpose : 2
LOG : 965.11 966.64 1.5 Region : 2400
FDEPTH: 54 53 Gear cond.: 0
BDEPTH: 54 53 Validity : 0
Towing dir: 0° Wire out : 150 m Speed : 3.1 kn
Sorted : 42 Total catch: 84.48 Catch/hour: 168.85

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Mustelus mustelus	59.76	28	35.39	
Brachydeuterus auritus	20.03	953	11.86	511
Parapenaeopsis atlantica	12.47	2268	7.39	507
Sepia officinalis hierredda	10.75	272	6.37	
Pagellus bellottii	10.39	156	6.16	513
Octopus vulgaris	7.55	64	4.47	
NETTASTOMATIDAE	5.84	240	3.46	
Brotula barbata	5.64	72	3.34	
Trichiurus lepturus	5.04	72	2.98	
Citharus linguatula	4.32	104	2.56	
Grammoplites gruveli	3.84	208	2.27	
Saurida brasiliensis	3.28	464	1.94	
Scyllarides herklotsii	3.16	636	1.87	
Serranus accraensis	1.84	100	1.09	
Sardinella maderensis	1.80	106	1.07	505
Bathygobius paganellus	1.76	476	1.04	
Pentheroscion mbizi	1.76	16	1.04	509
Pseudotolithus senegalensis	1.72	4	1.02	508
Dentex angolensis	1.56	16	0.92	512
Penaeus kerathurus	1.52	4	0.90	
Perulibatrachus elminensis	0.84	20	0.50	
Priacanthus arenatus	0.80	16	0.47	
Cynoglossus canariensis	0.68	4	0.40	510
Paraconger notialis	0.56	4	0.33	
Microchirus variegatus	0.40	16	0.24	
Pseudupeneus prayensis	0.32	32	0.19	504
Sicyonia galeata	0.28	100	0.17	514
Parapenaeus longirostris	0.20	12	0.12	
Raja miraletus	0.16	4	0.09	
Penaeus notialis	0.12	12	0.07	
Squilla mantis	0.08	8	0.05	
Selene dorsalis	0.08	8	0.05	506
Bothus podas africanus	0.08	4	0.05	
Arnoglossus imperialis	0.08	12	0.05	
Trachinocephalus myops	0.08	4	0.05	
Monochirus hispidus	0.08	4	0.05	
Total	168.85		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 117
DATE :24.05.2007 GEAR TYPE: BT NO: 20 POSITION:Lat N 6°24.39
start stop duration Lon W 10°54.15
TIME :06:39:04 07:09:02 30.0 (min) Purpose : 3
LOG : 980.04 981.75 1.7 Region : 2400
FDEPTH: 25 24 Gear cond.: 0
BDEPTH: 25 24 Validity : 0
Towing dir: 0° Wire out : 90 m Speed : 3.4 kn
Sorted : 0 Total catch: 170.90 Catch/hour: 342.14

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Trichiurus lepturus	93.09	2591	27.21	
Pseudotolithus typus	85.59	801	25.01	520
Pseudotolithus brachygnathus	32.93	490	9.63	519
Pteroscion peli	27.83	771	8.13	
Sardinella maderensis	14.91	1922	4.36	518
Sphyraena guachancho	12.81	90	3.74	516
Ilisha africana	12.51	781	3.66	517
Chloroscombrus chrysurus	12.41	1742	3.63	515
Selene dorsalis	7.61	611	2.22	
Portunus validus	6.71	160	1.96	
Pisodonophis semicinctus	6.41	10	1.87	
Dactylopterus volitans	4.60	10	1.35	
Cynoglossus senegalensis	4.30	50	1.26	
Penaeus notialis	3.30	370	0.97	
Caranx crysos	3.20	10	0.94	
Pentanemus quinquarius	3.00	10	0.88	
Galeoides decadactylus	2.80	50	0.82	
Lagocephalus laevigatus	2.00	20	0.59	
Brachydeuterus auritus	2.00	80	0.59	
Trachurus trachurus	1.00	10	0.29	
Trachinotus ovatus	0.90	20	0.26	
Paraconger notialis	0.70	80	0.20	
Antennarius occidentalis	0.70	50	0.20	
Grammoplites gruveli	0.40	10	0.12	
Sepia officinalis hierredda	0.30	30	0.09	
Ephippion guttifer	0.10	10	0.03	
Total	342.14		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 118
DATE :24.05.2007 GEAR TYPE: BT NO: 20 POSITION:Lat N 6°14.86
start stop duration Lon W 10°49.39
TIME :09:10:33 09:35:27 24.9 (min) Purpose : 3
LOG : 993.58 994.91 1.3 Region : 2400
FDEPTH: 35 35 Gear cond.: 0
BDEPTH: 35 35 Validity : 0
Towing dir: 0° Wire out : 130 m Speed : 3.2 kn
Sorted : 0 Total catch: 82.85 Catch/hour: 199.64

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Trichiurus lepturus	77.35	1330	38.74	
Pseudotolithus typus	17.78	72	8.91	521
Brachydeuterus auritus	13.16	369	6.59	528
Sphyraena guachancho	12.14	108	6.08	527
Pseudotolithus senegalensis	11.49	195	5.76	525
Selene dorsalis	9.98	376	5.00	524
Pseudotolithus brachygnathus	9.69	29	4.85	522
Cynoglossus senegalensis	8.53	43	4.27	529
Stromateus fiatola	8.02	43	4.02	
Portunus validus	6.87	14	3.44	
Pteroscion peli	5.86	239	2.93	526
Galeoides decadactylus	5.86	36	2.93	523
Sardinella maderensis	4.27	361	2.14	530
Brotula barbata	2.53	173	1.27	
Drepane africana	2.39	7	1.19	
Panulirus regius	1.93	7	0.97	
Penaeus notialis	0.65	7	0.33	
Antennarius occidentalis	0.58	36	0.29	
Grammoplites gruveli	0.58	14	0.29	
J E L L Y F I S H	0.00	0	0.00	
Total	199.64		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 119
DATE :24.05.2007 GEAR TYPE: BT NO: 20 POSITION:Lat N 6°12.24
start stop duration Lon W 10°52.47
TIME :10:46:01 11:15:40 29.7 (min) Purpose : 3
LOG : 999.74 1001.32 1.6 Region : 2400
FDEPTH: 60 71 Gear cond.: 0
BDEPTH: 60 71 Validity : 0
Towing dir: 0° Wire out : 200 m Speed : 3.2 kn
Sorted : 15 Total catch: 72.60 Catch/hour: 146.86

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Brachydeuterus auritus	40.46	2731	27.55	534
Dentex angolensis	20.73	152	14.12	531
Illex coindetii	13.45	3500	9.16	
Sphyraena guachancho	8.40	61	5.72	532
Raja miraletus	8.29	20	5.65	
Sardinella maderensis	7.89	344	5.37	533
Sepia officinalis hierredda	7.79	51	5.30	
Aluterus heudelotii	5.56	10	3.79	
Brotula barbata	5.26	20	3.58	
Saurida brasiliensis	4.86	718	3.31	
Lagocephalus laevigatus	4.75	71	3.24	
HOLUTHUROIDEA	3.84	1052	2.62	
Trichiurus lepturus	2.93	30	2.00	
Trachurus trachurus	2.83	40	1.93	535
Parapenaeopsis atlantica	2.33	202	1.58	
Priacanthus arenatus	2.12	51	1.45	
Pagellus bellottii	1.82	10	1.24	
Pseudupeneus prayensis	1.01	30	0.69	
Syacium micrurum	0.81	30	0.55	
Pontinus kuhlii	0.71	10	0.48	
Trachinocephalus myops	0.61	51	0.41	
Decapterus rhonchus	0.40	20	0.28	
Total	146.86		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 120
DATE :24.05.2007 GEAR TYPE: BT NO: 20 POSITION:Lat N 5°53.70
start stop duration Lon W 10°37.74
TIME :14:41:53 14:51:53 10.0 (min) Purpose : 3
LOG : 1034.01 1034.51 0.5 Region : 2400
FDEPTH: 73 73 Gear cond.: 0
BDEPTH: 73 73 Validity : 0
Towing dir: 0° Wire out : 180 m Speed : 2.9 kn
Sorted : 58 Total catch: 525.69 Catch/hour: 3154.14

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Ariomma bondi	2141.10	63780	67.88	540
Sardinella aurita	464.40	11064	14.72	536
Dentex angolensis	286.20	4266	9.07	539
Decapterus punctatus	129.60	3186	4.11	541
Boops boops	48.60	918	1.54	538
Trachurus trecae	48.06	2052	1.52	537
Raja miraletus	26.46	54	0.84	
Pseudupeneus prayensis	4.86	54	0.15	
Scomber japonicus	4.86	54	0.15	
Total	3154.14		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 121
DATE :24.05.2007 GEAR TYPE: BT NO: 20 POSITION:Lat N 6°4.11
start stop duration Lon W 10°31.40
TIME :16:59:03 17:22:24 23.3 (min) Purpose : 3
LOG : 1049.54 1050.84 1.3 Region : 2400
FDEPTH: 45 45 Gear cond.: 0
BDEPTH: 45 45 Validity : 0
Towing dir: 0° Wire out : 140 m Speed : 3.3 kn
Sorted : 0 Total catch: 679.98 Catch/hour: 1748.02

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
J E L L Y F I S H	1542.42	386	88.24	
Brachydeuterus auritus	97.17	2653	5.56	542
Engraulis encrasicolus	19.43	3743	1.11	544
Cynoponticus ferox	14.29	21	0.82	
Trichiurus lepturus	13.16	165	0.75	
Galeoides decadactylus	10.18	195	0.58	543
Sphyraena guachancho	8.84	113	0.51	545
Mustelus mustelus	8.10	3	0.46	
Pseudotolithus brachygnathus	6.66	18	0.38	546
Raja miraletus	5.45	21	0.31	
Pteroscion peli	4.11	123	0.24	
Diodon holocanthus	2.98	10	0.17	
Penaeus notialis	2.47	113	0.14	
Octopus vulgaris	2.47	10	0.14	
Scyllarides herklotsii	1.44	226	0.08	
Ilisha africana	1.44	31	0.08	
Grammoplites gruveli	1.23	72	0.07	
Brotula barbata	1.21	3	0.07	
Balistes capriscus	1.18	3	0.07	
Perulibatrachus elminensis	1.13	31	0.06	
Torpedo torpedo	1.11	3	0.06	
Brotula barbata	0.51	21	0.03	
Monochirus hispidus	0.41	21	0.02	
Sicyonia galeata	0.41	62	0.02	
Serranus cabrilla	0.21	21	0.01	
Total	1748.02		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 122
DATE :24.05.2007 GEAR TYPE: BT NO: 20 POSITION:Lat N 6°8.06
start stop duration Lon W 10°30.33
TIME :18:27:42 18:57:42 30.0 (min) Purpose : 3
LOG : 1057.72 1059.31 1.6 Region : 2400
FDEPTH: 27 27 Gear cond.: 0
BDEPTH: 27 27 Validity : 0
Towing dir: 0° Wire out : 90 m Speed : 3.2 kn
Sorted : 55 Total catch: 173.86 Catch/hour: 347.72

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Sphyraena guachancho	146.34	992	42.09	556
Ilisha africana	52.80	2950	15.18	553
Pseudotolithus brachygnathus	34.56	368	9.94	555
Galeoides decadactylus	27.42	254	7.89	557
Cynoponticus ferox	15.78	18	4.54	
Brachydeuterus auritus	9.66	270	2.78	550
Arius latiscutatus	9.06	2	2.61	554
Selene dorsalis	7.80	780	2.24	551
Sardinella maderensis	7.20	1038	2.07	552
Arius parkii	6.66	4	1.92	548
Chloroscombrus chrysurus	6.00	630	1.73	549
Stromateus fiatola	5.22	36	1.50	
Pteroscion peli	3.42	144	0.98	
Cynoglossus senegalensis	2.70	6	0.78	
Caranx crysos	2.34	18	0.67	
Pseudotolithus senegalensis	2.16	24	0.62	
Trichiurus lepturus	1.32	30	0.38	
Drepane africana	1.20	6	0.35	
Parapenaeopsis atlantica	1.08	114	0.31	
Panulirus regius	0.90	6	0.26	
Pseudotolithus typus	0.86	4	0.25	
Eucinostomus melanopterus	0.78	6	0.22	
Penaeus notialis	0.48	12	0.14	
Lagocephalus laevigatus	0.42	12	0.12	
Squilla cadenati	0.42	12	0.12	
Penaeus kerathurus	0.36	6	0.10	
Callinectes amnicola	0.30	12	0.09	
Trachinotus ovatus	0.18	18	0.05	
Trachurus trachurus	0.18	12	0.05	
Scyllarides latus	0.12	12	0.03	
Total	347.72		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 123
DATE :25.05.2007 GEAR TYPE: BT NO: 20 POSITION:Lat N 5°57.40
start stop duration Lon W 10°20.67
TIME :01:11:38 01:41:48 30.2 (min) Purpose : 2
LOG : 1110.69 1112.25 1.6 Region : 2400
FDEPTH: 47 47 Gear cond.: 0
BDEPTH: 47 47 Validity : 0
Towing dir: 0° Wire out : 140 m Speed : 3.1 kn
Sorted : 27 Total catch: 492.03 Catch/hour: 978.52

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
J E L L Y F I S H	795.49	199	81.30	
Raja miraletus	32.67	163	3.34	
Octopus vulgaris	32.44	265	3.31	
Pseudotolithus senegalensis	22.27	60	2.28	559
Grammoplites gruveli	9.82	718	1.00	
Brachydeuterus auritus	9.03	245	0.92	562
Stromateus fiatola	6.54	46	0.67	
Scyllarides herklotsii	6.20	1334	0.63	
Citharus linguatula	5.23	272	0.53	
Cynoponticus ferox	5.09	56	0.52	
Sardinella aurita	4.95	32	0.51	566
Cynoglossus senegalensis	4.67	38	0.48	567
Priacanthus arenatus	4.63	52	0.47	
NETTASTOMATIDAE	4.45	129	0.46	
Arnoglossus imperialis	3.98	511	0.41	
Mustelus mustelus	3.62	4	0.37	
Trichiurus lepturus	3.28	28	0.34	
Pteroscion peli	2.72	38	0.28	558
Solea vulgaris	2.59	24	0.26	
Calappa sp.	2.59	14	0.26	
Sardinella maderensis	2.51	4	0.26	565
Monochirus hispidus	2.23	223	0.23	
Torpedo torpedo	1.53	4	0.16	
Diodon holocanthus	1.53	4	0.16	
Serranus accraensis	0.97	80	0.10	
Callinectes amnicola	0.97	149	0.10	
Galeoides decadactylus	0.93	76	0.10	564
Sepia officinalis hierredda	0.78	28	0.08	
Sicyonia galeata	0.74	253	0.08	561
Brotula barbata	0.66	12	0.07	
Uranoscopus cadenati	0.60	10	0.06	
Parapenaeopsis atlantica	0.56	70	0.06	
Ilisha africana	0.46	10	0.05	
Saurida brasiliensis	0.42	66	0.04	
Penaeus notialis	0.40	36	0.04	560
GERYONIDAE	0.38	28	0.04	
Illex coindetii	0.24	4	0.02	
Bothus podas africanus	0.10	6	0.01	
Pseudupeneus prayensis	0.10	26	0.01	563
Chloroscombrus chrysurus	0.10	10	0.01	
Caranx hippos	0.04	4	0.00	
Total	978.52		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 124
DATE :25.05.2007 GEAR TYPE: BT NO: 20 POSITION:Lat N 6°0.84
start stop duration Lon W 10°17.91
TIME :06:27:21 06:55:44 28.4 (min) Purpose : 3
LOG : 1125.54 1127.10 1.6 Region : 2400
FDEPTH: 28 27 Gear cond.: 0
BDEPTH: 28 27 Validity : 0
Towing dir: 0° Wire out : 100 m Speed : 3.3 kn
Sorted : 0 Total catch: 143.43 Catch/hour: 303.13

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Brachydeuterus auritus	56.53	2401	18.65	579
Parapenaeus longirostris	47.34	14591	15.62	
Pteroscion peli	34.45	1249	11.36	571
Ilisha africana	33.39	721	11.02	568
Trichiurus lepturus	28.21	402	9.31	
Portunus validus	16.38	63	5.40	
Cynoglossus senegalensis	14.79	85	4.88	572
Pseudotolithus typus	11.52	42	3.80	577
Pseudotolithus brachygnathus	10.88	95	3.59	578
Galeoides decadactylus	9.72	127	3.21	575
Callinectes amnicola	7.71	391	2.54	
Torpedo marmorata	5.49	11	1.81	
Lagocephalus laevigatus	3.59	53	1.19	
Chloroscombrus chrysurus	3.38	370	1.12	570
Sphyraena guachancho	2.64	42	0.87	573
Selene dorsalis	2.64	232	0.87	569
Pseudotolithus senegalensis	2.54	95	0.84	576
Penaeus notialis	2.11	21	0.70	
Scomberomorus tritor	2.11	2	0.70	
Cynoponticus ferox	1.80	11	0.59	
Sardinella aurita	1.69	11	0.56	
Sardinella maderensis	1.27	180	0.42	574
Antennarius occidentalis	1.06	32	0.35	
Ephippion guttifer	0.85	21	0.28	
Drepane africana	0.74	11	0.24	
Paraconger notialis	0.53	63	0.17	
Total	303.38		100.08	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 125
DATE :25.05.2007 GEAR TYPE: BT NO: 20 POSITION:Lat N 5°53.95
start stop duration Lon W 10°14.13
TIME :08:09:17 08:39:30 30.2 (min) Purpose : 3
LOG : 1135.90 1137.54 1.6 Region : 2400
FDEPTH: 40 43 Gear cond.: 0
BDEPTH: 40 43 Validity : 0
Towing dir: 0° Wire out : 140 m Speed : 3.3 kn
Sorted : 35 Total catch: 79.75 Catch/hour: 158.34

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Chloroscombrus chrysurus	31.97	649	20.19	590
Trichiurus lepturus	15.29	266	9.66	
Pseudotolithus brachygnathus	14.93	64	9.43	588
Sphyraena guachancho	13.94	64	8.80	586
Sardinella maderensis	12.19	903	7.70	583
Cynoglossus senegalensis	11.67	60	7.37	587
Selene dorsalis	9.01	278	5.69	581
Galeoides decadactylus	8.84	44	5.58	580
Pseudotolithus typus	8.40	4	5.30	589
Brachydeuterus auritus	5.44	183	3.44	585
Stromateus fiatola	5.04	36	3.18	
Ilisha africana	3.73	127	2.36	584
Torpedo torpedo	3.57	24	2.26	
Pteroscion peli	3.14	103	1.98	582
Grammoplites gruveli	1.95	99	1.23	
Raja miraletus	1.55	4	0.98	
Octopus vulgaris	1.43	4	0.90	
Ephippion guttifer	0.99	8	0.63	
Penaeus notialis	0.95	32	0.60	
Panulirus regius	0.91	4	0.58	
Calappa rubroguttata	0.83	4	0.53	
Microchirus boscanion	0.68	68	0.43	
Scyllarides latus	0.68	183	0.43	
Pomadasys jubelini	0.52	2	0.33	
Epinephelus aeneus	0.34	2	0.21	
Brotula barbata	0.28	24	0.18	
Bothus podas africanus	0.08	8	0.05	
Total	158.34		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 126
DATE :25.05.2007 GEAR TYPE: BT NO: 20 POSITION:Lat N 5°50.68
start stop duration Lon W 10°16.66
TIME :11:12:47 11:22:58 10.2 (min) Purpose : 3
LOG : 1156.38 1156.88 0.5 Region : 2400
FDEPTH: 60 60 Gear cond.: 0
BDEPTH: 60 60 Validity : 0
Towing dir: 0° Wire out : 180 m Speed : 3.1 kn
Sorted : 0 Total catch: 1003.88 Catch/hour: 5910.97

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
J E L L Y F I S H	5888.13	1001	99.61	
Alectis alexandrinus	11.89	12	0.20	591
Raja miraletus	5.42	12	0.09	
Pagellus bellottii	2.00	6	0.03	
Dentex angolensis	1.71	12	0.03	
Stromateus fiatola	0.59	6	0.01	
Trichiurus lepturus	0.59	6	0.01	
Octopus vulgaris	0.41	6	0.01	
Chloroscombrus chrysurus	0.24	6	0.00	
Total	5910.97		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 127
DATE :25.05.2007 GEAR TYPE: BT NO: 20 POSITION:Lat N 5°34.26
start stop duration Lon W 10°3.22
TIME :16:10:15 16:40:19 30.1 (min) Purpose : 3
LOG : 1204.48 1206.09 1.6 Region : 2400
FDEPTH: 70 69 Gear cond.: 0
BDEPTH: 70 69 Validity : 0
Towing dir: 0° Wire out : 220 m Speed : 3.2 kn
Sorted : 132 Total catch: 1322.10 Catch/hour: 2638.04

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Selene dorsalis	2425.94	3492	91.96	
Dentex angolensis	102.96	798	3.90	
Ariomma bondi	46.69	160	1.77	
Zeus faber	15.16	20	0.57	
Sphyraena guachancho	10.58	160	0.40	
Pseudupeneus prayensis	8.18	100	0.31	
Trachurus trecae	5.99	200	0.23	592
Priacanthus arenatus	5.39	100	0.20	
Pagellus bellottii	4.99	20	0.19	
Illex coindetii	4.19	40	0.16	
Chelidonichthys gabonensis	3.59	100	0.14	
Raja miraletus	3.59	20	0.14	
Decapterus punctatus	0.80	20	0.03	
Total	2638.04		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 128
DATE :25.05.2007 GEAR TYPE: BT NO: 20 POSITION:Lat N 5°39.03
start stop duration Lon W 9°58.10
TIME :18:17:12 18:23:27 6.3 (min) Purpose : 3
LOG : 1218.07 1218.40 0.3 Region : 2400
FDEPTH: 47 46 Gear cond.: 0
BDEPTH: 47 46 Validity : 0
Towing dir: 0° Wire out : 140 m Speed : 3.2 kn
Sorted : 0 Total catch: 230.16 Catch/hour: 2209.54

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
J E L L Y F I S H	1920.00	480	86.90	
Ilisha africana	82.56	3130	3.74	599
Selene dorsalis	59.14	2266	2.68	593
Brachydeuterus auritus	33.70	1210	1.53	594
Sphyraena guachancho	17.38	125	0.79	596
Penaeus notialis	11.52	470	0.52	
Pteroscion peli	11.52	326	0.52	597
Pomadasys incisus	7.58	38	0.34	598
Pseudotolithus brachygnathus	7.58	10	0.34	
Cynoglossus senegalensis	6.34	19	0.29	
Rhizoprionodon acutus	6.05	10	0.27	
Stromateus fiatola	5.76	10	0.26	
Sardinella maderensis	5.18	634	0.23	600
Grammoplites gruveli	4.99	192	0.23	
Cynoponticus ferox	4.70	19	0.21	
Trichiurus lepturus	4.32	106	0.20	
Decapterus punctatus	3.55	86	0.16	601
Galeoides decadactylus	3.26	67	0.15	595
Raja miraletus	2.88	10	0.13	
Panulirus regius	2.50	10	0.11	
Chloroscombrus chrysurus	2.30	422	0.10	602
Sepia officinalis hierredda	1.82	10	0.08	
Torpedo torpedo	1.73	19	0.08	
Illex coindetii	1.44	19	0.07	
Scyllarides latus	1.34	278	0.06	
Perulibatrachus elminensis	0.29	29	0.01	
Sicyonia galeata	0.10	29	0.00	
Total	2209.54		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 129
DATE :26.05.2007 GEAR TYPE: BT NO: 18 POSITION:Lat N 5°31.19
start stop duration Lon W 9°46.91
TIME :06:50:08 07:00:27 10.3 (min) Purpose : 3
LOG : 1316.10 1316.64 0.5 Region : 2400
FDEPTH: 44 44 Gear cond.: 0
BDEPTH: 44 44 Validity : 0
Towing dir: 0° Wire out : 140 m Speed : 3.1 kn
Sorted : 64 Total catch: 221.16 Catch/hour: 1285.81

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Dasyatis pastinaca	348.84	6	27.13	
Galeoides decadactylus	310.23	1465	24.13	603
Ilisha africana	167.91	5023	13.06	606
Sphyraena guachancho	114.13	541	8.88	605
Drepane africana	72.85	87	5.67	609
Selene dorsalis	66.16	430	5.15	608
Brachydeuterus auritus	33.72	785	2.62	604
Sardinella maderensis	22.56	1814	1.75	607
Elops lacerta	20.81	47	1.62	611
Pteroscion peli	20.06	366	1.56	613
Scomberomorus tritor	17.03	29	1.32	614
Pseudotolithus brachygnathus	14.13	29	1.10	
Pseudotolithus typus	13.08	17	1.02	
Pomadasys incisus	12.09	47	0.94	610
Chloroscombrus chrysurus	10.47	465	0.81	612
Pseudotolithus senegalensis	8.31	29	0.65	
Penaeus notialis	4.83	134	0.38	
Portunus validus	4.83	17	0.38	
Lethrinus atlanticus	4.65	17	0.36	
Cynoglossus senegalensis	4.24	29	0.33	
Parapenaeus longirostris	3.49	756	0.27	
Trichiurus lepturus	3.20	105	0.25	
Sardinella aurita	2.33	17	0.18	
Stromateus fiatola	2.03	17	0.16	
Squilla cadenati	1.16	29	0.09	
Grammoplites gruveli	0.87	29	0.07	
Sepia officinalis hierredda	0.76	17	0.06	
Pagrus caeruleostictus	0.47	17	0.04	
Antennarius occidentalis	0.29	17	0.02	
Scyllarides latus	0.29	87	0.02	
Total	1285.81		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 130
DATE :26.05.2007 GEAR TYPE: BT NO: 18 POSITION:Lat N 5°24.68
start stop duration Lon W 9°46.11
TIME :08:16:05 08:27:03 11.0 (min) Purpose : 3
LOG : 1325.48 1326.07 0.6 Region : 2400
FDEPTH: 64 64 Gear cond.: 0
BDEPTH: 64 64 Validity : 0
Towing dir: 0° Wire out : 190 m Speed : 3.2 kn
Sorted : 0 Total catch: 1001.23 Catch/hour: 5476.19

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
J E L L Y F I S H	5469.46	1094	99.88	
Dentex angolensis	2.73	22	0.05	
Brachydeuterus auritus	1.59	55	0.03	
Chloroscombrus chrysurus	1.37	16	0.02	
Stromateus fiatola	0.55	5	0.01	
Trichiurus lepturus	0.38	5	0.01	
Decapterus rhonchus	0.11	5	0.00	
Total	5476.19		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 131
DATE :26.05.2007 GEAR TYPE: BT NO: 18 POSITION:Lat N 5°7.08
start stop duration Lon W 9°34.46
TIME :14:24:37 14:44:40 20.1 (min) Purpose : 3
LOG : 1377.61 1378.72 1.1 Region : 2400
FDEPTH: 77 77 Gear cond.: 0
BDEPTH: 77 77 Validity : 0
Towing dir: 0° Wire out : 200 m Speed : 3.3 kn
Sorted : 0 Total catch: 46.69 Catch/hour: 139.72

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Dentex angolensis	68.23	509	48.83	615
Dentex congoensis	16.94	317	12.12	622
Mustelus mustelus	16.82	6	12.04	
Priacanthus arenatus	11.43	236	8.18	616
Sardinella aurita	6.40	335	4.58	623
Illex coindetii	5.51	1026	3.94	
Squatina oculata	2.24	3	1.61	
Boops boops	1.80	45	1.29	619
Stromateus fiatola	1.77	15	1.26	
Scorpaena stephanica	1.59	6	1.14	
Sphyraena guachancho	1.41	9	1.01	617
Pseudupeneus prayensis	1.29	21	0.92	618
Trachurus trecae	0.93	36	0.66	621
Decapterus punctatus	0.81	18	0.58	620
Raja miraletus	0.75	3	0.54	
Pagellus bellottii	0.72	6	0.51	
Chelidonichthys gabonensis	0.39	12	0.28	
Sphoeroides pachgaster	0.15	12	0.11	
Selar crumenophthalmus	0.15	3	0.11	
Monochirus hispidus	0.03	3	0.02	
Total	139.33		99.72	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 132
DATE :26.05.2007 GEAR TYPE: BT NO: 18 POSITION:Lat N 5°12.95
start stop duration Lon W 9°30.81
TIME :16:43:53 17:14:07 30.2 (min) Purpose : 3
LOG : 1388.25 1390.05 1.8 Region : 2400
FDEPTH: 64 64 Gear cond.: 0
BDEPTH: 64 64 Validity : 0
Towing dir: 0° Wire out : 190 m Speed : 3.6 kn
Sorted : 0 Total catch: 33.33 Catch/hour: 66.13

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Dentex angolensis	30.46	181	46.05	628
Epinephelus aeneus	5.89	2	8.91	
Selene dorsalis	4.92	28	7.44	629
Mustelus mustelus	4.38	4	6.63	
Brachydeuterus auritus	4.37	190	6.60	626
Engraulis encrasicolus	3.67	857	5.55	
Brotula barbata	3.25	6	4.92	
Illex coindetii	2.40	163	3.63	
Sphyraena guachancho	1.27	4	1.92	630
Selar crumenophthalmus	0.91	10	1.38	631
Citharus linguatula	0.73	22	1.11	
Sardinella aurita	0.60	28	0.90	624
Scorpaena stephanica	0.58	2	0.87	
Pagellus bellottii	0.44	2	0.66	
Sardinella maderensis	0.42	6	0.63	
Cynoglossus senegalensis	0.40	2	0.60	
Uranoscopus albesca	0.34	2	0.51	
Saurida brasiliensis	0.26	52	0.39	
Fistularia petimba	0.20	2	0.30	
Pseudupeneus prayensis	0.14	8	0.21	625
Sepia officinalis hierredda	0.12	4	0.18	
Arnoglossus imperialis	0.10	10	0.15	
Boops boops	0.10	16	0.15	627
Calappa sp.	0.04	20	0.06	
Scyllarides herklotsii	0.04	6	0.06	
Grammoplites gruveli	0.04	2	0.06	
Ariomma bondi	0.04	16	0.06	632
Sphoeroides marmoratus	0.02	2	0.03	
Parapenaeopsis atlantica	0.02	8	0.03	
Total	66.13		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 133
DATE :26.05.2007 GEAR TYPE: PT NO: 7 POSITION:Lat N 5°14.70
start stop duration Lon W 9°30.28
TIME :20:00:40 20:31:17 30.6 (min) Purpose : 1
LOG : 1398.68 1400.18 1.5 Region : 2400
FDEPTH: 0 0 Gear cond.: 0
BDEPTH: 59 62 Validity : 0
Towing dir: 0° Wire out : 0 m Speed : 2.9 kn
Sorted : 0 Total catch: 0.01 Catch/hour: 0.02

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Sardinella maderensis	0.02	2	0.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 134
DATE :27.05.2007 GEAR TYPE: BT NO: 18 POSITION:Lat N 5°3.20
start stop duration Lon W 9°17.76
TIME :06:50:26 07:20:36 30.2 (min) Purpose : 3
LOG : 1476.73 1478.32 1.6 Region : 2400
FDEPTH: 62 62 Gear cond.: 0
BDEPTH: 62 62 Validity : 0
Towing dir: 0° Wire out : 185 m Speed : 3.2 kn
Sorted : 0 Total catch: 97.83 Catch/hour: 194.56

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Selene dorsalis	49.22	712	25.30	637
Brachydeuterus auritus	48.03	1084	24.69	636
Dentex angolensis	21.08	133	10.84	633
HOLUTHUROIDEA	16.53	5083	8.49	
Pagrus caeruleostictus	13.86	24	7.12	640
Umbrina canariensis	12.33	38	6.34	635
Illex coindetii	7.92	1907	4.07	
Pomadasys incisus	7.58	34	3.89	634
Mustelus mustelus	4.43	4	2.28	
Sardinella maderensis	3.34	195	1.72	638
Dentex canariensis	2.61	2	1.34	639
Priacanthus arenatus	1.47	22	0.76	
Pagellus bellottii	0.97	8	0.50	
Lagocephalus laevigatus	0.95	4	0.49	
Pseudupeneus prayensis	0.88	16	0.45	
Sphyraena guachancho	0.56	6	0.29	
Chloroscombrus chrysurus	0.48	6	0.25	
Ariomma bondi	0.46	6	0.24	
Decapterus punctatus	0.46	34	0.24	641
Stromateus fiatola	0.36	4	0.18	
Sepia officinalis hierredda	0.30	12	0.15	
Decapterus rhonchus	0.30	4	0.15	
Fistularia petimba	0.28	4	0.14	
Grammoplites gruveli	0.18	6	0.09	
Total	194.56		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 135
DATE :27.05.2007 GEAR TYPE: BT NO: 18 POSITION:Lat N 4°54.60
start stop duration Lon W 9°17.67
TIME :09:44:32 10:05:30 21.0 (min) Purpose : 3
LOG : 1492.76 1493.97 1.2 Region : 2400
FDEPTH: 70 71 Gear cond.: 0
BDEPTH: 70 71 Validity : 0
Towing dir: 0° Wire out : 210 m Speed : 3.5 kn
Sorted : 0 Total catch: 111.75 Catch/hour: 319.74

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Decapterus punctatus	102.58	2815	32.08	645
Dentex angolensis	52.36	392	16.38	642
Epinephelus aeneus	45.21	6	14.14	649
Pagellus bellottii	27.47	323	8.59	646
Sardinella aurita	22.69	670	7.10	644
HOLUTHUROIDEA	20.54	4220	6.43	
Dentex congoensis	15.51	235	4.85	643
Dentex canariensis	14.51	17	4.54	647
Squatina oculata	6.07	3	1.90	
Pseudupeneus prayensis	5.75	63	1.80	648
Pagrus caeruleostictus	2.09	9	0.65	
Illex coindetii	2.00	66	0.63	
Scorpaena stephanica	1.17	3	0.37	
Brachydeuterus auritus	0.60	9	0.19	
Chaetodon marcellae	0.37	9	0.12	
Selene dorsalis	0.37	6	0.12	
Sardinella maderensis	0.23	9	0.07	
Scomber japonicus	0.14	3	0.04	
Sepia officinalis hierredda	0.09	3	0.03	
Total	319.74		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 136
DATE :27.05.2007 GEAR TYPE: BT NO: 18 POSITION:Lat N 4°39.41
start stop duration Lon W 9°7.07
TIME :15:19:02 15:46:45 27.7 (min) Purpose : 3
LOG : 1544.16 1545.61 1.5 Region : 2400
FDEPTH: 89 88 Gear cond.: 0
BDEPTH: 89 88 Validity : 0
Towing dir: 0° Wire out : 250 m Speed : 3.1 kn
Sorted : 0 Total catch: 350.00 Catch/hour: 757.58

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Sardinella aurita	339.83	6972	44.86	654
Boops boops	175.00	4645	23.10	653
Trachurus trecae	88.70	3961	11.71	656
Dentex congoensis	47.27	643	6.24	651
Priacanthus arenatus	45.13	1238	5.96	655
Scomber japonicus	32.86	429	4.34	652
Dentex angolensis	14.89	108	1.97	650
Pagellus bellottii	5.82	48	0.77	657
Ariomma bondi	2.99	71	0.39	
Sphoeroides pachgaster	1.67	24	0.22	
Illex coindetii	1.19	48	0.16	
Pseudupeneus prayensis	1.19	13	0.16	
Anthias anthias	1.06	82	0.14	
Total	757.60		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 137
DATE :27.05.2007 GEAR TYPE: BT NO: 18 POSITION:Lat N 4°50.09
start stop duration Lon W 8°57.60
TIME :17:49:26 18:19:24 30.0 (min) Purpose : 3
LOG : 1562.28 1563.92 1.6 Region : 2400
FDEPTH: 62 61 Gear cond.: 0
BDEPTH: 62 61 Validity : 0
Towing dir: 0° Wire out : 180 m Speed : 3.3 kn
Sorted : 31 Total catch: 113.80 Catch/hour: 227.83

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Priacanthus arenatus	95.70	2096	42.00	661
Brachydeuterus auritus	41.56	2448	18.24	662
Dentex angolensis	21.10	134	9.26	659
Sardinella aurita	17.52	372	7.69	660
Sardinella maderensis	12.41	919	5.45	663
Decapterus punctatus	6.87	308	3.01	665
Pagellus bellottii	6.45	56	2.83	664
Sphyraena guachancho	5.19	112	2.28	667
Mustelus mustelus	4.54	4	1.99	
Epinephelus aeneus	4.22	2	1.85	658
Ariomma bondi	3.36	56	1.48	
Selar crumenophthalmus	2.18	36	0.96	666
Decapterus rhonchus	2.10	50	0.92	
Illex coindetii	1.40	168	0.62	
Raja miraletus	1.26	8	0.55	
Selene dorsalis	0.70	22	0.31	
Engraulis encrasicolus	0.70	64	0.31	
Saurida brasiliensis	0.36	112	0.16	
Syacium micrurum	0.22	8	0.10	
Total	227.85		100.01	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 138
DATE :28.05.2007 GEAR TYPE: BT NO: 18 POSITION:Lat N 4°40.59
start stop duration Lon W 8°38.23
TIME :06:48:06 07:18:10 30.1 (min) Purpose : 3
LOG : 1653.44 1655.02 1.6 Region : 2400
FDEPTH: 57 58 Gear cond.: 0
BDEPTH: 57 58 Validity : 0
Towing dir: 0° Wire out : 180 m Speed : 3.2 kn
Sorted : 21 Total catch: 75.39 Catch/hour: 150.43

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Brachydeuterus auritus	39.91	4925	26.53	673
Selene dorsalis	32.32	431	21.49	677
Sardinella maderensis	13.97	1105	9.29	676
Dentex angolensis	10.04	70	6.67	669
Chloroscombrus chrysurus	8.64	116	5.74	668
Cymbium cymbium	8.24	2	5.48	
Pagrus caeruleostictus	6.60	8	4.39	670
Dentex canariensis	5.23	2	3.48	674
Sphyraena guachancho	4.41	16	2.93	672
Mustelus mustelus	2.87	4	1.91	
Raja miraletus	2.85	10	1.90	
Pagellus bellottii	2.19	28	1.46	675
Priacanthus arenatus	1.90	56	1.26	
Decapterus punctatus	1.86	96	1.23	679
Paragaleus pectoralis	1.78	2	1.18	
Brotula barbata	1.48	2	0.98	
Illex coindetii	1.46	543	0.97	
Epinephelus aeneus	1.22	2	0.81	671
Octopus vulgaris	1.10	4	0.73	
Dactylopterus volitans	0.66	6	0.44	
Cynoglossus senegalensis	0.60	6	0.40	
Engraulis encrasicolus	0.46	198	0.31	678
Galeoides decadactylus	0.40	6	0.27	
Grammoplites gruveli	0.16	6	0.11	
Saurida brasiliensis	0.10	16	0.07	
Total	150.43		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 139
DATE :28.05.2007 GEAR TYPE: BT NO: 18 POSITION:Lat N 4°33.29
start stop duration Lon W 8°40.62
TIME :08:43:10 09:13:42 30.5 (min) Purpose : 3
LOG : 1665.71 1667.35 1.6 Region : 2400
FDEPTH: 75 75 Gear cond.: 0
BDEPTH: 75 75 Validity : 0
Towing dir: 0° Wire out : 220 m Speed : 3.2 kn
Sorted : 36 Total catch: 724.40 Catch/hour: 1424.12

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Trachurus trachurus	778.51	48116	54.67	686
Scomber japonicus	189.91	1691	13.34	685
Dentex angolensis	167.10	1651	11.73	683
Sardinella aurita	110.88	6497	7.79	681
Ariomma bondi	82.18	2202	5.77	682
Boops boops	46.79	1573	3.29	680
Pagellus bellottii	12.98	315	0.91	687
Pseudupeneus prayensis	10.62	157	0.75	
Squatina oculata	10.62	6	0.75	
Dentex congoensis	9.44	315	0.66	684
Sphoeroides pachgaster	5.11	39	0.36	
Total	1424.12		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 140
DATE :28.05.2007 GEAR TYPE: BT NO: 18 POSITION:Lat N 4°25.55
start stop duration Lon W 8°21.76
TIME :13:03:26 13:18:32 15.1 (min) Purpose : 3
LOG : 1704.14 1704.90 0.8 Region : 2400
FDEPTH: 80 79 Gear cond.: 0
BDEPTH: 80 79 Validity : 0
Towing dir: 0° Wire out : 220 m Speed : 3.0 kn
Sorted : 62 Total catch: 1314.09 Catch/hour: 5225.01

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Trachurus trecae	2404.77	132990	46.02	691
Engraulis encrasicolus	1315.11	101857	25.17	690
Boops boops	463.42	13666	8.87	688
Sardinella aurita	455.07	18732	8.71	695
Priacanthus arenatus	201.23	8970	3.85	689
Dentex congoensis	172.01	2338	3.29	694
Dentex angolensis	51.77	584	0.99	
Ariomma bondi	49.26	918	0.94	
Scomber japonicus	31.73	417	0.61	693
Squatina oculata	23.86	4	0.46	
Chromis cadenati	18.37	167	0.35	
Sphyraena guachancho	14.19	83	0.27	
Pagellus bellottii	6.68	167	0.13	692
Lagocephalus laevigatus	5.84	83	0.11	
Illex coindetii	5.01	83	0.10	
Sphoeroides pachgaster	4.17	83	0.08	
Anthias anthias	2.50	83	0.05	
Total	5225.01		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 141
DATE :28.05.2007 GEAR TYPE: BT NO: 18 POSITION:Lat N 4°32.43
start stop duration Lon W 8°20.34
TIME :14:46:30 15:16:05 29.6 (min) Purpose : 3
LOG : 1714.77 1716.40 1.6 Region : 2400
FDEPTH: 63 62 Gear cond.: 0
BDEPTH: 63 62 Validity : 0
Towing dir: 0° Wire out : 170 m Speed : 3.3 kn
Sorted : 30 Total catch: 272.97 Catch/hour: 553.50

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Brachydeuterus auritus	349.48	11828	63.14	701
Sphyraena guachancho	91.61	1478	16.55	696
Sardinella maderensis	45.44	3267	8.21	703
Selene dorsalis	30.11	474	5.44	698
Chloroscombrus chrysurus	17.34	237	3.13	702
Dentex angolensis	6.20	73	1.12	697
Decapterus rhonchus	6.02	55	1.09	700
Pomadasys peroteti	2.55	18	0.46	
Pagellus bellottii	2.37	18	0.43	
Decapterus punctatus	1.28	55	0.23	699
Illex coindetii	1.09	18	0.20	
Total	553.50		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 142
DATE :28.05.2007 GEAR TYPE: PT NO: 2 POSITION:Lat N 4°21.92
start stop duration Lon W 8°12.42
TIME :21:26:56 21:37:09 10.2 (min) Purpose : 1
LOG : 1762.21 1762.82 0.6 Region : 2400
FDEPTH: 25 25 Gear cond.: 0
BDEPTH: 85 86 Validity : 0
Towing dir: 0° Wire out : 90 m Speed : 2.8 kn
Sorted : 39 Total catch: 820.26 Catch/hour: 4815.62

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Sardinella aurita	2884.93	91791	59.91	704
Trachurus trachurus	1257.53	62348	26.11	706
Scomber japonicus	462.33	5301	9.60	705
Sphyraena guachancho	90.00	493	1.87	707
Engraulis encrasicolus	70.27	7890	1.46	708
Ariomma bondi	50.55	1356	1.05	
Total	4815.62		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 143
DATE :29.05.2007 GEAR TYPE: BT NO: 18 POSITION:Lat N 4°22.55
start stop duration Lon W 8°3.47
TIME :06:41:03 07:11:24 30.4 (min) Purpose : 3
LOG : 1834.66 1836.29 1.6 Region : 2400
FDEPTH: 75 73 Gear cond.: 0
BDEPTH: 75 73 Validity : 0
Towing dir: 0° Wire out : 220 m Speed : 3.2 kn
Sorted : 101 Total catch: 803.52 Catch/hour: 1587.98

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Brachydeuterus auritus	603.16	25312	37.98	709
Umbrina canariensis	395.26	1269	24.89	715
Sphyraena guachancho	207.11	1350	13.04	714
Selene dorsalis	117.79	2374	7.42	713
Pagellus bellottii	83.79	601	5.28	716
Raja miraletus	32.25	126	2.03	
Octopus vulgaris	24.82	16	1.56	
Dentex angolensis	19.29	111	1.21	710
Dentex congoensis	14.55	126	0.92	712
Selar crumenophthalmus	14.27	174	0.90	
Sardinella maderensis	13.91	585	0.88	711
Dactylopterus volitans	13.60	47	0.86	
Scorpaena stephanica	12.49	16	0.79	
Ariomma bondi	11.54	142	0.73	
Mustelus mustelus	10.91	16	0.69	
Galeoides decadactylus	4.58	47	0.29	
Decapterus rhonchus	2.21	16	0.14	
Cynoglossus senegalensis	2.06	16	0.13	
Decapterus punctatus	1.26	32	0.08	
Chloroscombrus chrysurus	1.26	16	0.08	
Priacanthus arenatus	1.11	32	0.07	
Penaeus notialis	0.47	16	0.03	
Uranoscopus polli	0.16	16	0.01	
Total	1587.87		99.99	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 144
DATE :29.05.2007 GEAR TYPE: BT NO: 18 POSITION:Lat N 4°19.73
start stop duration Lon W 8°1.66
TIME :09:43:25 10:14:10 30.7 (min) Purpose : 3
LOG : 1852.61 1854.32 1.7 Region : 2400
FDEPTH: 78 79 Gear cond.: 0
BDEPTH: 78 79 Validity : 0
Towing dir: 0° Wire out : 220 m Speed : 3.3 kn
Sorted : 67 Total catch: 649.44 Catch/hour: 1267.61

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Ariomma bondi	733.31	20202	57.85	717
Sphyraena afra	161.32	927	12.73	719
Dentex angolensis	92.34	927	7.28	721
Trachurus trachurus	60.45	1671	4.77	723
Pagellus bellottii	49.69	650	3.92	722
Dentex congoensis	38.39	742	3.03	720
Boops boops	23.93	927	1.89	
Squatina oculata	22.43	20	1.77	
Epinephelus aeneus	21.28	4	1.68	724
Priacanthus arenatus	11.87	279	0.94	
Scorpaena stephanica	9.10	37	0.72	
Sardinella aurita	8.90	148	0.70	
Decapterus punctatus	7.42	185	0.59	
Mustelus mustelus	6.25	4	0.49	
Raja miraletus	5.39	20	0.42	
Illex coindetii	5.19	2003	0.41	
Umbrina canariensis	3.88	20	0.31	
Anthias anthias	2.97	168	0.23	
Pseudupeneus prayensis	1.48	20	0.12	
Dentex canariensis	1.29	2	0.10	718
Grammoplites gruveli	0.74	20	0.06	
Total	1267.61		100.00	

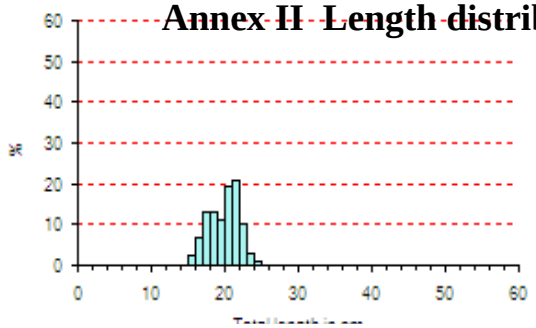
R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 145
DATE :29.05.2007 GEAR TYPE: BT NO: 18 POSITION:Lat N 4°11.85
start stop duration Lon W 7°43.66
TIME :14:31:25 15:02:00 30.6 (min) Purpose : 3
LOG : 1888.97 1890.63 1.7 Region : 2400
FDEPTH: 86 84 Gear cond.: 0
BDEPTH: 86 84 Validity : 0
Towing dir: 0° Wire out : 230 m Speed : 3.3 kn
Sorted : 75 Total catch: 99.89 Catch/hour: 195.93

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Squatina oculata	65.08	22	33.22	
Sphyraena guachancho	27.52	104	14.05	
Trichiurus lepturus	17.73	439	9.05	
Selene dorsalis	16.97	641	8.66	
Uranoscopus albesca	15.99	86	8.16	
Illex coindetii	6.65	2530	3.39	
Epinephelus aeneus	6.34	2	3.23	
Zeus faber	4.12	2	2.10	
Dentex angolensis	3.81	63	1.94	726
Ariomma bondi	3.49	25	1.78	
Brotula barbata	3.37	6	1.72	
Monochirus hispidus	2.00	14	1.02	
Citharus linguatula	1.96	33	1.00	
Parapandalus narval	1.90	92	0.97	727
Dentex congoensis	1.77	31	0.90	
Brachydeuterus auritus	1.69	39	0.86	
Decapterus punctatus	1.51	45	0.77	725
Caranx crysos	1.49	25	0.76	
Pteroscion peli	1.35	18	0.69	
Diodon holocanthus	1.24	22	0.63	
Sepia officinalis hierredda	1.24	24	0.63	
Boops boops	1.08	16	0.55	
Stromateus fiatola	1.04	6	0.53	
Umbrina canariensis	0.96	2	0.49	
Chelidonichthys gabonensis	0.84	10	0.43	
Priacanthus arenatus	0.73	25	0.37	
Lagocephalus laevigatus	0.71	6	0.36	
Saurida brasiliensis	0.65	124	0.33	
Pseudupeneus prayensis	0.55	10	0.28	
Chloroscombrus chrysurus	0.45	8	0.23	
Pagellus bellottii	0.41	14	0.21	
Scorpaena stephanica	0.33	2	0.17	
Sardinella aurita	0.31	6	0.16	
Bathygobius paganellus	0.25	2	0.13	
Grammoplites gruveli	0.18	2	0.09	
Lophiodes kempi	0.14	2	0.07	
Fistularia petimba	0.08	2	0.04	
Ephippion guttifer	0.02	2	0.01	
Total	195.93		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 146
DATE :29.05.2007 GEAR TYPE: BT NO: 18 POSITION:Lat N 4°16.66
start stop duration Lon W 7°36.55
TIME :16:29:15 16:59:19 30.1 (min) Purpose : 3
LOG : 1902.29 1903.98 1.7 Region : 2400
FDEPTH: 42 39 Gear cond.: 0
BDEPTH: 42 39 Validity : 0
Towing dir: 0° Wire out : 120 m Speed : 3.4 kn
Sorted : 56 Total catch: 225.64 Catch/hour: 450.53

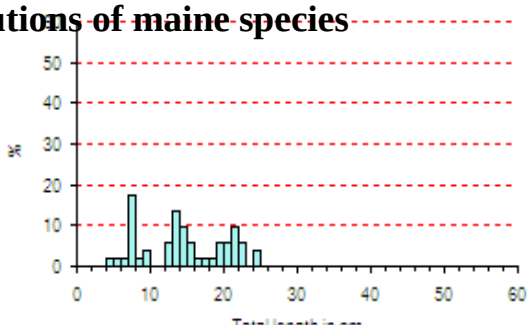
SPECIES	CATCH/HOUR weight	CATCH/HOUR numbers	% OF TOT. C	SAMP
Chloroscombrus chrysurus	118.20	2152	26.24	734
Brachydeuterus auritus	58.30	4235	12.94	736
Ilisha africana	56.71	2478	12.59	732
Sphyraena guachancho	45.12	487	10.02	735
Trichiurus lepturus	39.93	1054	8.86	
Selene dorsalis	30.83	735	6.84	733
Galeoides decadactylus	28.51	104	6.33	729
Stromateus fiatola	25.08	72	5.57	
Pseudotolithus senegalensis	17.73	96	3.94	728
Pomadasys jubelini	13.66	2	3.03	
Panulirus regius	7.51	16	1.67	
Pteroscion peli	3.67	104	0.82	731
Sardinella maderensis	3.59	232	0.80	730
Scyllarides herklotsii	1.04	208	0.23	
Illex coindetii	0.56	192	0.12	
Antennarius occidentalis	0.08	8	0.02	
Total	450.53		100.00	

Annex II Length distributions of maine species



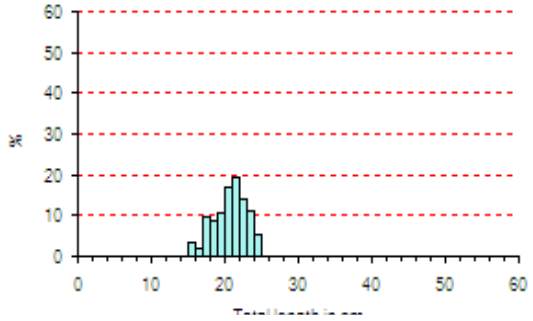
Dentex angolensis Guniea Bissau

Mean length = 19.90 N = 152



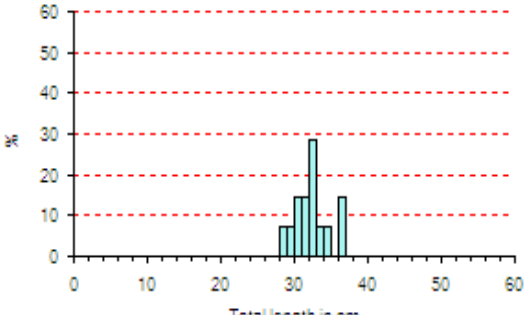
Pteroscion peli Guniea Bissau

Mean length = 14.60 N = 52



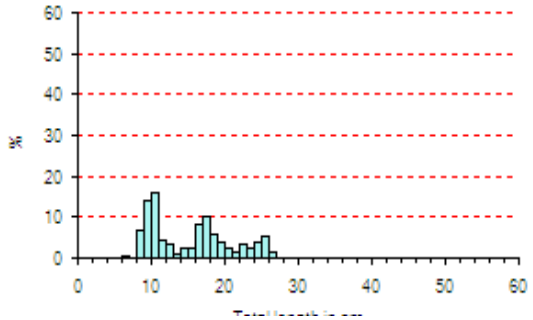
Dentex congoensis Guniea Bissau

Mean length = 20.73 N = 156



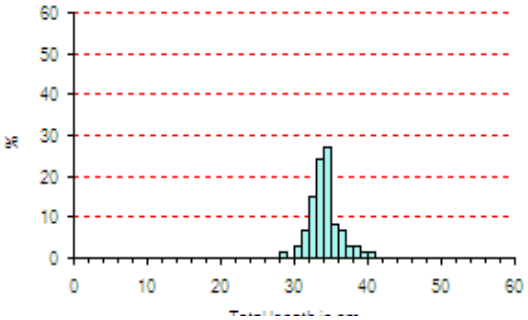
Umbrina canariensis Guniea Bissau

Mean length = 32.36 N = 14



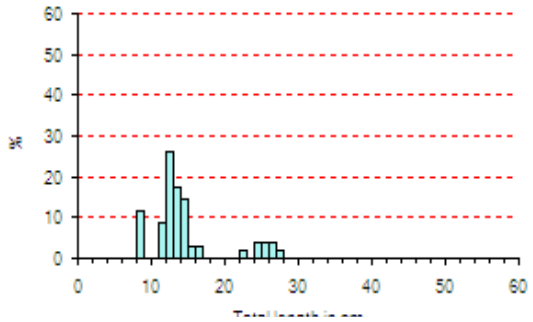
Pagellus bellottii Guniea Bissau

Mean length = 15.35 N = 251



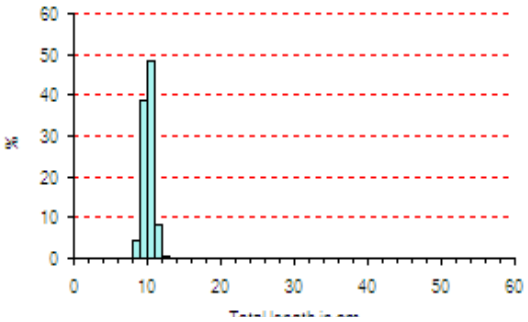
Pomadasys jubelini Guniea Bissau

Mean length = 34.12 N = 74



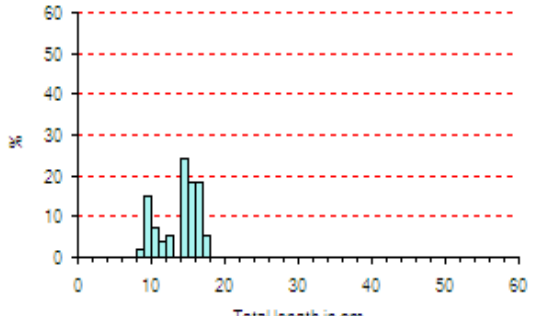
Pagrus caeruleostictus Guniea Bissau

Mean length = 14.67 N = 37



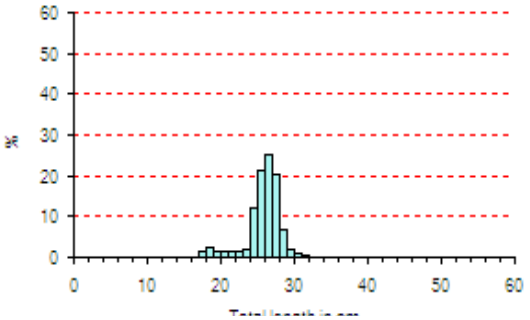
Brachydeuterus auritus Guniea Bissau

Mean length = 10.11 N = 375



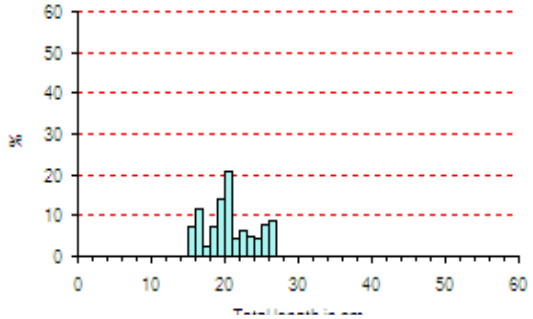
Ariomma bondi Guniea Bissau

Mean length = 13.85 N = 54



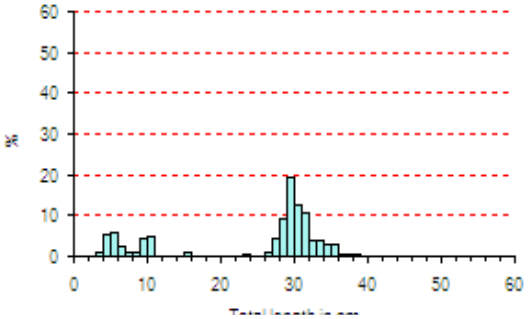
Decapterus punctatus Guniea Bissau

Mean length = 25.84 N = 181



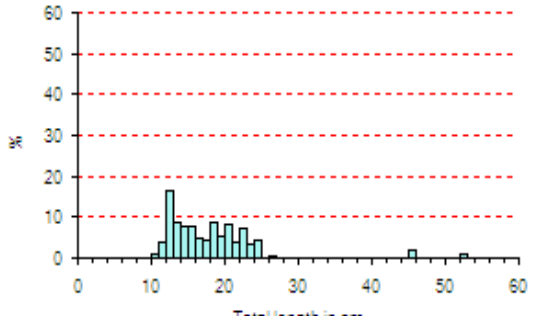
Spicara alta Guniea Bissau

Mean length = 20.70 N = 163



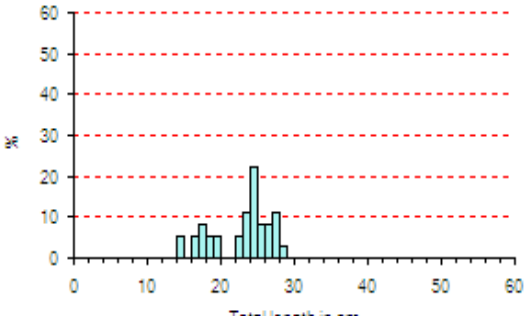
Decapterus rhonchus Guniea Bissau

Mean length = 24.52 N = 291



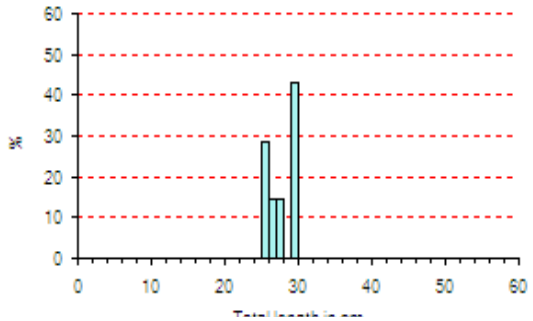
Pseudupeneus prayensis Guniea Bissau

Mean length = 18.01 N = 120



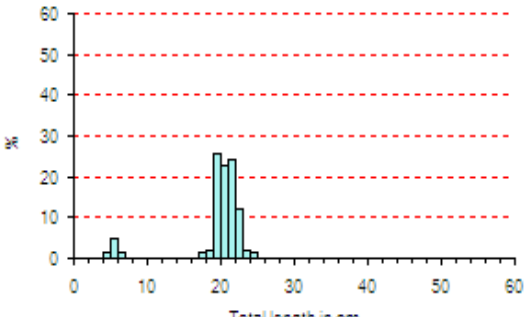
Trachurus trecae Guniea Bissau

Mean length = 22.78 N = 36



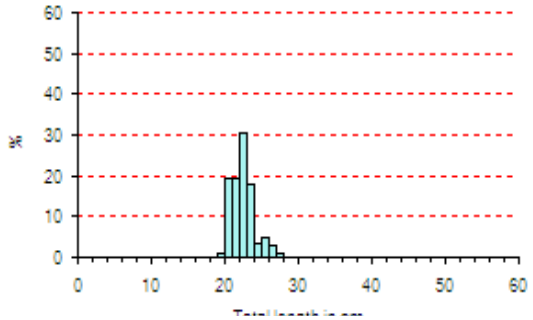
Priacanthus arenatus Guniea Bissau

Mean length = 27.64 N = 7



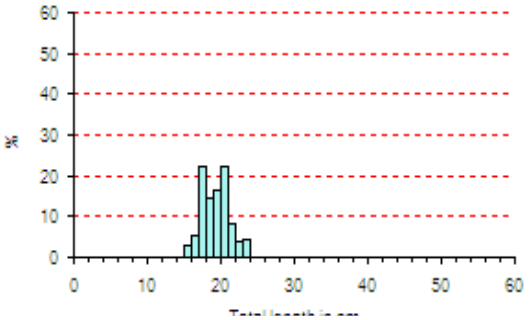
Selene dorsalis Guniea Bissau

Mean length = 19.51 N = 119



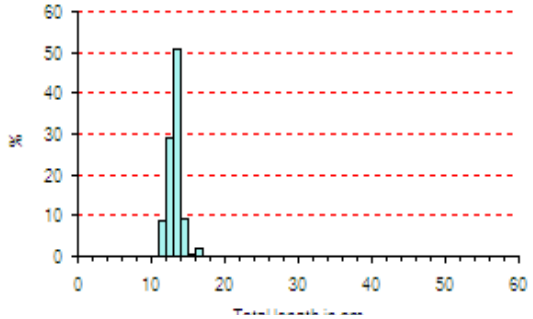
Chloroscombrus chrysurus Guniea Bissau

Mean length = 22.45 N = 263



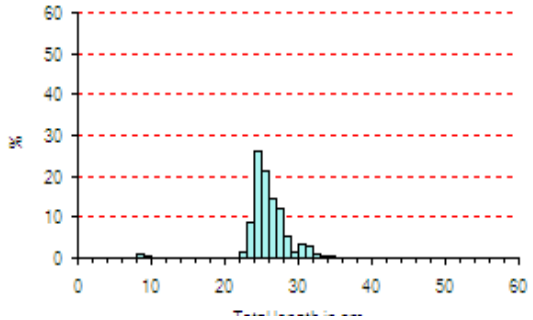
Ilisha africana Guniea Bissau

Mean length = 19.32 N = 109



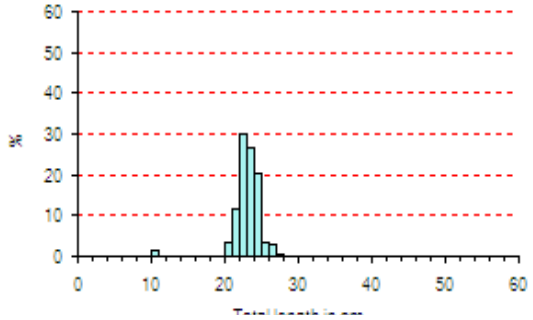
Scomber japonicus Guniea Bissau

Mean length = 13.20 N = 197



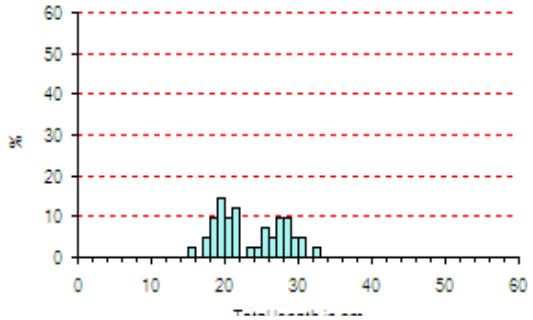
Sardinella aurita Guniea Bissau

Mean length = 25.83 N = 296



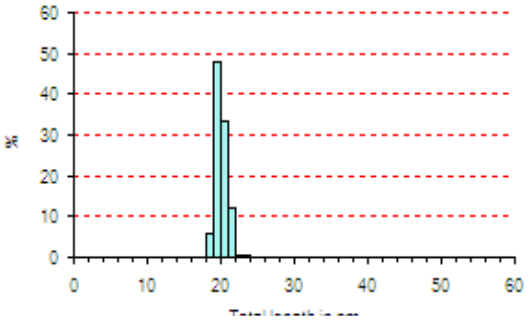
Sardinella maderensis Guniea Bissau

Mean length = 23.09 N = 163



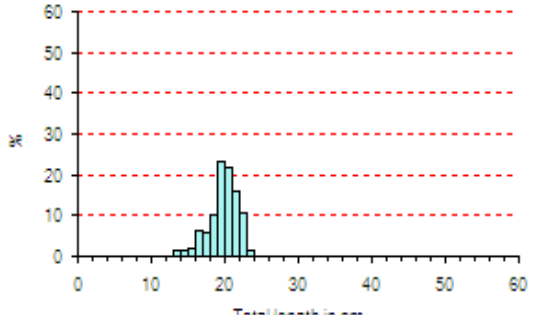
Dentex angolensis Guniea

Mean length = 23.45 N = 42



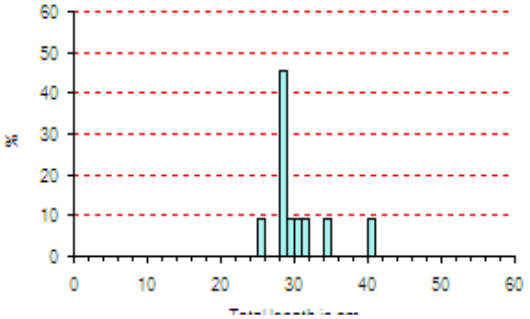
Boops boops Guniea

Mean length = 20.05 N = 47



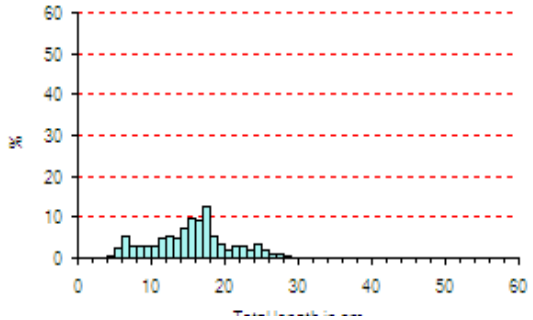
Dentex congoensis Guniea

Mean length = 19.78 N = 114



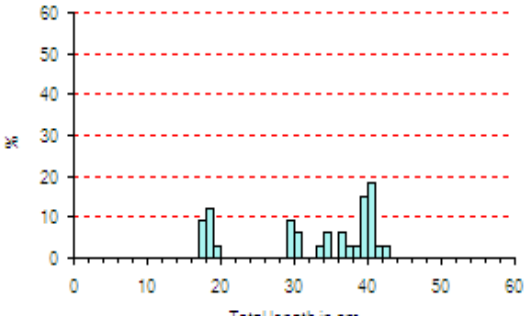
Lutjanus goreensis Guniea

Mean length = 30.41 N = 11



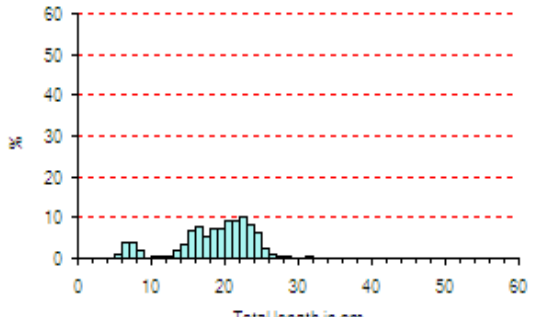
Pagrus caeruleostictus Guniea

Mean length = 15.57 N = 870



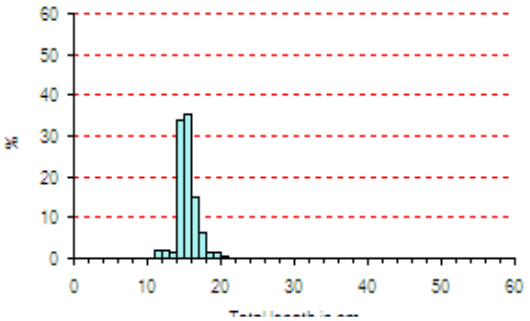
Lethrinus atlanticus Guniea

Mean length = 32.53 N = 33



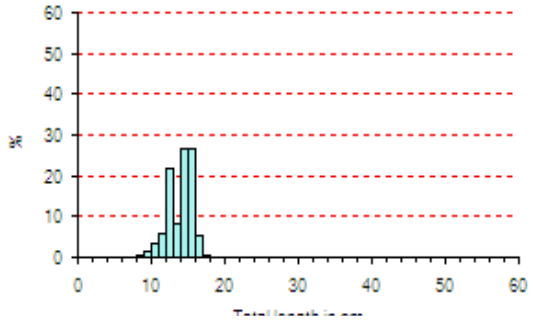
Pagellus bellottii Guniea

Mean length = 18.65 N = 1070



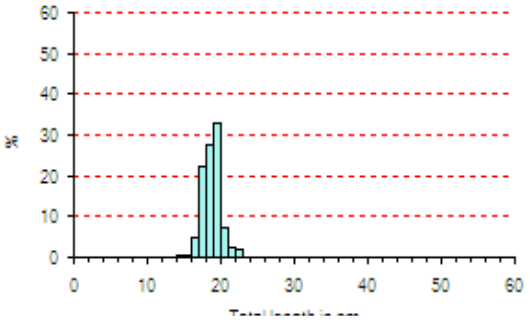
Brachydeuterus auritus Guniea

Mean length = 15.42 N = 174



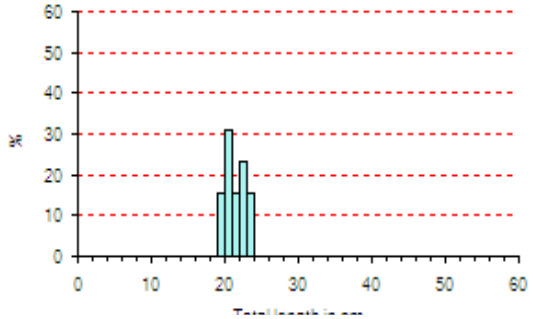
Ariomma bondi Guniea

Mean length = 13.97 N = 374



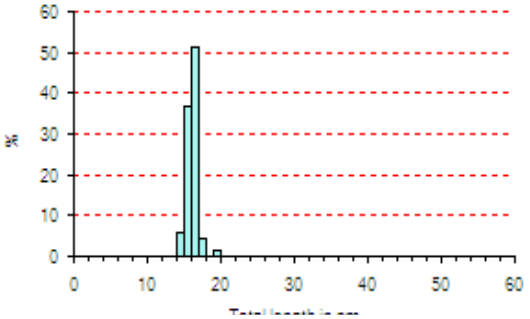
Galeoides decadactylus Guniea

Mean length = 18.77 N = 280



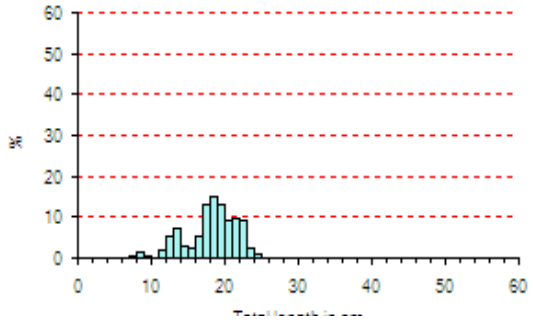
Spicara alta Guniea

Mean length = 21.42 N = 13



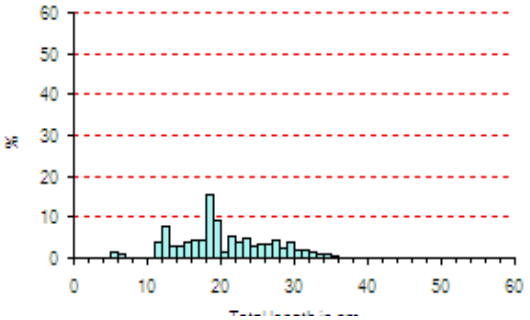
Decapterus punctatus Guniea

Mean length = 16.10 N = 68



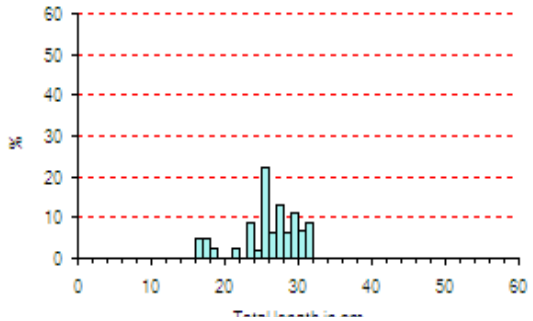
Pseudupeneus prayensis Guniea

Mean length = 18.18 N = 418



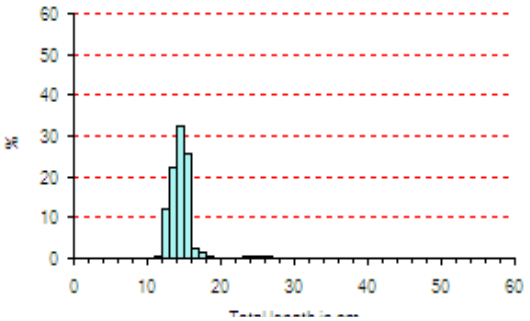
Decapterus rhonchus Guniea

Mean length = 20.47 N = 922



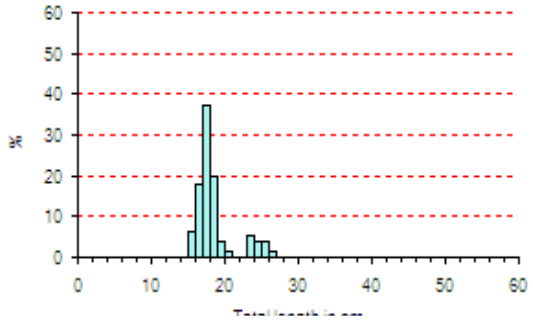
Priacanthus arenatus Guniea

Mean length = 26.05 N = 45



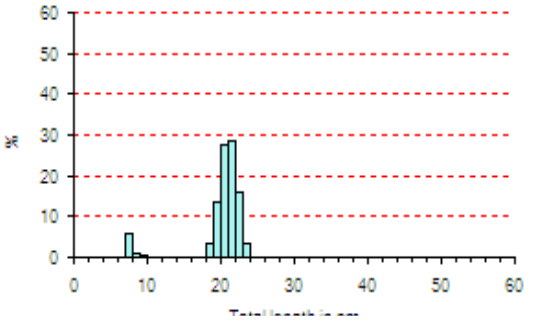
Chloroscombrus chrysurus Guniea

Mean length = 14.64 N = 449



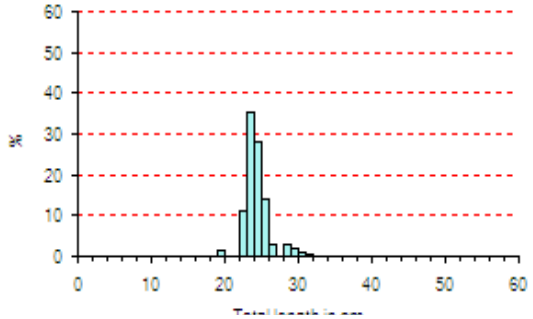
Trachurus trachurus Guniea

Mean length = 18.49 N = 196



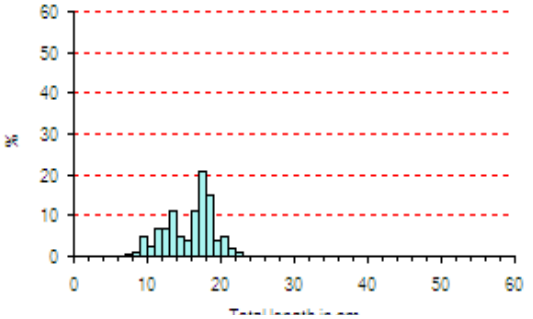
Sardinella aurita Guniea

Mean length = 20.05 N = 229



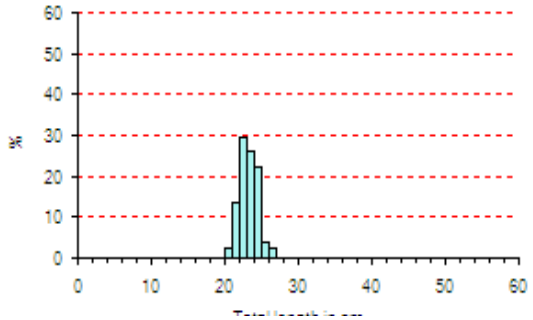
Selar crumenophthalmus Guniea

Mean length = 24.38 N = 73



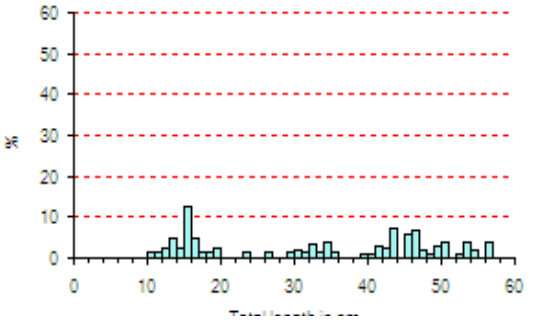
Sardinella maderensis Guniea

Mean length = 15.74 N = 240



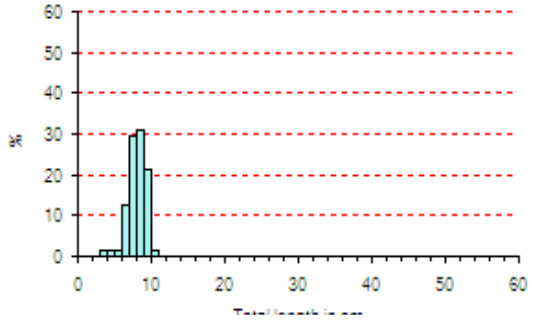
Selene dorsalis Guniea

Mean length = 23.23 N = 81



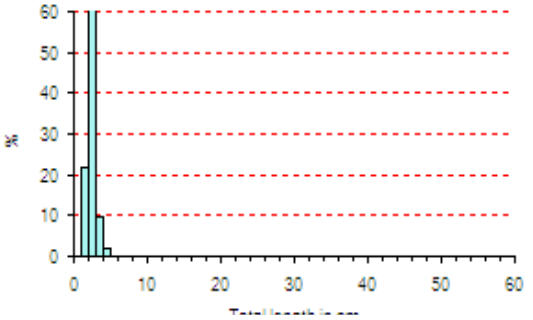
Sphyraena guachancho Guniea

Mean length = 33.77 N = 92



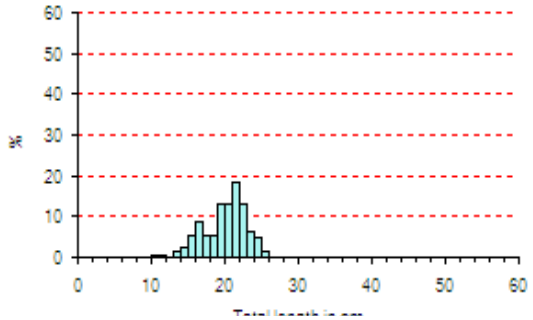
Scomberomorus tritor Guniea

Mean length = 8.02 N = 71



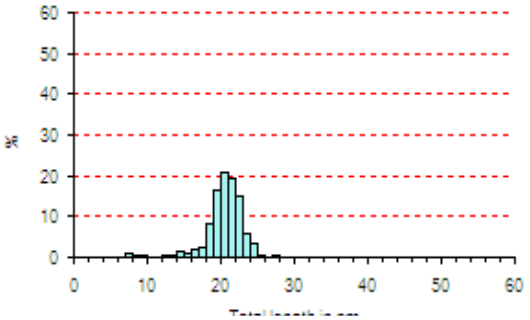
Penaeus notialis Guniea

Mean length = 2.42 N = 51



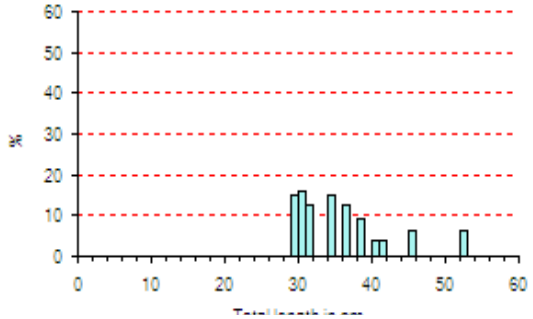
Dentex angolensis Sierra Leone

Mean length = 20.18 N = 227



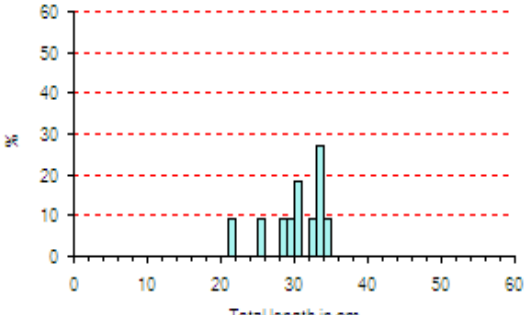
Pagellus bellottii Sierra Leone

Mean length = 20.44 N = 428



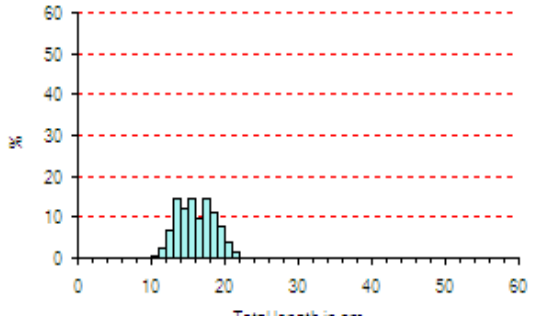
Dentex canariensis Sierra Leone

Mean length = 35.67 N = 14



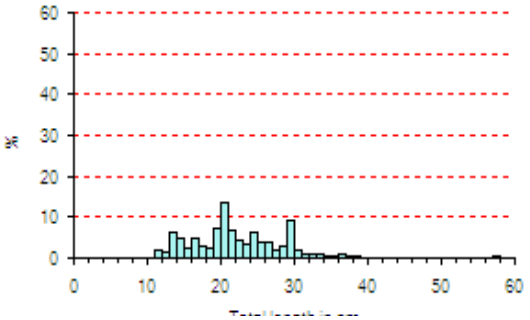
Pseudotolithus elongatus Sierra Leone

Mean length = 30.32 N = 11



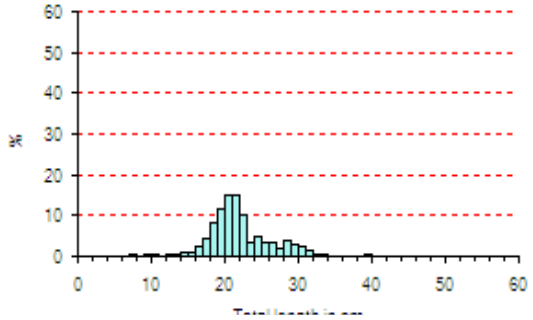
Dentex congoensis Sierra Leone

Mean length = 16.05 N = 380



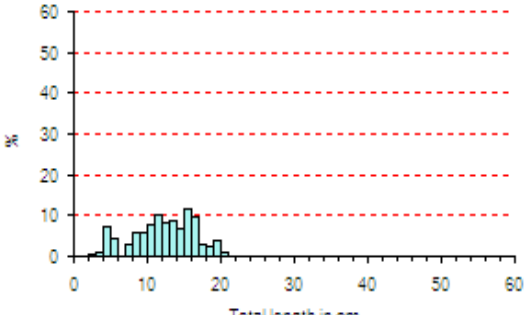
Pseudotolithus senegalensis Sierra Leone

Mean length = 22.55 N = 116



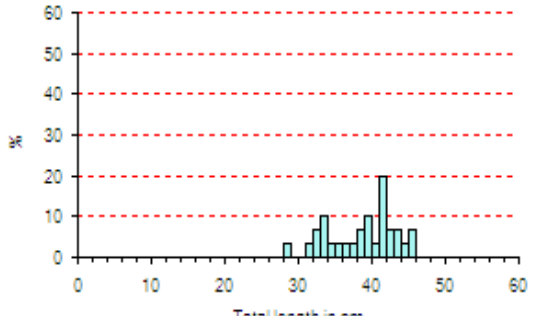
Pagrus caeruleostictus Sierra Leone

Mean length = 22.12 N = 405



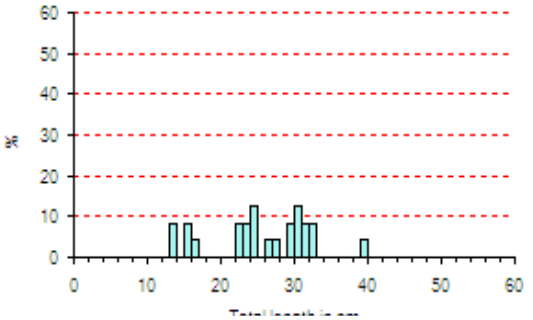
Pteroscion peli Sierra Leone

Mean length = 12.24 N = 208



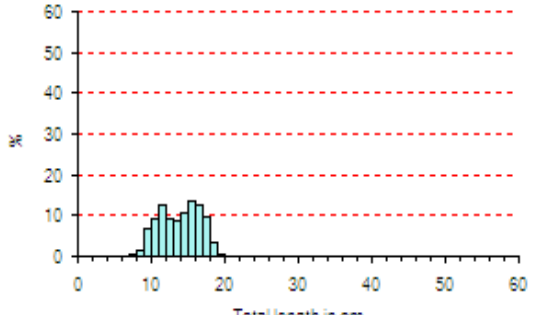
Pomadasys rogeri Sierra Leone

Mean length = 38.73 N = 30



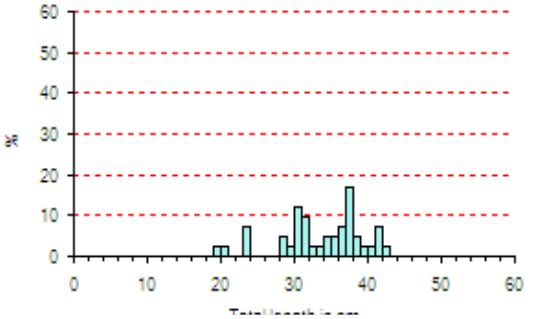
Lutjanus fulgens Sierra Leone

Mean length = 25.50 N = 24



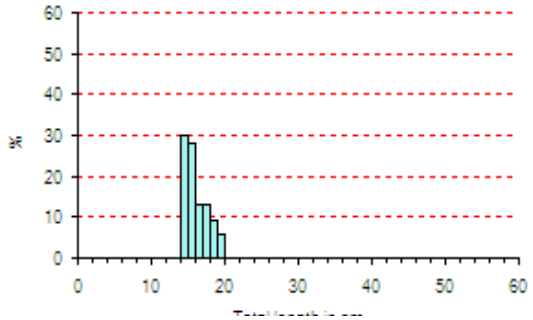
Brachydeuterus auritus Sierra Leone

Mean length = 14.14 N = 1129



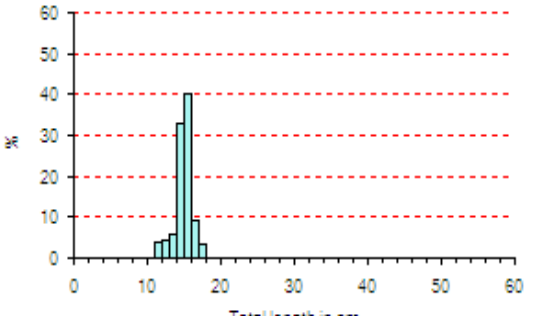
Lethrinus atlanticus Sierra Leone

Mean length = 33.59 N = 41



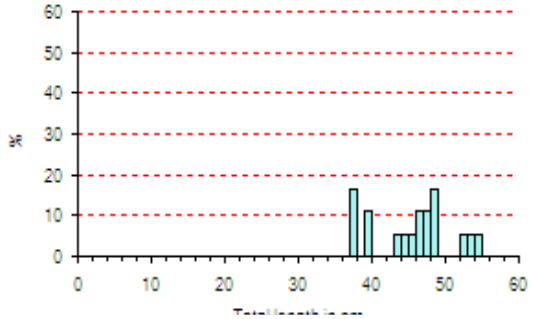
Boops boops Sierra Leone

Mean length = 16.10 N = 53



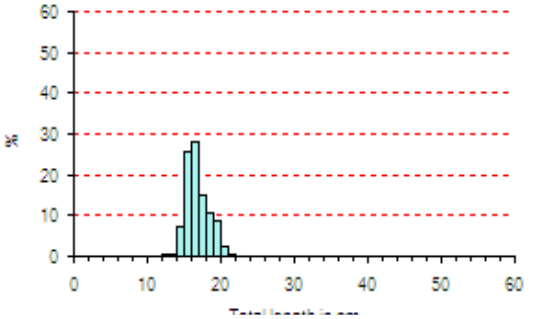
Ariomma bondi Sierra Leone

Mean length = 14.90 N = 368



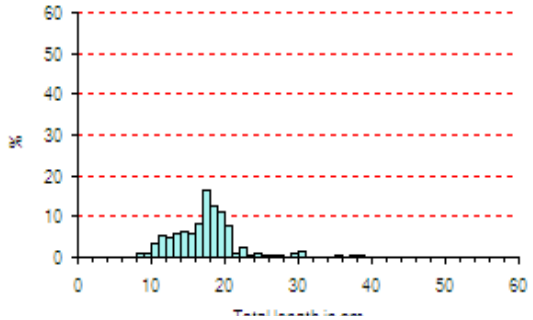
Lutjanus goreensis Sierra Leone

Mean length = 45.50 N = 18



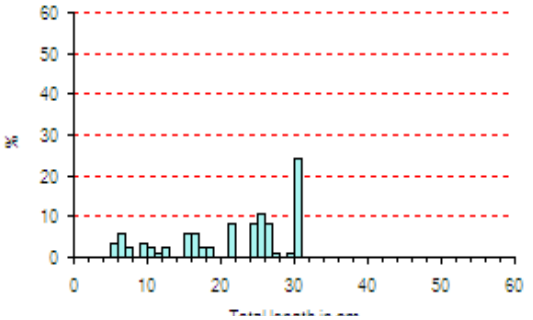
Eucinostomus melanopterus Sierra Leone

Mean length = 16.81 N = 137



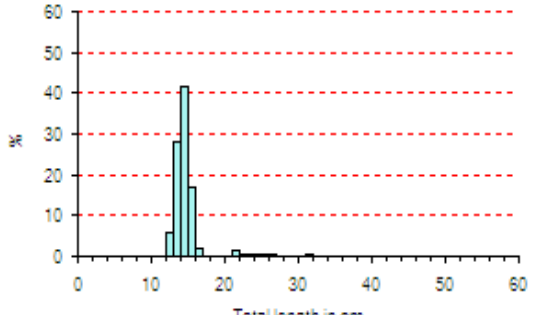
Galeoides decadactylus Sierra Leone

Mean length = 17.49 N = 478



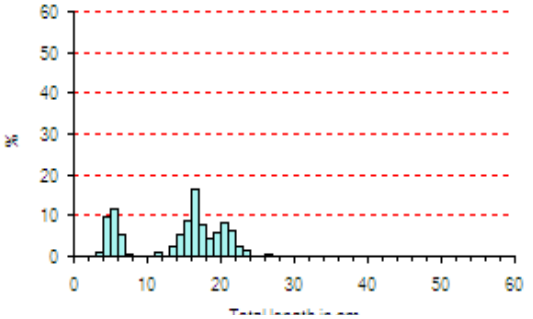
Selar crumenophthalmus Sierra Leone

Mean length = 21.31 N = 43



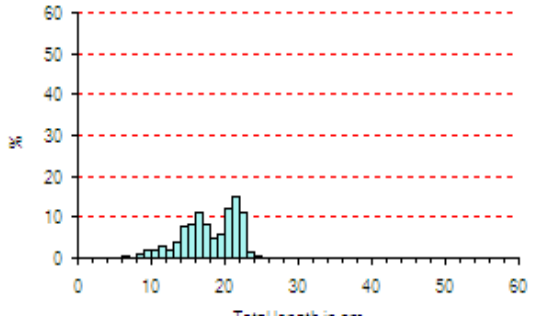
Priacanthus arenatus Sierra Leone

Mean length = 14.90 N = 58



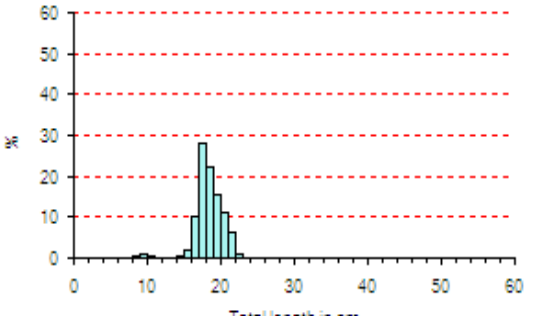
Selene dorsalis Sierra Leone

Mean length = 14.23 N = 307



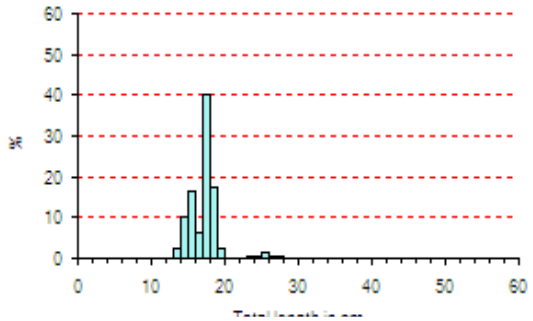
Pseudupeneus prayensis Sierra Leone

Mean length = 17.93 N = 354



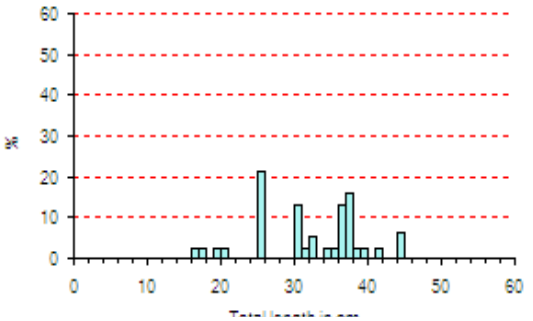
Chloroscombrus chrysurus Sierra Leone

Mean length = 18.32 N = 1071



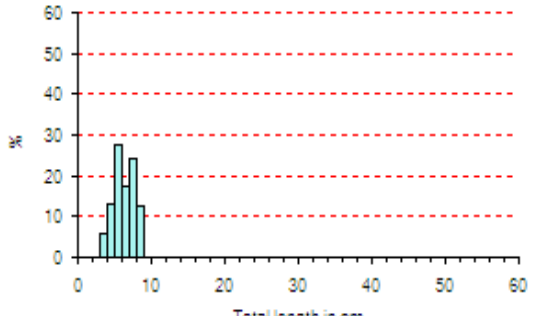
Trachurus trachurus Sierra Leone

Mean length = 17.28 N = 123



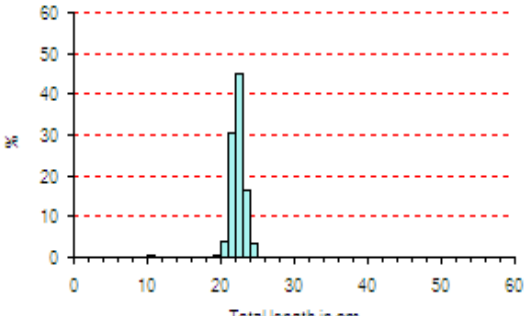
Caranx crysos Sierra Leone

Mean length = 32.02 N = 26



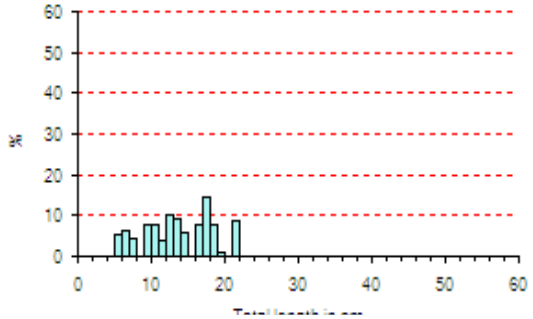
Caranx hippos Sierra Leone

Mean length = 6.29 N = 33



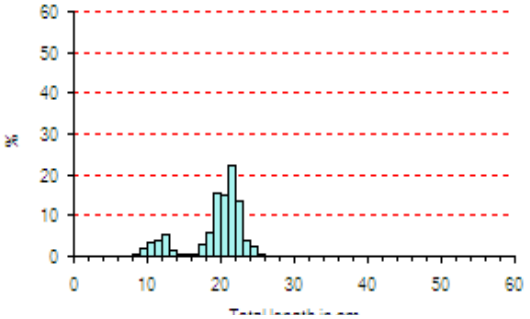
Sardinella aurita Sierra Leone

Mean length = 22.35 N = 152



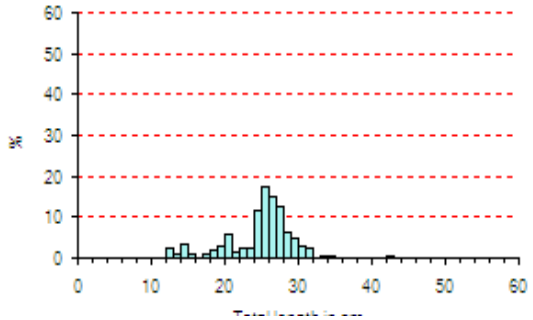
Decapterus punctatus Sierra Leone

Mean length = 13.71 N = 43



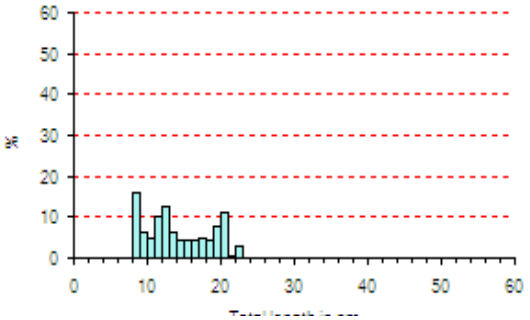
Sardinella maderensis Sierra Leone

Mean length = 19.28 N = 695



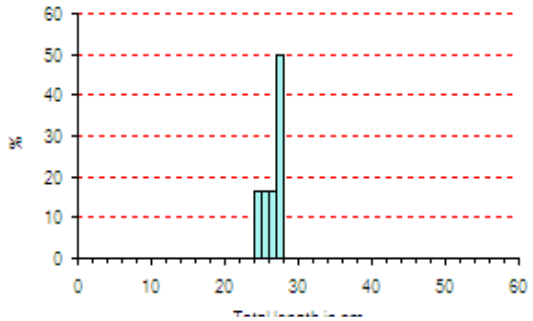
Decapterus rhonchus Sierra Leone

Mean length = 25.00 N = 256



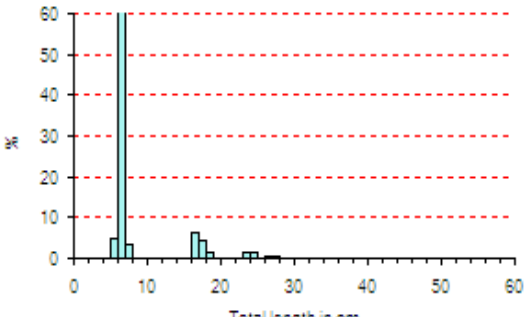
Ilisha africana Sierra Leone

Mean length = 14.16 N = 105



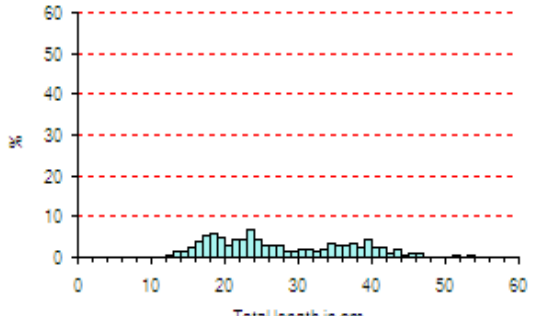
Trachurus trecae Sierra Leone

Mean length = 26.50 N = 6



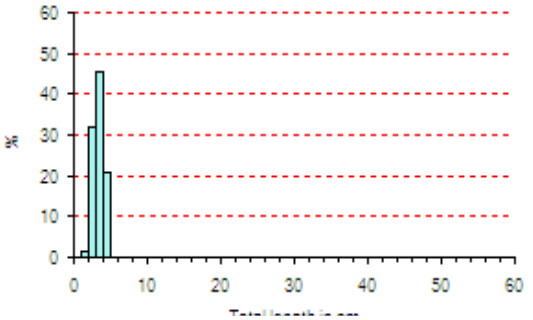
Scomber japonicus Sierra Leone

Mean length = 8.52 N = 179



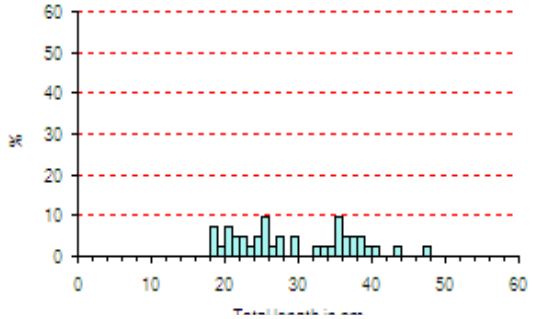
Sphyraena guachancho Sierra Leone

Mean length = 28.19 N = 513



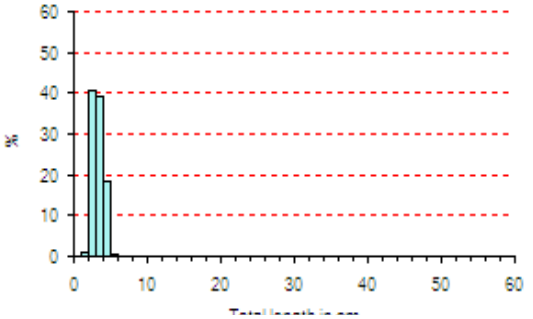
Penaeus notialis Sierra Leone

Mean length = 3.36 N = 97



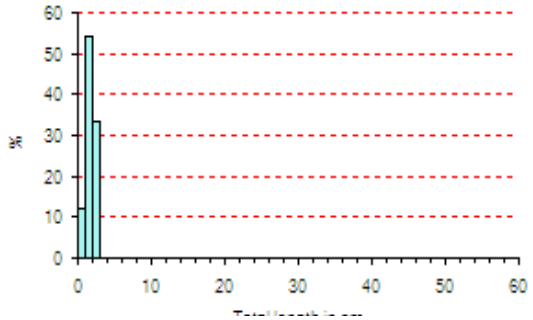
Trichiurus lepturus Sierra Leone

Mean length = 30.23 N = 41



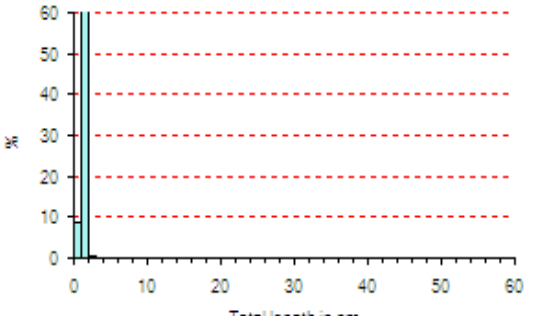
Penaeus kerathurus Sierra Leone

Mean length = 3.27 N = 175



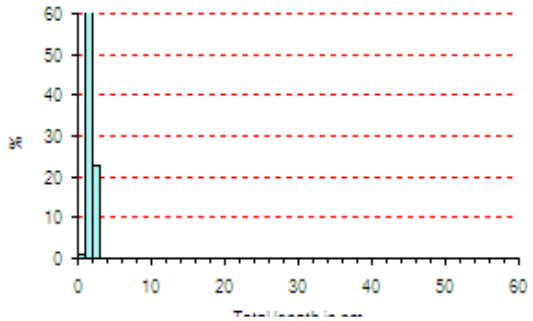
Parapenaeopsis atlantica Sierra Leone

Mean length = 1.71 N = 399



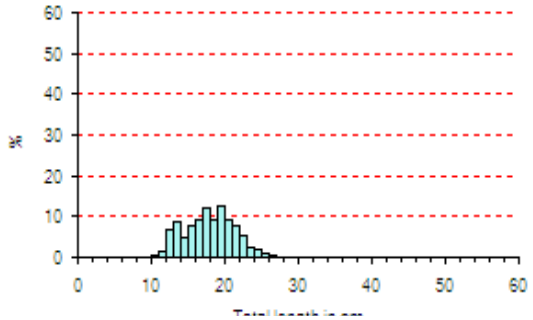
Sicyonia galeata Sierra Leone

Mean length = 1.42 N = 209



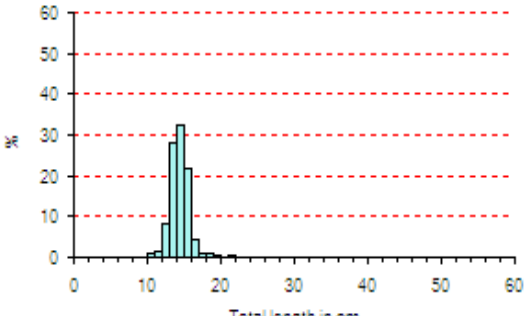
Parapenaeus longirostris Sierra Leone

Mean length = 1.71 N = 84



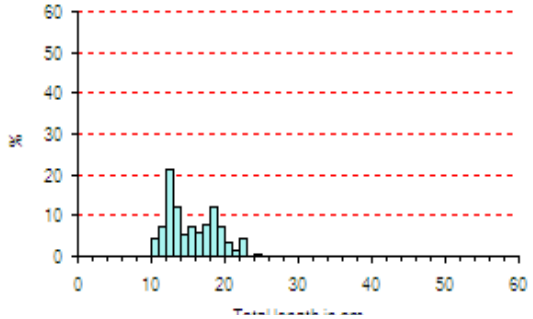
Dentex angolensis Liberia

Mean length = 17.85 N = 567



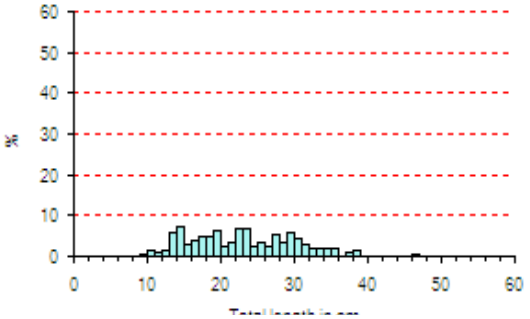
Boops boops Liberia

Mean length = 14.43 N = 309



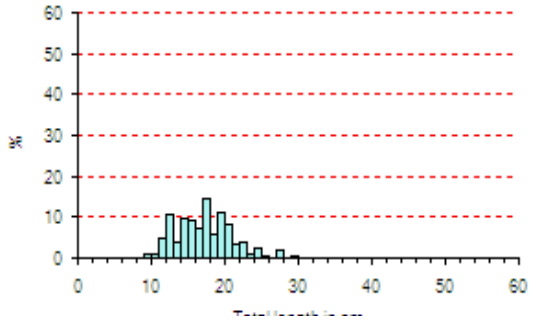
Dentex congoensis Liberia

Mean length = 15.53 N = 326



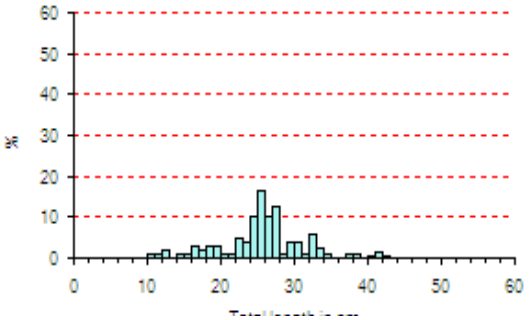
Pseudotolithus senegalensis Liberia

Mean length = 23.00 N = 184



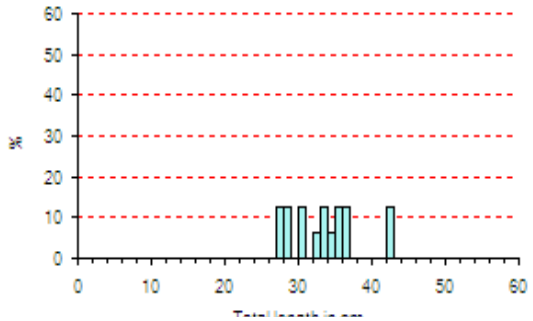
Pagellus bellottii Liberia

Mean length = 17.24 N = 261



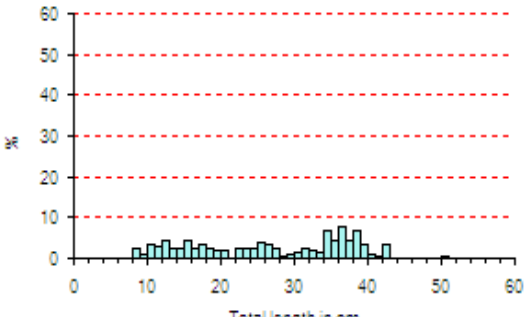
Pseudotolithus typus Liberia

Mean length = 25.80 N = 108



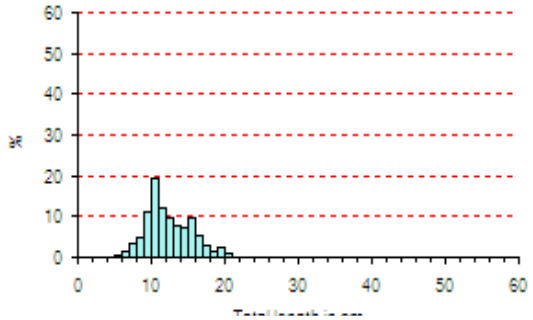
Pagrus caeruleostictus Liberia

Mean length = 33.50 N = 16



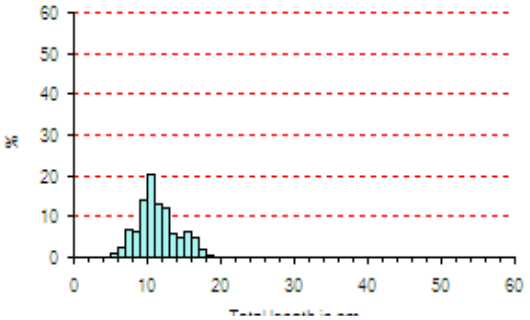
Pseudotolithus brachygnath Liberia

Mean length = 26.64 N = 140



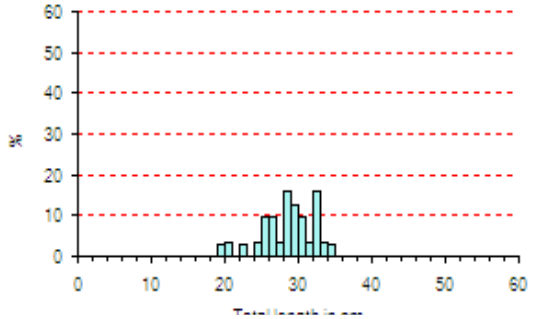
Pteroscion peli Liberia

Mean length = 12.39 N = 419



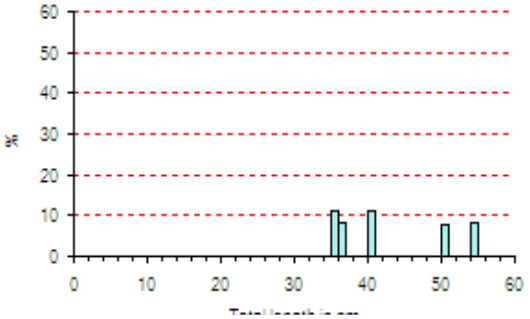
Brachydeuterus auritus Liberia

Mean length = 11.44 N = 1940



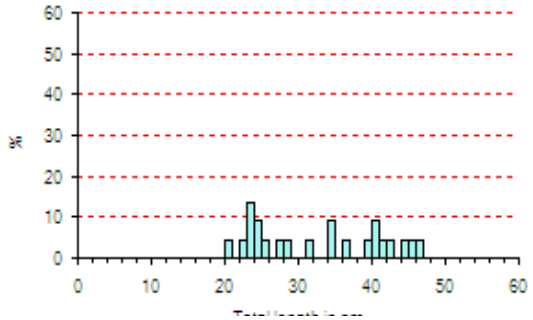
Umbrina canariensis Liberia

Mean length = 28.53 N = 50



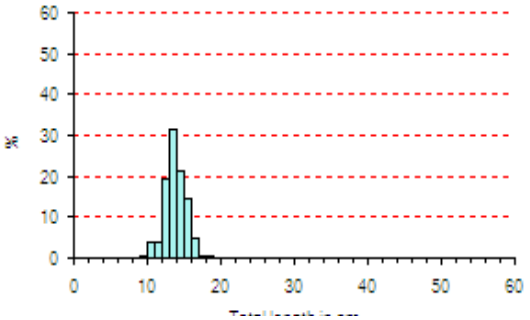
Epinephelus aeneus Liberia

Mean length = 62.77 N = 10



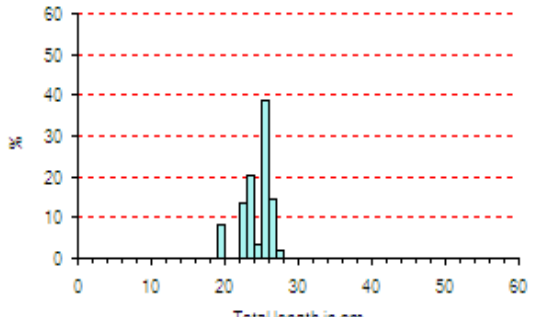
Pomadasys jubelini Liberia

Mean length = 32.82 N = 22



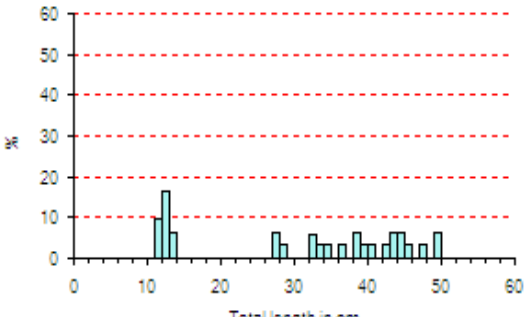
Ariomma bondi Liberia

Mean length = 13.77 N = 277



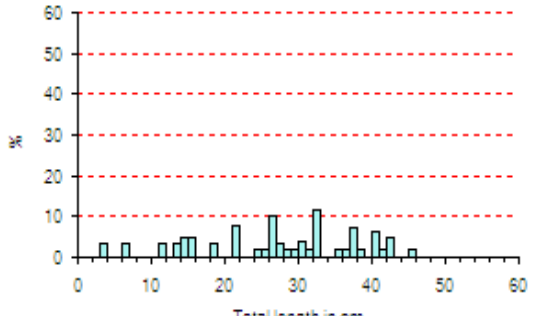
Pomadasys incisus Liberia

Mean length = 24.34 N = 24



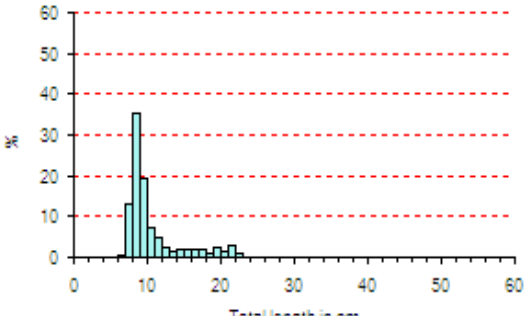
Cynoglossus canariensis Liberia

Mean length = 30.45 N = 30



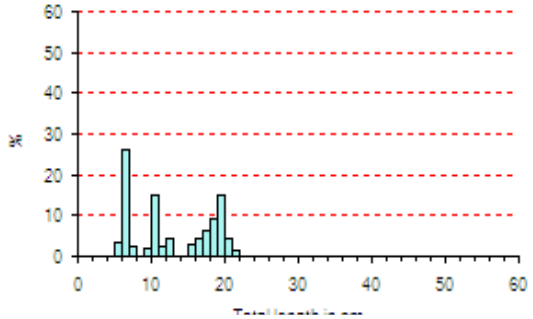
Cynoglossus senegalensis Liberia

Mean length = 27.10 N = 37



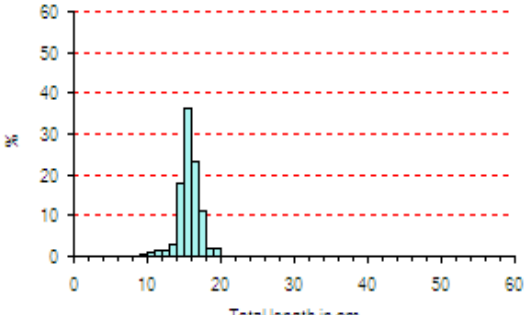
Chloroscombrus chrysurus Liberia

Mean length = 10.61 N = 955



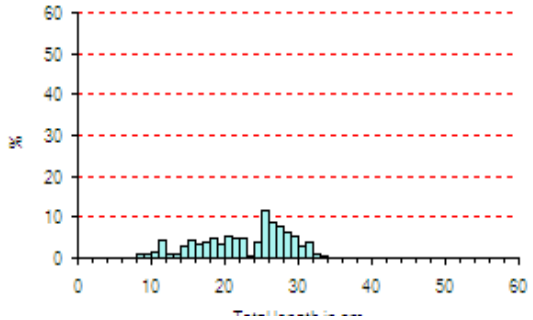
Pseudupeneus prayensis Liberia

Mean length = 12.86 N = 64



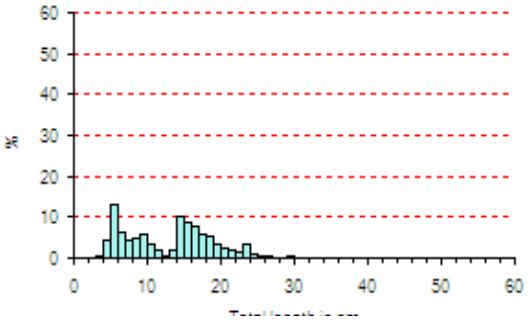
Decapterus punctatus Liberia

Mean length = 15.87 N = 241



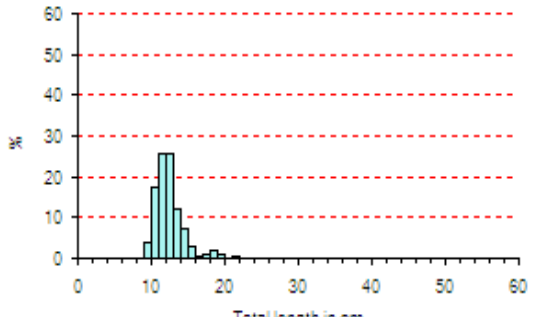
Galeoides decadactylus Liberia

Mean length = 22.69 N = 213



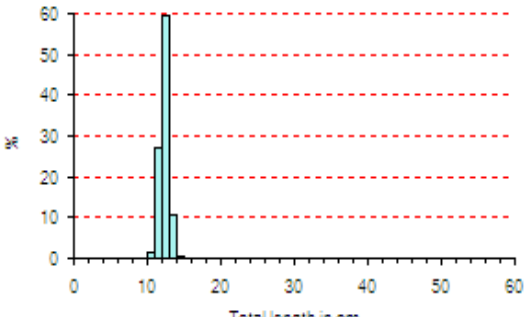
Selene dorsalis Liberia

Mean length = 13.04 N = 658



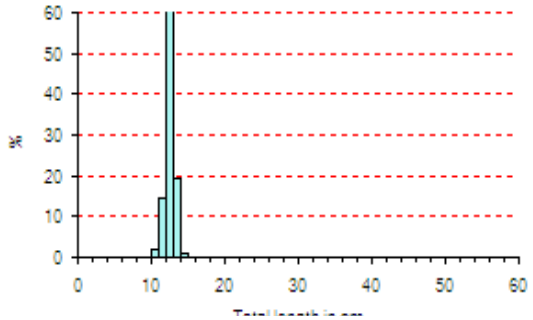
Priacanthus arenatus Liberia

Mean length = 12.44 N = 172



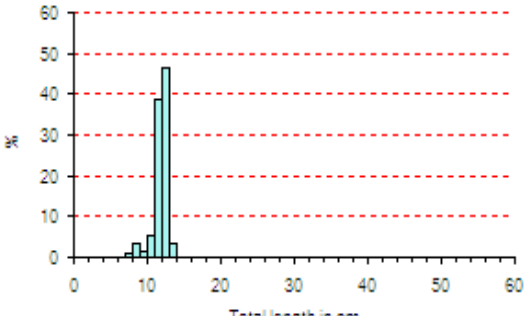
Trachurus trachurus Liberia

Mean length = 12.33 N = 283



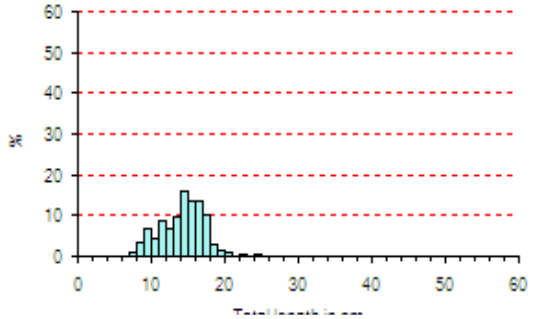
Trachurus trecae Liberia

Mean length = 12.54 N = 352



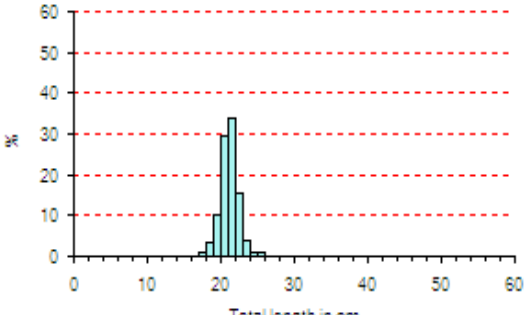
Engraulis encrasicolus Liberia

Mean length = 11.81 N = 313



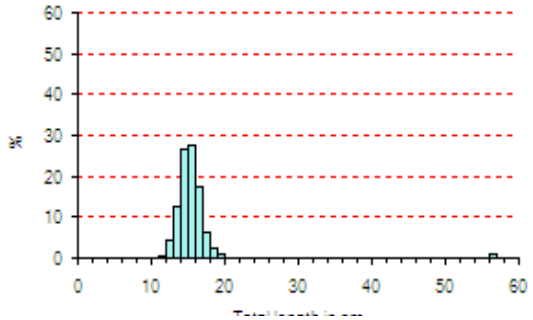
Ilisha africana Liberia

Mean length = 14.26 N = 452



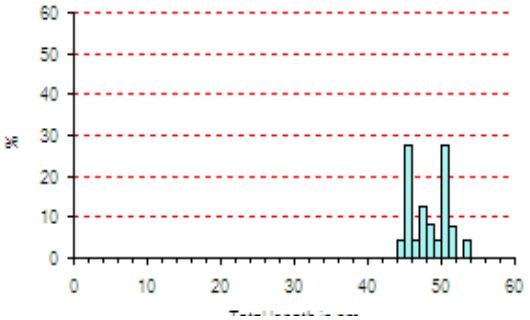
Scomber japonicus Liberia

Mean length = 21.17 N = 127



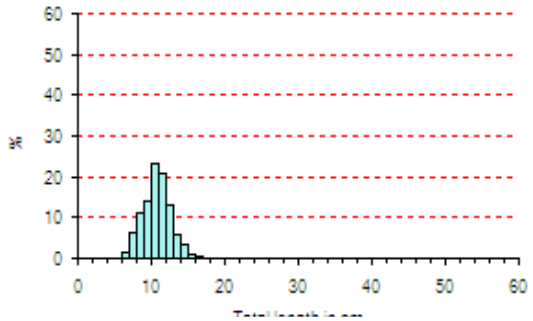
Sardinella aurita Liberia

Mean length = 15.71 N = 770



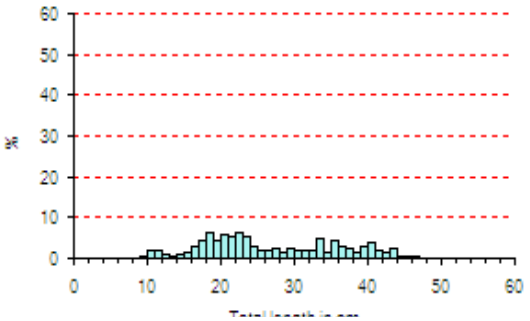
Scomberomorus tritor Liberia

Mean length = 48.34 N = 13



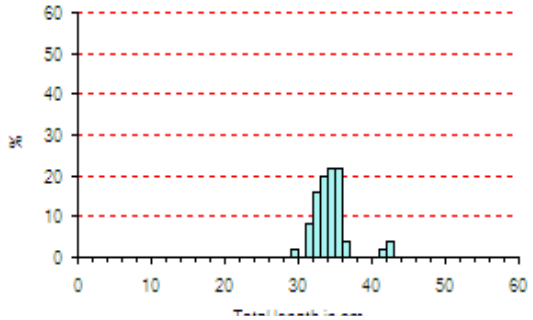
Sardinella maderensis Liberia

Mean length = 10.81 N = 1631



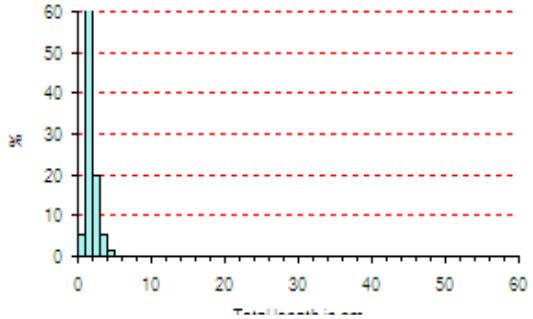
Sphyraena guachancho Liberia

Mean length = 27.19 N = 468



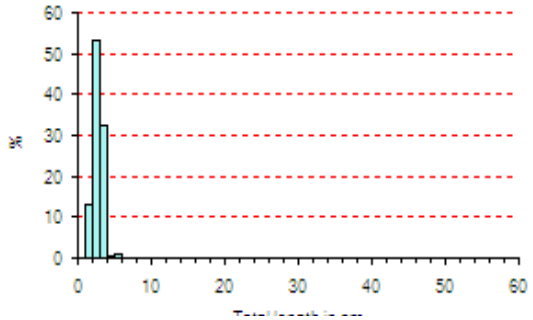
Sphyraena afra Liberia

Mean length = 34.40 N = 50



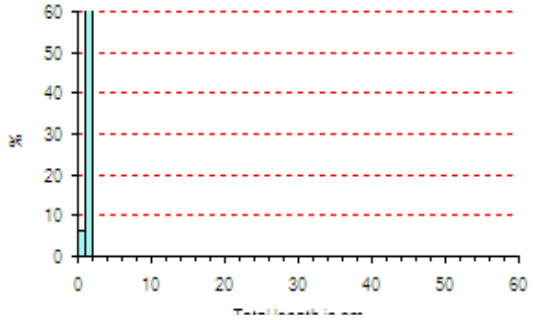
Parapenaeopsis atlantica Liberia

Mean length = 1.79 N = 313



Penaeus notialis Liberia

Mean length = 2.73 N = 68



Sicyonia galeata Liberia

Mean length = 1.43 N = 80

Annex III Swept area density estimates

SWEPT AREA ANALYSIS FROM STATION 1 to station 25
Guinea Bissau 2007

SPECIES / SAMPLE DISTRIB. BY CATCH CLASSES Lower limits, Kg/nm	>0	10	30	100	300	1000	% incidence	Mean dens. t/nm²	Mean densities by bottom depth strata t/nm² 0-31m	31-51m	51-101m	101-250m
Chloroscombrus chrys	3					1	20	5.83	23.293	0.004		
Brachydeuterus auritus	2				1		15	2.11	0.042	6.975	0.021	
Trachurus trecae	1			1			10	1.32			5.260	
Decapterus rhonchus	7		4				55	0.94	1.457	1.791	0.144	0.008
Ilisha africana				1			5	0.78	3.133			
Trichiurus lepturus	3	1		1			25	0.74	0.559	0.027	2.324	0.046
Decapterus punctatus	5	1	2				40	0.69	1.100	1.351	0.005	0.031
Selene dorsalis	3	1		1			25	0.68	0.231	0.008	2.479	
Chlorophthalmus atlan	3			1			20	0.63				3.158
MISCELLANEOUS				1			5	0.57	2.267			
Sardinella maderensis	1		1				10	0.30	1.196	0.001		
Pomadasys jubelini			1				5	0.30	1.191			
Antigonia capros	2		1				15	0.28				1.387
Dentex congoensis	3		1				20	0.26			0.955	0.081
Fistularia petimba	9	1					50	0.21	0.029	0.110	0.671	0.019
Pteroscion peli	1	1					10	0.15	0.106		0.478	
Illex coindetii	9	1					50	0.14	0.006	0.003	0.120	0.535
J E L L Y F I S H	2	1					15	0.11		0.364		
Scorpaena stephanica	7						35	0.09			0.163	0.245
MUD/SHELL	3	1					20	0.09		0.203	0.038	0.096
Dentex angolensis	2	1					15	0.09			0.282	0.090
C R U S T A C E A N S	2	1					15	0.08		0.281		
Priacanthus arenatus	12						60	0.08	0.008	0.010	0.115	0.247
Pagellus bellottii	9						45	0.07	0.071	0.021	0.168	
Sepia officinalis hierre	9						45	0.06	0.102	0.128	0.001	
Spicara alta		1					5	0.06				0.307
Pterothrissus belloci	3	1					20	0.06				0.298
Cynoglossus senegalensis		1					5	0.06	0.236			
Sardinella aurita	3						15	0.06	0.096	0.050	0.079	
Balistes capriscus	3						15	0.05	0.046	0.100	0.030	
Paragaleus pectoralis	1						5	0.05				0.240
Other fish								0.20	0.148	0.124	0.190	0.412
Sum all species								18.01	36.202	11.841	14.368	9.066
Sum SNAPPERS, JOBFISHES								0.00		0.005		
Sum GROUPERS, SEABASSES								0.00	0.001	0.004	0.010	
Sum GRUNTS, SWEETLIPS								2.41	1.233	6.975	0.030	
Sum CROAKERS, DRUMS, WEAKF., KOBS								0.20	0.109		0.586	0.105
Sum PANDORAS, PORGIES, SEABREAMS,								0.43	0.092	0.023	1.439	0.178
Sum SHARKS, CHIMAERAS								0.15	0.176	0.016		0.517
Sum BATOID FISHES, RAYS								0.05	0.028	0.012	0.129	0.055
Sum CEPHALOPODS								0.22	0.108	0.152	0.129	0.550
Numbers of stations included in analysis, total and by depth strata								20	5	6	5	4

SWEPT AREA ANALYSIS FROM STATION 26 to station 67
Guinea 2007

SPECIES I	SAMPLE DISTRIB. BY CATCH CLASSES						% inci-	Mean	Mean densities by bottom depth strata t/nm²			
	Lower limits, Kg/nm						dence	dens.				
	>0	10	30	100	300	1000		t/nm²	0-31m	31-51m	51-101m	101-300m
Chloroscombrus chrys	2	1		1	1	1	19.35	7.79	6.660	13.443		
Trachurus trachurus	2		1		1		12.9	2.53		0.002	15.666	
Selene dorsalis	1				1		6.45	2.08	0.012	4.596		
Brachydeuterus auritus	3	2	1	2			25.81	1.47	3.383	1.314		0.003
Decapterus rhonchus	10	4	5				61.29	1.18	1.610	1.692	0.002	0.008
Pagellus bellottii	12	2	4				58.06	0.97	0.366	1.265	1.900	
Antigonia capros	1	2		1			12.9	0.88			0.596	6.041
Galeoides decadactylu	4			1			16.13	0.73	2.813	0.002		
Pagrus caeruleostictus	10	5	1				51.61	0.64	1.299	0.667		
Saurida brasiliensis	1			1			6.45	0.35				2.688
Pseudupeneus prayen	16	5					67.74	0.34	0.382	0.504	0.094	
Decapterus punctatus	1	1	1				9.68	0.21	0.810			
Dentex congoensis	1	1	1				9.68	0.17			1.056	0.006
Aulopus cadenati	4		1				16.13	0.16			0.002	1.261
PECTINIDAE			1				3.23	0.16	0.625			
Boops boops			1				3.23	0.16			0.976	
Cymbium cymbium	2		1				9.68	0.15	0.568	0.015		
Carcharhinus plumbeus			1				3.23	0.11				0.876
Chlorophthalmus atlan	1	1					6.45	0.11				0.850
Lutjanus dentatus			1				3.23	0.11			0.674	
Illex coindetii	8	1					29.03	0.10		0.008	0.028	0.741
Sphoeroides pachgast	6	1					22.58	0.10		0.002	0.410	0.254
Selar crumenophthalm	1	1					6.45	0.10	0.032	0.199		
Chlamys purpuratus		1					3.23	0.08	0.292			
Ariomma bondi	7	1					25.81	0.07		0.001	0.258	0.215
Sepia officinalis hierre	19						61.29	0.07	0.109	0.062	0.063	0.010
Sphyraena guachanch	3	1					12.9	0.06	0.094	0.077		
Priacanthus arenatus	14						45.16	0.06	0.076	0.015	0.197	0.001
Torpedo torpedo	6	1					22.58	0.05	0.006	0.020	0.245	0.034
Dasyatis centroura		1					3.23	0.05	0.209			
Lethrinus atlanticus	2	1					9.68	0.05	0.029	0.101		
Psettodes belcheri	3	1					12.9	0.05	0.057	0.083		
Other fish								0.23	0.257	0.129	0.286	0.456
Sum all species								22.43	20.607	24.858	24.002	15.646
Sum SNAPPERS, JOBFISHES								0.12	0.016	0.022	0.674	
Sum GROUPERS, SEABASSES								0.00	0.013			
Sum GRUNTS, SWEETLIPS								1.47	3.404	1.314		0.003
Sum CROAKERS, DRUMS, WEAKF., KOBS												
Sum PANDORAS, PORGIES, SEABREAMS,								1.99	1.664	1.944	4.209	0.006
Sum SHARKS, CHIMAERAS								0.14		0.008	0.128	0.880
Sum BATOID FISHES, RAYS								0.17	0.268	0.056	0.340	0.171
Sum CEPHALOPODS								0.21	0.123	0.120	0.093	0.824
Numbers of stations included in analysis, total and by depth strata								31	8	14	5	4

SWEPT AREA ANALYSIS FROM STATION 67 to station 107
Sierra Leone 2007

SPECIES I	SAMPLE DISTRIB. BY CATCH CLASSES Lower limits, Kg/nm						% inci-dence	Mean dens.	Mean densities by bottom depth st		
	>0	10	30	100	300	1000		t/nm²	0-31m	31-51m	51-100m
J E L L Y F I S H	1				5	7	52	79.228	106.974	68.876	56.863
Chloroscombrus chrys	10		1	2	1		56	3.221	8.288	0.66	
Dactylopterus volitans	3	1			1		20	1.571	0.006	4.356	0.004
Brachydeuterus auritus	12	1	3				64	0.936	0.904	1.694	0.004
Sphyraena guachanch	13	6	1				80	0.795	0.836	1.356	0.019
Dentex congoensis	2			1			12	0.753			2.691
Pagrus caeruleostictus	5	3	1				36	0.499	0.525	0.537	0.417
Galeoides decadactylu	8		2				40	0.493	1.262	0.107	
Pagellus bellottii	6	1	2				36	0.413	0.244	0.507	0.509
Decapterus rhonchus	7		2				36	0.403	0.931	0.128	0.078
Ariomma bondi	2	3	1				24	0.324			1.157
Ilisha africana	6	3					36	0.266	0.521	0.218	0.001
Selene dorsalis	13	1					56	0.222	0.189	0.419	0.009
Sardinella maderensis	13		1				56	0.216	0.473	0.119	0.012
Trachurus trachurus	4		1				20	0.184	0.08	0.009	0.541
Lutjanus goreensis			1				4	0.184	0.51		
Pseudupeneus prayen	11	2					52	0.18	0.037	0.304	0.205
Dentex angolensis	4	2					24	0.171			0.611
Trichiurus lepturus	7	1					32	0.17	0.195	0.188	0.116
Dasyatis pastinaca			1				4	0.151	0.42		
Pseudotolithus senega	6						24	0.11	0.207	0.098	
Boops boops		1					4	0.102			0.363
Pseudotolithus brachy	4						16	0.099	0.188	0.087	
Caranx crysos	5	1					24	0.095	0.203	0.061	
Rachycentron canadur	1	1					8	0.09	0.249		
Ethmalosa fimbriata	1	1					8	0.082	0.006	0.222	
Pteroscion peli	5	1					24	0.078	0.182	0.034	
Albula vulpes	3	1					16	0.073	0.197	0.006	
Portunus validus	4						16	0.072	0.19	0.009	
Sphyraena afra		1					4	0.07	0.194		
Lethrinus atlanticus	3	1					16	0.068	0.164	0.024	
Alectis alexandrinus	2	1					12	0.067	0.018	0.167	
Squatina oculata	4						16	0.065			0.234
Parapenaeus longirost	1	1					8	0.059	0.162	0.002	
Epinephelus aeneus	4						16	0.052	0.088	0.003	0.071
Other fish								0.112	0.087	0.11	0.147
Sum all species								92.639	126.028	81.072	64.584
Sum SNAPPERS, JOBFISHES								0.256	0.707	0.005	
Sum GROUPERS, SEABASSES								0.067	0.088	0.007	0.116
Sum GRUNTS, SWEETLIPS								1.031	1.166	1.694	0.004
Sum CROAKERS, DRUMS, WEAKF., KOBS								0.352	0.756	0.219	0.003
Sum PANDORAS, PORGIES, SEABREAMS,								1.961	0.769	1.044	4.673
Sum SHARKS, CHIMAERAS								0.102	0.008	0.079	0.254
Sum BATOID FISHES, RAYS								0.201	0.476	0.069	0.018
Sum CEPHALOPODS								0.06	0.089	0.017	0.078
Numbers of stations included in analysis, total and by depth strata								25	9	9	7

SWEPT AREA ANALYSIS FROM STATION 108 to station 146
Liberia 2007

SPECIES ! SAMPLE DISTRIB. BY CATCH CLASSES	Lower limits, Kg/nm						% inci-dence	Mean dens.	Mean densities by bottom depth strata t/nm²		
	>0	10	30	100	300	1000		t/nm²	0-31m	31-51m	51-100m
J E L L Y F I S H	1			1	4	2	24.24	18.221	11.905	13.122	21.839
Ariomma bondi	6	3		1	1		33.33	3.158			5.21
Selene dorsalis	16	4	1		1		66.67	2.731	0.191	0.724	4.168
Trachurus trecae	2	2			1		15.15	2.555			4.216
Brachydeuterus auritus	11	10	2	2			75.76	1.719	0.573	2.147	1.834
Sardinella aurita	8		1	3			36.36	1.442	0.01	0.009	2.373
Engraulis encrasicolus	5				1		18.18	1.345		0.091	2.183
Dentex angolensis	13	4	2	1			60.61	0.963			1.589
Sphyraena guachanch	19	3	3				75.76	0.829	1.585	0.986	0.577
Trachurus trachurus	4	1		1			18.18	0.791	0.013		1.302
Boops boops	4	2	1	1			24.24	0.754			1.245
Ilisha africana	5	5	1				33.33	0.457	0.689	1.453	
Trichiurus lepturus	13	6					57.58	0.433	1.147	0.763	0.123
Galeoides decadactylu	14		1				45.45	0.411	0.291	1.494	0.008
Umbrina canariensis	3			1			12.12	0.388			0.64
Priacanthus arenatus	10	2	1				39.39	0.367			0.606
Dasyatis pastinaca				1			3.03	0.337		1.389	
Dentex congoensis	5	2	1				24.24	0.306			0.505
Decapterus punctatus	10	1	1				36.36	0.253		0.014	0.412
Scomber japonicus	2	2	1				15.15	0.247			0.408
Chloroscombrus chrys	16		1				51.52	0.232	0.233	0.696	0.046
Sardinella maderensis	21	1					66.67	0.204	0.215	0.294	0.166
Pagellus bellottii	14	2					48.48	0.194			0.319
Pseudotolithus brachy	11	1					36.36	0.164	0.544	0.336	
Pteroscion peli	12	1					39.39	0.153	0.543	0.285	0.002
Sphyraena afra			1				3.03	0.146			0.242
Pseudotolithus typus	7	1					24.24	0.145	0.709	0.154	
Squatina oculata	6	1					21.21	0.133			0.22
Epinephelus aeneus	7	1					24.24	0.104		0.001	0.172
Raja miraletus	14	1					45.45	0.102	0.04	0.037	0.144
Illex coindetii	18						54.55	0.081		0.017	0.127
Drepane africana	4	1					15.15	0.079	0.012	0.32	
Parapenaeus longirost	3	1					12.12	0.076	0.474	0.014	0.001
Mustelus mustelus	10						30.3	0.068		0.03	0.1
Stromateus fiatola	13						39.39	0.067	0.098	0.197	0.007
Pseudotolithus senega	7						21.21	0.064	0.193	0.144	
Cynoglossus senegale	12						36.36	0.058	0.174	0.119	0.005
Other fish								0.174	0.413	0.15	0.123
Sum all species								40.643	20.533	25.752	51.628
Sum SNAPPERS, JOBFISHES											
Sum GROUPERS, SEABASSES								0.138		0.002	0.227
Sum GRUNTS, SWEETLIPS								1.762	0.573	2.287	1.85
Sum CROAKERS, DRUMS, WEAKF., KOBS								0.913	1.989	0.918	0.642
Sum PANDORAS, PORGIES, SEABREAMS,								2.26		0.002	3.729
Sum SHARKS, CHIMAERAS								0.209		0.053	0.323
Sum BATOID FISHES, RAYS								0.45	0.073	1.451	0.144
Sum CEPHALOPODS								0.134	0.01	0.042	0.202
Numbers of stations included in analysis, total and by depth strata								33	5	8	20

Annex IV Swept-area biomass estimates of main demersal groups

Total swept area estimates 2007

Country	Sparids	Haemulids[1]	Sciaenids	Serranids	Lutjanids	*B. auritus*	Sharks	Rays	Cephalopods
Guinea Bissau	2600	1205	1157	23	8	11235	858	318	1251
Guinea	13810	28	0	18	860	9957	791	1089	1338
Sierra Leone	13084	430	1720	417	1170	5150	748	970	356
Liberia	7802	189	4615	715	0	8371	1067	1951	684
Total	37295	1852	7491	1172	2038	34713	3463	4327	3629

[1] Grunts excluding *Brachydeuterus auritus*

Guinea Bissau, swept area estimates 2007

Depth	20-30 m	30-50 m	50-100 m	100-200 m
Area NM^2	1000	1600	1560	1270

	Densities			
Sparids	0.092	0.023	1.439	0.178
Haemulids	1.191	0	0.009	
Sciaenids	0.109		0.586	0.105
Serranids	0.001	0.004	0.01	
Lutjanids		0.005		
B. auritus	0.042	6.975	0.021	
Sharks	0.176	0.016		0.517
Rays	0.028	0.012	0.129	0.055
Cephalopods	0.108	0.152	0.129	0.55

	Biomass (tonnes)				Total
Sparids	92	37	2245	226	2600
Haemulids	1191	0	14	0	1205
Sciaenids	109	0	914	133	1157
Serranids	1	6	16	0	23
Lutjanids	0	8	0	0	8
B. auritus	42	11160	33	0	11235
Sharks	176	26	0	657	858
Rays	28	19	201	70	318
Cephalopods	108	243	201	699	1251
Total	1747	11499	3624	1784	18654

Guinea, swept area estimates 2007

Depth	20-30 m	30-50 m	50-100 m	100-200 m
Area NM^2	1350	4100	1110	700

	Densities			
Sparids	1.664	1.944	3.233	0.006
Haemulids	0.021	0	0	0
Sciaenids				
Serranids	0.013			
Lutjanids	0.016	0.022	0.674	
B. auritus	3.383	1.314		0.003
Sharks		0.008	0.128	0.88
Rays	0.268	0.056	0.34	0.171
Cephalopods	0.123	0.12	0.093	0.824

	Biomass (tonnes)				Total
Sparids	2246	7970	3589	4	13810
Haemulids	28	0	0	0	28
Sciaenids	0	0	0	0	0
Serranids	18	0	0	0	18
Lutjanids	22	90	748	0	860
B. auritus	4567	5387	0	2	9957
Sharks	0	33	142	616	791
Rays	362	230	377	120	1089
Cephalopods	166	492	103	577	1338
Total	7409	14202	4959	1319	27889

Sierra Leone, swept area estimates 2007

Depth	20-30 m	30-50 m	50-100 m	100-200 m
Area NM^2	1640	2160	2220	440

	Densities			
Sparids	0.769	1.044	4.31	
Haemulids	0.262	0	0	
Sciaenids	0.756	0.219	0.003	
Serranids	0.088	0.007	0.116	
Lutjanids	0.707	0.005		
B. auritus	0.904	1.694	0.004	
Sharks	0.008	0.079	0.254	
Rays	0.476	0.069	0.018	
Cephalopods	0.769	1.044	4.31	

	Biomass (tonnes)				Total
Sparids	1261	2255	9568		13084
Haemulids	430	0	0		430
Sciaenids	1240	473	7		1720
Serranids	144	15	258		417
Lutjanids	1159	11	0		1170
B. auritus	1483	3659	9		5150
Sharks	13	171	564		748
Rays	781	149	40		970
Cephalopods	146	37	173		356
Total	6657	6769	10618		24044

Liberia, swept area estimates 2007

Depth	0-30 m	30-50 m	50-100 m	100-200 m
Area NM^2	850	990	3140	500

	Densities			
Sparids	0	0.002	2.484	
Haemulids	0	0.14	0.016	
Sciaenids	1.989	0.918	0.642	
Serranids		0.002	0.227	
Lutjanids				
B. auritus	0.573	2.147	1.834	
Sharks		0.053	0.323	
Rays	0.073	1.451	0.144	
Cephalopods	0.01	0.042	0.202	

	Biomass (tonnes)				Total
Sparids	0	2	7800	0	7802
Haemulids	0	139	50	0	189
Sciaenids	1691	909	2016	0	4615
Serranids	0	2	713	0	715
Lutjanids	0	0	0	0	0
B. auritus	487	2126	5759	0	8371
Sharks	0	52	1014	0	1067
Rays	62	1436	452	0	1951
Cephalopods	9	42	634	0	684
Total	2248	4707	18438	0	25394

Annex V Acoustic estimates of main pelagic groups

May 2007: Round sardinella (*Sardinella aurita*), number in millions

Length cm	Guinea Bissau	Guinea	Sierra Leone	Liberia	TOTAL
5					
6		3			3
7		294			294
8	4	59			63
9	16	12		4	33
10	36			6	42
11	122			20	142
12	142			43	185
13	40			74	115
14	24			119	143
15	8			169	177
16				158	158
17				116	116
18				61	61
19			1	30	31
20			11	6	17
21			74	2	76
22			100		100
23	11	18	31		60
24	15	71	7	1	94
25	32	147		1	180
26	73	151		1	225
27	125	85			209
28	84	18			102
29	65				65
30	51				51
31	15				15
32	3				3
33	12				12
34	5				5
35	2				2
36	1				1
37	1				1
38					
39					
40					
41					
42					
43					
44					
45					
46					
47					
48					
49					
50					
Total	887	859	225	812	2 782

Annex V continued

May 2007: Round sardinella (*Sardinella aurita*), biomass in tonnes

Length cm	Guinea Bissau	Guinea	Sierra Leone	Liberia	TOTAL
5					
6		7			7
7		1 080			1 080
8	24	315			339
9	134	92		32	259
10	408			59	467
11	1 825			278	2 102
12	2 714			767	3 482
13	969			1 667	2 636
14	717			3 304	4 022
15	292			5 737	6 029
16				6 467	6 467
17				5 635	5 635
18				3 524	3 524
19			66	2 038	2 104
20			800	499	1 299
21			6 420	196	6 616
22			9 931		9 931
23	1 412	2 011	3 534		6 957
24	2 133	9 115	944	98	12 291
25	5 240	21 198		111	26 548
26	13 376	24 512		124	38 012
27	25 390	15 308			40 698
28	19 110	3 587			22 698
29	16 468				16 468
30	14 119				14 119
31	4 674				4 674
32	888				888
33	4 325				4 325
34	2 125				2 125
35	772				772
36	419				419
37	455				455
38					
39					
40					
41					
42					
43					
44					
45					
46					
47					
48					
49					
50					
Total	117 992	77 225	21 695	30 537	247 450

Annex V continued

May 2007: Flat sardinella (*Sardinella maderensis*), numbers in millions

Length cm	Guinea Bissau	Guinea	Sierra Leone	Liberia	TOTAL
5					
6				4	4
7		97	1	49	147
8		318	8	108	434
9		114	44	166	323
10	5	28	100	272	404
11		38	213	275	526
12		64	180	186	431
13		81	89	91	262
14		179	19	72	271
15		272	7	21	300
16		120	5	4	129
17		134	28	0	162
18		81	56	4	141
19		19	151	5	175
20	9	24	202		236
21	14	5	345		364
22	61		324		386
23	93	42	103	5	243
24	139	148	54	3	345
25	103	239	4		345
26	55	110	1		166
27	28	12			40
28	15	8			23
29	12				12
30	2				2
31					
32					
33					
34					
35					
36					
37					
38					
39					
40					
41					
42					
43					
44					
45					
46					
47					
48					
49					
50					
Total	536	2 133	1 936	1 265	5 870

Annex V continued

May 2007: Flat sardinella (*Sardinella maderensis*), biomass in tonnes

Length cm	Guinea Bissau	Guinea	Sierra Leone	Liberia	TOTAL
5					
6				8	8
7		342	4	175	521
8		1 638	43	557	2 239
9		818	320	1 192	2 330
10	52	273	969	2 644	3 939
11		487	2 715	3 519	6 721
12		1 058	2 953	3 056	7 067
13		1 683	1 849	1 887	5 419
14		4 591	483	1 854	6 927
15		8 497	228	643	9 369
16		4 539	173	149	4 861
17		6 027	1 274	7	7 308
18		4 312	2 980	194	7 486
19		1 188	9 415	290	10 893
20	779	1 726	14 654		17 159
21	1 348	398	28 827		30 573
22	6 697		31 027		37 725
23	11 528	4 564	11 233	561	27 886
24	19 612	18 319	6 729	369	45 029
25	16 430	33 230	500		50 160
26	9 774	17 266	167		27 208
27	5 587	2 113			7 700
28	3 249	1 569			4 819
29	3 003				3 003
30	664				664
31					
32					
33					
34					
35					
36					
37					
38					
39					
40					
41					
42					
43					
44					
45					
46					
47					
48					
49					
50					
Total	78 725	114 640	116 543	17 106	327 014

Annex V continued

May 2007: PEL 2 (carangids, scombrids, barracudas, hairtail), numbers in millions

Length cm	Guinea Bissau	Guinea	Sierra Leone	Liberia	TOTAL
3	1		6	3	10
4	3	6	49	16	75
5	4	39	88	22	152
6	2	34	51	17	103
7	1	10	42	53	106
8	1	1	120	127	249
9	2		136	75	213
10	3		53	39	95
11	0	8	15	61	83
12	0	34	9	106	149
13	0	37	12	62	111
14	1	43	27	32	102
15	0	52	46	35	132
16	1	42	81	28	151
17	2	19	191	19	231
18	2	12	167	12	193
19	8	11	179	13	211
20	14	9	168	10	201
21	13	12	93	8	126
22	16	16	34	5	71
23	11	26	25	6	69
24	15	31	41	2	87
25	20	23	55	1	99
26	24	18	36	1	79
27	23	18	24		64
28	17	14	8	1	41
29	18	22	9	0	49
30	13	14	6	0	33
31	11	10	5		25
32	5	10	1		17
33	5	9	1		15
34	3	7			10
35	2	3			5
36	1	2			3
37	1	1			1
38	1	1			1
39		0			0
40	0				0
41	0				0
42					
43					
44					
45					
46					
47					
48					
49					
50					
Total	239	593	1 778	755	3 364

Annex V continued

May 2007: PEL 2 (carangids, scombrids, barracudas, hairtail), biomass in tonnes

Length cm	Guinea Bissau	Guinea	Sierra Leone	Liberia	TOTAL
3	0		2	1	4
4	3	5	41	16	65
5	7	67	133	37	243
6	4	95	127	49	275
7	2	44	161	234	441
8	3	6	673	812	1 493
9	21		1 057	672	1 750
10	31		556	475	1 062
11		126	205	959	1 290
12		676	155	2 158	2 989
13		937	267	1 593	2 797
14	16	1 336	749	901	3 002
15	10	1 986	1 549	1 200	4 745
16	24	1 954	3 315	1 153	6 446
17	101	1 072	9 308	944	11 424
18	119	764	9 614	718	11 214
19	576	824	12 103	929	14 432
20	1 246	821	13 208	771	16 046
21	1 305	1 262	8 452	712	11 730
22	1 862	1 917	3 510	544	7 832
23	1 530	3 461	3 007	775	8 773
24	2 206	4 622	5 462	219	12 510
25	3 421	3 843	8 345	198	15 806
26	4 637	3 545	6 069	167	14 417
27	4 847	3 895	4 462		13 205
28	4 031	3 454	1 788	138	9 412
29	4 677	5 705	2 203	77	12 662
30	3 801	4 143	1 461	85	9 490
31	3 433	3 175	1 341		7 950
32	1 931	3 596	295		5 822
33	2 014	3 461	323		5 798
34	1 100	2 998			4 099
35	839	1 420			2 259
36	391	926			1 317
37	283	335			617
38	306	362			668
39		196			196
40	178				178
41					
42					
43					
44					
45					
46					
47					
48					
49					
50					
Total	44 955	63 029	99 943	16 536	224 463

Annex VI Instruments and fishing gear used

Echo sounder

The SIMRAD ER60/38 kHz scientific sounder was used during the survey for fish abundance estimation. The lowering keel was not submerged during the survey. The LSSS Integrator system was used to scrutinise the acoustic records. System calibration experiment using a standard copper sphere was performed 06.10.2006. The settings of 38 kHz echo sounder were as follows:

Transceiver-1 menu (38 kHz lowering keel)

Transducer depth	5.50 m
Absorbtion coeff.	8.7 dB/km
Pulse length	medium (1.02ms)
Bandwidth	wide (2.43 kHz)
Max power	4000 Watt
2-way beam angle	-20.6 dB
SV transducer gain	25.87 dB
TS transducer gain	26.50 dB
Angle sensitivity	21.9
3 dB beamwidth	6.9º alongship
	6.9º athwardship
Alongship offset	0.11º
Athwardship offset	0.03º

Display menu

Echogram	1 (38 kHz)
Bottom range	15 m
Bottom range start	10 m

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 meshsize (Figure A1). 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 m^2, 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.

Figure A1. Design of the trawl used

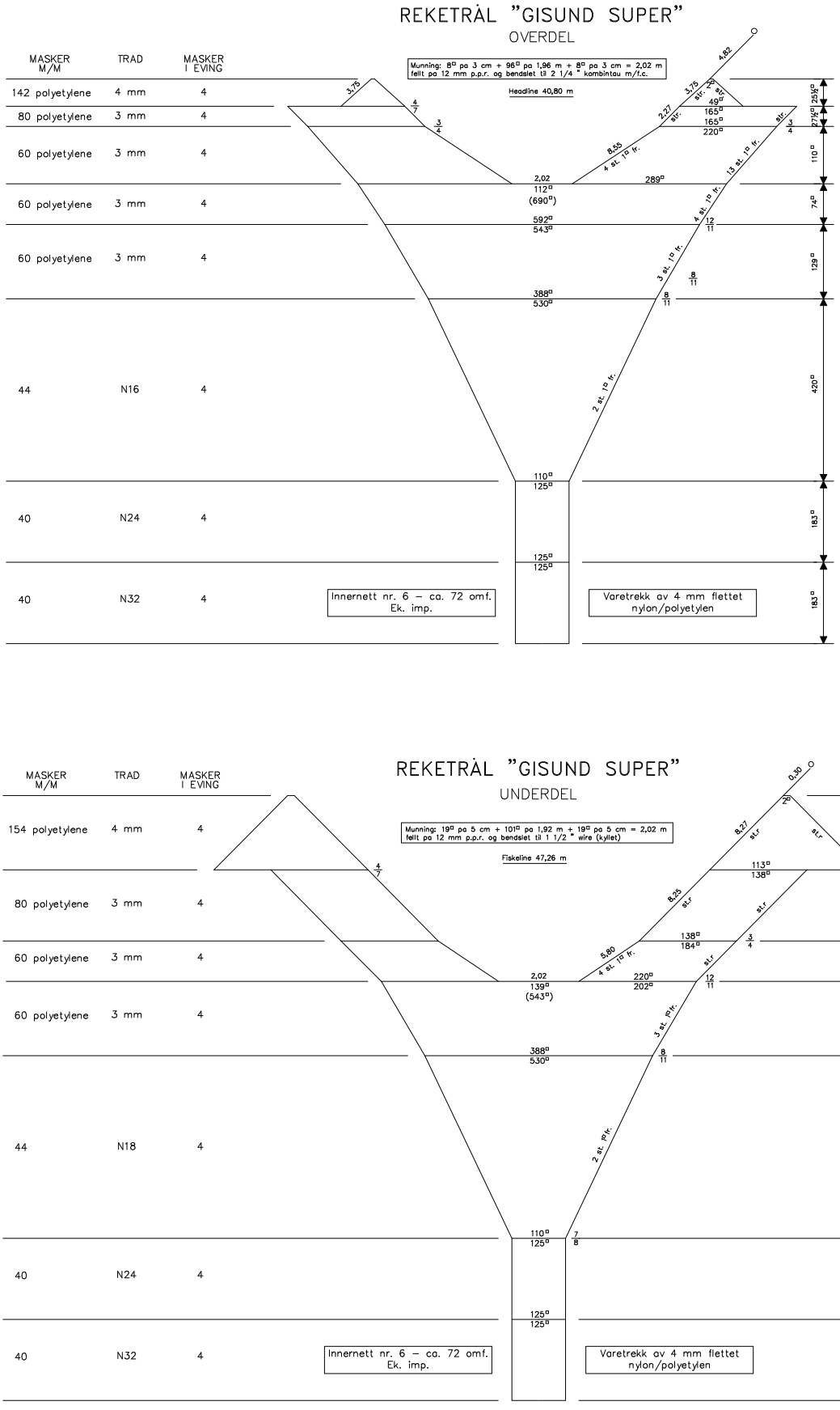
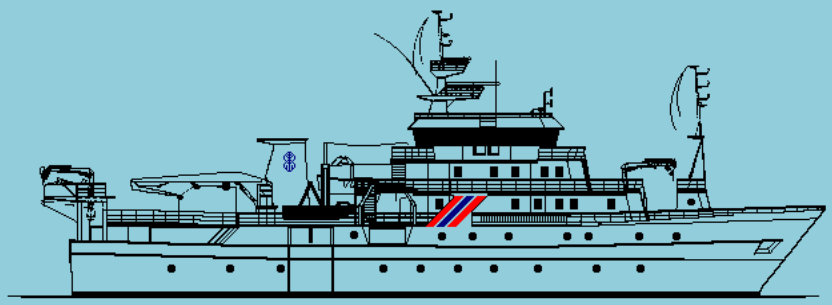


Figure A1. Design of the trawl used.



2007 SURVEYS OF THE FISH RESOURCES OF THE WESTERN GULF OF GUINEA
Côte d'Ivoire, Ghana, Benin, Togo, Cameroon, São Tomé and Principe, Gabon and Congo

SURVEY OF THE PELAGIC AND DEMERSAL RESOURCES

Cruise report No 5/2007

3 June – 6 July 2007

Institute of Marine Research – IMR
Norway

Ministry of Livestock, Fisheries and Animal industry
São Tomé and Principe

Nigerian Institute for Oceanography and Marine Research
Nigeria

Direccaò das Pescas
São Tomé and Principe

Direction Générale de la Pêche et de l'Aquaculture
Gabon

Marine Fisheries Research Division
Ghana

Pêcheries Industrielles du Congo
Democratic Republic of Congo

Instituto de Investigação Marinha
Angola

Direction de l'Elevage et de la Pêche
Togo

Centre de Recherches Océanologiques
Côte d'Ivoire

Centre Béninois de Recherche Scientifique et Technique
Direction des Pêches
Benin

Bergen August 2008

THE EAF-NANSEN PROJECT

FAO started the implementation of the project “Strengthening the Knowledge Base for and Implementing an Ecosystem Approach to Marine Fisheries in Developing Countries (EAF-Nansen GCP/INT/003/NOR)” in December 2006 with funding from the Norwegian Agency for Development Cooperation (Norad). The EAF-Nansen project is a follow-up to earlier projects/programmes in a partnership involving FAO, Norad and the Institute of Marine Research (IMR), Bergen, Norway on assessment and management of marine fishery resources in developing countries. The project works in partnership with governments and also GEF-supported Large Marine Ecosystem (LME) projects and other projects that have the potential to contribute to some components of the EAF-Nansen project.

The EAF-Nansen project offers an opportunity to coastal countries in sub-Saharan Africa, working in partnership with the project, to receive technical support from FAO for the development of national and regional frameworks for the implementation of Ecosystem Approach to Fisheries management and to acquire additional knowledge on their marine ecosystems for their use in planning and monitoring. The project contributes to building the capacity of national fisheries management administrations in ecological risk assessment methods to identify critical management issues and in the preparation, operationalization and tracking the progress of implementation of fisheries management plans consistent with the ecosystem approach to fisheries.

LE PROJET EAF-NANSEN

La FAO a initié la mise en oeuvre du projet "Renforcement de la base des connaissances pour mettre en œuvre une approche écosystémique des pêcheries marines dans les pays en développement (EAF-Nansen GCP/INT/003/NOR)" en décembre 2006. Le projet est financé par de l'Agence norvégienne de coopération pour le développement (Norad). Le projet EAF-Nansen fait suite aux précédents projets/ programmes dans le cadre du partenariat entre la FAO, Norad et l'Institut de recherche marine (IMR) de Bergen en Norvège, sur l'évaluation et l’aménagement des ressources halieutiques dans les pays en développement. Le projet est mis en oeuvre en partenariat avec les gouvernements et en collaboration avec les projets grands écosystèmes marins (GEM) soutenus par le Fonds pour l’Environnement Mondial (FEM) et d'autres projets régionaux qui ont le potentiel de contribuer à certains éléments du projet EAF-Nansen.

Le projet EAF-Nansen offre l’opportunité aux pays côtiers de l'Afrique subsaharienne partenaires de recevoir un appui technique de la FAO pour le développement de cadres nationaux et régionaux visant une approche écosystémique de l’aménagement des pêches et la possibilité d'acquérir des connaissances complémentaires sur leurs écosystèmes marins. Ces éléments seront utilisés pour la planification et le suivi des pêcheries et de leurs écosystèmes. Le projet contribue à renforcer les capacités des administrations nationales responsables de l’aménagement des pêches en introduisant des méthodes d'évaluation des risques écologiques pour identifier les questions d’aménagement d’importance majeure ainsi que la préparation, la mise en œuvre et le suivi des progrès de la mise en œuvre de plans d’aménagement des ressources marines conformes à l'approche écosystémique des pêches.

The programme has previously focused on the western Gulf of Guinea, but in 2004 and 2005 the area from Côte d'Ivoire to Congo was covered by two surveys. In 2006 the region was covered from Guinea Bissau to Congo. The following surveys has been conducted 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
Benin, Togo, Ghana and Côte d'Ivoire	29 August - 17 September 2000
Benin, Togo, Ghana and Côte d'Ivoire	6 July - 09 August 2002
Benin, Togo, Ghana and Côte d'Ivoire	14 May - 08 June 2004
Nigeria, Cameroon, São Tomé and Principe	11 June – 13 July 2004
Benin, Togo, Ghana and Côte d'Ivoire	03 – 29 May 2005
Nigeria, Cameroon, São Tom, Principe, Gabon and Congo	04 June – 15 July 2005
Guinea Bissau, Guinea, Sierra Leone and Liberia	29 April – 16 May 2006
Benin, Togo, Ghana and Côte d'Ivoire	19 May – 07 June 2006
Guinea Bissau, Guinea, Sierra Leone and Liberia	5 – 29 May 2007

CRUISE REPORTS "DR. FRIDTJOF NANSEN"

SURVEYS OF THE FISH RESOURCES OF THE GULF OF GUINEA
Côte d'Ivoire, Ghana, Benin, Togo, Cameroon, São Tomé and Principe, Gabon and Congo

Survey of the pelagic and demersal resources
3 June - 6 July 2007

by

Jens-Otto Krakstad, Oddgeir Alvheim and Diana Zaera
Institute of Marine Research
P.O. Box 1870 Nordnes
N-5817 Bergen, Norway

Institute of Marine Research
Bergen, August 2008

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CHAPTER 1 INTRODUCTION

The survey of the eastern part of Gulf of Guinea was a follow up from the successful surveys conducted by Institute of Marine Research (IMR) and Food and Agriculture Organisation of the United Nations (FAO) in the region in 2004, and by the Guinea Current Large Marine Ecosystem, (GCLME), FAO and IMR in 2005 and 2006. The first part of the survey covered Guinea Bissau, Guinea, Sierra Leone and Liberia. The survey will continue along the continental shelf to include also the remaining GCLME countries.

The survey was organised by GCLME in cooperation with IMR and FAO under the FAO project GCP/INT/730/NOR: International cooperation with the Nansen Programme: Fisheries Management and Marine Environment, and the agreement between GCLME and IMR. 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 was discussed and agreed upon during a pre-survey meeting held in Accra, Ghana, prior to the survey where representatives from GCLME and all countries surveyed were present together with representatives from IMR.

1.1 Objectives

Following the instructions from the GCLME and the recommendations from the pre survey meeting in Ghana, the main objectives of the survey were:

- to map the distribution and estimate the acoustic abundance of the main pelagic fish species / groups in the region
- to describe the distribution, composition and estimate the abundance of the main demersal fish species on the shelf by a swept-area trawl programme
- to collect stomach samples of commercial important fish species to increase knowledge on food and feeding habits
- to collect bottom sediment samples to map the benthic biodiversity in the region.
- to collect phytoplankton and zooplankton samples for distribution and species identification
- to map the general hydrographic regime by using a CTD to monitor the temperature, salinity and oxygen at bottom trawl stations and on hydrographical transects
- on-the-job training of local participants covering main survey routines

1.2 Participation

Participants for the survey arrived in, Tema, Ghana on the 3th June, in Douala in Cameroon on the 15th June and in Port Gentil on the 23th June. The participants represented the countries in the region covered by the survey, and invited participants from other parts of the GCLME region.

List of participants:

From The University of Ghana, Department of Oceanography and Fisheries, Legon, Ghana:
Emmanuel Lamptey (3 – 24 June), Emmanuel Dovlo (26 June – 06 July)

From Centre de Recherches Océanologiques, Abidjan, Côte d'Ivoire: Joanny TAPE and Souliatou Aladji ASSI (3 – 24 June)

From Ministry of Fisheries, Marine Fisheries Research Division, Tema, Ghana: Theophilus TEYE ADDI and Godfred ASEIDU AMEYAW (3 – 24 June)

From Division des Pêches et de l'Aquaculture, Lomé: Kenbenzikato A. B. and BATALI Tagba (3 – 24 June)

From Centre de Recherches Halieutiques et Oceanologiques du Bénin (Centre Béninois de la Recherche Scientifique et Technique) CRHOB/CBRST, Contonou: Amélie GBAGUIDI and Sebastian AHOUANDJOGBE (3 – 24 June)

From Nigerian Institute for Oceanography and Marine Research, Nigeria:
Michael Olaniyi Oyebanji, Akanbi Bamikole Williams (3 – 24 June)

From Ministry of Livestock, Fisheries and Animal industry, Service Provincial des Peches du Littoral Douala, SPPLD, Cameroon:
Pierre Nolasque Meke Soung (15 – 24 July)

From Station des Recherches Halieutique et Oceanographique, Limbe, SRHOL, Cameroon:
Chiambeng George Yongbi (15 – 24 July)

From Ministerio de Pesca y Medio Ambiente, dirección General de Recursos Pesqueros Equatorial Guinea: Paulino Esono Mesia and Jesus Metuy Nchana (24 June – 6 July)

From Direccaò das Pescas, São Tomé and Principe:
André Barros Bandeira (15 June – 24 June)

From Direction Générale de la Pêche et de l'Aquaculture, Gabon:
Jean Gabriel Goussilou (local cruise leader GCLME) and Micheline Schummer Gnandji (24 June – 6 July)

From Direction Générale de la Pêche et de l'Aquaculture, Congo:
Jean Samba and Romuald Tite Akenze (24 June – 6 July)

From Democratic Republic of Congo (Student)
Mathieu Mongolu (24 June – 6 July)

From Angola (Student)
Filomena Cornelio (24 June – 6 July)

From Institute of Marine Research, Norway:
Oddgeir Alvheim (3 – 23 June, cruise leader from Tema to Port Gentil), Jens-Otto Krakstad (24 June – 6 July, cruise leader from Port Gentil to Pointe Noir), Diana Zaera, Tore Mørk and Jan Frode Wilhelmsen

From University of Bergen, Norway
Frank Spetland (24 June – 6 July)

1.3 Narrative

The vessel left Tema (Ghana) at 22:00 hrs. GMT, on the 3th of June. The survey started the 5th when the vessel arrived Abidjan (Côte d'Ivoire). The shelf off Côte d'Ivoire was covered during the 5th of June, Togo between the 11th –12th June, Benin the 12th June, whilst the area off Ghana (up to Accra) was covered from the 6th –11th June. Two reference trawl transects were executed in Togo and Benin.

The inner shelf was surveyed during daytime (0600 to 1800) by swept area trawl stations on parallel course tracks (acoustic transects) about 10 NM (nautical miles) apart, while the slope deeper than 100 m was surveyed during the night. The vessel departed Douala on the 15 June at 18:00 to start the acoustic survey in Cameroon, which was finished on the 17 June at 05:20 UTC. The island of Principe was reached the same evening and São Tomé on 20 June at 06:00. Swept area trawl stations at predetermined positions were conducted during the day while CTD lines, benthos grabs and plankton samples were carried out at night. The vessel arrived Port Gentil at 11:00 on 23 June.

The vessel left Port Gentil 25/6 16:48 GMT after a change of scientific crew. The vessel steamed north to the border between Equatorial Guinea and Gabon, where the coverage of Gabon started in the early morning the next day. The inner shelf was surveyed during daytime (0600 to 1800) with swept area trawl stations on parallel course tracks parallel to the coast (acoustic transects) 20 NM (nautical miles) apart during the day, while the slope deeper than ~100 m was surveyed during the night. The vessel reached Cape Lopez on the 28/6 in the morning, and continued southwards covering the southern part of Gabon and Congo with transects 15 NM apart. The first transect in Congo was started in the morning on the 05th. The vessel arrived in Pointe Noire on the 06/7 at 08:10. It was not possible to cover the whole of Congo during the survey due to time limitations. However, after discussions with FAO, GCLME and the local cruise leader on the next survey it was decided that the pelagic survey

covering Angola could start at the border between Congo and Gabon and cover the pelagic resources of Congo, collect plankton and grab samples, and continue the monitoring of the environment. The swept area trawl survey however was abandoned due to time limitations. This report therefore includes the results obtained during the first day of survey 2007406, survey of Angola to the border between Congo and the Cabinda region of Angola.

During the survey semi-random swept-area hauls were carried out on the shelf within the depth zones 20-30 m, 31-50 m, 51-100 m and when possible >100 m depth during daytime. Continuous acoustic registrations were done throughout the survey. Pelagic trawling on registrations and random blind hauls was carried out during dark hours as time permitted.

CTD-stations were taken at the bottom trawl stations. In addition, hydrographical profiles were made with CTD from surface down to the bottom or 500 m depths for approximately each 60 nm coastline sailed. Zooplankton samples were taken irregularly with Hydrobios multinet plankton sampler. Grab samples were taken irregularly but with the aim of covering representative areas of the shelf between 20 and 100 m depth.

1.4 Survey effort

Figure 1 (a-f) shows the cruise tracks with trawl, hydrographic, benthos and plankton stations for the different worked regions. Table 1.1 summarises the survey effort in each region.

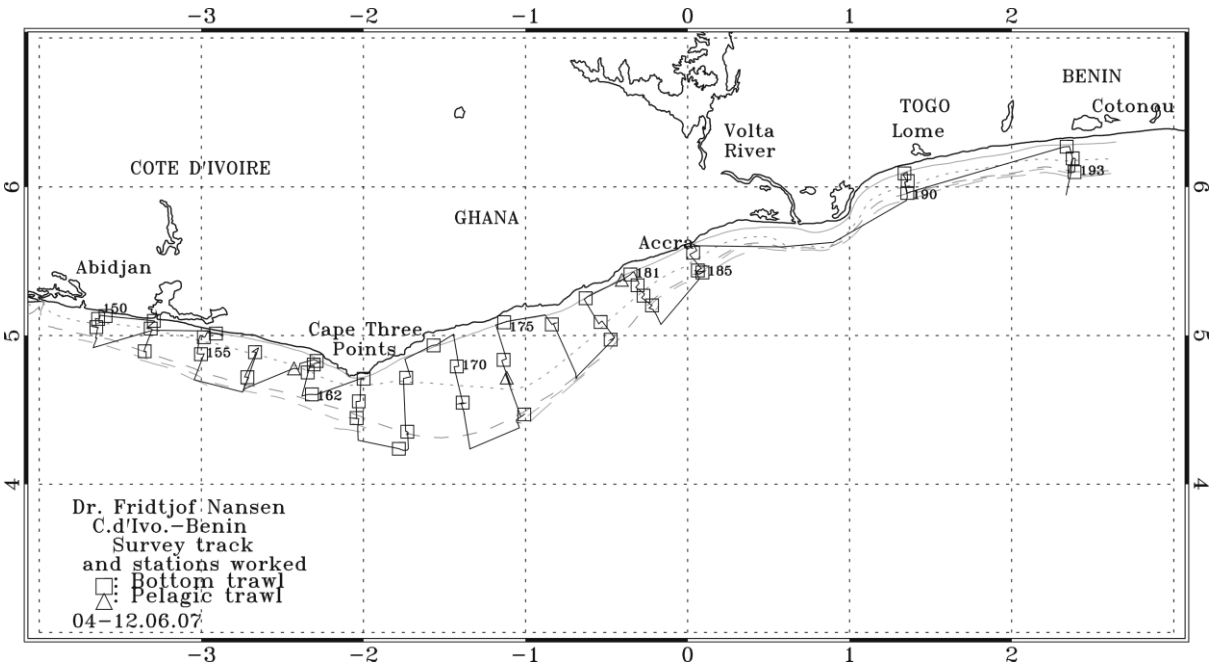


Figure 1.a Course track with fishing stations for Côte d'Ivoire, Ghana, Togo and Benin. Depth contours at 20m, 50m, 100m, 200 m and 500 m are indicated.

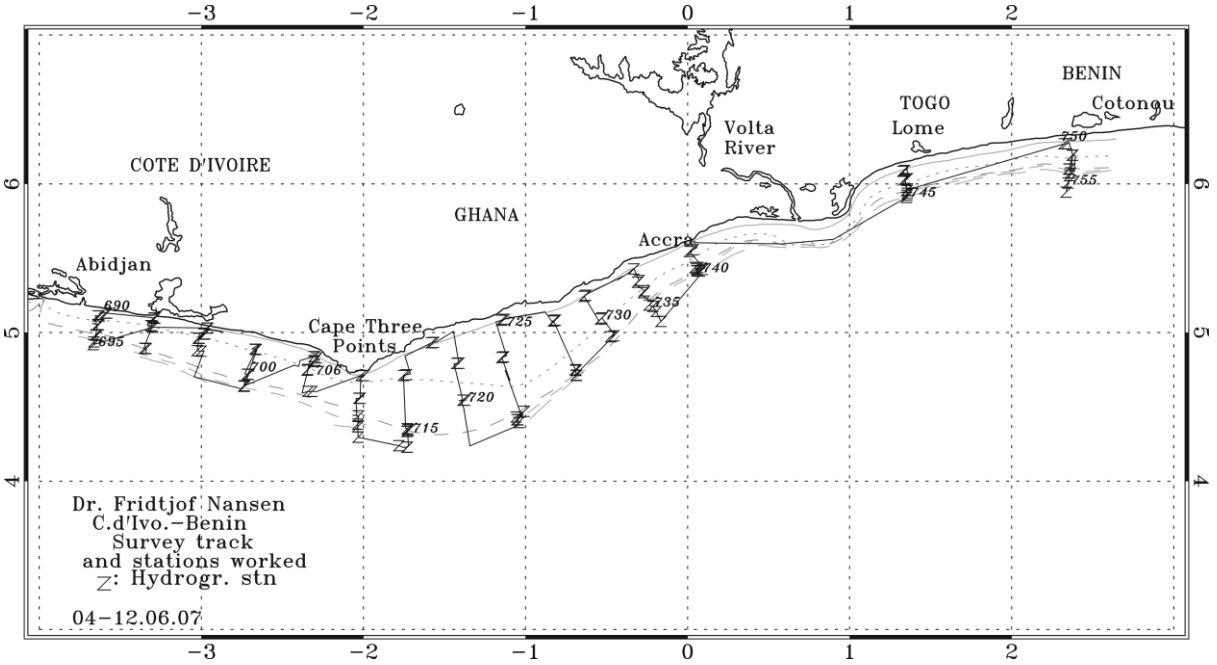


Figure 1.b Course track with hydrographic stations for Côte d'Ivoire, Ghana, Togo and Benin. Depth contours at 20 m, 50 m, 100 m, 200 m and 500 m are indicated.

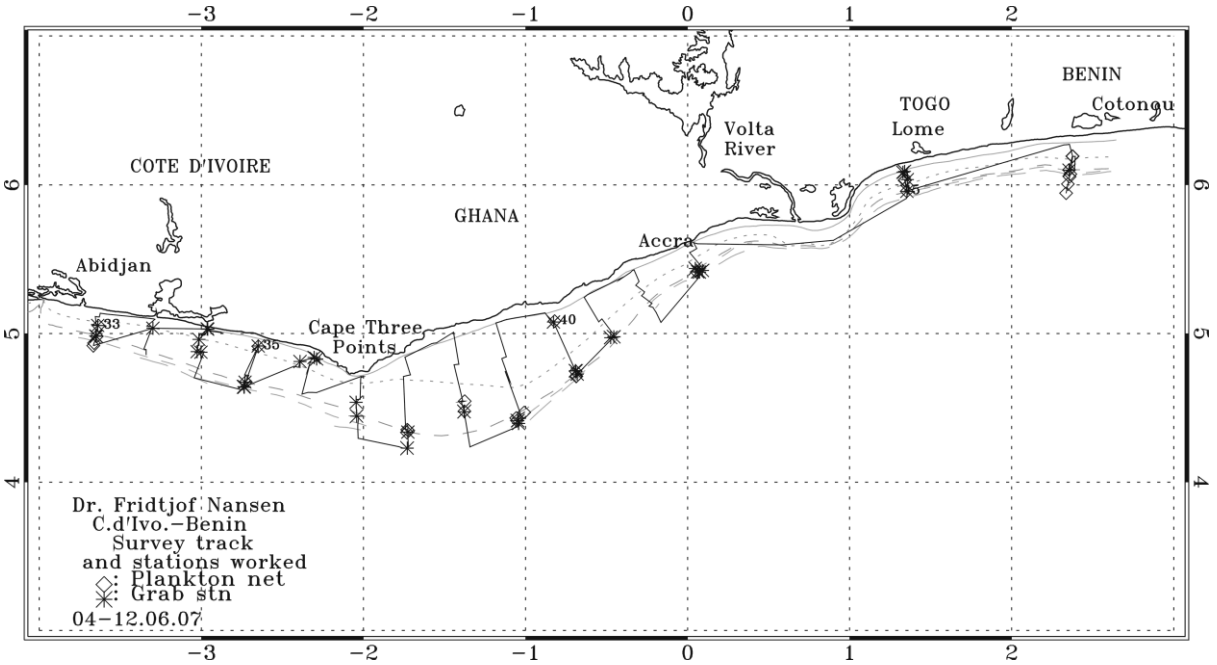


Figure 1.c Course track with plankton and benthos stations for Côte d'Ivoire, Ghana, Togo and Benin. Depth contours at 20 m, 50 m, 100 m, 200 m and 500 m are indicated.

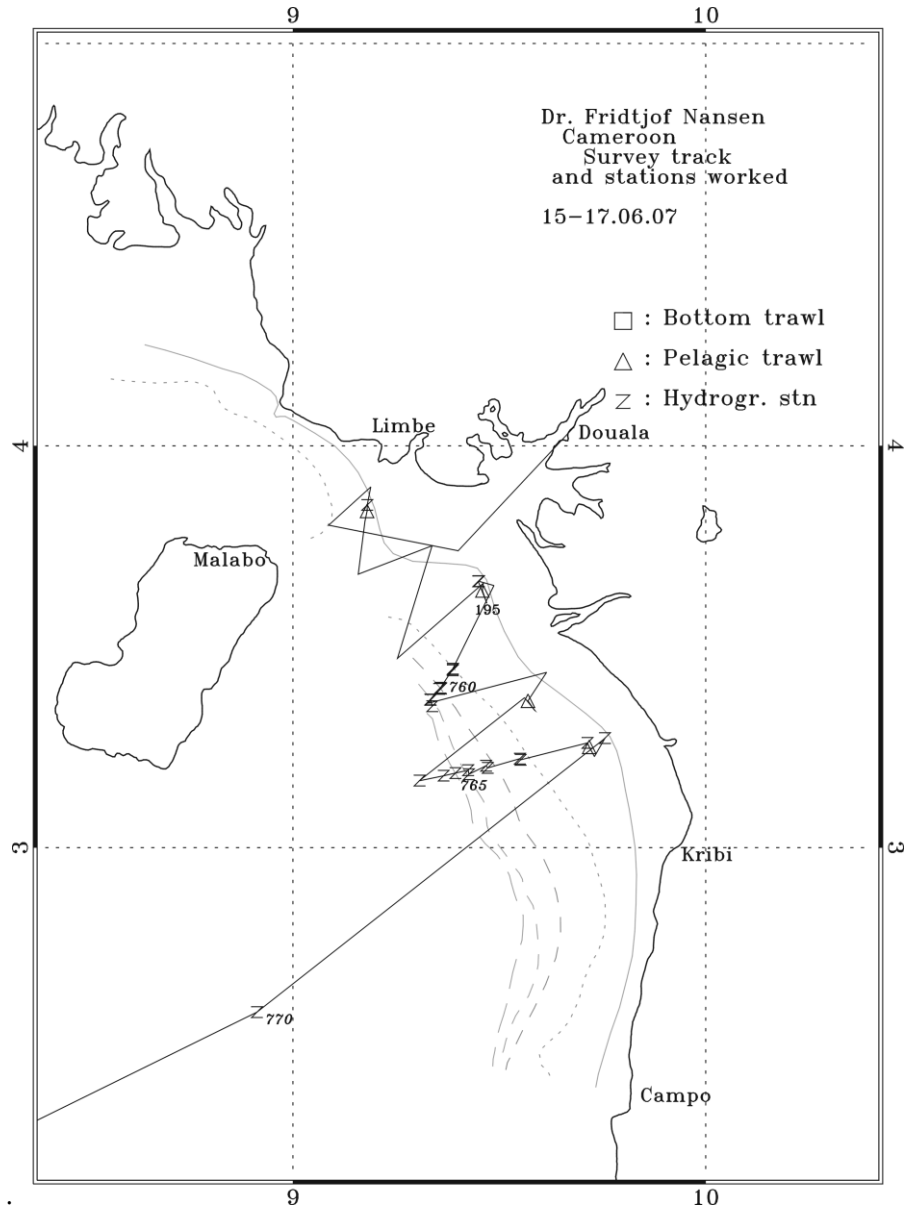


Figure 1.d Course track with fishing stations, plankton and hydrographic stations for Cameroon. Depth contours at 20 m, 50 m, 100 m, 200 m and 500 m are indicated.

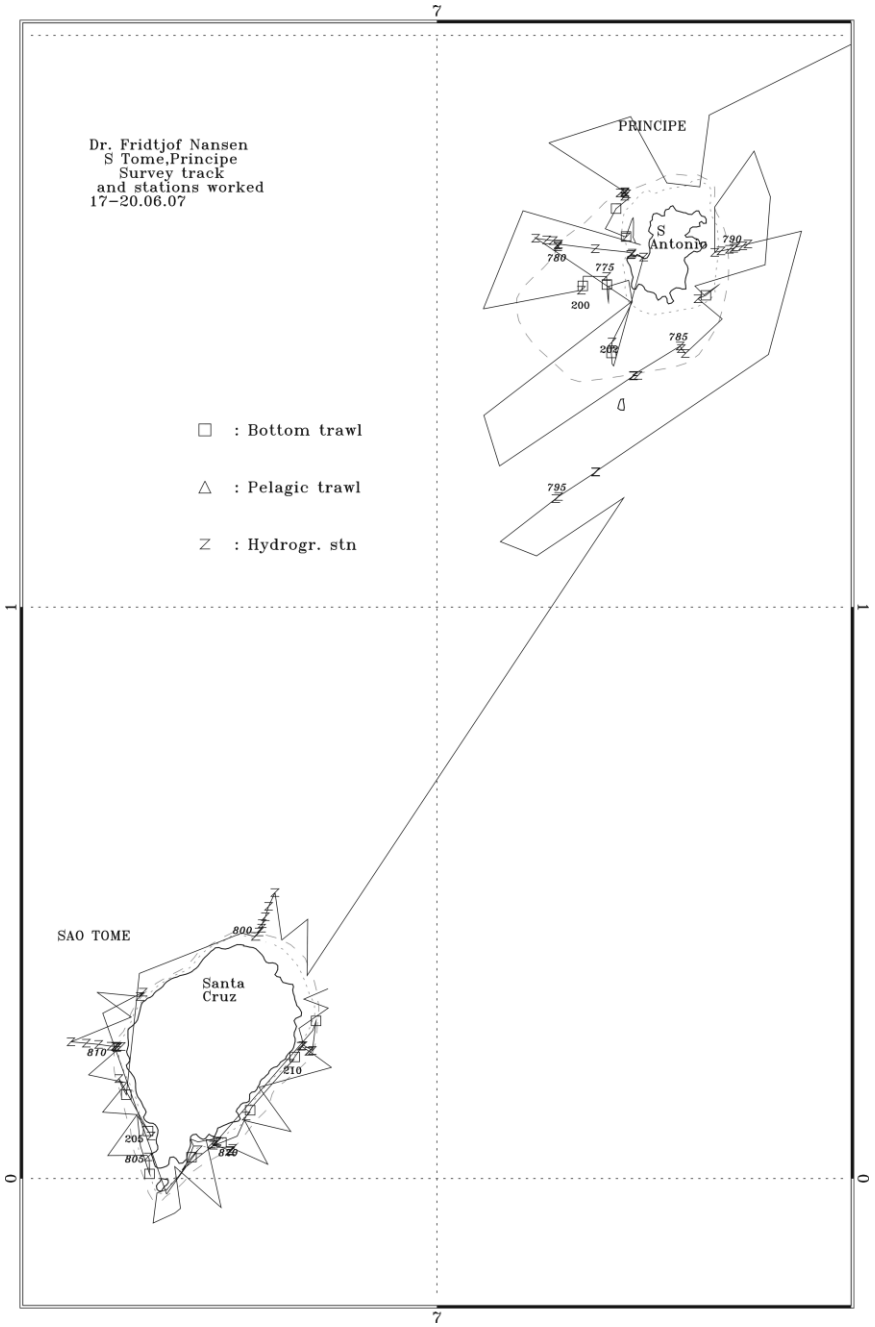


Figure 1.e Course track with fishing stations and hydrographic stations for São Tomé and Principe. Depth contours are indicated.

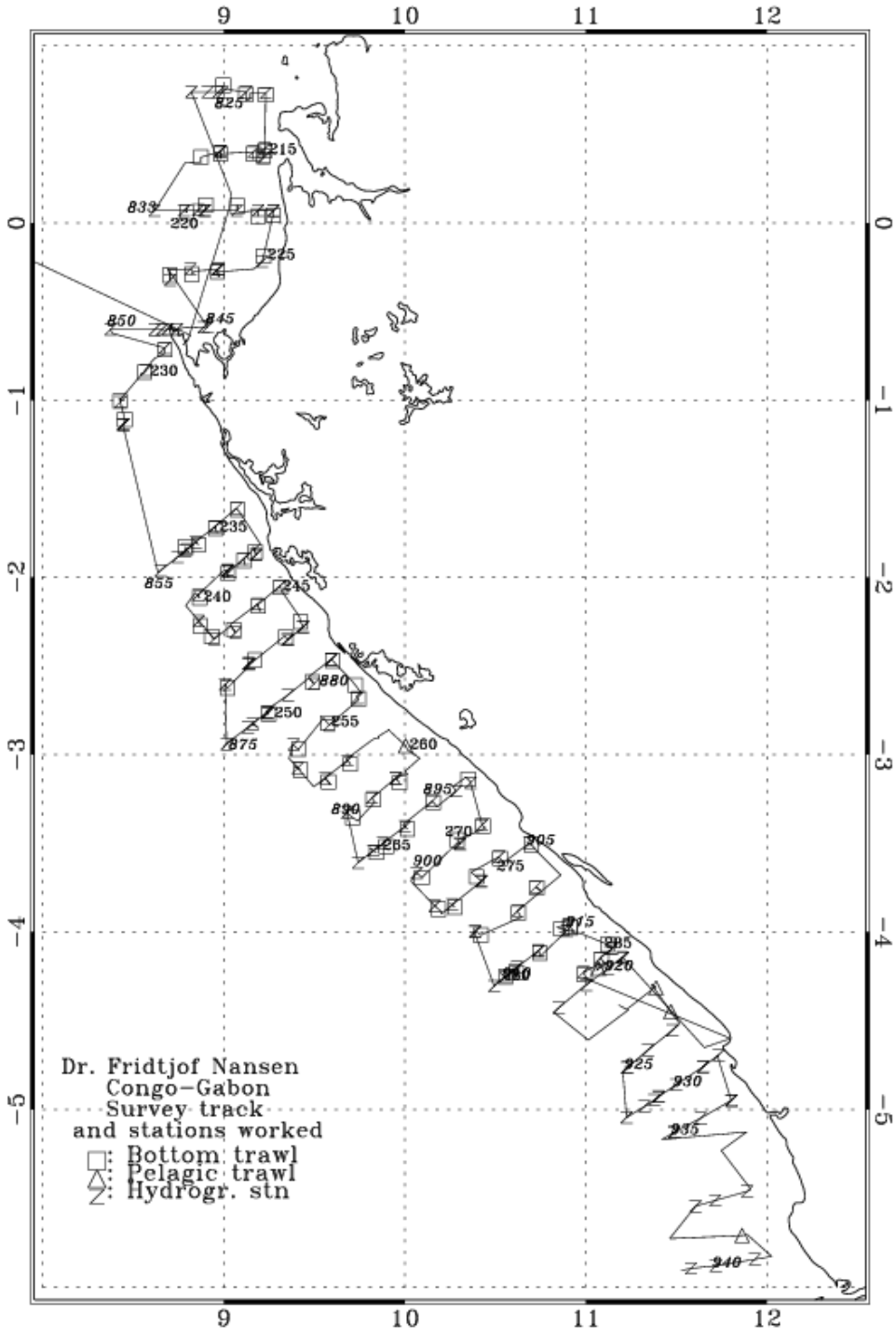


Figure 1.f Course track with fishing stations and hydrographic stations for Congo and Gabon.

Table 1.1 Surveyed area and valid trawl stations by depth stratum (in brackets pelagic trawls), total trawl stations separated by bottom (BT) and pelagic (PT), number of grab (B), plankton (P), hydrographic stations (CTD) and distance surveyed in NM by region. The calculated area for São Tomé and Principe is the total area for both islands.

						Swept-area hauls					Distance
Region	CTD	P	B	PT	BT	0-30 m	31-50m	51-100 m	101-200	201-500 m	surveyed
Côte D'Ivoire	12	3	5		6	2	2	2			206
Area (NM^2)						563	701	1606			
Ghana	45	10	16	3	32*	7	10	11	2	2	706
Area (NM^2)						1412	2064	2751	584		
Togo	6	2	2		3	1	1	1			129
Area (NM^2)						149	78	100			
Benin	7	2	1		3**	1	1				103
Area (NM^2)						387	134	244			
Cameroon	13	7	4	3							243
Area (NM^2)						1548	500	618	214	115	
Principe	26	9	6		6		1	5			504
Area (NM^2)							71	228			
São Tomé	27	7	5		8	1	1	6			371
Area (NM^2)							68	58			
Gabon	92	10	26	1	64***	12(1)	10	16	17	9	1445
Area (NM^2)						2441	2240	3715	2226	1396	
Congo	20	2	7	2	3	1 (2)	1	1	-	-	270
Area (NM^2)						480	344	830	816	293	
Total	248	52	72	9	125	25(3)	27	42	17	9	4977
Area (NM^2)						7367	6200	11238	3256	1804	

* includes 4 hauls deeper than 100 m

** includes one not valid haul

*** includes 3 hauls deeper than 500 m

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 predetermined hydrographic transects. Figure 1 presents positions for the CTD stations. 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. The new oxygen sensor has shown to be very stable, and no calibration was conducted during the survey. The calibration constant calculated during the survey off the western Gulf of Guinea was applied for the whole survey.

Termosalinograph
The SBE 21 Seacat thermosalinograph was running routinely during the survey. Obtaining samples of sea surface salinity and relative temperature (5 m depth) every 10 sec during the survey.

Current speed and direction measurements (ADCP)
The ship-born Acoustic Doppler Current Profiler (ADCP) from RD Instruments was running throughout the survey. The ADCP was set to external trigger, triggered by the Simrad ER 60 acoustic system. The depth cell interval set to 8 m and the number of cells was set to 50.

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 fish 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 0.1 cm below for shrimp. The mantle length was measured to the nearest 1 cm below for *Sepia* spp. In addition biological samples of target species included; total length (mm), body weight (g), sex and reproductive stages, and analyses of stomach content. Reproductive stage were determined by means of macroscopic examination, scoring each fish according to the five-point classification scale first proposed by Holden and Raitt (1974). Stomach fullness was classified according to the following scale: Full (100%), three-quarters full (75%), half-full (50%), a quarter-full (25%) and empty, Pillay, (1953). The stomach content samples were stored in 10% formaldehyde solution and the bottle labelled with the station number and fish species code. Other necessary

information (*e.g.* station number, species code, date, sex and gonad stage) was written on a piece of acetate paper and inserted into each sample bottle. The stomach content samples were taken to Instituto Investigação Marinha, Luanda, Angola for further analyses. 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. while the swept-area estimates are presented in Annex VII.

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

2.3 Plankton sampling

Zooplankton was collected with the Hydrobios multinet zooplankton sampler that takes up to five discrete samples at predefined depths while measuring the water flow through the net. Samples were taken irregularly at opportunity throughout the survey trying to cover both inshore and offshore areas frequently. Samples were fixed in buffered formaldehyde solution and stored for further analyses onshore.

All plankton samples were sent to the GCLME productivity Centre at the University of Ghana

2.4 Benthos grab sampling

The soft-bottom benthic macrofauna sampling was carried out using Peterson grab with a surface area of 0.20 m^2. At each of the stations (Figure 1), the Peterson grab was deployed from an operated winch onto the seafloor. Five replicate samples were taken to obtain representative samples at each station, and to assess the patchiness in the distribution of the organisms. Two sediment replicates each were screened through sieves of mesh sizes 0.5 mm and 1.0 mm respectively to obtain adequate samples for both taxonomy and molecular analyses. The residue of the sieved sediment samples were fixed and put into plastic containers. One of the sediment replicates were fixed in 90% ethanol while the others were preserved in10% borax pre-buffered formaldehyde. The ethanol in the samples were decanted and refilled with fresh ethanol solution after two days to avoid sample deterioration.

The containers were labelled according to the station numbers, replicate type, date, mesh size used, and the type of preservation used (e.g. N07A, 12/06/07, 0.5 mm, Formaldehyde; C03D, 22/06/07, 1.0 mm, Ethanol). The samples were packed into boxes, for sorting and taxonomic identification on land. Two replicate samples from all the stations were packed and kept in the region at the University of Ghana, Department of Oceanography & Fisheries while the three others were sent to Bergen Museum, at the University of Bergen in Norway.

Additional sediment samples were taken at all the stations into zip lock bags, stored in a freezer and sent to Nigerian Institute for Oceanography and Marine Research, Lagos or the University of Bergen, for both granulometric and chemical analyses.

2.5 Biomass estimates

Acoustic abundance estimation

A SIMRAD ER 60 Echo sounder was used and the echograms were stored on files. The acoustic biomass estimates were based on the integration technique. The Large Scale Survey system (LSSS, Christian Michelsen Research Center) was used for integration, 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, LSSS 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:

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

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, PEL 2):

$$TS = 20 \log L - 72 \, dB \qquad (1)$$

or in the form

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

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

where: N_i = number of fish in length group i

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

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:

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

The length distribution of a given species within an area was computed by simple adding of the length frequencies obtained in the pelagic 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:

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

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:

$$B = \frac{A}{a} . \frac{\overline{X}}{\mathrm{q}} \qquad (6)$$

A is the total area surveyed, a is the swept area of the net per haul, $\overline{X}$ 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 $\overline{X}_i$ and s_i^2 respectively, then an unbiased estimate of the population mean $\overline{X}$ is the stratified mean $\overline{X}_{\mathrm{st}}$, which is given by:

$$\overline{X}_{st} = \frac{1}{N} \sum_{i=1}^{k} N_i \overline{X_i} = \sum_{i=1}^{k} W_i \overline{X_i} \qquad (7)$$

where $Wi = \frac{Ni}{N} = \frac{A_i}{A}$ 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

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

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 IV on a spread-sheet, Annex V) and raised to total area. Since NAN-SIS does not produce variance estimates of the mean densities (Annex IV), the 95% confidence limits for the biomass estimates were calculated with the underlying assumption that the coefficient of variation (CV = SD/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 IV were used to calculate standard error (SE) on the arithmetic mean and confidence intervals.

CHAPTER 3 OCEANOGRAPHIC CONDITIONS

3.1 Surface distribution

The sea surface temperature (SST, 5 m depth) was continuously recorded during the cruise. **Error! Reference source not found.** (a-d) shows the horizontal distribution of sea surface temperature (SST) for Côte d'Ivoire-Benin, Cameroon, São Tomé and Principe, Gabon and Congo respectively.

Côte d'Ivoire – Benin
Temperature in the area remained rather constant, with colder waters along the Ghanaian coast.

Cameroon
Data recorded were not sufficient to describe the SST and SSS variability within Cameroon waters. However the data shows temperatures between 27.5°C and 28°C in the area covered, increasing southwards. SSS was around 27.5 PSU, increasing offshore and southwards to 30 PSU.

São Tomé and Principe
The SST around Principe was very stable with a minor variation from 27.7°C on the north-eastern side to 27.6°C on the south-western side. The temperature is approximately the same as what was observed last year. The temperature at São Tomé was 27.5°C on the north-west side with decreasing temperatures on both sides of the island southwards to a minimum of <27°C. The temperature map show some similar features to last year although the temperature around also this year has increased from observations last year.

The SSS was as expected higher in São Tomé and Principe than on the main land. Sea surface salinity at Principe was as last year stable around 34.2-34.4 PSU.Salinity on São Tomé were slightly lower than on Principe with values around 38.8-40.0.

Gabon
The SST in the northern part of Gabon ranged from 27°C at the border with Equatorial Guinea to 24°C at Cape Lopez. Temperature isolines were generally across shelf and SST north of cape Lopez were similar to 2006. The frontal zone separating warm less saline tropical water from the Gulf of Guinea in the north from colder, saline water masses on the southern shelf of Gabon and Congo was present from around 10 NM north of Cape Lopez and considerably further north and more pronounced than last year where the front was observed south of Cape Lopez. Temperatures on the southern shelf of Gabon and Congo were generally warm for this time of the year, and similar to what was observed last year although slightly

warmer. No clear signs of upwelling as observed during the 2005 survey was seen in the surface water masses. Temperature isobaths were generally along shelf ranging from >23°C offshore decreasing to pockets SST<22°C inshore.

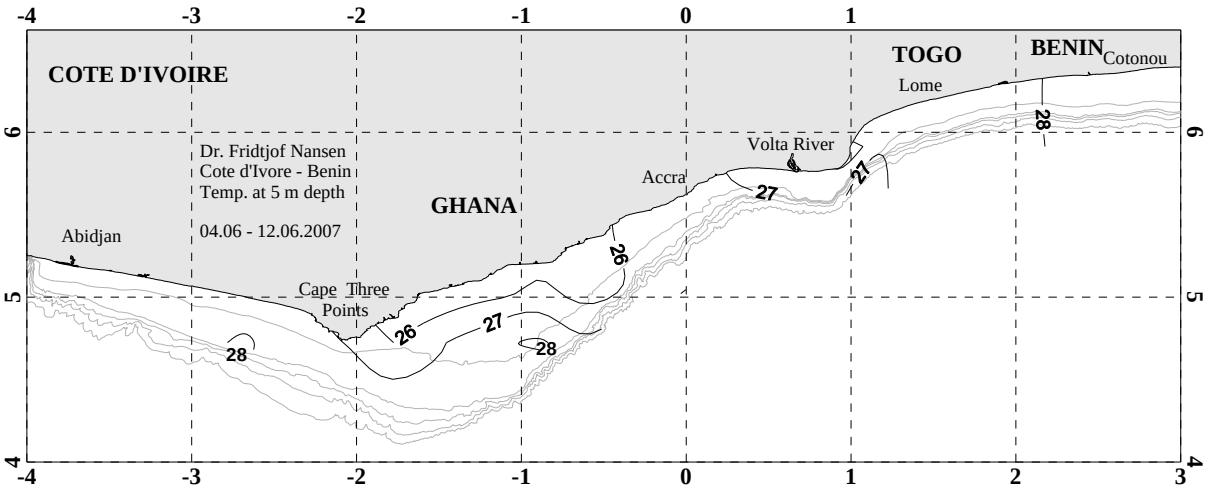
The SSS in the northern shelf of Gabon were generally around <32 PSU inshore increasing offshore to 33.5 PSU in the northern and southern part of the region. A pocket of waters with salinity <31,5 PSU was observed off Libreville. A strong front extending offshore and northwards was observed of Cape Lopez where the SSS increased rapidly from 33 PSU to >36 PSU. Large parts of the southern shelf of Gabon was characterised of surface waters with this salinity. SSS started to drop towards the border with Conge where the influence of the Congo River became present. Water masses was slightly less saline in the region north of Cape Lopez and slightly more saline on the southern shelf of Gabon than during the 2005 survey.

Congo

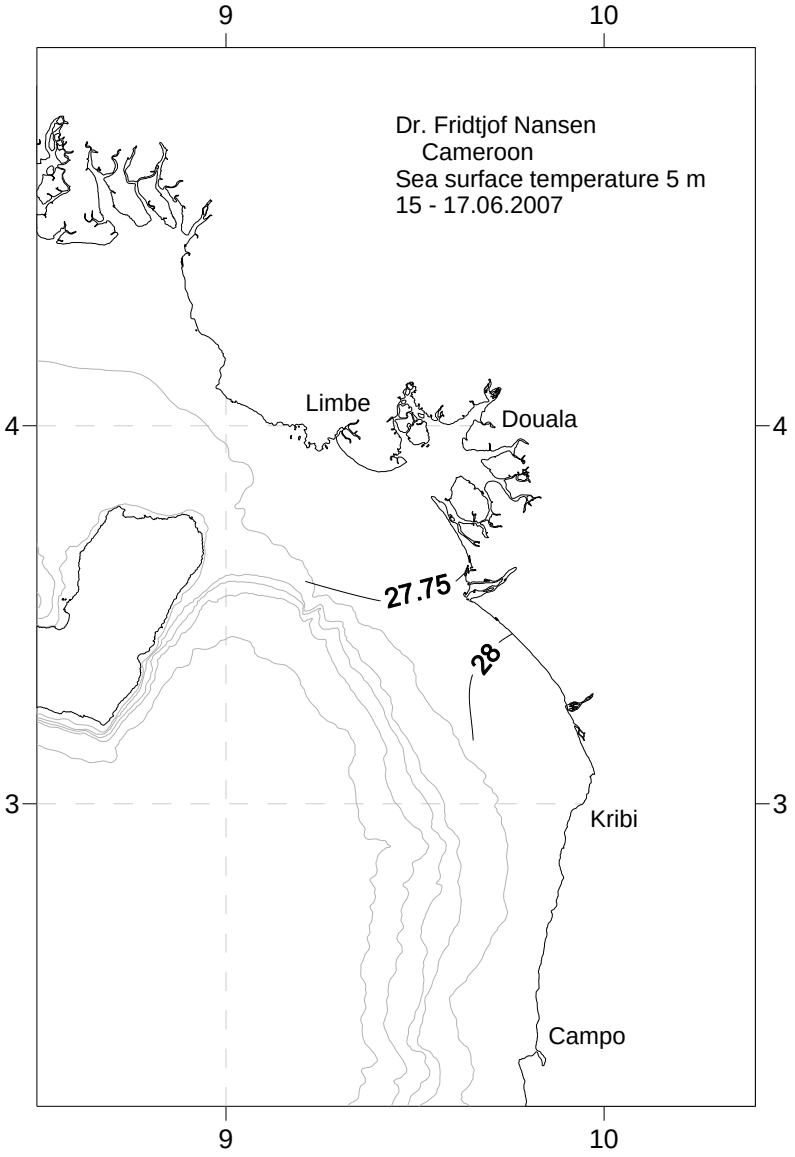
The sea surface temperature in Congo was generally similar to what was observed in Gabon. Slightly cooler waters was observed inshore from Point Noire towards cabinda with temperatures < 22°C while warmer waters were observed offshore. The water masses in this region was relatively turbulent due to the effect of the Congo river. Temperatures were generally slightly warmer than during the surveys in 2005 and 2006.

The effect of the Congo river was clearly visible in the SSS in the region with turbulent water masses and large variability in SSS. Lowest SSS was observed offshore decreasing from around 35 PSU in the northern part of Congo to <31 PSU towards Cabinda in Angola. The inner part of the shelf seems to be a retention area where more saline waters are pushed up on the shelf due to the north and offshore flow of the Congo River. The region showed an increase in SSS with >35 PSU off Point Noire. This area also show lower temperatures than the surrounding area and relatively high primary production. During the 2006 survey SSS in offshore waters off Congo was generally higher than during this survey, probably due to lower discharge from the Congo River.

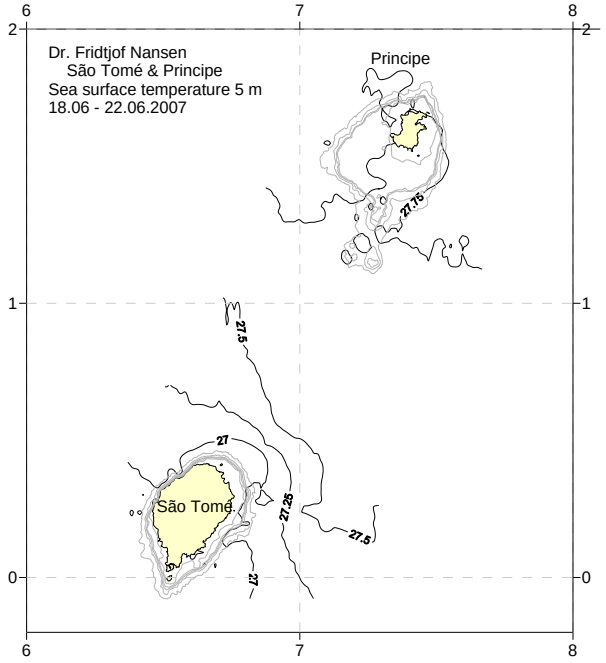
a) Côte d'Ivoire-Benin



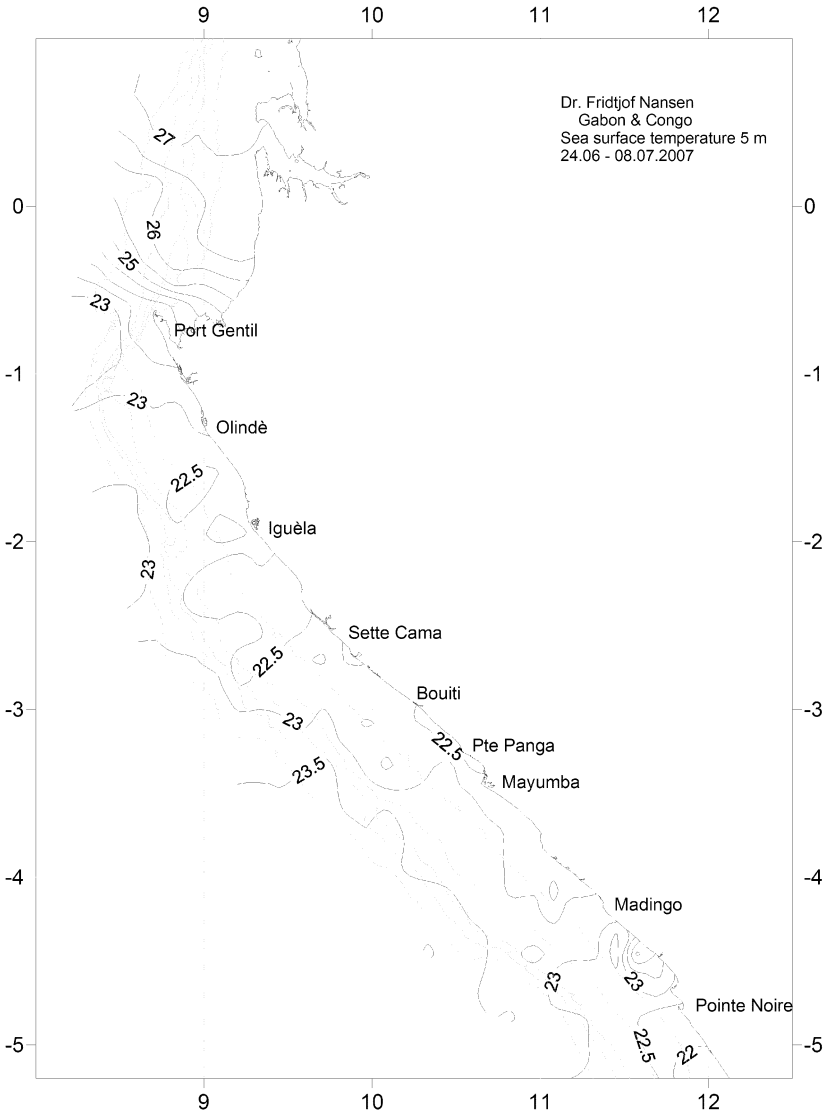
b) Cameroon



c) São Tomé & Principe



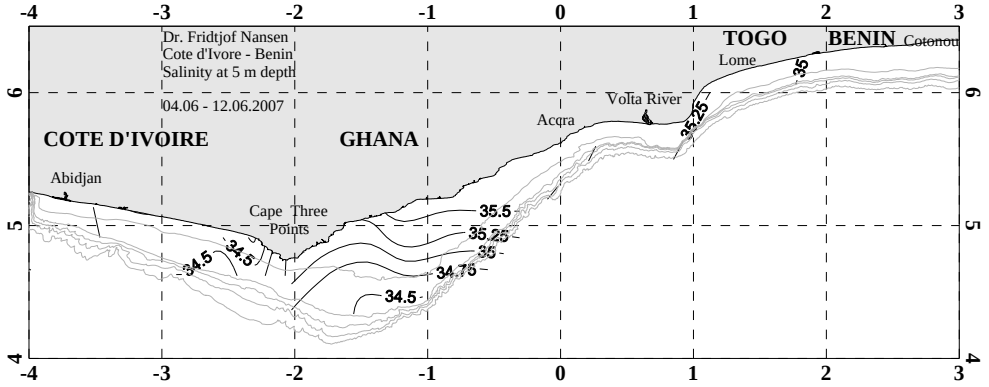
d) Gabon and Congo



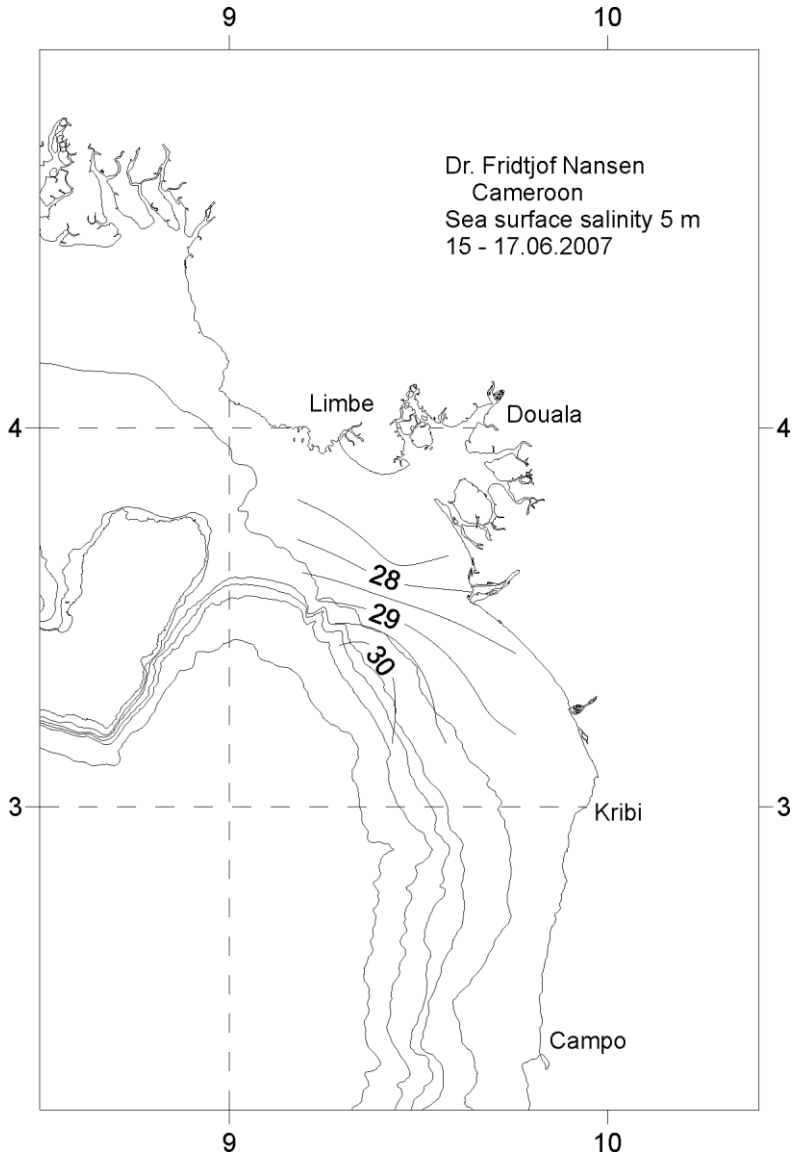
Figur 3.1 a-d Horizontal distribution of surface temperature (5 m depth) at a) Côte d'Ivoire – Benin, b) Cameroon, c) São Tomé & Principe and d) Gabon and Congo.

The surface salinity (SSS, **Error! Reference source not found.**a-d) was recorded from the Thermosalinograph at 5 m depth. The salinity varied considerably in the survey area due to fresh water influx from the numerous rivers discharging in the region, particularly in Cameroon, from the Wouri river delta and in Congo due to discharge from the Congo River. The northern part of Gabon was also influenced by freshwater masses probably originating both from local rivers along the coast and from water masses from further north in the Gulf of Guinea.

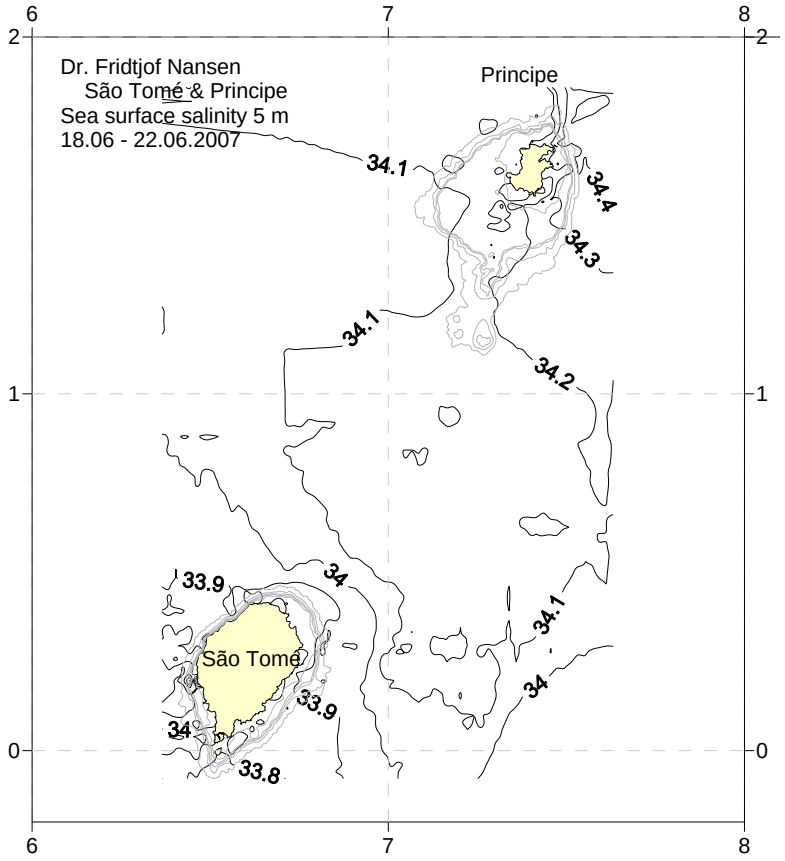
a) Côte d'Ivoire-Benin



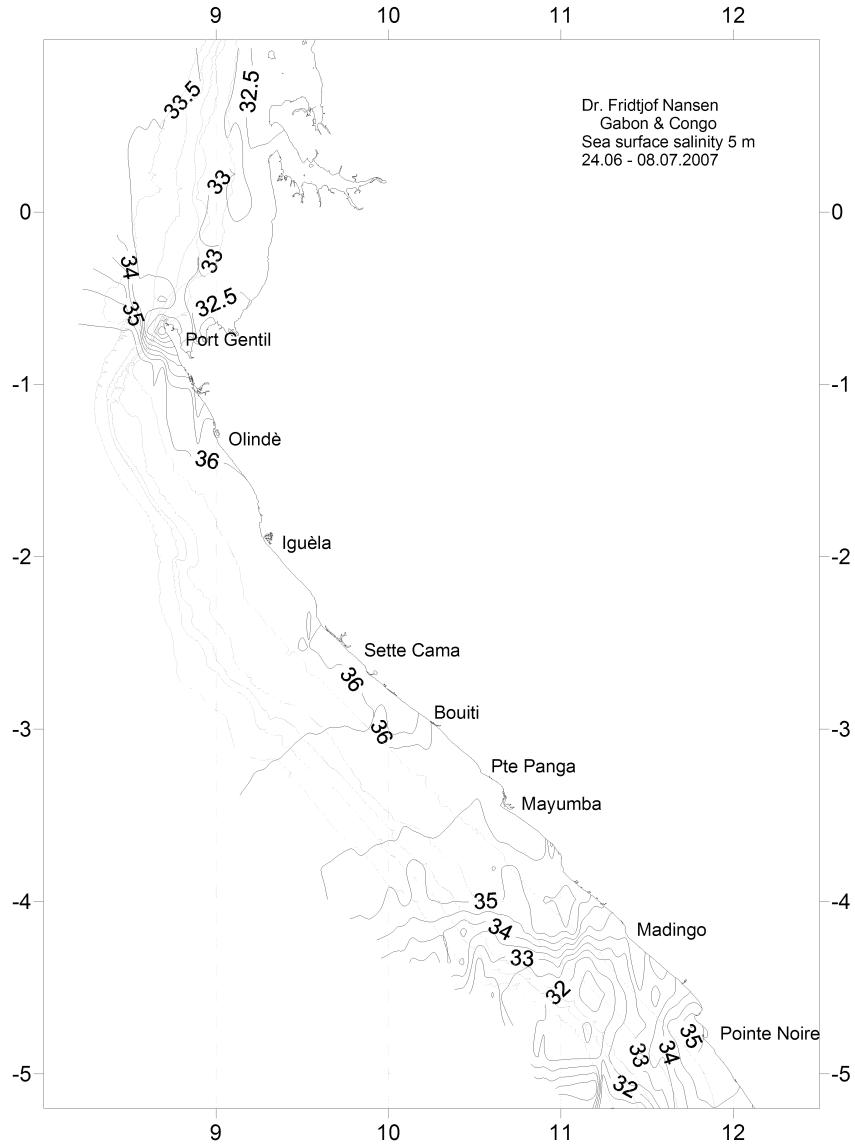
b) Cameroon



c) São Tomé and Principe



d) Gabon and Congo



3.2 a-d Horizontal distribution of surface salinity (5 m depth) at a) Côte d'Ivoire – Benin, b) Cameroon, c) São Tomé and Principe and d) Gabon and Congo.

3.2 Vertical sections

Figure 3.3 (a-r) shows the vertical distribution of temperature, salinity and dissolved oxygen as recorded on the hydrographic transects worked out during the survey.

Côte d'Ivoire – Benin

The sections worked out in this region show a stable stratified distribution of the oceanographic parameters, with surface temperature values of around 27°C, salinity between 35 and 36 PSU and 4 ml/l of oxygen at the surface. The exceptions are the sections off Three Points (Ghana) and off Benin, where the water mass seems less stable, and the surface salinity is lower than in the rest of the region, and in Benin the surface water reached the 28°C. In this later section the thermocline was found very shallow, at around 20 m depth.

Cameroon

This region was represented by one oceanographic section taken at Kribi. Temperature and dissolved oxygen profile were similar to what was observed in the previous sections. Surface salinity was <30 PSU, and the strongest salinity gradient was around 50 m depth, with the salinity maximum (35.0 PSU). Bottom salinity was around 30.5 PSU from 300m depth and deeper.

São Tomé and Principe

Two CTD lines were sampled on Principe (Northeast and West). Temperature profiles showed stable surface temperature around 27° C in the upper 50 m with temperature decreasing to 8 C at 500 m depth. Salinity profiles showed values on the shelf from 34.2 PSU in the surface to some 35.0 PSU at 50 m depth. In the Northeast the maximum salinity was observed between 80 – 100 m depth (35.9 PSU), while in the West section the maximum was observed at 150 m (35.0 PSU). The oxygen profiles showed well oxygenated water with surface values of 4.0 ml/l reaching 2ml/l between200 and 300 m depth.

Two CTD transects were taken off São Tomé (West and Northeast). The temperature profiles showed surface temperatures of 26°C in the Northeast, while in the West the water mass was cooler, with surface temperature of 18°C. Here the thermocline (18°C) was found at around 50 m depth, and the temperature values below were lower. Bottom temperatures were 8°C at 500 m in both sections. The salinity profiles also showed differences between the two zones: a surface salinity of 34.1 –33.9 PSU in the Northeast, while in the West values varied between 35.0 and 29.5 PSU for the same depth range, and the salinocline followed the thermocline. The oxygen profiles were more similar with a dissolved surface oxygen of 4.0 ml/l, descending to 2 ml/l at around 200 m depth.

Gabon

The shelf north and south of Cape Lopez is divided by a frontal zone during this time of the year, and the shelf environment differs considerably between the two regions. The profiles of temperature salinity and oxygen are therefore also separately.

North of Cape Lopez

Surface temperature at Corisco and Equator section was 27 and 26° but declined to 24 °C at Cape Lopez. The thermocline in all three sections were generally less pronounced and deeper than last year reaching temperatures of 18°C at 75 m at Corisco and at ~50 m depth at the Equator and Cape Lopez sections. The temperature was <18 C below the thermocline and decreased to 8 C in the bottom layer at 500 m depth.

The salinity profiles showed surface values around 32.8 PSU inshore on the Corisco section increasing offshore to 33.8 offshore. The salinocline followed the thermocline and the salinity reached a maximum of 35.8 at 75 m depth. The Equator section showed slightly higher surface salinity (33.1 PSU) while at Cape Lopez the surface salinity increased to 33.At both

sections salinity maximum was reached between 75 – 100 m depth with salinity of 36.0 PSU. The salinity decreased in deeper waters reaching a minimum of 34.8 PSU at 500 m depth in all three sections.

Dissolved oxygen values decreased gradually from between 4.5 at the surface to 2 ml/ below 200 m depth, with about 4 ml/l oxygen at the thermocline

South of Cape Lopez

The temperature profile in the south of Cape Lopez at Iguela, Sette Cama and Pointe Panga was all similar in appearance. The sea surface temperature ranged between 22 C and 23 C, with warmer water masses offshore. Typically the temperature increase was highest in the upper 75 m but water masses were less stratified than north of Cape Lopez. No clear upwelling situation was visible in any of the sections. Temperature minimum around 8 – 9 C was found at 500 m depth.

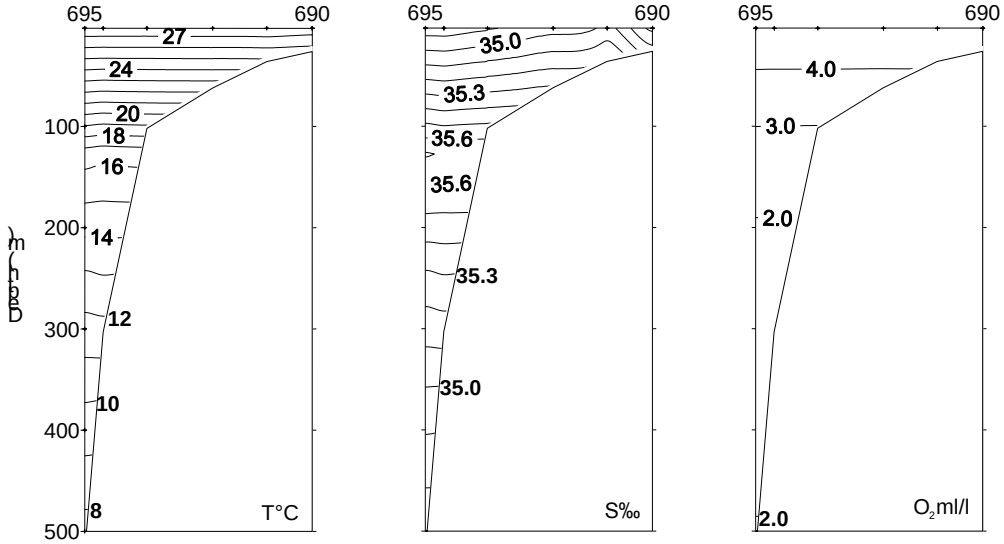
The salinity profiles were also similar in appearance in the southern region of Gabon, with the salinity maximum of around 36.2 PSU and 36.1 PSU found at the surface. The presence of the Congo river water masses starts to become present offshore in the surface layer off Pte. Panga, with lowest salinity offshore surface waters around 35.7 PSU. The salinity profiles was also considerably less stratified than north of Cape Lopez. Minimum salinity of 34.8 PSU was found at 500 m depth

Dissolved oxygen values decreased gradually from >4.5 ml/l in surface waters to 2 ml/l around 200 m depth. A body of water masses with < 1.5ml/l oxygen was present in offshore waters probably representing the Gabon – Congo undercurrent moving southwards in this area.

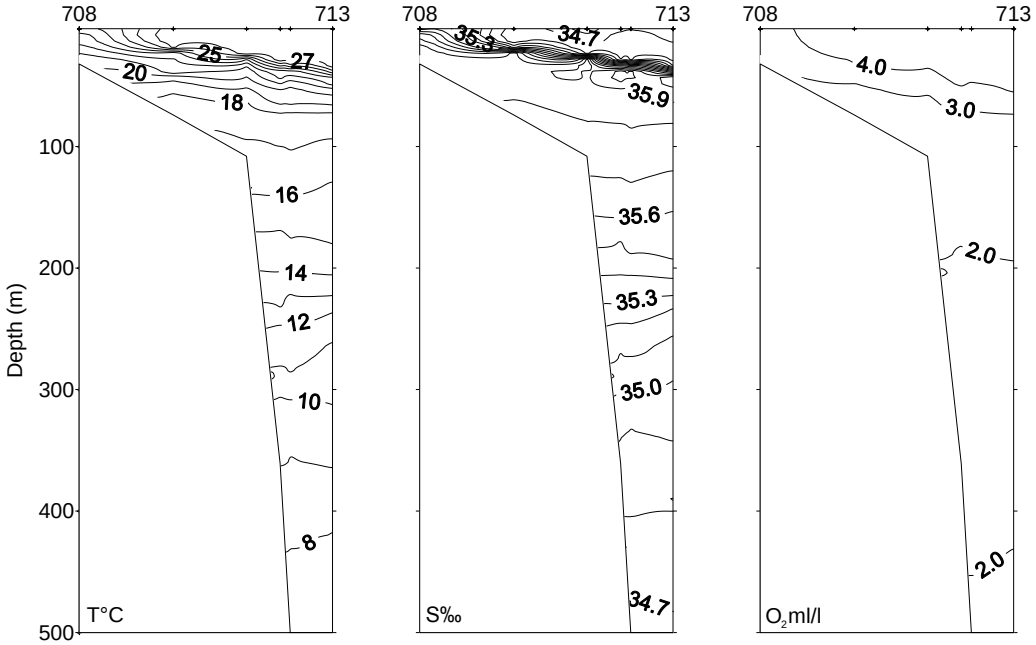
Congo

The temperature profile at Mandingo showed surface temperatures of 22 C inshore, increasing offshore to 23°C, but with no clear upwelling. Temperature decrease was fastest in the upper 100 m to temperatures around 16°C continuing decreasing gradually to 9 C in the bottom layer at 500 m depth. The temperature profile at Pointe Noire showed slight signs of upwelling inshore from intermediate waters around 100 m depth. Temperature isolines on the shelf was tilted upwards close to the coast. The temperature in the water masses off the self break was similar to observed at Mandingo with bottom temperatures of 8°C at 500 m. The salinity profile was influenced by the Cong River with lower salinity offshore in the surface waters to 50 m depth. The effect was clearly more pronounced at Point Noire. Salinity increased inshore to 35.4 PSU. The salinity maximum of 35.8 PSU was found around 75 –100 m depth in both profiles before it dropped to 34.8 PSU at 500 m depth

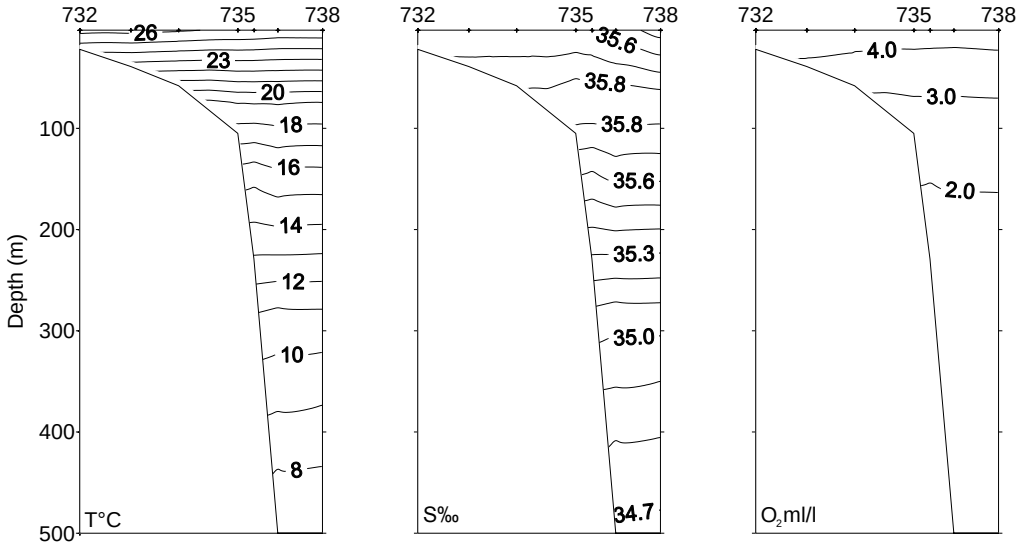
Dissolved oxygen at the surface at Mandingo and Pointe Noire was around 4.5 ml/l with slightly lower oxygen saturation in inshore waters. Dropping to 2 ml/l at 100 m depth. A body of water masses with < 1.5 ml/l oxygen was present in offshore waters at depths>200 m as also observed further north. Probably representing the Gabon – Congo undercurrent.



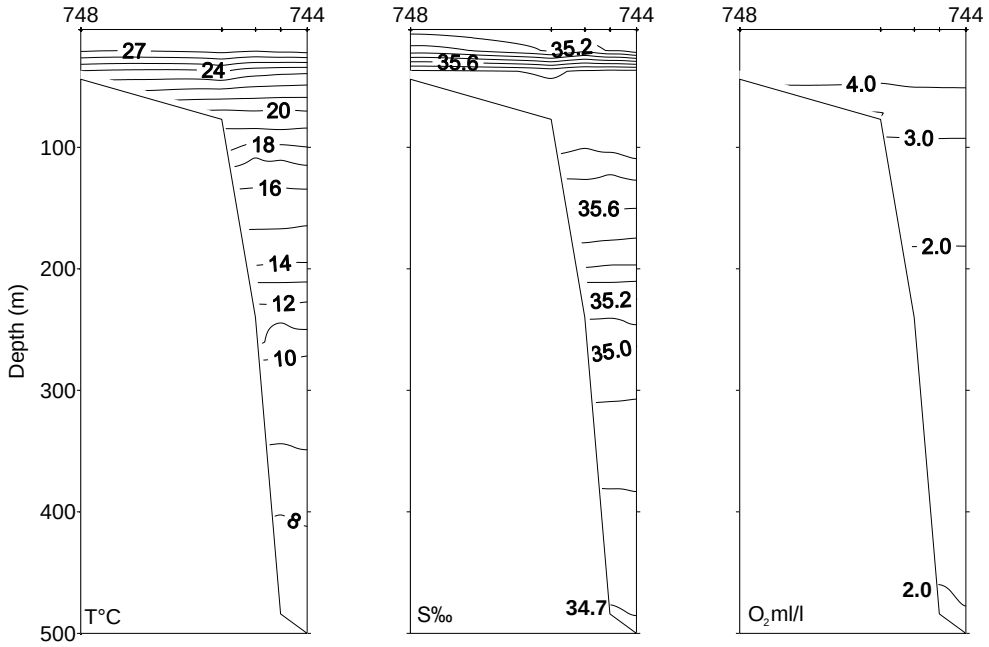
a) Côte d'Ivoire



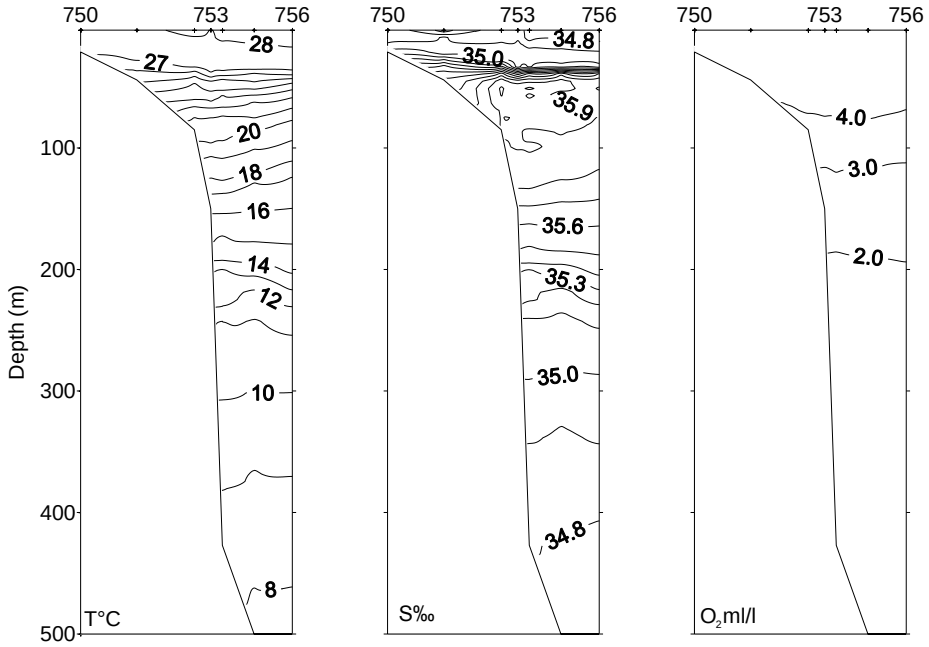
b) Cape Three Points, Ghana



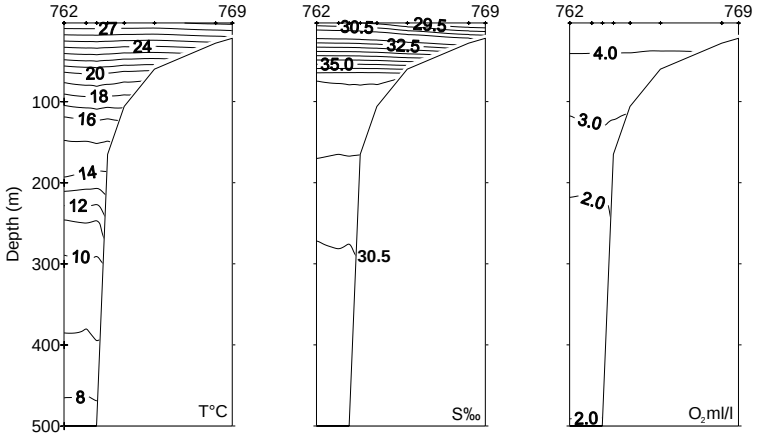
c) Accra, Ghana



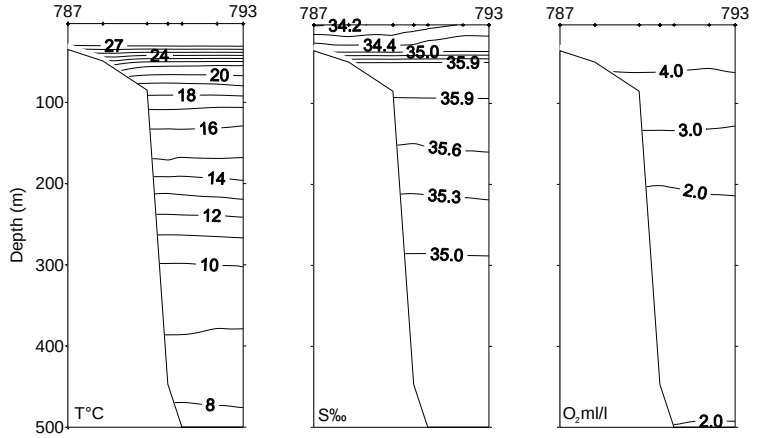
d) Togo



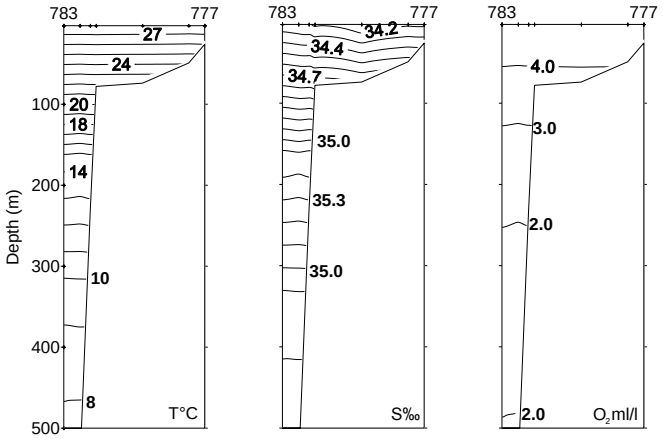
e) Benin



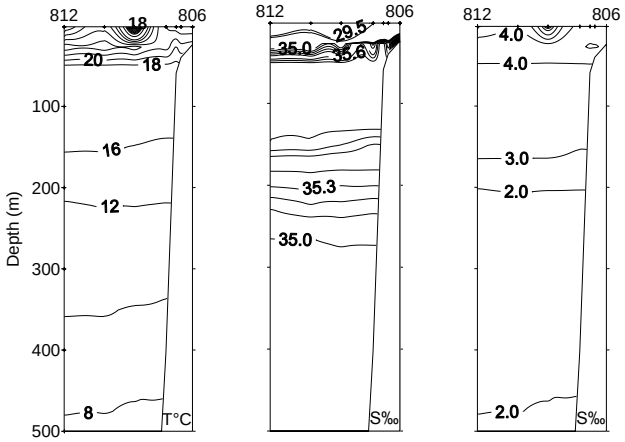
f) Kribi, Cameroon



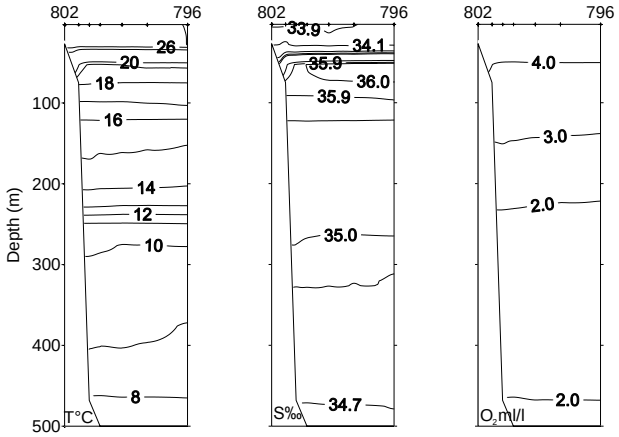
g) Principe, Northeast



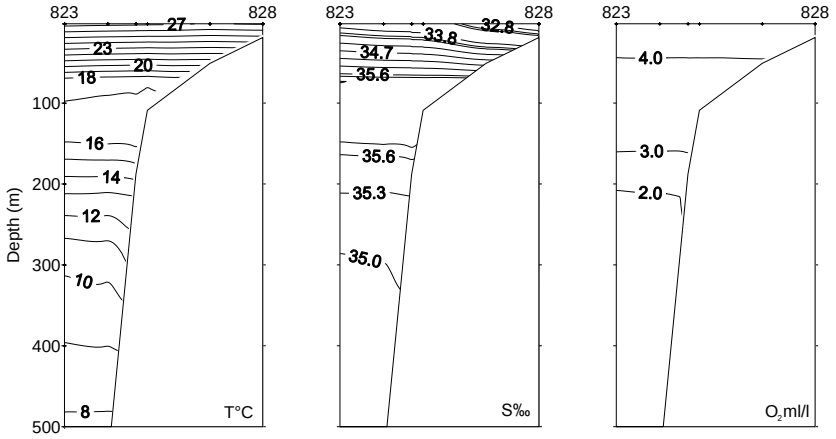
h) Principe, West



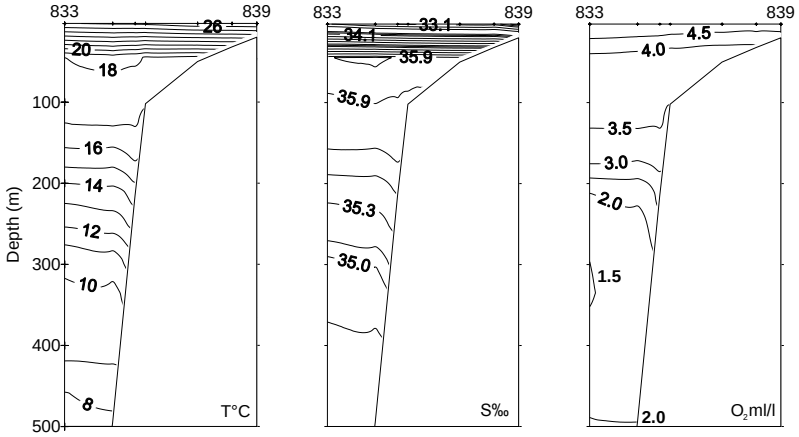
i) São Tomé, West



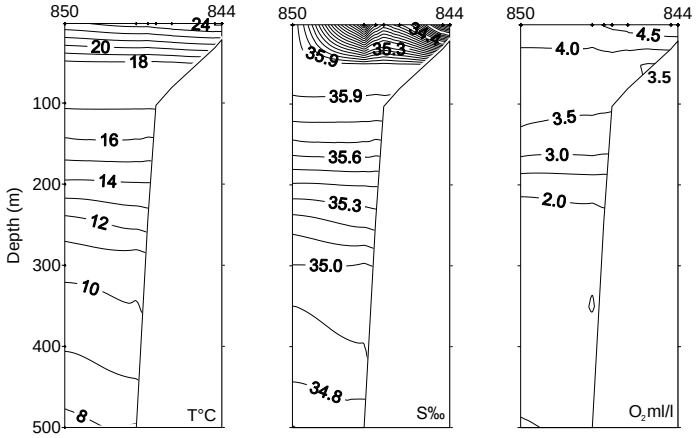
j) São Tomé, Northeast



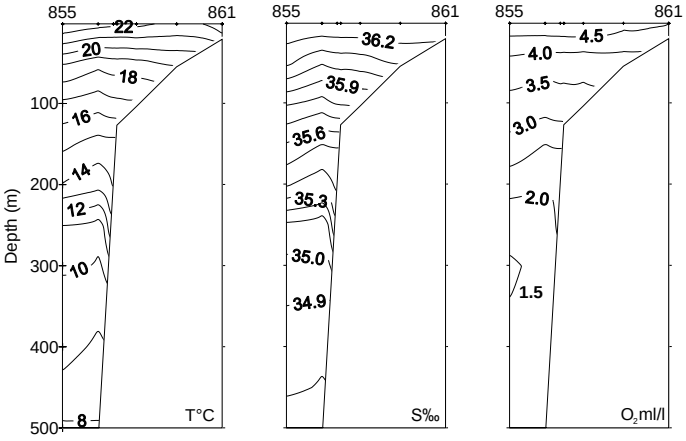
k) Corisco, Gabon



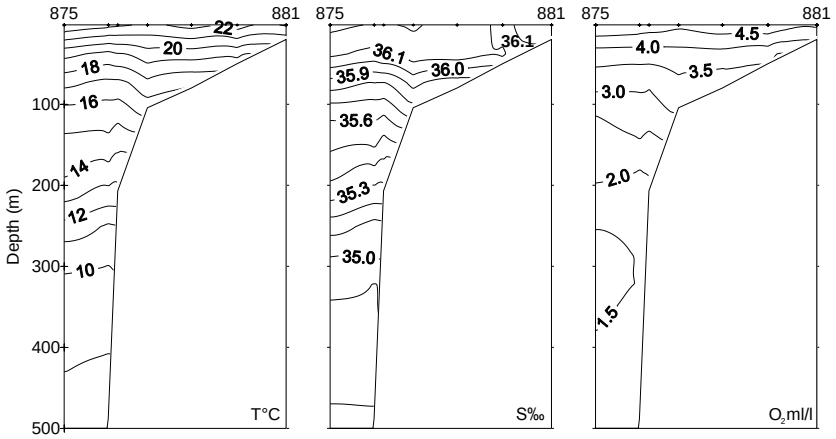
l) Equator, Gabon



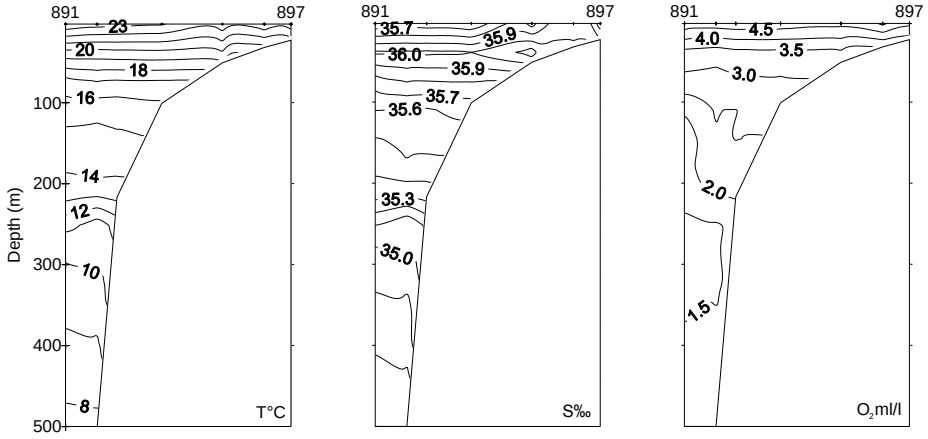
m) Cape Lopez , Gabon



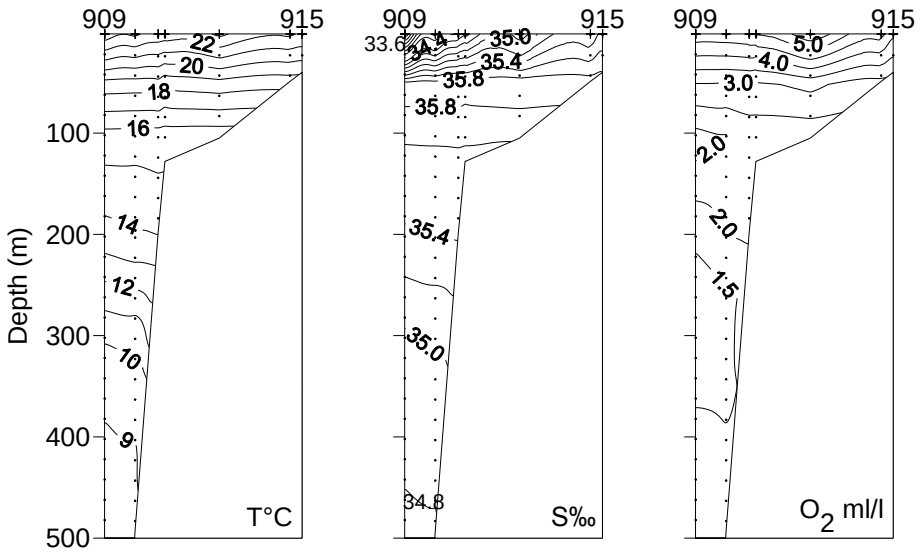
n) Iguela, Gabon



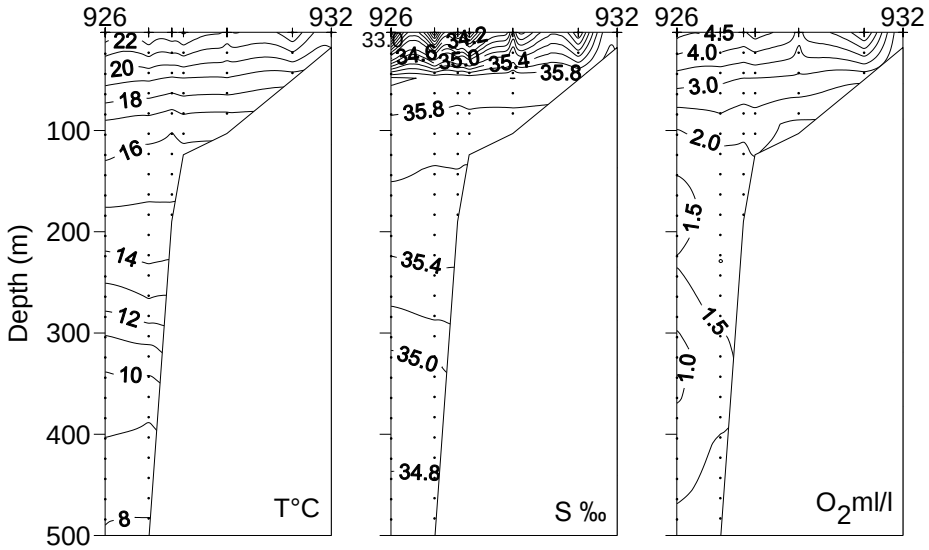
o) Sette Cama, Gabon



p) Pte. Panga, Gabon



q) Madingo, Congo



r) Pointe Noire, Congo

Figure 3.34a-r Vertical sections of temperature, salinity and oxygen in Côte d'Ivoire, Ghana, Togo, Benin, Cameroon, São Tomé and Principe, Gabon and Congo.

CHAPTER 4 RESULTS FROM THE ACOUSTIC SURVEY

The distribution area of main groups of pelagic fish in the region, *i.e*. sardinellas, PEL 1 (Clupeids), PEL 2 (mainly carangids) and horse mackerel, are depicted in the following figures (Figure 4.1 - 4.4) using the integrator values from the LSSS echo-integration system recorded with the ES38B, 38 kHz transducer connected to the ER60. The acoustic densities (in m^2/NM^2) are illustrated by a scale normally used on acoustic surveys with "Dr. Fridtjof Nansen".

4.1 Côte d'Ivoire-Ghana

The hydro acoustic survey off the area covered the shelf and slope systematically to 100 m depth during day time, continuing offshore during night hours. Due to lack of time, only the coast off Ghana was properly covered as to estimate its pelagic biomass (see Table 1). Low to medium acoustic densities were found over most of the shelf.

Pelagic 1

Figures 4.1 to 4.3 show the distribution of the different pelagic groups found in the area. Table 4.1 shows the biomass estimates, in tonnes, for the two main pelagic groups: PEL 1 (sardinellas and anchovies), and PEL 2 (carangids, scombrids, barracudas and hairtails)

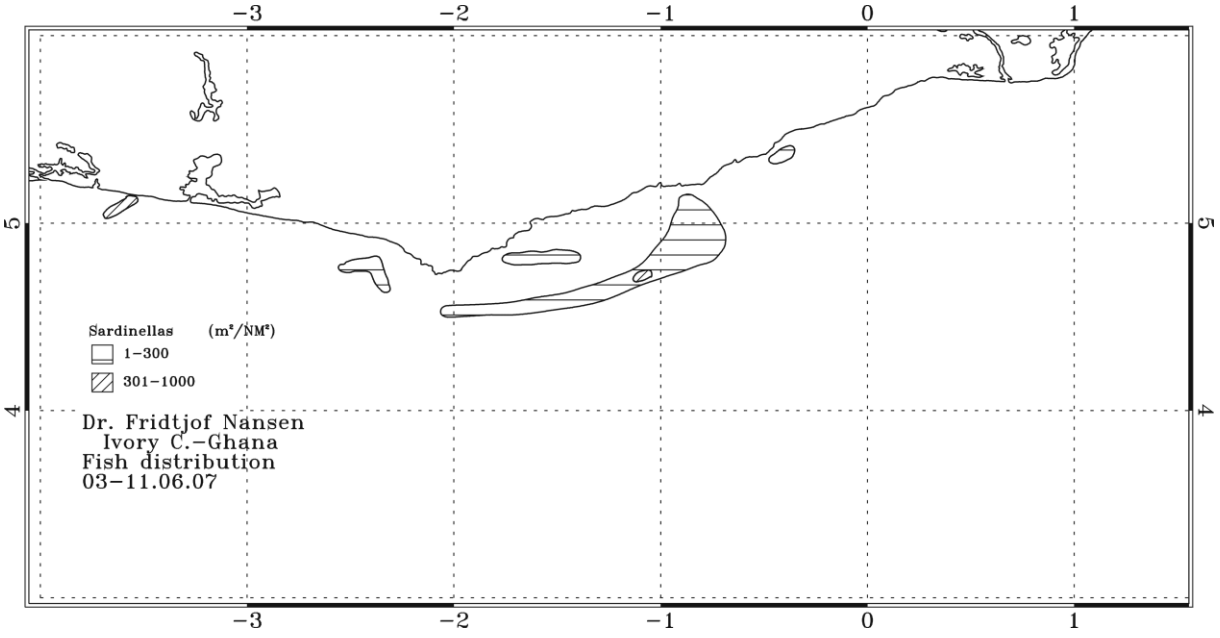


Figure 4.1 Distribution of *Sardinella* spp. off Côte d'Ivoire-Benin

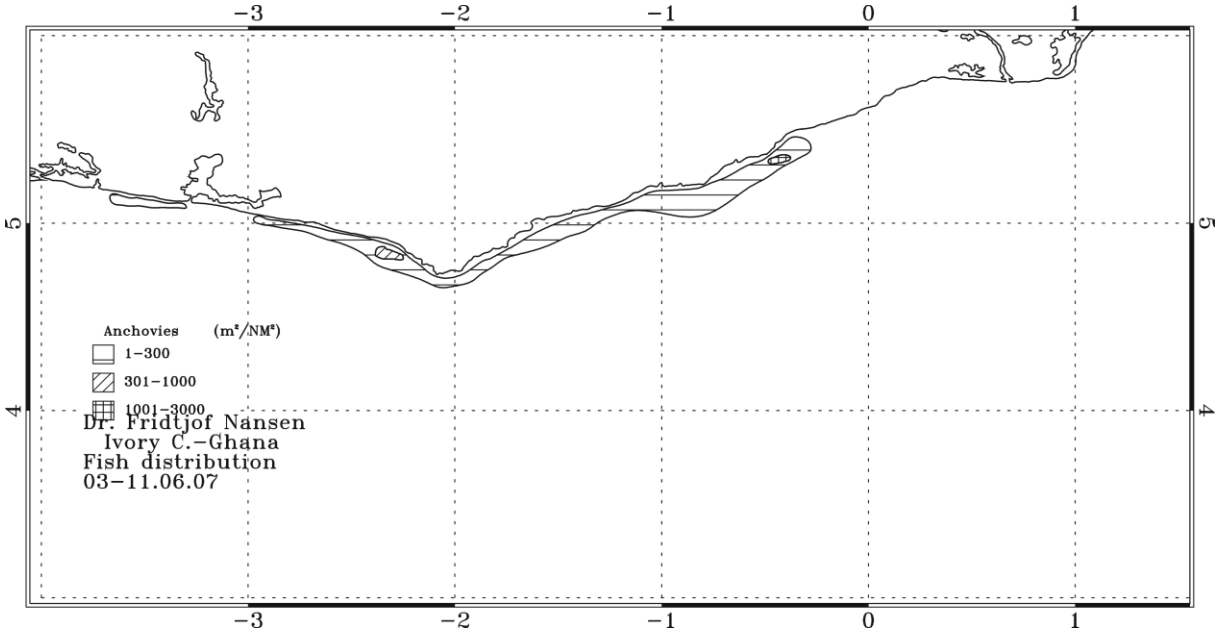


Figure 4.2 Distribution of anchovy (*Engraulis encrasicolus*) off Côte d'Ivoire-Benin

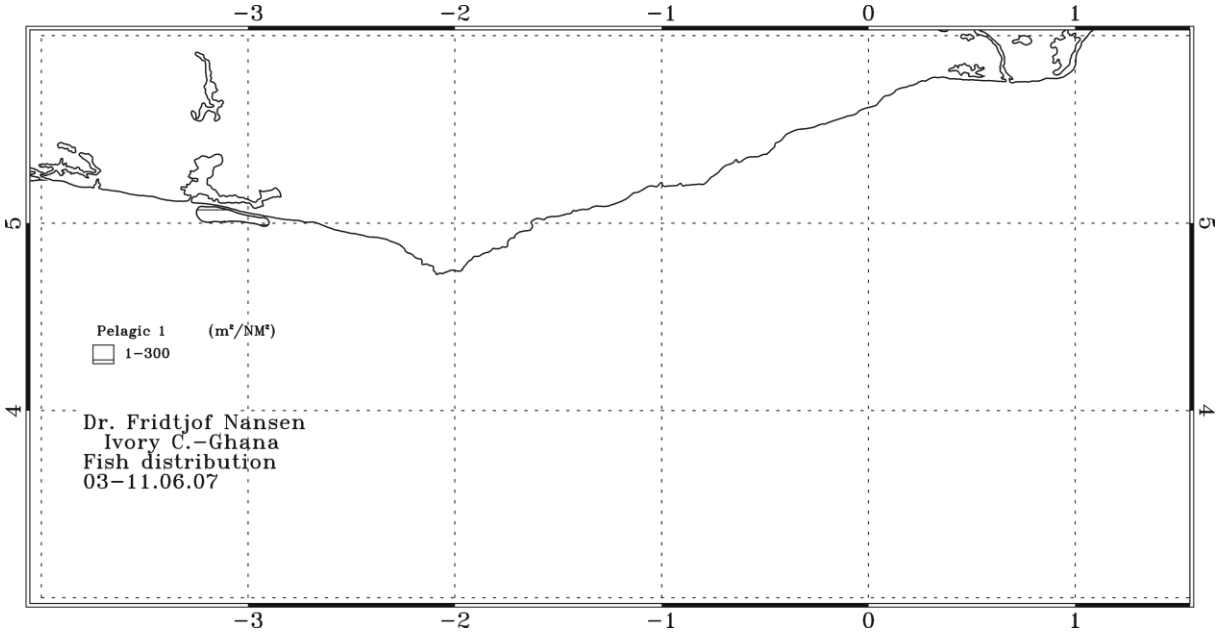


Figure 4.3 Distribution of Pelagic 1 off Côte d'Ivoire-Benin

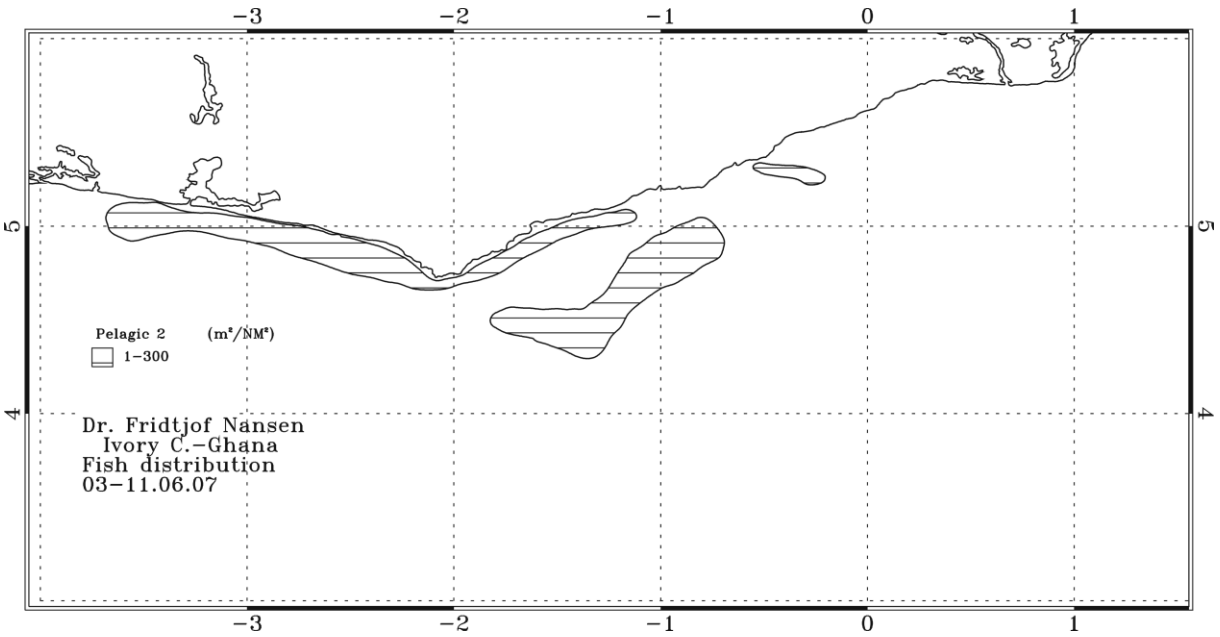


Figure 4.4 Distribution of Pelagic 2 (Carangids, scombrids, barracudas and hairtails) off Côte d'Ivoire-Benin

4.1 Acoustic biomass estimates of main pelagic groups (tonnes) a) Sardinellas and anchovies (PEL 1) and b) carangids, scombrids, barracudas and hairtails (PEL 2) from surveys with "Dr. Fridtjof Nansen" off Côte d'Ivoire, Ghana, Togo and Benin in 1981, 1989, 1999, 2000, 2002, 2004, 2005, 2006 and 2007.

a) Sardinellas and anchovies (PEL 1)

Survey Year	Survey period	Côte d'Ivoire	Ghana	Benin – Togo	Benin (765)	Togo (327)	Total
1981	June	39 000	40 000	[1]			79 000
1989	12.10 – 20.10	6 000	41 000	not covered			47 000
1999	19.4 – 8.5	42 000	40 000	5 000[3]	3 500	1 500	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
2006	19.5 - 5.6	62 000	57 000		1 000	1 000	121 000
2007[4]	6.6 -11.6	1 000	20 000		-	-	21 200

b) Carangids, scombrids, barracudas and hairtails (PEL 2)

Survey Year	Survey period	Côte d'Ivoire	Ghana	Benin – Togo	Benin (765)	Togo (327)	Total
1981	June	2 000	10 000	[1]			12 000
1989	12.10 - 20.10	33 000	57 000	not covered			90 000
1999	19.4 - 8.5	30 000	50 000	4 000[3]	2 800	1 200	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
2006	19.5 - 5.6	19 000	37 000		3 900	700	60 600
2007[4]	6.6 -11.6	2 000	20 000		-	-	22 000

[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

[3] 1999 values are split proportional to the shelf area (in parenthesis NM^2).

[4] The survey in Côte d'Ivoire and Ghana covered only the area between Abidjan and Tema and data are not directly comparable to previous surveys.

4.2 Cameroon

The hydro acoustic survey of Cameroon was restricted to river mouths near Douala, from Limbe to Kribi. Both day and night transects were used in the estimates. The transects were made in a zigzag pattern to optimise the coverage during the restricted time available. Results are not comparable to previous surveys.

Clupeoids

Only very scattered and low concentrations of *Sardinella maderensis* was observed along the area covered. All sardinellas were observed inside the 50 m isobath bottom depth near the Wouri River estuary, Figure 4.5 The distribution probably continued inshore of the survey area in shallow waters. The biomass of sardinella consisted three modal lengths, mainly of juvenile fish. The estimate this year was about 6 thousand tonnes. Length frequency is shown in Figure 4.6 Last year the recordings were very scattered and no biomass was calculated. Two years ago the estimate for a full coverage of Cameroon was 5 thousand tonnes, while 11 thousand tonnes were found in the area in 2004, both estimates were dominated by *S. maderensis*. *Sardinella aurita* was not found during this survey.

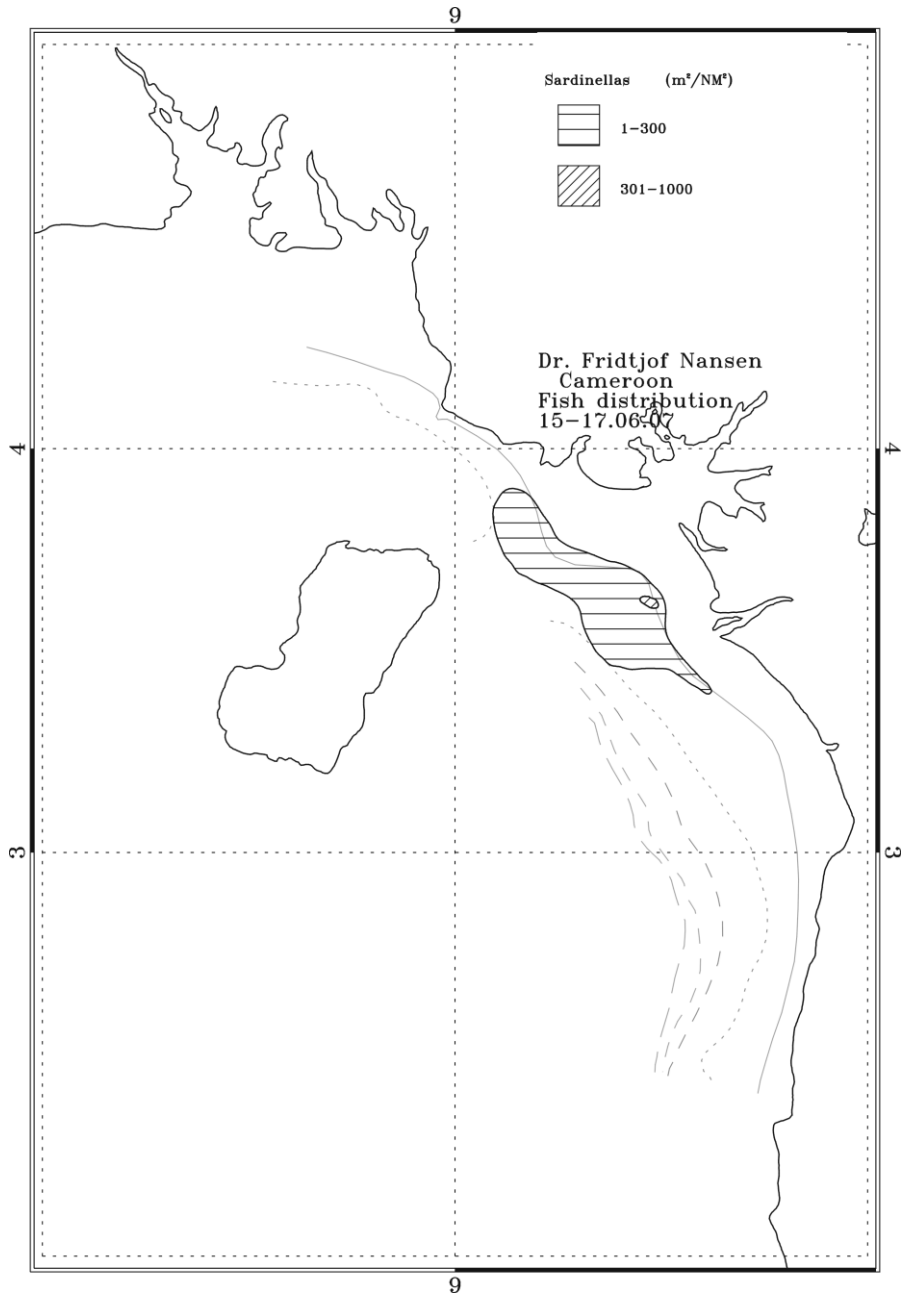


Figure 4.5 Distribution of *Sardinella maderensis* off Cameroon.

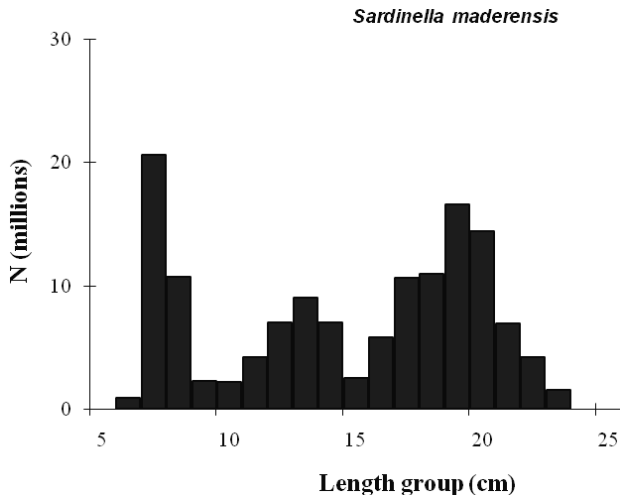


Figure 4.6 Total length distribution of *Sardinella maderensis* in Cameroon.

Anchovy

Anchovies were not recorded in Cameroon during this survey.

PEL 1

Some few *Ilisha africana* and *Ethmalosa fimbriata* were caught in low quantities in two trawl hauls, but could not be identified on the echo sounder. Map of distribution or biomass estimate is not presented.

PEL 2 (carangids, scombrids, barracudas and hairtails)

The Pelagic group (PEL 2), Figure 4.7, consisting of carangids, scombrids, barracudas and hairtails, were found between 20 and 50 m bottom depth along the whole area covered. The main species in order of abundance in the catches were *Chloroscombrus chrysurus, Sphyraena guachancho, Scomberomorus tritor* and *Selene dorsalis.* Other species were less abundant. The length distributions of the species are found in Annex II. Assuming an average total length of 23 cm for all the species and a measured condition factor of 0.88 the biomass of PEL 2 was estimated to about 2 000 tonnes.

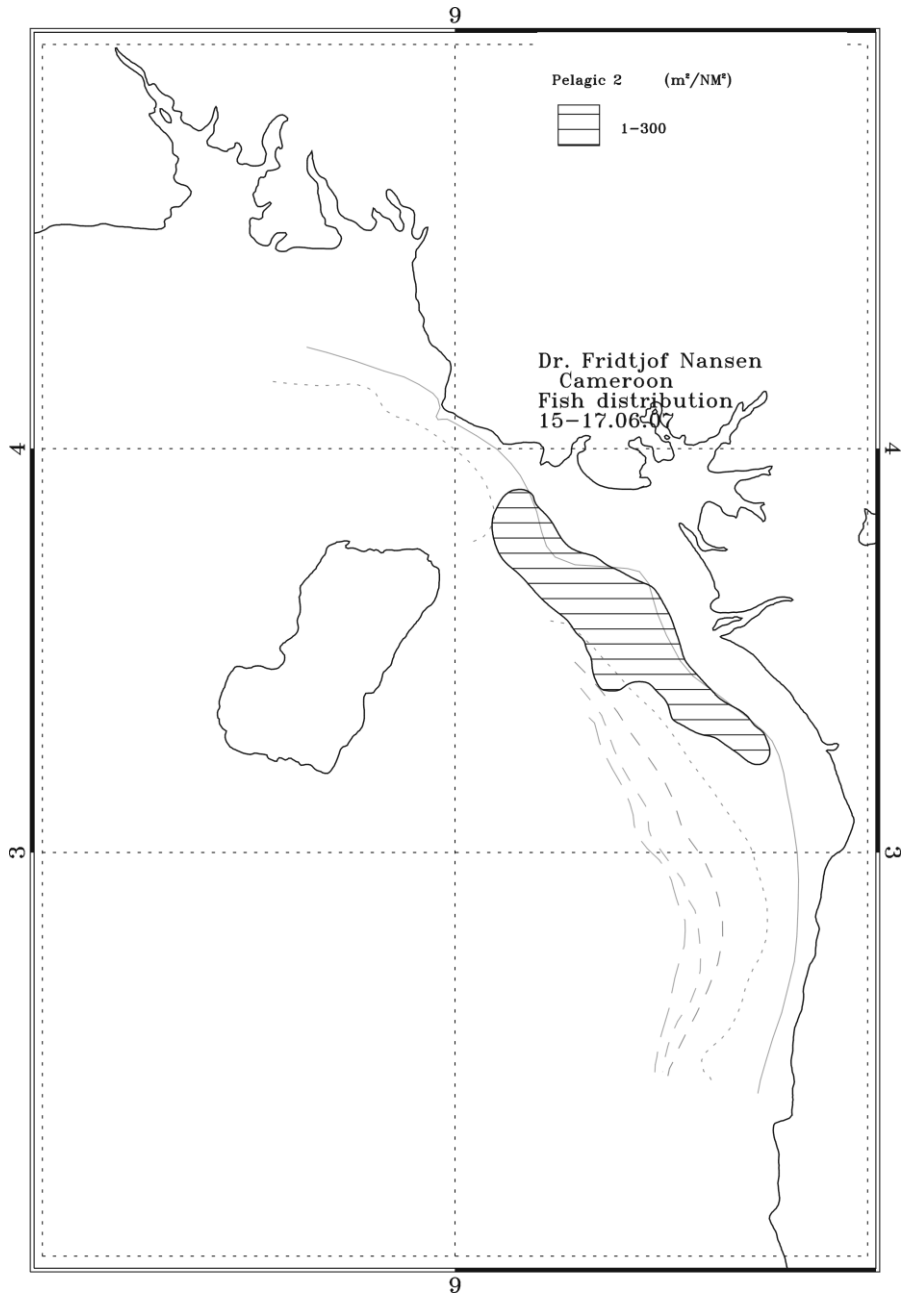


Figure 4.7 Distribution of PEL 2 (Carangids, scombrids, barracudas and hairtails) off Cameroon.

Demersal species

Last year acoustic recordings of relatively dense concentrations of demersal fish were made at the shelf break in the southern part of Cameroon at approximately 100 m depth. This year only inner parts of the shelf were covered and no typical recordings of demersal were made.

4.3 São Tomé and Principe

The hydroacoustic survey of São Tomé and Principe revealed little pelagic fish, only on the north and west coast of Principe some very scattered recordings of carangids were seen. There were consistent acoustic recordings of demersal fish over the whole shelf area on both islands, and particularly on the shelf edge and other untrawlable grounds. This indicates that

the trawl survey underestimates the abundance of demersal fish on the islands. The most common pelagic species found in the trawl catches was *Decapterus* sp.

4.4 Gabon and Congo

The abundance of pelagic species in Gabon and Congo, particularly the sardinellas species has been relatively high in recent years. The region is treated as one because the two countries shear common stocks on a common shelf. However, biomass estimates are given for each country separately. Several areas in Congo and Gabon are restricted because of oil exploration activities, and particularly the area outside Olinde in Gabon is large and can possibly contain high abundance of pelagic fish. The area is omitted from the abundance calculations.

Sardinellas

Sardinellas was distributed across the entire inshore region of Gabon and Congo. The main concentrations were associated with the cooler, more saline water masses on the southern shelf of Gabon and Congo, but both *S. aurita* and *S. maderensis* was also found in the region north of Cape Lopez. Both species was mainly concentrated inshore in regions that have previously shown signs of upwelling. No typical upwelling situation was present during this survey although the fluorescence sensor on the thermosalinograph did show increased phytoplankton concentrations in these same areas. As on previous surveys in this region the biomass was dominated by *S. aurita*, while generally *S. maderensis* were found inshore in shallow waters associated with less saline water (Figure 4.8).

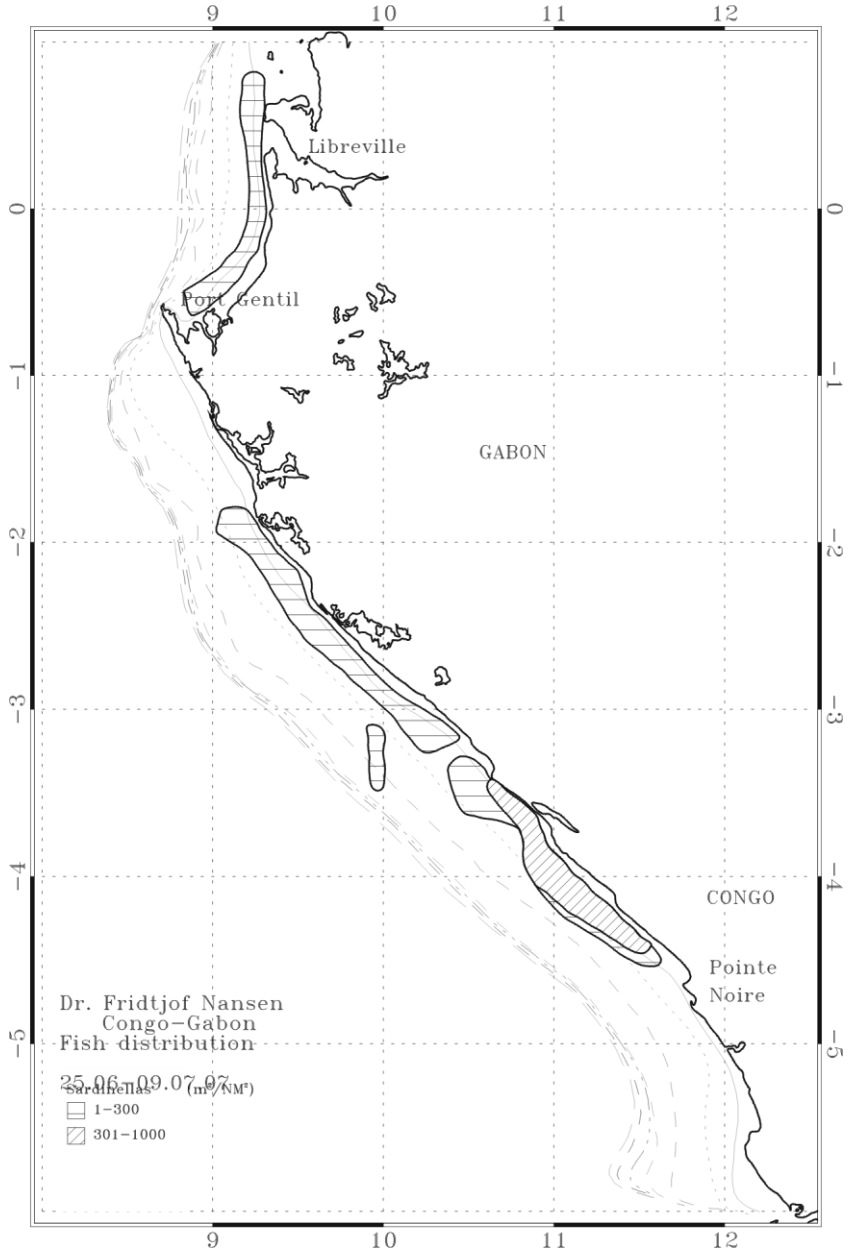


Figure 4.8 Distribution of sardinellas off Gabon and Congo.

Error! Reference source not found..9 (a and b) shows the length frequency distribution of sardinellas. Maybe the most striking difference from previous surveys was the lack of signs of recruitment in catches of *S. aurita*, contrary to what has been observed in several previous surveys in the area. The length distribution of *S. aurita* showed two modal peaks of 19 and 29 cm present in the region based on the trawl samples. The length distribution of *S. maderensis* shows three modal peaks at 8 cm, 17 cm and 24 cm. The relative cumulative biomass of sardinellas can be found in Figure 4.10 The graphs illustrates that no juvenile *S. aurita* was found in the survey area, 50 of the biomass was >28 cm. The situation was different for *S. maderensis* were 50% of the biomass was < 22 cm. Last year juvenile fish dominated in the survey area and approximately 50% of the biomass of *S. aurita* was <18 cm. For *S.*

maderensis the situation was similar to last year with 100% of the biomass <21 cm and 50% <12 cm.

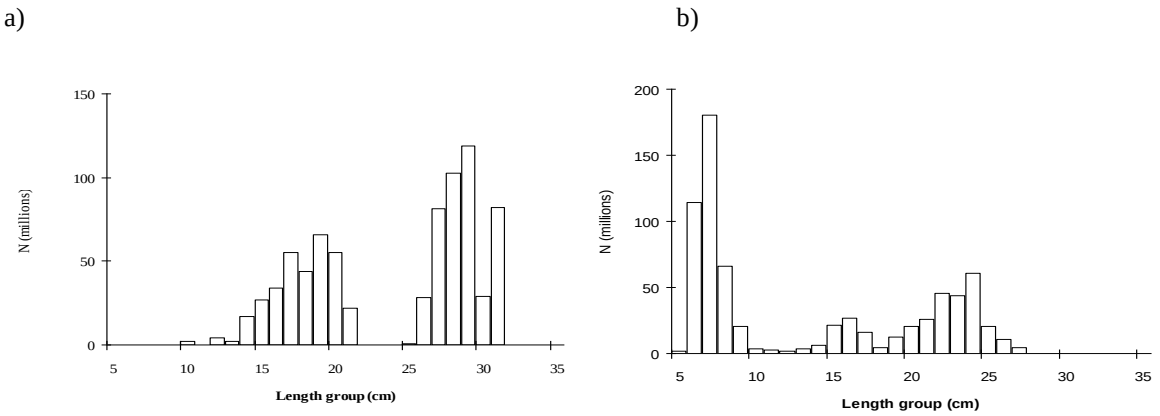


Figure 4.9 Total length distribution of a) *Sardinella aurita* and b) *S. maderensis* off Gabon and Congo

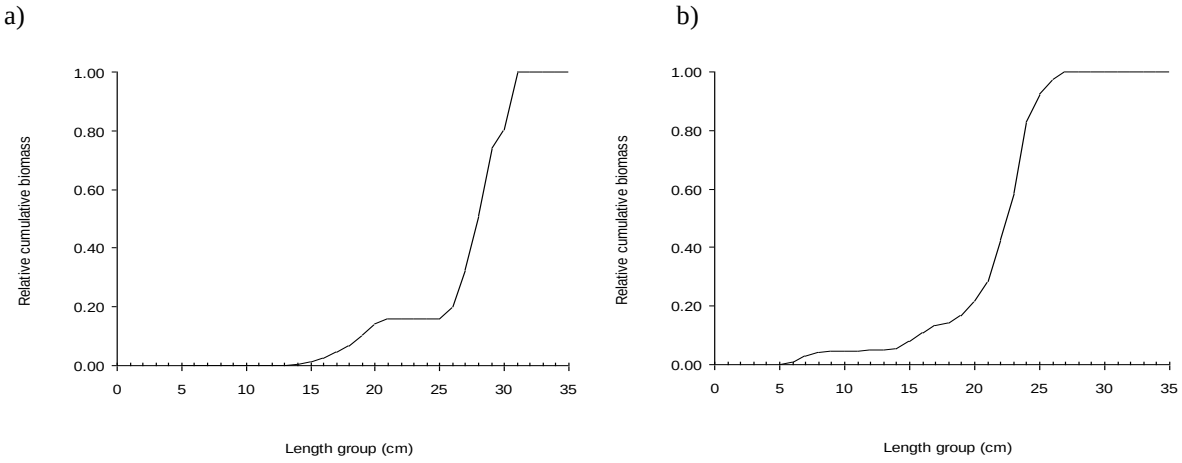


Figure 4.10 Relative cumulative biomass of a) *Sardinella aurita* and b) *S. maderensis* off Gabon and Congo

The biomass of sardinellas in Gabon and Congo was estimated at 159 thousand tonnes all together. This consisted of 123 thousand tonnes of *S. aurita* and 35 thousand tonnes of *S. maderensis.* Last year the biomass was estimated at 245 thousand tonnes, 220 thousand tonnes of *S. aurita* and 25 thousand tonnes of *S. maderensis.* The abundance of sardinellas has continued to decreased in the region from the estimate in 2005 who was the highest ever recorded. The proportion between the two species was similar to the two last year, with 87% of the Sardinella been *S. aurita*. The sardinella was slightly further south than last year with 19% of the species found in Congo.

Other Clupeids

Some *Ilisha africana* was found inshore along the coast associated with brackish water areas. The abundance was low and no abundance estimate or distribution map was produced. No Anchovy, *Engraulis encrasicolus* was found in the survey area this year.

Trachurus trecae

The horse mackerel *Trachurus trecae* was distributed in a very small area on the mid shelf mainly between 50 m and 100 m depth off the southern coast of Gabon in one low density (s_A<300) area (**Error! Reference source not found.**.11). However, small catches of *T. trecae* were made occasionally in a much wider area. When a species reach a low abundance, and particularly when it mix readily with other species, acoustic species separation is difficult, and it is probable that the abundance of *T. trecae* is underestimated to some extent.

The length distribution (**Error! Reference source not found.**12) shows no juvenile cohorts. A modal peak is observed at 15 cm representing the juvenile fish observed last year. An additional peak may be observed at 19 cm, with indications of another around 23 cm

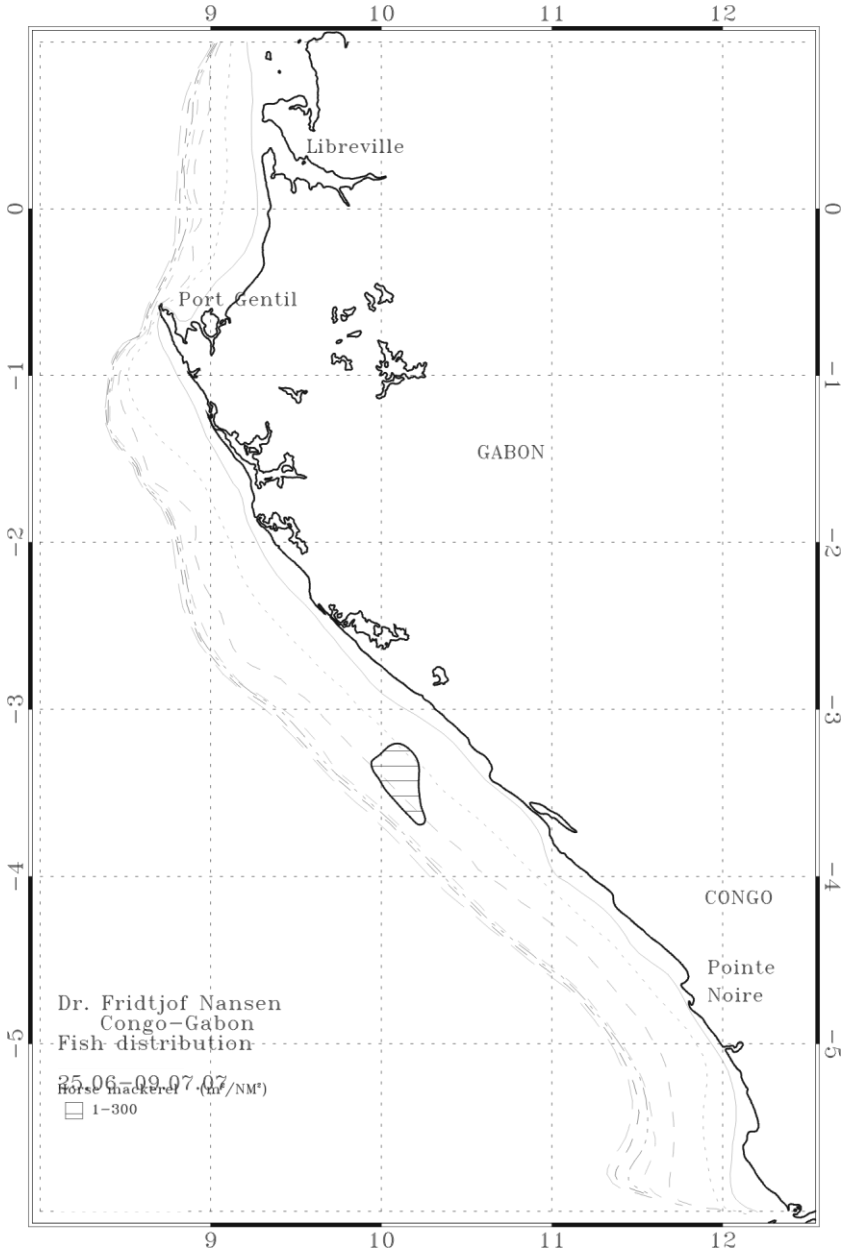


Figure 4.11 Distribution of *Trachurus trecae* off Gabon and Congo.

The total biomass of *Trachurus trecae* in the distribution area was 400 tonnes. This is considerably less than what has been observed in previous years, and there is vertically nothing left of the stock observed in 2005 of 15 000 tons. It is expected that horse mackerel in similar ways to sardinellas migrates across the border between Angola, and Congo-Gabon.

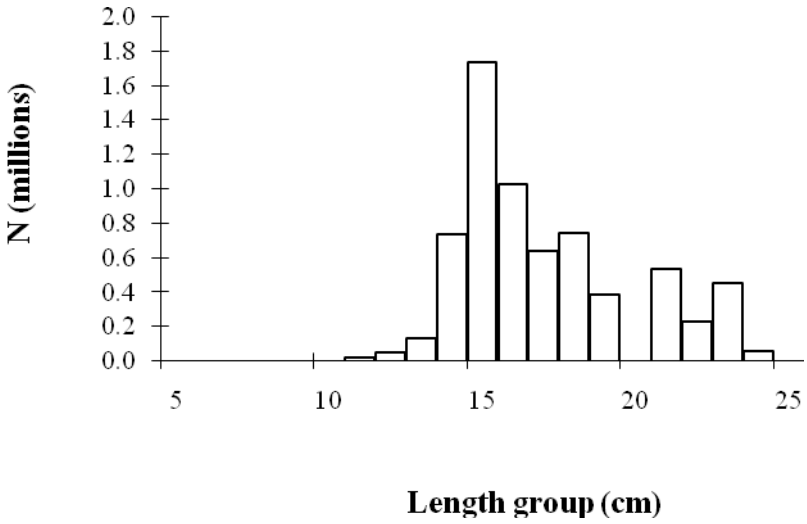


Figure 4.12 Total length distribution of *Trachurus trecae* off Gabon

PEL 2 (carangids, scombrids, barracudas and hairtails)

The Pelagic group PEL 2, consisting of carangids, scombrids, barracudas and hairtails were more or less continues in Gabon and Congo, **Error! Reference source not found.**4.6. The main distribution extended from inside of the survey area to approximately 50 m depth north of Cape Lopez, while the distribution in general was slightly deeper south of Cape Lopez. Catch rates were analysed for the regions Gabon, north and south of Cape Lopez, and Congo and can be found in analyses of the demersal survey. The main pelagic species in order of abundance in the catches north of Cape Lopez were *Chloroscombrus chrysurus, Ilisha Africana, Brachydeuterus auritus, Sphyraena guachancho, Trachurus trecae, Decapterus rhonchus, Sardinella maderensis and Sphyraena sphyraena*. Catch rates were substantially lower than further south in the region. The catch composition changed slightly south of Cape Lopez, the main pelagic species in this region were *Chloroscombrus chrysurus, Trachurus trecae, Trichiurus lepturus, Brachydeuterus auritus, Ilisha africana, Sphyraena sphyraena* and *Decapterus rhonchus*.

Only few catches were made in Congo. The most abundant of the pelagic species in the catches in this region was *Sardinella aurita, Sardinella maderensis, Ilisha africana, Trichiurus lepturus, Caranx hippos, Brachydeuterus auritus* and *Sphyraena sphyraena*. The length distributions of the species are found in Annex II. Assuming an average total length of 23 cm for all the species and a measured condition factor of 0.88 the biomass of PEL 2 was estimated to about 57 thousand tonnes in total. Of this 48 thousand tonnes was found in Gabon while 9 thousand tonnes were found in Congo. The biomass of PEL 2 in 2006 was estimated to be 44 thousand tonnes.

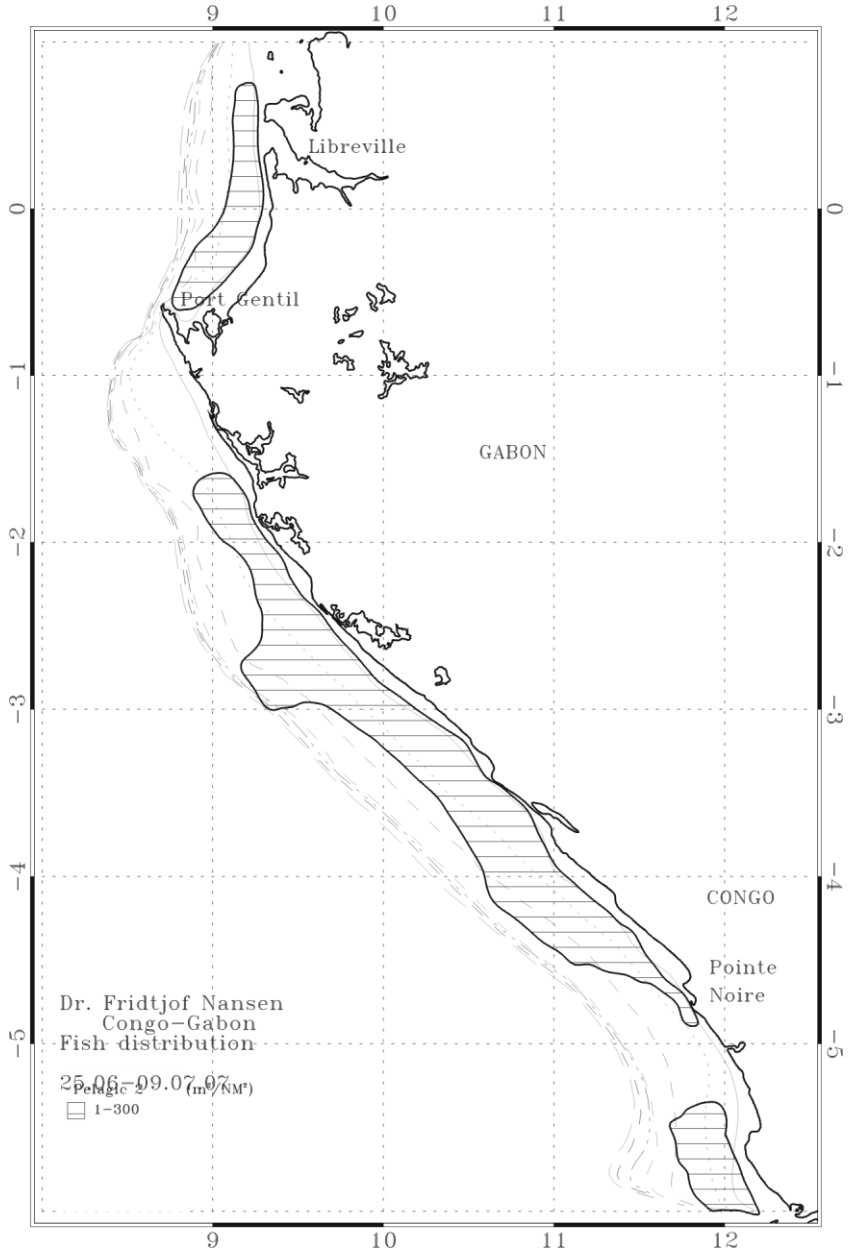


Figure 4.13 Distribution of PEL 2 species off Gabon and Congo.

4.5 Review of results

The survey in 2007 forms part of a time series started in 2004. This was the fourth survey covering the region. However while previous surveys have covered Nigeria, Cameroon, São Tomé and Principe, Congo and Gabon this survey did not cover Nigeria because the vessel did not get a security clearance from the UN to cover their waters. Cameroon was only partly surveyed due to time constrains, and the acoustic estimate is not directly comparable to previous estimates. However, results indicates similar density levels as previous years. Also due to time constrains, The survey of Congo and Gabon had to be terminated at the border between the two countries. However, it was agreed with the FAO and INIP in Angola that the pelagic coverage of Congo could take place as part of the following survey, the survey of the

pelagic resources in Angola. The coverage of Congo are reported in this report together with cross shelf environmental transects and surface maps of salinity and temperature.

The abundance of pelagic fish on the shelf of Gabon and Congo (Table 4.3), and particularly the sardinellas, was high both during the survey in 2004, 2005 and 2006: However, the estimate has had a declining trend since 2005. The total biomass of sardinella recorded in this area in 2007 was 159 000 tons, the lowest recorded in this latest time series of surveys. The same trend is apparent for horse mackerel but to a much larger degree. The P2 species on the other hand has increased in abundance. It may be that warmer water masses the last two years are part of the reason for this pattern.

The distribution of pelagic fish extends inshore of the survey area in the whole survey region and the survey does not cover the region inside 20 m depth. Oil exploration areas, particularly outside Olinde in Gabon could not be covered by the survey and some pelagic fish may have been missed in these areas.

Table 4.2 Summary table of biomass estimates for the main species groups and countries for the surveys conducted in 2004 -2007

Species group	Year	Congo	Gabon
Sardinella	2007	28 000	130 000
	2006	19 000	225 000
	2005	128 000	288 000
	2004	360 000*	
P1	2007	-	-
	2006	18 000	19 000
	2005	-	-
	2004	-	-
P2	2007	9 000	48 000
	2006	8 000	36 000
	2005	7 000	30 000
	2004	69 000*	
Horse mackerel	2007	-	400
	2006	1 000	7 000
	2005	4 000	11 000
	2004	11 000*	

- No biomass calculated because of low / no abundance

*Surveys of Congo and Gabon in 2004 also covered Cabinda in Angola

CHAPTER 5 RESULTS FROM THE SWEPT AREA TRAWL SURVEY

The composition of the fish fauna on the continental shelf and slope of the Gulf of Guinea changes with depth (Williams 1968, Dr. Fridtjof Nansen, Cruise reports 2004, 2005, 2006). The catch-distribution analyses were therefore performed for three depth strata on the shelf, 0-50 m (inner shelf) and 51-100 m (outer shelf) and 101-250 m depth (slope). Table 5.1 gives the main species groups with common species in the region. For the different analysis the "other" group includes all species not accounted for in the other groups. Therefore, the content of "other" will change from table to table.

The locations of the trawl stations are shown in Figure 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 200 m was included. The surveyed area was divided into four strata between 0-30 m, 31-50 m ,51-100 m and 101-200 m respectively. Mean densities of the main demersal species by depth strata, occurrence and catch distributions are shown in Annex VII.

During this year's survey data was collected for swept are abundance estimates from Côte d'Ivoire, Ghana, Togo, Benin, São Tome and Principe, Gabon and Congo. No Swept area estimates were attempted in Cameroon and Nigeria.

Table 5.1 Main groups of species included in the analyses of diversity in the eastern Gulf of Guinea

Main Groups	**Main Families**	**Typical Species**
Demersal	Sciaenidae	*Pentheroscion mbizi*
		Pseudotolithus senegalensis
		Pseudotolithus elongatus
		Pseudotolithus typus
	Sparidae	*Dentex angolensis*
		Dentex congoensis
		Pagellus bellottii
		Pagrus caeruleostictus
		Boops boops
	*Ariidae	*Arius latiscutatus*
	Serranidae	*Serranus accraensis*
		Epinephelus aeneus
	*Lutjanidae	*Lutjanus fulgens*
	Polynemidae	*Galeoides decadactylus*
	Haemulidae (=Pomadasyidae)	*Brachydeuterus auritus*
		Pomadasys jubelini
	Ophidiidae	*Brotula barbata*

	*Lethrinidae	*Lethrinus atlanticus*
Pelagic	Clupeidae	*Sardinella maderensis*
		Sardinella aurita
		Ilisha africana
	Carangidae	*Selene dorsalis*
		Chloroscombrus chrysurus
		Decapterus punctatus
		Selar crumenophthalmus
		Caranx hippos
		Caranx crysos
		Alectis alexandrinus
	Scombridae	*Scomberomorus tritor*
	Trichiuridae	*Trichiurus lepturus*
	Sphyraenidae	*Sphyraena guachancho*
Shrimps		*Parapenaeus longirostris*
		Penaeus notialis
Cephalopods		*Sepia officinalis hierredda*
		Illex coindetii
		Alloteuthis africana
		Sepiella ornata
		Octopus vulgaris
Sharks and Rays		*Raja miraletus*
		Squatina oculata
		Mustelus mustelus
Others	Priacanthidae	*Priacanthus arenatus*
	Citharidae	*Citharus linguatula*
	Platycephalidae	*Grammoplites gruveli*
	Synodontidae	*Saurida brasiliensis*
	Triglidae	*Lepidotrigla cadmani*
		Lepidotrigla carolae
	Bothidae	*Syacium micrurum*
	Ariommatidae	*Ariomma bondi*
	Tetraodontidae	*Lagocephalus laevigatus*
	Uranoscopidae	*Uranoscopus albesca*
	Mullidae	*Pseudupeneus prayensis*
	Fistulariidae	*Fistularia petimba*
	Cynoglossidae	*Cynoglossus canariensis*
	Drepanidae	*Drepane africana*

* Not included in the swept area estimate because of low abundance

5.1 Côte d'Ivoire

A total of 6 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 5.2 a-b shows 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 52 % and

the pelagic group was the second most important contributing 31 % of the catches, followed by the "other" group (17 %). There were low catch rates and contributions of shrimps and cephalopods, while no sharks were caught on this part of the shelf. The demersal group dominated the catches on the outer shelf (75 %), followed by the pelagic group (20 %) and "others (3 %). Cephalopods had low catch rates and no shrimps/prawns were caught.

Table 5.2 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 (0-50m).

Station	Depth (m)	Demersal	Pelagic	Shrimps	Cephalopods	Sharks	Other	Total
148	47.0	435.8	208.5	2.5	1.1		48.1	696.0
149	23.5	10.4	59.4	0.4	0.2		90.0	160.4
150	25.0	8.5	6.7				127.4	142.6
151	35.5	387.5	232.1				4.6	624.2
Mean	32.8	210.6	126.7	0.7	0.3		67.5	405.8
Std dev		233.0	110.6	1.2	0.5		53.0	295.2
%Catch		51.9	31.2	0.2	0.1		16.6	

b)Outer shelf (51-100m)

Station	Depth (m)	Demersal	Pelagic	Shrimps	Cephalopods	Sharks	Other	Total
147	90.5	283.4	42.1		1.2	21.7	15.1	363.5
152	61.0	865.8	269.9				35.6	1171.3
Mean	70.7	574.6	156.0		0.6	10.8	25.4	767.4
Std dev		411.8	161.0		0.9	15.3	14.5	571.2
%Catch		74.9	20.3		0.1	1.4	3.3	

Table 5.3a-b shows 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 108 kg/h, constituting 27 % of the catch. The most frequently caught species were *Chloroscombrus chrysurus, Selene dorsalis* and *Trachurus trecae.* The second most important group was anchovy with an average catch rate of 30 kg/h, constituting 7% of the catch. Hairtails (*Trichiurus lepturus*) contributed with 13 kg/h, barracudas were third (3 kg/h) and *Sardinella maderensis* occurred in 3 hauls (catch rate 3 kg/h), while *Ilisha africana* was less abundant.

Table 5.3 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 (0-50m)

Station	Depth (m)	Carangids	Scombrids	Hairtails	Barracuda	Engraulidae	Clupeids	Other	Total
148	47.0	150.2		50.1	3.9		4.3	487.6	696.0
149	23.5	56.1	1.3	0.5	0.4	1.1	1.2	99.9	160.4
150	25.0	6.7				117.1		18.8	142.6
151	35.5	217.7			8.0		6.4	392.1	624.2
Mean	32.8	107.7	0.3	12.6	3.1	29.5	3.0	249.6	405.8
Std dev		94.4	0.6	25.0	3.7	58.4	2.9	225.5	295.2
%Catch		26.5	0.1	3.1	0.8	7.3	0.7	61.5	

b)Outer shelf (51-100m)

Station	Depth (m)	Carangids	Scombrids	Hairtails	Barracuda	Engraulidae	Clupeids	Other	Total
147	90.5	38.1	4.0					321.4	363.5
152	61.0	86.5	0.0	133.6	24.1		25.7	901.5	1171.3
Mean	75.8	62.3	2.0	66.8	12.0		12.9	611.4	767.4
Std dev		34.2	2.8	94.5	17.0		18.2	410.2	571.2
%Catch		8.1	0.3	8.7	1.6		1.7	79.7	

Hairtails had the highest average catch rate on the outer shelf (67 kg/h), closely followed by carangids (62 kg/h). The most frequently caught carangids on the outer shelf were *Chloroscombrus chrysurus* and *T. trecae*, while of *Sardinella maderensis* was appeared in one haul. Barracudas were the third most important pelagic group and had higher average catch rate as on the inner shelf (23 kg/h). Barracudas (12 kg/h) and scombrids (mainly *Decapterus punctatus*) were also more abundant than on the inner shelf.

Catch rates of some of the most commercially important demersal species on the shelf down to 100 m, grouped as seabreams (Sparidae), snappers (Lutjanidae), groupers (Serranidae), grunts (Haemulidae) and croakers (Sciaenidae) are presented in Tables 5.4a-b. Seabreams had the highest mean catch rate (12 kg/h) on the inner shelf, and the most common species was *Pagellus bellottii.* Croakers (9 kg/h) were the second most important group, with as the most common species *Umbrina canariensis.* Grunts came third (5 kg/h) with *Brachydeuterus auritus* making the most of this group. Snappers and groupers were not caught in the 4 hauls on the inner shelf.

On the outer shelf, seabreams dominated the valuable demersal species with an average catch rate of 151 kg/h. *Dentex congoensis, D. angolensis and Pagellus bellottii* were the most frequently occurring seabreams. Trawl station no. 152 gave a big catch of *Brachydeuterus auritus*, no other grunts were caught on the outer shelf. Croakers, groupers and snappers were also absent on the outer shelf.

Table 5.4 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 (m)	Seabream	Snappers	Groupers	Grunts	Croakers	Other	Total
148	47.0	47.1			14.8	29.2	604.9	696.0
149	23.5	0.1			2.1	2.0	156.3	160.4
150	25.0					3.7	139.0	142.6
151	35.5				2.0		622.1	624.2
Mean	32.8	11.8			4.7	8.7	380.6	405.8
Std dev		23.6			6.8	13.8	269.2	295.2
%Catch		2.9			1.2	2.1	93.8	

b)Outer shelf (51-100m)

Station	Depth (m)	Seabream	Snappers	Groupers	Grunts	Croakers	Other	Total
147	90.5	281.2					82.3	363.5
152	61.0	21.4					1149.9	1171.3
Mean	75.8	151.3					616.1	767.4
Std dev	20.9	183.7					754.9	571.2
%Catch		19.7					80.3	

Annex VII gives the swept-area estimates of mean densities (t/NM^2) based on 6 random trawl stations on the shelf. The investigated area of the shelf is about 16 % of the total shelf. Of the demersal species, *Brachydeuterus auritus* had the highest mean densities in the two deeper zones on the shelf (31-50 m and 51-100 m).

Table 5.5 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 1560 tonnes of which seabreams made up over 90 %. The highest biomass of seabreams was found in the deepest zone. Croakers and grunts were the second and third most important groups and were most abundant in the shallowest depth zone. biomasses.

Of the pelagic and semi-pelagic species, bigeye grunt (*B. auritus*) and carangids had the highest biomass estimates with about 5 600 and 1 500 tonnes, respectively. Barracudas had an estimated biomass of about 140 tonnes and cephalopods were almost absent.

Table 5.5 Côte d'Ivoire. Biomass estimates (tonnes) of important species/groups on the shelf, by depth.

Group/species	0-30 m	31-50 m	51-100 m	Sum
Seabreams	0	105	1344	1448
Grunts	3	37	0	39
Croakers	7	64	0	71
Groupers	0	0	0	0
Snappers	0	0	0	0
Sum de. val.	10	205	1344	1559
Bigeye grunt	14	1578	4053	5645
Carangids	83	793	585	1460
Barracudas	1	25	117	143
Cephalopods	0	3	5	8

5.2 Ghana

A total of 28 valid swept-area trawl hauls were made on the shelf off Ghana and 4 hauls were made in the upper slope. Tables 5.6a-d presents catch rates by main groups for the inner (0-50 m) and outer (51-100 m) shelf, respectively, the upper slope (101-200 m) and slope (201-300 m).

The group "other" contributed 35 % of the total catch rates on the inner shelf, while the pelagic and demersal species groups had slightly lower average catch rates with relative contributions of 32 %. Cephalopods made up 1.0 % of the catch and shrimps 0.5 %, while no sharks were caught. On the outer shelf the demersal group dominated the catches, contributing 44 % of the total and the "other" group made 41 %. The relative contribution of pelagic group 12 %. Cephalopods had higher catch rate than on the inner shelf contributing with 2.6 % and sharks were caught on 3 of the stations. No shrimps were found on the outer shelf.

On the upper slope (101-200 m) and the slope (201-300 m) the demersal contributed 53 % and 2.3 %, the "other" species group made 11 % and 87 %, the pelagic made 35 % and 0.1 % and cephalopods made 1.1 % and 3.7 %. Shrimps and sharks were not observed on the upper slope, while relative contribution were 0.9 % and 6.0 % on the slope (201-300 m) respectively.

Table 5.6 Ghana. Catch rates (kg/h) by main groups in swept-area bottom-trawl hauls on the a) inner shelf (0-50 m), b) outer shelf (51-100 m), c) upper slope (101-200 m) and d) slope (201-300 m).

a) Inner shelf (0-50m)

Station	Gear depth	Demersal	Pelagic	Shrimps	Cephalopods	Sharks	Other	Total
153	27	446.2	631.6	0.0	0.0	0.0	425.3	1503.1
154	41	16.8	11.3	0.0	4.9	0.0	13.4	46.4
157	48	110.4	25.5	1.0	1.3	0.0	41.8	180.0
159	27	5.3	71.3	0.0	0.1	0.0	302.7	379.5
160	42	145.7	35.3	11.9	3.1	0.0	116.2	312.2
163	36	50.5	2.1	9.1	0.0	0.0	229.3	290.9
168	46	89.8	59.9	0.0	7.0	0.0	7.4	164.1
169	26	54.0	83.2	3.4	0.9	0.0	28.4	169.9
170	41	122.0	2.3	0.0	12.5	0.0	8.3	145.2
174	41	32.3	257.4	0.0	3.1	0.0	0.0	292.9
175	22	44.4	78.4	0.0	0.0	0.0	10.0	132.8
176	29	37.4	38.3	0.0	1.2	0.0	59.5	136.4
178	46	45.8	85.7	0.0	2.4	0.0	58.2	192.1
179	21	55.5	21.6	0.0	5.1	0.0	96.1	178.2
181	23	225.8	51.6	0.2	0.7	0.0	211.4	489.7
182	41	6.6	31.7	0.0	0.0	0.0	27.5	65.8
187	39	20.9	36.8	0.0	5.3	0.0	7.0	70.0
Mean	34.9	88.8	89.6	1.5	2.8	0.0	96.6	279.4
Std dev		108.5	151.4	3.5	3.4	0.0	123.6	336.3
% catch		31.8	32.1	0.5	1.0	0.0	34.6	

b) Outer shelf (51-100m).

Station	Gear depth	Demersal	Pelagic	Shrimps	Cephalopods	Sharks	Other	Total
155	72	173.4	20.9	0.0	19.1	0.0	60.8	274.1
156	77	141.4	0.3	0.0	1.1	0.0	44.0	186.7
161	55	384.2	82.7	0.0	12.6	0.0	49.3	528.8
162	82	185.9	93.1	0.0	20.7	4.1	19.9	323.8
164	75	664.5	352.1	0.0	6.4	0.0	61.1	1084.1
167	93	503.2	27.6	0.0	14.4	7.8	31.0	584.0
171	57	9.9	15.0	0.0	8.9	5.3	41.9	80.9
172	70	115.9	29.8	0.0	9.9	0.0	2360.2	2515.8
177	88	701.6	51.1	0.0	15.1	0.0	136.0	903.8
183	59	23.0	135.8	0.0	33.9	0.0	88.4	281.2
186	84	302.9	79.9	0.0	30.9	0.0	44.8	458.7
Mean	73.6	291.4	80.8	0.0	15.7	1.6	267.0	656.5
Std dev		243.1	98.8	0.0	10.0	2.8	694.9	686.4
% catch		44.4	12.3	0.0	2.4	0.2	40.7	

c) Upper slope (101-200m).

Station	Gear depth	Demersal	Pelagic	Shrimps	Cephalopods	Sharks	Other	Total
165	108	302.3	280.2	0.0	8.2	0.0	31.9	622.5
184	104	128.8	8.6	0.0	1.0	0.0	54.7	193.1
Mean	106.0	215.6	144.4	0.0	4.6	0.0	43.3	407.8
Std dev		122.7	192.0	0.0	5.1	0.0	16.1	303.6
% catch		52.9	35.4	0.0	1.1	0.0	10.6	

d) Slope (201-300m).

Station	Gear depth	Demersal	Pelagic	Shrimps	Cephalopods	Sharks	Other	Total
166	271	2.3	0.0	8.1	44.1	65.2	1154.4	1274.1
185	224	34.5	2.0	6.3	15.1	31.9	244.8	334.6
Mean	247.2	18.4	1.0	7.2	29.6	48.6	699.6	804.3
Std dev		22.7	1.4	1.3	20.5	23.6	643.2	664.4
% catch		2.3	0.1	0.9	3.7	6.0	87.0	

Tables 5.7a-d shows 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 69 kg/h. The most frequently occurring species of carangids were *Chloroscombrus chrysurus, Selene dorsalis, Decapterus punctatus* and *Caranx crysos*. The second most important group was the anchovy (20 kg/h) followed by the barracudas (15 kg/h) and then clupeids (2.9), *Sardinella maderensis* was the most common clupeid on the inner shelf and S. aurita on the outer shelf.

Carangids were also the most abundant group on the outer shelf (64 kg/h) and clupeids had the second highest catch rate here (13 kg/h). Barracudas had lower average catch rate on the outer shelf (2.5 kg/h), while scombrids and hairtails (*Trichiurus lepturus*) were scarce on both the inner and outer shelf. No anchovies were found on the outer shelf.

On the slope carangids (135 kg/h) were found on the upper part (mainly *Trachurus trecae*) and no scombrids deeper. The other pelagic groups were only caught occasionally.

Table 5.7 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 (0-50m)

Station	Gear depth	Carangids	Scombrids	Hairtails	Barracuda	Anchovy	Clupeids	Other	Total
153	27	557.7	0.0	8.1	42.0	0.0	23.4	872.0	1503.1
154	41	8.6	0.0	0.0	2.4	0.0	0.4	35.1	46.4
157	48	15.5	0.0	3.1	3.8	0.0	0.8	156.7	180
159	27	35.4	3.6	0.0	31.7	271.5	0.6	36.7	379.5
160	42	17.2	0.0	16.8	1.3	0.0	0.0	276.9	312.2
163	36	0.4	0.0	1.7	0.0	0.0	0.0	288.9	290.9
168	46	38.3	0.0	0.0	21.4	0.0	0.2	104.2	164.1
169	26	14.0	1.0	1.3	57.0	7.1	10.0	79.6	169.9
170	41	2.3	0.0	0.0	0.0	0.0	0.0	142.9	145.2
174	41	254.3	0.0	0.0	2.2	0.0	0.9	35.5	292.9
175	22	42.1	1.0	0.0	32.6	0.0	2.7	54.4	132.8
176	29	22.6	0.6	0.0	8.1	54.8	7.0	43.3	136.4
178	46	39.4	0.0	1.4	45.0	0.0	0.0	106.4	192.1
179	21	16.0	0.5	0.0	4.8	10.4	0.3	146.3	178.2
181	23	49.3	1.7	0.0	0.6	0.0	0.0	438.1	489.7
182	41	21.9	9.8	0.0	0.0	0.0	0.0	34.1	65.8
187	39	29.3	2.5	0.0	2.6	0.0	2.4	33.2	70.0
Mean	34.9	68.5	1.2	1.9	15.0	20.2	2.9	169.7	279.4
Std dev		138.6	2.4	4.4	19.1	66.1	6.0	213.4	336.3
% catch		24.5	0.4	0.7	5.4	7.2	1.0	60.7	

b) Outer shelf (51-100m).

Station	Gear depth	Carangids	Scombrids	Hairtails	Barracuda	Engraulidae	Clupeids	Other	Total
155	72	15.8	0.0	0.4	4.7	0.0	0.0	253.2	274.1
156	77	0.3	0.0	0.0	0.0	0.0	0.0	186.5	186.7
161	55	55.5	0.0	0.0	17.0	0.0	10.3	446.1	528.8
162	82	62.6	13.9	0.0	0.0	0.0	16.6	230.7	323.8
164	75	286.0	0.0	0.0	0.0	0.0	66.1	732.0	1084.1
167	93	27.6	0.0	0.0	0.0	0.0	0.0	556.4	584
171	57	15.0	0.0	0.0	0.0	0.0	0.0	65.9	80.9
172	70	0.0	0.0	0.0	0.0	0.0	29.8	2486.0	2515.8
177	88	49.8	0.0	0.0	0.0	0.0	1.3	852.7	903.8
183	59	126.0	0.0	0.5	2.8	0.0	6.6	145.3	281.2
186	84	67.8	0.0	0.0	2.7	0.0	9.4	378.7	458.7
Mean	73.6	64.2	1.3	0.1	2.5	0.0	12.7	575.8	656.5
Std dev		82.2	4.2	0.2	5.1	0.0	20.0	680.1	686.4
		9.8	0.2	0.0	0.4	0.0	1.9	87.7	

c) Upper slope (101-200m).

Station	Gear depth	Carangids	Scombrids	Hairtails	Barracuda	Engraulidae	Clupeids	Other	Total
165	108	262.2	18.0	0.0	0.0	0.0	0.0	342.3	622.5
184	104	8.2	0.0	0.0	0.0	0.0	0.4	184.5	193.1
Mean	106.0	135.2	9.0	0.0	0.0	0.0	0.2	263.4	407.8
Std dev		179.6	12.7	0.0	0.0	0.0	0.3	111.6	303.6
		33.2	2.2	0.0	0.0	0.0	0.0	64.6	

d) Slope (201-300 m)

Station	Gear depth	Carangids	Scombrids	Hairtails	Barracuda	Engraulidae	Clupeids	Other	Total
166	271	0.0	0.0	0.0	0.0	0.0	0.0	1274.1	1274.1
185	224	0.0	0.0	2.0	0.0	0.0	0.0	332.5	334.6
Mean	247.2	0.0	0.0	1.0	0.0	0.0	0.0	803.3	804.3
Std dev		0.0	0.0	1.4	0.0	0.0	0.0	665.8	664.4
		0.0	0.0	0.1	0.0	0.0	0.0	99.9	

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 5.8a-b. Seabreams had the highest catch rates both on the inner and outer shelf with average catch rates of 29 kg/h and 209 kg/h, respectively. The most common species of seabreams were *Pagellus bellottii*, *Dentex canariensis*, *Pagrus caeruleostictus*, *Dentex congoensis*, *D. angolensis* and *Dentex gibbosus*. The second most important group was the snappers with average catch rates of 12.3 and 2.8 kg/h, respectively. Then came croakers (5.5 and 10.7 kg/h), groupers (1.2 and 1.1 kg/h) and grunts (0.1 and 0.0 kg/h). Please note that the family grunts would have increased to 31.8 and 45.9 kg/h if *Brachydeuterus auritus* was included.

On the slope seabreams were found to 224 m bottom depth and croakers to 184 m.

Table 5.8 Ghana. 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	Gear depth	Seabream	Snappers	Groupers	Grunts	Croakers	Other	Total
153	27	86.4	95.5	9.3	0.0	29.7	1282.2	1503.1
154	41	9.1	0.0	0.0	0.0	0.0	37.3	46.4
157	48	25.9	0.0	0.0	0.0	0.0	154.1	180.0
159	27	0.0	0.0	0.0	0.0	0.0	379.5	379.5
160	42	0.3	0.4	1.2	0.0	13.7	296.6	312.2
163	36	0.0	0.0	5.5	0.0	20.4	265.0	290.9
168	46	78.5	0.0	1.8	0.0	0.0	83.8	164.1
169	26	0.4	0.0	0.0	0.0	4.8	164.7	169.9
170	41	122.0	0.0	0.0	0.0	0.0	23.2	145.2
174	41	32.3	0.0	0.0	0.0	0.0	260.5	292.9
175	22	12.0	0.0	0.0	0.0	1.9	118.9	132.8
176	29	12.7	0.0	0.0	0.0	0.0	123.8	136.4
178	46	19.5	3.2	0.0	0.0	0.9	168.5	192.1
179	21	20.4	0.3	1.2	0.0	1.3	154.9	178.2
181	23	46.2	109.9	0.4	0.9	21.4	310.9	489.7
182	41	6.4	0.0	0.2	0.0	0.0	59.2	65.8
187	39	20.9	0.0	0.0	0.0	0.0	49.1	70.0
Mean	34.9	29.0	12.3	1.2	0.1	5.5	231.3	279.4
Std dev		35.1	34.1	2.5	0.2	9.5	290.4	336.3
% catch		10.4	4.4	0.4	0.0	2.0	82.8	

b) Outer shelf (51-100 m).

Station	Gear depth	Seabream	Snappers	Groupers	Grunts	Croakers	Other	Total
155	72	40.4	0.0	0.0	0.0	0.0	233.7	274.1
156	77	141.0	0.0	0.0	0.0	0.0	45.7	186.7
161	55	27.1	0.0	3.1	0.0	0.0	498.6	528.8
162	82	124.1	0.0	0.0	0.0	0.0	199.7	323.8
164	75	659.3	0.0	0.0	0.0	0.0	424.8	1084.1
167	93	408.4	0.0	1.8	0.0	3.1	170.6	584.0
171	57	9.9	0.0	0.0	0.0	0.0	71.0	80.9
172	70	38.2	31.0	6.3	0.0	40.4	2399.8	2515.8
177	88	621.7	0.0	0.0	0.0	73.7	208.4	903.8
183	59	17.7	0.0	1.4	0.0	0.0	262.1	281.2
186	84	208.5	0.0	0.0	0.0	0.0	250.2	458.7
Mean	73.6	208.8	2.8	1.1	0.0	10.7	433.1	656.5
Std dev		243.2	9.4	2.0	0.0	24.1	665.6	686.4
% catch		31.8	0.4	0.2	0.0	1.6	66.0	

c) Upper slope (101-200 m).

Station	Gear depth	Seabream	Snappers	Groupers	Grunts	Croakers	Other	Total
165	108	136.3	0.0	0.0	0.0	18.2	468.0	622.5
184	104	11.3	0.0	0.0	0.0	0.9	180.9	193.1
Mean	106.0	73.8	0.0	0.0	0.0	9.6	324.4	407.8
Std dev		88.4	0.0	0.0	0.0	12.2	203.0	303.6
% catch		18.1	0.0	0.0	0.0	2.4	79.5	

d) Slope (201-300m).

Station	Gear depth	Seabream	Snappers	Groupers	Grunts	Croakers	Other	Total
166	271	0.0	0.0	0.0	0.0	0.0	1274.1	1274.1
185	224	28.5	0.0	0.0	0.0	0.0	306.1	334.6
Mean	247.2	14.2	0.0	0.0	0.0	0.0	790.1	804.3
Std dev		20.1	0.0	0.0	0.0	0.0	684.5	664.4
% catch		1.8	0.0	0.0	0.0	0.0	98.2	

Annex VII gives the swept-area estimates of mean densities (t/NM^2) based on 30 random trawl stations on the shelf. Of the demersal fish *Brachydeuterus auritus* had the highest mean density in the shallowest depth zone. In the zone 31-50 m *Pagellus bellottii* had the highest densities, followed by *B. auritus*. In the zone (51-100 m) *Chromis cadenati* had the highest mean density, followed by *Dentex congoensis* and *Dentex angolensis, Priacanthus arenatus* and *B. auritus,*. *Chromis cadenati* 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 31-50 m zone (2.25 t/ NM^2) and was caught on 30 % of the stations in Ghana, mainly from 0˚10'W to 1˚15'W. During the 2002 survey it was only caught in low numbers on a few stations in the same area and many of the scallops were dead. 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 2005 it occurred on 7 % of the stations with a density of 0.12 and 1.13 t/ NM^2 in the ≤ 30 m and 31-50 m depth zones, respectively. In the present survey *C. purpuratus* was caught in trawl station no. 191.

Table 5.9 presents swept-area biomass estimates for the valuable demersal groups and some other groups that occur in sizeable quantities The estimate is based on the 30 swept area bottom trawls between 26 and 271 m bottom depth. Please note that only the coast from the border to Côte d'Ivoire to Tema was surveyed and about 97 %of the coast was investigated. The estimated total biomass of valuable demersal groups was about 21 000 tonnes, of which seabreams made up over 85 % (18 000 tonnes). The highest biomass of seabreams was found between depths of 51 and 100 m. Croakers had the second highest biomass with 1 200 tonnes. Grunts and snappers had the third highest biomasses with about 800 tonnes. Of the pelagic and semi-pelagic groups, carangids had an estimated biomass of around 11 000 tonnes, bigeye grunt (*B. auritus*) 5 000 tonnes, cephalopods and barracudas 1 300 tonnes.

Table 5.9 Ghana. Biomass estimates (tonnes) of important species/groups on the shelf, by depth.

Group/species	0-30 m	31-50 m	51-100 m	101-200 m	201-300 m	Sum
Seabreams	537	2765	10302	4012	80	17697
Grunts	272	520	14	0	0	806
Croakers	175	356	480	193	0	1203
Groupers	32	82	55	0	0	169
Snappers	621	27	123	0	0	772
Sum de. val.	1637	3751	10974	4205	80	20566
Bigeye grunt	958	2190	1973	0	0	5121
Carangids	2142	3751	2809	2704	0	11405
Barracudas	511	712	110	0	0	1333
Cephalopods	26	356	685	93	155	1315

5.3 Togo

Three swept-area trawl stations were made on the shelf off Togo. Tables 5.10a-c presents catch rates by main groups for the inner and outer shelf. ((0-100 m)

Table 5.10a Togo. Catch rates (kg/h) by main groups in swept-area bottom trawl hauls on the shelf, 0-100 m.

Station	Depth (m)	Demersal	Pelagic	Shrimps	Cephalopods	Sharks	Other	Total
188	21	3.7	31.5				23.6	58.8
189	44	182.1	357.8		0.4		45.7	585.9
190	75	40.2	4.2		6.6	4.7	126.2	181.9
Mean	46.2	75.3	131.2		2.3	1.6	65.2	275.6
Std dev	27.1	94.2	196.7		3.7	2.7	54.0	275.8
%Catch		27.3	47.6		0.8	0.6	23.7	

Table 5.10b Togo. Catch rates (kg/h) by main pelagic families in swept-area bottom-trawl hauls on the shelf (0-100 m).

Station	Depth (m)	Carangids	Scombrids	Hairtails	Barracuda	Engraulidae	Clupeids	Other	Total
188	21	29.2			2.1		0.2	27.3	58.8
189	44	277.9	7.1		72.9			228.1	585.9
190	75	3.2			1			177.7	181.9
Mean	46.2	103.4	2.4		25.3		0.1	144.4	275.6
Std dev		151.6	4.1		41.2		0.1	104.5	275.8
%Catch		37.5	0.9		9.2			52.4	

Table 5.10c Togo. Catch rates (kg/h) of commercially important demersal species grouped by families in swept-area bottom-trawl hauls on the shelf (0-100 m).

Station	Depth (m)	Seabream	Snappers	Groupers	Grunts	Croakers	Other	Total
188	20.5	3.7					55.1	58.8
189	43.5	117.5	34.4		6.2		427.9	585.9
190	74.5	39.4					142.5	181.9
Mean	46.2	53.5	11.5		2.1		208.5	275.6
Std dev	27.1	58.2	19.8		3.6		195	275.8
%Catch		19.4	4.2		0.8		75.7	

Annex VII gives the swept-area of mean densities (t/NM^2) based on the 3 random bottom trawl stations on the shelf of Togo. Biomass estimate is not made because only one reference bottom trawl transect is worked.

5.4 Benin

Three swept-area trawl stations (one in dark hours) were made on the shelf off Benin. Tables 5.11 a-c shows catch rates by main groups for the inner shelf (0-50 m) and outer shelf (51-100 m), respectively.

Table 5.11a Benin. Catch rates (kg/h) by main groups in swept-area bottom trawl hauls on a) inner shelf, 0-50 m.

Station	Depth (m)	Demersal	Pelagic	Shrimps	Cephalopods	Sharks	Other	Total
191	20.5	22.6	77.0	0.2			211.5	311.3
192	44.0	182.8	255.5	0.7			33.0	472.0
Mean	32.2	102.7	166.3	0.5			122.2	391.6
Std dev		113.3	126.2	0.3			126.3	113.6
%Catch		26.2	42.5	0.1			31.2	

Table 5.11b Benin. Catch rates (kg/h) by main pelagic families in swept-area bottom-trawl hauls on the a) Inner shelf (0-50 m).

Station	Depth (m)	Carangids	Scombrids	Hairtails	Barracuda	Engraulidae	Clupeids	Other	Total
191	20.5	31.2	3.7	9.2	23.2	7.2	9.7	227.1	311.3
192	44.0	82.0			158.3		11.4	220.3	472.0
Mean	32.2	56.6	1.9	4.6	90.7	3.6	10.5	223.7	391.6
Std dev		35.9	2.6	6.5	95.5	5.1	1.2	4.8	113.6
%Catch		14.5	0.5	1.2	23.2	0.9	2.7	57.1	100.0

Table 5.11c Benin. Catch rates (kg/h) of commercially important demersal species grouped by families in swept-area bottom-trawl hauls on the inner shelf (0-50 m)

Station	Depth (m)	Seabream	Snappers	Groupers	Grunts	Croakers	Other	Total
191	20.5	4.8				1.8	304.7	311.3
192	44.0						472.0	472.0
Mean	32.2	2.4				0.9	388.3	391.6
Std dev		3.4				1.3	118.3	113.6
%Catch		0.6				0.2	99.2	

Annex VII gives the swept-area of mean densities (t/NM^2) based on the 3 random bottom trawl stations on the shelf of Benin. Biomass estimate is not made because only one reference bottom trawl transect is worked.

5.5 São Tomé and Principe

São Tomé and Principe are volcanic islands generally characterized by narrow rocky shelf's, and very steep shelf breaks. Demersal fish were seen frequently on the echo sounder on the shelf break, but the rough bottom made trawling difficult.

Principe

Demersal fish were seen frequently on the narrow shelf off Principe. Trawling was difficult because of the uneven bottom. A total of 43 different species were found in the six bottom trawls conducted on the island, Figure 5.12 a-c. All trawls were conducted on the shelf between 45 and 80 m depth. The catch rates and biomass was calculated in one stratum only, from 0 –100 m. The low number of trawls on the island did not make a more detailed separation feasible. The total average catch from all stations at Principe was 401 kg/h compared to 181 kg/h last year,

Table 5.12. If the big tiger shark (*Galeocerdo cuvier*) caught on station 201 is subtracted, the average total catch will then be 270 kg/h. The most dominant group was seabream (Sparidae) and snappers (Lutjanidae), with a mean of 115 kg/h or 29% and 71 kg/h or 18% of the total catch. *Pagellus bellottii* was the most abundant of the seabreams and *Lutjanus fulgens* of the snappers. Carangids made up 3% of the species with 5 kg/h, and was dominated by *Decapterus macarellus.* The cephalopods made up only 1% of the catch with average catches of 4 kg/h. The group of other species made up 17 % of the total catch. This group was dominated by the flying gurnard *Dactylopterus volitans*.

Table 5.12 **a)** Principe. Catch rates (kg/h) of commercially important demersal species grouped by families in swept-area bottom-trawl hauls on the inner and outer shelf of Principe (0-100 m), catches in kg/h.

Station	Gear depth	Demersal	Pelagic	Shrimps	Cephalopods	Sharks	Other	Total
198	63	159.9	24.3	0.0	1.5	0.0	134.5	320.1
199	45	8.7	1.9	0.0	6.2	0.0	57.4	74.3
200	78	432.4	2.0	0.0	11.6	0.0	19.2	465.3
201	69	91.8	2.6	0.0	2.5	786.4	21.3	904.5
202	76	31.4	0.1	0.0	1.1	0.0	16.3	48.8
203	53	435.4	1.5	0.0	1.7	0.0	156.7	595.3
Mean	63.8	193.3	5.4	0.0	4.1	131.1	67.5	401.4
Std dev		193.7	9.3	0.0	4.1	321.0	62.7	326.4
% catch		48.2	1.3	0.0	1.0	32.7	16.8	

b) Catch rates (kg/h) of valuable demersal species grouped by families.

Station	Gear depth	Seabream	Snappers	Groupers	Grunts	Croakers	Other	Total
198	63	155.3	0.0	4.6	0.0	0.0	160.2	320.1
199	45	8.7	0.0	0.0	0.0	0.0	65.6	74.3
200	78	394.1	0.0	38.3	0.0	0.0	32.8	465.3
201	69	91.8	0.0	0.0	0.0	0.0	812.7	904.5
202	76	31.4	0.0	0.0	0.0	0.0	17.5	48.8
203	53	6.8	424.6	4.1	0.0	0.0	159.9	595.3
Mean	63.8	114.7	70.8	7.8	0.0	0.0	208.1	401.4
Std dev		148.4	173.3	15.1	0.0	0.0	302.5	326.4
% catch		28.6	17.6	1.9	0.0	0.0	51.8	

c) Catch rates (kg/h) of pelagic species.

Station	Gear depth	Clupeoids	Carangids	Scombrids	Hairtails	Barracuda	Other	Total
198	63	0.0	24.3	0.0	0.0	0.0	295.8	320.1
199	45	0.0	1.9	0.0	0.0	0.0	72.4	74.3
200	78	0.0	2.0	0.0	0.0	0.0	463.3	465.3
201	69	0.0	2.6	0.0	0.0	0.0	901.9	904.5
202	76	0.0	0.1	0.0	0.0	0.0	48.7	48.8
203	53	0.0	1.5	0.0	0.0	0.0	593.8	595.3
Mean	63.8	0.0	5.4	0.0	0.0	0.0	396.0	401.4
Std dev		0.0	9.3	0.0	0.0	0.0	327.1	326.4
% catch		0.0	1.3	0.0	0.0	0.0	98.7	

São Tomé

A total of 8 swept area trawl stations (Figure 5.13 a-c) were carried out, three on the south – western side, and the five others on the east coast. A total of 59 different species were found in the bottom trawls conducted near the island. No trawls were conducted on the steep north western side of the island, as this is generally untrawlable. All trawl stations were between 25-75 m as the shelf generally is very steep and no trawl stations were possible either deeper or shallower than this.

The catch rate was on average 243 kg/h. The most dominant group was seabream (Sparidae) and snappers (Lutjanidae), with a mean of 106 kg/h or 44% and 36 kg/h or 15% of the total catch. *Pagellus bellottii* was the most abundant of the seabreams and *Lutjanus fulgens* of the snappers. Only carangids and barracuda were the only pelagic fish caught and made up 3% of the species with 6 kg/h. This group was dominated by *Decapterus macarellus* and *Selene dorsalis.* The cephalopods made up only 1% of the catch with average catches of 4 kg/h. The

group of other species made up 29 % of the total catch. This group was dominated by the flying gurnard *Dactylopterus volitans* and scrawled cowfish *Acanthostracion quadricornis*.

Table 5.13 **a)** São Tomé Catch rates (kg/h) of commercially important demersal species grouped by families in swept-area bottom-trawl hauls on the inner and outer shelf of Principe (0-100 m), catches in kg/h.

Station	Gear depth	Demersal	Pelagic	Shrimps	Cephalopods	Sharks	Other	Total
204	74	255.7	2.5	0.0	6.3	0.0	37.8	302.2
205	39	44.6	3.9	0.0	0.8	0.0	119.5	168.8
206	24	0.7	0.0	0.0	0.0	0.0	222.7	223.4
207	69	59.1	3.8	0.0	2.0	0.0	8.3	73.2
208	65	81.8	9.0	0.1	1.1	8.2	61.4	161.7
209	58	222.1	7.5	0.0	21.8	0.0	20.9	272.3
210	54	26.9	5.0	0.0	2.3	0.0	5.1	39.3
211	65	565.0	18.8	0.0	19.5	0.0	95.8	699.1
Mean	55.7	157.0	6.3	0.0	6.7	1.0	71.4	242.5
Std dev		188.9	5.8	0.0	8.8	2.9	73.6	205.4
% catch		64.7	2.6	0.0	2.8	0.4	29.4	

b) Catch rates (kg/h) of valuable demersal species grouped by families.

Station	Gear depth	Seabream	Snappers	Groupers	Grunts	Croakers	Other	Total
204	74	147.2	105.7	2.8	0.0	0.0	46.6	302.2
205	39	44.6	0.0	0.0	0.0	0.0	124.2	168.8
206	24	0.7	0.0	0.0	0.0	0.0	222.7	223.4
207	69	51.7	0.0	0.0	0.0	0.4	21.1	73.2
208	65	53.8	1.1	3.9	19.9	0.0	83.0	161.7
209	58	169.1	27.7	3.8	21.4	0.0	50.2	272.3
210	54	22.8	1.2	0.0	2.9	0.0	12.5	39.3
211	65	355.1	154.1	55.8	0.0	0.0	134.1	699.1
Mean	55.7	105.6	36.2	8.3	5.5	0.1	86.8	242.5
Std dev		116.6	60.0	19.3	9.4	0.1	70.6	205.4
% catch		43.5	14.9	3.4	2.3	0.0	35.8	

c) Catch rates (kg/h) of pelagic species.

Station	Gear depth	Clupeoids	Carangids	Scombrids	Hairtails	Barracuda	Other	Total
204	74	0.0	2.5	0.0	0.0	0.0	299.7	302.2
205	39	0.0	3.9	0.0	0.0	0.0	164.8	168.8
206	24	0.0	0.0	0.0	0.0	0.0	223.4	223.4
207	69	0.0	3.1	0.0	0.0	0.8	69.4	73.2
208	65	0.0	9.0	0.0	0.0	0.0	152.7	161.7
209	58	0.0	4.7	0.0	0.0	2.9	264.8	272.3
210	54	0.0	5.0	0.0	0.0	0.0	34.3	39.3
211	65	0.0	18.8	0.0	0.0	0.0	680.3	699.1
Mean	55.7	0.0	5.9	0.0	0.0	0.5	236.2	242.5
Std dev		0.0	5.8	0.0	0.0	1.0	201.0	205.4
% catch		0.0	2.4	0.0	0.0	0.2	97.4	

5.6 Gabon

The coast of Gabon is generally characterised by a relatively wide shelf with a shelf breaks around 100 m depth in the north and approximately 200 m depth in the south of the country. Cape Lopez divides the shelf into two separate shelf zones, which are separated by a strong

temperature front during the winter. Because of this, fish communities are different between these regions and swept area analyses have consequently been carried out for each region separately.

North of Cape Lopez

A total of 16 swept-area trawl hauls were made on the northern shelf of Gabon. Some trawl hauls was aborted after <30 min trawling because of either very uneven, hard bottom, or very soft bottom. All bottom trawl hauls of more than 20 min duration was accepted for swept area analyses. In 2006 a total of 27 trawls were accepted for Swept area analyses. The lower number of trawls this year is due to time constrains, and decreases the precision of the estimate.

Table 5.14 a, b, c and d shows catch rates by main groups for the inner (0-50 m), mid (51-100 m) and outer shelf (101-200 m) and slope (200-500 m) respectively. The total catch rates per depth region was 79 kg/h, 144 kg/h, 216 kg/h and 220 kg/h respectively, compared to the recorded catches of 204 kg/h, 372 kg/h, 743 kg/h and 241 kg/h in the same depth regions in 2006. The catch rates north of cape Lopez showed highest fish densities between 101 – 200 m and 201 –500 m. This was similar to in 2006 although overall catch rates were lower than observed last year. The catch rates were also considerably lower than what was observed in 2005.

Pelagic species dominated in the inshore region with 42 kg/h or 53% of the catches. The second most important group was demersal species which contributed with 23 kg/h and 29% of the catches. Other groups contributed only little to the overall catch in this depth region, cephalopods (3%), shrimps (2%) and sharks and rays (1%). The catch rates in the depth region was almost 1/3rd of last year, but with similar proportional contribution of different species groups in the catches, although with a higher proportional contribution of both commercial demersal and pelagic species this year.

Between 51 and 100 m the demersal group dominated the catch with average catch rate of 51 kg/h or 36%. The second most dominant group were the pelagic species with 18 kg/h or 13% of the total, while cephalopods, sharks and rays and shrimps contributed 3 kg/h, 1 kg/h and <1 kg/h respectively. The group ‘other’ species had a mean catch rate of 71 kg/h or 49% of the total catch.

Only two trawl stations were conducted between 100 and 200 m depth. The group of demersal species dominated with an average catch of 147 kg/h or 71% of the total catch, and the group of other species contributed with 53 kg/h or26% of the catches The other groups were not important in the catch, the pelagic group contributed with 0.5%, cephalopods 2% and shrimps 1%. Sharks and rays were not caught. A large proportion of the reduction in catch rates in this depth region compared with last year was the absence of pelagic species.

Shrimps was the most important group in deeper waters, >200 m depth and contributed with 88 kg/h or 40% of the overall catch. The most dominant species were *Nematocarcinus africanus*, which contributed the main part of the shrimps in deep waters. Both demersal and pelagic species were still present in the catches with 15 and 12 kg/h. Catches of sharks and rays and cephalopods was 9 and 3 kg/h respectively. The group of 'other species' contributed 93 kg/h and 43%.

Table 5.14 Gabon, north of Cape Lopez. Catch rates (kg/h) by main groups in swept-area bottom-trawl hauls on the a) inner shelf (0-50 m), b) mid shelf (51-100 m) and c) outer shelf (101-200 m) and slope (201-500 m).

a) Inner shelf (0-50 m)

Station	Depth (m)	Demersal	Pelagic	Shrimps	Cephalopods	Sharks	Other	Total
213	49.5	23.0	8.9	4.5	6.5		8.3	51.3
214	21.0	1.8	6.0				5.5	13.3
216	21.5	34.4	143.5	2.6	3.0	5.6	3.9	193.0
217	38.5	7.0	9.4	4.0	4.3	0.0	9.7	34.4
223	32.5	12.2	10.4				3.2	25.8
224	22.0	32.8	110.4	0.4	0.1		23.9	167.6
225	23.0	51.4	3.9	0.7	0.9		11.1	67.9
Mean	29.7	23.2	41.8	1.7	2.1	0.8	9.4	79.0
Std dev		17.6	59.0	1.9	2.6	2.1	7.1	71.7
% Catch		29.4	52.9	2.2	2.7	1.0	11.9	

b) Mid-shelf (51-100)

Station	Depth (m)	Demersal	Pelagic	Shrimps	Cephalopods	Sharks	Other	Total
218	69.0	5.3	56.8				235.5	297.6
221	96.0	108.0	1.2		1.1	4.2	19.5	134.0
222	51.0	22.3	1.3	0.9	3.3		7.2	35.1
226	67.0	68.9	14.1		6.6		20.0	109.6
Mean	70.8	51.1	18.4	0.2	2.8	1.1	70.6	144.1
Std dev		46.5	26.3	0.5	2.9	2.1	110.1	110.7
% Catch		35.5	12.7	0.2	1.9	0.7	49.0	

c) Outer shelf (101-200 m)

Station	Depth (m)	Demersal	Pelagic	Shrimps	Cephalopods	Sharks	Other	Total
212	107.5	176.3			0.7		38.7	215.8
227	167	116.8	2	5.5	7.9		67.1	199.4
Mean	137.3	146.6	1	2.75	4.3		52.9	207.6
Std dev		42.1	1.4	3.9	5.1		20.1	11.6
% Catch		70.6	0.5	1.3	2.1		25.5	

d) Slope (201-500 m)*

Station	Depth (m)	Demersal	Pelagic	Shrimps	Cephalopods	Sharks	Other	Total
219	224.0	10.7	0.5	11.6	1.0	24.1	95.8	143.6
220	521.5	8.7	31.1	69.9			140.8	250.5
228	465.5	25.1	5.5	182.3	7.6	1.4	43.7	265.6
Mean	403.7	14.8	12.4	87.9	2.9	8.5	93.4	219.9
Std dev		8.9	16.4	86.8	4.1	13.5	48.6	66.5
% Catch		6.7	5.6	40.0	1.3	3.9	42.5	

*includes one station deeper than 500 m.

Among the pelagic species between 0 - 50 m depth carangids dominated with 25 kg/h while the Barracudas were second with 9 kg/h. The clupeid species had average catches of 7 kg/h. Some few scombrids were also caught constituting 1% of the catch. The dominant species of carangids in the depth region were *Chloroscombrus chrysurus* and *Decapterus punctatus* while *Ilisha africana* and *Sardinella maderensis* were the only clupeids caught.

The pelagic families dominating between 51-100 m were the same as further inshore, but with lower catch rates. Carangids dominated with 16 kg/h while the clupeid species had average catches of 3 kg/h and barracudas 0.1 kg/h. The dominant species of carangids were *Trachurus trecae* and *Decapterus rhonchus*. Clupeids had low catch rates, but those that were caught deeper than 50 m were all *Sardinella aurita*. Fitting to the general pictures of *Sardinella maderensis* inshore in less saline water masses and *S. aurita* more offshore and in more saline waters.

Table 5.15 Gabon, north of Cape Lopez. Catch rates (kg/h) by main pelagic families in swept-area bottom-trawl hauls on the a) inner shelf (0-50 m), b) mid shelf (51-100 m) c).

a) inner shelf (0-50 m)

Station	Depth (m)	Carangids	Scombrids	Hairtails	Barracuda	Clupeids	Other	Total
213	49.5	8.9					42.4	51.3
214	21.0	1.6			4.2	0.2	7.3	13.3
216	21.5	72.0	4.2		49.8	17.4	49.5	193.0
217	38.5	7.0			1.5	0.9	24.9	34.4
223	32.5	10.4					15.4	25.8
224	22.0	73.0	0.5		7.7	29.3	57.2	167.6
225	23.0	1.3	1.4		0.8	0.4	64.0	67.9
Mean	29.7	24.9	0.9		9.1	6.9	37.2	79.0
Std dev		32.7	1.6		18.1	11.8	21.7	71.7
% Catch		31.5	1.1		11.6	8.7	47.1	

b) mid shelf (51-100 m)

Station	Depth (m)	Carangids	Scombrids	Hairtails	Barracuda	Clupeids	Other	Total
218	69.0	49.3				7.5	240.7	297.6
221	96.0	1.2					132.8	134.0
222	51.0	1.3					33.8	35.1
226	67.0	11.6			0.4	2.1	95.5	109.6
Mean	70.8	15.9			0.1	2.4	125.7	144.1
Std dev		22.8			0.2	3.5	86.9	110.7
% Catch		11.0			0.1	1.7	87.2	

The valuable demersal species, Seabreams, exclusive *Boops boops*, Snappers, Groupers, Grunts (exclusive *Brachydeuterus auritus*) and Croakers were generally also caught in lower abundance than last year. 23 kg/h on the inner shelf, 51 kg/h on mid shelf and highest on the outer shelf, 147 kg/h. The abundance decreased in deeper waters with average catches of 15 kg/h at the lower slope. This is compared to 48 kg/h, 181 kg/h, 371 kg/h and 6.7 kg/h respectively in the same depth regions in 2006.

Snappers dominated on the inner shelf, mainly because of one relatively good catch of *Lutjanus agennes*. *Lutjanus fulgens* was present on two other stations in smaller densities. Average catch rates were 7 kg/h. Seabreams, mainly *Pagellus bellottii*, contributed with 6 kg/h to the total catch while grunts, mainly *Pomadasys peroteti*, croakers and groupers contributed with 4, 1 and 1 kg/h respectively.

The seabreams were dominating on the midshelf with catch rates of 34 kg/h and 24% of the total catch. Groupers and Croakers were present in small quantities, 6 kg/h and < 1 kg/h respectively while Snappers and grunts were not present in this depth region. The seabreams on the mid shelf was dominated by *Dentex congoensis*, *Pagellus bellottii* and *Dentex angolensis*.

Seabream contributed 60% or 125 kg/h to the total catch between 101 m and 200 m depth, and *Dentex angolensis* where the only sparid found. A few Sciaenids, *Pteroscion peli*, were also present at this depth, with average catch rate of 4 kg/h.

Table 5.16 Gabon, north of Cape Lopez. 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), b) mid shelf (51-100 m) and c) outer shelf and slope (101-250).

a) inner shelf (0-50 m)

Station	Depth (m)	Seabream	Snappers	Groupers	Grunts	Croakers	Other	Total
213	49.5	19.9		3.1			28.3	51.3
214	21.0	0.6			1.2		11.5	13.3
216	21.5	0.2	0.4		23.0		169.3	193.0
217	38.5	2.5		0.3			31.6	34.4
223	32.5	10.2	0.9		1.0		13.6	25.8
224	22.0	2.3				9.5	155.9	167.6
225	23.0	5.7	44.2	1.1		0.2	16.8	67.9
Mean	29.7	5.9	6.5	0.6	3.6	1.4	61.0	79.0
Std dev		7.1	16.6	1.2	8.6	3.6	69.9	71.7
		7.5	8.2	0.8	4.6	1.8	77.2	

b) mid shelf (51-100 m)

Station	Depth (m)	Seabream	Snappers	Groupers	Grunts	Croakers	Other	Total
218	69.0	5.3					292.3	297.6
221	96.0	87.6		19.5		0.8	26.0	134.0
222	51.0	21.5				0.4	13.2	35.1
226	67.0	22.3		2.4			84.9	109.6
Mean	70.8	34.2		5.5		0.3	104.1	144.1
Std dev		36.5		9.4		0.4	129.3	110.7
% Catch		23.7		3.8		0.2	72.3	

c) outer shelf and slope (101-200)

Station	Depth (m)	Seabream	Snappers	Groupers	Grunts	Croakers	Other	Total
212	107.5	176.3					39.5	215.8
227	167	73.9				8.4	117.1	199.4
Mean	137.3	125.1				4.2	78.3	207.6
Std dev		72.4				5.9	54.9	11.6
% Catch		60.3				2.0	37.7	

South of Cape Lopez

A total of 51 swept-area trawl hauls were accepted on the southern shelf of Gabon. Some trawl hauls was aborted after <30 min trawling because of either very uneven, hard bottom, or very soft bottom. However all bottom trawl hauls of more than 20 min duration was accepted for swept area analyses. Four trawls were excluded from the analyses.

Table 5.17 a, b, c and d shows catch rates by main groups for the inner (0-50 m), mid (51-100 m) and outer shelf (101-200 m) and slope (201 –500 m) respectively.

The overall catch rates were highest on the mid shelf between 50-100 m depth with 576 kg/h. This was higher than during the two previous years indicating a shift in distribution pattern, it was also considerable higher than catch rates on the mid shelf north of Cape Lopez. Demersal species were most abundant with catch rates of 351 kg/h while pelagic species contributed with 137 kg/h. Cephalopods, sharks and rays and shrimps contributed 27 kg/h, 10 kg/h and less than one kilogram per hour to the total catch respectively.

The most striking difference to previous years was the change in catch rates on the southern shelf of Gabon with an overall decline for all species categories on the inner shelf (0 - 50 m). The catch rate this year was 251 kg/h, compared with 1359 kg/h in 2006 and 2876 kg/h in 2005. There has been recorded a considerable change in SST over the same period with strong upwelling present inshore in 2005 while no clear signs of upwelling was observed this year. It is pertinent to relate the change in catch rates to the environmental fluctuations seen in the same period. The sardinella species have seen the largest drop in catch rates. Pelagic species was still the most abundant with 134 kg/h while demersal species gave catch rates of 78 kg/h. Shrimps, sharks and cephalopods contributed 2.4 kg/h, 2.2 kg/h and 1.6 kg/h to the total catch. Altogether less than 3% of the total catch.

The outer shelf and slope between 101 – 200 m had an overall catch rate of 290 kg/h, compared with 411 kg/h last year. Catch composition in this depth region resembled previous years, and the catch was dominated by the group of 'other' species with 147 kg/h and 51% of the catch, followed by the demersal species with mean catch rates of 103 kg/h and 36%. Pelagic species contributed with 22 kg/h or 8% of the total while cephalopods and sharks both gave catch rates of 9 kg/h and 3% of the total catch. Shrimps occurred in small quantities but was not significant in this depth region.

The catch rate between 201 and 500 m was 223 kg/h. The 'other' group were the most abundant with 82 kg/h and 37% of the overall catch. Demersal species and shrimps were both important with an average catch rate of 60 kg/h or 27% of the catch. Cephalopods gave catch rates of 11 kg/h or 5%. Shark and rays contributed 6 kg/h or 3% to the total.

Table 5.17 Gabon, south of Cape Lopez. Catch rates (kg/h) by main groups in swept-area bottom-trawl hauls on the a) inner shelf (0-50 m), b) mid shelf (51-100 m) and c) outer shelf (101-200 m) and slope (201-600 m).

a) inner shelf (0-50 m)

Station	Depth (m)	Demersal	Pelagic	Shrimps	Cephalopods	Sharks	Other	Total
229	26.5	54.8	376.9	7.1			60.9	499.7
236	20.5		10.4				2.3	12.7
237	28.0	34.4	569.5	8.8	4.4			617.0
238	46.5	70.0	21.6	1.0			23.1	115.6
244	46.0	144.2	14.7	0.1	5.0		25.2	189.3
245	18.5	8.1	293.0				9.3	310.4
246	20.0	71.7	35.7				55.9	163.3
251	50.0	67.1	26.3		9.1		42.9	145.3
252	21.0	32.3	226.1		4.1		36.8	299.3
268	24.0	71.9	223.0	0.5		20.6	65.5	381.5
269	38.0	130.6	49.9			7.0	46.0	233.6
275	48.0	127.6	43.9		2.0		26.6	200.1
276	24.0	71.8	71.6	8.4		2.8	26.4	181.0
277	43.5	111.6	23.8			2.0	20.1	157.4
284	42.0	167.3	29.9	10.8			47.1	255.1
Mean	33.1	77.6	134.4	2.4	1.6	2.2	32.5	250.8
Std dev		49.6	168.1	4.0	2.8	5.4	20.4	154.2
%Catch		30.9	53.6	1.0	0.7	0.9	13.0	

b) mid-shelf (51-100 m)

Station	Depth (m)	Demersal	Pelagic	Shrimps	Cephalopods	Sharks	Other	Total
235	56.0	141.3	4.9		1.9	12.0	11.4	171.6
239	63.0	243.5	365.8				51.9	661.1
243	81.5	93.1	6.3		23.9		40.8	164.2
248	82.0	118.4	853.4		7.5	4.1	36.1	1019.5
255	75.0	29.6	7.7		2.4	3.0	22.4	65.1
259	92.5	57.7	81.1		53.5	27.4	56.0	275.7
261	60.0	227.7	51.5		3.9	19.4	51.5	354.0
267	50.5	36.3	12.1		0.2		24.0	72.6
270	66.5	26.2	36.8		13.3	6.6	63.4	146.2
274	84.5	3054.0	19.3		199.1	34.7	201.8	3509.0
278	83.5	66.2	108.2		17.8	7.6	9.5	209.3
283	55.5	118.4	106.7	7.1		2.9	31.0	266.1
Mean	70.9	351.0	137.8	0.6	27.0	9.8	50.0	576.2
Std dev		854.2	246.5	2.0	56.3	11.5	50.9	963.4
%Catch		60.9	23.9	0.1	4.7	1.7	8.7	

c) outer shelf and slope (101-200)

Station	Depth (m)	Demersal	Pelagic	Shrimps	Cephalopods	Sharks	Other	Total
231	138.5	5.3	1.0				7.9	14.2
232	107.0	47.9			1.5	5.4	12.4	67.1
233	125.5	51.3	5.9		2.6	4.7	252.3	316.8
234	104.5	202.8			40.0		47.5	290.3
240	132.0	20.5	9.1		3.6	18.7	611.1	663.1
242	137.5	135.6	8.0		2.1	16.6	169.8	332.2
249	172.0	32.7	16.3		6.6	0.0	226.7	282.3
250	105.0	6.8	3.8		7.0	18.8	34.2	70.6
256	155.0	81.1			17.8	2.3	169.1	270.3
262	107.5	573.5			7.6		89.4	670.4
266	100.5	129.6	212.8		33.5	14.2	85.5	475.5
271	172.0	61.3	3.5	1.1	5.4		166.9	238.3
273	131.5	55.0	8.0		1.2	10.2	169.6	243.9
279	186.5	68.2	0.7		1.6	7.5	108.3	186.3
282	106.5	73.3	59.0		7.3	29.9	60.9	230.4
Mean	132.1	103.0	21.9	0.1	9.2	8.6	147.4	290.1
Std dev		140.4	54.9	0.3	12.1	9.2	149.0	191.7
%Catch		35.5	7.5	0.0	3.2	2.9	50.8	

d) Slope (201-600 m)

Station	Depth (m)	Demersal	Pelagic	Shrimps	Cephalopods	Sharks	Other	Total
241	298.5	0.3	1.9	1.8	19.6	5.0	166.7	195.3
257	428.5	18.1	1.8	80.8	2.1	2.0	40.7	145.5
258	206.5	374.7			30.3	12.5	82.9	500.3
263	344.0	30.2	10.4	6.3	5.2	16.3	150.9	219.3
264	508.0	3.4	7.5	136.7			47.2	194.8
265	228.0	40.7	6.2	1.6	39.0		118.7	206.2
272	450.0	7.6	4.5	130.5		18.8	43.3	204.7
280	515.5	10.2	3.3	170.4		0.7	31.3	216.0
281	233.5	58.2	2.5	18.0	4.5		54.8	138.1
Mean	356.9	60.4	4.2	60.7	11.2	6.1	81.8	223.3
Std dev		119.4	3.3	69.4	14.8	7.6	51.2	107.4
%Catch		27.0	1.9	27.2	5.0	2.8	36.6	

Pelagic species were frequent in the catches although not as abundant as previous years (Table 5.18 a-c). The most important group were the carangids with a mean catch of 80 kg/h or 32%. Clupeids were second most abundant on the inner shelf, 0 - 50 m depth and contributed 22 kg/h or 9% to the total catch. Catch rates was considerably lower than previous years. Present in the catches were *Sardinella aurita*, *Sardinella maderensis* and *Ilisha africana.* Barracudas, hairtails and scombrids contributed 17, 10 and 1 kg/h to the total catch respectively. The 'other' group of species contributed 120 kg/h or 48% to the total catch.

Catches of pelagic species on the mid shelf (50 and 100 m depth) was similar to the inner shelf. The carangids dominated the group with 92 kg/h, or 16% of the total catch, followed by

hairtails with 27 kg/h and 5% of the total, clupeids with 12 kg/h or 2%. Scombrids and barracudas was only present in small quantities.

On the outer shelf and slope (101 – 200 m), the carangids dominated and contributed 4% or 12 kg/h to the total catch while the hairtails contributed with 9 kg/h. Other pelagic species groups were not important in the catches.

Hairtails, *Trichiurus lepturus* were the only pelagic species caught beyond 200 m

Table 5.18 Gabon, south of Cape Lopez. Catch rates (kg/h) by main pelagic groups in swept-area bottom-trawl hauls on the a) inner shelf (0-50 m), b) mid shelf (51-100 m) and c) outer shelf (101-200 m) and slope (201-600 m).

a) inner shelf (0-50 m)

Station	Depth (m)	Carangids	Scombrids	Hairtails	Barracuda	Clupeids	Other	Total
229	26.5	105.7		30.0	30.9	210.3	122.8	499.7
236	20.5	7.9	2.5				2.3	12.7
237	28.0	441.1		4.0	116.8	2.0	53.1	617.0
238	46.5	0.9		1.3	19.3		94.0	115.6
244	46.0	13.1	0.5		1.1		174.6	189.3
245	18.5	288.9			1.9	2.2	17.4	310.4
246	20.0	24.1	4.9		5.1	1.6	127.7	163.3
251	50.0	5.1	2.8	16.8		1.6	119.0	145.3
252	21.0	145.4	2.4	2.0	35.2	41.1	73.2	299.3
268	24.0	128.8		11.0	33.7	45.5	162.6	381.5
269	38.0	1.7		12.2	12.2	3.1	204.4	233.6
275	48.0	8.3		18.1	0.5	3.0	170.2	200.1
276	24.0	28.8		23.2		9.0	120.0	181.0
277	43.5			15.9	2.5		139.1	157.4
284	42.0	3.9	4.2	17.8	0.4	3.6	225.2	255.1
Mean	33.1	80.2	1.2	10.2	17.3	21.5	120.4	250.8
Std dev		128.8	1.7	9.9	30.5	54.2	64.2	154.2
%Catch		32.0	0.5	4.0	6.9	8.6	48.0	

b) mid shelf (51-100 m)

Station	Depth (m)	Carangids	Scombrids	Hairtails	Barracuda	Clupeids	Other	Total
235	56.0	0.3		1.0	3.7		166.6	171.6
239	63.0	359.7				6.1	295.4	661.1
243	81.5	6.3					157.9	164.2
248	82.0	675.8	63.7			113.9	166.1	1019.5
255	75.0	0.5		7.2			57.4	65.1
259	92.5			81.1			194.6	275.7
261	60.0	0.5		51.0			302.5	354.0
267	50.5	4.8		6.5		0.8	60.5	72.6
270	66.5	0.6		34.2			111.4	146.2
274	84.5	19.3					3489.7	3509.0
278	83.5	23.6		61.4		0.6	123.7	209.3
283	55.5	10.0	0.8	76.6		19.3	159.4	266.1
Mean	70.9	91.8	5.4	26.6	0.3	11.7	440.4	576.2
Std dev		210.2	18.4	32.5	1.1	32.7	963.3	963.4
%Catch		15.9	0.9	4.6	0.1	2.0	76.4	

c) outer shelf and slope (101-200)

Station	Depth (m)	Carangids	Scombrids	Hairtails	Barracuda	Clupeids	Other	Total
231	138.5				1.0		13.3	14.2
232	107.0						67.1	67.1
233	125.5			5.9			310.9	316.8
234	104.5						290.3	290.3
240	132.0			9.1			653.9	663.1
242	137.5			8.0			324.2	332.2
249	172.0	9.7		3.4		3.2	266.0	282.3
250	105.0			3.8			66.8	70.6
256	155.0						270.3	270.3
262	107.5						670.4	670.4
266	100.5	174.5	0.6	37.2		0.4	262.7	475.5
271	172.0			3.5			234.8	238.3
273	131.5			8.0			235.9	243.9
279	186.5			0.7			185.6	186.3
282	106.5	4.4		54.6			171.4	230.4
Mean	132.1	12.6	0.0	8.9	0.1	0.2	268.2	290.1
Std dev		44.9	0.2	15.7	0.3	0.8	185.2	191.7
%Catch		4.3	0.0	3.1	0.0	0.1	92.5	

The catch rates of valuable demersal species, seabreams, exclusive *Boops boops*, snappers, groupers, grunts (exclusive *Brachydeuterus auritus*) and croakers are seen in Table 5.19 a-c. Last year seabreams dominated in all depth regions. The situation this year was different with croakers been the most abundant species groups both on the inner, and mid shelf. On the inner shelf croakers had catch rates of 19 kg/h and 8% of the total catch. Seabreams had average catches of 15 kg/ and 6% of the total catch while grunts contributed with 14 kg/h. Snappers, mainly *Lutjanus fulgens,* contributed average catch rate of 4 kg/h and groupers had average catches of 2 kg/h (<1%).

Catch rates were considerably higher on the midshelf. Croakers had catch rates of 196 kg/h (34%) while seabreams had catch rates of 123 kg/h (21%). The grunts, snappers and groupers had catch rates of 9 kg/h, 8 kg/h and 4 kg/h respectively.

Catches on the outer shelf and lower slope between 101 – 200 m depth were dominated by Seabreams. *Dentex congoensis* and *Dentex angolensis*, were the most abundant species, and contributed with 74 kg/h (26%), the same catch rates as last year. The croakers contributed with 9 kg/h to the total catch, while groupers contributed with 4 kg/h.

Table 5.19 Gabon, South of Cape Lopez. Catch rates (kg/h) by valuable demersal species swept-area bottom-trawl hauls on the a) inner shelf (0-50 m), b) mid shelf (51-100 m) and c) outer shelf (101-200 m) and slope (201-500 m).

a) inner shelf (0-50 m)

Station	Depth (m)	Seabream	Snappers	Groupers	Grunts	Croakers	Other	Total
229	26.5					45.9	453.7	499.7
236	20.5						12.7	12.7
237	28.0				6.4	9.3	601.4	617.0
238	46.5	26.2			17.6		71.8	115.6
244	46.0	18.0				1.8	169.5	189.3
245	18.5	0.0			0.5		309.9	310.4
246	20.0	22.7	33.5		9.5		97.7	163.3
251	50.0	25.0				2.4	117.9	145.3
252	21.0	11.6			0.8	11.0	275.9	299.3
268	24.0	13.7	18.1	0.2	14.6	8.9	325.9	381.5
269	38.0	11.9	0.0		46.7	53.5	121.5	233.6
275	48.0	57.9	3.2	9.2	18.8	33.4	77.6	200.1
276	24.0				6.6	41.5	132.9	181.0
277	43.5	29.6		14.9	27.6	28.4	57.0	157.4
284	42.0	8.1			56.8	52.8	137.5	255.1
Mean	33.1	15.0	3.7	1.6	13.7	19.3	197.5	250.8
Std dev		15.9	9.5	4.4	17.7	20.9	164.5	154.2
%Catch		6.0	1.5	0.6	5.5	7.7	78.8	

b) mid shelf (51-100 m)

Station	Depth (m)	Seabream	Snappers	Groupers	Grunts	Croakers	Other	Total
235	56.0	60.1					111.5	171.6
239	63.0	243.5					417.6	661.1
243	81.5	89.5	3.6				71.0	164.2
248	82.0	89.8	3.9	24.8			901.1	1019.5
255	75.0	17.9	1.7			8.6	36.9	65.1
259	92.5	53.0					222.7	275.7
261	60.0	38.6	87.8	5.4	59.8	34.4	127.9	354.0
267	50.5	3.7			6.9	25.5	36.5	72.6
270	66.5	10.8			15.4		120.1	146.2
274	84.5	808.9		19.0		2224.8	456.4	3509.0
278	83.5	57.9			1.9	1.6	147.9	209.3
283	55.5	2.1			26.0	59.7	178.2	266.1
Mean	70.9	123.0	8.1	4.1	9.2	196.2	235.7	576.2
Std dev		225.6	25.1	8.5	17.9	639.1	249.1	963.4
%Catch		21.3	1.4	0.7	1.6	34.1	40.9	

c) outer shelf and slope (101-200 m)

Station	Depth (m)	Seabream	Snappers	Groupers	Grunts	Croakers	Other	Total
231	138.5	5.0					9.2	14.2
232	107.0	47.6					19.5	67.1
233	125.5	37.3				14.0	265.6	316.8
234	104.5	169.1		29.8		3.5	87.9	290.3
240	132.0	20.5					642.6	663.1
242	137.5	17.4				26.0	288.7	332.2
249	172.0	32.7					249.6	282.3
250	105.0	3.2					67.4	70.6
256	155.0	55.5					214.8	270.3
262	107.5	484.2		35.5		49.3	101.3	670.4
266	100.5	106.7		0.0		3.1	365.7	475.5
271	172.0	33.0				6.5	198.8	238.3
273	131.5	32.2				7.4	204.3	243.9
279	186.5	44.5				1.5	140.2	186.3
282	106.5	20.2				28.3	182.0	230.4
Mean	132.1	73.9		4.4		9.3	202.5	290.1
Std dev		121.2		11.5		14.5	158.3	191.7
%Catch		25.5		1.5		3.2	69.8	

5.7 Congo

The shelf of Congo is similar in character to the southern shelf of Gabon. The southern part, bordering Angola, is at times heavily influenced by the Congo River freshwater plume. Sediments are fine grained on the midshelf and harder and more uneven on the shelf break and inshore. Oil platforms and pipelines in the area make demersal trawling operation difficult. No swept area biomass estimate is available for Congo in 2007.

Annex I Records of fishing stations

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 147
DATE :05/06/2007 GEAR TYPE: BT NO: 18 POSITION:Lat N 4°53.68
start stop duration Lon W 3°20.97
TIME :10:25:55 10:32:18 6.4 (min) Purpose : 3
LOG : 2664.44 2664.77 0.3 Region : 2500
FDEPTH: 92 89 Gear cond.: 9
BDEPTH: 92 89 Validity : 1
Towing dir: 0° Wire out : 300 m Speed : 3.1 kn
Sorted : 39 Total catch: 38.59 Catch/hour: 363.49

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Dentex congoensis	216.64	4776	59.60	737
Dentex angolensis	64.52	998	17.75	738
Trachurus trecae	38.15	1639	10.49	739
Squatina oculata	21.66	28	5.96	
Zeus faber	8.85	28	2.44	
Scomber japonicus	3.96	66	1.09	
Branchiostegus semifasciatus *	3.58	9	0.98	
Boops boops	2.26	28	0.62	
Illex coindetii	1.22	85	0.34	
Pseudupeneus prayensis	0.94	9	0.26	
Priacanthus arenatus	0.75	19	0.21	
Ariomma bondi	0.38	9	0.10	
Chaetodon marcellae	0.38	9	0.10	
Citharus linguatula	0.19	9	0.05	
Lolliguncula mercatoris	0.01	9	0.00	
Total	363.49		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 148
DATE :05/06/2007 GEAR TYPE: BT NO: 18 POSITION:Lat N 5°2.82
start stop duration Lon W 3°18.75
TIME :11:53:41 12:23:08 29.5 (min) Purpose : 3
LOG : 2674.83 2676.23 1.4 Region : 2500
FDEPTH: 47 47 Gear cond.: 0
BDEPTH: 47 47 Validity : 0
Towing dir: 0° Wire out : 150 m Speed : 2.9 kn
Sorted : 69 Total catch: 341.75 Catch/hour: 696.03

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Brachydeuterus auritus	344.70	11910	49.52	743
Selene dorsalis	121.69	652	17.48	740
Trichiurus lepturus	50.10	811	7.20	
Pagellus bellottii	45.72	244	6.57	746
Umbrina canariensis	24.64	71	3.54	
Chloroscombrus chrysurus	19.55	285	2.81	745
Pomadasys incisus	14.77	193	2.12	742
Syacium micrurum	10.08	244	1.45	
Pseudupeneus prayensis	8.25	81	1.19	
J E L L Y F I S H	7.43	193	1.07	
Galeoides decadactylus	5.80	255	0.83	747
Cymbium cymbium	5.07	6	0.73	
Decapterus rhonchus	4.99	31	0.72	
Lagocephalus laevigatus	4.68	20	0.67	
Trachurus trecae	3.97	153	0.57	744
Sphyraena sphyraena	3.87	2	0.56	
Pseudotolithus senegalensis	2.85	10	0.41	
Torpedo torpedo	2.79	4	0.40	
Sardinella maderensis	2.75	112	0.40	741
Penaeus notialis	2.53	110	0.36	748
Pteroscion peli	1.73	61	0.25	
Ilisha africana	1.53	51	0.22	
Pagrus caeruleostictus	1.43	10	0.20	
Bothus podas africanus	1.22	20	0.18	
Priacanthus arenatus	1.22	163	0.18	
Grammoplites gruveli	1.12	71	0.16	
Sepia officinalis hierredda	1.12	20	0.16	
Eucinostomus melanopterus	0.41	10	0.06	
Total	696.03		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 149
DATE :05/06/2007 GEAR TYPE: BT NO: 18 POSITION:Lat N 5°5.96
start stop duration Lon W 3°17.60
TIME :13:20:50 13:47:54 27.1 (min) Purpose : 3
LOG : 2681.80 2683.03 1.2 Region : 2500
FDEPTH: 23 24 Gear cond.: 0
BDEPTH: 23 24 Validity : 0
Towing dir: 0° Wire out : 80 m Speed : 2.7 kn
Sorted : 23 Total catch: 72.35 Catch/hour: 160.36

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Drepane africana	29.04	53	18.11	751
Selene dorsalis	27.37	213	17.07	749
Chloroscombrus chrysurus	24.49	395	15.27	753
J E L L Y F I S H	19.35	53	12.07	
Galeoides decadactylus	17.82	745	11.11	756
Elops lacerta	16.07	51	10.02	752
Brachydeuterus auritus	6.27	160	3.91	755
Alectis alexandrinus	2.75	16	1.71	
Raja miraletus	2.59	7	1.62	
Pseudotolithus senegalensis	1.57	2	0.98	
Pomadasys jubelini	1.51	9	0.94	
Scomberomorus tritor	1.26	11	0.79	
Chaetodipterus lippei	1.20	4	0.75	
Chaetodipterus goreensis	1.11	2	0.69	
Engraulis encrasicolus	1.06	357	0.66	754
Selar crumenophthalmus	0.91	4	0.57	
Ilisha africana	0.86	42	0.54	750
Caranx hippos	0.58	2	0.36	
Pomadasys incisus	0.58	11	0.36	
Pseudupeneus prayensis	0.55	4	0.35	
Lagocephalus laevigatus	0.55	2	0.35	
Trichiurus lepturus	0.49	20	0.30	
Pteroscion peli	0.38	9	0.23	
Sphyraena sphyraena	0.35	7	0.22	
Sardinella maderensis	0.33	7	0.21	
Eucinostomus melanopterus	0.33	9	0.21	
Penaeus kerathurus	0.33	7	0.21	
Trachinocephalus myops	0.33	2	0.21	
Sepia officinalis hierredda	0.18	2	0.11	
Penaeus notialis	0.07	4	0.04	
Dentex congoensis	0.07	2	0.04	
Total	160.36		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 150
DATE :05/06/2007 GEAR TYPE: BT NO: 18 POSITION:Lat N 5°7.93
start stop duration Lon W 3°35.46
TIME :15:59:12 16:09:08 9.9 (min) Purpose : 3
LOG : 2699.92 2700.39 0.5 Region : 2500
FDEPTH: 25 25 Gear cond.: 0
BDEPTH: 25 25 Validity : 0
Towing dir: 0° Wire out : 80 m Speed : 2.9 kn
Sorted : 0 Total catch: 23.63 Catch/hour: 142.64

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Engraulis encrasicolus	117.10	27851	82.10	757
Drepane africana	7.48	6	5.25	
Brachydeuterus auritus	4.83	127	3.39	758
Pteroscion peli	3.68	60	2.58	
Selene dorsalis	3.44	30	2.41	
Galeoides decadactylus	2.84	18	1.99	
Caranx crysos	1.63	12	1.14	
Chloroscombrus chrysurus	1.63	12	1.14	
Total	142.64		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 151
DATE :05/06/2007 GEAR TYPE: BT NO: 18 POSITION:Lat N 5°6.78
start stop duration Lon W 3°38.24
TIME :16:56:16 17:16:25 20.1 (min) Purpose : 3
LOG : 2704.07 2705.07 1.0 Region : 2500
FDEPTH: 36 35 Gear cond.: 0
BDEPTH: 36 35 Validity : 0
Towing dir: 0° Wire out : 110 m Speed : 3.0 kn
Sorted : 105 Total catch: 209.51 Catch/hour: 624.16

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Brachydeuterus auritus	385.50	7171	61.76	759
Chloroscombrus chrysurus	210.03	3128	33.65	760
Sphyraena guachancho	7.98	42	1.28	
Selene dorsalis	7.63	48	1.22	
Sardinella maderensis	6.43	268	1.03	761
Galeoides decadactylus	2.32	42	0.37	
Pomadasys peroteti	2.03	12	0.32	
Pseudupeneus prayensis	1.01	6	0.16	
Syacium micrurum	0.66	6	0.11	
Eucinostomus melanopterus	0.54	6	0.09	
Squilla mantis	0.03	12	0.00	
Total	624.16		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 152
DATE :05/06/2007 GEAR TYPE: BT NO: 18 POSITION:Lat N 5°3.42
start stop duration Lon W 3°38.88
TIME :18:04:24 18:37:31 33.0 (min) Purpose : 3
LOG : 2710.37 2711.92 1.6 Region : 2500
FDEPTH: 61 61 Gear cond.: 0
BDEPTH: 60 61 Validity : 0
Towing dir: 0° Wire out : 180 m Speed : 2.9 kn
Sorted : 96 Total catch: 644.23 Catch/hour: 1171.33

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Brachydeuterus auritus	840.00	25604	71.71	764
Trichiurus lepturus	133.64	2673	11.41	
Chloroscombrus chrysurus	44.80	585	3.82	766
Pseudupeneus prayensis	28.76	356	2.46	763
Sardinella maderensis	25.45	1285	2.17	767
Selar crumenophthalmus	24.82	204	2.12	765
Sphyraena sphyraena	24.05	153	2.05	762
Pagellus bellottii	17.95	229	1.53	768
Alectis alexandrinus	8.82	2	0.75	
J E L L Y F I S H	4.96	115	0.42	
Brotula barbata	4.45	25	0.38	
Decapterus punctatus	3.44	267	0.29	769
Dentex angolensis	3.44	76	0.29	
Caranx crysos	2.80	13	0.24	
Trachurus trecae	1.78	76	0.15	770
Priacanthus arenatus	1.40	13	0.12	
Fistularia petimba	0.51	13	0.04	
Sardinella aurita	0.25	13	0.02	
Total	1171.33		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 153
DATE :06/06/2007 GEAR TYPE: BT NO: 18 POSITION:Lat N 5°0.84
start stop duration Lon W 2°54.60
TIME :06:31:42 07:02:11 30.5 (min) Purpose : 3
LOG : 2775.86 2777.49 1.6 Region : 2600
FDEPTH: 27 27 Gear cond.: 0
BDEPTH: 27 27 Validity : 0
Towing dir: 0° Wire out : 120 m Speed : 3.2 kn
Sorted : 348 Total catch: 763.84 Catch/hour: 1503.12

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Chloroscombrus chrysurus	530.83	7464	35.32	776
Galeoides decadactylus	147.61	333	9.82	783
Brachydeuterus auritus	133.67	4839	8.89	784
Chaetodipterus goreensis	95.34	451	6.34	
Lethrinus atlanticus	75.37	254	5.01	771
Lutjanus goreensis	74.19	16	4.94	775
Pomadasys jubelini	73.20	100	4.87	773
Dentex canariensis	67.79	106	4.51	780
J E L L Y F I S H	38.88	167	2.59	
Sphyraena guachancho	27.16	144	1.81	772
Lutjanus fulgens	21.29	140	1.42	781
Sardinella maderensis	20.21	1193	1.34	777
Drepane africana	19.09	53	1.27	
Pagrus caeruleostictus	18.60	0	1.24	
Elops lacerta	17.65	51	1.17	
Pseudotolithus typus	16.04	75	1.07	774
Sphyraena sphyraena	14.84	0	0.99	
Selene dorsalis	13.74	33	0.91	778
Acanthostracion quadricornis	13.43	51	0.89	
Pomadasys incisus	10.49	51	0.70	
Balistes punctatus	9.59	500	0.64	782
Epinephelus aeneus	9.27	4	0.62	
Caranx hippos	8.44	14	0.56	
Trichiurus lepturus	8.06	77	0.54	
Pomadasys rogeri	7.97	16	0.53	
Umbrina canariensis	6.67	16	0.44	
Pteroscion peli	5.63	77	0.37	
Pseudupeneus prayensis	3.56	14	0.24	779
Alectis alexandrinus	3.46	8	0.23	
Ilisha africana	3.20	128	0.21	
Scarus hoefleri	2.68	2	0.18	
Pseudotolithus senegalensis	1.40	10	0.09	
Caranx crysos	1.18	4	0.08	
Scorpaena scrofa	1.18	4	0.08	
Acanthurus monroviae	0.69	2	0.05	
Stromateus fiatola	0.49	2	0.03	
Dactylopterus volitans	0.24	2	0.02	
Total	1503.12		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 154
DATE :06/06/2007 GEAR TYPE: BT NO: 18 POSITION:Lat N 4°59.39
start stop duration Lon W 2°59.07
TIME :08:19:33 08:52:04 32.5 (min) Purpose : 3
LOG : 2785.91 2787.48 1.6 Region : 2600
FDEPTH: 42 40 Gear cond.: 0
BDEPTH: 42 40 Validity : 0
Towing dir: 0° Wire out : 150 m Speed : 2.9 kn
Sorted : 25 Total catch: 25.16 Catch/hour: 46.42

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Pagellus bellottii	7.90	113	17.01	788
Brachydeuterus auritus	7.68	173	16.53	789
Selene dorsalis	6.11	28	13.16	787
Octopus vulgaris	4.34	6	9.34	
Pseudupeneus prayensis	3.60	42	7.75	786
Sphyraena guachancho	2.40	13	5.17	
Trachinocephalus myops	2.34	28	5.05	
Citharus linguatula	2.21	31	4.77	
Bothus podas africanus	1.77	74	3.82	
Chloroscombrus chrysurus	1.37	15	2.94	785
Pagrus caeruleostictus	1.22	4	2.62	
Alectis alexandrinus	1.11	2	2.38	
J E L L Y F I S H	0.76	9	1.63	
Balistes capriscus	0.63	4	1.35	
Psettodes belcheri	0.55	2	1.19	
Saurida brasiliensis	0.50	83	1.07	
Alloteuthis africana	0.48	164	1.03	
Sardinella maderensis	0.35	15	0.76	
Eucinostomus melanopterus	0.35	7	0.76	
Pegusa lascaris	0.30	2	0.64	
Dicologoglossa hexophthalma	0.22	4	0.48	
Lycondontis afer	0.17	2	0.36	
Sepia officinalis hierredda	0.09	2	0.20	
Total	46.42		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 155
DATE :06/06/2007 GEAR TYPE: BT NO: 18 POSITION:Lat N 4°52.50
start stop duration Lon W 3°0.12
TIME :11:08:31 11:30:26 21.9 (min) Purpose : 3
LOG : 2797.29 2798.40 1.1 Region : 2600
FDEPTH: 73 71 Gear cond.: 0
BDEPTH: 73 71 Validity : 0
Towing dir: 0° Wire out : 220 m Speed : 3.0 kn
Sorted : 50 Total catch: 100.14 Catch/hour: 274.11

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Brachydeuterus auritus	114.14	3137	41.64	795
Priacanthus arenatus	29.56	838	10.78	792
Pagellus bellottii	21.24	649	7.75	793
Boops boops	18.83	1087	6.87	791
Alloteuthis africana	18.39	2387	6.71	
Dentex angolensis	14.18	547	5.17	794
Trachurus trecae	12.97	432	4.73	796
Fistularia tabacaria	10.89	88	3.97	
J E L L Y F I S H	7.66	5	2.80	
Dentex congoensis	4.98	118	1.82	790
Sphyraena sp				
hyraena	4.71	22	1.72	
Pseudupeneus prayensis	3.01	49	1.10	
Caranx crysos	2.79	11	1.02	
Lagocephalus laevigatus	2.79	11	1.02	
Balistes capriscus	2.14	11	0.78	
Grammoplites gruveli	1.42	55	0.52	
Citharus linguatula	1.20	16	0.44	
Sepia officinalis hierredda	0.66	11	0.24	
Saurida brasiliensis	0.66	38	0.24	
Chelidonichthys lucerna	0.55	16	0.20	
Stephanolepis hispidus	0.44	5	0.16	
Microchirus frechkopi	0.44	22	0.16	
Trichiurus lepturus	0.44	5	0.16	
Total	274.11		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 156
DATE :06/06/2007 GEAR TYPE: BT NO: 18 POSITION:Lat N 4°43.21
start stop duration Lon W 2°42.97
TIME :15:17:37 15:37:59 20.4 (min) Purpose : 3
LOG : 2835.97 2836.97 1.0 Region : 2600
FDEPTH: 77 77 Gear cond.: 0
BDEPTH: 77 77 Validity : 0
Towing dir: 0° Wire out : 220 m Speed : 2.9 kn
Sorted : 63 Total catch: 63.40 Catch/hour: 186.75

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Dentex congoensis	66.42	1599	35.57	797
Dentex angolensis	54.93	804	29.42	798
Priacanthus arenatus	27.98	898	14.98	801
Pagellus bellottii	15.46	436	8.28	799
Pseudupeneus prayensis	8.54	82	4.57	800
Fistularia petimba	3.80	24	2.03	
Dentex canariensis	2.83	9	1.51	
Zeus faber	1.47	6	0.79	
Dentex gibbosus	1.38	12	0.74	
Raja miraletus	1.15	3	0.62	
Alloteuthis africana	1.06	12	0.57	
Dactylopterus volitans	0.68	9	0.36	
Brachydeuterus auritus	0.32	6	0.17	
Trachurus trecae	0.29	12	0.16	
Chelidonichthys gabonensis	0.27	3	0.14	
Chaetodon marcellae	0.15	3	0.08	
Total	186.75		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 157
DATE :06/06/2007 GEAR TYPE: BT NO: 18 POSITION:Lat N 4°53.34
start stop duration Lon W 2°40.13
TIME :17:06:02 17:26:15 20.2 (min) Purpose : 3
LOG : 2848.45 2849.47 1.0 Region : 2600
FDEPTH: 47 48 Gear cond.: 0
BDEPTH: 47 48 Validity : 0
Towing dir: 0° Wire out : 140 m Speed : 3.0 kn
Sorted : 61 Total catch: 60.66 Catch/hour: 180.00

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Brachydeuterus auritus	50.45	1537	28.03	807
Pomadasys incisus	34.12	442	18.96	802
Pagellus bellottii	24.48	315	13.60	806
Pseudupeneus prayensis	24.33	332	13.52	803
Selene dorsalis	8.90	95	4.95	805
Cymbium cymbium	4.42	6	2.46	
Selar crumenophthalmus	4.33	18	2.41	
Sphyraena guachancho	3.80	24	2.11	
Priacanthus arenatus	3.50	62	1.95	804
Trichiurus lepturus	3.12	45	1.73	
Chloroscombrus chrysurus	2.31	36	1.29	
Stromateus fiatola	2.26	3	1.25	
Raja miraletus	2.11	6	1.17	
Fistularia petimba	2.08	12	1.15	
Galeoides decadactylus	1.75	24	0.97	
Dentex angolensis	1.39	6	0.77	
Octopus vulgaris	1.28	3	0.71	
Balistes capriscus	1.01	6	0.56	
Penaeus notialis	0.98	33	0.54	
Psettodes belcheri	0.86	3	0.48	
Sardinella maderensis	0.83	21	0.46	
Dicologoglossa hexophthalma	0.74	12	0.41	
J E L L Y F I S H	0.50	3	0.28	
Eucinostomus melanopterus	0.45	3	0.25	
Total	180.00		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 158
DATE :07/06/2007 GEAR TYPE: PT NO: 2 POSITION:Lat N 4°46.79
start stop duration Lon W 2°25.69
TIME :04:06:40 04:27:28 20.8 (min) Purpose : 1
LOG : 2902.97 2904.80 1.8 Region : 2600
FDEPTH: 28 27 Gear cond.: 0
BDEPTH: 55 55 Validity : 0
Towing dir: 0° Wire out : 120 m Speed : 5.3 kn
Sorted : 125 Total catch: 124.84 Catch/hour: 360.12

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Sardinella aurita	137.02	2146	38.05	810
Brachydeuterus auritus	94.33	3715	26.19	811
Trachurus trecae	38.22	1050	10.61	812
Chloroscombrus chrysurus	27.12	329	7.53	813
Decapterus punctatus	14.91	649	4.14	808
Sphyraena sphyraena	14.22	95	3.95	809
Sardinella maderensis	14.13	104	3.93	814
Selar crumenophthalmus	10.24	32	2.84	
Saurida brasiliensis	4.44	1353	1.23	
Trachinotus ovatus	1.64	6	0.46	
Alloteuthis africana	1.64	288	0.46	
Trichiurus lepturus	1.10	9	0.30	
Boops boops	0.58	20	0.16	
Selene dorsalis	0.52	3	0.14	
Total	360.12		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 159
DATE :07/06/2007 GEAR TYPE: BT NO: 18 POSITION:Lat N 4°49.77
start stop duration Lon W 2°17.29
TIME :06:22:23 06:44:10 21.8 (min) Purpose : 3
LOG : 2915.52 2916.84 1.3 Region : 2600
FDEPTH: 27 27 Gear cond.: 0
BDEPTH: 27 27 Validity : 0
Towing dir: 0° Wire out : 120 m Speed : 3.7 kn
Sorted : 138 Total catch: 137.69 Catch/hour: 379.49

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Engraulis encrasicolus	271.47	51633	71.54	816
Sphyraena guachancho	31.69	69	8.35	819
Selene dorsalis	24.12	69	6.35	815
Ephippion guttifer	11.85	3	3.12	
Elops lacerta	9.98	36	2.63	820
J E L L Y F I S H	6.48	28	1.71	
Chloroscombrus chrysurus	6.37	110	1.68	817
Brachydeuterus auritus	5.35	430	1.41	818
Scomberomorus tritor	3.61	3	0.95	
Caranx hippos	2.73	22	0.72	
Drepane africana	2.07	11	0.54	
Alectis alexandrinus	1.07	6	0.28	
Selar crumenophthalmus	0.55	6	0.15	
Caranx crysos	0.50	3	0.13	
Sardinella maderensis	0.50	3	0.13	
Calappa sp.	0.39	3	0.10	
Panulirus regius	0.28	3	0.07	
Eucinostomus melanopterus	0.19	3	0.05	
Sepia officinalis hierredda	0.14	30	0.04	
Sardinella aurita	0.11	17	0.03	
Decapterus punctatus	0.06	6	0.01	
Total	379.49		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 160
DATE :07/06/2007 GEAR TYPE: BT NO: 18 POSITION:Lat N 4°48.33
start stop duration Lon W 2°18.42
TIME :07:24:30 07:53:08 28.6 (min) Purpose : 3
LOG : 2920.27 2921.52 1.3 Region : 2600
FDEPTH: 41 43 Gear cond.: 0
BDEPTH: 41 43 Validity : 0
Towing dir: 0° Wire out : 150 m Speed : 2.6 kn
Sorted : 26 Total catch: 149.04 Catch/hour: 312.23

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Brachydeuterus auritus	129.47	4242	41.47	821
Galeoides decadactylus	38.76	193	12.41	822
Raja miraletus	35.36	101	11.33	
Selene dorsalis	17.20	88	5.51	824
Trichiurus lepturus	16.84	184	5.39	
Pseudotolithus typus	13.24	25	4.24	823
Cynoponticus ferox	12.88	17	4.13	
Penaeus notialis	11.90	184	3.81	
Bathysolea sp.	7.71	184	2.47	
Dicologoglossa cuneata	6.96	59	2.23	
Perulibatrachus elminensis	3.77	17	1.21	
Citharus linguatula	3.77	193	1.21	
Sepia officinalis hierredda	3.10	34	0.99	
Grammoplites gruveli	2.77	126	0.89	
Scyllarides herklotsii	1.59	277	0.51	
Sphyraena guachancho	1.26	17	0.40	
Epinephelus aeneus	1.22	2	0.39	
J E L L Y F I S H	0.84	25	0.27	
Lagocephalus laevigatus	0.67	8	0.21	
Pomadasys incisus	0.59	8	0.19	
Starfish	0.50	2	0.16	
Lutjanus fulgens	0.44	2	0.14	
Squilla mantis	0.42	25	0.13	
Pteroscion peli	0.42	8	0.13	
Dentex gibbosus	0.31	2	0.10	
Torpedo torpedo	0.25	8	0.08	
Total	312.23		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 161
DATE :07/06/2007 GEAR TYPE: BT NO: 18 POSITION:Lat N 4°45.14
start stop duration Lon W 2°20.64
TIME :08:50:57 09:22:02 31.1 (min) Purpose : 3
LOG : 2926.52 2928.22 1.7 Region : 2600
FDEPTH: 58 51 Gear cond.: 0
BDEPTH: 58 51 Validity : 0
Towing dir: 0° Wire out : 200 m Speed : 3.3 kn
Sorted : 61 Total catch: 273.85 Catch/hour: 528.84

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Brachydeuterus auritus	341.09	0	64.50	
Trachurus trecae	38.33	0	7.25	
Pagellus bellottii	27.11	0	5.13	
Raja miraletus	19.04	52	3.60	
Sphyraena guachancho	17.03	0	3.22	
Sepia officinalis hierredda	12.61	17	2.38	
Torpedo torpedo	10.52	17	1.99	
Sardinella aurita	10.25	0	1.94	
Selar crumenophthalmus	10.18	52	1.92	
Boops boops	10.08	0	1.91	
Decapterus punctatus	6.95	0	1.31	
Pseudupeneus prayensis	6.87	0	1.30	
Grammoplites gruveli	3.57	122	0.68	
Epinephelus aeneus	3.13	10	0.59	
Brotula barbata	2.74	8	0.52	
Fistularia petimba	2.70	10	0.51	
Balistes capriscus	2.61	10	0.49	
Dicologoglossa cuneata	2.26	17	0.43	
Saurida brasiliensis	1.74	340	0.33	
Total	528.84		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 162
DATE :07/06/2007 GEAR TYPE: BT NO: 18 POSITION:Lat N 4°36.29
start stop duration Lon W 2°19.09
TIME :11:22:28 11:53:03 30.6 (min) Purpose : 3
LOG : 2944.85 2947.44 2.6 Region : 2600
FDEPTH: 83 80 Gear cond.: 0
BDEPTH: 83 80 Validity : 0
Towing dir: 0° Wire out : 250 m Speed : 5.1 kn
Sorted : 93 Total catch: 165.08 Catch/hour: 323.79

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Dentex congoensis	73.28	1683	22.63	831
Trachurus trecae	62.61	2032	19.34	829
Boops boops	61.78	1349	19.08	832
Dentex angolensis	32.27	492	9.96	830
Sepia officinalis hierredda	20.26	24	6.26	
Sardinella aurita	16.57	516	5.12	836
Scomber japonicus	13.91	204	4.29	835
Priacanthus arenatus	13.42	416	4.14	834
Dentex canariensis	8.79	27	2.71	
Pagellus bellottii	7.75	312	2.39	833
Mustelus mustelus	4.12	2	1.27	
Fistularia petimba	3.57	20	1.10	
Dentex gibbosus	2.06	4	0.64	
Pseudupeneus prayensis	1.16	14	0.36	
Ariomma bondi	0.75	51	0.23	
Chelidonichthys gabonensis	0.75	27	0.23	
Alloteuthis africana	0.45	202	0.14	
Chaetodon marcellae	0.31	8	0.10	
Total	323.79		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 163
DATE :07/06/2007 GEAR TYPE: BT NO: 18 POSITION:Lat N 4°42.63
start stop duration Lon W 1°59.91
TIME :14:06:36 14:26:49 20.2 (min) Purpose : 3
LOG : 2967.55 2968.54 1.0 Region : 2600
FDEPTH: 37 35 Gear cond.: 0
BDEPTH: 37 35 Validity : 0
Towing dir: 0° Wire out : 120 m Speed : 2.9 kn
Sorted : 98 Total catch: 98.05 Catch/hour: 290.95

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Cynoponticus ferox	169.14	74	58.13	
J E L L Y F I S H	27.15	237	9.33	
Pteroscion peli	18.28	2329	6.28	838
Brachydeuterus auritus	17.18	730	5.91	837
Dasyatis marmorata	11.42	3	3.93	
Penaeus notialis	9.05	1932	3.11	
Galeoides decadactylus	8.04	21	2.76	
Pomadasys peroteti	7.21	9	2.48	
Epinephelus aeneus	5.55	3	1.91	
Parasudis fraser-bruenneri	4.09	175	1.41	
Pseudotolithus senegalensis	2.17	21	0.74	
Lagocephalus laevigatus	2.02	62	0.69	
Cynoglossus senegalensis	1.93	21	0.66	
Trichiurus lepturus	1.69	30	0.58	
APOGONIDAE	1.28	107	0.44	
SOLEIDAE	1.04	9	0.36	
Priacanthus arenatus	1.01	3	0.35	
Pegusa lascaris	0.80	9	0.28	
Perulibatrachus elminensis	0.71	24	0.24	
Pseudupeneus prayensis	0.39	3	0.13	
Selene dorsalis	0.33	98	0.11	
Chaetodon robustus	0.15	3	0.05	
Pomadasys incisus	0.15	3	0.05	
Antennarius occidentalis	0.09	9	0.03	
Alectis alexandrinus	0.06	6	0.02	
Blennius normani	0.03	3	0.01	
Total	290.95		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 164
DATE :07/06/2007 GEAR TYPE: BT NO: 18 POSITION:Lat N 4°33.43
start stop duration Lon W 2°1.71
TIME :16:01:52 16:22:00 20.1 (min) Purpose : 3
LOG : 2979.19 2980.20 1.0 Region : 2600
FDEPTH: 75 75 Gear cond.: 0
BDEPTH: 75 75 Validity : 0
Towing dir: 0° Wire out : 220 m Speed : 3.0 kn
Sorted : 181 Total catch: 363.91 Catch/hour: 1084.14

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Dentex angolensis	613.70	8056	56.61	840
Trachurus trecae	286.00	12837	26.38	839
Sardinella aurita	66.14	2568	6.10	841
Dentex congoensis	29.61	1046	2.73	843
Fistularia petimba	17.76	48	1.64	
Priacanthus arenatus	15.79	426	1.46	844
Pagellus bellottii	14.48	500	1.34	842
Raja miraletus	8.94	18	0.82	
Zeus faber	8.34	30	0.77	
Sepia officinalis hierredda	6.41	9	0.59	
J E L L Y F I S H	5.30	6	0.49	
Pseudupeneus prayensis	3.34	36	0.31	
Pomadasys jubelini	2.98	6	0.27	
Brotula barbata	2.20	6	0.20	
Dentex canariensis	0.89	6	0.08	
Chelidonichthys gabonensis	0.89	24	0.08	
Ariomma bondi	0.71	6	0.07	
Pagrus caeruleostictus	0.66	6	0.06	
Total	1084.14		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 165
DATE :07/06/2007 GEAR TYPE: BT NO: 18 POSITION:Lat N 4°26.69
start stop duration Lon W 2°2.48
TIME :18:09:11 18:40:40 31.5 (min) Purpose : 3
LOG : 2988.30 2989.83 1.5 Region : 2600
FDEPTH: 108 108 Gear cond.: 0
BDEPTH: 108 108 Validity : 0
Towing dir: 0° Wire out : 320 m Speed : 2.9 kn
Sorted : 68 Total catch: 326.70 Catch/hour: 622.48

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Trachurus trecae	262.18	6377	42.12	845
Boops boops	140.23	3418	22.53	846
Dentex angolensis	106.51	436	17.11	849
Dentex congoensis	25.91	297	4.16	850
Ariomma bondi	18.90	412	3.04	847
Scomber japonicus	17.99	305	2.89	848
Umbrina canariensis	16.77	53	2.69	
Brotula barbata	7.55	15	1.21	
Sepia officinalis hierredda	6.86	15	1.10	
Raja miraletus	4.19	15	0.67	
Zeus faber	4.12	15	0.66	
Pagellus bellottii	3.89	76	0.62	
Chelidonichthys gabonensis	2.67	30	0.43	
Pentheroscion mbizi	1.45	8	0.23	
Illex coindetii	1.30	15	0.21	
Uranoscopus cadenati	1.22	8	0.20	
Priacanthus arenatus	0.76	8	0.12	
Total	622.48		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 166
DATE :07/06/2007 GEAR TYPE: BT NO: 18 POSITION:Lat N 4°14.29
start stop duration Lon W 1°46.88
TIME :23:04:53 23:35:30 30.6 (min) Purpose : 3
LOG : 3018.53 3020.23 1.7 Region : 2600
FDEPTH: 280 261 Gear cond.: 0
BDEPTH: 280 261 Validity : 0
Towing dir: 0° Wire out : 800 m Speed : 3.3 kn
Sorted : 49 Total catch: 649.81 Catch/hour: 1274.14

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Zenion longipinnis	946.08	63065	74.25	
Chlorophthalmus atlanticus	146.82	4143	11.52	
Squalus blainvillei	61.96	43	4.86	
Illex coindetii	44.12	467	3.46	
Peristedion cataphractum	30.39	196	2.39	
Raja clavata	21.08	25	1.65	
Solenocera africana	8.10	1912	0.64	
Nezumia aequalis	3.18	25	0.25	
Pontinus accraensis	2.94	75	0.23	
Centrophorus granulosus	2.84	2	0.22	
Malacocephalus laevis	2.71	49	0.21	
Merluccius polli	2.31	6	0.18	
Erythrocles monodi	1.18	2	0.09	
Etmopterus pusillus	0.43	2	0.03	
Total	1274.14		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 167
DATE :08/06/2007 GEAR TYPE: BT NO: 18 POSITION:Lat N 4°21.16
start stop duration Lon W 1°43.77
TIME :06:57:15 07:12:12 15.0 (min) Purpose : 3
LOG : 3046.31 3046.99 0.7 Region : 2600
FDEPTH: 94 91 Gear cond.: 0
BDEPTH: 94 91 Validity : 0
Towing dir: 0° Wire out : 280 m Speed : 2.7 kn
Sorted : 54 Total catch: 145.47 Catch/hour: 583.83

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Pagellus bellottii	373.24	8785	63.93	852
Boops boops	89.82	5775	15.38	853
Trachurus trecae	27.61	454	4.73	854
Dentex angolensis	13.97	281	2.39	851
Dentex canariensis	13.85	16	2.37	
Fistularia petimba	10.64	40	1.82	
Sepia officinalis hierredda	10.35	12	1.77	
Mustelus mustelus	7.83	4	1.34	
Pseudupeneus prayensis	6.54	60	1.12	
Sargocentron hastatus	6.02	48	1.03	
Dentex gibbosus	5.54	8	0.95	
Illex coindetii	4.01	40	0.69	
Umbrina canariensis	3.13	8	0.54	
Anthias anthias	1.93	148	0.33	
Pagrus caeruleostictus	1.85	8	0.32	
Serranus accraensis	1.81	8	0.31	
Raja miraletus	1.69	4	0.29	
Ariomma bondi	1.53	28	0.26	
Zeus faber	1.32	12	0.23	
Peristedion cataphractum	0.80	48	0.14	
Citharus linguatula	0.52	12	0.09	
Total	583.99		100.03	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 168
DATE :08/06/2007 GEAR TYPE: BT NO: 18 POSITION:Lat N 4°42.96
start stop duration Lon W 1°44.19
TIME :09:45:29 10:16:02 30.5 (min) Purpose : 3
LOG : 3069.53 3071.20 1.7 Region : 2600
FDEPTH: 47 45 Gear cond.: 0
BDEPTH: 47 45 Validity : 0
Towing dir: 0° Wire out : 150 m Speed : 3.3 kn
Sorted : 84 Total catch: 83.52 Catch/hour: 164.09

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Pagellus bellottii	77.60	1479	47.29	855
Sphyraena guachancho	21.41	187	13.05	859
Alectis alexandrinus	21.22	10	12.93	
Selene dorsalis	13.65	57	8.32	858
Brachydeuterus auritus	8.82	281	5.38	856
Sepia officinalis hierredda	2.77	4	1.69	
Octopus vulgaris	1.96	2	1.20	
Illex coindetii	1.96	26	1.20	
Epinephelus aeneus	1.77	4	1.08	
Fistularia petimba	1.63	6	0.99	
Monolene microstoma	1.34	16	0.81	
Caranx crysos	1.20	2	0.73	
Chloroscombrus chrysurus	1.18	16	0.72	
Aluterus heudelotii	0.94	2	0.57	
Pseudupeneus prayensis	0.90	14	0.55	
Pagrus caeruleostictus	0.90	8	0.55	
Raja miraletus	0.84	2	0.51	
Dactylopterus volitans	0.77	4	0.47	
Torpedo torpedo	0.65	2	0.40	
Decapterus punctatus	0.63	35	0.38	857
Trachurus trachurus	0.41	6	0.25	
Boops boops	0.39	22	0.24	
Pomadasys incisus	0.31	2	0.19	
Loligo vulgaris	0.31	4	0.19	
Saurida brasiliensis	0.24	41	0.14	
Sardinella aurita	0.18	16	0.11	
Grammoplites gruveli	0.08	4	0.05	
Total	164.09		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 169
DATE :08/06/2007 GEAR TYPE: BT NO: 18 POSITION:Lat N 4°56.07
start stop duration Lon W 1°34.00
TIME :12:31:43 12:51:53 20.2 (min) Purpose : 3
LOG : 3091.37 3092.43 1.1 Region : 2600
FDEPTH: 26 26 Gear cond.: 0
BDEPTH: 26 26 Validity : 0
Towing dir: 0° Wire out : 125 m Speed : 3.1 kn
Sorted : 57 Total catch: 57.07 Catch/hour: 169.94

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Sphyraena guachancho	57.02	1078	33.56	861
Brachydeuterus auritus	48.83	4577	28.74	860
Galeoides decadactylus	12.09	125	7.11	866
Ilisha africana	9.47	622	5.57	864
Chloroscombrus chrysurus	8.28	140	4.87	863
Engraulis encrasicolus	7.09	1676	4.17	862
Selene dorsalis	5.33	220	3.14	865
Penaeus notialis	3.39	95	2.00	
Pseudotolithus senegalensis	3.31	42	1.94	
Raja miraletus	2.92	9	1.72	
Drepane africana	1.64	18	0.96	
Pteroscion peli	1.52	77	0.89	
Trichiurus lepturus	1.31	63	0.77	
Cynoglossus senegalensis	1.13	9	0.67	
Ephippion guttifer	1.07	3	0.63	
Scomberomorus tritor	0.95	18	0.56	
Sepia officinalis hierredda	0.86	3	0.51	
Elops lacerta	0.57	3	0.33	
Portunus validus	0.48	3	0.28	
Antennarius pardalis	0.39	3	0.23	
Pagellus bellottii	0.39	3	0.23	
Caranx crysos	0.30	3	0.18	
Sardinella rouxi	0.30	18	0.18	
Lagocephalus laevigatus	0.24	12	0.14	
Calappa rubroguttata	0.21	3	0.12	
Squilla mantis	0.21	9	0.12	
Sardinella maderensis	0.18	33	0.11	
C R U S T A C E A N S	0.15	3	0.09	
Pseudupeneus prayensis	0.09	3	0.05	
Alectis alexandrinus	0.06	6	0.04	
Callinectes amnicola	0.06	3	0.04	
Pentanemus quinquarius	0.06	3	0.04	
Sardinella aurita	0.03	6	0.02	
Squilla sp.	0.03	3	0.02	
Total	169.94		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 170
DATE :08/06/2007 GEAR TYPE: BT NO: 18 POSITION:Lat N 4°47.56
start stop duration Lon W 1°25.41
TIME :15:30:23 15:50:57 20.6 (min) Purpose : 3
LOG : 3114.08 3115.13 1.1 Region : 2600
FDEPTH: 41 40 Gear cond.: 0
BDEPTH: 41 40 Validity : 0
Towing dir: 0° Wire out : 120 m Speed : 3.1 kn
Sorted : 50 Total catch: 49.78 Catch/hour: 145.20

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Pagellus bellottii	120.61	1313	83.07	867
Sepia officinalis hierredda	12.51	20	8.62	
Trachinocephalus myops	2.80	9	1.93	
Lagocephalus laevigatus	2.04	9	1.41	
Chloroscombrus chrysurus	1.87	26	1.29	
Pagrus caeruleostictus	1.43	12	0.98	
Pseudupeneus prayensis	1.25	9	0.86	
Syacium micrurum	0.85	9	0.58	
Dactylopterus volitans	0.61	3	0.42	
Caranx crysos	0.44	3	0.30	
Fistularia petimba	0.44	3	0.30	
Xyrichtys novacula	0.20	3	0.14	
Bothus podas africanus	0.15	3	0.10	
Total	145.20		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 171
DATE :08/06/2007 GEAR TYPE: BT NO: 18 POSITION:Lat N 4°32.91
start stop duration Lon W 1°23.28
TIME :17:49:50 18:23:21 33.5 (min) Purpose : 3
LOG : 3131.29 3132.71 1.4 Region : 2600
FDEPTH: 57 56 Gear cond.: 0
BDEPTH: 57 56 Validity : 0
Towing dir: 0° Wire out : 165 m Speed : 2.5 kn
Sorted : 45 Total catch: 45.18 Catch/hour: 80.87

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Chloroscombrus chrysurus	14.96	125	18.50	869
Dactylopterus volitans	10.47	48	12.95	
Balistes capriscus	8.84	14	10.93	
Pseudupeneus prayensis	8.52	66	10.54	870
Pagellus bellottii	7.95	88	9.83	868
Mustelus mustelus	5.28	4	6.53	
Octopus vulgaris	3.76	2	4.65	
Sepia officinalis hierredda	3.60	7	4.45	
Fistularia petimba	2.95	18	3.65	
Citharus linguatula	2.77	39	3.43	
Aluterus monoceros	2.54	2	3.14	
Dentex gibbosus	1.93	11	2.39	
Lagocephalus laevigatus	1.63	5	2.01	
Chelidonichthys gabonensis	1.11	11	1.37	
Raja miraletus	0.93	2	1.15	
Zeus faber	0.86	4	1.06	
Alloteuthis africana	0.84	601	1.04	
Loligo vulgaris	0.68	9	0.84	
Aluterus heudelotii	0.63	2	0.77	
Trachinocephalus myops	0.54	4	0.66	
Grammoplites gruveli	0.07	2	0.09	
Total	80.87		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 172
DATE :09/06/2007 GEAR TYPE: BT NO: 18 POSITION:Lat N 4°28.17
start stop duration Lon W 1°0.43
TIME :06:27:00 06:58:30 31.5 (min) Purpose : 3
LOG : 3188.16 3189.75 1.6 Region : 2600
FDEPTH: 70 70 Gear cond.: 0
BDEPTH: 70 70 Validity : 0
Towing dir: 0° Wire out : 210 m Speed : 3.0 kn
Sorted : 89 Total catch: 1320.77 Catch/hour: 2515.75

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Chromis cadenati	1669.49	18074	66.36	
Priacanthus arenatus	397.24	37688	15.79	871
Pseudupeneus prayensis	130.50	1065	5.19	875
Raja miraletus	48.32	82	1.92	
Dactylopterus volitans	41.77	354	1.66	
Umbrina canariensis	40.40	137	1.61	
Sardinella aurita	29.75	846	1.18	874
Sphoeroides pachgaster	29.49	109	1.17	
Sargocentron hastatus	29.22	190	1.16	
Dentex canariensis	25.43	61	1.01	872
Apsilus fuscus	22.38	88	0.89	
Sepia officinalis hierredda	9.87	10	0.39	
Lutjanus fulgens	8.65	13	0.34	
Pagrus caeruleostictus	7.05	30	0.28	873
Epinephelus aeneus	6.29	2	0.25	
Dentex gibbosus	5.73	27	0.23	
Trachinocephalus myops	4.91	82	0.20	
Chelidonichthys lastoviza	4.91	53	0.20	
Fistularia petimba	4.36	27	0.17	
Total	2515.75		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 173
DATE :09/06/2007 GEAR TYPE: PT NO: 2 POSITION:Lat N 4°43.06
start stop duration Lon W 1°6.95
TIME :09:28:38 10:05:33 36.9 (min) Purpose : 1
LOG : 3211.40 3214.08 2.7 Region : 2600
FDEPTH: 20 25 Gear cond.: 0
BDEPTH: 46 46 Validity : 0
Towing dir: 0° Wire out : 100 m Speed : 4.4 kn
Sorted : 2 Total catch: 1.58 Catch/hour: 2.57

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Ablennes hians	2.57	3	100.00	
Total	2.57		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 174
DATE :09/06/2007 GEAR TYPE: BT NO: 18 POSITION:Lat N 4°50.19
start stop duration Lon W 1°8.07
TIME :11:43:39 12:03:44 20.1 (min) Purpose : 3
LOG : 3226.79 3227.86 1.1 Region : 2600
FDEPTH: 41 40 Gear cond.: 0
BDEPTH: 41 40 Validity : 0
Towing dir: 0° Wire out : 120 m Speed : 3.2 kn
Sorted : 98 Total catch: 98.06 Catch/hour: 292.86

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Chloroscombrus chrysurus	216.53	2461	73.93	876
Selar crumenophthalmus	19.86	137	6.78	878
Pagellus bellottii	19.23	215	6.57	877
Caranx crysos	17.92	36	6.12	
Pagrus caeruleostictus	12.16	36	4.15	
Sepia officinalis hierredda	3.14	3	1.07	
Sphyraena sphyraena	2.21	9	0.75	
Dentex canariensis	0.96	3	0.33	
Sardinella maderensis	0.87	6	0.30	
Total	292.86		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 175
DATE :09/06/2007 GEAR TYPE: BT NO: 18 POSITION:Lat N 5°5.38
start stop duration Lon W 1°7.90
TIME :14:19:15 14:39:19 20.1 (min) Purpose : 3
LOG : 3246.43 3247.45 1.0 Region : 2600
FDEPTH: 22 21 Gear cond.: 0
BDEPTH: 22 21 Validity : 0
Towing dir: 0° Wire out : 120 m Speed : 3.0 kn
Sorted : 44 Total catch: 44.41 Catch/hour: 132.77

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Sphyraena guachancho	32.59	1046	24.54	880
Chloroscombrus chrysurus	32.14	1025	24.21	879
Brachydeuterus auritus	30.04	1650	22.63	881
Pagrus caeruleostictus	11.09	191	8.35	882
J E L L Y F I S H	5.89	30	4.44	
Selene dorsalis	5.32	117	4.01	884
Sardinella maderensis	2.51	96	1.89	883
Galeoides decadactylus	2.27	51	1.71	
Decapterus punctatus	2.09	51	1.58	
Pseudotolithus senegalensis	1.46	9	1.10	
Alectis alexandrinus	1.02	6	0.77	
Selar crumenophthalmus	1.02	36	0.77	
Elops lacerta	0.99	6	0.74	
Scomberomorus tritor	0.96	6	0.72	
Pagellus bellottii	0.93	9	0.70	
Caranx crysos	0.54	6	0.41	
Pomadasys incisus	0.45	24	0.34	
Pteroscion peli	0.39	15	0.29	
Aulopus cadenati	0.33	6	0.25	
Drepane africana	0.30	3	0.23	
Pseudupeneus prayensis	0.27	9	0.20	
Sardinella rouxi	0.18	9	0.14	
Total	132.77		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 176
DATE :09/06/2007 GEAR TYPE: BT NO: 18 POSITION:Lat N 5°4.50
start stop duration Lon W 0°50.26
TIME :17:44:49 18:07:09 22.3 (min) Purpose : 3
LOG : 3275.40 3276.53 1.1 Region : 2600
FDEPTH: 29 28 Gear cond.: 0
BDEPTH: 29 28 Validity : 0
Towing dir: 0° Wire out : 120 m Speed : 3.0 kn
Sorted : 51 Total catch: 50.77 Catch/hour: 136.42

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Engraulis encrasicolus	54.81	12575	40.18	885
Brachydeuterus auritus	23.51	637	17.23	886
Pagellus bellottii	11.77	73	8.63	890
Chloroscombrus chrysurus	9.03	105	6.62	891
Decapterus punctatus	8.76	255	6.42	889
Sphyraena guachancho	8.11	38	5.95	888
Sardinella maderensis	7.01	887	5.14	887
Selar crumenophthalmus	3.01	11	2.21	
Lethrinus atlanticus	1.85	3	1.36	
Selene dorsalis	1.77	16	1.30	
Elops lacerta	1.67	3	1.22	
Pomadasys incisus	1.21	5	0.89	
Sepia officinalis hierredda	1.18	3	0.87	
Pagrus caeruleostictus	0.89	8	0.65	
Trachinocephalus myops	0.70	5	0.51	
Scomberomorus tritor	0.64	3	0.47	
Pseudupeneus prayensis	0.48	8	0.35	
Total	136.42		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 177
DATE :10/06/2007 GEAR TYPE: BT NO: 18 POSITION:Lat N 4°58.36
start stop duration Lon W 0°28.47
TIME :06:29:48 07:01:28 31.7 (min) Purpose : 3
LOG : 3350.83 3352.48 1.7 Region : 2600
FDEPTH: 88 88 Gear cond.: 0
BDEPTH: 88 88 Validity : 0
Towing dir: 0° Wire out : 300 m Speed : 3.1 kn
Sorted : 71 Total catch: 477.03 Catch/hour: 903.75

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Dentex congoensis	578.17	12841	63.98	892
Fistularia petimba	105.90	320	11.72	
Umbrina canariensis	71.80	271	7.94	894
Trachurus trecae	49.75	1326	5.50	895
Dentex angolensis	29.06	517	3.22	893
Dentex canariensis	12.22	27	1.35	896
Sepia officinalis hierredda	10.89	17	1.21	
Lepidotrigla carolae	8.75	186	0.97	
Citharus linguatula	7.39	25	0.82	
Boops boops	6.27	123	0.69	
Sphoeroides pachgaster	3.69	25	0.41	
Loligo vulgaris	3.45	49	0.38	
Zeus faber	3.09	13	0.34	
Ariomma bondi	2.82	457	0.31	
Pseudupeneus prayensis	2.33	87	0.26	
Pagrus caeruleostictus	2.24	8	0.25	
Priacanthus arenatus	1.97	49	0.22	
Pentheroscion mbizi	1.86	13	0.21	
Sardinella aurita	1.35	13	0.15	
Alloteuthis africana	0.74	87	0.08	
Total	903.75		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 178
DATE :10/06/2007 GEAR TYPE: BT NO: 18 POSITION:Lat N 5°5.51
start stop duration Lon W 0°32.15
TIME :08:24:04 08:45:09 21.1 (min) Purpose : 3
LOG : 3362.11 3363.15 1.0 Region : 2600
FDEPTH: 46 46 Gear cond.: 0
BDEPTH: 46 46 Validity : 0
Towing dir: 0° Wire out : 150 m Speed : 2.9 kn
Sorted : 68 Total catch: 67.53 Catch/hour: 192.12

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Sphyraena guachancho	44.95	88	23.40	901
Pseudupeneus prayensis	30.16	356	15.70	899
Selene dorsalis	24.61	111	12.81	900
Pomadasys incisus	15.14	85	7.88	
Caranx crysos	11.89	20	6.19	
Pagellus bellottii	9.53	114	4.96	903
Pagrus caeruleostictus	9.27	63	4.83	902
Chilomycterus reticulatus	7.43	3	3.86	
Brachydeuterus auritus	7.06	137	3.67	897
Fistularia petimba	3.33	17	1.73	
Lagocephalus laevigatus	3.33	9	1.73	
Lutjanus fulgens	3.24	11	1.69	
Lethrinus atlanticus	3.19	11	1.66	
Lepidotrigla carolae	2.13	23	1.11	
Sepia officinalis hierredda	1.65	3	0.86	
Acanthurus monroviae	1.62	3	0.84	
Trachurus trecae	1.56	40	0.81	
Torpedo torpedo	1.48	3	0.77	
Citharus linguatula	1.45	23	0.76	
Trichiurus lepturus	1.37	31	0.71	
Trachinocephalus myops	1.19	3	0.62	
Dicologoglossa hexophthalma	1.02	26	0.53	
Dactylopterus volitans	1.00	6	0.52	
Umbrina canariensis	0.88	3	0.46	
Loligo vulgaris	0.77	9	0.40	
Decapterus punctatus	0.74	37	0.39	
Dentex canariensis	0.68	3	0.36	
Chloroscombrus chrysurus	0.60	6	0.31	
Priacanthus arenatus	0.46	3	0.24	
Chaetodon robustus	0.23	3	0.12	
Chromis cadenati	0.17	6	0.09	
Total	192.12		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 179
DATE :10/06/2007 GEAR TYPE: BT NO: 18 POSITION:Lat N 5°15.08
start stop duration Lon W 0°37.71
TIME :10:16:10 10:35:05 18.9 (min) Purpose : 3
LOG : 3375.52 3376.40 0.9 Region : 2600
FDEPTH: 22 20 Gear cond.: 0
BDEPTH: 22 20 Validity : 0
Towing dir: 0° Wire out : 100 m Speed : 2.8 kn
Sorted : 56 Total catch: 56.19 Catch/hour: 178.19

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Brachydeuterus auritus	32.19	3098	18.06	928
J E L L Y F I S H	23.50	16	13.19	
Lethrinus atlanticus	14.14	51	7.94	905
Chloroscombrus chrysurus	13.16	422	7.39	906
Dentex canariensis	11.86	82	6.66	907
Engraulis encrasicolus	10.37	2074	5.82	910
Pagrus caeruleostictus	8.56	76	4.81	908
Cymbium cymbium	7.36	3	4.13	
Elops lacerta	5.71	19	3.20	
Balistes punctatus	5.30	19	2.97	
Sepia officinalis hierredda	5.11	16	2.87	
Sphyraena guachancho	4.76	89	2.67	909
Acanthostracion quadricornis	4.73	25	2.65	
Pseudupeneus prayensis	4.06	73	2.28	927
Dasyatis margarita	3.17	6	1.78	
Dicologoglossa cuneata	2.38	10	1.33	
Galeoides decadactylus	2.32	38	1.30	
Aluterus heudelotii	2.22	6	1.25	
Balistes capriscus	2.09	6	1.17	
Stephanolepis hispidus	2.00	19	1.12	
Fistularia petimba	1.87	6	1.05	
Selene dorsalis	1.68	35	0.94	
Scorpaena scrofa	1.55	13	0.87	
Torpedo torpedo	1.40	3	0.78	
Pseudotolithus typus	1.30	6	0.73	
Epinephelus aeneus	1.24	6	0.69	
Scomberomorus tritor	0.51	6	0.28	
Trachurus trecae	0.48	19	0.27	
Trachinocephalus myops	0.48	3	0.27	
Acanthurus monroviae	0.41	3	0.23	
Alectis alexandrinus	0.41	29	0.23	
Drepane africana	0.41	3	0.23	
Chaetodipterus goreensis	0.41	3	0.23	
Decapterus punctatus	0.32	19	0.18	
Lutjanus fulgens	0.32	6	0.18	
Sardinella maderensis	0.25	16	0.14	
Chaetodon marcellae	0.19	3	0.11	
Total	178.19		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 180
DATE :10/06/2007 GEAR TYPE: PT NO: 7 POSITION:Lat N 5°22.52
start stop duration Lon W 0°24.35
TIME :12:26:08 12:46:20 20.2 (min) Purpose : 1
LOG : 3392.40 3393.67 1.3 Region : 2600
FDEPTH: 20 20 Gear cond.: 0
BDEPTH: 25 26 Validity : 0
Towing dir: 0° Wire out : 120 m Speed : 3.8 kn
Sorted : 45 Total catch: 44.73 Catch/hour: 132.86

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Engraulis encrasicolus	88.81	25372	66.85	914
Sardinella aurita	27.18	4354	20.46	912
Sphyraena guachancho	5.97	15	4.49	
J E L L Y F I S H	4.40	3	3.31	
Scomberomorus tritor	2.91	12	2.19	
Brachydeuterus auritus	2.05	184	1.54	913
Chloroscombrus chrysurus	0.68	15	0.51	
Fistularia petimba	0.62	3	0.47	
Decapterus punctatus	0.12	18	0.09	
Sepia officinalis hierredda	0.09	9	0.07	
Lagocephalus laevigatus	0.03	9	0.02	
Total	132.86		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 181
DATE :10/06/2007 GEAR TYPE: BT NO: 18 POSITION:Lat N 5°24.68
start stop duration Lon W 0°21.14
TIME :13:49:42 14:09:53 20.2 (min) Purpose : 3
LOG : 3400.23 3401.22 1.0 Region : 2600
FDEPTH: 24 22 Gear cond.: 0
BDEPTH: 24 22 Validity : 0
Towing dir: 0° Wire out : 120 m Speed : 3.0 kn
Sorted : 165 Total catch: 164.60 Catch/hour: 489.64

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Lutjanus goreensis	84.18	27	17.19	
Brachydeuterus auritus	46.11	14671	9.42	
Chloroscombrus chrysurus	43.28	863	8.84	919
J E L L Y F I S H	43.28	39	8.84	
Dentex canariensis	40.04	119	8.18	918
Lethrinus atlanticus	38.37	187	7.84	917
Chaetodipterus lippei	29.30	89	5.98	
Lutjanus fulgens	25.73	208	5.26	915
Pseudotolithus moorii	19.07	21	3.89	
Scorpaena angolensis	18.95	62	3.87	
Acanthostracion quadricornis	13.98	68	2.86	
Elops lacerta	9.16	3	1.87	
Ephippion guttifer	8.03	6	1.64	
Pseudupeneus prayensis	7.70	178	1.57	916
Galeoides decadactylus	6.22	27	1.27	
Dasyatis margarita	6.19	18	1.26	
Pagrus caeruleostictus	6.16	27	1.26	
APOGONIDAE	6.01	39	1.23	
Stephanolepis hispidus	5.65	27	1.15	
Balistes capriscus	3.90	42	0.80	
Balistes punctatus	3.87	33	0.79	
Decapterus punctatus	3.57	628	0.73	
Acanthurus monroviae	3.21	3	0.66	
Umbrina steindachneri	2.32	3	0.47	
Chaetodon robustus	1.78	45	0.36	
Drepane africana	1.70	3	0.35	
Fistularia tabacaria	1.67	3	0.34	
Scomberomorus tritor	1.67	9	0.34	
Cynoglossus senegalensis	1.55	15	0.32	
Caranx hippos	0.98	3	0.20	
Pomadasys incisus	0.89	15	0.18	
Plectorhinchus mediterraneus	0.86	6	0.18	
Alectis alexandrinus	0.83	12	0.17	
Sepia officinalis hierredda	0.65	3	0.13	
Selene dorsalis	0.62	15	0.13	
Sphyraena guachancho	0.59	0	0.12	
Epinephelus aeneus	0.45	3	0.09	
Holacanthus africanus	0.39	3	0.08	
Penaeus kerathurus	0.24	6	0.05	
Diodon holocanthus	0.18	6	0.04	
Dactylopterus volitans	0.15	3	0.03	
Canthigaster capistrata	0.15	3	0.03	
Remora remora	0.03	3	0.01	
Total	489.67		100.01	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 182
DATE :10/06/2007 GEAR TYPE: BT NO: 18 POSITION:Lat N 5°20.35
start stop duration Lon W 0°18.51
TIME :15:30:17 15:51:47 21.5 (min) Purpose : 3
LOG : 3408.00 3409.09 1.1 Region : 2600
FDEPTH: 40 41 Gear cond.: 0
BDEPTH: 40 41 Validity : 0
Towing dir: 0° Wire out : 120 m Speed : 3.0 kn
Sorted : 24 Total catch: 23.58 Catch/hour: 65.80

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Lagocephalus laevigatus	18.28	39	27.78	
Caranx crysos	10.33	14	15.69	
Scomberomorus tritor	9.77	6	14.84	
Alectis alexandrinus	7.31	22	11.11	
Fistularia petimba	4.47	17	6.79	
Pagellus bellottii	4.10	33	6.23	
Selene dorsalis	2.48	8	3.77	
Pagrus caeruleostictus	2.34	33	3.56	
Selar crumenophthalmus	1.79	3	2.71	
Pseudupeneus prayensis	1.62	14	2.46	
Stephanolepis hispidus	1.56	8	2.37	
Chaetodipterus lippei	0.98	3	1.48	
Balistes capriscus	0.31	3	0.47	
Syacium micrurum	0.28	8	0.42	
Epinephelus aeneus	0.20	3	0.30	
Total	65.80		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 183
DATE :10/06/2007 GEAR TYPE: BT NO: 18 POSITION:Lat N 5°16.10
start stop duration Lon W 0°16.31
TIME :16:55:10 17:15:19 20.2 (min) Purpose : 3
LOG : 3415.18 3416.22 1.0 Region : 2600
FDEPTH: 59 59 Gear cond.: 0
BDEPTH: 59 59 Validity : 0
Towing dir: 0° Wire out : 180 m Speed : 3.1 kn
Sorted : 94 Total catch: 94.42 Catch/hour: 281.15

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Decapterus punctatus	121.34	5541	43.16	921
Fistularia petimba	43.92	113	15.62	
Pseudupeneus prayensis	26.62	134	9.47	922
Sepia officinalis hierredda	19.74	21	7.02	
Pagellus bellottii	16.82	280	5.98	923
Alloteuthis africana	7.18	4401	2.55	
Octopus vulgaris	7.00	6	2.49	
Sardinella aurita	6.55	217	2.33	924
Raja miraletus	5.45	9	1.94	
Selar crumenophthalmus	4.67	15	1.66	
Brachydeuterus auritus	3.96	54	1.41	920
Sphyraena guachancho	2.77	6	0.98	
Lagocephalus laevigatus	2.77	6	0.98	
Priacanthus arenatus	2.29	12	0.82	
Zeus faber	2.26	6	0.80	
Lepidotrigla carolae	1.31	60	0.47	
Aluterus heudelotii	1.10	3	0.39	
Epinephelus aeneus	0.95	3	0.34	
Grammoplites gruveli	0.86	45	0.31	
Monolene microstoma	0.83	6	0.30	
Pagrus caeruleostictus	0.83	6	0.30	
Citharus linguatula	0.71	21	0.25	
Trichiurus lepturus	0.51	3	0.18	
Serranus accraensis	0.45	15	0.16	
Microchirus frechkopi	0.24	6	0.08	
Total	281.15		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 184
DATE :10/06/2007 GEAR TYPE: BT NO: 18 POSITION:Lat N 5°12.20
start stop duration Lon W 0°13.16
TIME :18:16:22 18:36:30 20.1 (min) Purpose : 3
LOG : 3423.19 3424.19 1.0 Region : 2600
FDEPTH: 108 100 Gear cond.: 0
BDEPTH: 108 100 Validity : 0
Towing dir: 0° Wire out : 300 m Speed : 3.0 kn
Sorted : 65 Total catch: 64.81 Catch/hour: 193.08

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Boops boops	116.63	0	60.41	
Priacanthus arenatus	26.81	0	13.89	
Fistularia petimba	12.21	24	6.33	
Pagellus bellottii	11.32	608	5.86	926
Trachurus trecae	6.88	0	3.56	
Sphoeroides pachgaster	4.68	21	2.42	
Ariomma bondi	3.96	152	2.05	925
Lepidotrigla carolae	3.63	60	1.88	
Zeus faber	2.00	6	1.03	
Decapterus punctatus	1.34	45	0.69	
Umbrina canariensis	0.89	6	0.46	
Raja miraletus	0.86	3	0.45	
Sepia officinalis hierredda	0.60	12	0.31	
Torpedo marmorata	0.51	3	0.26	
Loligo vulgaris	0.39	6	0.20	
Sardinella aurita	0.36	6	0.19	
Total	193.08		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 185
DATE :11/06/2007 GEAR TYPE: BT NO: 18 POSITION:Lat N 5°25.48
start stop duration Lon E 0°5.51
TIME :04:16:29 04:37:33 21.1 (min) Purpose : 3
LOG : 3469.49 3470.56 1.1 Region : 2600
FDEPTH: 219 229 Gear cond.: 0
BDEPTH: 219 229 Validity : 0
Towing dir: 0° Wire out : 620 m Speed : 3.0 kn
Sorted : 54 Total catch: 117.54 Catch/hour: 334.55

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Chlorophthalmus atlanticus	102.21	569	30.55	
Trigla lyra	38.94	353	11.64	0
Squatina oculata	31.88	63	9.53	
Dentex angolensis	28.46	85	8.51	929
Uranoscopus cadenati	20.49	1070	6.13	
Torpedo torpedo	15.77	20	4.71	
Onychoteuthis banksi	15.06	142	4.50	
Antigonia capros	14.23	287	4.25	
Trigla lyra	12.15	117	3.63	
Peristedion cataphractum	11.53	322	3.45	
Parapenaeus longirostris	6.29	860	1.88	
Raja straeleni	6.03	11	1.80	
Merluccius polli	6.01	14	1.80	
Sphoeroides pachgaster	4.87	14	1.45	
Zeus faber	3.96	6	1.18	
Diretmoides parini	3.33	26	1.00	
Malacocephalus laevis	3.27	20	0.98	
Cynoponticus ferox	2.93	57	0.88	
Lophiodes kempi	2.25	11	0.67	
Trichiurus lepturus	2.05	26	0.61	
Raja miraletus	1.94	6	0.58	
Syacium micrurum	0.71	37	0.21	
NETTASTOMATIDAE	0.20	6	0.06	
Total	334.55		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 186
DATE :11/06/2007 GEAR TYPE: BT NO: 18 POSITION:Lat N 5°26.28
start stop duration Lon E 0°3.84
TIME :05:56:16 06:26:57 30.7 (min) Purpose : 3
LOG : 3476.78 3478.30 1.5 Region : 2600
FDEPTH: 86 82 Gear cond.: 0
BDEPTH: 86 82 Validity : 0
Towing dir: 0° Wire out : 260 m Speed : 3.0 kn
Sorted : 54 Total catch: 234.60 Catch/hour: 458.65

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Dentex congoensis	200.59	6901	43.73	936
Decapterus punctatus	55.91	2066	12.19	932
Boops boops	48.09	817	10.49	930
Brachydeuterus auritus	45.12	731	9.84	933
Sepia officinalis hierredda	28.84	29	6.29	
Fistularia petimba	25.02	102	5.46	
Trachurus trecae	11.89	250	2.59	934
Sardinella aurita	9.38	219	2.05	931
Lepidotrigla carolae	8.68	227	1.89	
Dentex angolensis	7.90	68	1.72	935
Sphoeroides pachgaster	5.55	23	1.21	
Pseudupeneus prayensis	2.74	70	0.60	
Sphyraena guachancho	2.74	6	0.60	
Priacanthus arenatus	2.42	23	0.53	
Loligo vulgaris	2.11	23	0.46	
Brotula barbata	1.23	2	0.27	
Diodon holocanthus	0.43	2	0.09	
Total	458.65		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 187
DATE :11/06/2007 GEAR TYPE: BT NO: 18 POSITION:Lat N 5°33.45
start stop duration Lon E 0°2.02
TIME :07:57:15 08:28:30 31.3 (min) Purpose : 3
LOG : 3487.76 3489.38 1.6 Region : 2600
FDEPTH: 39 39 Gear cond.: 0
BDEPTH: 39 39 Validity : 0
Towing dir: 0° Wire out : 120 m Speed : 3.1 kn
Sorted : 36 Total catch: 36.47 Catch/hour: 70.02

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Decapterus punctatus	26.40	5639	37.70	940
Pagellus bellottii	14.40	205	20.56	937
Sepia officinalis hierredda	4.36	4	6.22	
Dentex canariensis	3.44	15	4.91	
Lagocephalus laevigatus	3.42	6	4.88	
Pagrus caeruleostictus	3.05	13	4.36	
Sphyraena guachancho	2.59	6	3.70	
Scomberomorus tritor	2.52	4	3.59	
Sardinella aurita	2.42	424	3.45	938
Selar crumenophthalmus	1.86	19	2.66	
Pseudupeneus prayensis	1.77	44	2.52	939
Fistularia petimba	1.34	4	1.92	
Alectis alexandrinus	1.02	4	1.45	
Alloteuthis africana	0.94	290	1.34	
Balistes punctatus	0.38	2	0.55	
Citharus linguatula	0.08	4	0.11	
Arnoglossus imperialis	0.04	4	0.05	
Total	70.02		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 188
DATE :12/06/2007 GEAR TYPE: BT NO: 18 POSITION:Lat N 6°5.44
start stop duration Lon E 1°20.31
TIME :06:22:53 06:42:46 19.9 (min) Purpose : 3
LOG : 3611.28 3612.39 1.1 Region : 2700
FDEPTH: 21 20 Gear cond.: 0
BDEPTH: 21 20 Validity : 0
Towing dir: 0° Wire out : 100 m Speed : 3.4 kn
Sorted : 20 Total catch: 19.50 Catch/hour: 58.82

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Decapterus punctatus	18.73	1421	31.85	941
J E L L Y F I S H	8.69	21	14.77	
Chloroscombrus chrysurus	5.79	69	9.85	942
Aluterus heudelotii	4.56	12	7.74	
Lagocephalus laevigatus	4.22	6	7.18	
Alectis alexandrinus	3.74	6	6.36	
Dentex canariensis	3.71	6	6.31	
Balistes capriscus	2.23	3	3.79	
Sphyraena guachancho	2.14	6	3.64	
Diodon holocanthus	1.69	3	2.87	
Fistularia tabacaria	1.15	3	1.95	
Caranx senegallus	0.94	6	1.59	
Stephanolepis hispidus	0.63	3	1.08	
Acanthostracion quadricornis	0.42	3	0.72	
Sardinella aurita	0.18	21	0.31	
Total	58.82		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 189
DATE :12/06/2007 GEAR TYPE: BT NO: 18 POSITION:Lat N 6°2.32
start stop duration Lon E 1°21.49
TIME :07:24:04 07:44:49 20.8 (min) Purpose : 3
LOG : 3617.04 3618.10 1.1 Region : 2700
FDEPTH: 44 43 Gear cond.: 0
BDEPTH: 44 43 Validity : 0
Towing dir: 0° Wire out : 130 m Speed : 3.1 kn
Sorted : 203 Total catch: 202.64 Catch/hour: 585.95

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Selene dorsalis	221.06	723	37.73	946
Sphyraena guachancho	72.87	396	12.44	952
Dentex canariensis	57.83	147	9.87	943
Pagrus caeruleostictus	42.94	165	7.33	944
Chloroscombrus chrysurus	27.47	275	4.69	945
Brachydeuterus auritus	24.00	575	4.10	948
Lutjanus fulgens	23.39	95	3.99	947
Acanthurus monroviae	20.27	23	3.46	
Pagellus bellottii	16.74	176	2.86	949
Selar crumenophthalmus	13.53	75	2.31	950
Alectis alexandrinus	11.42	17	1.95	
Lutjanus goreensis	10.99	6	1.88	
Scomberomorus tritor	7.08	6	1.21	
Pomadasys incisus	6.16	43	1.05	
Pseudupeneus prayensis	4.83	61	0.82	953
Torpedo torpedo	4.66	9	0.79	
J E L L Y F I S H	3.85	6	0.66	
Albula vulpes	3.50	6	0.60	
Caranx senegallus	2.92	6	0.50	
Aluterus heudelotii	1.91	6	0.33	
Lethrinus atlanticus	1.79	3	0.31	
NETTASTOMATIDAE	1.59	3	0.27	
Decapterus punctatus	1.45	249	0.25	951
Fistularia petimba	1.13	17	0.19	
Citharus linguatula	1.07	12	0.18	
Acanthostracion quadricornis	0.61	3	0.10	
Alloteuthis africana	0.43	127	0.07	
Lepidotrigla carolae	0.26	3	0.04	
Chaetodon marcellae	0.20	3	0.03	
Total	585.95		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 190
DATE :12/06/2007 GEAR TYPE: BT NO: 18 POSITION:Lat N 5°57.51
start stop duration Lon E 1°21.33
TIME :08:30:53 08:46:50 16.0 (min) Purpose : 3
LOG : 3623.78 3624.63 0.9 Region : 2700
FDEPTH: 75 74 Gear cond.: 0
BDEPTH: 75 74 Validity : 0
Towing dir: 0° Wire out : 225 m Speed : 3.2 kn
Sorted : 48 Total catch: 48.36 Catch/hour: 181.92

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
J E L L Y F I S H	108.71	162	59.76	
Pagellus bellottii	13.77	335	7.57	956
Dentex angolensis	13.02	203	7.15	955
Pagrus caeruleostictus	11.10	64	6.10	957
Fistularia petimba	8.99	60	4.94	
Squatina oculata	4.70	4	2.58	
Alloteuthis africana	3.76	1335	2.07	
Pseudupeneus prayensis	2.33	94	1.28	954
Dactylopterus volitans	2.03	8	1.12	
Decapterus punctatus	1.99	53	1.10	
Dentex canariensis	1.54	8	0.85	
Octopus vulgaris	1.43	4	0.79	
Lepidotrigla carolae	1.43	49	0.79	
Sepia officinalis hierredda	1.39	60	0.77	
Chloroscombrus chrysurus	1.17	11	0.64	
Priacanthus arenatus	1.05	8	0.58	
Sphyraena guachancho	1.02	4	0.56	
Lagocephalus laevigatus	0.79	4	0.43	
Lophiodes kempi	0.71	8	0.39	
Boops boops	0.41	11	0.23	
Brachydeuterus auritus	0.38	8	0.21	
Grammoplites gruveli	0.19	4	0.10	
Total	181.92		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 191
DATE :12/06/2007 GEAR TYPE: BT NO: 18 POSITION:Lat N 6°16.21
start stop duration Lon E 2°20.36
TIME :14:54:32 15:15:45 21.2 (min) Purpose : 3
LOG : 3685.67 3686.70 1.0 Region : 2800
FDEPTH: 21 20 Gear cond.: 0
BDEPTH: 21 20 Validity : 0
Towing dir: 0° Wire out : 120 m Speed : 2.9 kn
Sorted : 110 Total catch: 110.09 Catch/hour: 311.28

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
J E L L Y F I S H	117.48	99	37.74	
Elops lacerta	57.82	212	18.58	958
Sphyraena guachancho	23.19	300	7.45	963
Brachydeuterus auritus	15.98	390	5.13	962
Chlamys purpuratus	15.75	8	5.06	
Chloroscombrus chrysurus	13.77	418	4.42	964
Trichiurus lepturus	9.16	645	2.94	960
Ilisha africana	8.37	642	2.69	961
Galeoides decadactylus	7.46	130	2.40	965
Engraulis encrasicolus	7.15	1810	2.30	959
Caranx hippos	4.86	23	1.56	
Selene dorsalis	4.75	919	1.53	967
Caranx senegallus	4.50	40	1.44	
Scomberomorus tritor	3.73	62	1.20	966
Drepane africana	3.56	34	1.14	
Dentex canariensis	3.42	3	1.10	
Caranx crysos	2.06	25	0.66	
Pagrus caeruleostictus	1.39	3	0.45	
Selar crumenophthalmus	1.30	17	0.42	
Pteroscion peli	1.30	54	0.42	
Dactylopterus volitans	0.76	3	0.25	
Sardinella rouxi	0.68	40	0.22	
Ephippion guttifer	0.65	6	0.21	
Sardinella maderensis	0.62	31	0.20	
Pseudotolithus senegalensis	0.48	8	0.15	
Chaetodipterus goreensis	0.25	6	0.08	
Panulirus regius	0.25	3	0.08	
Eucinostomus melanopterus	0.20	3	0.06	
Penaeus notialis	0.14	23	0.05	
Penaeus kerathurus	0.08	6	0.03	
Lagocephalus laevigatus	0.08	3	0.03	
Uranoscopus cadenati	0.06	3	0.02	
Total	311.28		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 192
DATE :12/06/2007 GEAR TYPE: BT NO: 18 POSITION:Lat N 6°11.51
start stop duration Lon E 2°22.56
TIME :16:06:35 16:26:54 20.3 (min) Purpose : 3
LOG : 3692.68 3693.68 1.0 Region : 2800
FDEPTH: 44 44 Gear cond.: 0
BDEPTH: 44 44 Validity : 0
Towing dir: 0° Wire out : 130 m Speed : 3.0 kn
Sorted : 53 Total catch: 159.84 Catch/hour: 471.97

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Brachydeuterus auritus	182.78	12915	38.73	970
Sphyraena guachancho	158.27	2906	33.53	968
Chloroscombrus chrysurus	64.67	765	13.70	969
J E L L Y F I S H	23.03	18	4.88	
Sardinella rouxi	11.40	809	2.41	
Selene dorsalis	8.21	159	1.74	
Galeoides decadactylus	5.67	89	1.20	
Caranx hippos	4.84	30	1.03	
Stromateus fiatola	3.90	6	0.83	
Selar crumenophthalmus	3.72	224	0.79	971
Drepane africana	1.65	12	0.35	
Chaetodipterus lippei	1.65	12	0.35	
Penaeus notialis	0.71	35	0.15	
Scyllarides herklotsii	0.41	71	0.09	
Caranx crysos	0.35	6	0.08	
Pseudupeneus prayensis	0.35	6	0.08	
Alectis alexandrinus	0.18	12	0.04	
Calappa rubroguttata	0.18	6	0.04	
Total	471.97		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 193
DATE :12/06/2007 GEAR TYPE: BT NO: 18 POSITION:Lat N 6°5.94
start stop duration Lon E 2°23.28
TIME :17:23:41 17:53:59 30.3 (min) Purpose : 3
LOG : 3700.36 3701.91 1.6 Region : 2800
FDEPTH: 87 85 Gear cond.: 8
BDEPTH: 87 85 Validity : 3
Towing dir: 0° Wire out : 240 m Speed : 3.1 kn
Sorted : 78 Total catch: 77.53 Catch/hour: 153.52

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Dentex congoensis	44.06	1737	28.70	976
Selar crumenophthalmus	37.43	370	24.38	977
J E L L Y F I S H	23.86	22	15.54	
Dentex angolensis	12.69	253	8.27	975
Lepidotrigla carolae	5.96	150	3.88	
Sphyraena guachancho	4.79	16	3.12	
Decapterus punctatus	3.58	137	2.33	972
Ariomma bondi	3.23	93	2.10	974
Sepia officinalis hierredda	2.63	42	1.72	
Squatina oculata	2.59	4	1.69	
Sardinella aurita	2.32	59	1.51	973
Priacanthus arenatus	1.86	18	1.21	
Pythonichthys microphthalmus	1.64	22	1.07	
Dentex canariensis	0.89	2	0.58	
Uranoscopus albesca	0.85	8	0.55	
Brotula barbata	0.67	6	0.44	
Diodon maculatus	0.63	2	0.41	
Sphoeroides pachgaster	0.48	2	0.31	
Chloroscombrus chrysurus	0.46	4	0.30	
Fistularia petimba	0.46	12	0.30	
Dicologoglossa hexophthalma	0.36	10	0.23	
Umbrina canariensis	0.34	2	0.22	
Loligo vulgaris	0.34	4	0.22	
Raja miraletus	0.28	2	0.18	
Boops boops	0.28	8	0.18	
Citharus linguatula	0.26	14	0.17	
Lophiodes kempi	0.26	8	0.17	
Pentheroscion mbizi	0.20	2	0.13	
Brachydeuterus auritus	0.14	4	0.09	
Total	153.52		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 194
DATE :16/06/2007 GEAR TYPE: PT NO: 7 POSITION:Lat N 3°50.27
start stop duration Lon E 9°10.77
TIME :00:23:58 00:53:25 29.5 (min) Purpose : 3
LOG : 4310.13 4311.64 1.5 Region : 3000
FDEPTH: 18 18 Gear cond.: 0
BDEPTH: 25 28 Validity : 0
Towing dir: 0° Wire out : 120 m Speed : 3.1 kn
Sorted : 63 Total catch: 126.55 Catch/hour: 257.74

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Chloroscombrus chrysurus	188.80	4733	73.25	981
Sardinella maderensis	27.25	729	10.57	978
Ilisha africana	19.76	1572	7.66	979
Selene dorsalis	3.91	110	1.52	980
Ethmalosa fimbriata	3.26	41	1.26	
Scomberomorus tritor	3.16	12	1.22	
Trachinotus ovatus	2.85	4	1.11	
Sphyraena sphyraena	2.00	20	0.77	
Caranx hippos	1.71	12	0.66	
Hemicaranx bicolor	1.59	33	0.62	
Trichiurus lepturus	1.22	45	0.47	
Caranx senegallus	0.81	12	0.32	
Drepane africana	0.57	4	0.22	
Pomadasys peroteti	0.37	4	0.14	
Penaeus notialis	0.16	16	0.06	
Penaeus kerathurus	0.16	33	0.06	
Callinectes pallidus	0.12	12	0.05	
Squilla mantis	0.04	4	0.02	
Total	257.74		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 195
DATE :16/06/2007 GEAR TYPE: PT NO: 7 POSITION:Lat N 3°38.40
start stop duration Lon E 9°27.54
TIME :07:40:06 08:16:06 36.0 (min) Purpose : 3
LOG : 4368.48 4370.54 2.1 Region : 3000
FDEPTH: 10 10 Gear cond.: 0
BDEPTH: 22 22 Validity : 0
Towing dir: 0° Wire out : 120 m Speed : 3.4 kn
Sorted : 109 Total catch: 109.36 Catch/hour: 182.27

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Chloroscombrus chrysurus	74.42	2538	40.83	983
Sphyraena guachancho	61.33	230	33.65	982
Sardinella maderensis	22.92	357	12.57	988
Scomberomorus tritor	7.50	22	4.11	987
Trachinotus ovatus	4.52	32	2.48	
Selene dorsalis	3.00	35	1.65	984
Hemicaranx bicolor	1.92	33	1.05	
Caranx senegallus	1.53	25	0.84	986
Ilisha africana	1.50	67	0.82	985
Caranx hippos	1.47	10	0.80	
Trichiurus lepturus	1.40	10	0.77	
Ethmalosa fimbriata	0.60	7	0.33	
Pteroscion peli	0.17	3	0.09	
Total	182.27		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 196
DATE :16/06/2007 GEAR TYPE: PT NO: 7 POSITION:Lat N 3°21.93
start stop duration Lon E 9°34.16
TIME :19:30:29 19:59:35 29.1 (min) Purpose : 3
LOG : 4432.74 4434.19 1.5 Region : 3000
FDEPTH: 5 5 Gear cond.: 0
BDEPTH: 30 29 Validity : 0
Towing dir: 0° Wire out : 120 m Speed : 3.0 kn
Sorted : 51 Total catch: 50.97 Catch/hour: 105.09

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Lepidochelys olivacea	103.09	2	98.10	
Ilisha africana	0.97	103	0.92	
Sphyraena guachancho	0.64	16	0.61	
Decapterus punctatus	0.10	23	0.10	
Echeneis naucrates	0.08	2	0.08	
Chloroscombrus chrysurus	0.06	2	0.06	
Sardinella maderensis	0.04	8	0.04	
Saurida brasiliensis	0.04	14	0.04	
Brachydeuterus auritus	0.02	25	0.02	
Alloteuthis africana	0.02	6	0.02	
Lolligoncula mercatoris	0.02	14	0.02	
Total	105.09		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 197
DATE :17/06/2007 GEAR TYPE: PT NO: 7 POSITION:Lat N 3°15.04
start stop duration Lon E 9°43.07
TIME :04:05:09 04:35:14 30.1 (min) Purpose : 3
LOG : 4485.73 4487.32 1.6 Region : 3000
FDEPTH: 5 5 Gear cond.: 0
BDEPTH: 29 28 Validity : 0
Towing dir: 0° Wire out : 120 m Speed : 3.2 kn
Sorted : 6 Total catch: 6.48 Catch/hour: 12.92

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
J E L L Y F I S H	7.54	40	58.33	
Sardinella maderensis	3.27	171	25.31	989
Ilisha africana	1.56	241	12.04	990
Sphyraena guachancho	0.38	2	2.93	
Sepia officinalis hierredda	0.18	58	1.39	
Total	12.92		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 198
DATE :18/06/2007 GEAR TYPE: BT NO: 18 POSITION:Lat N 1°41.82
start stop duration Lon E 7°18.54
TIME :05:31:12 06:01:48 30.6 (min) Purpose : 3
LOG : 4699.83 4701.38 1.6 Region : 3220
FDEPTH: 59 66 Gear cond.: 0
BDEPTH: 59 66 Validity : 0
Towing dir: 0° Wire out : 170 m Speed : 3.0 kn
Sorted : 54 Total catch: 163.26 Catch/hour: 320.12

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Pagellus bellottii	119.12	753	37.21	992
Dactylopterus volitans	108.24	494	33.81	991
Pagrus caeruleostictus	36.18	118	11.30	993
Decapterus macarellus	20.65	188	6.45	
Fistularia petimba	7.65	59	2.39	
Epinephelus haifensis	4.59	35	1.43	
Pseudupeneus prayensis	4.47	24	1.40	
Selar crumenophthalmus	3.65	12	1.14	
Trachinus radiatus	3.47	12	1.08	
Chilomycterus spinosus mauret.	3.29	29	1.03	
Monolene microstoma	2.71	18	0.85	
Sepia officinalis hierredda	1.47	12	0.46	
Torpedo marmorata	1.12	6	0.35	
Stephanolepis hispidus	1.00	6	0.31	
Torpedo torpedo	1.00	6	0.31	
Lepidotrigla carolae	1.00	12	0.31	
Xyrichtys novacula	0.53	6	0.17	
Total	320.12		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 199
DATE :18/06/2007 GEAR TYPE: BT NO: 18 POSITION:Lat N 1°38.90
start stop duration Lon E 7°19.56
TIME :07:00:00 07:30:16 30.1 (min) Purpose : 3
LOG : 4706.16 4707.81 1.7 Region : 3220
FDEPTH: 49 40 Gear cond.: 0
BDEPTH: 49 40 Validity : 0
Towing dir: 0° Wire out : 150 m Speed : 3.0 kn
Sorted : 37 Total catch: 37.22 Catch/hour: 74.32

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Dactylopterus volitans	17.17	76	23.11	995
Fistularia petimba	14.58	72	19.61	
Lethrinus atlanticus	10.10	28	13.59	994
Pagrus caeruleostictus	8.75	22	11.77	
Sepia officinalis hierredda	6.25	14	8.41	
Sphoeroides marmoratus	6.13	32	8.25	
Fistularia tabacaria	3.00	6	4.03	
Acanthostracion quadricornis	2.12	36	2.85	
Decapterus macarellus	1.48	12	1.99	
Chilomycterus spinosus mauret.	0.88	6	1.18	
Lycodontis mareei	0.86	4	1.16	
Bothus podas africanus	0.82	4	1.10	
Stephanolepis hispidus	0.76	8	1.02	
Scorpaena scrofa	0.56	2	0.75	
Caranx crysos	0.46	2	0.62	
Pseudupeneus prayensis	0.42	2	0.56	
Total	74.32		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 200
DATE :18/06/2007 GEAR TYPE: BT NO: 18 POSITION:Lat N 1°33.71
start stop duration Lon E 7°15.08
TIME :12:50:36 13:10:44 20.1 (min) Purpose : 3
LOG : 4747.03 4748.03 1.0 Region : 3220
FDEPTH: 79 77 Gear cond.: 0
BDEPTH: 79 77 Validity : 0
Towing dir: 0° Wire out : 220 m Speed : 3.0 kn
Sorted : 156 Total catch: 156.17 Catch/hour: 465.25

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Pagellus bellottii	394.14	4081	84.72	996
Epinephelus aeneus	38.28	3	8.23	
Dactylopterus volitans	7.18	30	1.54	
Octopus vulgaris	5.87	3	1.26	
Sepia officinalis hierredda	5.09	51	1.09	
Fistularia petimba	3.52	9	0.76	
Lethrinus atlanticus	2.12	6	0.45	
Selar crumenophthalmus	1.97	6	0.42	
Torpedo marmorata	1.91	3	0.41	
Priacanthus arenatus	1.73	6	0.37	
Lepidotrigla carolae	1.70	3	0.36	
Alloteuthis africana	0.66	399	0.14	
Citharus linguatula	0.48	18	0.10	
Diodon holocanthus	0.36	3	0.08	
Pseudupeneus prayensis	0.27	3	0.06	
Total	465.25		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 201
DATE :18/06/2007 GEAR TYPE: BT NO: 18 POSITION:Lat N 1°33.86
start stop duration Lon E 7°17.58
TIME :13:57:11 14:27:42 30.5 (min) Purpose : 3
LOG : 4751.91 4753.37 1.5 Region : 3220
FDEPTH: 68 69 Gear cond.: 0
BDEPTH: 68 69 Validity : 0
Towing dir: 0° Wire out : 200 m Speed : 2.9 kn
Sorted : 460 Total catch: 460.09 Catch/hour: 904.50

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Galeocerdo cuvier	786.37	2	86.94	
Pagellus bellottii	83.16	523	9.19	998
Dactylopterus volitans	17.18	45	1.90	997
Pagrus caeruleostictus	7.96	10	0.88	
Elagatis bipinnulata	2.63	2	0.29	
Sepia officinalis hierredda	2.46	16	0.27	
Fistularia petimba	0.90	4	0.10	
Priacanthus arenatus	0.90	2	0.10	
Chilomycterus spinosus mauret.	0.85	8	0.09	
Citharus linguatula	0.71	8	0.08	
Dentex congoensis	0.67	31	0.07	
Pseudupeneus prayensis	0.37	2	0.04	
Torpedo torpedo	0.33	2	0.04	
Total	904.50		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 202
DATE :18/06/2007 GEAR TYPE: BT NO: 18 POSITION:Lat N 1°26.68
start stop duration Lon E 7°18.04
TIME :16:00:27 16:20:56 20.5 (min) Purpose : 3
LOG : 4765.91 4767.01 1.1 Region : 3220
FDEPTH: 75 77 Gear cond.: 0
BDEPTH: 75 77 Validity : 0
Towing dir: 0° Wire out : 210 m Speed : 3.2 kn
Sorted : 17 Total catch: 16.67 Catch/hour: 48.81

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Pagellus bellottii	17.86	76	36.59	
Dentex congoensis	13.50	307	27.65	
Dactylopterus volitans	11.19	35	22.92	
Zeus faber	2.05	20	4.20	
Trachinus armatus	1.82	29	3.72	
Sepia officinalis hierredda	1.08	12	2.22	
Pseudupeneus prayensis	0.70	3	1.44	
Diodon holocanthus	0.47	3	0.96	
Decapterus macarellus	0.12	3	0.24	
Citharus linguatula	0.03	3	0.06	
Total	48.81		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 203
DATE :19/06/2007 GEAR TYPE: BT NO: 18 POSITION:Lat N 1°32.72
start stop duration Lon E 7°27.82
TIME :08:30:59 09:01:38 30.7 (min) Purpose : 3
LOG : 4871.93 4873.56 1.6 Region : 3220
FDEPTH: 47 59 Gear cond.: 0
BDEPTH: 47 59 Validity : 0
Towing dir: 0° Wire out : 160 m Speed : 3.2 kn
Sorted : 304 Total catch: 304.21 Catch/hour: 595.32

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Lutjanus fulgens	365.85	971	61.45	999
Acanthurus monroviae	118.10	307	19.84	
Apsilus fuscus	40.12	74	6.74	
Lutjanus goreensis	18.59	2	3.12	
Acanthostracion quadricornis	10.10	63	1.70	
Lethrinus atlanticus	9.57	27	1.61	
Bodianus speciosus	8.49	16	1.43	
Pagrus caeruleostictus	6.77	18	1.14	
Paranthias furcifer	4.11	35	0.69	
Balistes punctatus	3.17	4	0.53	
Fistularia tabacaria	2.70	6	0.45	
Sepia officinalis hierredda	1.66	4	0.28	
Caranx crysos	1.55	2	0.26	
Fistularia petimba	1.49	10	0.25	
Dactylopterus volitans	1.17	4	0.20	
Chilomycterus spinosus mauret.	0.65	4	0.11	
Scorpaena scrofa	0.49	2	0.08	
Pseudupeneus prayensis	0.47	2	0.08	
Priacanthus arenatus	0.27	2	0.05	
Total	595.32		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 204
DATE :20/06/2007 GEAR TYPE: BT NO: 18 POSITION:Lat N 0°8.80
start stop duration Lon E 6°27.86
TIME :13:04:25 13:26:04 21.7 (min) Purpose : 3
LOG : 5108.52 5109.58 1.1 Region : 3210
FDEPTH: 73 74 Gear cond.: 0
BDEPTH: 73 74 Validity : 0
Towing dir: 0° Wire out : 210 m Speed : 2.9 kn
Sorted : 109 Total catch: 109.06 Catch/hour: 302.24

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Pagellus bellottii	115.57	862	38.24	1000
Lutjanus fulgens	102.96	219	34.06	1001
Dentex canariensis	18.71	11	6.19	
Dactylopterus volitans	12.00	64	3.97	1002
Pagrus caeruleostictus	11.36	14	3.76	
Pseudupeneus prayensis	7.37	164	2.44	1003
Sepia officinalis hierredda	6.32	161	2.09	
Priacanthus arenatus	5.29	17	1.75	
Diodon maculatus	5.07	19	1.68	
Epinephelus aeneus	2.83	3	0.94	
Apsilus fuscus	2.72	33	0.90	
Bodianus speciosus	2.52	3	0.83	
Selar crumenophthalmus	1.88	6	0.62	
Fistularia petimba	1.77	6	0.59	
Chaetodon robustus	1.75	44	0.58	
Dentex congoensis	1.52	141	0.50	
Torpedo torpedo	1.47	3	0.49	
Decapterus macarellus	0.61	3	0.20	
Citharus linguatula	0.47	3	0.16	
Sea urchin, weak spines	0.05	3	0.02	
Total	302.24		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 205
DATE :20/06/2007 GEAR TYPE: BT NO: 18 POSITION:Lat N 0°4.99
start stop duration Lon E 6°30.12
TIME :14:52:28 15:21:48 30.3 (min) Purpose : 3
LOG : 5118.35 5119.85 1.5 Region : 3210
FDEPTH: 37 40 Gear cond.: 0
BDEPTH: 37 40 Validity : 0
Towing dir: 0° Wire out : 130 m Speed : 3.2 kn
Sorted : 85 Total catch: 85.28 Catch/hour: 168.76

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Dactylopterus volitans	79.55	483	47.14	1004
Balistes capriscus	39.48	69	23.39	1005
Pagellus bellottii	25.33	150	15.01	1007
Pagrus caeruleostictus	13.95	71	8.27	1006
Dentex canariensis	5.07	4	3.00	
Decapterus macarellus	2.61	14	1.55	
Uraspis helvola	1.31	2	0.77	
Alloteuthis africana	0.46	230	0.27	
Fistularia petimba	0.42	2	0.25	
Sepia officinalis hierredda	0.34	4	0.20	
Dentex congoensis	0.24	20	0.14	
Citharus linguatula	0.02	2	0.01	
Total	168.76		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 206
DATE :20/06/2007 GEAR TYPE: BT NO: 18 POSITION:Lat N 0°0.49
start stop duration Lon E 6°30.27
TIME :16:29:00 16:59:54 30.9 (min) Purpose : 3
LOG : 5128.66 5130.23 1.6 Region : 3210
FDEPTH: 23 24 Gear cond.: 0
BDEPTH: 23 24 Validity : 0
Towing dir: 0° Wire out : 100 m Speed : 3.0 kn
Sorted : 46 Total catch: 115.04 Catch/hour: 223.38

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Acanthostracion quadricornis	109.96	893	49.23	
Dactylopterus volitans	106.56	1008	47.71	1008
Balistes capriscus	3.59	6	1.61	
Lethrinus atlanticus	1.81	6	0.81	
Bothus podas africanus	0.78	6	0.35	
Pagellus bellottii	0.68	6	0.30	
Total	223.38		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 207
DATE :21/06/2007 GEAR TYPE: BT NO: 18 POSITION:Lat N 0°2.24
start stop duration Lon E 6°34.61
TIME :05:57:34 06:28:44 31.2 (min) Purpose : 3
LOG : 5219.17 5220.80 1.6 Region : 3210
FDEPTH: 67 70 Gear cond.: 0
BDEPTH: 67 70 Validity : 0
Towing dir: 0° Wire out : 210 m Speed : 3.1 kn
Sorted : 38 Total catch: 38.05 Catch/hour: 73.24

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Pagellus bellottii	48.89	645	66.75	1009
Brotula barbata	6.95	25	9.49	1010
Galeoides decadactylus	2.46	6	3.36	
Lagocephalus laevigatus	1.92	4	2.63	
Dentex congoensis	1.64	46	2.23	1011
Dactylopterus volitans	1.54	13	2.10	
Decapterus punctatus	1.31	94	1.79	1012
Dentex angolensis	1.19	4	1.63	
Selene dorsalis	1.10	2	1.50	
Alloteuthis africana	1.08	847	1.47	
Sepia officinalis hierredda	0.87	6	1.18	
Monolene microstoma	0.79	6	1.08	
Sphyraena guachancho	0.75	2	1.02	
Citharus linguatula	0.71	17	0.97	
Selar crumenophthalmus	0.67	2	0.92	
Umbrina canariensis	0.40	2	0.55	
Trigla lyra	0.31	6	0.42	
Acanthostracion quadricornis	0.25	2	0.34	
Torpedo torpedo	0.13	2	0.18	
Octopus vulgaris	0.08	2	0.11	
Microchirus frechkopi	0.06	2	0.08	
Saurida brasiliensis	0.06	21	0.08	
Bathygobius paganellus	0.04	8	0.05	
Brachydeuterus auritus	0.04	10	0.05	
Total	73.24		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 208
DATE :21/06/2007 GEAR TYPE: BT NO: 18 POSITION:Lat N 0°3.78
start stop duration Lon E 6°37.70
TIME :07:28:26 07:58:38 30.2 (min) Purpose : 3
LOG : 5227.14 5228.87 1.7 Region : 3210
FDEPTH: 60 70 Gear cond.: 0
BDEPTH: 60 70 Validity : 0
Towing dir: 0° Wire out : 180 m Speed : 3.4 kn
Sorted : 81 Total catch: 81.34 Catch/hour: 161.66

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Galeoides decadactylus	43.92	145	27.17	1014
Pagellus bellottii	41.93	286	25.94	1015
Pomadasys jubelini	16.40	18	10.14	1013
Pagrus caeruleostictus	11.83	18	7.31	1018
Paragaleus pectoralis	8.25	2	5.10	
Selene dorsalis	7.61	16	4.71	1017
Monolene microstoma	6.30	95	3.90	
Epinephelus aeneus	3.92	4	2.42	
Pomadasys incisus	3.48	24	2.15	1016
Pseudupeneus prayensis	3.08	46	1.91	1019
Brotula barbata	2.98	10	1.84	
Aluterus heudelotii	1.97	44	1.22	
DASYATIDAE	1.93	2	1.19	
Drepane africana	1.43	2	0.89	
Lutjanus fulgens	1.09	2	0.68	
Decapterus punctatus	1.03	38	0.64	1020
Citharus linguatula	1.03	40	0.64	
Dactylopterus volitans	0.72	4	0.44	
Sepia officinalis hierredda	0.58	12	0.36	
Octopus vulgaris	0.40	2	0.25	
Seriola dumerili	0.36	2	0.22	
Calappa rubroguttata	0.34	2	0.21	
Torpedo torpedo	0.34	2	0.21	
Microchirus frechkopi	0.20	8	0.12	
Grammoplites gruveli	0.16	6	0.10	
Brachydeuterus auritus	0.14	48	0.09	
Alloteuthis africana	0.14	89	0.09	
Penaeus notialis	0.12	6	0.07	
Total	161.66		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 209
DATE :21/06/2007 GEAR TYPE: BT NO: 18 POSITION:Lat N 0°7.17
start stop duration Lon E 6°40.67
TIME :08:43:45 08:50:16 6.5 (min) Purpose : 3
LOG : 5232.62 5232.95 0.3 Region : 3210
FDEPTH: 58 58 Gear cond.: 0
BDEPTH: 58 58 Validity : 0
Towing dir: 0° Wire out : 165 m Speed : 3.1 kn
Sorted : 30 Total catch: 29.59 Catch/hour: 272.30

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Pagrus caeruleostictus	121.01	83	44.44	1021
Dentex canariensis	34.97	18	12.84	
Lutjanus fulgens	27.70	64	10.17	1022
Alloteuthis africana	21.81	15874	8.01	
Pomadasys jubelini	19.79	28	7.27	
Galeoides decadactylus	18.50	55	6.79	
Pagellus bellottii	13.16	46	4.83	
Selene dorsalis	4.69	9	1.72	
Epinephelus aeneus	3.77	9	1.39	
Sphyraena guachancho	2.85	9	1.05	
Pomadasys incisus	1.66	9	0.61	
Monolene microstoma	1.38	18	0.51	
Torpedo torpedo	0.64	9	0.24	
Citharus linguatula	0.37	9	0.14	
Total	272.30		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 210
DATE :21/06/2007 GEAR TYPE: BT NO: 18 POSITION:Lat N 0°12.77
start stop duration Lon E 6°45.29
TIME :10:02:15 10:31:41 29.4 (min) Purpose : 3
LOG : 5240.31 5241.81 1.5 Region : 3210
FDEPTH: 52 55 Gear cond.: 0
BDEPTH: 52 55 Validity : 0
Towing dir: 0° Wire out : 170 m Speed : 3.0 kn
Sorted : 19 Total catch: 19.30 Catch/hour: 39.33

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Pagellus bellottii	15.20	37	38.65	1023
Pagrus caeruleostictus	7.56	6	19.22	
Decapterus punctatus	3.10	544	7.88	1024
Pomadasys jubelini	2.91	4	7.41	
Albula vulpes	2.36	4	6.01	
Sepia officinalis hierredda	2.08	2	5.28	
Selene dorsalis	1.94	4	4.92	
Lutjanus fulgens	1.20	2	3.06	
Aluterus heudelotii	0.82	2	2.07	
Galeoides decadactylus	0.71	2	1.81	
Monolene microstoma	0.63	4	1.61	
Scorpaena scrofa	0.61	2	1.55	
Alloteuthis africana	0.20	149	0.52	
Total	39.33		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 211
DATE :21/06/2007 GEAR TYPE: BT NO: 18 POSITION:Lat N 0°16.56
start stop duration Lon E 6°47.50
TIME :12:01:51 12:24:20 22.5 (min) Purpose : 3
LOG : 5252.23 5253.28 1.1 Region : 3210
FDEPTH: 66 64 Gear cond.: 0
BDEPTH: 66 64 Validity : 0
Towing dir: 0° Wire out : 210 m Speed : 2.8 kn
Sorted : 262 Total catch: 261.81 Catch/hour: 699.09

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Pagellus bellottii	216.82	1402	31.01	1027
Dentex canariensis	133.78	53	19.14	1030
Apsilus fuscus	77.97	48	11.15	
Lutjanus fulgens	76.10	195	10.89	1026
Dactylopterus volitans	57.94	390	8.29	1028
Paranthias furcifer	28.44	136	4.07	
Epinephelus aeneus	27.37	3	3.92	
Sepia officinalis hierredda	19.49	59	2.79	
Decapterus macarellus	18.80	123	2.69	
Pseudupeneus prayensis	10.76	67	1.54	1029
Fistularia petimba	8.46	21	1.21	
Torpedo torpedo	4.89	8	0.70	
Pagrus caeruleostictus	4.54	8	0.65	
Syacium micrurum	4.38	29	0.63	
Zeus faber	4.33	5	0.62	
Aluterus heudelotii	1.60	5	0.23	
Chilomycterus spinosus mauret.	0.93	3	0.13	
Coris julis	0.91	5	0.13	
Balistes capriscus	0.80	3	0.11	
Anthias anthias	0.48	32	0.07	
Bodianus insularis	0.29	3	0.04	
Total	699.09		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 212
DATE :26/06/2007 GEAR TYPE: BT NO: 18 POSITION:Lat N 0°46.70
start stop duration Lon E 8°59.87
TIME :05:28:52 05:55:13 26.3 (min) Purpose : 3
LOG : 5625.89 5627.19 1.3 Region : 3300
FDEPTH: 109 106 Gear cond.: 0
BDEPTH: 109 106 Validity : 0
Towing dir: 0° Wire out : 300 m Speed : 3.0 kn
Sorted : 95 Total catch: 94.72 Catch/hour: 215.76

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Dentex congoensis	151.48	3528	70.21	1031
Ariomma bondi	24.83	551	11.51	
Dentex angolensis	22.78	150	10.56	1032
Priacanthus arenatus	10.71	128	4.96	
Pagellus bellottii	2.05	2	0.95	
Chelidonichthys gabonensis	2.05	46	0.95	
Spicara alta	0.84	9	0.39	
Illex coindetii	0.41	14	0.19	
Sepia officinalis hierredda	0.32	7	0.15	
Citharus linguatula	0.21	9	0.10	
Scorpaena normani	0.09	2	0.04	
Total	215.76		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 213
DATE :26/06/2007 GEAR TYPE: BT NO: 18 POSITION:Lat N 0°43.64
start stop duration Lon E 9°7.29
TIME :07:16:14 07:47:49 31.6 (min) Purpose : 3
LOG : 5636.49 5638.06 1.6 Region : 3300
FDEPTH: 51 48 Gear cond.: 0
BDEPTH: 51 48 Validity : 0
Towing dir: 0° Wire out : 160 m Speed : 3.0 kn
Sorted : 27 Total catch: 27.01 Catch/hour: 51.30

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Dentex congoensis	11.51	158	22.44	1035
Trachurus trecae	5.77	938	11.26	1033
Penaeus notialis	4.54	198	8.85	1123
Alloteuthis africana	4.46	1953	8.70	
Dentex angolensis	4.20	27	8.18	1034
Pagellus bellottii	4.20	46	8.18	1036
Seriola dumerili	3.17	17	6.18	
Epinephelus aeneus	3.11	8	6.07	
Sepia officinalis hierredda	2.05	15	4.00	
Torpedo torpedo	1.96	4	3.81	
Fistularia petimba	1.73	9	3.37	
Priacanthus arenatus	1.29	27	2.52	
Chelidonichthys gabonensis	1.27	42	2.48	
Raja miraletus	1.14	6	2.22	
Pseudupeneus prayensis	0.32	6	0.63	
Chilomycterus spinosus mauret.	0.28	2	0.56	
Citharus linguatula	0.11	6	0.22	
GOBIIDAE	0.11	6	0.22	
Sphoeroides marmoratus	0.06	2	0.11	
Total	51.30		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 214
DATE :26/06/2007 GEAR TYPE: BT NO: 18 POSITION:Lat N 0°43.45
start stop duration Lon E 9°13.89
TIME :09:13:18 09:43:14 29.9 (min) Purpose : 3
LOG : 5648.21 5649.74 1.5 Region : 3300
FDEPTH: 20 22 Gear cond.: 0
BDEPTH: 20 22 Validity : 0
Towing dir: 0° Wire out : 120 m Speed : 3.1 kn
Sorted : 7 Total catch: 6.64 Catch/hour: 13.31

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Sphyraena sphyraena	2.20	16	16.57	
Sphyraena guachancho	2.00	2	15.06	
Chaetodipterus lippei	1.40	2	10.54	
OSTRACIIDAE	1.40	8	10.54	
Ephippion guttifer	1.40	2	10.54	
Pomadasys rogeri	1.20	2	9.04	
Lagocephalus laevigatus	0.86	4	6.48	
Alectis alexandrinus	0.80	2	6.02	
Selene dorsalis	0.80	4	6.02	
Pagellus bellottii	0.56	2	4.22	
Raja miraletus	0.46	2	3.46	
Sardinella maderensis	0.20	2	1.51	
Total	13.31		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 215
DATE :26/06/2007 GEAR TYPE: BT NO: 18 POSITION:Lat N 0°24.58
start stop duration Lon E 9°13.71
TIME :11:45:17 11:49:32 4.3 (min) Purpose : 3
LOG : 5667.10 5667.31 0.2 Region : 3300
FDEPTH: 17 17 Gear cond.: 9
BDEPTH: 17 17 Validity : 3
Towing dir: 0° Wire out : 120 m Speed : 3.1 kn
Sorted : 13 Total catch: 12.60 Catch/hour: 177.88

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Ilisha africana	50.82	2739	28.57	
Brachydeuterus auritus	26.82	353	15.08	
Arius latiscutatus	25.41	508	14.29	
Cynoglossus browni	14.82	14	8.33	
Galeoides decadactylus	14.12	14	7.94	
Chloroscombrus chrysurus	9.88	42	5.56	
Sphyraena guachancho	9.88	14	5.56	
Selar crumenophthalmus	6.35	14	3.57	
Sepia officinalis hierredda	3.53	14	1.98	
Sardinella maderensis	2.82	141	1.59	
Sphyraena sphyraena	2.82	14	1.59	
OSTRACIIDAE	2.12	14	1.19	
Pomadasys rogeri	2.12	71	1.19	
Penaeus kerathurus	2.12	28	1.19	
Selene dorsalis	1.41	14	0.79	
Pomadasys peroteti	1.41	14	0.79	
Penaeus notialis	1.41	56	0.79	
Total	177.88		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 216
DATE :26/06/2007 GEAR TYPE: BT NO: 18 POSITION:Lat N 0°22.54
start stop duration Lon E 9°13.11
TIME :13:01:32 13:31:37 30.1 (min) Purpose : 3
LOG : 5671.75 5673.13 1.4 Region : 3300
FDEPTH: 22 21 Gear cond.: 0
BDEPTH: 22 21 Validity : 0
Towing dir: 0° Wire out : 120 m Speed : 2.8 kn
Sorted : 97 Total catch: 96.71 Catch/hour: 192.97

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Sphyraena guachancho	44.70	128	23.16	
Decapterus rhonchus	31.01	235	16.07	1039
Chloroscombrus chrysurus	24.24	443	12.56	
Pomadasys peroteti	23.05	110	11.94	1038
Seriola dumerili	12.43	225	6.44	
Sardinella maderensis	11.83	555	6.13	1037
Brachydeuterus auritus	10.73	281	5.56	
Ilisha africana	5.61	301	2.91	
Rhizoprionodon acutus	5.59	2	2.90	
Sphyraena sphyraena	5.09	36	2.64	
Scomberomorus tritor	4.23	18	2.19	
Sepia orbignyana	2.97	8	1.54	
Caranx hippos	2.57	14	1.33	
Penaeus notialis	2.51	146	1.30	1124
Ephippion guttifer	2.27	2	1.18	
Selene dorsalis	1.78	30	0.92	
Eucinostomus melanopterus	0.60	6	0.31	
Galeoides decadactylus	0.40	6	0.21	
Lutjanus fulgens	0.38	2	0.20	
PORTUNIDAE	0.32	22	0.17	
OSTRACIIDAE	0.22	2	0.11	
Pagellus bellottii	0.20	2	0.10	
Citharus linguatula	0.12	2	0.06	
Penaeus kerathurus	0.12	8	0.06	
Total	192.97		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 217
DATE :26/06/2007 GEAR TYPE: BT NO: 18 POSITION:Lat N 0°23.50
start stop duration Lon E 9°9.84
TIME :14:21:01 14:52:01 31.0 (min) Purpose : 3
LOG : 5677.71 5679.37 1.7 Region : 3300
FDEPTH: 37 40 Gear cond.: 0
BDEPTH: 37 40 Validity : 0
Towing dir: 0° Wire out : 120 m Speed : 3.2 kn
Sorted : 18 Total catch: 17.76 Catch/hour: 34.37

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Citharus linguatula	5.75	106	16.72	
Decapterus rhonchus	4.78	27	13.91	
Brachydeuterus auritus	4.14	135	12.05	
Penaeus notialis	3.99	178	11.60	
Sepia orbignyana	3.93	41	11.43	
Pagellus bellottii	2.50	37	7.26	
Selene dorsalis	2.19	25	6.36	
Diodon holocanthus	1.95	2	5.69	
Sphyraena guachancho	1.51	6	4.39	
Uranoscopus cadenati	1.28	2	3.72	
Sardinella maderensis	0.74	31	2.14	
Alloteuthis africana	0.33	135	0.96	
Serranus cabrilla	0.23	2	0.68	
APOGONIDAE	0.21	10	0.62	
Ilisha africana	0.21	12	0.62	
C R A B S	0.14	14	0.39	
OPHIDIIDAE	0.14	6	0.39	
Squilla mantis	0.10	4	0.28	
Pseudupeneus prayensis	0.10	2	0.28	
Eucinostomus melanopterus	0.08	2	0.23	
Serranus accraensis	0.04	4	0.11	
GOBIIDAE	0.02	8	0.06	
Bathysaurus ferox	0.02	31	0.06	
Ephippion guttifer	0.02	2	0.06	
Total	34.37		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 218
DATE :26/06/2007 GEAR TYPE: BT NO: 18 POSITION:Lat N 0°23.50
start stop duration Lon E 8°58.91
TIME :16:36:45 17:06:28 29.7 (min) Purpose : 3
LOG : 5693.97 5695.67 1.7 Region : 3300
FDEPTH: 67 71 Gear cond.: 0
BDEPTH: 67 71 Validity : 0
Towing dir: 0° Wire out : 180 m Speed : 3.4 kn
Sorted : 147 Total catch: 147.39 Catch/hour: 297.56

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Ariomma bondi	229.14	1528	77.01	
Trachurus trecae	49.06	218	16.49	1041
Sardinella aurita	7.47	139	2.51	1040
Priacanthus arenatus	3.69	40	1.24	
Dentex angolensis	3.09	12	1.04	
Dentex congoensis	2.20	57	0.74	
Fistularia petimba	1.11	6	0.37	
Pseudupeneus prayensis	0.59	8	0.20	
DIODONTIDAE	0.46	2	0.16	
Lagocephalus laevigatus	0.46	2	0.16	
Decapterus rhonchus	0.28	4	0.09	
Total	297.56		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 219
DATE :26/06/2007 GEAR TYPE: BT NO: 18 POSITION:Lat N 0°22.32
start stop duration Lon E 8°52.48
TIME :19:35:10 20:05:58 30.8 (min) Purpose : 3
LOG : 5708.59 5710.11 1.5 Region : 3300
FDEPTH: 233 215 Gear cond.: 0
BDEPTH: 233 215 Validity : 0
Towing dir: 0° Wire out : 650 m Speed : 3.0 kn
Sorted : 74 Total catch: 73.73 Catch/hour: 143.63

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
HOLUTHUROIDEA	20.36	132	14.17	
Oxynotus centrina	19.77	4	13.77	
Grammoplites gruveli	13.11	308	9.13	
MYCTOPHIDAE	11.34	3968	7.89	
Parapenaeus longirostris	10.50	2655	7.31	
Aulopus cadenati	10.17	68	7.08	
Peristedion cataphractum	9.51	442	6.62	
Trigla lyra	9.41	129	6.55	
Lepidotrigla cadmani	8.49	185	5.91	
Dentex angolensis	6.35	45	4.42	
Pterothrissus belloci	5.45	49	3.80	
Squatina oculata	3.51	2	2.44	
Merluccius polli	1.81	27	1.26	
Raja miraletus	1.79	6	1.25	
Citharus linguatula	1.29	37	0.90	
Brotula barbata	1.29	4	0.90	
Synagrops microlepis	1.25	121	0.87	
Ariomma melanum	1.15	19	0.80	
Solenocera africana	1.01	29	0.71	
Illex coindetii	0.95	14	0.66	
Dicrolene intronigra	0.94	18	0.65	
Squalus megalops	0.82	4	0.57	
Uranoscopus albesca	0.62	10	0.43	
Trachurus trecae	0.47	27	0.33	
Lophius vaillanti	0.39	6	0.27	
Antigonia capros	0.31	41	0.22	
OPHIDIIDAE	0.31	12	0.22	
Malacocephalus occidentalis	0.23	6	0.16	
Aulopus cadenati	0.21	6	0.15	0
Bathyuroconger vicinus	0.14	4	0.09	
Pontinus accraensis	0.14	2	0.09	
Malacocephalus laevis	0.12	6	0.08	
C R A B S	0.10	4	0.07	
GONOSTOMATIDAE	0.10	6	0.07	
Ariomma bondi	0.08	4	0.05	
Nealotus tripes	0.06	2	0.04	
Halosaurus ovenii	0.04	2	0.03	
Shrimps, small, non comm.	0.04	21	0.03	
Scyliorhinus cervigoni	0.02	2	0.01	
Total	143.63		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 220
DATE :27/06/2007 GEAR TYPE: BT NO: 18 POSITION:Lat N 0°3.57
start stop duration Lon E 8°47.69
TIME :01:14:44 01:34:46 20.0 (min) Purpose : 3
LOG : 5750.27 5751.23 1.0 Region : 3300
FDEPTH: 479 564 Gear cond.: 0
BDEPTH: 479 564 Validity : 0
Towing dir: 0° Wire out : 1300 m Speed : 2.9 kn
Sorted : 11 Total catch: 83.66 Catch/hour: 250.48

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Nematocarcinus africanus	46.53	1985	18.58	
Chaunax pictus	32.46	275	12.96	
Lepidopus caudatus	31.08	728	12.41	
HOLUTHUROIDEA	20.06	159	8.01	
Yarrella blackfordi	16.32	431	6.51	
Laemonema laureysi	13.35	39	5.33	
Lophius vaillanti	12.57	18	5.02	
Glyphus marsupialis	12.19	728	4.86	
Hoplostethus cadenati	10.81	198	4.32	
Peristedion cataphractum	10.60	216	4.23	
Physiculus sp.	10.21	530	4.08	
Plesiopenaeus edwardsianus	10.03	296	4.00	
Merluccius polli	7.51	24	3.00	1044
Dibranchus atlanticus	7.07	60	2.82	
Malacocephalus laevis	2.54	39	1.02	
Triplophos hemingi	1.17	120	0.47	
Halosaurus ovenii	1.17	18	0.47	
Lamprogrammus exutus	1.17	99	0.47	
Aristeus varidens	1.17	491	0.47	
Malacocephalus occidentalis	0.78	39	0.31	
Gonostoma denudata	0.39	18	0.16	
Nezumia aequalis	0.39	18	0.16	
PARALEPIDIDAE	0.39	18	0.16	
Alepocephalus sp.	0.18	39	0.07	
Chlorophthalmus atlanticus	0.18	39	0.07	
MYCTOPHIDAE	0.18	39	0.07	
Total	250.48		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 221
DATE :27/06/2007 GEAR TYPE: BT NO: 18 POSITION:Lat N 0°6.13
start stop duration Lon E 8°54.12
TIME :05:27:30 05:55:39 28.2 (min) Purpose : 3
LOG : 5766.11 5767.49 1.4 Region : 3300
FDEPTH: 96 96 Gear cond.: 0
BDEPTH: 96 96 Validity : 0
Towing dir: 0° Wire out : 300 m Speed : 2.9 kn
Sorted : 63 Total catch: 62.87 Catch/hour: 134.00

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Dentex congoensis	83.98	2513	62.67	
Epinephelus aeneus	19.50	2	14.55	
Lepidotrigla cadmani	8.18	260	6.11	
Ariomma bondi	4.97	145	3.71	
Squatina oculata	4.18	2	3.12	
Pagellus bellottii	3.64	66	2.72	
Priacanthus arenatus	2.20	28	1.64	
Raja miraletus	1.24	6	0.92	
Trachurus trecae	1.21	53	0.91	
Echeneis naucrates	1.04	2	0.78	
Umbrina canariensis	0.79	2	0.59	
Illex coindetii	0.77	13	0.57	
Dibranchus atlanticus	0.51	49	0.38	
Scorpaena scrofa	0.40	2	0.30	
Stereomastis sp.	0.36	47	0.27	
Sepia officinalis hierredda	0.34	4	0.25	
Dactylopterus volitans	0.23	9	0.17	
Peristedion cataphractum	0.21	9	0.16	
Bathynectes piperitus	0.19	2	0.14	
Serranus africana	0.04	2	0.03	
Total	134.00		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 222
DATE :27/06/2007 GEAR TYPE: BT NO: 18 POSITION:Lat N 0°5.83
start stop duration Lon E 9°4.49
TIME :07:49:34 08:21:37 32.1 (min) Purpose : 3
LOG : 5782.53 5784.12 1.6 Region : 3300
FDEPTH: 53 49 Gear cond.: 0
BDEPTH: 53 49 Validity : 0
Towing dir: 0° Wire out : 160 m Speed : 3.0 kn
Sorted : 19 Total catch: 18.75 Catch/hour: 35.10

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Pagellus bellottii	19.19	406	54.67	1043
Priacanthus arenatus	2.98	24	8.48	
Alloteuthis africana	2.62	1726	7.47	
Dentex congoensis	2.27	49	6.45	
Fistularia petimba	1.57	11	4.48	
Trachurus trecae	1.35	54	3.84	1042
Balistes punctatus	0.92	2	2.61	
Penaeus notialis	0.92	37	2.61	
Torpedo torpedo	0.88	2	2.51	
Sepia officinalis hierredda	0.64	2	1.81	
Umbrina canariensis	0.45	2	1.28	
Brachydeuterus auritus	0.43	34	1.23	
Pseudupeneus prayensis	0.30	7	0.85	
Lepidotrigla cadmani	0.30	9	0.85	
Ariomma bondi	0.19	7	0.53	
Dibranchus atlanticus	0.11	9	0.32	
Total	35.10		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 223
DATE :27/06/2007 GEAR TYPE: BT NO: 18 POSITION:Lat N 0°2.19
start stop duration Lon E 9°11.28
TIME :09:46:09 10:16:39 30.5 (min) Purpose : 3
LOG : 5794.78 5796.54 1.8 Region : 3300
FDEPTH: 32 33 Gear cond.: 0
BDEPTH: 32 33 Validity : 0
Towing dir: 0° Wire out : 110 m Speed : 3.5 kn
Sorted : 13 Total catch: 13.12 Catch/hour: 25.81

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Dentex barnardi	9.25	39	35.82	1045
Decapterus rhonchus	5.59	51	21.65	
Alectis alexandrinus	4.03	10	15.63	
Balistes capriscus	1.38	4	5.34	
Pomadasys peroteti	1.02	4	3.96	
Pagellus bellottii	0.98	10	3.81	
Lutjanus fulgens	0.94	2	3.66	
Syacium micrurum	0.77	2	2.97	
Caranx crysos	0.53	4	2.06	
Fistularia petimba	0.51	4	1.98	
DIODONTIDAE	0.33	2	1.30	
Decapterus punctatus	0.24	10	0.91	
Priacanthus arenatus	0.12	2	0.46	
Eucinostomus melanopterus	0.08	2	0.30	
Dibranchus atlanticus	0.04	4	0.15	
Total	25.81		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 224
DATE :27/06/2007 GEAR TYPE: BT NO: 18 POSITION:Lat N 0°2.72
start stop duration Lon E 9°16.38
TIME :11:48:48 12:19:11 30.4 (min) Purpose : 3
LOG : 5803.87 5805.37 1.5 Region : 3300
FDEPTH: 22 22 Gear cond.: 0
BDEPTH: 22 22 Validity : 0
Towing dir: 0° Wire out : 100 m Speed : 3.0 kn
Sorted : 85 Total catch: 84.90 Catch/hour: 167.62

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Chloroscombrus chrysurus	65.75	496	39.22	
Brachydeuterus auritus	21.03	1603	12.54	
Ilisha africana	20.43	1627	12.19	
Galeoides decadactylus	16.49	156	9.84	
Sardinella maderensis	8.88	324	5.30	
Sphyraena sphyraena	7.70	57	4.59	
Pteroscion peli	5.73	144	3.42	
Decapterus punctatus	5.13	32	3.06	
Psettodes belcheri	4.15	14	2.47	
Pseudotolithus typus	3.75	16	2.24	
Pagellus bellottii	2.27	10	1.35	
Trachinotus ovatus	1.97	12	1.18	
MONACANTHIDAE	0.99	2	0.59	
Pseudupeneus prayensis	0.59	10	0.35	
Lagocephalus laevigatus	0.59	10	0.35	
Scomberomorus tritor	0.47	2	0.28	
Syacium micrurum	0.30	2	0.18	
Drepane africana	0.30	2	0.18	
Scorpaena maderensis *	0.30	4	0.18	
Penaeus notialis	0.30	12	0.18	
Portunus validus	0.20	4	0.12	
Selene dorsalis	0.10	2	0.06	
Penaeus kerathurus	0.10	2	0.06	
Sepia officinalis hierredda	0.10	6	0.06	
Dasyatis margarita	0.02	2	0.01	
Total	167.62		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 225
DATE :27/06/2007 GEAR TYPE: BT NO: 18 POSITION:Lat S 0°11.14
start stop duration Lon E 9°13.22
TIME :13:52:24 14:23:38 31.2 (min) Purpose : 3
LOG : 5817.05 5818.60 1.6 Region : 3300
FDEPTH: 24 22 Gear cond.: 0
BDEPTH: 24 22 Validity : 0
Towing dir: 0° Wire out : 120 m Speed : 3.0 kn
Sorted : 35 Total catch: 35.36 Catch/hour: 67.91

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Lutjanus agennes	44.17	4	65.05	
Pagellus bellottii	5.67	27	8.34	
Lagocephalus laevigatus	4.42	12	6.50	
Psettodes belcheri	1.92	10	2.83	
Torpedo torpedo	1.44	4	2.12	
Scomberomorus tritor	1.44	4	2.12	
Chloroscombrus chrysurus	1.34	21	1.98	
Portunus validus	1.34	2	1.98	
Epinephelus aeneus	1.06	8	1.56	
Syacium micrurum	0.96	19	1.41	
Sepia officinalis hierredda	0.86	4	1.27	
Sphyraena sphyraena	0.77	2	1.13	
Penaeus notialis	0.67	54	0.99	
Sphoeroides marmoratus	0.67	8	0.99	
Sardinella maderensis	0.29	6	0.42	
Brachydeuterus auritus	0.29	13	0.42	
Galeoides decadactylus	0.19	2	0.28	
Pentheroscion mbizi	0.19	4	0.28	
Ilisha africana	0.10	6	0.14	
Fistularia tabacaria	0.10	4	0.14	
ECHENEIDIDAE	0.02	2	0.03	
Total	67.91		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 226
DATE :27/06/2007 GEAR TYPE: BT NO: 18 POSITION:Lat S 0°16.54
start stop duration Lon E 8°57.91
TIME :16:24:01 16:54:49 30.8 (min) Purpose : 3
LOG : 5835.78 5837.29 1.5 Region : 3300
FDEPTH: 68 66 Gear cond.: 0
BDEPTH: 68 66 Validity : 0
Towing dir: 0° Wire out : 210 m Speed : 2.9 kn
Sorted : 56 Total catch: 56.26 Catch/hour: 109.60

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Boops boops	44.22	1284	40.35	
Dentex congoensis	15.49	425	14.13	
Pagellus bellottii	6.29	152	5.74	
Decapterus punctatus	5.75	21	5.24	
Alloteuthis africana	5.01	1660	4.57	
Decapterus rhonchus	4.71	185	4.30	
Priacanthus arenatus	4.58	403	4.18	
Ariomma bondi	3.41	78	3.11	
Lagocephalus laevigatus	2.57	10	2.35	
PORTUNIDAE	2.38	6	2.17	
Epinephelus aeneus	2.38	6	2.17	
Sardinella aurita	2.10	55	1.92	
Fistularia tabacaria	1.91	6	1.74	
Torpedo torpedo	1.85	6	1.69	
Pseudupeneus prayensis	1.42	25	1.30	
Sepia officinalis hierredda	1.42	4	1.30	
Caranx crysos	0.95	21	0.87	
Dactylopterus volitans	0.90	2	0.82	
Elops lacerta	0.84	2	0.76	
Dentex barnardi	0.51	2	0.46	
Sphyraena guachancho	0.45	2	0.41	
Illex coindetii	0.19	4	0.18	
Trachurus trecae	0.14	2	0.12	
Chelidonichthys gabonensis	0.14	6	0.12	
Total	109.60		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 227
DATE :27/06/2007 GEAR TYPE: BT NO: 18 POSITION:Lat S 0°17.34
start stop duration Lon E 8°49.44
TIME :20:00:19 20:29:28 29.2 (min) Purpose : 3
LOG : 5854.11 5855.49 1.4 Region : 3300
FDEPTH: 160 174 Gear cond.: 0
BDEPTH: 160 174 Validity : 0
Towing dir: 0° Wire out : 480 m Speed : 2.8 kn
Sorted : 97 Total catch: 96.87 Catch/hour: 199.39

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Dentex angolensis	59.69	103	29.94	1047
Merluccius polli	27.07	327	13.57	
Synagrops microlepis	16.63	331	8.34	
Dentex congoensis	14.20	136	7.12	1046
MACROURIDAE	11.55	1710	5.79	
Chelidonichthys lucerna	9.82	214	4.92	
Pteroscion peli	8.38	60	4.20	
Brotula barbata	7.45	27	3.74	
Priacanthus arenatus	5.70	47	2.86	
Illex coindetii	4.75	89	2.38	
Antigonia capros	4.59	134	2.30	
Parapenaeus longirostris	4.53	10292	2.27	
Sepia officinalis hierredda	3.19	54	1.60	
Syacium micrurum	3.17	154	1.59	
Torpedo sp.	2.66	2	1.33	
Peristedion cataphractum	2.55	76	1.28	
Uranoscopus albesca	2.28	31	1.15	
Scorpaena normani	1.89	99	0.95	
Decapterus punctatus	1.61	78	0.81	
Gadella imberbis	1.36	25	0.68	
Ariomma bondi	1.19	25	0.60	
Aulopus cadenati	1.09	14	0.55	
Epigonus telescopus	1.05	62	0.53	
Raja miraletus	1.01	4	0.51	
Solenocera africana	1.01	27	0.51	
Zeus faber	0.51	2	0.26	
Caranx crysos	0.37	8	0.19	
Dicologoglossa hexophthalma	0.08	2	0.04	
Total	199.39		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 228
DATE :27/06/2007 GEAR TYPE: BT NO: 18 POSITION:Lat S 0°17.62
start stop duration Lon E 8°42.11
TIME :22:47:39 23:17:56 30.3 (min) Purpose : 3
LOG : 5869.60 5871.05 1.5 Region : 3300
FDEPTH: 451 480 Gear cond.: 0
BDEPTH: 451 480 Validity : 0
Towing dir: 0° Wire out : 1200 m Speed : 2.9 kn
Sorted : 134 Total catch: 134.10 Catch/hour: 265.63

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Nematocarcinus africanus	177.48	8874	66.82	
Merluccius polli	25.06	59	9.43	
Lophius vaillanti	19.41	14	7.31	
Malacocephalus laevis	14.56	305	5.48	
Illex coindetii	7.63	97	2.87	
Benthodesmus tenuis	5.55	180	2.09	
C R U S T A C E A N S	4.85	250	1.83	
S H R I M P S	4.85	277	1.83	
APOGONIDAE	2.77	14	1.04	
Priacanthus arenatus	2.08	28	0.78	
Etmopterus pusillus	1.39	10	0.52	
Total	265.63		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 229
DATE :28/06/2007 GEAR TYPE: BT NO: 18 POSITION:Lat S 0°42.92
start stop duration Lon E 8°40.49
TIME :09:50:03 10:20:36 30.6 (min) Purpose : 3
LOG : 5951.20 5952.75 1.6 Region : 3300
FDEPTH: 26 27 Gear cond.: 0
BDEPTH: 26 27 Validity : 0
Towing dir: 0° Wire out : 90 m Speed : 3.0 kn
Sorted : 64 Total catch: 254.50 Catch/hour: 499.67

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Ilisha africana	210.27	210	42.08	
Selene dorsalis	104.69	1667	20.95	
Pseudotolithus typus	39.76	785	7.96	1049
Sphyraena sphyraena	30.92	88	6.19	1048
Trichiurus lepturus	30.04	1172	6.01	
Galeoides decadactylus	22.68	2	4.54	
Portunus validus	16.79	79	3.36	
TORPEDINIDAE	13.79	8	2.76	
Brachydeuterus auritus	8.84	283	1.77	
Galeoides decadactylus	6.62	69	1.32	0
Pentheroscion mbizi	6.18	247	1.24	
Parapenaeus longirostris	4.42	919	0.88	
Penaeus notialis	2.65	106	0.53	
Chloroscombrus chrysurus	0.88	10	0.18	
Drepane africana	0.88	43	0.18	
Alectis alexandrinus	0.09	79	0.02	
Peristedion cataphractum	0.09	10	0.02	
Lagocephalus laevigatus	0.09	26	0.02	
Total	499.67		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 230
DATE :28/06/2007 GEAR TYPE: BT NO: 18 POSITION:Lat S 0°50.55
start stop duration Lon E 8°33.73
TIME :12:02:48 12:18:02 15.2 (min) Purpose : 3
LOG : 5963.67 5964.39 0.7 Region : 3300
FDEPTH: 62 67 Gear cond.: 9
BDEPTH: 62 67 Validity : 9
Towing dir: 0° Wire out : 180 m Speed : 2.9 kn
Sorted : 16 Total catch: 16.25 Catch/hour: 64.02

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Pagellus bellottii	21.47	548	33.54	1050
Sphyraena sphyraena	10.24	189	16.00	
Raja miraletus	6.11	12	9.54	
Squatina oculata	3.55	4	5.54	
Dentex congoensis	3.35	16	5.23	
Portunus validus	3.15	12	4.92	
Octopus vulgaris	2.95	4	4.62	
Trichiurus lepturus	2.95	24	4.62	
Brotula barbata	2.36	8	3.69	
Penaeus notialis	2.17	59	3.38	
Boops boops	1.77	51	2.77	
Branchiostegus semifasciatus *	1.38	4	2.15	
Brachydeuterus auritus	0.79	79	1.23	1052
Sepia officinalis hierredda	0.59	8	0.92	
Decapterus rhonchus	0.39	43	0.62	1051
Serranus accraensis	0.39	16	0.62	
Trigla lyra	0.39	12	0.62	
Total	64.02		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 231
DATE :28/06/2007 GEAR TYPE: BT NO: 18 POSITION:Lat S 1°0.31
start stop duration Lon E 8°25.61
TIME :14:03:03 14:22:46 19.7 (min) Purpose : 3
LOG : 5978.36 5979.37 1.0 Region : 3300
FDEPTH: 112 165 Gear cond.: 0
BDEPTH: 112 165 Validity : 0
Towing dir: 0° Wire out : 320 m Speed : 3.1 kn
Sorted : 5 Total catch: 4.68 Catch/hour: 14.24

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Anthias anthias	6.24	520	43.80	
Dentex congoensis	5.02	94	35.26	1053
Sphyraena sphyraena	0.97	6	6.84	
Zeus faber	0.76	3	5.34	
Fistularia petimba	0.46	3	3.21	
Raja miraletus	0.46	3	3.21	
Boops boops	0.30	9	2.14	
Alloteuthis africana	0.03	64	0.21	
Total	14.24		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 232
DATE :28/06/2007 GEAR TYPE: BT NO: 18 POSITION:Lat S 1°6.61
start stop duration Lon E 8°27.21
TIME :16:44:28 17:14:53 30.4 (min) Purpose : 3
LOG : 5989.60 5991.09 1.5 Region : 3300
FDEPTH: 105 109 Gear cond.: 0
BDEPTH: 105 109 Validity : 0
Towing dir: 0° Wire out : 280 m Speed : 2.9 kn
Sorted : 34 Total catch: 34.02 Catch/hour: 67.10

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Dentex congoensis	41.62	673	62.02	1054
Squatina oculata	5.38	4	8.02	
Dentex angolensis	5.07	30	7.55	1055
Lepidotrigla cadmani	4.34	6	6.47	
Rhinobatos albomaculatus	3.41	2	5.09	
Spicara alta	1.64	34	2.44	
Sepia officinalis hierredda	1.32	2	1.97	
Fistularia petimba	1.26	8	1.88	
Scorpaena scrofa	1.01	2	1.50	
Pagellus bellottii	0.87	18	1.29	
Ariomma bondi	0.41	12	0.62	
Boops boops	0.30	8	0.44	
Illex coindetii	0.16	6	0.24	
Syacium micrurum	0.14	6	0.21	
Anthias anthias	0.08	6	0.12	
Priacanthus arenatus	0.08	2	0.12	
Brotula barbata	0.02	2	0.03	
Total	67.10		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 233
DATE :29/06/2007 GEAR TYPE: BT NO: 18 POSITION:Lat S 1°49.65
start stop duration Lon E 8°47.35
TIME :02:35:59 03:06:24 30.4 (min) Purpose : 3
LOG : 6061.79 6063.30 1.5 Region : 3300
FDEPTH: 126 125 Gear cond.: 0
BDEPTH: 126 125 Validity : 0
Towing dir: 0° Wire out : 380 m Speed : 3.0 kn
Sorted : 79 Total catch: 160.64 Catch/hour: 316.84

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Spicara alta	220.71	2809	69.66	
Dentex congoensis	35.50	578	11.21	1056
Umbrina canariensis	14.00	47	4.42	
MYCTOPHIDAE	8.28	3438	2.61	
Trigla lyra	6.51	166	2.05	
Trichiurus lepturus	5.92	8	1.87	
Squatina oculata	4.73	2	1.49	
Torpedo torpedo	4.34	8	1.37	
Trachinocephalus myops	4.14	39	1.31	
Sepia officinalis hierredda	2.56	20	0.81	
Dentex angolensis	1.78	8	0.56	
Chelidonichthys gabonensis	1.78	16	0.56	
Uranoscopus cadenati	1.78	12	0.56	
Raja miraletus	1.38	4	0.44	
Scorpaena normani	1.38	4	0.44	
Ariomma bondi	0.99	16	0.31	
Ariomma melanum	0.99	20	0.31	
Syacium micrurum	0.04	4	0.01	
Citharus linguatula	0.04	12	0.01	
Total	316.84		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 234
DATE :29/06/2007 GEAR TYPE: BT NO: 18 POSITION:Lat S 1°48.97
start stop duration Lon E 8°51.59
TIME :05:32:47 06:02:13 29.4 (min) Purpose : 3
LOG : 6074.64 6076.13 1.5 Region : 3300
FDEPTH: 104 105 Gear cond.: 0
BDEPTH: 104 105 Validity : 0
Towing dir: 0° Wire out : 310 m Speed : 3.0 kn
Sorted : 0 Total catch: 142.34 Catch/hour: 290.29

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Dentex congoensis	148.88	1927	51.29	1057
Sepia officinalis hierredda	39.97	37	13.77	
Epinephelus aeneus	29.78	2	10.26	
Ariomma bondi	25.37	632	8.74	
Dentex angolensis	20.19	143	6.96	1058
Spicara alta	8.57	106	2.95	
Umbrina canariensis	3.55	12	1.22	
Priacanthus arenatus	3.47	41	1.19	
Fistularia petimba	2.45	12	0.84	
Chelidonichthys gabonensis	2.16	37	0.74	
Chaetodon hoefleri	1.88	8	0.65	
Raja miraletus	1.43	4	0.49	
Torpedo torpedo	1.43	8	0.49	
Pseudupeneus prayensis	0.73	8	0.25	
Boops boops	0.45	12	0.15	
Total	290.29		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 235
DATE :29/06/2007 GEAR TYPE: BT NO: 18 POSITION:Lat S 1°43.38
start stop duration Lon E 8°57.28
TIME :08:14:07 08:44:48 30.7 (min) Purpose : 3
LOG : 6088.35 6089.93 1.6 Region : 3300
FDEPTH: 56 56 Gear cond.: 0
BDEPTH: 56 56 Validity : 0
Towing dir: 0° Wire out : 165 m Speed : 3.1 kn
Sorted : 88 Total catch: 87.76 Catch/hour: 171.57

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Brachydeuterus auritus	81.13	1163	47.29	
Pagellus bellottii	60.12	923	35.04	1059
Mustelus mustelus	12.02	8	7.01	
Pseudupeneus prayensis	4.93	84	2.87	
Sphyraena guachancho	3.66	18	2.13	
Torpedo torpedo	2.25	2	1.31	
Chelidonichthys gabonensis	2.11	39	1.23	
Balistes punctatus	1.37	2	0.80	
Alloteuthis africana	1.31	753	0.76	
Trichiurus lepturus	0.98	2	0.57	
Sepia officinalis hierredda	0.61	6	0.35	
Priacanthus arenatus	0.35	2	0.21	
Decapterus rhonchus	0.31	6	0.18	
Fistularia petimba	0.16	2	0.09	
Trachinocephalus myops	0.14	2	0.08	
Squilla sp.	0.08	2	0.05	
Syacium micrurum	0.06	2	0.03	
Total	171.57		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 236
DATE :29/06/2007 GEAR TYPE: BT NO: 18 POSITION:Lat S 1°37.17
start stop duration Lon E 9°4.62
TIME :10:19:58 10:50:00 30.0 (min) Purpose : 3
LOG : 6103.30 6104.82 1.5 Region : 3300
FDEPTH: 20 21 Gear cond.: 0
BDEPTH: 20 21 Validity : 0
Towing dir: 0° Wire out : 100 m Speed : 3.0 kn
Sorted : 6 Total catch: 6.36 Catch/hour: 12.70

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Decapterus rhonchus	4.89	14	38.52	1063
Scomberomorus tritor	2.50	4	19.65	
Selene dorsalis	1.90	14	14.94	1061
Galeoides decadactylus	1.80	14	14.15	1062
Chloroscombrus chrysurus	1.10	12	8.65	1060
Pseudupeneus prayensis	0.50	4	3.93	
Brachydeuterus auritus	0.02	2	0.16	
Total	12.70		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 237
DATE :29/06/2007 GEAR TYPE: BT NO: 20 POSITION:Lat S 1°51.49
start stop duration Lon E 9°10.47
TIME :13:20:01 13:50:07 30.1 (min) Purpose : 3
LOG : 6122.86 6124.32 1.5 Region : 3300
FDEPTH: 28 28 Gear cond.: 0
BDEPTH: 28 28 Validity : 0
Towing dir: 0° Wire out : 120 m Speed : 2.9 kn
Sorted : 78 Total catch: 309.44 Catch/hour: 617.03

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Chloroscombrus chrysurus	430.71	6355	69.80	1067
Sphyraena sphyraena	115.65	373	18.74	1066
Brachydeuterus auritus	13.96	311	2.26	0
Decapterus rhonchus	10.37	40	1.68	1064
Pseudotolithus senegalensis	9.17	40	1.49	1065
Penaeus notialis	8.77	423	1.42	
Pomadasys peroteti	6.38	24	1.03	
Stromateus fiatola	5.58	8	0.90	
Brachydeuterus auritus	4.79	1787	0.78	
Sepia officinalis hierredda	4.39	16	0.71	
Trichiurus lepturus	3.99	8	0.65	
Ilisha africana	1.99	88	0.32	
Sphyraena sphyraena	1.20	104	0.19	
Pteroscion peli	0.08	8	0.01	
Total	617.03		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 238
DATE :29/06/2007 GEAR TYPE: BT NO: 20 POSITION:Lat S 1°54.32
start stop duration Lon E 9°6.74
TIME :14:54:24 15:25:35 31.2 (min) Purpose : 3
LOG : 6131.31 6132.82 1.5 Region : 3300
FDEPTH: 46 47 Gear cond.: 0
BDEPTH: 46 47 Validity : 0
Towing dir: 0° Wire out : 150 m Speed : 2.9 kn
Sorted : 12 Total catch: 60.05 Catch/hour: 115.59

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Brachydeuterus auritus	26.18	416	22.65	
Pagellus bellottii	26.18	296	22.65	1068
Sphyraena sp.	11.65	414	10.07	
Pomadasys incisus	10.49	87	9.08	
Lepidotrigla cadmani	9.34	92	8.08	
Sphyraena sphyraena	7.70	35	6.66	
Pomadasys peroteti	7.12	21	6.16	1069
Raja miraletus	4.91	13	4.25	
Torpedo sp.	4.14	17	3.58	
Syacium micrurum	2.50	54	2.16	
Trichiurus lepturus	1.35	4	1.17	
Psettodes belcheri	1.25	2	1.08	
Decapterus rhonchus	0.87	8	0.75	
Penaeus notialis	0.87	17	0.75	
Galeoides decadactylus	0.48	6	0.42	
Trachinus armatus	0.29	6	0.25	
Squilla mantis	0.19	8	0.17	
Penaeus kerathurus	0.10	2	0.08	
Total	115.59		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 239
DATE :29/06/2007 GEAR TYPE: BT NO: 20 POSITION:Lat S 1°58.58
start stop duration Lon E 9°1.36
TIME :16:42:10 17:11:16 29.1 (min) Purpose : 3
LOG : 6142.80 6144.18 1.4 Region : 3300
FDEPTH: 62 64 Gear cond.: 0
BDEPTH: 62 64 Validity : 0
Towing dir: 0° Wire out : 180 m Speed : 2.8 kn
Sorted : 64 Total catch: 320.65 Catch/hour: 661.13

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Trachurus trecae	358.25	6381	54.19	1071
Pagellus bellottii	239.69	4536	36.25	
Dactylopterus volitans	30.93	134	4.68	
Pseudupeneus prayensis	8.97	103	1.36	
Sardinella aurita	6.08	82	0.92	1070
Trachinus armatus	4.23	62	0.64	
Dentex barnardi	3.81	62	0.58	
Trachinocephalus myops	2.99	21	0.45	
Uranoscopus cadenati	2.58	10	0.39	
Fistularia petimba	2.16	21	0.33	
Decapterus punctatus	1.44	31	0.22	
Total	661.13		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 240
DATE :29/06/2007 GEAR TYPE: BT NO: 20 POSITION:Lat S 2°6.99
start stop duration Lon E 8°52.01
TIME :20:54:16 21:24:17 30.0 (min) Purpose : 3
LOG : 6165.01 6166.52 1.5 Region : 3300
FDEPTH: 122 142 Gear cond.: 0
BDEPTH: 122 142 Validity : 0
Towing dir: 0° Wire out : 350 m Speed : 3.0 kn
Sorted : 44 Total catch: 331.76 Catch/hour: 663.08

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Antigonia capros	546.38	16999	82.40	
Rhinobatos albomaculatus	24.58	14	3.71	
Mustelus mustelus	18.73	14	2.82	
Aulopus cadenati	18.29	314	2.76	
Pagellus bellottii	12.29	434	1.85	
Trichiurus lepturus	9.13	44	1.38	
Dentex congoensis	8.23	254	1.24	
Chelidonichthys gabonensis	8.23	344	1.24	
Spicara alta	6.74	210	1.02	
Hypoclydonia bella *	5.10	134	0.77	
Sepia officinalis hierredda	2.24	30	0.34	
Illex coindetii	1.34	14	0.20	
Raja miraletus	0.90	14	0.14	
Scorpaena sp.	0.90	14	0.14	
Total	663.08		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 241
DATE :29/06/2007 GEAR TYPE: BT NO: 20 POSITION:Lat S 2°16.51
start stop duration Lon E 8°52.24
TIME :23:58:36 00:28:52 30.3 (min) Purpose : 3
LOG : 6184.61 6186.09 1.5 Region : 3300
FDEPTH: 297 300 Gear cond.: 0
BDEPTH: 297 300 Validity : 0
Towing dir: 0° Wire out : 850 m Speed : 2.9 kn
Sorted : 14 Total catch: 98.52 Catch/hour: 195.28

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Chlorophthalmus atlanticus	89.79	3296	45.98	
Trigla lyra	21.29	167	10.90	
Illex coindetii	19.62	309	10.05	
Peristedion cataphractum	11.42	345	5.85	
TORPEDINIDAE	10.60	2	5.43	
Zenion hololepis	10.11	1645	5.18	
Chascanopsetta lugubris	5.83	107	2.98	
Scyliorhinus cervigoni	4.96	8	2.54	
Lophius vaillanti	4.46	4	2.28	
Ijimaia loppei	3.57	12	1.83	
Zenopsis conchifer	2.87	2	1.47	
Paramola cuvieri	2.38	2	1.22	
Trichiurus lepturus	1.90	12	0.97	
Plesionika martia	1.78	95	0.91	
Malacocephalus occidentalis	1.67	48	0.85	
Malacocephalus laevis	1.19	119	0.61	
Antigonia capros	0.48	12	0.24	
Nezumia aequalis	0.48	12	0.24	
Hoplostethus mediterraneus	0.48	12	0.24	
Merluccius polli	0.30	2	0.15	
Polymetme corythaeola	0.12	36	0.06	
Total	195.28		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 242
DATE :30/06/2007 GEAR TYPE: BT NO: 20 POSITION:Lat S 2°20.10
start stop duration Lon E 8°56.09
TIME :02:10:54 02:41:06 30.2 (min) Purpose : 3
LOG : 6196.58 6198.04 1.5 Region : 3300
FDEPTH: 137 138 Gear cond.: 0
BDEPTH: 137 138 Validity : 0
Towing dir: 0° Wire out : 400 m Speed : 2.9 kn
Sorted : 45 Total catch: 167.13 Catch/hour: 332.16

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Antigonia capros	150.05	5501	45.17	
Boops boops	92.22	3226	27.76	
Umbrina canariensis	26.04	22	7.84	
Dentex congoensis	17.39	584	5.24	1074
Squatina oculata	14.51	2	4.37	
Trichiurus lepturus	8.00	14	2.41	
Apogon sp.	6.56	133	1.97	
Spicara alta	6.26	237	1.88	
Raja miraletus	3.78	14	1.14	
Squalus megalops	2.09	2	0.63	
Sepia officinalis hierredda	2.09	28	0.63	
Peristedion cataphractum	1.73	56	0.52	
TORPEDINIDAE	1.39	2	0.42	
Syacium micrurum	0.07	14	0.02	
Total	332.16		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 243
DATE :30/06/2007 GEAR TYPE: BT NO: 20 POSITION:Lat S 2°17.79
start stop duration Lon E 9°3.28
TIME :05:33:59 06:04:38 30.7 (min) Purpose : 3
LOG : 6212.67 6214.31 1.7 Region : 3300
FDEPTH: 81 82 Gear cond.: 0
BDEPTH: 81 82 Validity : 0
Towing dir: 0° Wire out : 270 m Speed : 3.2 kn
Sorted : 0 Total catch: 83.86 Catch/hour: 164.16

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Pagellus bellottii	64.99	863	39.59	1075
Sepia officinalis hierredda	21.53	47	13.12	
Dentex canariensis	21.14	45	12.88	1072
Rhinobatos albomaculatus	16.35	8	9.96	
Fistularia petimba	12.72	127	7.75	
Seriola dumerili	5.54	8	3.37	
Pseudupeneus prayensis	4.25	41	2.59	
Raja miraletus	3.95	12	2.41	
Chelidonichthys gabonensis	3.43	41	2.09	
Apsilus fuscus	2.51	6	1.53	
Alloteuthis africana	2.39	1223	1.45	
Pagrus auriga	1.92	2	1.17	
Dentex congoensis	1.45	18	0.88	
Lutjanus fulgens	1.14	2	0.69	
Trachurus trecae	0.72	4	0.44	
Chaetodon marcellae	0.14	4	0.08	
Total	164.16		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 244
DATE :30/06/2007 GEAR TYPE: BT NO: 20 POSITION:Lat S 2°9.68
start stop duration Lon E 9°11.43
TIME :07:41:01 08:13:11 32.2 (min) Purpose : 3
LOG : 6226.95 6228.66 1.7 Region : 3300
FDEPTH: 46 46 Gear cond.: 0
BDEPTH: 46 46 Validity : 0
Towing dir: 0° Wire out : 140 m Speed : 3.2 kn
Sorted : 101 Total catch: 101.47 Catch/hour: 189.25

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Brachydeuterus auritus	124.40	1393	65.73	
Pagellus bellottii	17.44	295	9.21	
Trachurus trecae	11.68	147	6.17	
Chelidonichthys gabonensis	6.62	63	3.50	
Bothus podas africanus	5.93	157	3.13	
Trachinus armatus	5.88	80	3.10	
Sepia officinalis hierredda	5.04	4	2.66	
Umbrina canariensis	1.77	6	0.94	
Decapterus rhonchus	1.40	7	0.74	1073
Dactylopterus volitans	1.36	6	0.72	
Fistularia petimba	1.21	13	0.64	
Sphyraena guachancho	1.08	13	0.57	
Trachinocephalus myops	0.91	2	0.48	
MONACANTHIDAE	0.84	2	0.44	
Uranoscopus cadenati	0.84	2	0.44	
Dentex canariensis	0.56	2	0.30	
Trachinus lineolatus	0.56	2	0.30	
Scomberomorus tritor	0.52	4	0.28	
Pegusa lascaris	0.52	4	0.28	
Dicologoglossa hexophthalma	0.26	4	0.14	
Diodon sp.	0.21	2	0.11	
Penaeus kerathurus	0.15	4	0.08	
Pseudupeneus prayensis	0.07	2	0.04	
Total	189.25		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 245
DATE :30/06/2007 GEAR TYPE: BT NO: 20 POSITION:Lat S 2°3.40
start stop duration Lon E 9°18.84
TIME :10:26:43 10:56:47 30.1 (min) Purpose : 3
LOG : 6242.57 6244.15 1.6 Region : 3300
FDEPTH: 18 19 Gear cond.: 0
BDEPTH: 18 19 Validity : 0
Towing dir: 0° Wire out : 100 m Speed : 3.1 kn
Sorted : 156 Total catch: 155.54 Catch/hour: 310.36

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Chloroscombrus chrysurus	275.74	3925	88.85	
Brachydeuterus auritus	5.79	90	1.86	
Decapterus rhonchus	4.89	36	1.58	1076
Galeoides decadactylus	4.79	34	1.54	
Selene dorsalis	4.29	50	1.38	
Ephippion guttifer	3.89	2	1.25	
Alectis alexandrinus	2.97	14	0.96	
Sardinella maderensis	2.19	30	0.71	1078
Sphyraena sphyraena	1.90	10	0.61	1077
Arius parkii	1.80	4	0.58	
Caranx crysos	0.98	6	0.32	
Eucinostomus melanopterus	0.66	10	0.21	
Pomadasys peroteti	0.48	4	0.15	
Total	310.36		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 246
DATE :30/06/2007 GEAR TYPE: BT NO: 20 POSITION:Lat S 2°15.08
start stop duration Lon E 9°25.41
TIME :12:25:46 12:55:57 30.2 (min) Purpose : 3
LOG : 6256.17 6257.61 1.4 Region : 3300
FDEPTH: 18 22 Gear cond.: 0
BDEPTH: 18 22 Validity : 0
Towing dir: 0° Wire out : 100 m Speed : 2.9 kn
Sorted : 82 Total catch: 82.19 Catch/hour: 163.35

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Lutjanus fulgens	30.21	105	18.49	1080
Dentex gibbosus	12.62	4	7.73	
Chaetodipterus goreensis	11.73	36	7.18	
Chloroscombrus chrysurus	11.53	105	7.06	
Selene dorsalis	11.13	119	6.81	
Galeoides decadactylus	10.53	48	6.45	
Ephippion guttifer	8.05	2	4.93	
Lethrinus atlanticus	7.65	22	4.68	
Pagrus caeruleostictus	5.66	20	3.47	1081
Sphyraena sphyraena	5.07	16	3.10	1079
Sarpa salpa	4.97	2	3.04	
Pomadasys peroteti	4.87	4	2.98	
Scomberomorus tritor	4.87	10	2.98	
Pomadasys incisus	4.67	36	2.86	
Pagellus bellottii	4.37	10	2.68	
Acanthurus monroviae	3.97	8	2.43	
Balistes punctatus	3.58	10	2.19	
Apsilus fuscus	3.28	12	2.01	
Bodianus speciosus	3.08	6	1.89	
Elops lacerta	2.58	8	1.58	
Psettodes belcheri	1.79	2	1.10	
Ilisha africana	1.59	66	0.97	
Caranx hippos	1.49	6	0.91	
Drepane africana	1.49	4	0.91	
Arius parkii	1.09	2	0.67	
Panulirus regius	1.07	2	0.66	
Fistularia petimba	0.40	2	0.24	
Total	163.35		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 247
DATE :30/06/2007 GEAR TYPE: BT NO: 20 POSITION:Lat S 2°20.29
start stop duration Lon E 9°20.51
TIME :14:55:22 15:04:57 9.6 (min) Purpose : 3
LOG : 6266.43 6266.93 0.5 Region : 3300
FDEPTH: 42 41 Gear cond.: 9
BDEPTH: 42 41 Validity : 9
Towing dir: 0° Wire out : 120 m Speed : 3.2 kn
Sorted : 15 Total catch: 14.60 Catch/hour: 91.35

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Lutjanus fulgens	26.90	125	29.45	1082
Pomadasys peroteti	22.21	231	24.32	
Sphyraena sphyraena	7.51	31	8.22	1083
Galeoides decadactylus	5.32	56	5.82	
Pseudotolithus typus	5.32	6	5.82	
Epinephelus goreensis	5.32	6	5.82	
Decapterus punctatus	3.44	6	3.77	
Caranx hippos	2.82	6	3.08	
Epinephelus aeneus	2.50	6	2.74	
Chloroscombrus chrysurus	1.88	13	2.05	
Chaetodon robustus	1.56	31	1.71	
Pagrus caeruleostictus	1.56	6	1.71	
Echeneis naucrates	1.25	6	1.37	
Umbrina canariensis	1.25	6	1.37	
Pagellus bellottii	1.25	13	1.37	
Pseudupeneus prayensis	0.94	38	1.03	
Brachydeuterus auritus	0.31	6	0.34	
Total	91.35		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 248
DATE :30/06/2007 GEAR TYPE: BT NO: 20 POSITION:Lat S 2°28.00
start stop duration Lon E 9°10.34
TIME :16:34:27 17:05:28 31.0 (min) Purpose : 3
LOG : 6279.97 6281.65 1.7 Region : 3300
FDEPTH: 79 85 Gear cond.: 0
BDEPTH: 79 85 Validity : 0
Towing dir: 0° Wire out : 250 m Speed : 3.2 kn
Sorted : 63 Total catch: 527.08 Catch/hour: 1019.50

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Trachurus trecae	467.12	9754	45.82	1086
Decapterus rhonchus	208.70	4447	20.47	1087
Sardinella aurita	113.87	2147	11.17	1084
Dentex gibbosus	69.05	37	6.77	1088
Scomber japonicus	63.68	507	6.25	1085
Epinephelus aeneus	24.76	2	2.43	
Chromis cadenati	23.35	188	2.29	
Pagellus bellottii	20.74	435	2.03	
Sepia officinalis hierredda	7.54	29	0.74	
Zeus faber	7.39	14	0.72	
Mustelus mustelus	4.08	2	0.40	
Lutjanus fulgens	3.87	4	0.38	
Dactylopterus volitans	3.62	14	0.35	
Pseudupeneus prayensis	1.16	14	0.11	
Chelidonichthys gabonensis	0.58	43	0.06	
Total	1019.50		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 249
DATE :30/06/2007 GEAR TYPE: BT NO: 20 POSITION:Lat S 2°37.45
start stop duration Lon E 9°1.25
TIME :20:05:57 20:32:13 26.3 (min) Purpose : 3
LOG : 6298.46 6299.71 1.2 Region : 3300
FDEPTH: 170 174 Gear cond.: 0
BDEPTH: 170 174 Validity : 0
Towing dir: 0° Wire out : 530 m Speed : 2.8 kn
Sorted : 41 Total catch: 123.60 Catch/hour: 282.30

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Antigonia capros	147.32	4100	52.18	
Aulopus cadenati	32.55	532	11.53	
Dentex congoensis	31.04	795	11.00	
Spicara alta	24.87	939	8.81	
Chelidonichthys lastoviza	12.74	411	4.51	
Decapterus rhonchus	9.66	158	3.42	
Uranoscopus cadenati	3.84	27	1.36	
Sepia officinalis hierredda	3.77	41	1.33	
Trichiurus lepturus	3.43	14	1.21	
Sardinella aurita	3.22	55	1.14	
Trigla lyra	2.88	21	1.02	
Illex coindetii	2.81	48	1.00	
Pegusa lascaris	1.71	34	0.61	
Dentex barnardi	1.10	7	0.39	
Epigonus telescopus	0.82	14	0.29	
Dentex angolensis	0.55	7	0.19	
Total	282.30		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 250
DATE :01/07/2007 GEAR TYPE: BT NO: 20 POSITION:Lat S 2°46.28
start stop duration Lon E 9°14.90
TIME :05:32:28 06:00:15 27.8 (min) Purpose : 3
LOG : 6353.90 6355.24 1.3 Region : 3300
FDEPTH: 106 104 Gear cond.: 0
BDEPTH: 106 104 Validity : 0
Towing dir: 0° Wire out : 300 m Speed : 2.9 kn
Sorted : 33 Total catch: 32.71 Catch/hour: 70.62

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Ariomma bondi	17.75	108	25.13	1089
Hexanchus griseus	13.99	24	19.81	
Sepia officinalis hierredda	6.74	41	9.54	
Lepidotrigla carolae	5.79	117	8.19	
Squatina oculata	4.77	2	6.76	
Trichiurus lepturus	3.84	6	5.44	
Torpedo torpedo	3.65	4	5.17	
Boops boops	3.58	145	5.07	
Dentex congoensis	3.20	138	4.52	
Raja miraletus	3.17	9	4.49	
Fistularia petimba	2.22	9	3.15	
Spicara alta	0.76	60	1.07	
Zeus faber	0.71	2	1.01	
Illex coindetii	0.26	4	0.37	
Pegusa lascaris	0.19	4	0.28	
Total	70.62		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 251
DATE :01/07/2007 GEAR TYPE: BT NO: 20 POSITION:Lat S 2°35.40
start stop duration Lon E 9°29.34
TIME :08:54:15 09:22:49 28.6 (min) Purpose : 3
LOG : 6377.56 6379.08 1.5 Region : 3300
FDEPTH: 50 50 Gear cond.: 0
BDEPTH: 50 50 Validity : 0
Towing dir: 0° Wire out : 150 m Speed : 3.2 kn
Sorted : 69 Total catch: 69.17 Catch/hour: 145.26

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Brachydeuterus auritus	31.82	311	21.90	
Pagellus bellottii	24.99	179	17.20	1091
Lepidotrigla carolae	20.08	84	13.82	
Trichiurus lepturus	16.80	61	11.57	
Sepia officinalis hierredda	9.05	17	6.23	
Trachinocephalus myops	7.94	130	5.46	
Brachydeuterus auritus	7.83	4862	5.39	0
Trachinus armatus	6.43	113	4.42	
Bothus podas africanus	5.12	143	3.53	
Decapterus rhonchus	5.08	53	3.50	1092
Scomberomorus tritor	2.84	4	1.95	
Umbrina canariensis	2.42	8	1.66	
Sardinella maderensis	1.58	630	1.08	1090
Galeoides decadactylus	1.34	19	0.93	
Pseudupeneus prayensis	1.05	25	0.72	
Dactylopterus volitans	0.57	2	0.39	
Uranoscopus cadenati	0.34	2	0.23	
Total	145.26		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 252
DATE :01/07/2007 GEAR TYPE: BT NO: 20 POSITION:Lat S 2°28.23
start stop duration Lon E 9°36.12
TIME :11:10:25 11:40:54 30.5 (min) Purpose : 3
LOG : 6390.15 6391.64 1.5 Region : 3300
FDEPTH: 20 22 Gear cond.: 0
BDEPTH: 20 22 Validity : 0
Towing dir: 0° Wire out : 120 m Speed : 2.9 kn
Sorted : 75 Total catch: 152.10 Catch/hour: 299.31

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Chloroscombrus chrysurus	129.68	2228	43.33	
Sphyraena sphyraena	35.22	496	11.77	
Ilisha africana	33.45	5500	11.18	
Galeoides decadactylus	26.76	256	8.94	
Pagellus bellottii	11.61	75	3.88	1094
Sardinella maderensis	7.67	173	2.56	1095
Pseudotolithus typus	7.48	4	2.50	
Alectis alexandrinus	7.28	8	2.43	
Brachydeuterus auritus	6.69	43	2.24	
Ephippion guttifer	5.31	4	1.78	
Selene dorsalis	4.72	134	1.58	
Sepia officinalis hierredda	4.13	8	1.38	
Decapterus rhonchus	3.54	122	1.18	1093
Dactylopterus volitans	2.56	8	0.85	
Scomberomorus tritor	2.36	2	0.79	
Arius parkii	2.16	4	0.72	
Elops lacerta	2.01	4	0.67	
Pteroscion peli	1.97	83	0.66	
Trichiurus lepturus	1.97	28	0.66	
Pseudotolithus senegalensis	1.57	12	0.53	
Pomadasys incisus	0.79	4	0.26	
Trachurus trecae	0.20	4	0.07	
Pentanemus quinquarius	0.16	4	0.05	
Total	299.31		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 253
DATE :01/07/2007 GEAR TYPE: BT NO: 20 POSITION:Lat S 2°36.50
start stop duration Lon E 9°43.60
TIME :12:55:35 12:58:04 2.5 (min) Purpose : 3
LOG : 6401.40 6401.50 0.1 Region : 3300
FDEPTH: 21 18 Gear cond.: 9
BDEPTH: 21 18 Validity : 9
Towing dir: 0° Wire out : 120 m Speed : 2.5 kn
Sorted : 15 Total catch: 14.55 Catch/hour: 352.02

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Lutjanus fulgens	81.05	290	23.02	
Umbrina canariensis	55.65	97	15.81	
Trichiurus lepturus	41.13	411	11.68	
Arius parkii	36.29	24	10.31	
Pseudotolithus senegalensis	33.87	24	9.62	
Pseudotolithus senegalensis	32.66	48	9.28	0
Galeoides decadactylus	27.82	145	7.90	
Lutjanus goreensis	24.19	24	6.87	
Selene dorsalis	10.89	73	3.09	
Chloroscombrus chrysurus	4.84	97	1.37	
Ilisha africana	2.18	97	0.62	
Pteroscion peli	0.73	24	0.21	
Sphyraena sphyraena	0.48	48	0.14	
Decapterus rhonchus	0.24	24	0.07	
Total	352.02		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 254
DATE :01/07/2007 GEAR TYPE: BT NO: 20 POSITION:Lat S 2°41.23
start stop duration Lon E 9°44.70
TIME :13:55:07 14:08:32 13.4 (min) Purpose : 3
LOG : 6407.61 6407.99 0.4 Region : 3300
FDEPTH: 30 30 Gear cond.: 9
BDEPTH: 30 30 Validity : 9
Towing dir: 0° Wire out : 120 m Speed : 1.7 kn
Sorted : 18 Total catch: 17.70 Catch/hour: 79.14

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Pseudotolithus senegalensis	19.45	4	24.58	
Lutjanus fulgens	16.32	67	20.62	
Umbrina canariensis	15.42	22	19.49	
Lutjanus goreensis	10.28	4	12.99	
Chaetodipterus goreensis	5.14	13	6.50	
Cephalopholis taeniops	3.80	4	4.80	
Selene dorsalis	2.46	13	3.11	
Galeoides decadactylus	2.24	13	2.82	
Pomadasys incisus	1.79	18	2.26	
Pagrus caeruleostictus	1.34	4	1.69	
Chloroscombrus chrysurus	0.45	9	0.56	
Ilisha africana	0.45	98	0.56	
Total	79.14		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 255
DATE :01/07/2007 GEAR TYPE: BT NO: 20 POSITION:Lat S 2°49.28
start stop duration Lon E 9°34.36
TIME :16:10:20 16:41:27 31.1 (min) Purpose : 3
LOG : 6423.00 6424.47 1.5 Region : 3300
FDEPTH: 75 75 Gear cond.: 0
BDEPTH: 75 75 Validity : 0
Towing dir: 0° Wire out : 225 m Speed : 2.8 kn
Sorted : 34 Total catch: 33.73 Catch/hour: 65.07

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Pagellus bellottii	17.94	311	27.57	
Trichiurus lepturus	7.20	12	11.06	
Pseudotolithus senegalensis	5.81	2	8.92	
Rhinobatos albomaculatus	5.67	2	8.72	
Mustelus mustelus	2.99	2	4.60	
Torpedo torpedo	2.93	6	4.51	
Fistularia petimba	2.84	6	4.36	
Umbrina canariensis	2.76	6	4.24	
Sepia officinalis hierredda	2.30	10	3.53	
Dactylopterus volitans	2.12	8	3.26	
Lepidotrigla cadmani	1.79	44	2.76	
Lutjanus goreensis	1.68	6	2.58	
Boops boops	1.45	33	2.22	
Scyllarides sp.	1.37	2	2.10	
Pegusa lascaris	1.12	12	1.72	
Balistes capriscus	1.08	2	1.66	
Lethrinus atlanticus	1.00	2	1.54	
Chaetodipterus goreensis	0.71	2	1.10	
Raja miraletus	0.68	2	1.04	
Decapterus rhonchus	0.48	21	0.74	
Galeoides decadactylus	0.44	2	0.68	
Cynoglossus senegalensis	0.31	2	0.47	
Grammoplites gruveli	0.21	2	0.33	
Dicologoglossa hexophthalma	0.10	2	0.15	
Illex coindetii	0.10	2	0.15	
Total	65.07		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 256
DATE :01/07/2007 GEAR TYPE: BT NO: 20 POSITION:Lat S 2°58.20
start stop duration Lon E 9°24.78
TIME :20:05:33 20:35:45 30.2 (min) Purpose : 3
LOG : 6444.32 6445.78 1.5 Region : 3300
FDEPTH: 155 155 Gear cond.: 0
BDEPTH: 155 155 Validity : 0
Towing dir: 0° Wire out : 450 m Speed : 2.9 kn
Sorted : 26 Total catch: 136.02 Catch/hour: 270.33

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Antigonia capros	76.52	1898	28.30	
Lepidotrigla carolae	38.46	706	14.23	
Dentex angolensis	28.72	219	10.62	1096
Dentex congoensis	26.83	507	9.93	
Brotula barbata	25.04	40	9.26	
Aulopus cadenati	22.06	298	8.16	
Illex coindetii	15.80	229	5.84	
Rhinobatos annulatus	12.82	2	4.74	
Peristedion cataphractum	8.15	209	3.01	
Trigla lyra	5.37	40	1.99	
Pterothrissus belloci	4.97	50	1.84	
Mustelus mustelus	2.33	2	0.86	
Sepia officinalis hierredda	1.99	20	0.74	
Spicara alta	0.79	10	0.29	
Selachophidium guentheri	0.50	30	0.18	
Total	270.33		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 257
DATE :01/07/2007 GEAR TYPE: BT NO: 20 POSITION:Lat S 3°5.19
start stop duration Lon E 9°25.43
TIME :23:05:19 23:35:29 30.2 (min) Purpose : 3
LOG : 6463.20 6464.63 1.4 Region : 3300
FDEPTH: 405 452 Gear cond.: 0
BDEPTH: 405 452 Validity : 0
Towing dir: 0° Wire out : 1150 m Speed : 2.9 kn
Sorted : 31 Total catch: 73.16 Catch/hour: 145.50

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Plesionika martia	80.84	7004	55.56	
Chlorophthalmus atlanticus	30.19	525	20.75	
Merluccius polli	18.10	24	12.44	
Parasudis fraser-bruenneri	3.88	72	2.67	
Malacocephalus occidentalis	2.98	24	2.05	
Illex coindetii	2.09	24	1.44	
Galeus polli	1.99	16	1.37	
Benthodesmus tenuis	1.79	89	1.23	
Peristedion cataphractum	1.19	24	0.82	
APOGONIDAE	0.89	36	0.62	
Hymenocephalus italicus	0.60	113	0.41	
Bembrops heterurus	0.60	6	0.41	
Helicolenus dactylopterus	0.36	6	0.25	
Total	145.50		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 258
DATE :02/07/2007 GEAR TYPE: BT NO: 20 POSITION:Lat S 3°9.32
start stop duration Lon E 9°34.71
TIME :02:28:34 02:58:41 30.1 (min) Purpose : 3
LOG : 6484.39 6485.85 1.5 Region : 3300
FDEPTH: 211 202 Gear cond.: 0
BDEPTH: 211 202 Validity : 0
Towing dir: 0° Wire out : 620 m Speed : 2.9 kn
Sorted : 38 Total catch: 250.99 Catch/hour: 500.31

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Epinephelus haifensis	306.48	14	61.26	
Illex coindetii	30.30	462	6.06	
Chlorophthalmus atlanticus	29.82	393	5.96	
Miracorvina angolensis	25.02	20	5.00	
Spicara alta	19.77	146	3.95	
Umbrina canariensis	17.24	38	3.45	1099
Scorpaena stephanica	16.54	28	3.31	
Merluccius polli	13.55	765	2.71	
Squatina oculata	12.46	2	2.49	
Dentex angolensis	9.73	42	1.94	1097
Antigonia capros	5.58	140	1.12	
Peristedion cataphractum	4.78	1403	0.96	
Trigla lyra	2.87	28	0.57	
Dentex macrophthalmus	1.69	6	0.34	1098
Ijimaia loppei	1.28	2	0.25	
Uranoscopus cadenati	1.28	16	0.25	
Brotula barbata	0.96	2	0.19	
Lepidotrigla carolae	0.96	12	0.19	
Total	500.31		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 259
DATE :02/07/2007 GEAR TYPE: BT NO: 20 POSITION:Lat S 3°3.25
start stop duration Lon E 9°42.00
TIME :05:28:53 05:59:09 30.3 (min) Purpose : 3
LOG : 6500.87 6502.39 1.5 Region : 3300
FDEPTH: 93 92 Gear cond.: 0
BDEPTH: 93 92 Validity : 0
Towing dir: 0° Wire out : 300 m Speed : 3.0 kn
Sorted : 62 Total catch: 139.07 Catch/hour: 275.66

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Trichiurus lepturus	81.07	143	29.41	
Sepia officinalis hierredda	36.55	119	13.26	
Dentex congoensis	36.08	880	13.09	
Mustelus mustelus	27.35	16	9.92	
Lepidotrigla cadmani	19.94	396	7.23	
Pagellus bellottii	16.93	194	6.14	
Illex coindetii	16.93	131	6.14	
Fistularia petimba	6.94	24	2.52	
Peristedion cataphractum	5.00	159	1.81	
Boops boops	4.72	194	1.71	0
Rhinobatos albomaculatus	4.26	2	1.55	
Zeus faber	3.29	12	1.19	
Priacanthus arenatus	3.13	20	1.14	
Raja miraletus	2.97	8	1.08	
Saurida brasiliensis	2.97	773	1.08	
Scorpaena scrofa	2.34	4	0.85	
Ariomma bondi	2.14	28	0.78	
Torpedo torpedo	1.47	4	0.53	
Pegusa lascaris	0.91	36	0.33	
Dactylopterus volitans	0.67	4	0.24	
Total	275.66		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 260
DATE :02/07/2007 GEAR TYPE: PT NO: 2 POSITION:Lat S 2°57.04
start stop duration Lon E 10°0.30
TIME :10:02:10 10:34:14 32.1 (min) Purpose : 3
LOG : 6530.95 6532.84 1.9 Region : 3300
FDEPTH: 0 0 Gear cond.: 0
BDEPTH: 32 33 Validity : 0
Towing dir: 0° Wire out : 110 m Speed : 3.5 kn
Sorted : 31 Total catch: 30.65 Catch/hour: 57.34

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Scomberomorus tritor	23.48	36	40.95	1101
Sphyraena sphyraena	15.53	51	27.08	1100
Alectis alexandrinus	14.22	11	24.80	0
Caranx hippos	2.06	4	3.59	
Alectis alexandrinus	0.84	4	1.47	
Caranx crysos	0.65	2	1.14	
Sardinella maderensis	0.56	4	0.98	
Total	57.34		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 261
DATE :02/07/2007 GEAR TYPE: BT NO: 20 POSITION:Lat S 3°9.57
start stop duration Lon E 9°58.28
TIME :13:08:51 13:38:55 30.1 (min) Purpose : 3
LOG : 6555.55 6556.99 1.4 Region : 3300
FDEPTH: 60 60 Gear cond.: 0
BDEPTH: 60 60 Validity : 0
Towing dir: 0° Wire out : 180 m Speed : 2.9 kn
Sorted : 177 Total catch: 177.35 Catch/hour: 353.99

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Lutjanus fulgens	71.36	128	20.16	1103
Pomadasys incisus	59.78	369	16.89	1102
Trichiurus lepturus	51.00	118	14.41	
Umbrina canariensis	34.43	94	9.73	
Dentex angolensis	30.44	90	8.60	
Mustelus mustelus	19.36	4	5.47	
Apsilus fuscus	16.47	36	4.65	
Chromis cadenati	15.57	78	4.40	
Pagrus auriga	8.18	8	2.31	
Rhinobatos albomaculatus	6.39	4	1.80	
Dactylopterus volitans	5.69	14	1.61	
Lycondontis afer	5.29	2	1.49	
Epinephelus aeneus	3.89	4	1.10	
Sepia officinalis hierredda	3.89	6	1.10	
Fistularia petimba	2.79	12	0.79	
TORPEDINIDAE	2.00	6	0.56	
Syacium micrurum	1.90	16	0.54	
Priacanthus arenatus	1.80	6	0.51	
Parapristipoma sp.	1.70	2	0.48	
Raja miraletus	1.70	4	0.48	
Cephalopholis taeniops	1.50	2	0.42	
Chaetodon hoefleri	1.40	8	0.39	
DASYATIDAE	1.30	2	0.37	
Chelidonichthys gabonensis	1.30	10	0.37	
Pseudupeneus prayensis	1.10	32	0.31	
Cynoglossus canariensis	0.90	4	0.25	
Sargocentron hastatus	0.80	6	0.23	
Scorpaena scrofa	0.60	6	0.17	
Decapterus rhonchus	0.50	26	0.14	
Trachinus radiatus	0.50	2	0.14	
Peristedion cataphractum	0.30	12	0.08	
Squilla mantis	0.12	4	0.03	
Dicologoglossa hexophthalma	0.08	2	0.02	
Total	353.99		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 262
DATE :02/07/2007 GEAR TYPE: BT NO: 20 POSITION:Lat S 3°15.35
start stop duration Lon E 9°49.50
TIME :15:52:16 16:10:30 18.2 (min) Purpose : 3
LOG : 6569.23 6570.17 0.9 Region : 3300
FDEPTH: 107 108 Gear cond.: 0
BDEPTH: 107 108 Validity : 0
Towing dir: 0° Wire out : 300 m Speed : 3.1 kn
Sorted : 77 Total catch: 203.80 Catch/hour: 670.39

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Dentex congoensis	443.65	3605	66.18	
Umbrina canariensis	49.34	132	7.36	1105
Ariomma bondi	41.12	845	6.13	
Epinephelus aeneus	35.53	3	5.30	
Raja miraletus	33.72	66	5.03	
Dentex angolensis	30.00	132	4.47	1104
Fistularia petimba	6.58	16	0.98	
Scorpaena scrofa	6.41	7	0.96	
Sepia officinalis hierredda	6.25	7	0.93	
Dentex canariensis	4.93	7	0.74	
Boops boops	4.34	197	0.65	
Pagellus bellottii	3.95	33	0.59	
Dentex barnardi	1.71	7	0.26	
Zeus faber	1.55	7	0.23	
Illex coindetii	1.32	23	0.20	
Total	670.39		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 263
DATE :02/07/2007 GEAR TYPE: BT NO: 20 POSITION:Lat S 3°21.31
start stop duration Lon E 9°42.72
TIME :18:56:51 19:27:23 30.5 (min) Purpose : 3
LOG : 6586.23 6587.75 1.5 Region : 3300
FDEPTH: 329 359 Gear cond.: 0
BDEPTH: 329 359 Validity : 0
Towing dir: 0° Wire out : 950 m Speed : 3.0 kn
Sorted : 112 Total catch: 111.63 Catch/hour: 219.31

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Chlorophthalmus atlanticus	79.27	1287	36.15	
Merluccius polli	28.49	65	12.99	
Parasudis fraser-bruenneri	22.69	238	10.35	
Rhinobatos sp.	15.62	2	7.12	
Trichiurus lepturus	9.02	334	4.11	0
Heptranchias perlo	6.09	2	2.78	
Aristeus varidens	6.01	1442	2.74	
Hymenocephalus italicus	5.52	788	2.52	
Chascanopsetta lugubris	5.50	114	2.51	
Illex coindetii	5.19	67	2.36	
Deania profundorum	4.72	4	2.15	
Galeus polli	4.48	96	2.04	
GALATHEIDAE	3.26	299	1.49	
Hypoclydonia bella *	3.12	139	1.42	
Malacocephalus occidentalis	3.03	35	1.38	
Gadella imberbis	2.24	65	1.02	
Merluccius polli	1.75	24	0.80	0
Lophiodes kempi	1.71	10	0.78	
Hoplostethus mediterraneus	1.47	2	0.67	
Trichiurus lepturus	1.41	4	0.64	
Photichthys argenteus	1.30	102	0.59	
Scorpaena angolensis	1.10	8	0.50	
Squalus megalops	0.98	2	0.45	
Dibranchus atlanticus	0.86	136	0.39	
Raja miraletus	0.86	2	0.39	
Argyropelecus aculeatus	0.83	916	0.38	
Caelorinchus coelorhincus	0.61	16	0.28	
Cyttopsis roseus	0.47	37	0.21	
Bathyuroconger vicinus	0.37	4	0.17	
Trigla lyra	0.37	4	0.17	
Parapenaeus longirostris	0.29	43	0.13	
Zenopsis conchifer	0.29	2	0.13	
Raja straeleni	0.18	2	0.08	
Setarches guentheri	0.16	8	0.07	
RAJIDAE	0.04	2	0.02	
Total	219.31		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 264
DATE :03/07/2007 GEAR TYPE: BT NO: 20 POSITION:Lat S 3°33.08
start stop duration Lon E 9°50.60
TIME :00:01:53 00:32:15 30.4 (min) Purpose : 3
LOG : 6619.40 6620.88 1.5 Region : 3300
FDEPTH: 515 501 Gear cond.: 0
BDEPTH: 515 501 Validity : 0
Towing dir: 0° Wire out : 1400 m Speed : 2.9 kn
Sorted : 20 Total catch: 98.60 Catch/hour: 194.80

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Nematocarcinus africanus	132.37	29872	67.95	
Triplophos hemingi	14.32	1719	7.35	
Chaunax pictus	11.76	20	6.03	
Yarrella blackfordi	8.40	198	4.31	
Benthodesmus tenuis	7.51	168	3.85	
Hoplostethus cadenati	5.93	188	3.04	
Lamprogrammus exutus	3.36	128	1.72	
Plesiopenaeus edwardsianus	3.06	30	1.57	
Stomias boa boa	2.27	30	1.17	
Laemonema laureysi	2.17	40	1.12	
Aristeus varidens	0.99	69	0.51	
Hymenocephalus italicus	0.59	40	0.30	
Chascanopsetta lugubris	0.49	10	0.25	
Chlorophthalmus atlanticus	0.49	10	0.25	
Dibranchus atlanticus	0.40	69	0.20	
SYNAPHOBRANCHIDAE	0.40	10	0.20	
Shrimps, small, non comm.	0.30	49	0.15	
Total	194.80		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 265
DATE :03/07/2007 GEAR TYPE: BT NO: 20 POSITION:Lat S 3°31.13
start stop duration Lon E 9°53.86
TIME :02:37:51 03:08:29 30.6 (min) Purpose : 3
LOG : 6631.63 6633.11 1.5 Region : 3300
FDEPTH: 228 228 Gear cond.: 0
BDEPTH: 228 228 Validity : 0
Towing dir: 0° Wire out : 660 m Speed : 2.9 kn
Sorted : 41 Total catch: 105.29 Catch/hour: 206.18

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Trigla lyra	42.49	448	20.61	
Chlorophthalmus atlanticus	39.95	1079	19.38	
Merluccius polli	39.26	206	19.04	
Illex coindetii	37.79	574	18.33	
Aulopus cadenati	10.97	117	5.32	
Peristedion cataphractum	8.42	493	4.08	
Uranoscopus polli	6.66	59	3.23	
Trichiurus lepturus	6.17	12	2.99	
Lepidotrigla cadmani	5.48	59	2.66	
Chascanopsetta lugubris	3.72	47	1.80	
Parapenaeus longirostris	1.57	157	0.76	
Dentex angolensis	1.47	12	0.71	
Octopus vulgaris	1.17	4	0.57	
Chlorophthalmus agassizi	1.06	27	0.51	
Total	206.18		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 266
DATE :03/07/2007 GEAR TYPE: BT NO: 20 POSITION:Lat S 3°25.21
start stop duration Lon E 10°0.87
TIME :05:27:34 05:57:35 30.0 (min) Purpose : 3
LOG : 6647.58 6649.09 1.5 Region : 3300
FDEPTH: 101 100 Gear cond.: 0
BDEPTH: 101 100 Validity : 0
Towing dir: 0° Wire out : 300 m Speed : 3.0 kn
Sorted : 74 Total catch: 237.92 Catch/hour: 475.52

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Trachurus trecae	174.52	4141	36.70	1106
Dentex congoensis	97.93	1939	20.60	1107
Trichiurus lepturus	37.22	48	7.83	
Ariomma bondi	28.68	1013	6.03	
Boops boops	19.73	817	4.15	
Raja miraletus	18.89	42	3.97	
Sepia officinalis hierredda	16.99	76	3.57	
Illex coindetii	14.75	490	3.10	
Mustelus mustelus	14.19	6	2.98	
Lepidotrigla cadmani	13.21	244	2.78	
Pagellus bellottii	8.11	118	1.71	
Peristedion cataphractum	5.60	686	1.18	
Rhinobatos albomaculatus	5.38	6	1.13	
Zeus faber	5.18	34	1.09	
Uranoscopus cadenati	3.50	6	0.74	
Umbrina canariensis	3.08	6	0.65	
Alloteuthis sp.	1.74	364	0.37	
Saurida brasiliensis	1.68	356	0.35	
Fistularia petimba	1.60	6	0.34	
Pegusa lascaris	1.40	34	0.29	
Dentex angolensis	0.70	6	0.15	
Scomber japonicus	0.62	6	0.13	
GALATHEIDAE	0.42	56	0.09	
Sardinella aurita	0.42	6	0.09	
Total	475.52		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 267
DATE :03/07/2007 GEAR TYPE: BT NO: 20 POSITION:Lat S 3°16.17
start stop duration Lon E 10°9.46
TIME :09:27:04 09:57:23 30.3 (min) Purpose : 3
LOG : 6665.02 6666.59 1.6 Region : 3300
FDEPTH: 50 51 Gear cond.: 0
BDEPTH: 50 51 Validity : 0
Towing dir: 0° Wire out : 150 m Speed : 3.1 kn
Sorted : 37 Total catch: 36.70 Catch/hour: 72.63

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Pseudotolithus senegalensis	20.98	12	28.88	1109
Pomadasys incisus	6.93	34	9.54	1110
Trichiurus lepturus	6.53	12	8.99	
Rhinobatos albomaculatus	5.64	2	7.77	
Umbrina canariensis	4.55	10	6.27	
Caranx hippos	3.76	2	5.18	
Pagellus bellottii	3.72	22	5.12	
Torpedo torpedo	3.27	6	4.50	
Lepidotrigla cadmani	3.19	22	4.39	
Balistes capriscus	2.14	2	2.94	
Trachinus radiatus	1.90	4	2.62	
Syacium micrurum	1.80	8	2.48	
Dactylopterus volitans	1.66	4	2.29	
Zeus faber	1.41	4	1.93	
Trachinus armatus	1.15	14	1.58	
Trachurus trecae	0.85	16	1.17	
Sardinella maderensis	0.79	232	1.09	1108
Lagocephalus laevigatus	0.75	2	1.04	
Fistularia petimba	0.59	2	0.82	
Peristedion cataphractum	0.24	22	0.33	
Illex coindetii	0.24	4	0.33	
Pseudupeneus prayensis	0.14	2	0.19	
Trachinocephalus myops	0.14	2	0.19	
Brachydeuterus auritus	0.12	38	0.16	
Decapterus rhonchus	0.08	8	0.11	
Selene dorsalis	0.08	20	0.11	
Total	72.63		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 268
DATE :03/07/2007 GEAR TYPE: BT NO: 20 POSITION:Lat S 3°8.35
start stop duration Lon E 10°20.98
TIME :12:01:00 12:25:13 24.2 (min) Purpose : 3
LOG : 6683.71 6684.86 1.1 Region : 3300
FDEPTH: 24 24 Gear cond.: 0
BDEPTH: 24 24 Validity : 0
Towing dir: 0° Wire out : 100 m Speed : 2.8 kn
Sorted : 154 Total catch: 154.00 Catch/hour: 381.50

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Chloroscombrus chrysurus	117.05	1875	30.68	
Ilisha africana	43.72	1541	11.46	
Sphyraena sphyraena	33.69	126	8.83	
Galeoides decadactylus	21.18	208	5.55	
Lutjanus goreensis	18.08	22	4.74	
Chaetodipterus goreensis	16.85	57	4.42	
Brachydeuterus auritus	14.62	3946	3.83	
Panulirus regius	14.12	35	3.70	
Rhizoprionodon acutus	11.64	7	3.05	
Selene dorsalis	11.40	213	2.99	
Trichiurus lepturus	11.02	178	2.89	
Paragaleus pectoralis	6.44	2	1.69	
Pomadasys peroteti	6.32	10	1.66	
Dentex angolensis	6.32	22	1.66	
Umbrina canariensis	6.07	20	1.59	
Plectorhinchus mediterraneus	5.70	7	1.49	
Pagrus caeruleostictus	4.34	10	1.14	
Stromateus fiatola	4.09	5	1.07	
Pseudupeneus prayensis	3.84	40	1.01	
Lethrinus atlanticus	3.69	7	0.97	
Pagellus bellottii	3.10	10	0.81	
Pomadasys incisus	2.60	15	0.68	
Leptocharias smithii	2.48	2	0.65	
Drepane africana	2.11	10	0.55	
Arius parkii	1.73	12	0.45	
Sardinella maderensis	1.73	22	0.45	
Pseudotolithus senegalensis	1.49	12	0.39	
Balistes punctatus	1.36	2	0.36	
Raja miraletus	1.36	2	0.36	
Pteroscion peli	1.36	27	0.36	1111
Pentanemus quinquarius	0.37	5	0.10	
Parapenaeopsis atlantica	0.37	82	0.10	
Decapterus rhonchus	0.32	2	0.08	
Psettodes belcheri	0.25	2	0.06	
Bodianus speciosus	0.20	2	0.05	
Epinephelus aeneus	0.20	2	0.05	
Chaetodon robustus	0.17	2	0.05	
Penaeus notialis	0.12	2	0.03	
Total	381.50		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 269
DATE :03/07/2007 GEAR TYPE: BT NO: 20 POSITION:Lat S 3°24.16
start stop duration Lon E 10°25.92
TIME :15:11:53 15:31:31 19.6 (min) Purpose : 3
LOG : 6706.76 6707.74 1.0 Region : 3300
FDEPTH: 38 38 Gear cond.: 0
BDEPTH: 38 38 Validity : 0
Towing dir: 0° Wire out : 140 m Speed : 3.0 kn
Sorted : 76 Total catch: 76.46 Catch/hour: 233.58

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Pseudotolithus senegalensis	52.39	55	22.43	
Pomadasys incisus	34.37	220	14.71	
Stromateus fiatola	20.77	24	8.89	
Arius parkii	18.18	37	7.78	
Galeoides decadactylus	13.75	49	5.89	
Pomadasys peroteti	12.37	12	5.30	
Sphyraena sphyraena	12.22	34	5.23	
Trichiurus lepturus	12.22	27	5.23	
Dasyatis margarita	11.15	9	4.77	
Pagellus bellottii	11.15	67	4.77	
Raja miraletus	8.55	18	3.66	
Mustelus mustelus	7.03	3	3.01	
Panulirus regius	4.89	6	2.09	
Sardinella maderensis	3.05	529	1.31	1112
Psettodes belcheri	2.60	3	1.11	
Scyllarides herklotsii	2.44	6	1.05	
Uranoscopus polli	1.37	3	0.59	
Chaetodipterus goreensis	1.22	3	0.52	
Umbrina canariensis	1.07	3	0.46	
Alectis alexandrinus	0.92	3	0.39	
Chloroscombrus chrysurus	0.76	12	0.33	
Pagrus caeruleostictus	0.76	3	0.33	
Brachydeuterus auritus	0.34	3	0.14	
Total	233.58		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 270
DATE :03/07/2007 GEAR TYPE: BT NO: 20 POSITION:Lat S 3°28.93
start stop duration Lon E 10°17.40
TIME :17:37:35 18:06:47 29.2 (min) Purpose : 3
LOG : 6721.62 6723.02 1.4 Region : 3300
FDEPTH: 66 67 Gear cond.: 0
BDEPTH: 66 67 Validity : 0
Towing dir: 0° Wire out : 170 m Speed : 2.9 kn
Sorted : 71 Total catch: 71.17 Catch/hour: 146.24

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Trichiurus lepturus	34.21	37	23.39	
Lepidotrigla cadmani	19.58	236	13.39	
Pomadasys incisus	15.37	70	10.51	1113
Rhinobatos albomaculatus	13.66	6	9.34	
Raja miraletus	12.39	25	8.47	
Pagellus bellottii	10.79	129	7.38	
Sepia officinalis hierredda	8.77	14	6.00	
Dactylopterus volitans	6.80	21	4.65	
Mustelus mustelus	6.58	4	4.50	
Syacium micrurum	6.55	265	4.48	
Alloteuthis africana	4.52	3187	3.09	
Saurida brasiliensis	2.61	571	1.78	
Stromateus fiatola	1.99	2	1.36	
Torpedo torpedo	1.79	6	1.22	
Trachurus trecae	0.62	10	0.42	
Total	146.24		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 271
DATE :03/07/2007 GEAR TYPE: BT NO: 20 POSITION:Lat S 3°41.61
start stop duration Lon E 10°5.68
TIME :21:09:06 21:38:53 29.8 (min) Purpose : 3
LOG : 6746.36 6747.90 1.5 Region : 3300
FDEPTH: 173 171 Gear cond.: 0
BDEPTH: 173 171 Validity : 0
Towing dir: 0° Wire out : 510 m Speed : 3.1 kn
Sorted : 59 Total catch: 118.30 Catch/hour: 238.27

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Aulopus cadenati	93.45	1321	39.22	
Dentex congoensis	29.24	516	12.27	1114
Merluccius polli	21.83	129	9.16	
Antigonia capros	20.95	830	8.79	
Apogon sp.	18.49	866	7.76	
Lepidotrigla cadmani	11.64	290	4.89	
Umbrina canariensis	6.49	4	2.72	
Uranoscopus cadenati	4.55	40	1.91	
Illex coindetii	4.23	77	1.78	
Dentex angolensis	3.75	28	1.57	
Trichiurus lepturus	3.46	4	1.45	
Torpedo torpedo	3.14	4	1.32	
Paraconger notialis	2.78	12	1.17	
Peristedion cataphractum	2.70	93	1.13	
Scorpaena normani	2.18	32	0.91	
Raja miraletus	2.05	4	0.86	
Hypoclydonia bella *	1.53	32	0.64	
MYCTOPHIDAE	1.33	363	0.56	
Pterothrissus belloci	1.21	12	0.51	
Sepia officinalis hierredda	1.21	8	0.51	
Parapenaeus longirostris	1.13	157	0.47	
Synagrops microlepis	0.64	197	0.27	
Bassanago albescens	0.16	4	0.07	
Hymenocephalus italicus	0.12	4	0.05	
Total	238.27		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 272
DATE :04/07/2007 GEAR TYPE: BT NO: 20 POSITION:Lat S 3°52.32
start stop duration Lon E 10°11.18
TIME :00:32:07 01:02:14 30.1 (min) Purpose : 3
LOG : 6766.00 6767.47 1.5 Region : 3300
FDEPTH: 454 446 Gear cond.: 0
BDEPTH: 454 446 Validity : 0
Towing dir: 0° Wire out : 1200 m Speed : 2.9 kn
Sorted : 31 Total catch: 102.75 Catch/hour: 204.68

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Nematocarcinus africanus	128.98	34014	63.02	
Helicolenus dactylopterus	16.43	30	8.03	
Deania profundorum	16.33	26	7.98	
Chaunax pictus	11.45	139	5.60	
Merluccius polli	7.57	16	3.70	
Raja miraletus	4.98	10	2.43	
Hoplostethus cadenati	4.48	30	2.19	
Benthodesmus tenuis	4.48	129	2.19	
Lophius sp.	2.99	10	1.46	
Etmopterus pusillus	1.79	8	0.88	
Diplophos sp.	1.49	239	0.73	
Aristeus varidens	1.49	120	0.73	
Cynoponticus ferox	1.00	10	0.49	
Etmopterus polli	0.70	14	0.34	
Hymenocephalus italicus	0.50	40	0.24	
Total	204.68		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 273
DATE :04/07/2007 GEAR TYPE: BT NO: 20 POSITION:Lat S 3°51.69
start stop duration Lon E 10°16.59
TIME :02:39:24 03:10:07 30.7 (min) Purpose : 3
LOG : 6776.38 6777.89 1.5 Region : 3300
FDEPTH: 130 133 Gear cond.: 0
BDEPTH: 130 133 Validity : 0
Towing dir: 0° Wire out : 380 m Speed : 2.9 kn
Sorted : 125 Total catch: 124.90 Catch/hour: 243.95

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Spicara alta	103.03	1271	42.23	
Dentex angolensis	32.23	293	13.21	
Antigonia capros	19.34	510	7.93	
Hypoclydonia bella *	16.50	729	6.77	
Chlorophthalmus atlanticus	15.82	209	6.49	
Brotula barbata	15.33	18	6.29	
Squatina oculata	10.16	2	4.16	
Trichiurus lepturus	8.01	10	3.28	
Umbrina canariensis	7.42	21	3.04	
Trigla lyra	4.98	100	2.04	
Scorpaena scrofa	4.39	6	1.80	
Raja miraletus	1.76	4	0.72	
Peristedion cataphractum	1.37	27	0.56	
Dactylopterus volitans	0.68	2	0.28	
Illex coindetii	0.68	16	0.28	
Citharus linguatula	0.59	92	0.24	
Uranoscopus polli	0.59	4	0.24	
Syacium micrurum	0.49	16	0.20	
Sepia officinalis hierredda	0.49	6	0.20	
Dicologoglossa hexophthalma	0.10	2	0.04	
Total	243.95		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 274
DATE :04/07/2007 GEAR TYPE: BT NO: 20 POSITION:Lat S 3°41.33
start stop duration Lon E 10°23.75
TIME :06:12:10 06:42:15 30.1 (min) Purpose : 3
LOG : 6794.79 6796.46 1.7 Region : 3300
FDEPTH: 84 85 Gear cond.: 0
BDEPTH: 84 85 Validity : 0
Towing dir: 0° Wire out : 240 m Speed : 3.3 kn
Sorted : 102 Total catch: 1758.60 Catch/hour: 3509.01

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Umbrina canariensis	2224.81	4342	63.40	1115
Pagellus bellottii	756.43	5495	21.56	
Rhinobatos albomaculatus	112.96	102	3.22	
Sepia officinalis hierredda	108.89	68	3.10	
Octopus vulgaris	90.23	34	2.57	
Scorpaena scrofa	58.68	68	1.67	
Mustelus mustelus	34.72	40	0.99	
Dentex barnardi	33.12	68	0.94	
Trachurus trecae	19.33	373	0.55	
Dentex canariensis	19.33	34	0.55	
Epinephelus aeneus	18.96	2	0.54	
Fistularia petimba	12.55	34	0.36	
Pseudupeneus prayensis	8.14	102	0.23	
Raja miraletus	6.78	2	0.19	
Lepidotrigla cadmani	2.71	68	0.08	
Boops boops	1.36	102	0.04	
Total	3509.01		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 275
DATE :04/07/2007 GEAR TYPE: BT NO: 20 POSITION:Lat S 3°35.14
start stop duration Lon E 10°31.58
TIME :08:18:56 08:48:26 29.5 (min) Purpose : 3
LOG : 6808.75 6810.15 1.4 Region : 3300
FDEPTH: 48 48 Gear cond.: 0
BDEPTH: 48 48 Validity : 0
Towing dir: 0° Wire out : 150 m Speed : 2.8 kn
Sorted : 98 Total catch: 98.35 Catch/hour: 200.10

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Dentex canariensis	35.61	41	17.79	
Umbrina canariensis	20.14	41	10.07	
Trichiurus lepturus	18.11	33	9.05	
Pomadasys incisus	17.40	106	8.69	
Pagellus bellottii	14.61	77	7.30	1116
Stromateus fiatola	13.98	24	6.99	
Pseudotolithus senegalensis	13.29	16	6.64	
Rhinobatos albomaculatus	11.80	4	5.90	
Epinephelus aeneus	9.16	2	4.58	
Dentex barnardi	7.71	18	3.85	1117
Selene dorsalis	7.20	45	3.60	
Brachydeuterus auritus	5.07	2041	2.53	
Torpedo torpedo	4.29	4	2.15	
Lutjanus goreensis	3.19	6	1.60	
Sardinella maderensis	2.99	462	1.49	
Bodianus speciosus	2.81	2	1.40	
Pseudupeneus prayensis	1.51	16	0.75	
Plectorhinchus mediterraneus	1.44	2	0.72	
Syacium micrurum	1.32	10	0.66	
Sepia officinalis hierredda	1.26	2	0.63	
Chromis cadenati	1.24	41	0.62	
Decapterus rhonchus	1.10	8	0.55	
SCYLLARIDAE	0.96	2	0.48	
Dactylopterus volitans	0.92	2	0.46	
Alloteuthis africana	0.75	480	0.38	
Trachinus draco	0.73	2	0.37	
Sphyraena sphyraena	0.51	14	0.25	
Trachinus armatus	0.35	4	0.17	
Chaetodon hoefleri	0.33	2	0.16	
Fistularia petimba	0.18	2	0.09	
Trachinocephalus myops	0.16	2	0.08	
Total	200.10		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 276
DATE :04/07/2007 GEAR TYPE: BT NO: 20 POSITION:Lat S 3°30.50
start stop duration Lon E 10°41.90
TIME :10:19:13 10:49:01 30.0 (min) Purpose : 3
LOG : 6822.37 6823.85 1.5 Region : 3300
FDEPTH: 23 25 Gear cond.: 0
BDEPTH: 23 25 Validity : 0
Towing dir: 0° Wire out : 100 m Speed : 3.0 kn
Sorted : 55 Total catch: 90.52 Catch/hour: 181.04

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Pseudotolithus senegalensis	33.70	86	18.61	
Chloroscombrus chrysurus	28.50	748	15.74	1119
Trichiurus lepturus	23.20	236	12.81	
Brachydeuterus auritus	17.20	396	9.50	
Galeoides decadactylus	12.70	70	7.02	
Stromateus fiatola	10.60	26	5.86	
Ilisha africana	9.00	268	4.97	1118
Parapenaeopsis atlantica	8.40	1222	4.64	
Pteroscion peli	7.10	748	3.92	
Arius parkii	6.50	90	3.59	
Pomadasys peroteti	5.80	34	3.20	
Portunus validus	4.70	10	2.60	
Rhizoprionodon acutus	2.80	4	1.55	
Pentanemus quinquarius	2.60	90	1.44	1120
Raja miraletus	2.20	4	1.22	
TORPEDINIDAE	1.40	6	0.77	
Cynoglossus browni	1.30	8	0.72	
Cynoponticus ferox	1.10	4	0.61	
Pomadasys incisus	0.84	4	0.46	
Umbrina canariensis	0.70	6	0.39	
Pseudupeneus prayensis	0.40	2	0.22	
Trachinotus ovatus	0.30	2	0.17	
Total	181.04		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 277
DATE :04/07/2007 GEAR TYPE: BT NO: 20 POSITION:Lat S 3°45.07
start stop duration Lon E 10°43.81
TIME :13:58:15 14:28:48 30.6 (min) Purpose : 3
LOG : 6848.16 6849.64 1.5 Region : 3300
FDEPTH: 44 43 Gear cond.: 0
BDEPTH: 44 43 Validity : 0
Towing dir: 0° Wire out : 130 m Speed : 2.9 kn
Sorted : 55 Total catch: 80.15 Catch/hour: 157.41

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Dentex angolensis	28.48	149	18.09	
Pomadasys incisus	27.59	143	17.53	
Pseudotolithus senegalensis	22.59	33	14.35	
Trichiurus lepturus	15.91	94	10.11	
Epinephelus aeneus	14.93	2	9.48	
Brachydeuterus auritus	7.76	124	4.93	
Pteroscion peli	5.79	88	3.68	
Stromateus fiatola	5.40	10	3.43	
Galeoides decadactylus	5.01	16	3.18	
Arius parkii	3.34	10	2.12	
Chelidonichthys lucerna	3.04	22	1.93	
Syacium micrurum	2.85	29	1.81	
Sphyraena sphyraena	2.45	16	1.56	
Lagocephalus laevigatus	2.16	2	1.37	
Mustelus mustelus	1.96	2	1.25	
Uranoscopus cadenati	1.67	12	1.06	
Cynoglossus canariensis	1.28	4	0.81	
Trachinus radiatus	1.28	4	0.81	
Raja miraletus	1.08	2	0.69	
Dentex canariensis	1.08	2	0.69	
Chilomycterus spinosus mauret.	0.79	4	0.50	
Pseudupeneus prayensis	0.59	6	0.37	
Dicologoglossa hexophthalma	0.20	2	0.12	
Trachinus armatus	0.20	4	0.12	
Total	157.41		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 278
DATE :04/07/2007 GEAR TYPE: BT NO: 20 POSITION:Lat S 3°53.54
start stop duration Lon E 10°37.68
TIME :15:58:53 16:29:53 31.0 (min) Purpose : 3
LOG : 6861.28 6862.97 1.7 Region : 3300
FDEPTH: 82 85 Gear cond.: 0
BDEPTH: 82 85 Validity : 0
Towing dir: 0° Wire out : 240 m Speed : 3.3 kn
Sorted : 108 Total catch: 108.15 Catch/hour: 209.32

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Trichiurus lepturus	61.35	75	29.31	
Pagellus bellottii	41.90	677	20.02	
Trachurus trecae	22.65	277	10.82	
Stromateus fiatola	22.65	277	10.82	
Sepia officinalis hierredda	13.45	8	6.43	
Dentex congoensis	10.76	240	5.14	
Squatina oculata	7.65	6	3.65	
Dentex angolensis	5.23	85	2.50	
Alloteuthis africana	4.14	2278	1.98	
Arius latiscutatus	4.06	2	1.94	
Fistularia petimba	2.25	6	1.07	
Raja miraletus	2.19	8	1.04	
Pomadasys incisus	1.88	10	0.90	
Umbrina canariensis	1.65	2	0.79	
Torpedo torpedo	1.45	2	0.69	
Pseudupeneus prayensis	1.34	15	0.64	
Lepidotrigla cadmani	1.03	14	0.49	
Selene dorsalis	0.97	4	0.46	
Sardinella aurita	0.62	10	0.30	
Priacanthus arenatus	0.48	6	0.23	
Branchiostegus semifasciatus *	0.37	2	0.18	
Boops boops	0.33	10	0.16	
Syacium micrurum	0.23	10	0.11	
Brotula barbata	0.21	2	0.10	
Illex coindetii	0.19	4	0.09	
Brachydeuterus auritus	0.15	2	0.07	
Saurida brasiliensis	0.14	31	0.06	
Penaeus sp.	0.02	2	0.01	
Total	209.32		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 279
DATE :04/07/2007 GEAR TYPE: BT NO: 20 POSITION:Lat S 4°1.02
start stop duration Lon E 10°25.20
TIME :18:21:55 18:51:26 29.5 (min) Purpose : 3
LOG : 6878.74 6880.23 1.5 Region : 3300
FDEPTH: 175 198 Gear cond.: 0
BDEPTH: 175 198 Validity : 0
Towing dir: 0° Wire out : 530 m Speed : 3.0 kn
Sorted : 92 Total catch: 91.64 Catch/hour: 186.26

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Aulopus cadenati	51.52	661	27.66	
Dentex congoensis	25.91	402	13.91	1122
Merluccius polli	19.82	138	10.64	
Dentex angolensis	18.58	124	9.97	1121
Antigonia capros	12.60	409	6.77	
Lepidotrigla carolae	10.00	87	5.37	
Uranoscopus cadenati	9.35	87	5.02	
Squatina oculata	7.52	8	4.04	
Paraconger notialis	4.15	14	2.23	
Pterothrissus belloci	4.11	41	2.20	
Peristedion cataphractum	3.17	106	1.70	
Torpedo marmorata	2.22	2	1.19	
Arius heudeloti	2.03	2	1.09	
Raja miraletus	1.83	6	0.98	
Torpedo torpedo	1.77	2	0.95	
Synagrops microlepis	1.52	65	0.82	
Trigla lyra	1.52	16	0.82	
Umbrina canariensis	1.36	2	0.73	
Raja straeleni	1.24	2	0.67	
Promethichthys prometheus	1.02	2	0.55	
Illex coindetii	1.02	14	0.55	
Scorpaena normani	0.89	12	0.48	
Trichiurus lepturus	0.69	4	0.37	
Sepia officinalis hierredda	0.55	4	0.29	
Syacium micrurum	0.53	18	0.28	
Chascanopsetta lugubris	0.41	4	0.22	
OPHIDIIDAE	0.37	33	0.20	
Cynoponticus ferox	0.18	6	0.10	
Pteroscion peli	0.16	2	0.09	
Synchiropus phaeton	0.14	6	0.08	
Hypoclydonia bella *	0.08	2	0.04	
Total	186.26		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 280
DATE :05/07/2007 GEAR TYPE: BT NO: 20 POSITION:Lat S 4°15.12
start stop duration Lon E 10°33.45
TIME :00:05:18 00:23:14 17.9 (min) Purpose : 3
LOG : 6912.82 6913.67 0.9 Region : 3300
FDEPTH: 498 533 Gear cond.: 0
BDEPTH: 498 533 Validity : 0
Towing dir: 0° Wire out : 1500 m Speed : 2.9 kn
Sorted : 21 Total catch: 64.57 Catch/hour: 215.95

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Nematocarcinus africanus	167.89	42087	77.75	
Hoplostethus cadenati	10.54	90	4.88	
Merluccius polli	10.20	17	4.72	1125
GONOSTOMATIDAE	5.35	722	2.48	
Gadella imberbis	5.35	294	2.48	
Yarrella blackfordi	4.68	134	2.17	
Benthodesmus tenuis	3.34	94	1.55	
Nezumia aequalis	2.68	13	1.24	
Xenodermichthys copei	2.01	80	0.93	
Plesionika martia	2.01	174	0.93	
Etmopterus pusillus	0.70	3	0.33	
S H R I M P S	0.54	254	0.25	
Bathyuroconger vicinus	0.40	40	0.19	
Trachyrincus scabrus	0.27	27	0.12	
Total	215.95		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 281
DATE :05/07/2007 GEAR TYPE: BT NO: 20 POSITION:Lat S 4°13.74
start stop duration Lon E 10°37.01
TIME :02:27:34 02:57:58 30.4 (min) Purpose : 3
LOG : 6925.13 6926.65 1.5 Region : 3300
FDEPTH: 233 234 Gear cond.: 0
BDEPTH: 233 234 Validity : 0
Towing dir: 0° Wire out : 640 m Speed : 3.0 kn
Sorted : 33 Total catch: 69.93 Catch/hour: 138.07

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Merluccius polli	44.03	118	31.89	
Chlorophthalmus atlanticus	24.28	0	17.59	
Parapenaeus longirostris	17.77	4501	12.87	
Trigla lyra	11.45	103	8.29	
Dentex angolensis	10.27	30	7.44	1126
Chlorophthalmus agassizi	5.53	186	4.00	
Illex coindetii	4.54	186	3.29	
Brotula barbata	3.95	4	2.86	
Raja straeleni	2.57	4	1.86	
Trichiurus lepturus	2.47	4	1.79	
Gadella imberbis	2.17	71	1.57	
APOGONIDAE	1.78	79	1.29	
Zenion hololepis	1.78	498	1.29	
Peristedion cataphractum	1.58	284	1.14	
Uranoscopus cadenati	1.38	16	1.00	
Lepidotrigla cadmani	1.18	8	0.86	
Scorpaena angolensis	0.99	28	0.72	
Solenocera africana	0.20	24	0.14	
Syacium micrurum	0.16	16	0.11	
Total	138.07		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 282
DATE :05/07/2007 GEAR TYPE: BT NO: 20 POSITION:Lat S 4°7.15
start stop duration Lon E 10°44.75
TIME :05:52:23 06:07:53 15.5 (min) Purpose : 3
LOG : 6939.89 6940.65 0.8 Region : 3300
FDEPTH: 106 107 Gear cond.: 0
BDEPTH: 106 107 Validity : 0
Towing dir: 0° Wire out : 300 m Speed : 2.9 kn
Sorted : 60 Total catch: 59.53 Catch/hour: 230.44

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Trichiurus lepturus	54.58	62	23.69	
Squatina oculata	29.92	23	12.99	
Umbrina canariensis	28.26	66	12.26	1127
Brotula barbata	24.89	27	10.80	1128
Dentex angolensis	18.54	116	8.05	1130
Scorpaena scrofa	16.57	27	7.19	
Priacanthus arenatus	11.61	46	5.04	
Saurida brasiliensis	10.84	2907	4.70	
Perestedion cataphractum *	5.38	929	2.33	
Illex coindetii	5.26	147	2.28	
Lepidotrigla cadmani	4.95	39	2.15	
Fistularia petimba	4.45	12	1.93	
Trachurus trecae	4.41	105	1.92	1129
Syacium micrurum	2.05	89	0.89	
Sepia officinalis hierredda	2.05	43	0.89	
Raja miraletus	1.70	4	0.74	
Branchiostegus semifasciatus *	1.59	8	0.69	
Pagellus bellottii	1.24	19	0.54	
Ariomma bondi	0.97	12	0.42	
Uranoscopus cadenati	0.43	8	0.18	
Dentex canariensis	0.39	4	0.17	
Batrachoides liberiensis	0.35	4	0.15	
Total	230.44		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 283
DATE :05/07/2007 GEAR TYPE: BT NO: 20 POSITION:Lat S 3°58.95
start stop duration Lon E 10°51.84
TIME :08:06:01 08:36:10 30.2 (min) Purpose : 3
LOG : 6955.87 6957.37 1.5 Region : 3300
FDEPTH: 54 57 Gear cond.: 0
BDEPTH: 54 57 Validity : 0
Towing dir: 0° Wire out : 160 m Speed : 3.0 kn
Sorted : 0 Total catch: 133.73 Catch/hour: 266.13

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Trichiurus lepturus	76.62	4111	28.79	
Pteroscion peli	51.54	975	19.37	
Brachydeuterus auritus	30.49	2468	11.46	
Pomadasys jubelini	21.93	44	8.24	1135
Sardinella aurita	19.26	92	7.24	1132
Raja miraletus	17.51	60	6.58	
Trachurus trecae	8.96	96	3.36	1133
Pseudotolithus senegalensis	8.20	8	3.08	
Penaeus notialis	7.12	155	2.68	
Syacium micrurum	5.25	72	1.97	
Lepidotrigla cadmani	4.26	36	1.60	
Pomadasys incisus	4.10	24	1.54	1134
Mustelus mustelus	2.89	2	1.08	
Squilla sp.	2.59	88	0.97	
Pagellus bellottii	1.11	12	0.42	
Selene dorsalis	1.07	12	0.40	
Dentex barnardi	1.03	4	0.39	
Priacanthus arenatus	0.88	4	0.33	
Scomberomorus tritor	0.80	4	0.30	
Torpedo torpedo	0.36	8	0.13	
Cynoglossus canariensis	0.16	4	0.06	
Total	266.13		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 284
DATE :05/07/2007 GEAR TYPE: BT NO: 20 POSITION:Lat S 3°58.45
start stop duration Lon E 10°54.98
TIME :09:38:49 10:07:08 28.3 (min) Purpose : 3
LOG : 6963.58 6965.01 1.4 Region : 3300
FDEPTH: 41 43 Gear cond.: 0
BDEPTH: 41 43 Validity : 0
Towing dir: 0° Wire out : 150 m Speed : 3.0 kn
Sorted : 60 Total catch: 120.34 Catch/hour: 255.14

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Pomadasys peroteti	46.22	59	18.12	
Pteroscion peli	35.41	1069	13.88	
Brachydeuterus auritus	32.86	611	12.88	
Raja miraletus	24.81	68	9.72	
Trichiurus lepturus	17.81	1134	6.98	
Arius parkii	16.75	8	6.56	
Pseudotolithus senegalensis	16.11	68	6.32	
Penaeus notialis	10.81	668	4.24	
Pomadasys incisus	10.60	51	4.15	1136
Pagrus caeruleostictus	8.06	13	3.16	
Cynoglossus canariensis	7.42	51	2.91	
Galeoides decadactylus	5.51	51	2.16	
Ephippion guttifer	4.66	4	1.83	
Scomberomorus tritor	4.24	4	1.66	
Ilisha africana	3.60	76	1.41	
Decapterus rhonchus	3.39	25	1.33	
Scorpaena scrofa	1.70	51	0.66	
Umbrina canariensis	1.27	4	0.50	
Cynoponticus ferox	0.85	4	0.33	
Torpedo torpedo	0.85	17	0.33	
Squilla mantis	0.64	55	0.25	
Selene dorsalis	0.51	8	0.20	
Pseudupeneus prayensis	0.42	8	0.17	
Sphyraena sphyraena	0.38	13	0.15	
Chaetodon robustus	0.17	4	0.07	
Squilla cadenati	0.08	8	0.03	
Total	255.14		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 285
DATE :05/07/2007 GEAR TYPE: BT NO: 20 POSITION:Lat S 4°4.23
start stop duration Lon E 11°7.21
TIME :12:12:19 12:43:05 30.8 (min) Purpose : 3
LOG : 6978.50 6980.03 1.5 Region : 3400
FDEPTH: 23 23 Gear cond.: 0
BDEPTH: 23 23 Validity : 0
Towing dir: 0° Wire out : 120 m Speed : 3.0 kn
Sorted : 94 Total catch: 208.72 Catch/hour: 406.99

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Chloroscombrus chrysurus	117.54	2307	28.88	1142
Ilisha africana	56.30	1810	13.83	1140
Pseudotolithus typus	38.22	18	9.39	1139
Pseudotolithus senegalensis	36.66	287	9.01	1141
Pomadasys peroteti	30.87	90	7.58	1137
Brachydeuterus auritus	25.76	870	6.33	
Arius parkii	17.74	236	4.36	
Trichiurus lepturus	12.79	526	3.14	
Pentanemus quinquarius	10.74	331	2.64	1138
Pteroscion peli	8.87	156	2.18	
Sphyraena sphyraena	8.87	35	2.18	
Rhizoprionodon acutus	8.38	4	2.06	
Galeoides decadactylus	5.97	35	1.47	
Raja miraletus	4.93	14	1.21	
Portunus validus	4.25	10	1.04	
Stromateus fiatola	3.41	10	0.84	
Selene dorsalis	3.24	64	0.80	
Panulirus regius	3.02	10	0.74	
Parapenaeopsis atlantica	2.63	277	0.65	
Scomberomorus tritor	2.20	4	0.54	
Cynoponticus ferox	1.87	4	0.46	
Cynoglossus browni	1.36	8	0.34	
Lagocephalus laevigatus	0.68	41	0.17	
Microchirus wittei	0.27	8	0.07	
Drepane africana	0.23	10	0.06	
Pseudupeneus prayensis	0.16	4	0.04	
Total	406.99		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 286
DATE :05/07/2007 GEAR TYPE: BT NO: 20 POSITION:Lat S 4°9.33
start stop duration Lon E 11°5.15
TIME :14:19:22 14:50:41 31.3 (min) Purpose : 3
LOG : 6986.65 6988.31 1.7 Region : 3400
FDEPTH: 45 46 Gear cond.: 0
BDEPTH: 45 46 Validity : 0
Towing dir: 0° Wire out : 120 m Speed : 3.2 kn
Sorted : 54 Total catch: 109.22 Catch/hour: 209.23

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Pteroscion peli	106.32	1586	50.81	
Trichiurus lepturus	34.48	1724	16.48	
Brachydeuterus auritus	18.39	801	8.79	
Penaeus notialis	13.41	602	6.41	
Raja miraletus	12.45	31	5.95	
Pomadasys incisus	9.20	50	4.39	
Dasyatis marmorata	4.60	11	2.20	
Pseudotolithus senegalensis	2.87	8	1.37	
Decapterus rhonchus	2.68	23	1.28	
Cynoglossus canariensis	1.72	19	0.82	
Ilisha africana	1.15	23	0.55	
Panulirus regius	1.15	4	0.55	
Arius parkii	0.80	8	0.38	
Total	209.23		100.00	

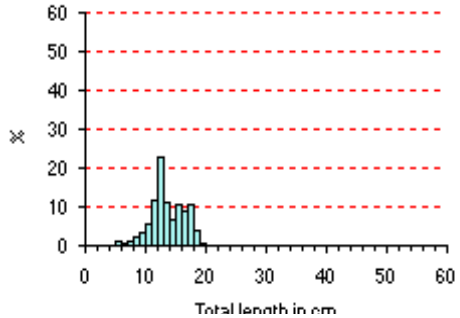
R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 287
DATE :05/07/2007 GEAR TYPE: PT NO: 5 POSITION:Lat S 4°12.25
start stop duration Lon E 11°4.16
TIME :15:37:49 16:08:48 31.0 (min) Purpose : 3
LOG : 6993.33 6995.33 2.0 Region : 3400
FDEPTH: 5 5 Gear cond.: 0
BDEPTH: 63 55 Validity : 0
Towing dir: 0° Wire out : 0 m Speed : 3.9 kn
Sorted : 0 Total catch: 6002.51 Catch/hour: 11629.02

SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Sardinella aurita	11624.15	55864	99.96	
Sarda sarda	4.86	6	0.04	
Total	11629.02		100.00	

R/V "DR. FRIDTJOF NANSEN" SURVEY:2007405 STATION: 288
DATE :05/07/2007 GEAR TYPE: BT NO: 20 POSITION:Lat S 4°14.43
start stop duration Lon E 10°59.55
TIME :17:23:51 17:50:36 26.8 (min) Purpose : 3
LOG : 7002.88 7004.20 1.3 Region : 3400
FDEPTH: 88 90 Gear cond.: 0
BDEPTH: 88 90 Validity : 0
Towing dir: 0° Wire out : 270 m Speed : 3.0 kn
Sorted : 74 Total catch: 74.34 Catch/hour: 166.74

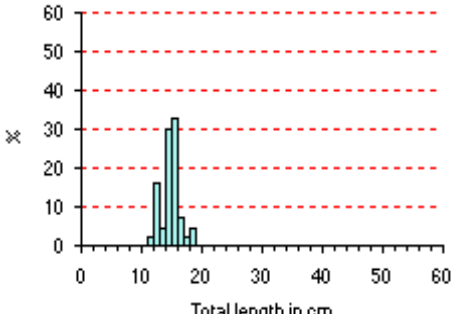
SPECIES	CATCH/HOUR weight	numbers	% OF TOT. C	SAMP
Brotula barbata	38.80	92	23.27	
Chelidonichthys capensis	21.73	184	13.03	
Dentex angolensis	20.86	170	12.51	
Paraconger notialis	18.48	18	11.08	
Uranoscopus cadenati	11.69	155	7.01	
Pagellus bellottii	8.48	161	5.08	
Syacium micrurum	5.29	191	3.17	
Raja miraletus	5.02	11	3.01	
Trichiurus lepturus	4.49	36	2.69	
Brachydeuterus auritus	4.33	11	2.60	
Octopus vulgaris	4.26	4	2.56	
Trachurus trecae	4.10	74	2.46	
NETTASTOMATIDAE	3.21	197	1.92	
Sepia officinalis hierredda	3.16	527	1.90	
Scorpaena normani	2.94	54	1.76	
Parapenaeus longirostris	2.15	455	1.29	
Saurida brasiliensis	1.53	321	0.91	
Priacanthus arenatus	1.48	4	0.89	
Dasyatis margarita	1.41	4	0.85	
Zeus faber	1.30	2	0.78	
Serranus accraensis	0.56	11	0.34	
Pteroscion peli	0.47	2	0.28	
Pomadasys incisus	0.34	2	0.20	
Pseudupeneus prayensis	0.27	2	0.16	
Illex coindetii	0.20	4	0.12	
Dentex canariensis	0.18	2	0.11	
Total	166.74		100.00	

Annex II Length frequencies of main species



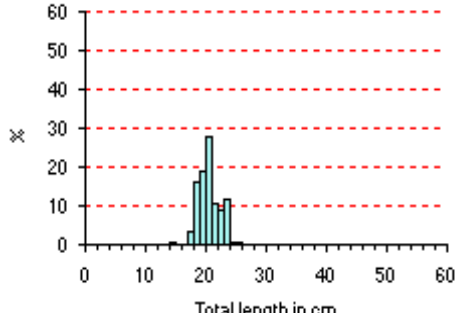
Brachydeuterus auritus Cote d'Ivoire

Mean length = 13.65 N = 267



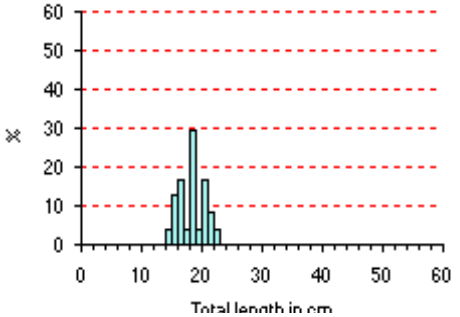
Dentex congoensis Cote d'Ivoire

Mean length = 14.78 N = 43



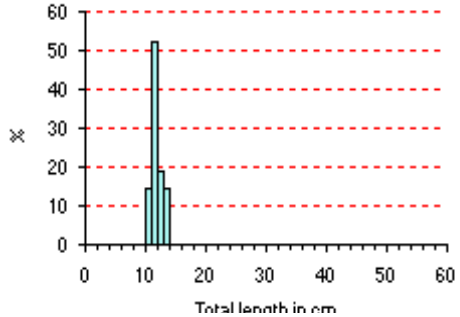
Chloroscombrus chrysurus Cote d'Ivoire

Mean length = 20.50 N = 148



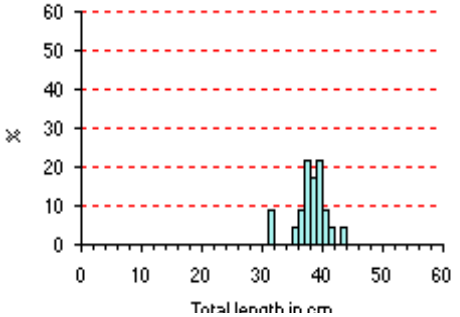
Drepane africana Cote d'Ivoire

Mean length = 18.38 N = 24



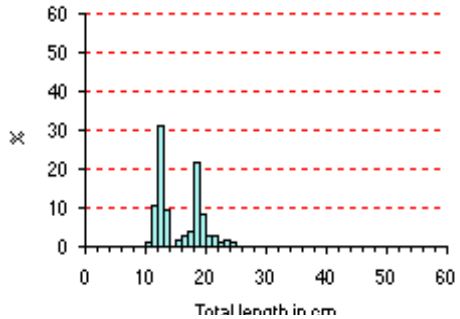
Decapterus punctatus Cote d'Ivoire

Mean length = 11.83 N = 21



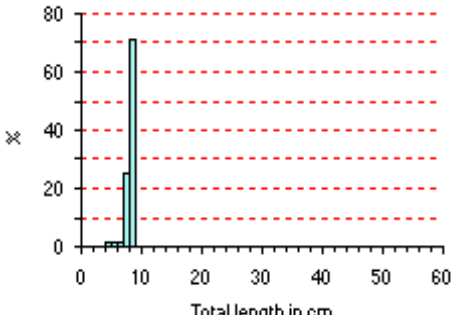
Elops lacerta Cote d'Ivoire

Mean length = 38.11 N = 23



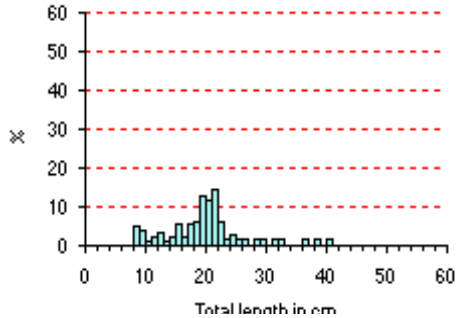
Dentex angolensis Cote d'Ivoire

Mean length = 15.62 N = 106



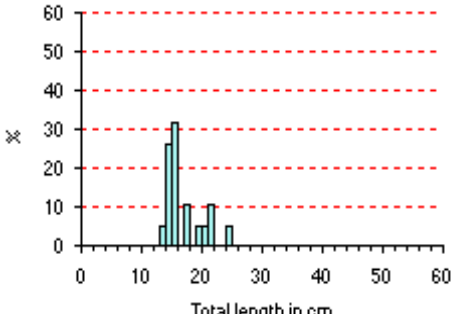
Engraulis encrasicolus Cote d'Ivoire

Mean length = 8.14 N = 249



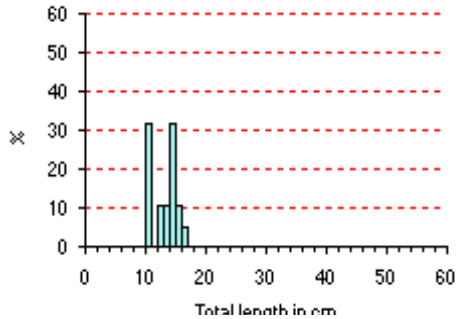
Galeoides decadactylus Cote d'Ivoire

Mean length = 19.89 N = 76



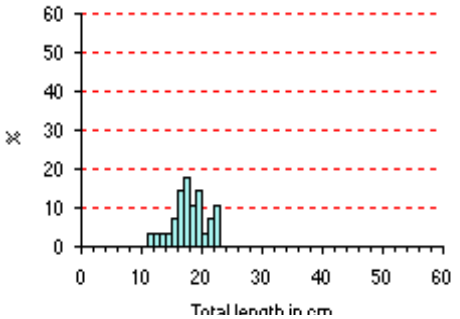
Pomadasys incisus Cote d'Ivoire

Mean length = 16.92 N = 19



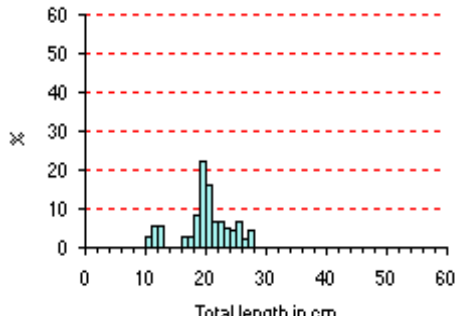
Ilisha africana Cote d'Ivoire

Mean length = 13.13 N = 19



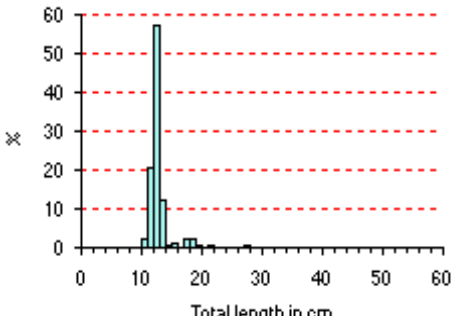
Pseudupeneus prayensis Cote d'Ivoire

Mean length = 17.89 N = 28



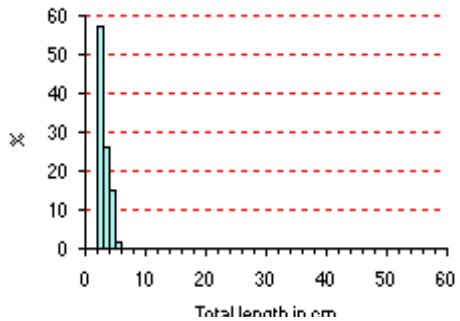
Pagellus bellottii Cote d'Ivoire

Mean length = 20.01 N = 42



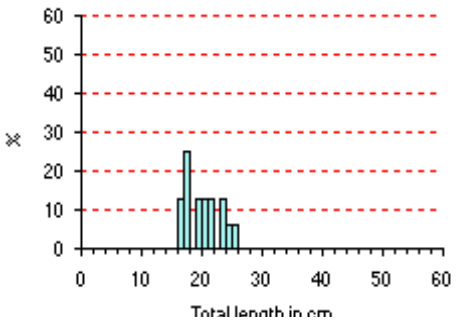
Sardinella maderensis Cote d'Ivoire

Mean length = 12.78 N = 157



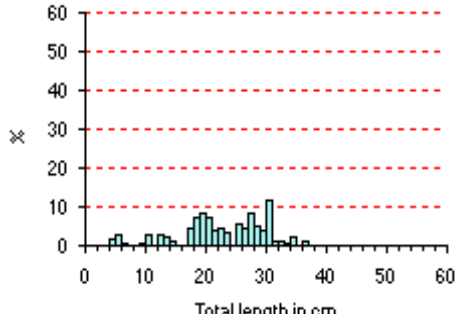
Penaeus notialis Cote d'Ivoire

Mean length = 3.11 N = 54



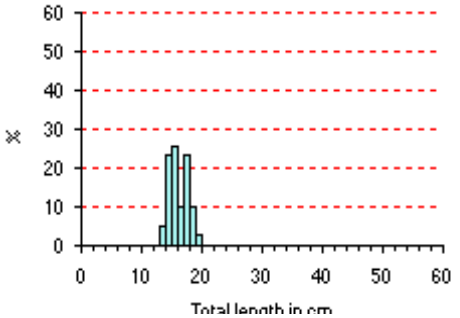
Selar crumenophthalmus Cote d'Ivoire

Mean length = 20.19 N = 16



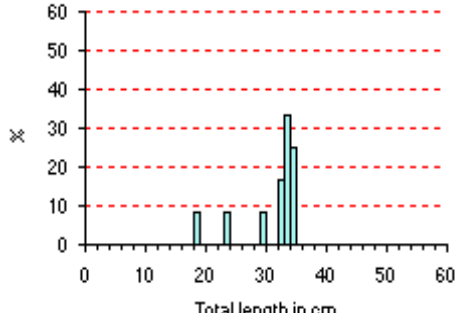
Selene dorsalis Cote d'Ivoire

Mean length = 22.75 N = 108



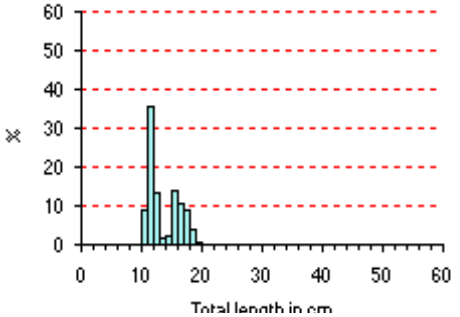
Balistes punctatus Ghana

Mean length = 16.14 N = 39



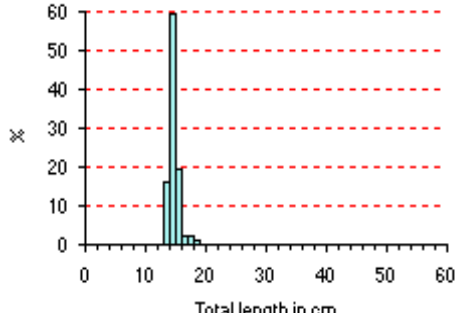
Sphyraena sphyraena Cote d'Ivoire

Mean length = 31.17 N = 12



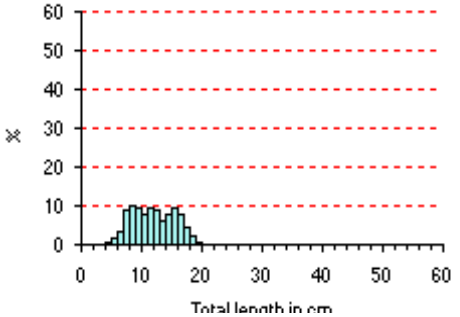
Boops boops Ghana

Mean length = 13.58 N = 254



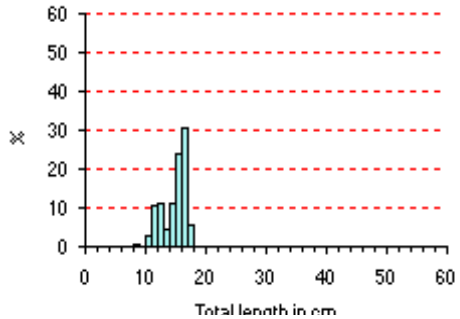
Trachurus trecae Cote d'Ivoire

Mean length = 14.67 N = 108



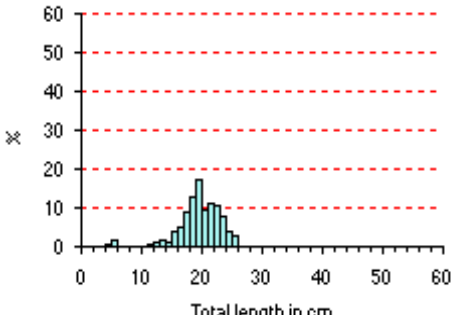
Brachydeuterus auritus Ghana

Mean length = 11.97 N = 1092



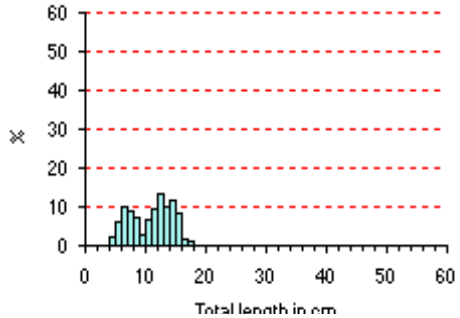
Ariomma bondi Ghana

Mean length = 14.81 N = 105



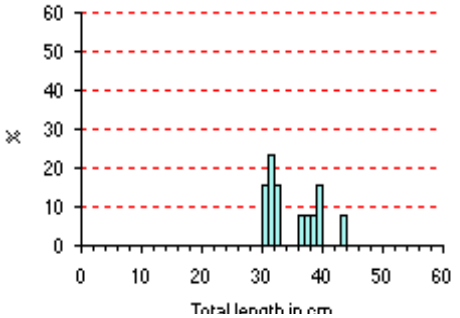
Chloroscombrus chrysurus Ghana

Mean length = 19.66 N = 462



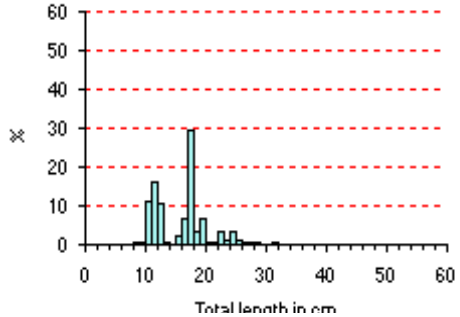
Decapterus punctatus Ghana

Mean length = 10.98 N = 494



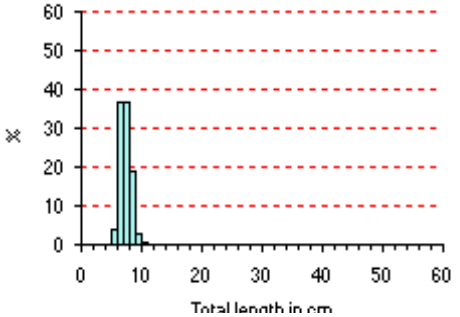
Elops lacerta Ghana

Mean length = 35.04 N = 13



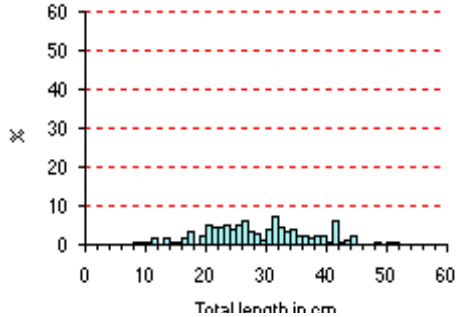
Dentex angolensis Ghana

Mean length = 15.91 N = 282



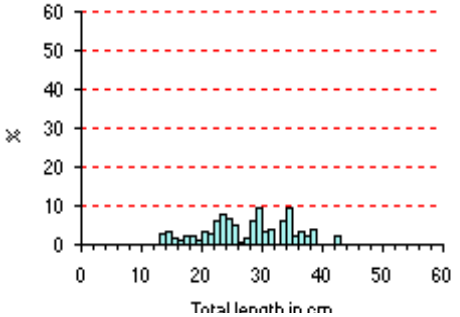
Engraulis encrasicolus Ghana

Mean length = 7.30 N = 586



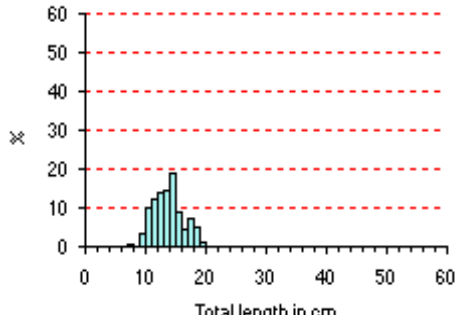
Dentex canariensis Ghana

Mean length = 28.49 N = 166



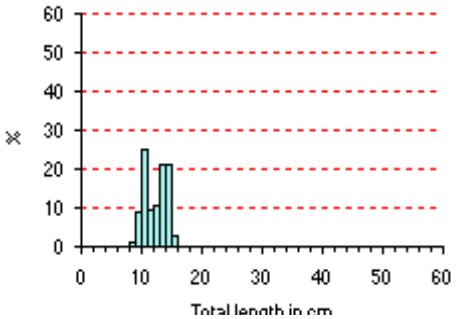
Galeoides decadactylus Ghana

Mean length = 27.46 N = 87



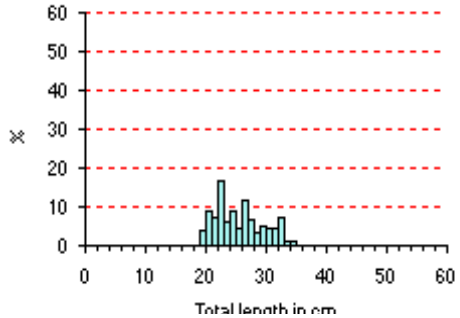
Dentex congoensis Ghana

Mean length = 13.77 N = 374



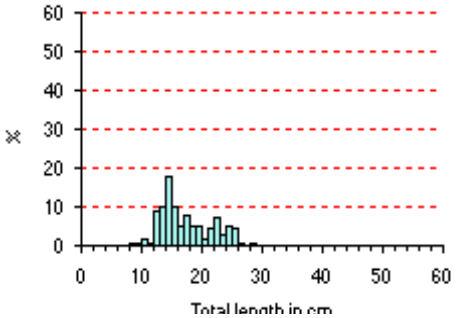
Ilisha africana Ghana

Mean length = 12.33 N = 104



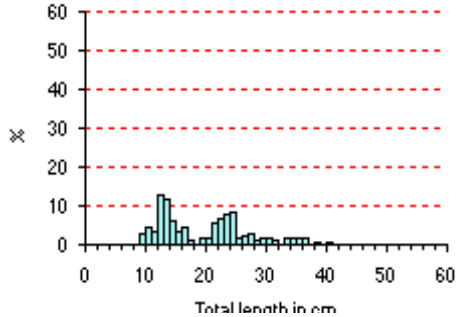
Lethrinus atlanticus Ghana

Mean length = 25.57 N = 96



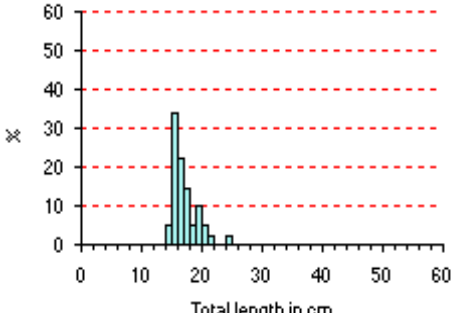
Pagrus caeruleostictus Ghana

Mean length = 17.27 N = 126



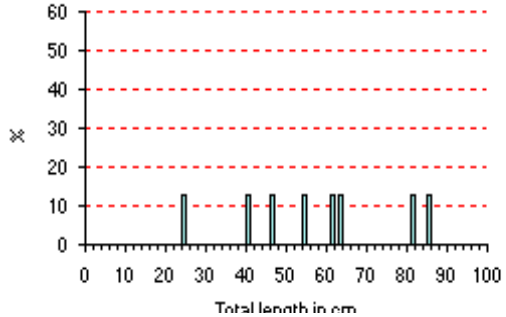
Lutjanus fulgens Ghana

Mean length = 19.60 N = 141



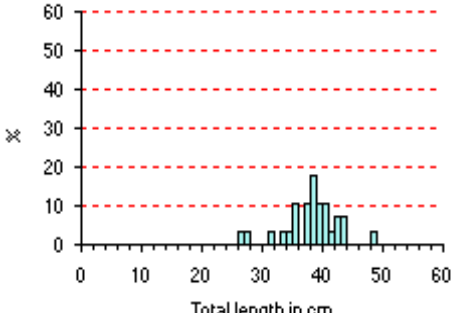
Pomadasys incisus Ghana

Mean length = 17.11 N = 41



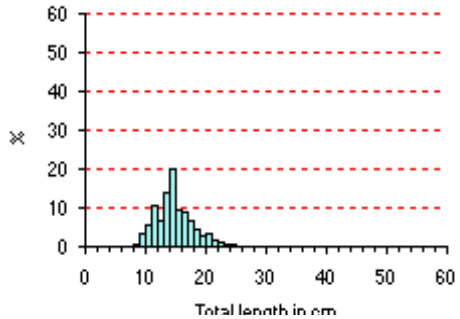
Lutjanus goreensis Ghana

Mean length = 57.25 N = 8



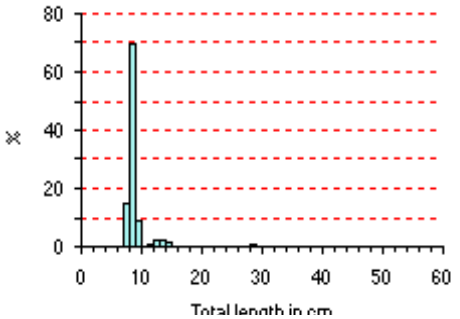
Pomadasys jubelini Ghana

Mean length = 38.11 N = 28



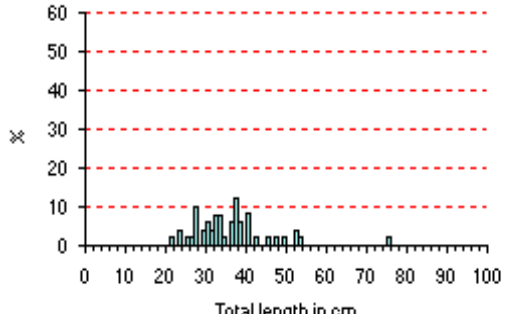
Pagellus bellottii Ghana

Mean length = 14.82 N = 954



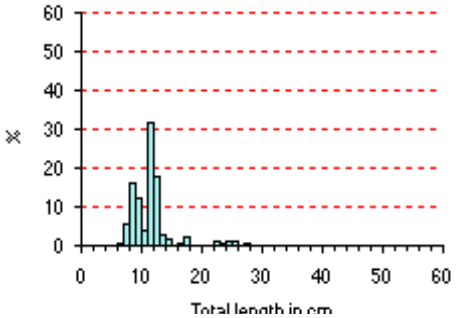
Priacanthus arenatus Ghana

Mean length = 8.90 N = 293



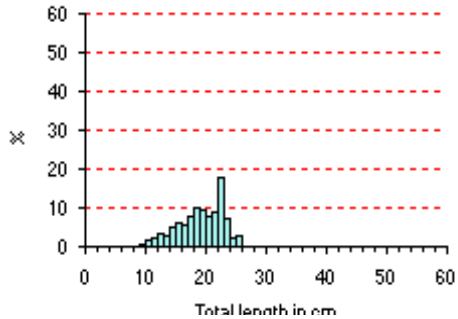
Pseudotolithus typus Ghana

Mean length = 36.05 N = 50



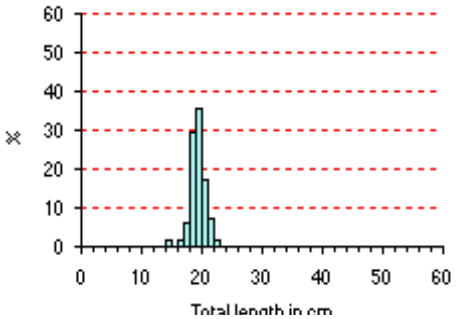
Sardinella maderensis Ghana

Mean length = 11.51 N = 272



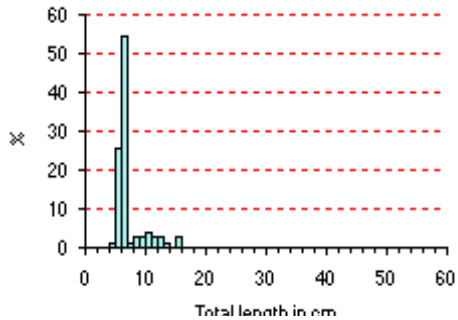
Pseudupeneus prayensis Ghana

Mean length = 19.15 N = 393



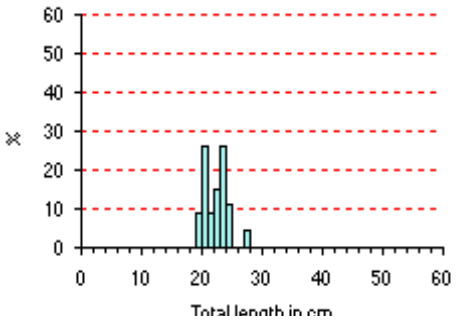
Scomber japonicus Ghana

Mean length = 19.33 N = 68



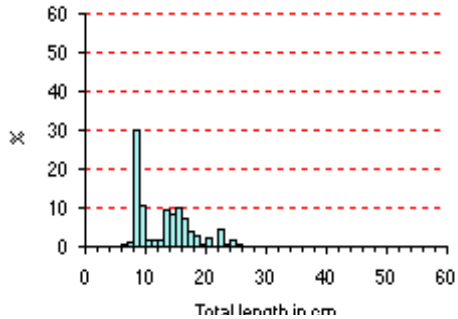
Pteroscion peli Ghana

Mean length = 7.11 N = 79



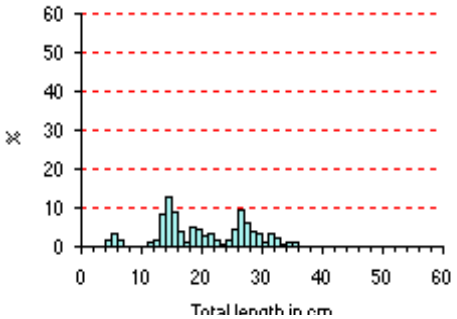
Selar crumenophthalmus Ghana

Mean length = 22.33 N = 46



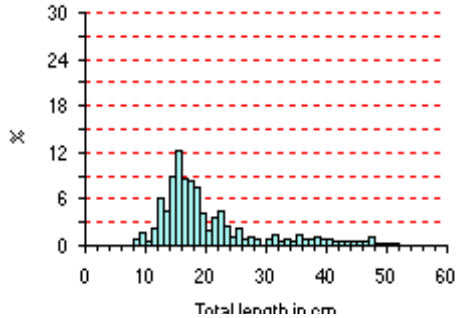
Sardinella aurita Ghana

Mean length = 13.12 N = 587



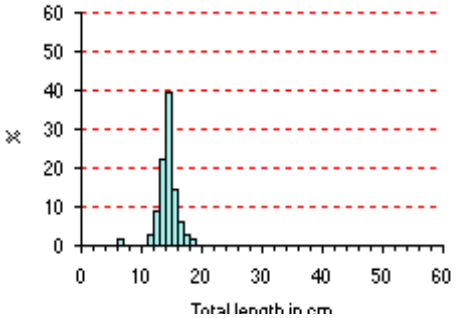
Selene dorsalis Ghana

Mean length = 20.19 N = 243



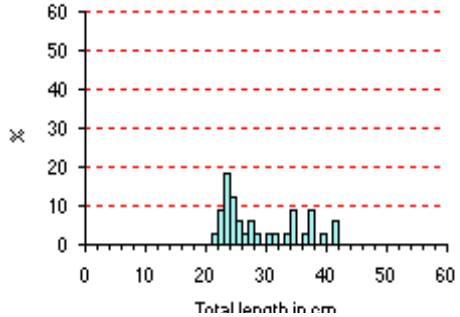
Sphyraena guachancho Ghana

Mean length = 20.72 N = 273



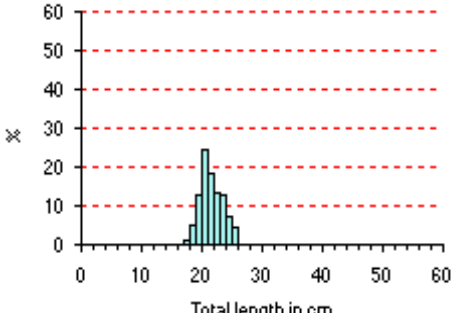
Brachydeuterus auritus Togo

Mean length = 14.31 N = 68



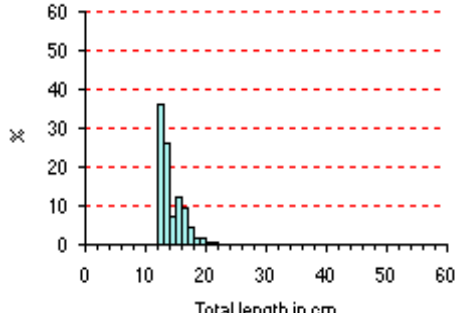
Sphyraena sphyraena Ghana

Mean length = 29.08 N = 33



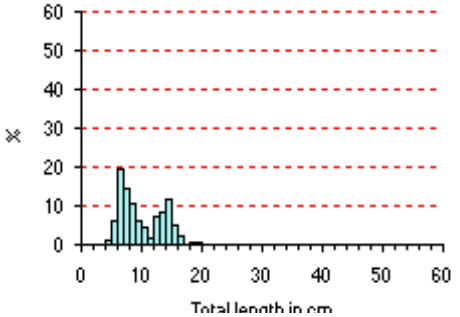
Chloroscombrus chrysurus Togo

Mean length = 21.59 N = 60



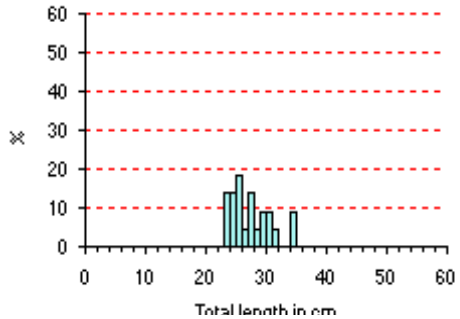
Trachurus trecae Ghana

Mean length = 14.16 N = 455



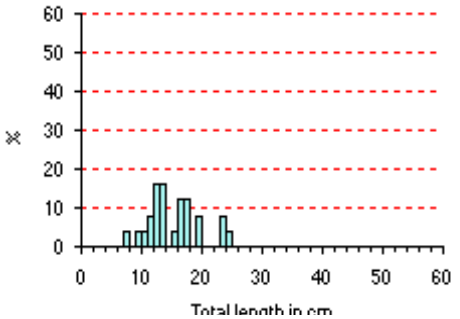
Decapterus punctatus Togo

Mean length = 10.05 N = 234



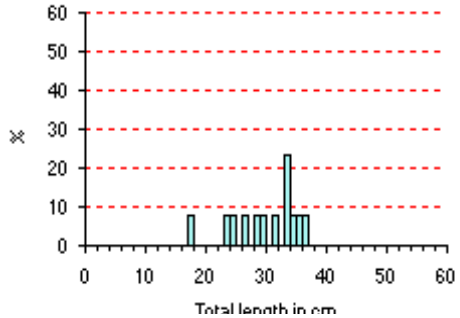
Umbrina canariensis Ghana

Mean length = 27.45 N = 22



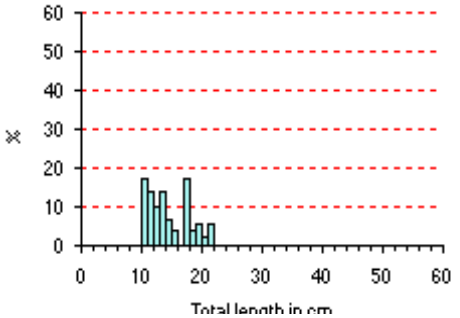
Dentex angolensis Togo

Mean length = 15.30 N = 25



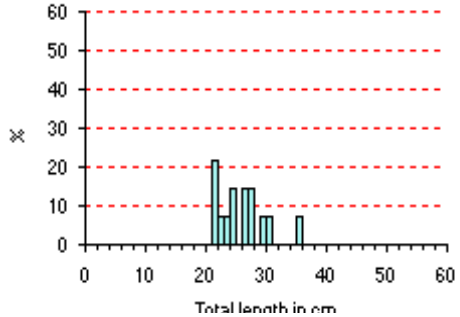
Dentex canariensis Togo

Mean length = 29.88 N = 13



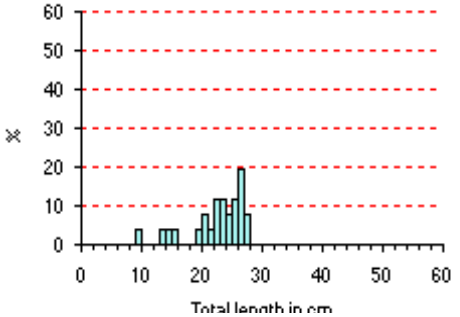
Pseudupeneus prayensis Togo

Mean length = 14.59 N = 46



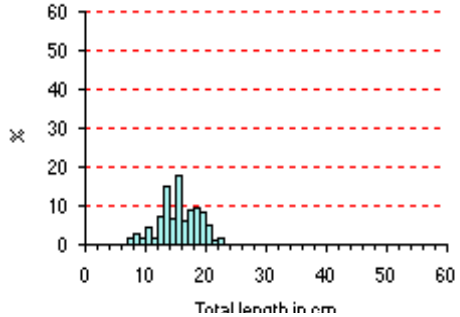
Lutjanus fulgens Togo

Mean length = 25.93 N = 14



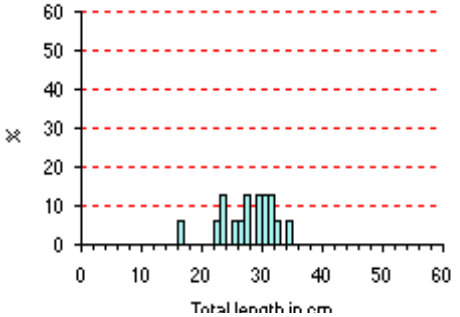
Selar crumenophthalmus Togo

Mean length = 22.54 N = 26



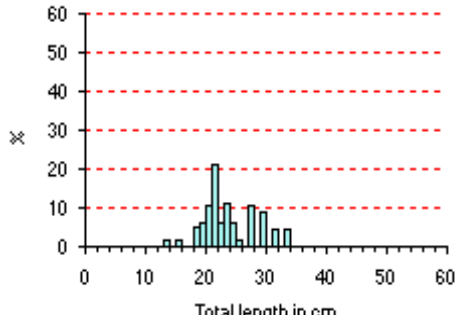
Pagellus bellottii Togo

Mean length = 15.50 N = 82



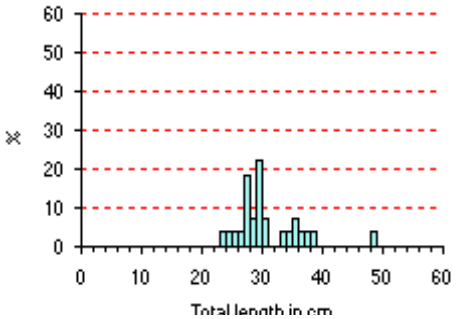
Selene dorsalis Togo

Mean length = 27.69 N = 16



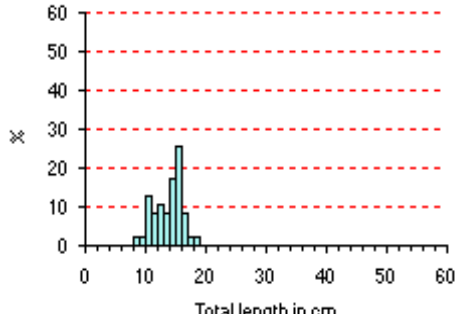
Pagrus caeruleostictus Togo

Mean length = 23.77 N = 33



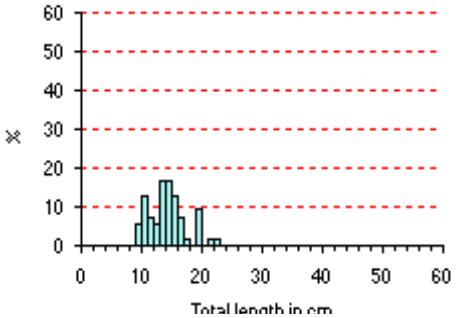
Sphyraena guachancho Togo

Mean length = 30.83 N = 27



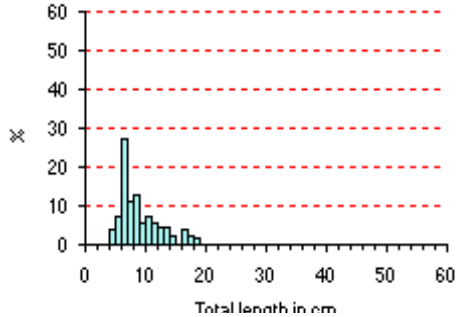
Ariomma bondi Benin

Mean length = 13.78 N = 47



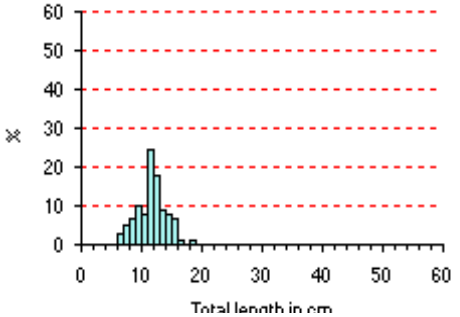
Dentex angolensis Benin

Mean length = 14.28 N = 54



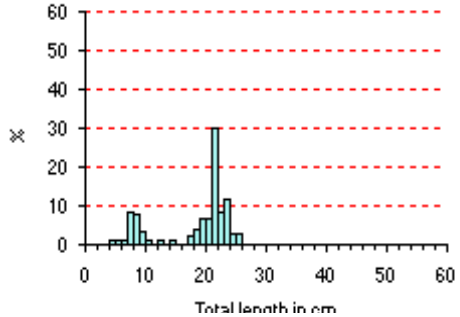
Brachydeuterus auritus Benin

Mean length = 9.07 N = 86



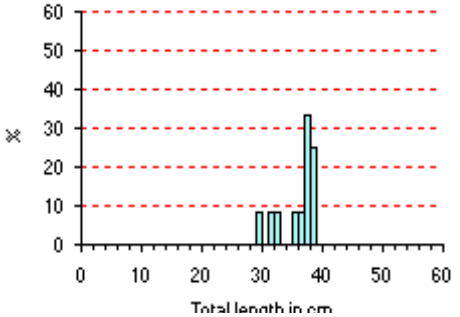
Dentex congoensis Benin

Mean length = 11.69 N = 78



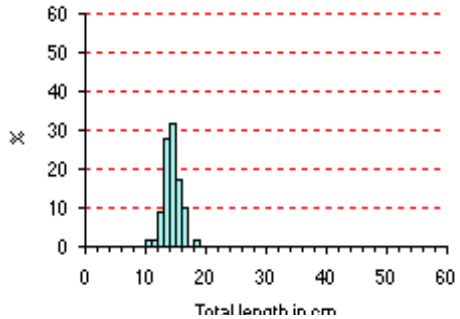
Chloroscombrus chrysurus Benin

Mean length = 18.21 N = 56



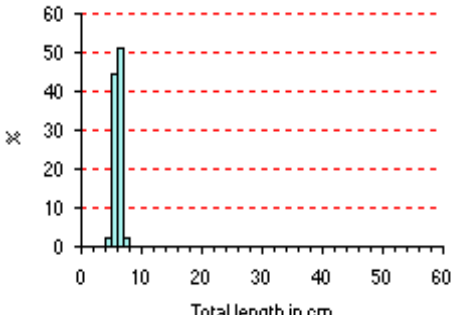
Elops lacerta Benin

Mean length = 35.92 N = 12



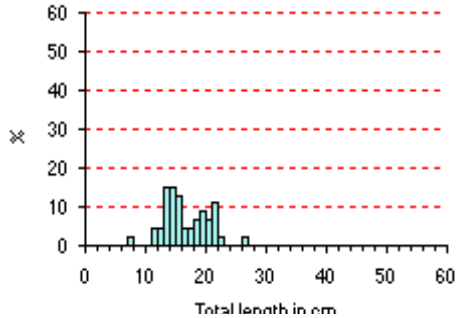
Decapterus punctatus Benin

Mean length = 14.38 N = 69



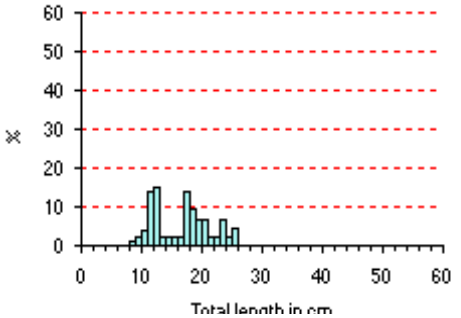
Engraulis encrasicolus Benin

Mean length = 6.03 N = 43



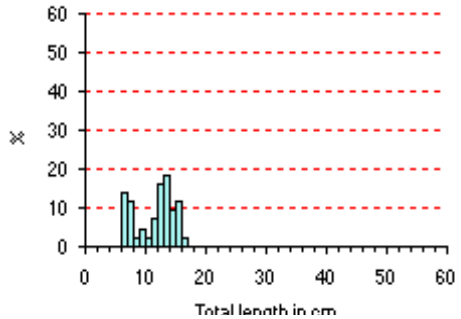
Galeoides decadactylus Benin

Mean length = 16.61 N = 46



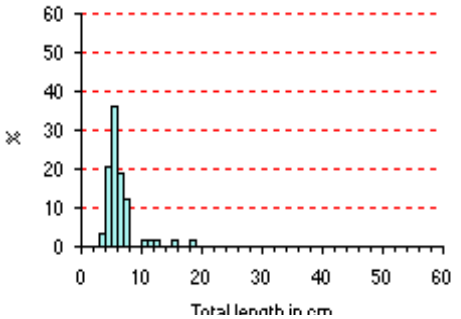
Selar crumenophthalmus Benin

Mean length = 16.77 N = 65



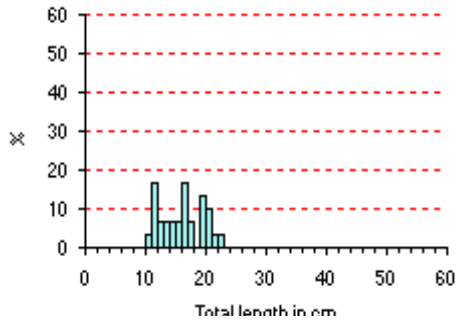
Ilisha africana Benin

Mean length = 11.55 N = 43



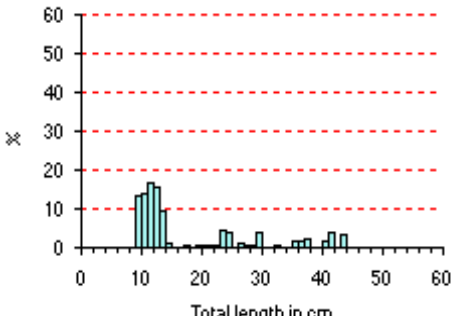
Selene dorsalis Benin

Mean length = 6.36 N = 58



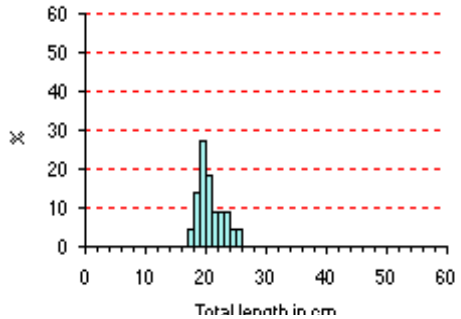
Sardinella aurita Benin

Mean length = 16.03 N = 30



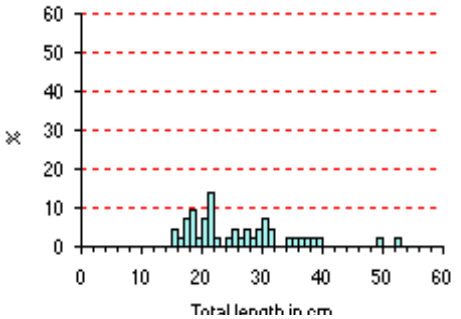
Sphyraena guachancho Benin

Mean length = 17.75 N = 76



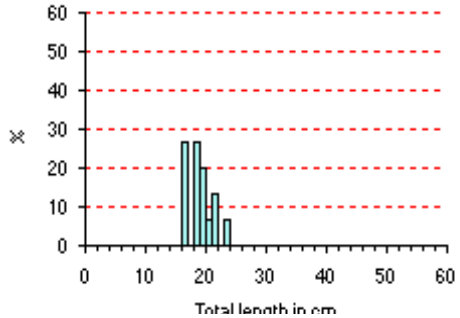
Scomberomorus tritor Benin

Mean length = 20.77 N = 22



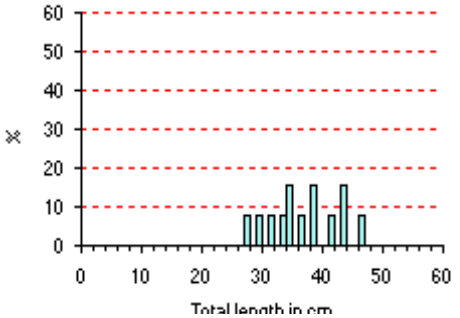
Trichiurus lepturus Benin

Mean length = 26.27 N = 43



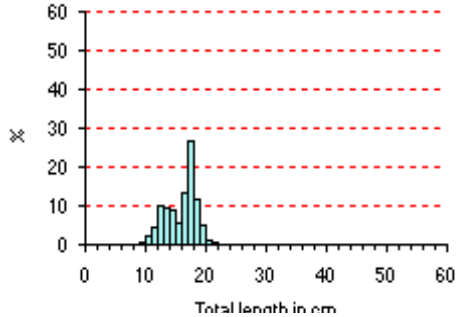
Caranx senegallus Cameroon

Mean length = 19.03 N = 15



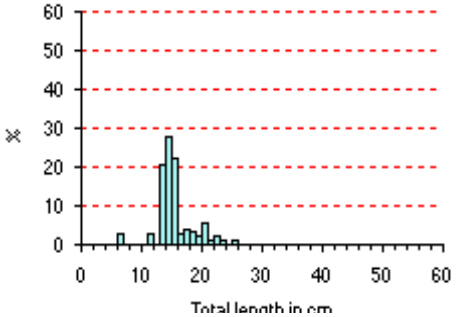
Scomberomorus tritor Cameroon

Mean length = 36.88 N = 13



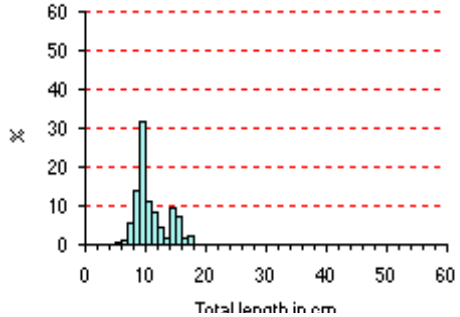
Chloroscombrus chrysurus Cameroon

Mean length = 15.92 N = 174



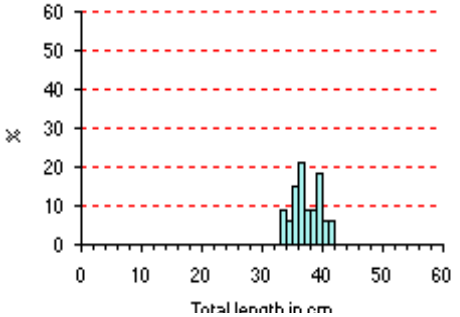
Selene dorsalis Cameroon

Mean length = 15.48 N = 48



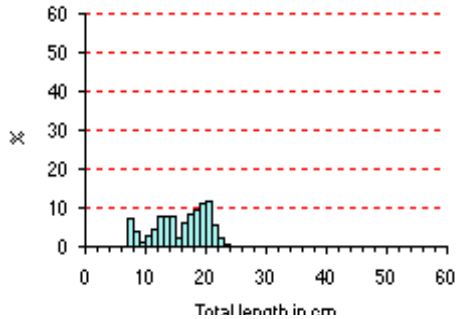
Ilisha africana Cameroon

Mean length = 10.92 N = 179



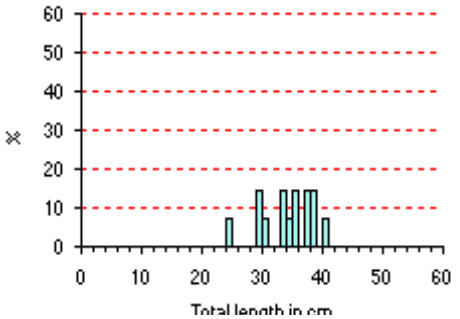
Sphyraena guachancho Cameroon

Mean length = 37.32 N = 33



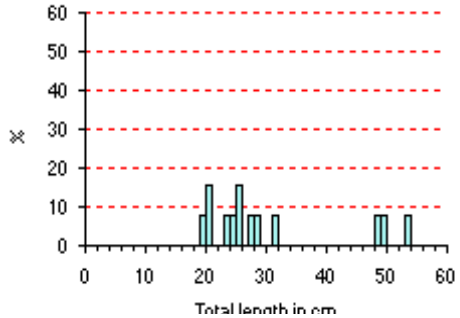
Sardinella maderensis Cameroon

Mean length = 15.86 N = 207



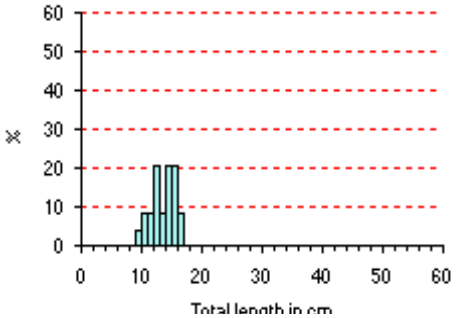
Balistes capriscus Sao Tome

Mean length = 34.21 N = 14



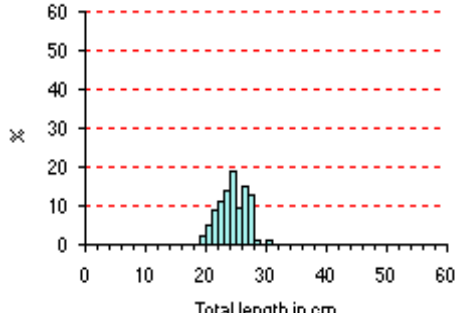
Brotula barbata Sao Tome

Mean length = 30.65 N = 13



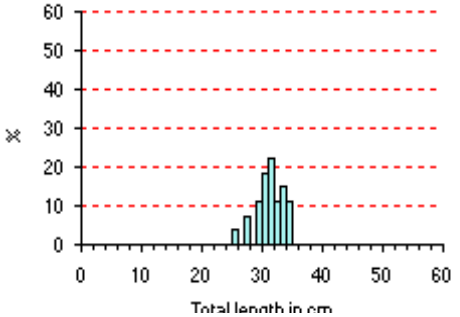
Dentex congoensis Sao Tome

Mean length = 13.58 N = 24



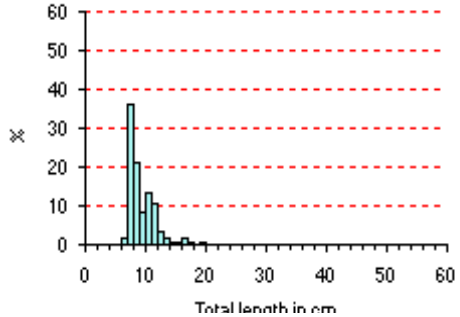
Dactylopterus volitans Sao Tome

Mean length = 24.51 N = 115



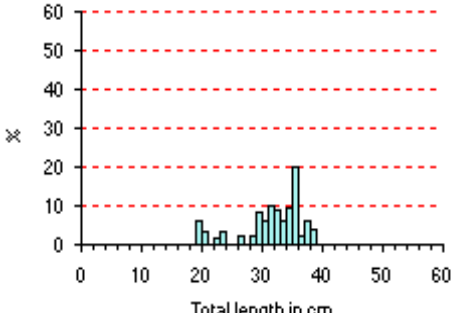
Galeoides decadactylus Sao Tome

Mean length = 31.31 N = 27



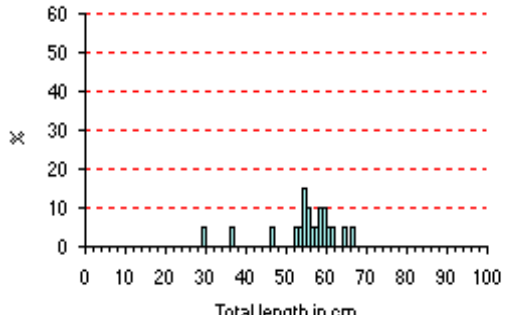
Decapterus punctatus Sao Tome

Mean length = 9.25 N = 212



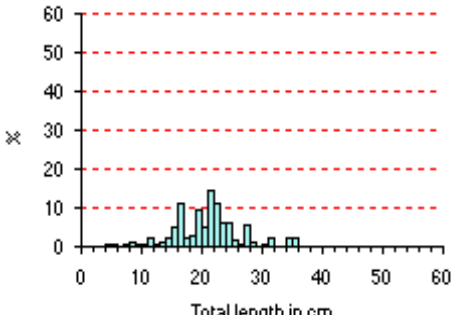
Lutjanus fulgens Sao Tome

Mean length = 31.63 N = 42



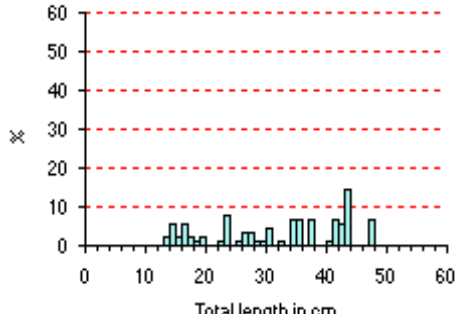
Dentex canariensis Sao Tome

Mean length = 54.80 N = 20



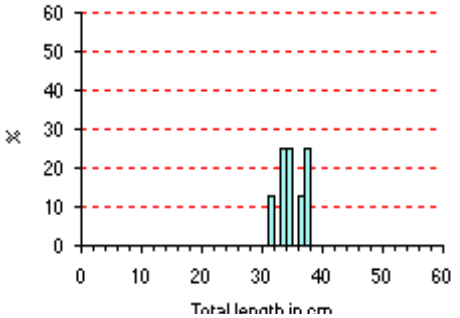
Pagellus bellottii Sao Tome

Mean length = 21.09 N = 183



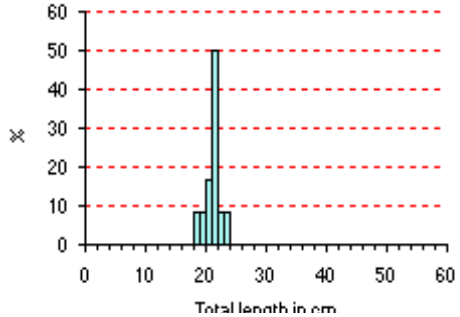
Pagrus caeruleostictus Sao Tome

Mean length = 31.87 N = 54



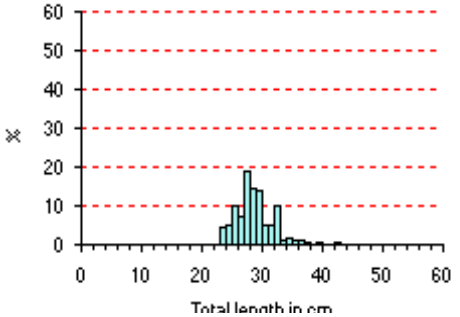
Selene dorsalis Sao Tome

Mean length = 34.88 N = 8



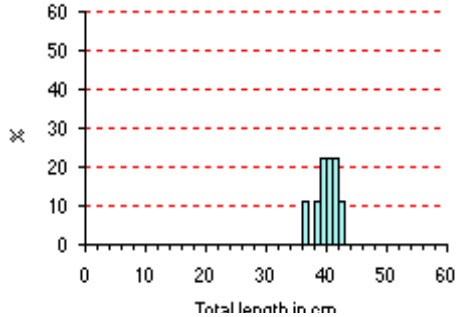
Pomadasys incisus Sao Tome

Mean length = 21.17 N = 12



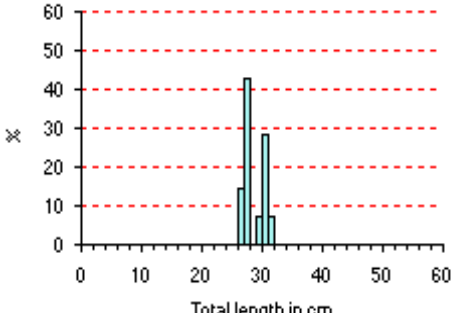
Dactylopterus volitans Principe

Mean length = 28.74 N = 60



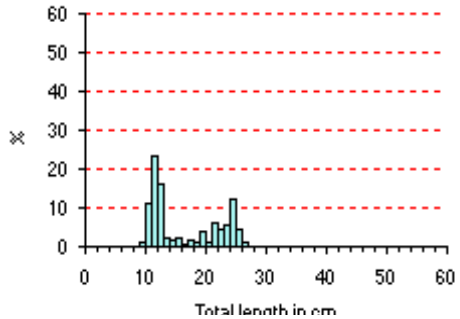
Pomadasys jubelini Sao Tome

Mean length = 40.06 N = 9



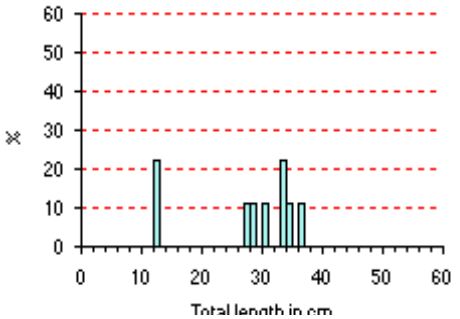
Lethrinus atlanticus Principe

Mean length = 28.64 N = 14



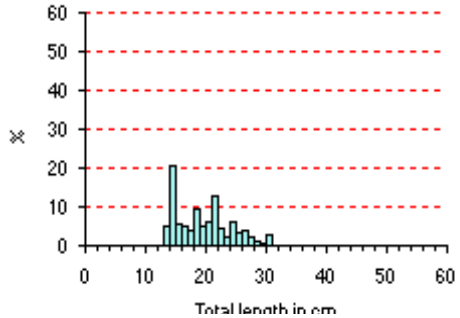
Pseudupeneus prayensis Sao Tome

Mean length = 16.44 N = 107



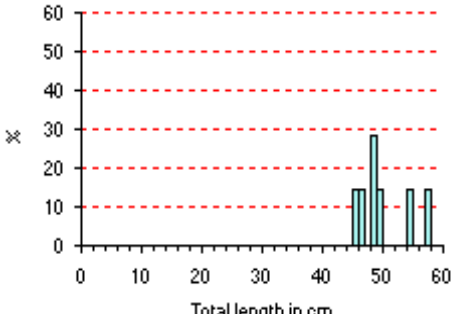
Lutjanus fulgens Principe

Mean length = 27.72 N = 9



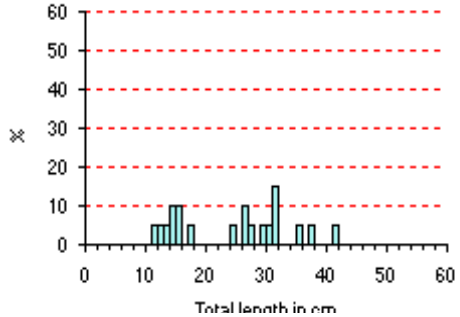
Pagellus bellottii Principe

Mean length = 19.55 N = 91



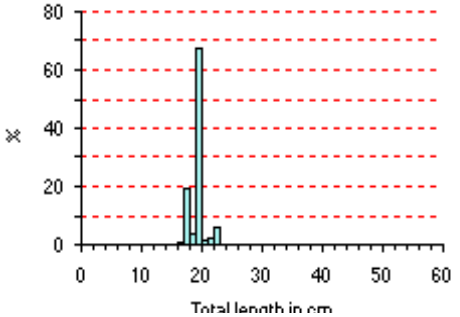
Brotula barbata Gabon

Mean length = 50.07 N = 7



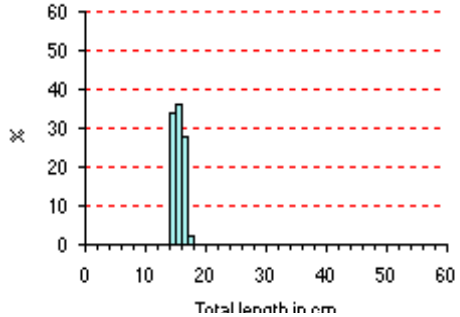
Pagrus caeruleostictus Principe

Mean length = 24.45 N = 20



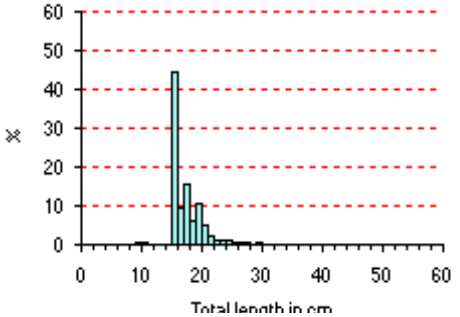
Chloroscombrus chrysurus Gabon

Mean length = 19.30 N = 109



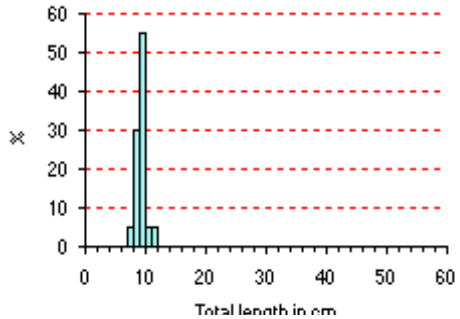
Ariomma bondi Gabon

Mean length = 15.48 N = 50



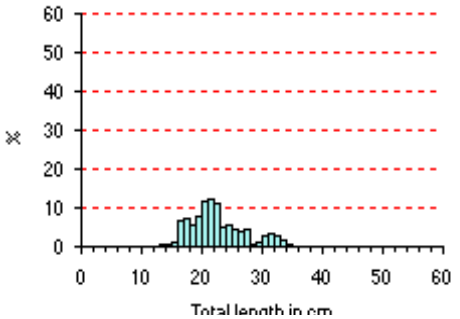
Decapterus rhonchus Gabon

Mean length = 17.38 N = 265



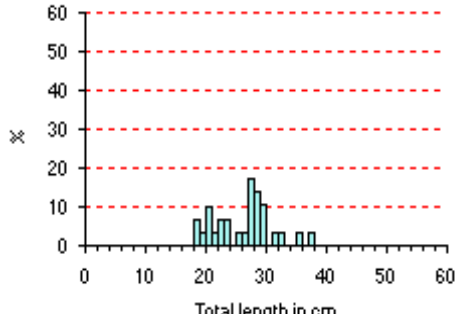
Brachydeuterus auritus Gabon

Mean length = 9.25 N = 20



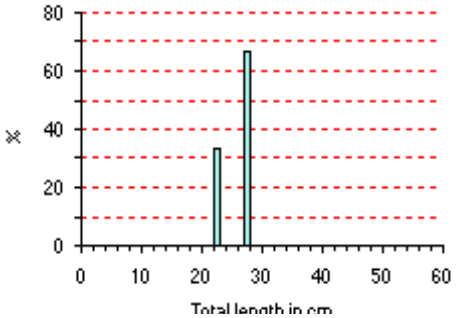
Dentex angolensis Gabon

Mean length = 22.61 N = 337



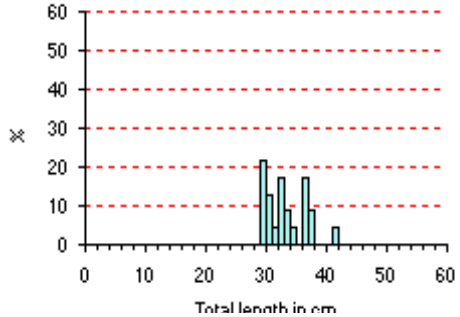
Dentex barnardi Gabon

Mean length = 26.27 N = 29



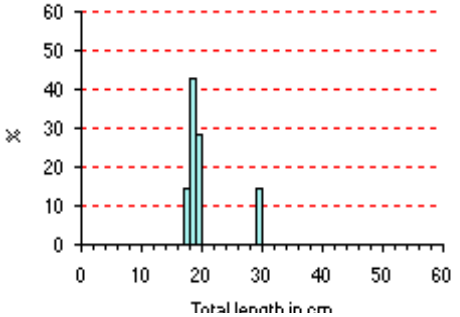
Dentex macrophthalmus Gabon

Mean length = 25.83 N = 3



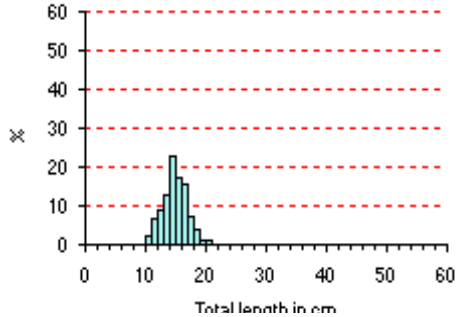
Dentex canariensis Gabon

Mean length = 33.24 N = 23



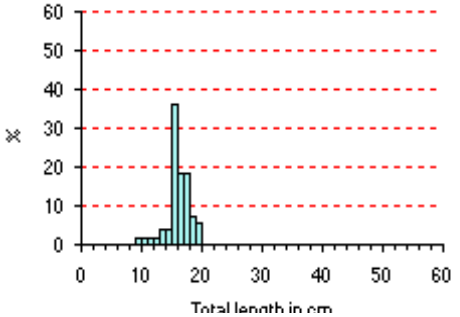
Galeoides decadactylus Gabon

Mean length = 20.21 N = 7



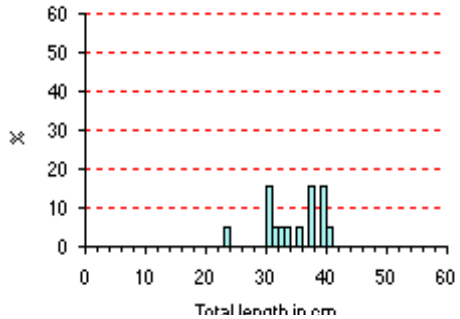
Dentex congoensis Gabon

Mean length = 14.88 N = 706



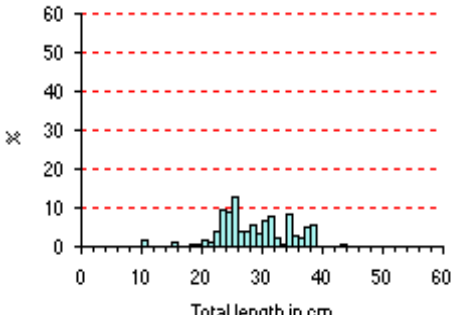
Ilisha africana Gabon

Mean length = 16.05 N = 55



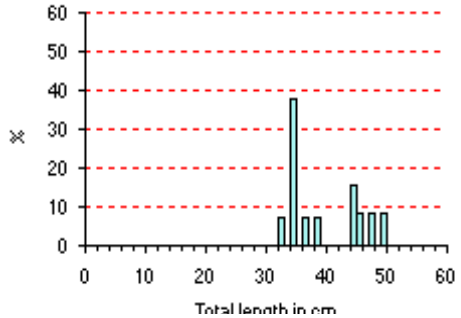
Dentex gibbosus Gabon

Mean length = 41.66 N = 19



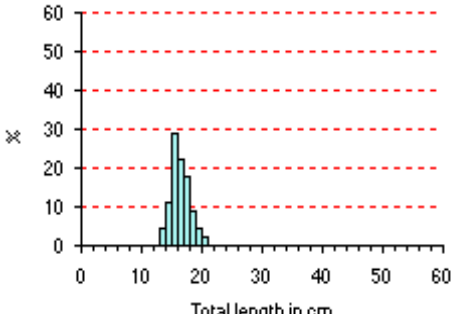
Lutjanus fulgens Gabon

Mean length = 28.60 N = 88



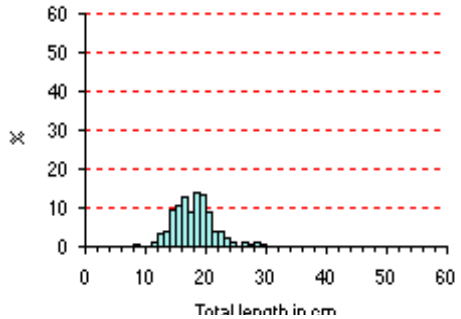
Merluccius polli Gabon

Mean length = 39.56 N = 13



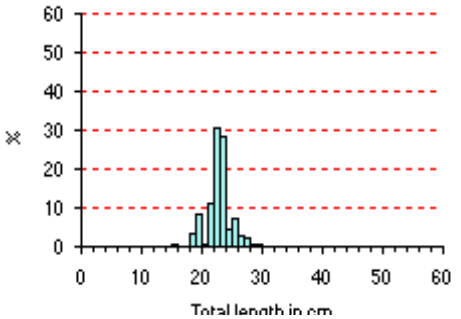
Pentanemus quinquarius Gabon

Mean length = 16.43 N = 45



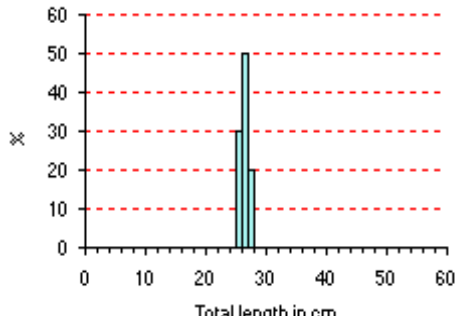
Pagellus bellottii Gabon

Mean length = 18.00 N = 380



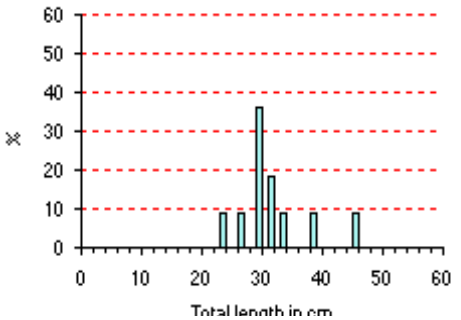
Pomadasys incisus Gabon

Mean length = 22.82 N = 94



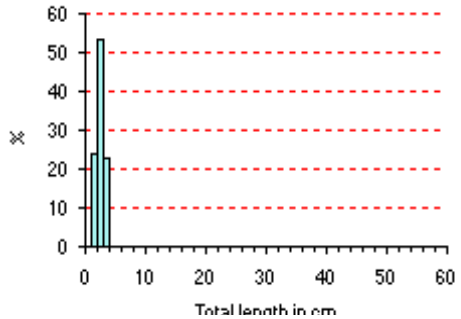
Pagrus caeruleostictus Gabon

Mean length = 26.40 N = 10



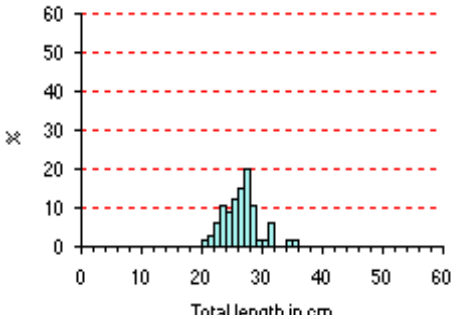
Pomadasys jubelini Gabon

Mean length = 31.68 N = 11



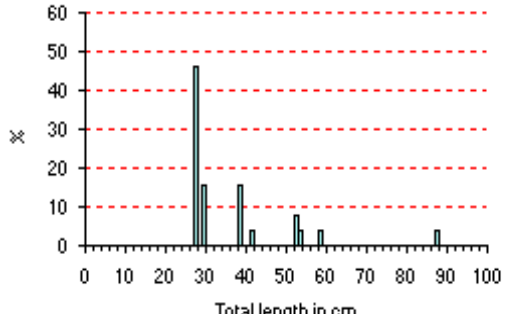
Penaeus notialis Gabon

Mean length = 2.49 N = 87



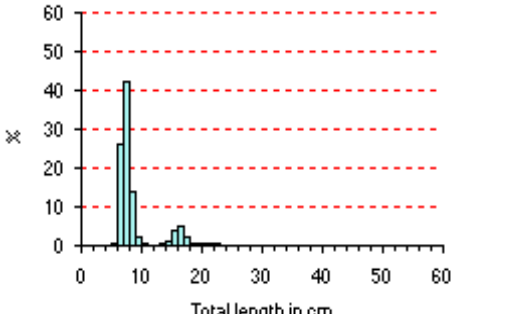
Pomadasys peroteti Gabon

Mean length = 26.46 N = 66



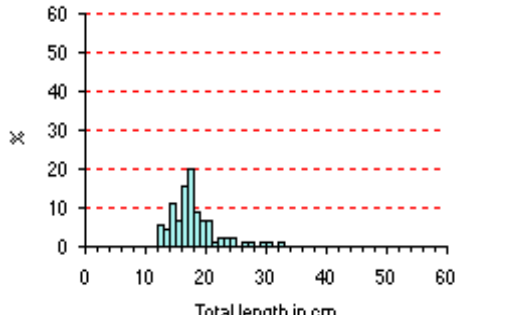
Pseudotolithus senegalensis Gabon

Mean length = 36.42 N = 11



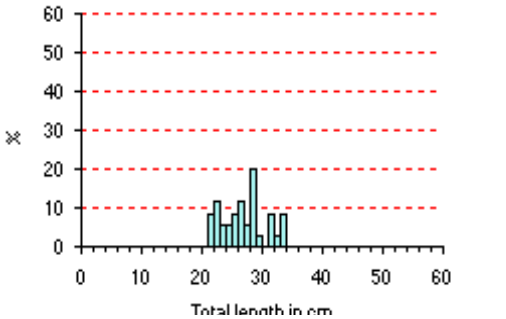
Sardinella maderensis Gabon

Mean length = 8.78 N = 851



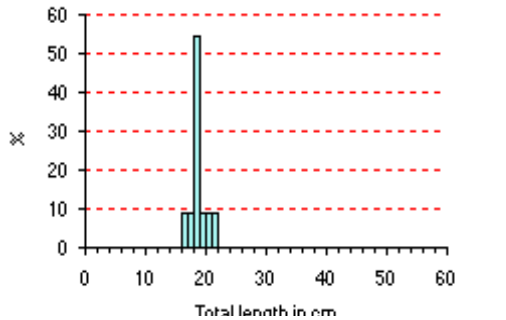
Pseudotolithus typus Gabon

Mean length = 17.95 N = 89



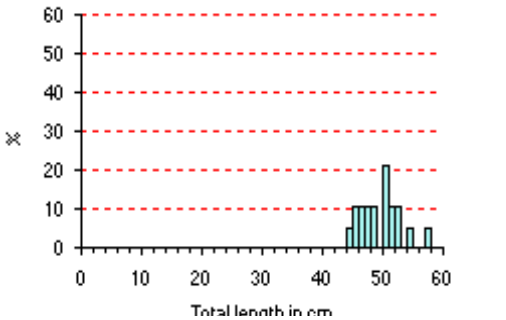
Scomber japonicus Gabon

Mean length = 26.99 N = 35



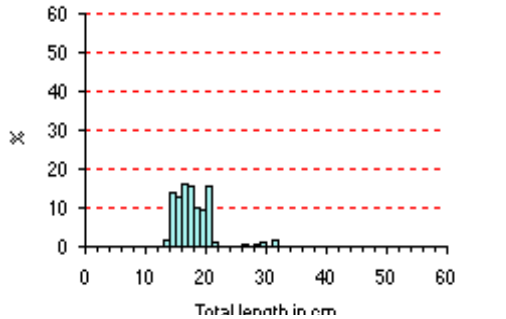
Pteroscion peli Gabon

Mean length = 18.77 N = 11



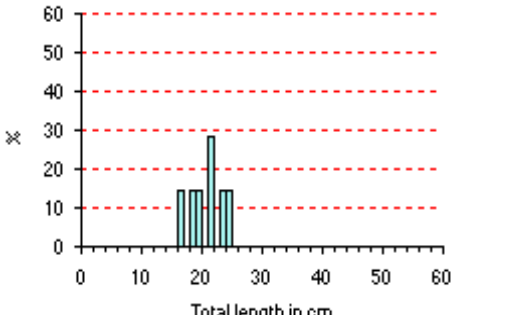
Scomberomorus tritor Gabon

Mean length = 49.61 N = 19



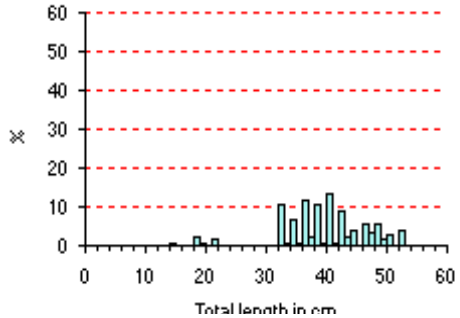
Sardinella aurita Gabon

Mean length = 17.82 N = 150



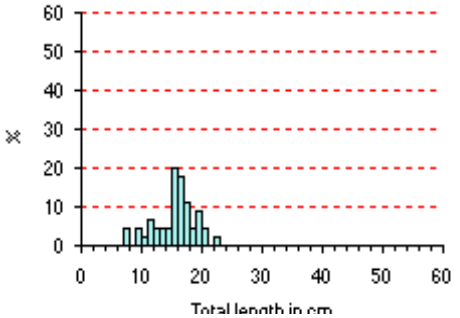
Selene dorsalis Gabon

Mean length = 20.79 N = 7



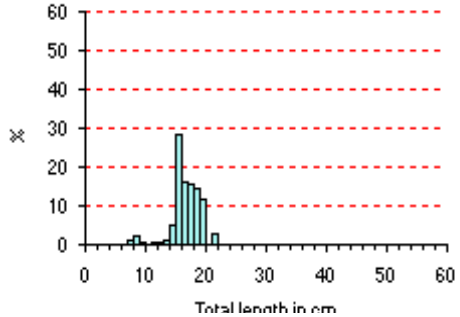
Sphyraena sphyraena Gabon

Mean length = 39.88 N = 79



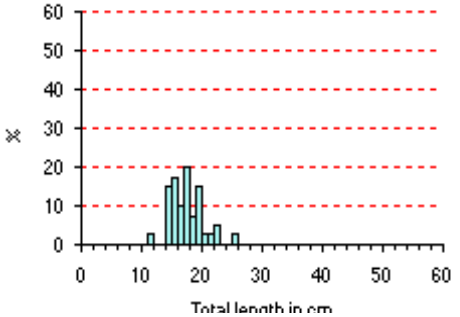
Ilisha africana Congo Brazaville

Mean length = 15.50 N = 45



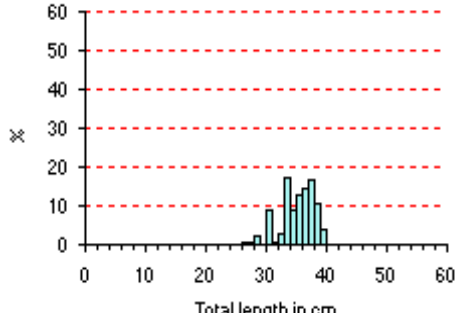
Trachurus trecae Gabon

Mean length = 16.67 N = 518



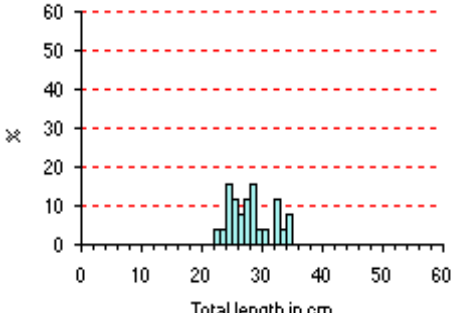
Pentanemus quinquarius Congo Brazaville

Mean length = 17.45 N = 40



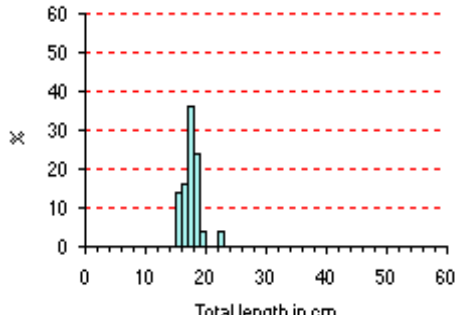
Umbrina canariensis Gabon

Mean length = 35.23 N = 98



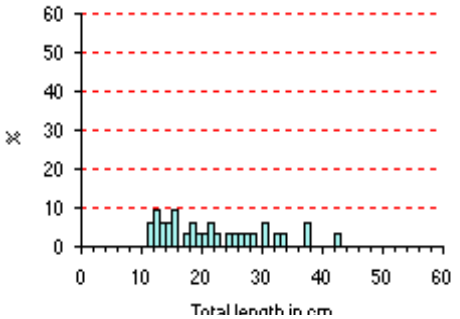
Pomadasys peroteti Congo Brazaville

Mean length = 28.08 N = 26



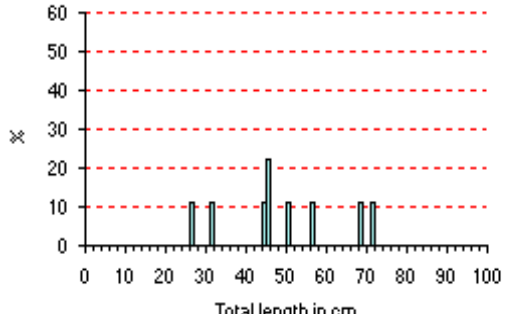
Chloroscombrus chrysurus Congo Brazaville

Mean length = 18.62 N = 50



Pseudotolithus senegalensis Congo Brazaville

Mean length = 21.88 N = 32



Pseudotolithus typus Congo Brazaville

Mean length = 48.94 N = 9

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., *Pomadasys* spp.

Croakers:
Sciaenidae

Annex IV 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)

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

where

L is the number of strata,

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

$\bar{y}_i = \dfrac{\sum_{k=1}^{n_i} y_{i,k}}{n_i}$ 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 $= \dfrac{y_{ik}}{area\,swept_{ik}}$ for biomass estimates).

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

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

where

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

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

$$B = \bar{y}_{st} \cdot total\,area \tag{4}$$

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

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

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

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

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)

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

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)

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

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

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

The variance of c_i is given by

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

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 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 var($\hat{\mu}_i$) for s_i^2 / n_i (which equals var($\bar{y}_i$)) in equation (2) and then

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

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

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

Annex V 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 optinally 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	**134**	6	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
t- value =	2							
				Stratified mean =	0.96		SE(strat-mean)=	0.45

95% Confidence limits:

Total biomass=	734	48	1420

Annex VI Instruments and fishing gear used

Echo sounder

The SIMRAD ER60/38 kHz scientific sounder was used during the survey for fish abundance estimation. The lowering keel was not submerged during the survey. The LSSS Integrator system was used to scrutinize the acoustic records. System calibration experiment using a standard copper sphere was performed 06.10.2006. The settings of 38 kHz echo sounder were as follows:

Transceiver-1 menu (38 kHz lowering keel)

Transducer depth	5.50 m
Absorbtion coeff.	8.7 dB/km
Pulse length	medium (1.02ms)
Bandwidth	wide (2.43 kHz)
Max power	4000 Watt
2-way beam angle	-20.6 dB
SV transducer gain	25.87 dB
TS transducer gain	26.50 dB
Angle sensitivity	21.9
3 dB beamwidth	6.9º alongship
	6.9º athwardship
Alongship offset	0.11º
Athwardship offset	0.03º

Display menu

Echogram	1 (38 kHz)
Bottom range	15 m
Bottom range start	10 m

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 meshsize (Figure A1). 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 m^2, 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.
Figure A1. Design of the trawl used

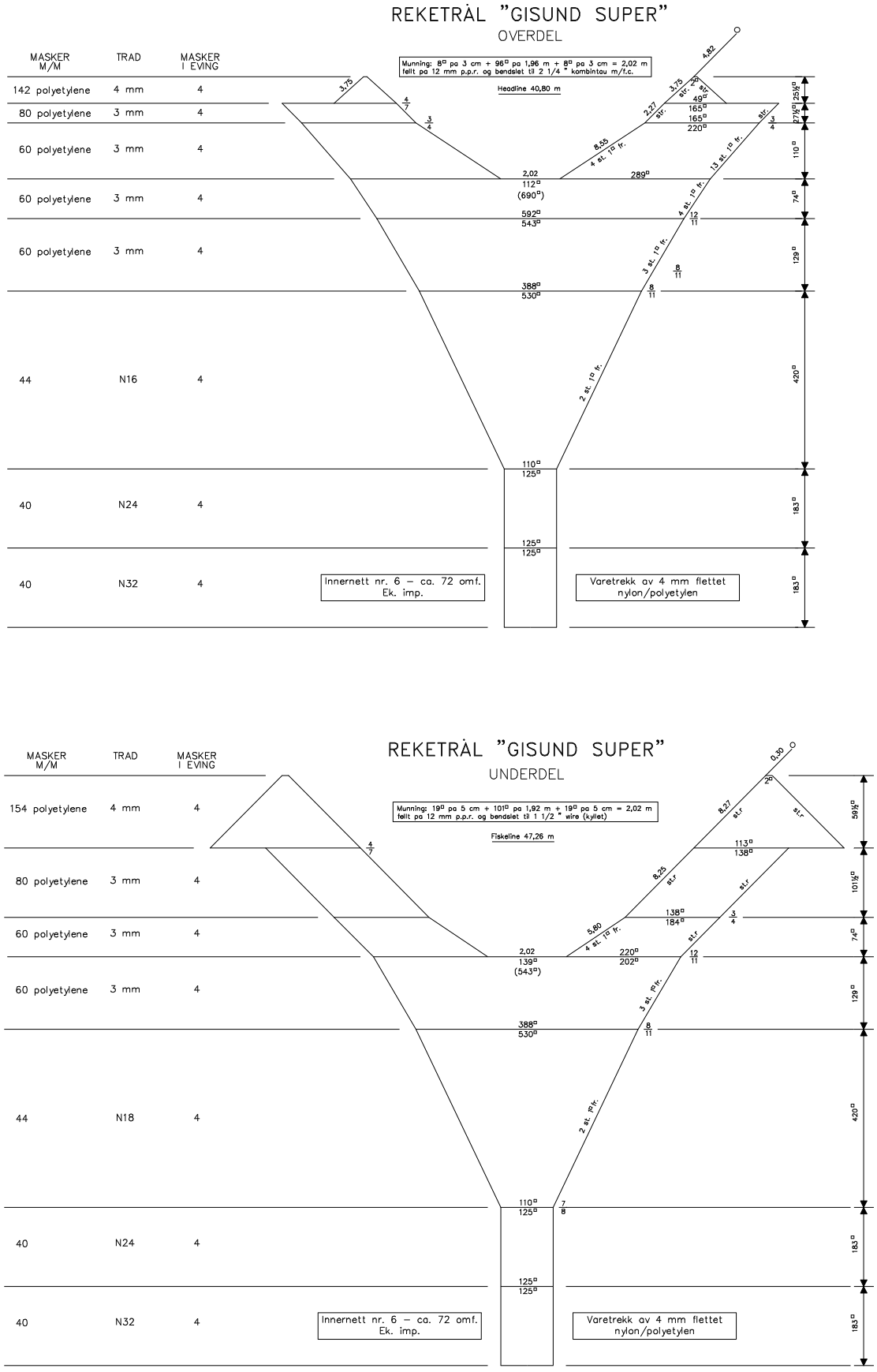


Figure A1. Design of the trawl used.

Annex VII Swept-area biomass estimates

2007405 Côte d'Ivoire

SPECIES NAME	SAMPLE DISTRIB. BY CATCH CLASSES Lower limits, Kg/nm						% incidence	Mean dens.	Mean densities by bottom depth strata t/nm²			
	>0	10	30	100	300	1000		t/nm²	0-30m	30-50m	50-100m	100-200m
Brachydeuterus auritus	2			3			83	9.21	0.20	12.52	14.90	
Chloroscombrus chrysurus	3	1	1				83	1.71	0.48	3.87	0.80	
Dentex congoensis	1		1				33	1.16	0.00		3.49	
Trichiurus lepturus	1	1	1				50	1.09	0.01	0.88	2.37	
Selene dorsalis	2	1	1				67	0.94	0.56	2.26		
Engraulis encrasicolus	1		1				33	0.69	2.08			
Pagellus bellottii	1	1					33	0.37		0.80	0.32	
Dentex angolensis	1	1					33	0.37			1.10	
Trachurus trecae	2	1					50	0.24		0.07	0.65	
Pseudupeneus prayensis	4	1					83	0.23	0.01	0.16	0.53	
Drepane africana	1	1					33	0.22	0.66			
Sardinella maderensis	4						67	0.21	0.01	0.16	0.45	
J E L L Y F I S H	3						50	0.19	0.36	0.13	0.09	
Galeoides decadactylus	4						67	0.17	0.38	0.14		
Sphyraena sphyraena	3						50	0.17	0.01	0.07	0.43	
Selar crumenophthalmus	2						33	0.15	0.02		0.44	
Umbrina canariensis	1						17	0.14		0.43		
Squatina oculata	1						17	0.12			0.35	
Elops lacerta	1						17	0.10	0.30			
Pomadasys incisus	2						33	0.09	0.01	0.26		
Alectis alexandrinus	2						33	0.07	0.05		0.16	
Syacium micrurum	2						33	0.06		0.19		
Zeus faber	1						17	0.05			0.14	
Sphyraena guachancho	1						17	0.05		0.13		
Pteroscion peli	3						50	0.03	0.07	0.03		
Lagocephalus laevigatus	2						33	0.03	0.01	0.08		
Cymbium cymbium	1						17	0.03		0.09		
Decapterus rhonchus	1						17	0.03		0.09		
Brotula barbata	1						17	0.03			0.08	
Pseudotolithus senegalensis	2						33	0.03	0.03	0.05		
Caranx crysos	2						33	0.03	0.03		0.05	
Scomber japonicus	1						17	0.02			0.06	
Decapterus punctatus	1						17	0.02			0.06	
Priacanthus arenatus	3						50	0.02		0.02	0.04	
Branchiostegus semifasciatus *	1						17	0.02			0.06	
Torpedo torpedo	1						17	0.02		0.05		
Raja miraletus	1						17	0.02	0.05			
Penaeus notialis	2						33	0.02	0.00	0.04		
Ilisha africana	2						33	0.01	0.02	0.03		
Boops boops	1						17	0.01			0.04	
Pomadasys peroteti	1						17	0.01		0.03		
Penaeus kerathurus	1						17	0.00	0.01			
Other fish								0.09	0.12	0.10	0.05	
Sum all species								18.26	5.46	22.68	26.63	
Sum SNAPPERS, JOBFISHES												
Sum GROUPERS, SEABASSES												
Sum GRUNTS, SWEETLIPS								9.32	0.24	12.81	14.90	
Sum CROAKERS, DRUMS, WEAKF., KOBS								0.20	0.10	0.51		
Sum PANDORAS, PORGIES, SEABREAMS,								1.92	0.00	0.83	4.94	
Sum SHARKS, CHIMAERAS								0.12			0.35	
Sum BATOID FISHES, RAYS								0.03	0.05	0.05		
Sum CEPHALOPODS								0.01	0.00	0.02	0.02	
Numbers of stations included in analysis, total and by depth strata								6	2	2	2	0

2007405 Ghana

SPECIES NAME	SAMPLE DISTRIB. BY CATCH CLASSES Lower limits, Kg/nm						% incidence	Mean dens.	Mean densities by bottom depth strata t/nm²			
	>0	10	30	100	300	1000		t/nm²	0-30m	30-50m	50-100m	100-200m
Chromis cadenati	1				1		7	1.84		0.00	5.01	
Brachydeuterus auritus	9	5	3	1			60	1.14	1.48	0.80	1.44	
Dentex congoensis	3	2	1	1			23	1.03			2.74	0.44
Dentex angolensis	6	1	1	1			30	0.96		0.01	2.28	1.83
Chloroscombrus chrysurus	10	2	1	1			47	0.93	2.90	0.70	0.05	
Pagellus bellottii	18	1	1	1			70	0.90	0.06	0.89	1.57	0.26
Trachurus trecae	6	4	2				40	0.82	0.00	0.01	1.40	4.61
Priacanthus arenatus	12			1			43	0.57		0.02	1.46	0.46
Boops boops	4	2	3				30	0.53		0.00	0.66	4.34
Engraulis encrasicolus	2	1	1				13	0.33	1.40			
Pseudupeneus prayensis	23	1	1				83	0.31	0.08	0.22	0.60	
Sphyraena guachancho	13	3					53	0.28	0.72	0.25	0.06	
Fistularia petimba	16	1	1				60	0.27	0.01	0.04	0.65	0.20
Decapterus punctatus	10	1	1				40	0.25	0.07	0.09	0.55	0.02
Galeoides decadactylus	6	1	1				27	0.24	0.77	0.18		
Cynoponticus ferox	1		1				7	0.21		0.63		
Dentex canariensis	10	2					40	0.20	0.56	0.02	0.19	
J E L L Y F I S H	9	2					37	0.18	0.56	0.10	0.04	
Sepia officinalis hierredda	24						80	0.18	0.04	0.09	0.35	0.13
Lutjanus goreensis		2					7	0.17	0.74			
Umbrina canariensis	5	2					23	0.15	0.03	0.00	0.34	0.30
Raja miraletus	11	2					43	0.15	0.01	0.15	0.25	0.09
Sardinella aurita	11	1					40	0.15	0.00	0.01	0.40	0.01
Lethrinus atlanticus	3	2					17	0.14	0.60	0.01		
Selene dorsalis	14						47	0.14	0.22	0.25		
Chaetodipterus goreensis	1	1					7	0.10	0.43			
Pagrus caeruleostictus	17						57	0.10	0.21	0.10	0.04	
Pomadasys jubelini	1	1					7	0.08	0.33		0.01	
Pomadasys incisus	8	1					30	0.07	0.06	0.17		
Lutjanus fulgens	6						20	0.07	0.22	0.01	0.03	
Dactylopterus volitans	7	1					27	0.06	0.00	0.01	0.17	
Caranx crysos	10						33	0.05	0.01	0.14	0.01	
Selar crumenophthalmus	9						30	0.05	0.02	0.09	0.04	
Elops lacerta	7						23	0.05	0.21			
Sphoeroides pachgaster	4						13	0.05			0.12	0.08
Lagocephalus laevigatus	10						33	0.04	0.00	0.10	0.02	
Sargocentron hastatus	2						7	0.04			0.11	
Alectis alexandrinus	11						37	0.04	0.03	0.10		
Trichiurus lepturus	8						27	0.04	0.04	0.09	0.00	
Acanthostracion quadricornis	3						10	0.04	0.15			
Pseudotolithus typus	3						10	0.04	0.08	0.05		
Sardinella maderensis	9						30	0.04	0.14	0.01		
Chaetodipterus lippei	2						7	0.03	0.14	0.00		
Alloteuthis africana	8						27	0.03		0.01	0.09	
Epinephelus aeneus	10						33	0.03	0.05	0.03	0.03	
Ariomma bondi	6						20	0.03			0.02	0.39
Penaeus notialis	4						13	0.03	0.02	0.08		
Scomber japonicus	2						7	0.03			0.03	0.31
Pteroscion peli	5						17	0.03	0.03	0.06		
Lepidotrigla carolae	5						17	0.03		0.01	0.06	0.06
Zeus faber	8						27	0.03			0.05	0.10
Drepane africana	6						20	0.03	0.11			
Balistes capriscus	8						27	0.03	0.03	0.01	0.05	
Apsilus fuscus	1						3	0.03			0.07	
Citharus linguatula	9						30	0.02		0.03	0.04	
Sphyraena sphyraena	3						10	0.02	0.07	0.01	0.01	
Scomberomorus tritor	8						27	0.02	0.04	0.04		
Pseudotolithus moorii	1						3	0.02	0.09			
Scorpaena angolensis	1						3	0.02	0.09			
Balistes punctatus	4						13	0.02	0.09	0.00		
Ephippion guttifer	3						10	0.02	0.09			
Octopus vulgaris	5						17	0.02		0.03	0.03	
Mustelus mustelus	3						10	0.02			0.05	

Dentex gibbosus	6	20	0.02		0.00	0.05	
Brotula barbata	4	13	0.02			0.02	0.13
Torpedo torpedo	5	17	0.02	0.01	0.01	0.03	
Trachinocephalus myops	7	23	0.02	0.01	0.02	0.02	
Dicologoglossa cuneata	3	10	0.01	0.01	0.03	0.01	
Fistularia tabacaria	2	7	0.01	0.01		0.03	
Cymbium cymbium	2	7	0.01	0.04	0.02		
Ilisha africana	2	7	0.01	0.06			
Dasyatis marmorata	1	3	0.01		0.04		
Caranx hippos	3	10	0.01	0.05			
Stephanolepis hispidus	4	13	0.01	0.04	0.01	0.00	
Dasyatis margarita	2	7	0.01	0.05			
Penaeus kerathurus	1	3		0.00			
Other fish			0.18	0.21	0.22	0.13	0.13
Sum all species			13.88	13.48	5.92	21.37	13.89
Sum SNAPPERS, JOBFISHES			0.26	0.96	0.01	0.09	
Sum GROUPERS, SEABASSES			0.04	0.05	0.03	0.04	
Sum GRUNTS, SWEETLIPS			1.30	1.90	0.99	1.45	
Sum CROAKERS, DRUMS, WEAKF., KOBS			0.25	0.27	0.13	0.35	0.33
Sum PANDORAS, PORGIES, SEABREAMS,			3.75	0.83	1.01	7.52	6.87
Sum SHARKS, CHIMAERAS			0.02			0.05	
Sum BATOID FISHES, RAYS			0.19	0.07	0.19	0.28	0.10
Sum CEPHALOPODS			0.25	0.04	0.13	0.50	0.16
Numbers of stations included in analysis, total and by depth strata			30	7	10	11	2

2007405 Togo

SPECIES NAME	SAMPLE DISTRIB. BY CATCH CLASSES Lower limits, Kg/nm						% incidence	Mean dens.	Mean densities by bottom depth strata t/nm²			
	>0	10	30	100	300	1000		t/nm²	0-30m	30-50m	50-100m	100-200m
Selene dorsalis			1				33	2.38		7.15		
J E L L Y F I S H	2		1				100	1.26	0.26	0.12	3.40	
Sphyraena guachancho	2	1					100	0.82	0.06	2.36	0.03	
Dentex canariensis	2	1					100	0.68	0.11	1.87	0.05	
Pagrus caeruleostictus	1	1					67	0.58		1.39	0.35	
Chloroscombrus chrysurus	3						100	0.37	0.17	0.89	0.04	
Pagellus bellottii	2						67	0.32		0.54	0.43	
Brachydeuterus auritus	2						67	0.26		0.78	0.01	
Lutjanus fulgens	1						33	0.25		0.76		
Decapterus punctatus	3						100	0.22	0.56	0.05	0.06	
Acanthurus monroviae	1						33	0.22		0.66		
Alectis alexandrinus	2						67	0.16	0.11	0.37		
Selar crumenophthalmus	1						33	0.15		0.44		
Dentex angolensis	1						33	0.14			0.41	
Lutjanus goreensis	1						33	0.12		0.36		
Fistularia petimba	2						67	0.11		0.04	0.28	
Pseudupeneus prayensis	2						67	0.08		0.16	0.07	
Scomberomorus tritor	1						33	0.08		0.23		
Pomadasys incisus	1						33	0.07		0.20		
Aluterus heudelotii	2						67	0.07	0.14	0.06		
Lagocephalus laevigatus	2						67	0.05	0.13		0.03	
Torpedo torpedo	1						33	0.05		0.15		
Squatina oculata	1						33	0.05			0.15	
Alloteuthis africana	2						67	0.04		0.01	0.12	
Caranx senegallus	2						67	0.04	0.03	0.09		
Albula vulpes	1						33	0.04		0.11		
Balistes capriscus	1						33	0.02	0.07			
Dactylopterus volitans	1						33	0.02			0.06	
Lethrinus atlanticus	1						33	0.02		0.06		
Lepidotrigla carolae	2						67	0.02		0.01	0.05	
NETTASTOMATIDAE	1						33	0.02		0.05		
Diodon holocanthus	1						33	0.02	0.05			
Octopus vulgaris	1						33	0.02			0.05	
Sepia officinalis hierredda	1						33	0.02			0.04	
Citharus linguatula	1						33	0.01		0.04		
Fistularia tabacaria	1						33	0.01	0.03			
Priacanthus arenatus	1						33	0.01			0.03	
Acanthostracion quadricornis	2						67	0.01	0.01	0.02		
Other fish								0.02	0.02	0.01	0.04	
Sum all species								8.80	1.76	18.94	5.69	
Sum SNAPPERS, JOBFISHES								0.37		1.11		
Sum GROUPERS, SEABASSES												
Sum GRUNTS, SWEETLIPS								0.33		0.98	0.01	
Sum CROAKERS, DRUMS, WEAKF., KOBS												
Sum PANDORAS, PORGIES, SEABREAMS,								1.72	0.11	3.80	1.25	
Sum SHARKS, CHIMAERAS								0.05			0.15	
Sum BATOID FISHES, RAYS								0.05		0.15		
Sum CEPHALOPODS								0.07		0.01	0.21	
Numbers of stations included in analysis, total and by depth strata								3	1	1	1	0

2007405 Benin

SPECIES NAME	SAMPLE DISTRIB. BY CATCH CLASSES Lower limits, Kg/nm						% incidence	Mean dens.	Mean densities by bottom depth strata			
	>0	10	30	100	300	1000		t/nm²	0-30m	30-50m	50-100m	100-200m
Brachydeuterus auritus	1		1				100	3.37	0.55	6.19		
Sphyraena guachancho	1		1				100	3.08	0.80	5.36		
J E L L Y F I S H	1		1				100	2.41	4.03	0.78		
Chloroscombrus chrysurus	1	1					100	1.33	0.47	2.19		
Elops lacerta		1					50	0.99	1.99			
Chlamys purpuratus	1						50	0.27	0.54			
Galeoides decadactylus	2						100	0.22	0.26	0.19		
Selene dorsalis	2						100	0.22	0.16	0.28		
Sardinella rouxi	2						100	0.21	0.02	0.39		
Caranx hippos	2						100	0.17	0.17	0.16		
Trichiurus lepturus	1						50	0.16	0.32			
Ilisha africana	1						50	0.14	0.29			
Engraulis encrasicolus	1						50	0.12	0.25			
Drepane africana	2						100	0.09	0.12	0.06		
Selar crumenophthalmus	2						100	0.09	0.05	0.13		
Caranx senegallus	1						50	0.08	0.15			
Stromateus fiatola	1						50	0.07		0.13		
Scomberomorus tritor	1						50	0.06	0.13			
Dentex canariensis	1						50	0.06	0.12			
Caranx crysos	2						100	0.04	0.07	0.01		
Chaetodipterus lippei	1						50	0.03		0.06		
Pagrus caeruleostictus	1						50	0.02	0.05			
Pteroscion peli	1						50	0.02	0.05			
Penaeus notialis	2						100	0.01	0.01	0.02		
Dactylopterus volitans	1						50	0.01	0.03			
Ephippion guttifer	1						50	0.01	0.02			
Sardinella maderensis	1						50	0.01	0.02			
Penaeus kerathurus	1						50	0.00	0.00			
Other fish								0.04	0.05	0.04		
Sum all species								13.34	10.69	15.98		
Sum SNAPPERS, JOBFISHES												
Sum GROUPERS, SEABASSES												
Sum GRUNTS, SWEETLIPS								3.37	0.55	6.19		
Sum CROAKERS, DRUMS, WEAKF., KOBS								0.03	0.06			
Sum PANDORAS, PORGIES, SEABREAMS,								0.08	0.17			
Sum SHARKS, CHIMAERAS												
Sum BATOID FISHES, RAYS												
Sum CEPHALOPODS												
Numbers of stations included in analysis, total and by depth strata								2	1	1	0	0

2007405 Principe

SPECIES NAME	SAMPLE DISTRIB. BY CATCH CLASSES Lower limits, Kg/nm						% incidence	Mean dens.	Mean densities by bottom depth strata t/nm²			
	>0	10	30	100	300	1000		t/nm²	0-30m	30-50m	50-100m	100-200m
Galeocerdo cuvier				1			17	4.57			5.48	
Pagellus bellottii	1	1	1	1			67	3.43			4.12	
Lutjanus fulgens				1			17	1.90			2.28	
Dactylopterus volitans	5		1				100	0.88		0.52	0.96	
Acanthurus monroviae			1				17	0.61			0.74	
Pagrus caeruleostictus	3	1					67	0.32		0.27	0.34	
Epinephelus aeneus		1					17	0.21			0.26	
Apsilus fuscus		1					17	0.21			0.25	
Fistularia petimba	5						83	0.15		0.44	0.09	
Decapterus macarellus	3						50	0.12		0.05	0.14	
Lethrinus atlanticus	3						50	0.11		0.31	0.07	
Sepia officinalis hierredda	6						100	0.10		0.19	0.08	
Lutjanus goreensis	1						17	0.10			0.12	
Dentex congoensis	2						33	0.07			0.09	
Acanthostracion quadricornis	2						33	0.06		0.06	0.06	
Bodianus speciosus	1						17	0.04			0.05	
Pseudupeneus prayensis	6						100	0.04		0.01	0.04	
Octopus vulgaris	1						17	0.03			0.04	
Sphoeroides marmoratus	1						17	0.03		0.19		
Selar crumenophthalmus	2						33	0.03			0.04	
Chilomycterus spinosus mauret.	4						67	0.03		0.03	0.03	
Fistularia tabacaria	2						33	0.03		0.09	0.02	
Epinephelus haifensis	1						17	0.03			0.03	
Paranthias furcifer	1						17	0.02			0.03	
Trachinus radiatus	1						17	0.02			0.02	
Torpedo marmorata	2						33	0.02			0.02	
Balistes punctatus	1						17	0.02			0.02	
Priacanthus arenatus	3						50	0.02			0.02	
Elagatis bipinnulata	1						17	0.02			0.02	
Lepidotrigla carolae	2						33	0.02			0.02	
Monolene microstoma	1						17	0.02			0.02	
Zeus faber	1						17	0.01			0.01	
Caranx crysos	2						33	0.01		0.01	0.01	
Other fish								0.06		0.09	0.05	
Sum all species								13.33		2.26	15.55	
Sum SNAPPERS, JOBFISHES								2.21			2.65	
Sum GROUPERS, SEABASSES								0.26			0.31	
Sum GRUNTS, SWEETLIPS												
Sum CROAKERS, DRUMS, WEAKF., KOBS												
Sum PANDORAS, PORGIES, SEABREAMS,								3.83		0.27	4.54	
Sum SHARKS, CHIMAERAS								4.57			5.48	
Sum BATOID FISHES, RAYS								0.02			0.03	
Sum CEPHALOPODS								0.13		0.19	0.12	
Numbers of stations included in analysis, total and by depth strata								6	0	1	5	0

2007405 São Tomé

SPECIES NAME	SAMPLE DISTRIB. BY CATCH CLASSES Lower limits, Kg/nm						% incidence	Mean dens.	Mean densities by bottom depth strata t/nm²			
	>0	10	30	100	300	1000		t/nm²	0-30m	30-50m	50-100m	100-200m
Pagellus bellottii	4	2	2				100	2.03	0.02	0.85	2.56	
Dactylopterus volitans	3	2	1				75	1.09	3.50	2.68	0.42	
Lutjanus fulgens	3	1	1				63	0.90			1.20	
Dentex canariensis	2	1	1				50	0.84		0.17	1.09	
Pagrus caeruleostictus	5		1				75	0.69		0.47	0.84	
Acanthostracion quadricornis	1		1				25	0.45	3.61		0.00	
Apsilus fuscus	1	1					25	0.36			0.48	
Galeoides decadactylus	3	1					50	0.25			0.33	
Balistes capriscus	2	1					38	0.19	0.12	1.33	0.01	
Epinephelus aeneus	4						50	0.16			0.22	
Pomadasys jubelini	3						38	0.15			0.20	
Sepia officinalis hierredda	6						75	0.13		0.01	0.17	
Paranthias furcifer		1					13	0.13			0.17	
Decapterus macarellus	3						38	0.10		0.09	0.12	
Alloteuthis africana	5						63	0.10		0.02	0.12	
Pseudupeneus prayensis	3						38	0.09			0.12	
Selene dorsalis	4						50	0.06			0.08	
Fistularia petimba	3						38	0.05		0.01	0.06	
Brotula barbata	2						25	0.04			0.05	
Monolene microstoma	4						50	0.03			0.05	
Torpedo torpedo	5						63	0.03			0.04	
Paragaleus pectoralis	1						13	0.03			0.04	
Priacanthus arenatus	1						13	0.02			0.03	
Decapterus punctatus	3						38	0.02			0.03	
Diodon maculatus	1						13	0.02			0.03	
Syacium micrurum	1						13	0.02			0.03	
Zeus faber	1						13	0.02			0.03	
Pomadasys incisus	2						25	0.02			0.03	
Aluterus heudelotii	3						38	0.02			0.02	
Sphyraena guachancho	2						25	0.01			0.02	
Dentex congoensis	3						38	0.01		0.01	0.02	
Bodianus speciosus	1						13	0.01			0.01	
Selar crumenophthalmus	2						25	0.01			0.01	
Citharus linguatula	5						63	0.01		0.00	0.01	
Penaeus notialis	1						13				0.00	
Other fish								0.08	0.09	0.04	0.09	
Sum all species								8.16	7.33	5.69	8.71	
Sum SNAPPERS, JOBFISHES								1.26			1.68	
Sum GROUPERS, SEABASSES								0.29			0.39	
Sum GRUNTS, SWEETLIPS								0.17			0.23	
Sum CROAKERS, DRUMS, WEAKF., KOBS								0.00			0.00	
Sum PANDORAS, PORGIES, SEABREAMS,								3.57	0.02	1.50	4.51	
Sum SHARKS, CHIMAERAS								0.03			0.04	
Sum BATOID FISHES, RAYS								0.04			0.05	
Sum CEPHALOPODS								0.23		0.03	0.30	
Numbers of stations included in analysis, total and by depth strata								8	1	1	6	0

2007405 Gabon

SPECIES NAME	SAMPLE DISTRIB. BY CATCH CLASSES Lower limits, Kg/nm						% incidence	Mean dens.	Mean densities by bottom depth strata t/nm²			
	>0	10	30	100	300	1000		t/nm²	0-30m	30-50m	50-100m	100-200m
Umbrina canariensis	20	2			1		42	1.35	0.02	0.09	4.02	0.27
Pagellus bellottii	30	3	1	1			64	0.82	0.08	0.29	2.38	0.06
Dentex congoensis	14	5	3	1			42	0.75		0.04	0.30	2.10
Trachurus trecae	13	1	1	2			31	0.67	0.00	0.06	1.77	0.35
Chloroscombrus chrysurus	7	1	3	1			22	0.67	3.04	0.00		
Antigonia capros	4	1	2	1			15	0.60				1.94
Trichiurus lepturus	22	7					53	0.37	0.20	0.25	0.65	0.27
Brachydeuterus auritus	19	3	1				42	0.27	0.30	0.72	0.29	
Spicara alta	8		2				18	0.23				0.74
Ariomma bondi	12	1	1				25	0.21			0.41	0.28
Ilisha africana	8	2	1				20	0.20	0.91	0.01		
Dentex angolensis	16	3					35	0.20	0.02	0.12	0.08	0.48
Sepia officinalis hierredda	33	2	1				65	0.19	0.03	0.03	0.39	0.18
Decapterus rhonchus	19	1	1				38	0.18	0.16	0.06	0.40	0.02
Sphyraena sphyraena	13	3	1				31	0.16	0.68	0.09		0.00
Aulopus cadenati	3	2	1				11	0.13				0.43
Pomadasys incisus	12	2					25	0.12	0.03	0.38	0.18	
Rhinobatos albomaculatus	10		1				20	0.12		0.05	0.30	0.07
Pseudotolithus senegalensis	9	2					20	0.11	0.13	0.39	0.07	
Boops boops	10	1	1				22	0.11			0.10	0.24
Raja miraletus	29	1					55	0.10	0.01	0.15	0.10	0.14
Epinephelus aeneus	11	1					22	0.10	0.00	0.10	0.13	0.13
Selene dorsalis	14		1				27	0.09	0.39	0.04	0.00	
Galeoides decadactylus	16						29	0.09	0.35	0.09	0.00	
Mustelus mustelus	12	1					24	0.09		0.03	0.21	0.07
Sardinella aurita	7		1				15	0.09			0.28	0.01
Pteroscion peli	8	2					18	0.07	0.05	0.15	0.10	0.02
Pomadasys peroteti	9	1					18	0.07	0.14	0.25		
Lutjanus fulgens	4	2					11	0.07	0.09	0.00	0.16	
Lepidotrigla cadmani	14						25	0.06		0.04	0.12	0.07
Squatina oculata	8	1					16	0.05			0.02	0.15
Scorpaena scrofa	8	1					16	0.05		0.01	0.11	0.06
Stromateus fiatola	8						15	0.05	0.06	0.15	0.05	
Dentex canariensis	6	1					13	0.05		0.15	0.07	0.01
Octopus vulgaris		1					2	0.05			0.16	
Dentex gibbosus	1	1					4	0.05	0.04		0.13	
Brotula barbata	6						11	0.05				0.15
Lepidotrigla carolae	3	1					7	0.05			0.04	0.11
Illex coindetii	19						35	0.04			0.04	0.11
Merluccius polli	3						5	0.04				0.14
Fistularia petimba	23						42	0.04	0.00	0.01	0.09	0.04
Dactylopterus volitans	13	1					25	0.04	0.01	0.01	0.11	0.00
Scomber japonicus	1	1					4	0.04			0.12	0.00
Sphyraena guachancho	5	1					11	0.04	0.14	0.01	0.01	
Dentex barnardi	8						15	0.03		0.06	0.07	0.01
Priacanthus arenatus	16						29	0.03		0.01	0.04	0.06
Arius parkii	8						15	0.03	0.04	0.14		
Pseudotolithus typus	2	1					5	0.03	0.14			
Lutjanus agennes		1					2	0.03	0.12			
Penaeus notialis	12						22	0.03	0.04	0.07	0.02	
Sardinella maderensis	12						22	0.03	0.10	0.03	0.00	
Pseudupeneus prayensis	23						42	0.03	0.02	0.01	0.06	0.00
Torpedo torpedo	18						33	0.02	0.00	0.03	0.03	0.03
Chromis cadenati	3						5	0.02		0.01	0.07	
Chaetodipterus goreensis	4						7	0.02	0.08	0.01	0.00	
Syacium micrurum	19						35	0.02	0.00	0.03	0.03	0.01
Peristedion cataphractum	12						22	0.02			0.01	0.05
Uranoscopus cadenati	11						20	0.02		0.01	0.01	0.05
Chelidonichthys gabonensis	11						20	0.02		0.03	0.01	0.03
Ephippion guttifer	7						13	0.02	0.06	0.02		
Alloteuthis africana	10						18	0.02		0.02	0.04	
Scomberomorus tritor	10						18	0.02	0.05	0.02	0.01	
Apogon sp.	2						4	0.02				0.05

Lutjanus goreensis	3	5	0.02	0.05	0.01	0.00	
Hypoclydonia bella *	4	7	0.01				0.05
Apsilus fuscus	3	5	0.01	0.01		0.04	
Portunus validus	4	7	0.01	0.06			
Pomadasys jubelini	1	2	0.01			0.04	
Seriola dumerili	3	5	0.01	0.04	0.01	0.01	
Trigla lyra	5	9	0.01				0.04
Rhizoprionodon acutus	3	5	0.01	0.06			
Panulirus regius	3	5	0.01	0.04	0.02		
Zeus faber	8	15	0.01			0.02	0.02
Synagrops microlepis	3	5	0.01				0.04
Pagrus caeruleostictus	4	7	0.01	0.03	0.03		
TORPEDINIDAE	4	7	0.01	0.04		0.00	0.00
Saurida brasiliensis	5	9	0.01			0.01	0.03
Trachinus armatus	7	13	0.01		0.02	0.02	
Parapenaeus longirostris	3	5	0.01	0.01			0.01
Parapenaeopsis atlantica	2	4	0.01	0.03			
Solenocera africana	1	2	0.00				0.00
Penaeus kerathurus	4	7		0.00	0.00		
Penaeus sp.	1	2					
Other fish			0.27	0.32	0.33	0.16	0.32
Sum all species			9.82	8.21	4.67	14.10	9.40
Sum SNAPPERS, JOBFISHES			0.12	0.28	0.02	0.20	
Sum GROUPERS, SEABASSES			0.10	0.00	0.11	0.13	0.13
Sum GRUNTS, SWEETLIPS			0.48	0.48	1.35	0.51	
Sum CROAKERS, DRUMS, WEAKF., KOBS			1.57	0.35	0.64	4.19	0.29
Sum PANDORAS, PORGIES, SEABREAMS,			2.02	0.18	0.69	3.15	2.90
Sum SHARKS, CHIMAERAS			0.18	0.09	0.03	0.23	0.26
Sum BATOID FISHES, RAYS			0.28	0.06	0.28	0.44	0.27
Sum CEPHALOPODS			0.30	0.04	0.06	0.63	0.29
Numbers of stations included in analysis, total and by depth strata			55	12	9	17	17

2007405 Congo

SPECIES NAME	SAMPLE DISTRIB. BY CATCH CLASSES Lower limits, Kg/nm						% incidence	Mean dens.	Mean densities by bottom depth strata t/nm²			
	>0	10	30	100	300	1000		t/nm²	0-30m	30-50m	50-100m	100-200m
Chloroscombrus chrysurus			1				33	1.32	3.97			
Pteroscion peli	2		1				100	1.22	0.30	3.34	0.02	
Ilisha africana	1	1					67	0.65	1.90	0.04		
Trichiurus lepturus	2	1					100	0.56	0.43	1.08	0.15	
Brachydeuterus auritus	3						100	0.53	0.87	0.58	0.15	
Pseudotolithus senegalensis	1	1					67	0.44	1.24	0.09		
Brotula barbata		1					33	0.44			1.31	
Pseudotolithus typus		1					33	0.43	1.29			
Pomadasys peroteti		1					33	0.35	1.04			
Chelidonichthys capensis	1						33	0.25			0.73	
Raja miraletus	3						100	0.24	0.17	0.39	0.17	
Dentex angolensis	1						33	0.24			0.71	
Paraconger notialis	1						33	0.21			0.62	
Arius parkii	2						67	0.21	0.60	0.03		
Penaeus notialis	1						33	0.14		0.42		
Uranoscopus cadenati	1						33	0.13			0.40	
Pentanemus quinquarius	1						33	0.12	0.36			
Pomadasys incisus	2						67	0.10		0.29	0.01	
Sphyraena sphyraena	1						33	0.10	0.30			
Pagellus bellottii	1						33	0.10			0.29	
Rhizoprionodon acutus	1						33	0.09	0.28			
Galeoides decadactylus	1						33	0.07	0.20			
Syacium micrurum	1						33	0.06			0.18	
Dasyatis marmorata	1						33	0.05		0.15		
Octopus vulgaris	1						33	0.05			0.14	
Portunus validus	1						33	0.05	0.14			
Trachurus trecae	1						33	0.05			0.14	
Panulirus regius	2						67	0.05	0.10	0.04		
Stromateus fiatola	1						33	0.04	0.12			
Selene dorsalis	1						33	0.04	0.11			
NETTASTOMATIDAE	1						33	0.04			0.11	
Sepia officinalis hierredda	1						33	0.04			0.11	
Scorpaena normani	1						33	0.03			0.10	
Parapenaeopsis atlantica	1						33	0.03	0.09			
Decapterus rhonchus	1						33	0.03		0.08		
Scomberomorus tritor	1						33	0.03	0.07			
Parapenaeus longirostris	1						33	0.02			0.07	
Cynoponticus ferox	1						33	0.02	0.06			
Cynoglossus canariensis	1						33	0.02		0.05		
Saurida brasiliensis	1						33	0.02			0.05	
Priacanthus arenatus	1						33	0.02			0.05	
Dasyatis margarita	1						33	0.02			0.05	
Cynoglossus browni	1						33	0.02	0.05			
Zeus faber	1						33	0.02			0.04	
Other fish								0.03	0.05	0.00	0.04	
Sum all species								8.65	13.73	6.58	5.63	
Sum SNAPPERS, JOBFISHES												
Sum GROUPERS, SEABASSES								0.01			0.02	
Sum GRUNTS, SWEETLIPS								0.98	1.91	0.87	0.16	
Sum CROAKERS, DRUMS, WEAKF., KOBS								2.09	2.83	3.43	0.02	
Sum PANDORAS, PORGIES, SEABREAMS,								0.33			1.00	
Sum SHARKS, CHIMAERAS								0.09	0.28			
Sum BATOID FISHES, RAYS								0.31	0.17	0.54	0.22	
Sum CEPHALOPODS								0.09			0.26	
Numbers of stations included in analysis, total and by depth strata								3	1	1	1	0